GEORGE *R.*

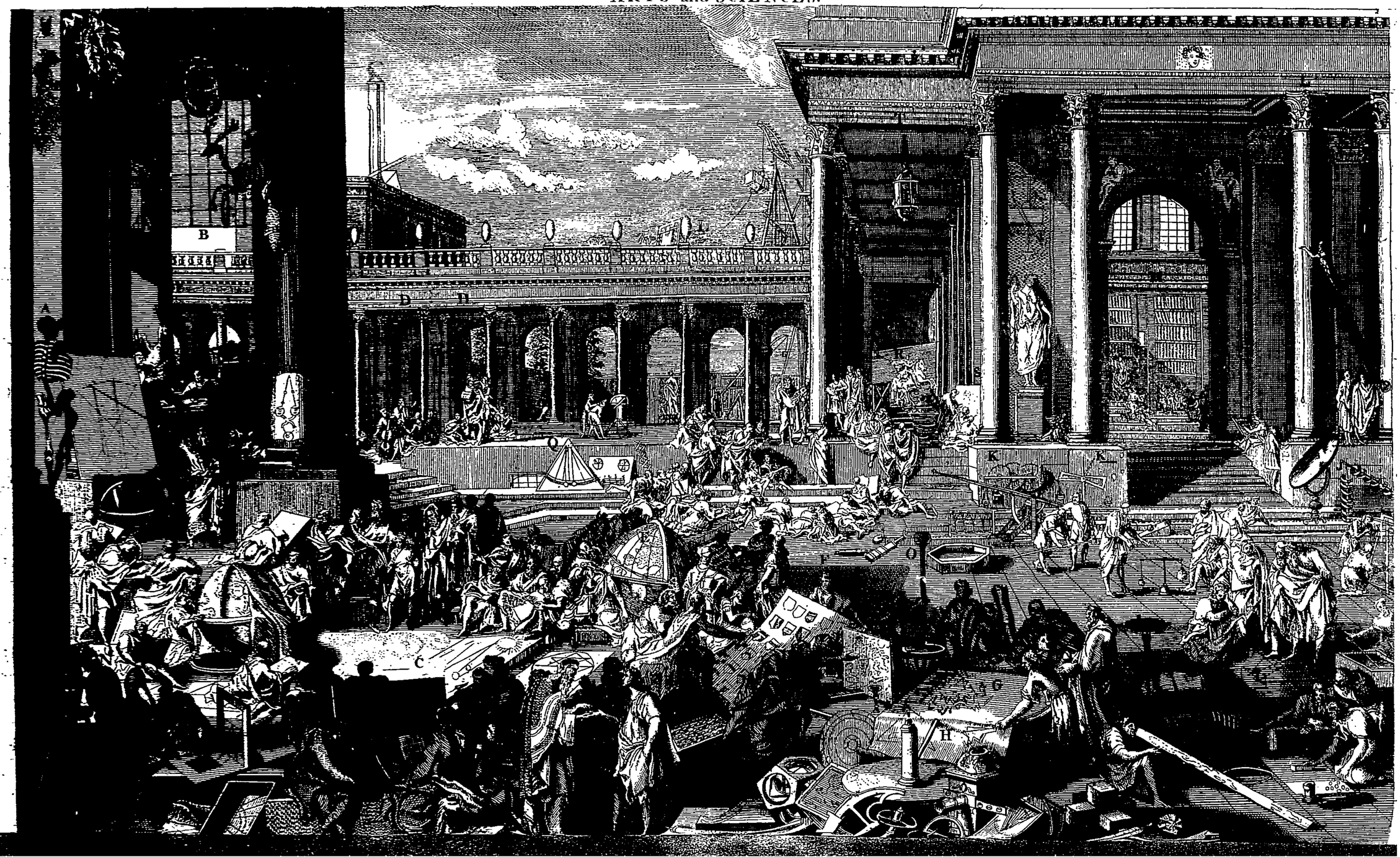
GEORGE the Second, by the Grace of God, King of *Great-Britain*, *France*, and *Ireland*, Defender of the Faith, *&c. To all to whom these Presents shall come, Greeting.* Whereas DENNIS COETLOGON, Gentleman, has by his Petition humbly represented unto Us, that he hath with great Labour and Expence compiled from the best Authors, both antient and modern,

An UNIVERSAL HISTORY *of* ARTS *and* SCIENCES;

Containing all Sciences, either divine or human, and all the Arts, either liberal or mechanical, in a more concise and clear Method than heretofore used in any other Work of the Kind; the whole adapted to the meanest Capacity, alphabetically digested, and illustrated with Astronomical and other curious Tables and Prints, which the Petitioner, with the utmost Submission, apprehends may be of the greatest Service to the Publick, as it will be reducing each Art and Science to a regular System, at an easy Rate to the Purchaser, and thereby much encourage every Branch of Learning or Mechanicks; and as the said Work is near finished, and when compleated will cost him upwards of one Thousand Pounds: He therefore being desirous to reap the Fruit of his Labour, and enjoy the full Profits and Benefits that may arise from printing, publishing, and vending the same, without any other Person interfering in his just Property, which he cannot prevent without applying to Us, for Our Royal Licence and Protection: The Petitioner has therefore humbly pray'd Us to grant him Our Royal Licence and Protection, for the sole Printing, Publishing, and Vending the said Work in as ample Manner and Form as hath been done in Cases of the like Nature. We being willing to give all due Encouragement to such a useful Work, are graciously pleased to condescend to his Request; and do therefore by these Presents, so far as may be agreeable to the Statute in that Behalf made and provided, grant unto the said *Dennis Coetlogon*, his Executors, Administrators, and Assigns, Our Royal Privilege and Licence for the sole Printing, Publishing, and Vending the said Work, for and during the Term of fourteen Years, to be computed from the Date hereof, strictly forbidding and prohibiting all Our Subjects within our Kingdoms and Dominions, to reprint or abridge the same, either in the like, or in any other Volume or Volumes whatsoever, or to import, buy, vend, utter, or distribute any Copies thereof, reprinted beyond the Seas, during the aforesaid Term of fourteen Years, without the Consent and Approbation of the said *Dennis Coetlogon*, his Heirs, Executors, Administrators and Assigns, under their Hands and Seals first had and obtained, as they and every of them offending therein, will answer the contrary at their Peril: Whereof the Commissioners and other Officers of our Customs, the Master, Wardens, and Company of Stationers of Our City of *London*, and all other our Officers and Ministers, whom it may concern, are to take Notice, that due Obedience be given to Our Pleasure herein signified. Given at Our Court at St. *James*'s the Thirteenth Day of *March*, 1740-1, in the Fourteenth Year of Our Reign.

By His Majesty's Command,

HARRINGTON.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Universal HISTORY

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ARTS and SCIENCES:

Or, A comprehensive

Illustration, Definition, and Description

O F

All SCIENCES, Divine and Human;

AND OF

All ARTS, Liberal and Mechanical.

The Origin and Progresses of all RELIGIONS, SECTS, HERESIES and SCHISMS:

The Description of all COUNTRIES; their Government, Ecclesiastical, Civil and Military; their different Climates, Soils, Products, and the Manners of the Inhabitants:

The different Systems of PHILOSOPHERS, curious and accurate Observations of ASTRONOMERS, both Antient and Modern:

The History of all ORDERS, Religious and Military:

WITH

Curious and entirely new Treatises on the Duties of Embassadors and Plenipotentiaries, the Education of Princes and their Subjects, and the Manner of travelling into Foreign Parts.

The Whole extracted from

The best AUTHORS in all Languages, and enriched with the new Systems, Hypotheses, Maxims, and Reflections of the AUTHOR.

By the Chevalier DENNIS DE COETLOGON, *Knt. of* St. Lazare, M. D.

AND

MEMBER of the Royal Academy of *Angers*.

VOLUME the First.

LONDON:

Printed and Sold by JOHN HART, in *Popping's-Court, Fleet-street.*

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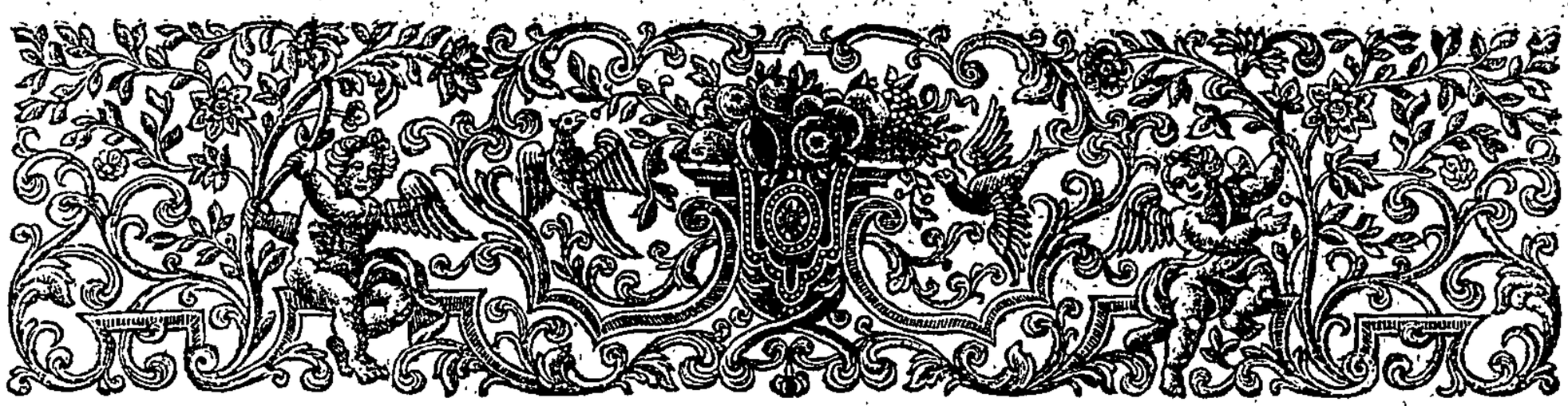

TO THE
HIGH AND MIGHTY LORD
Charles Augustus Fouquet de Belleisle,
DUKE of GISORS,

Marshal of FRANCE, Commander of the King's Orders; Knight of the Golden Fleece, Prince of the Holy *Roman* Empire, Governor of *Metz* and the *Messin* Country, and General of his Majesty's Armies.

MY LORD,

THE Arts and Sciences have had the Complaisance to put an *English* Pen in the Hand of a *Frenchman*, to render him capable to express his Gratitude to a noble, generous, and brave Nation, with whom he has lived so long, for their Hospitality, in Communicating to them Part of the Advantages of his Education, having nothing else worthy their Acceptance.

With the same Hand, MY LORD, I take the Liberty to present the same Arts and Sciences to your GRACE; persuaded that they are so familiar to you, that you'll know them in any Shape, and whatever Language they speak.

DEDICATION.

Your rare Merit, to which alone you owe all you are, though you are all that the moſt ambitious Subject, who has no Pretenſions to the Throne, can wiſh to be, aſſures them of a powerful Protection, which they could expect to find no where but near extraordinary Men like you, whom all *Europe* knows to be a *Mæcenas*, or a *Colbert*, in the Cabinet; and a *Turenne*, or *Luxembourg*, at the Head of an Army.

Can I hope, MY LORD, that you'll grant the ſame Protection to him, who has the Honour to preſent them to your Grace; and is with the moſt profound Reſpect,

MY LORD,

Your Grace's

Moſt humble, and

Moſt obedient Servant,

DE COETLOGON.

THE

PREFACE.

EARNING, and the Learned, have been so long in a languishing State in Europe, *and Ignorance, Stupidity, and Ribaldry so much encouraged, that it was not without Reluctancy I determined myself to search the* Arts *and* Sciences *in those dark Retreats, where the Death of* Lewis XIV. *the late King of* France, *their generous Patron, had confined them, and to invite them to make once more their Appearance, tho' in Rags, and cover'd with Dust, in a Country where they have also flourished by Intervals. The Attempt, I confess, was bold, and could not miss being attended with very great Difficulties and Inconveniencies, as well on the Part of the World, as on that of the Sciences; for I was not sure that the World would not be shocked at the Appearance of Things, wherewith they were so little acquainted; and that my Invitation could be agreeable to the Sciences, and they would accept of my Hand to usher them out of their Solitude, in a Country, where my Quality of a* Frenchman, *might make them be look'd upon with Jealousy or Scorn.*

However, the great Familiarity I had contracted from my Infancy, with the Arts *and* Sciences, *and my enterprising Genius, which has led me often thro' the most thorny Paces, have surmounted all those Difficulties, and encouraged me to expose myself to all the Dangers such an Enterprize could be attended with; thro' Consciousness, that if I was obliged to encounter with national Prejudices, as I have really done, I could oppose to it Impartiality, Generosity, Humanity, Hospitality, Gratitude, and all the other Virtues which distinguish the most sensible Part of the* English *Nation from the rest; and if with Stupidity and Ignorance, I had for a Shelter* Minerva's Ægid; *as for Avarice, it is so contemptible an Enemy, that I have always despised it.*

Those are not the sole Enemies I have had to struggle with in the Prosecution of this Work; for in the very Beginning I was assailed by a strong and formidable Party, who employed all their Craft and low Cunning to prevent my publishing it; Secret Intrigues, Petitions, Calumnies, and all other scandalous Means of that Kind were used to that Purpose, and myself left alone, under national Prejudices, to defeat them; in which I dare flatter myself I have well enough succeeded. Too happy, if I could say the same of those, whom Humanity and Gratitude should have engaged to stand my Friends, and ease me of Part of my Burden, which every impartial, noble, and generous Mind must think has been a very heavy one, by encouraging me as much as it was in their Power, and helping me to bear it with Alacrity; especially when they were conscious, that notwithstanding my repeated Invitations, no Body was so kind to lend me a helping Hand, having been obliged to carry on the Work alone, and even write every Line of it with my own Hand, the Index itself not excepted.

In this Work is contain'd the Contents of some hundred Volumes, besides what is my own, which makes above Two-thirds of it; for, I thought, that to give only to the Publick what other Authors have said, would be but a tedious Repetition, if not season'd with something new, to sharpen the Curiosity of the Reader; and that I had as much Right as my Predecessors, to invent new Systems, founded like theirs on Experiments and Reason; so that I can justly claim the Title of the Author, *not of the* Compiler *of this Work; having borrowed from others, with no other View, than either to shew the Difference betweeen their Systems or Sentiments, and mine; or to refute theirs, when contrary to mine; which every Body that reads my Work must be convinced of; and that my Proofs, both to support my Systems, or corroborate my Refutations, are agreeable to Reason, and to the just Principles of the* Art *or* Science *I treat of.*

In other Works which bears the Title of Universality, *without the Character, it is easy to distinguish the Difference of Hands by the Difference of the Style; but in this, as no other Hand has been employ'd but mine, it is the same Style throughout; which will be a good Caution to the Publick, if ever it falls a Sacrifice to the Stupidity and Ignorance of those, who, in Defiance of all Laws and Equity, lay violent Hands on an Author's Works, to disfigure them, and retail them at a cheap Rate.*

Corneille, *a* French *Author, was the first who wrote on all the* Arts *and* Sciences, *in general; but his Work was but a Dictionary, which gives only a slight Idea of each* Art *and* Science, *of no other Use than to excite our Curiosity, and make it wish for more; tho' it was translated lately into* English, *with some Additions from other Authors, who have wrote since* Corneille; *and swelled with an infinite Number of false and inaccurate References, most of the Additions themselves very injudiciously adapted to the Subject, some of them too long for a Dictionary, and others too short; and the whole Work a monstrous* Dedalus, *which shews evidently a Want of Capacity in the Compilers. Those gross Mistakes, which nothing but a national Prevention, can hinder the Reader from being sensible of, have engaged me to write with Caution to avoid them; and as this Work is of another Nature,*

of

of a much greater Utility, and the only one of its Kind in any Language, I have endeavour'd to render every Treatise as compleat as possible, avoiding above all Things needless Repetitions, and never puzzling the Reader with the least Reference; bringing under every Subject all that can be adapted to it; and if I have made a few Treatises longer than some may approve of, it was to oblige the most judicious of my Subscribers, who preferred their Instruction more than the small Sum they might have expected it would have cost them at first; a few others, who in all Appearance knew but little of the Book they were to be Masters of, were continually complaining, that it was carried to a too great Length, without considering that some Authors have filled several Volumes in Folio, *with what I have confined within the narrow Limits of a single Treatise. I must confess, that those ungenerous Complaints had been capable either to make me neglect the Work, or dispatch it in a slight Manner, if a serious Reflection that I did not write only for an Age where Learning and the Learned are so little encouraged, and that a judicious Posterity would condemn me, for not having executed what I promised, had not come to the Succour of my Constancy, already much shaken by those unkind Clamours.*

I thought I could not begin my Work better than by an historical Account of the several Academies which flourished in Europe, *while Luxury and Avarice had not yet debauched the Principles, and depraved the Taste of those, who are obliged in Honour to be their Protector, and who prefer at present a Minuet, or a Rigadoon, to a Problem of Geometry; and the unnatural Voice of an* Italian *Eunuch, to a Lesson of Philosophy or History; since it was in some of those Schools I have learned what I endeavour to teach others.*

In this Work, my Theology, which is divided into several Treatises, the usual Method of the School, and which I promised to follow, contains nothing but what's very orthodox, and agreeable to the Faith of the Primitive Christian Church. All the Questions are fairly stated, the most abstruse Difficulties clearly elucidated; the Propositions strongly supported by the Authority of the Scripture, Œcumenical Councils, antient Fathers, and by Reason; and the Objections refuted, without Partiality, false and religious Prejudices, Animosity or Invectives. I prove the Necessity of Baptism, agreeable to the Doctrine of the Roman *and* English *Church; and treat with Caution, such as becomes a Person who writes in a* Protestant *Country, that important Point of Controversy the Eucharist; relating without Diminution, or Addition, what the most eminent Theologians of all Ages, from Christianity's Infancy, to our present Time, have wrote of that august Mystery, in their own Words and Language.*

I prove the Existence of a supreme Being against the Atheists; the Incarnation of the Word against the Jews, *and the* Christian *Sects, who have erred on that important Event, which has procured an indissoluble Reconciliation between God and Men, and open'd to us the Gates of Heaven.*

In these, and all my other Treatises of Theology, especially those contained in the first Volume, I have quoted the Passages whereby I expect to support my Propositions, such as I have extracted them from the Councils, and antient Fathers, that the Reader may not suspect that he is imposed upon by a false Translation, or spurious, or maimed Quotation, but then I take Care either to translate them Word for Word, or give the Sense thereof before, or immediately after. All those Treatises, the Passages of the Scripture, and Quotations from the Councils and Fathers excepted, are mine; as well as those of the Church and Clergy; my Reflections are general, and if I have took Notice of some Abuses, which I thought they could reform, especially as to the Publication of obscene Books, I imagined then it could be done easily; but since I have been informed otherwise, I submit my Judgment to those who are better acquainted with those Affairs. There are no Clergy, let it be said without Flattery, I respect more than that of the Church of England; *since I am convinced that for the Generality there are none, whose Conduct is more agreeable to their Profession, and none less addicted to Calumnies, Invectives, and other Imperfections the* Tribe of Levi *is accused of.*

My Chronology, which I flatter myself is as compleat as can be, enriched with a great many rare and curious Events, without Romances or spurious Facts; free from Partiality and national Prejudices, makes Part of my History, which I promised should be both sacred and profane. The History of the New Testament, Judaism, Jansenism, Arianism, Eutychianism, Heresies, Lutheranism, Calvinism, *the* Councils, *&c. compleat the sacred; and* Mahometanism, *the* History of the Pagan Feasts, *and* Games, *the profane. The whole is as impartial as can be; and I have taken a great deal of Care to advance no Facts, which could not be supported by good Authorities, and approved by the best Authors of all Parties, whom I have quoted faithfully; mentioning, without the least Disguise, the good and bad Qualities of those, who, in the different Ages of the Church, have disturbed, by their new Dogma's, her Peace and Tranquility; the Measures she has taken to suppress them, and the great Difficulties she has found in the Enterprise; the Princes who have favoured them most, and the Progresses they have made.*

To render my Philosophy more intelligible, and not dwell too long on the same Subject, I have divided it into three different Branches, viz. Ethicks, Logick, *and* Metaphysicks, *and brought each Branch under its proper Letter; subdividing the fourth,* Physick, *into several others,* viz. Anatomy, Botany, Geography, Geometry, Hydraulicks, Hydrostaticks, Astronomy, Mechanicks, Elements, Metals, Minerals, Meteorology, *&c. making of each Subject a whole Treatise by itself, and each Treatise as compleat as my Knowledge of those Sciences would allow, which I hope do not fall short of those written by the most modern Authors; following the Example they have left me of forming new Systems, or Hypotheses; and neglecting nothing that can render them instructive and entertaining.*

The Military Art, which is a very prolix and useful Subject, especially at this Conjuncture, I have likewise divided into several Treatises, and brought it under the three different Heads of Army, Fortification, *and* Gunnery; *in that of* Army *I commission Officers, list Soldiers, form Companies, Battalions, Squadrons, and Regiments, assemble Armies, range them in Order of Battle, march, cross Rivers, pass Defiles, escort Convoys, encamp, and do all the other Duties of a General, and of a Soldier.*

In Fortification I fortify Places, according to their different Situation, give an accurate Description of every Part thereof, form and carry on Sieges, &c. *in which I observe scrupulously all the Rules of that Art prescribed to me by* Vauban, Cohorn, Count Pagan, Blondel, *and other modern Engineers.*

In Gunnery I make Gun-Powder of different Goodness; cast Cannons, and Mortars, caliber them, mount them on their Carriages, supply them with Bombs and Bullets, proportioned to their Caliber, mark their respective Randoms, make an accurate Difference between Pieces of Ordnance of an old and new Invention, give their several Names, and an exact Description of the other Implements of War.

Architecture, Musick, Painting, Sculpture, *and the rest of the liberal Arts, make each a compleat Treatise by itself; that of* Architecture, *illustrated with the best Rules of* Vitruvius, Palladio, Vignola, Scammozi, *and other most eminent Architects. Musick, with all the Systems, antient and modern, all the best Rules of that divine Art, the different Sorts of Instruments, their Description, and the Manner they are played upon. Painting, with the Lives of the most famous Painters of all the Schools, and with judicious Remarks on their Works.*

My Maxims of Politicks, in Government, the Duties of Ambassadors, and of Plenipotentiaries, and the Education of Princes, are new, and entirely mine.

In the Character of the different Nations of the World, which I give in my Geography, I have been more favourable than could be reasonably expected, since I have passed all their bad Qualities, mentioned by the several Geographers I have consulted, over in Silence; and mentioned none but the good, lest I should disoblige some of them.

At

At the Request of several Subscribers, I have been prolix on Commerce; treated of Navigation in a concise and clear Manner, and neglected nothing of what could be said of Naval Architecture.

My Rules of Blazon, in Heraldry, the historical Account I give of the different Degrees of the Nobility, in my Treatise under that Title, and that of all the Military Orders, with an accurate Chronology of the Grand Masters and Knights, of the most celebrated in Christendom, *must flatter the Curiosity of Noblemen and Gentlemen.*

I have not neglected the mechanical Arts, since I have treated the most useful, and the most in Vogue, with the same Accuracy I have done the liberal; in a Word, I have omitted nothing which I thought could be instructive, useful, and agreeable.

I hope that in the Course of this Work, I have disobliged no Sect; for though we differ in our Belief, I notwithstanding respect their Morals; since I have found as many honest Men among Presbyterians, Independents, and the like, as any where else; every Sect having its good and corrupted Members; some who act well, tho' they do not think well in Matters of Religion; and others who neither act nor think well. And if I have spoke of some more advantageously than the Publick think I ought, they must not suspect my Candour, but the Partiality of those on whose Relations I have wrote; since I cannot be informed of all those Affairs of myself. I know that I have been accused of being a Papist; *so I am, if to love Truth, Justice, and Impartiality is to be one; for I am really a* Protestant *against Error, Falshood, Injustice, and Calumny.*

What I have erred in I submit to the Censure of the judicious and impartial Reader; I hope I have not done it in Point of Faith; and if I have, it is rather through Inadvertency than with a premeditated Design.

Spite, Malice, or a Spirit of Revenge, had no Part in that of Bookselling; I expose the Facts as they really are, without aiming at any Body in particular; since there may be as many honest Men among Booksellers and Printers, as in any other Profession; but I consider what I say of them as a publick Grievance.

I have endeavoured to render my Treatise on Books, useful and entertaining; and hope have succeeded in both, particularly in my Reflections on the Works of the antient Fathers, which proceed from no other Source but my assiduous Study.

It was much against my Design, that some Persons have thought themselves touched by my Reflections on the Conduct of some Apothecaries, when I only aimed at those, who are not duly qualified for that Profession, in which the publick Good is so much interested, having no personal Prejudices against any Body, and always flatter'd myself, that as we are all conscious that many Irregularities are committed daily in all Sorts of Professions, those who are perfect in them, and practise honestly, would be pleased they should be reformed, which cannot be done more effectually, than by cautioning the Publick against them.

The little Care Master Surgeons take, at present, to instruct their Pupils in their Profession, made me think myself obliged to give them a compleat Treatise of that useful and curious Art, which could supply the Deficiency of their Masters. I lead them, as it were, by the Hand, in a gentle and easy Manner, from the first Principles thereof, thro' the most difficult Operations; so that with the Help of this Treatise, and some Practice, which they may acquire in frequenting Hospitals, they may soon become perfect Surgeons; cautioning them, at the same Time, against undertaking any Thing which they do not know, where the Life of the Patient is in Danger, even on the poorest Subject, without calling to their Assistance, those they know understand it better; since that Life is as dear to God as that of a rich Person, and he must equally answer for it; for tho' he may chance to succeed, it is, notwithstanding, a very criminal Presumption to attempt it; which the Hope of performing a great Cure, and the Honour resulting from it, cannot excuse. The more an able Surgeon is sensible of the Danger, the more he is cautious of engaging in it; and though he knows himself capable to attempt any difficult Case, he'll notwithstanding never do it but in the Presence of other Surgeons, as able as himself, to secure his own Conscience. Why should a Novice in his Art act otherwise? unless he wants to render himself guilty of wilful Murder.

My Treatise of Midwifry, which is a very compleat one, is written for the Instruction of Midwives and Men-midwives; where I describe clearly and intelligibly, all the different Manners of helping a Woman in the most difficult Labour, and the most dangerous. How she is to be treated before, and after her Delivery; the Accidents she is subject to, and how remedied; the Care that must be taken of the Child, his Diseases, and how remedied; with a curious Dissertation of my own on the Small Pox.

Dancing being much encouraged at present by the Great, I have given a concise Treatise of that Art a la mode, *which has likewise its Advantages, when practised with Prudence and Moderation.— Dancing teaches us to walk well, and present ourselves well in a Company, and for that Reason, and no other, should be learned by Persons of Rank.*

I have not wrote on Gaming with the criminal Design of encouraging it, when it becomes oppressive, or proves the Ruin of Families; since as such I abhor it; but with the View only that one should not appear baulked or disconcerted, when he is asked to make a Second or a Third at Picquet, Ombre, Quadrille, *or any other Games, in Companies who play only to pass a few Hours agreeably.*

Falconry being a noble and princely Pastime or Diversion, deserved a Place in this Work; all Exercises of that Kind, which are oppressive to no Body, deserve to be encouraged, provided they do not take up the Time, which a Prince should employ in the Management of his Affairs, or the Government of his Dominions.

Fowling was inserted here to oblige several Subscribers; and it being an innocent Recreation or Amusement, it really deserves its Place.

Fishing is a Kind of Exercise proper to entertain melancholy Thoughts, and is oppressive to none but to those little Blunderers who fall a Victim to their Greediness; therefore I treat of it with Accuracy; taking Notice at the same Time of its Utility, with Regard to Commerce, in all its Branches; and illustrating the whole with an historical Account of all Sorts of Fish.

I was in Hopes, that my Treatise of Apparitions would contribute much towards rooting out an Evil, which is not the less dangerous because of a very antient Date, and countenanced often by Persons, otherwise of a distinguished Merit, though very injurious to the Divine Providence, contrary to the true Principles of Christianity and to Reason, and very prejudicial to our domestick Peace; as I prove it plainly in the said Treatise, which is entirely mine. I am so great an Enemy to those ridiculous Romances, especially when told to Children, which serves only to terrify their young Minds, and render them ever after pusillanimous, that I think the Legislature in all Countries should decree a severe Punishment against the scandalous Retailers of them.

My Treatise of the Antidiluvians *does not proceed from a Principle of Irreligion, as if I questioned the Veracity of the sacred Scripture, for which I have all the Respect that can be expected from a Person educated with Care in the Principles of the Christian Religion, from which I have never deviated, and hope, with God's Assistance, never shall; nor from a ridiculous Infatuation of my own Merit, or Contempt for the learned Authors of those Theories, which, if not true, are ingeniously calculated, particularly that of Mr.* Whiston, *whose learned Works I have always put on a Level with those of the most celebrated Authors, both antient and modern; but I thought it was needless, and even a Kind of Presumption to have Recourse to Mechanicks, Hydraulicks, and Hydrostaticks, to account for what is a Miracle of the Divine Providence, founded on Revelation, and in some Measure to a natural Cause, what was an Effect of the Omnipotency of a supreme Being, who having been capable to form the Water from nothing, is capable, likewise, to bring a sufficient Quantity of it over the Face of the Earth to drown the human Race; without disordering the marvellous and admirable Symmetry*

he had eſtabliſhed between the Parts it was compoſed of; eſpecially when he deſign'd to people it again with a new Generation. It is true, that I confine that Deluge to that Part of the Earth which was then the only one inhabited; becauſe, as we learn from the ſacred Writ, that that Prodigy was effected to puniſh the Sins of Mankind, I think it repugnant to God's infinite Mercy and Juſtice, to involve in the ſame Puniſhment the other Parts which had not ſinned, and could not have ſinned, ſince they were not inhabited; it being needleſs beſides to waſh what had not been polluted.

Neither do I pretend, in my Treatiſe of Alchymy, to reflect on Moſes, *when I ſay he might have very well paſs'd for an Alchymiſt, or queſtion what he tells us of the Spoil of the* Egyptians; *for I conſult then my Reaſon only, which can never be convinced, that the* Hebrews, *ſo much deſpiſed and maltreated in* Egypt, *could borrow ſuch immenſe Sums from the* Egyptians; *the Authority of the Scripture, only, which every Body knows muſt in many Caſes ſilence our Reaſon, can perſuade me of the Truth of that Hiſtory, and I ſubmit to it with Pleaſure and Reſpect; never pretending to maintain my Sentiments with Obſtinacy; being always ready to expunge with my own Blood, any of them which could be thought to ſmell in the leaſt of Error, or Schiſm.*

My Impartiality in the hiſtorical Account of Calviniſm; *where I have related nothing but undeniable Facts, agreed upon by the moſt impartial Authors of all Parties, whom alone I have conſulted, muſt have pleaſed them who are not actuated by Motives of Jealouſy, Envy, and Malice; ſince I am perſuaded, that they will not find in the whole Treatiſe, the leaſt Falſhood, Satyr, Calumny, or Invective. I hide none of* Calvin's, *or his Partiſans Perfections, but I am equally impartial with Regard to their Demerit; which is all that can be expected from a faithful Hiſtorian.*

Ethicks, or Morality, ſo much encouraged, and ſo well cultivated by the Antients, and calculated for the Good of the civil Society, has took much of my Time, which could not be better employed, but in reviving thoſe ſalutary Rules ſo long neglected by the Generality of Mankind; Immorality, Luxury, Ambition, Avarice, Self-Love, Self-Conceit, Deceit, Treachery, Injuſtice, having got the upper Hand, and almoſt baniſhed Virtue from among us. What tacit Reproach to us, that thoſe firſt Moraliſts, and thoſe Pupils who follow'd ſo ſcrupulouſly their ſalutary Leſſons, were Perſons who had not a juſt Notion of a ſupreme Being, and nothing to engage them to the Practice of Virtue, but its Amiableneſs! What Shame for us, that they ſhould be actuated by that ſingle Motive, when every Thing elſe, their falſe Worſhip not excepted, induced them to Vice and Debauchery.

To oblige one of my Correſpondents and Subſcribers, I have wrote a Diſſertation on Friendſhip, in my Treatiſe of Societies; and wiſhed often, that a Perſon of his diſtinguiſhed Merit had been pleaſed to communicate to me ſome of his excellent Thoughts on that important Subject; but he was contented with inſiſting on my writing that Diſſertation, without letting me know whether it pleaſed him or not.

I hope this very ſhort Abridgment of my Work, which I had deſign'd ſhould, and ought to have been leſs conciſe, will be, notwithſtanding, of ſome Help to the Reader to underſtand better what follows.

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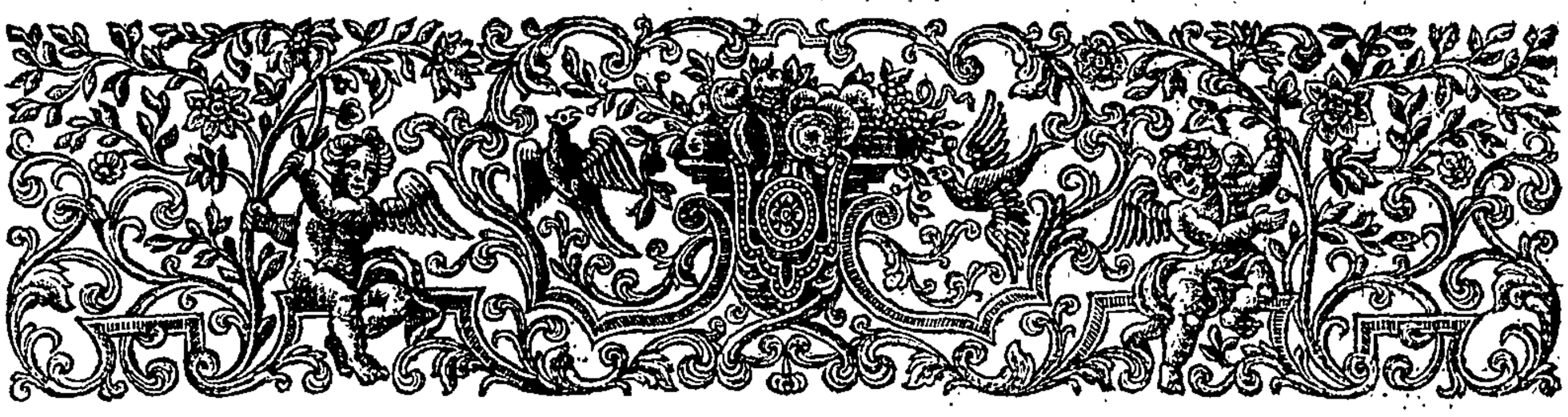


AN Universal HISTORY OF ARTS and SCIENCES.

ACADEMY.

ACADEMY is a regular Society, or Company of learned Persons; instituted under the Protection of a Prince, for the Cultivation and Improvement of Arts and Sciences.

The Difference between *Academy* and *University* is, that an University is properly a Body composed of Graduates in the several Faculties; of Professors who teach in the publick Schools; of Regents, or Tutors, and Students who learn under them, and aspire likewise to Degrees; whereas an *Academy* is not intended to teach or profess any Art, such as it is, but to improve it.

ACADEMY takes its Name from one *Academus*, or *Ecademus*, a Citizen of *Athens*, who established the first *Academy* in the Suburbs of that City, in a fine Villa, a Mile from it; where *Plato*, and the Wits who followed him, held Assemblies for Disputes and Philosophical Conferences; and which gave the Denomination to the Sect of Academicks.

Academicks, were a Sect of Philosophers who followed the Doctrine of *Socrates* and *Plato*, as to the Uncertainty of Knowledge, and the Incomprehensibility of Truth.

Their original Dogma was this, *Unum scio, quod nihil scio*, I know this one Thing, that I know nothing; which was afterwards improved into, *Nihil scio, ne hoc quidem, quod nihil scio*, I know nothing, not even this, that I know nothing. Accordingly they pleaded that the Mind ought always to remain in Suspense; as having nothing to determine on but bare Probability or Verisimilitude, which is as likely to lead into Error as Truth.

This Distrust and Doubt of every Thing which *Plato* recommends to his Disciples, was not so much to leave them fluctuating between Truth and Error, as to caution them against those rash and precipitate Decisions young Minds are subject to; and to dispose them to secure themselves from Error, by examining every thing without Prejudice.

Though M. *des Cartes* hath adopted the same Principle of doubting of every Thing, he makes a very different Use of it. —— The Difference between the antient *Academicks* and this modern one, is, that the antient *Academicks* doubted of every Thing, and were resolved to continue in their Fluctuation; whereas M. *des Cartes* doubts of every Thing; but declares, that he only doubts at first, that his Determinations, afterwards, may be the surer, which once obtained, he is resolved to doubt no longer. —— *Plato* doubted through fear of being mistaken in his Decisions, and therefore is resolved to doubt always. —— *Des Cartes* doubts to acquire a greater, or the sublimest Knowledge, and consequently doubted only for a certain Time.

The first *Academy* in *Europe*, was founded at *Paris*, by *Charlemaigne*, under the Direction of *Alcuin*, (whom some suppose an *English* Man) it was composed of the first Wits of the Court, each distinguished by the Name of some antient Author who pleased him most. *Alcuin* took that of *Flaccus*; a young Lord, named *Angilbert*, that of *Homer*; *Adelard*, Bishop of *Corbie*, was called *Augustin*; *Riculfe*, Bishop of *Mentz*, *Damotas*; and the King himself *David*. In their Academical Conferences, every *Academist* was to give an account of what antient Authors he had read, with some judicious and learned Reflections of his own, which could convince the rest of the *Academists* that he understood what he had read.

Some Authors pretend, that what *Charlemaigne* founded, then, was not an *Academy*, but a School for the Instruction of the young Nobility and Gentry of his Kingdom, where *Alcuin*, who had been the first Promoter of it, was appointed the first Professor, and that that School has continued since, under the Denomination of the University of *Paris*; which is the more probable Opinion; and which could not have hindered the greatest Wits, and the most learned Persons of the Court, not even the King himself

from reforting thither, for a further Improvement, or to make Parade of their Wit and Merit, as it is ftill the Cuftom in *France*, on any publick Act or Difputation.

Moft Nations have now their *Academies*, *Ruffia* not excepted; but of all Countries *France* bears the Bell in this Refpect.—We have but few in *England*; the only one of Eminence is called by the Name of the *Royal Society*.

This *Academy* was inftituted by King *Charles* II. for the promoting of natural Knowledge. It had its Original in an Affembly of ingenious Men, who before the Reftauration met weekly in *Wadham College* in *Oxford*, at the Lodgings of Dr. *Wilkins*.

Afterwards, from about the Year 1658, many of them living in *London*, held Meetings at *Gresham-College*; till they were at length taken notice of by the King, who was pleafed to grant them an ample Charter, dated the 22d of *April*, 1663; whereby they were erected into a Corporation, confifting of a *President, Council, and Fellows, for promoting the Knowledge of natural Things, and ufeful Experiments.* Their manner of electing Fellows is by Balloting. Their Council are in Number twenty-one, eleven of which are continued for the next Year, and ten more added to them, all chofen on St. *Andrew*'s Day.

Each Member at his Admiffion fubfcribes an Engagement, that he will endeavour to promote the Good of the Society; from which he may be freed at any Time, by fignifying to the Prefident that he defires to withdraw.

The Charges are 40*s.* paid to the Treafurer at Admiffion; and 13 *s. per* Quarter, fo long as the Perfon continues a Member.

Their Defign is "to make faithful Records of all "the Works of Nature, or Art, which come with-"in their Reach; fo that the prefent, as well as after "Ages, may be enabled to put a Mark on Errors "which have been ftrengthened by long Prefcrip-"tion; to reftore Truths that have been neglected; "to put thofe already known to more various Ufes; "to make the Way more paffable to what remains "unrevealed, *&c.*

To this Purpofe they have made a great Number of Experiments and Obfervations, on moft of the Works of Nature; Eclipfes, Comets, Meteors, Mines, Plants, Earthquakes, Inundations, Springs, Damps, fubterraneous Fires, Tides, Currents, the Magnet, *&c.* Alfo a Number of fhort Hiftories of Nature, Arts, Manufactures, ufeful Engines, Contrivances, *&c.* The Services they have been of to the Publick are very great——They have improved naval, civil and military Architecture; advanced the Security and Perfection of Navigation; improved Agriculture; and put, not only this Kingdom, but alfo *Ireland*, the Plantations, *&c.* upon planting.

They have regiftered Experiments, Hiftories, Relations, *&c.* and reduced them into a common Stock: have from Time to Time publifhed fome of the moft immediate Ufe, under the Title of *Philofophical Tranfactions*, *&c.* and laid the reft up in publick Regifters, to be nakedly tranfmitted to Pofterity, as a folid Ground-work for future Syftems.

They have a Library adapted to their Inftitution; towards which the late Earl Marfhal contributed the *Norfolcian Library*; and a Mufæum, or Repofitory, of natural and artificial Rarities, given them by *Daniel Colwal*, Efq;——Their Motto, *Nullius in verba.*

This illuftrious Body is compofed of Perfons eminent for their Birth, and for their Eminence in the Arts or Sciences, they profefs; Princes not excepted.

Befides this, we have a Royal *Academy* of Mufick, and another of Painting, eftablifhed by Letters Patent, and governed by their refpective Directors; but I don't believe they are at prefent in a very flourifhing Condition.

The *French* have flourifhing *Academies* of all Kinds, eftablifhed at *Paris*, moftly by the late King,—— *viz.* the

Royal ACADEMY of Sciences for the Improvement of Phyficks, Mathematicks, and Chymiftry; firft erected in 1666, by Order of the King, though without any Act of Royal Authority iffued for that End——In the Year 1699, it had, as it were, a fecond Birth; the fame Prince, by a Regulation dated the 26th of *January*, giving it a new Form, and putting it on a new and more folemn Footing.

In Virtue of that Regulation, the *Academy* was to be compofed of four Kinds of Members, *viz. Honorary, Penfionary, Affociates*, and *Eleves.*—— The firft and laft to confift of ten Perfons, and the reft of twenty each——The Honorary *Academifts*, to be all *Regnicoles*; the Penfionaries, all to refide at *Paris*; eight of the Affociates, allowed to confift of Foreigners; and the *Eleves*, all to live at *Paris.*—— The Officers to be a Prefident, named every Year by the King out of the Clafs of Honorary *Academifts*; and a Secretary, and Treafurer, to be perpetual.

Of the Penfionaries, three to be Geometricians; three Aftronomers; three Mechanicks; three Anatomifts; three Chymifts; three Botanifts; the remaining two, Secretary and Treafurer.——Of the twelve Affociates, two to apply themfelves to Geometry; two to Botany; and two to Chymiftry.—— The *Eleves* to apply themfelves to fome Kind of Science, with the Penfionaries they are attached to; and not to fpeak, except when called thereto by the Prefident.——No Regular or Religious to be admitted, except into the Clafs of Honorary *Academifts*; nor any Perfon to be admitted, either for Affociate or Penfionary, unlefs known by fome confiderable printed Work, fome Machine, or other Difcovery. ——Further, no Perfon to be allowed to make Ufe of his Quality of *Academift*, in the Title of any of his Books, until fuch Books have been read to, and approved by the *Academy.*

The Meetings of the *Academy* were to be held twice a Week in the King's Library, (though, foon after, they were removed to a more commodious Apartment in the *Louvre*) and to laft at leaft two Hours, from three to five. At the Beginning of every new Year, each Penfionary to be obliged to declare in Writing, what Work he intended chiefly to profecute that Year; and the reft to be invited to the fame.——All the Obfervations the *Academifts* bring to the Meeting, to be left in Writing in the Hands of the Secretary; who is to enter the Subftance of what paffes at each Affembly in a Regifter; and at the End of every Year to publifh the Hiftory, or Tranfactions of the *Academy*, for that Year.

None but Members to be prefent at their ordinary Meetings; unlefs fuch as are introduced by the Secretary, to propofe fome new Machine or Difcovery; though their Publick Meetings twice a Year, fhall be open to every Body.

To encourage the Members to continue their Labours, the King engages, not only to pay the ordinary Penfions, but even to give extraordinary Gratifications, according to the Merit of their refpective Performances; furnifhing withal, the Expence of the Experiments, and other Inquiries neceffary to be made. ——If any Member gives in a Bill of Charges of Experiments which he has made, or defires the Printing of any Book, and bring in the Charges of Graving, the Prefident allowing and figning it, which is feldom or never denied, the Money is immediately paid by the King.——So if an Anatomift require live Tortoifes; for Inftance, for making Experiments about the Heart, *&c.* they fhall be brought him, as many as he pleafes, at the King's Charge. *Lift. Journ. to Paris.*——Their Motto, *Invenit & perfecit.*

In the Year 1716, the Duke of *Orleans*, then Regent, made an Alteration in their Conftitution; as his Royal Highnefs was determined to invite over as many as he could of foreign Artificers or Mechanicks, who excelled in fome Art or Profeffion, which had

not been brought yet to their Perfection in *France*; he augmented the Number of Honoraries, and of Associates, capable of being Foreigners, (LAWS, after that Regulation, having been made one of the Honorary Members of that illustrious Society) and admitting Regulars among such Associates; suppressing the Class of *Eleves*, and establishing, in lieu thereof, a new Class of twelve Adjuncts, to the six several Kinds of Sciences cultivated by the *Academy*; and lastly, appointing a Vice-President, to be chosen yearly by the King, out of the Honorary Members; and a Director, and Sub-Director out of the Pensionaries.

Their Secretary, *M. de Fontenelle*, hath obliged the Publick with twenty-eight Volumes of the Productions, of this illustrious Body, under the Title of *Histoire de l'Academie Royale, &c. avec les Memoires de Mathematique, & de Physique tires des Registres, &c.*

The *French Academy*, established under *Lewis* XIII. by Cardinal *Richlieu*, for the Improvement of the *French* Language, is the next in Dignity, and composed of forty Members, called *Les quarante de l'Academie.* The most distinguished Persons of the Church, the Sword, and the Gown, have been Members of that illustrious Society; there are always among them Princes, Dukes, Mareschals of *France*, Cardinals, Archbishops, Bishops, *Presidents a Mortier*, Abbots, *&c. &c.*

This *Academy* distributes two Prizes yearly; one of Eloquence, founded by *M. de Balzac*; the other of Poetry, founded by the *Academy* herself. The Subject of that of Eloquence, must be, according to the Intention of the Founder, taken from some of the Books of the *New Testament*, and proposed by the *Academy*; and that of *Poetry*, the Praises of the King, proposed also by the *Academy*.

Every Discourse of Eloquence written for the Prize, must be of Half an Hour's reading.

None of the *Academists* is allowed to write for the Prize; but after its Distribution, the Subject for the ensuing Year having been chosen by the Assembly, is rendered Publick, that every Body (Foreigners not excepted) may have the Opportunity to exercise his Pen.——Where a Person has wrote on the Subject proposed, he can direct his Discourse to the Secretary of the *Academy*, with a Motto, and some Letters, or *Characters*, whereby the Author might be known, in Case he carry off the Prize.

Those Discourses, as well as the Poetry, are carefully and impartially examined, by some of the most select *Academists*, appointed by the whole Society for that Purpose; and the Day appointed for the Distribution of the Prize, the Discourse, or Piece of Poetry, judged to have deserved it, with two others which are come nearer to it, are read publickly, and ordered to be printed.

Mr. *Perault*, Secretary of the *Academy*, had collected those Pieces of Eloquence and Poetry, into nineteen Volumes, whose Number has been augmented since.

The Beauty of the *French* Language depends entirely on the Caprice of those forty Members; who after a long and tedious Labour, have favoured us at last with a Dictionary, intituled *Le Dictionaire de l'Academie Francoise.*

The *Academy* had so long promised the Publick that useful Work, without performing her Promise, that the *French* were almost out of Hope of seeing it ever come out; and some of them pretend that which hastened its Publication, was a judicious *Repartee* of the Doctor, in the Farce of *Harlequin* Emperor of the *Moon*, where the *Emperor's Messenger*, or *Ambassador*, being asked News of that vast Empire, says, among other Things, that in the Dominions of the Emperor his Master, forty grave and very learned Persons, had been above forty Years composing a Dictionary, to perfect the Language of the *Lunaticks*, which difficult Task they had not been able yet to compass; *C'est tout come ici*, replied the *Querist*, that *tout come ici*, says the *French*, did bring in a few Months Time, the Dictionary to Light, which otherwise had been kept longer in the Dark.

The *Academy* of Painting and Sculpture was established under the Cardinal *Mazarin*, first Protector thereof; and the Chancellor *Seguier*, Vice-Protector.

It consists of a Director, a Chancellor, four Rectors, a Treasurer, twelve Professors; *Adjuncts* to the Rectors, and Professors; Counsellors; a Secretary; a Professor for Anatomy, and another for Geometry and Perspective.

Persons are here admitted either in Quality of Painters or Sculptors.——The Painters are admitted according to their respective Talents; there being a Distinction made between those who work in History, and those who only paint Portraits, Landskips, Beasts, Fruits, or Flowers, or paint in Miniature; or only design, engrave, or carve, *&c.*——Their Productions are exposed to publick View yearly, in the great Hall of the *Louvre*; and there are Prizes for those who perform best.

There is also an *Academy* of Painting, Sculpture, *&c.* at *Rome*, established by *Lewis* XIV. wherein those who have won the annual Prizes, in the like *Academy* at *Paris*, are received and entertain'd for three Years, to give them an Opportunity for perfecting themselves.

The *Academy* of Medals, and Inscriptions, was erected for the Study and Explanation of antient Monuments; and to consecrate great and memorable Events to Posterity, by similar Monuments; as Medals, Relievo's, Inscriptions, *&c.*

There is also at *Paris* an *Academy* of Politicks, composed of six Persons, who meet on certain Days, each Week, at the *Louvre*, in the Chamber where the Papers relating to foreign Affairs are lodged.——Here they peruse such Papers as are put in their Hands, by order of the Secretary for foreign Affairs; who informs the King of the Progress they make, and the Capacities of each, that his Majesty may employ them accordingly.——For my Part I never heard that this *Academy* has ever been in a very flourishing Condition; nor that the King of *France* would intrust any body else but his Ministers with the Inspection of his foreign Affairs.——The best established *Academy* for that Purpose, is his *Cabinet*, and his Ministers the only *Academists*.——Not but those six Persons, who meet weekly at the *Louvre* to perfect themselves in Politicks, and thereby render themselves capable of serving their Prince, in the Capacity of a Secretary of State, or foreign Ministers, may be sometime consulted on some particular Affair, but seldom or never intrusted with the Perusal of Papers relating thereto; else those Affairs would not be always conducted with so much Secrecy.——Such Perusal would appear entirely contrary to the Maxims of the *French* Court.—However, if such an *Academy* was established in all Countries, there would not be so many Blunders committed in the Management of foreign Affairs.

The *Academy* of Musick, is no other than the Managers and Directors of the Opera, which has been in a declining State in *France*, ever since the Death of the famous *John Baptist Lully*, an *Italian*, brought over by the late King *Lewis* XIV. and made by him, Superintendant of his Musick.——That excellent Man had found the Secret to bring the *French Orchester* to its greatest Perfection, by mixing the *Italian* Softness with the *French* Taste. His *Opera's* are still new, and heard with a great deal of Pleasure and Applause; and will continue so to the latest Ages.——*Lewis* XIV. himself had a very good Taste for Musick; and was a very great Judge of all the Performances of that Kind.——His Majesty used to beat the Times himself, with his Foot; and *Lully*, who had always his Eyes fixed on the King, while the Performance lasted, knew by his Majesty's Motions, when the Performers had committed some Faults, better than if he had depended entirely on his own Judgment.

The

The *French* have alſo *Academies*, in moſt of their great Cities; as at *Montpelier*, the *Academy* of Sciences; at *Tholouſe*, that of the *Lanterniſts*; at *Niſmes*, *Arles*, *Angiers*, *Caen*, &c.

The Duke *d'Eſcalona* eſtabliſhed at *Madrid*, in 1714. with the King of *Spain*'s Approbation, an *Academy*, for cultivating the *Caſtilian* Tongue.——It conſiſts of twenty-four *Academiſts*; including the Director and Secretary.——His Catholick Majeſty declared himſelf Protector thereof.——The Device of that *Academy* is a Crucible on the Fire, with this Motto, *Limpia fija, y da Eſplendor.*

Italy alone has more *Academies* than all the reſt of the World, but none of them very famous, tho' accounted ſuch by thoſe who have never ſeen them; unleſs they keep to themſelves all the Diſcoveries they make.——Their greateſt Improvements are in Muſick and Painting, tho' they have much degenerated in thoſe Arts from the Skill of their Anceſtors.——I have had the Honour myſelf, of being introduced into ſome of thoſe Academies, particularly at that of the *Diffetuoſi*, at *Boulogna*, where I found, that in Effect the *Academiſts* were very deficient in almoſt every Thing. Their Exerciſes are not conducted with that Strength of Imagination, that Vivacity, and Quickneſs of Invention, nor with that profound Knowledge and Experience, to be met with in other Countries, tho' the *Italians* are very vain of the Title of Academiſts, which to them, ſeems an eſſential Part of a regular Conſtitution.——At *Milan* only, there are twenty-five Academies, and five hundred and fifty in all *Italy*, differenced by the humorous Titles of *Anſioſi*, *Ocioſi*, *Sopiti*, *Reſvegliati*, *Diſcordanti*, *Accuti*, *Adagiati*, *Affidati*, *Raffrontati*, *Agitati*, *Infernati*, *Intronati*, &c. &c.

There is alſo in *Germany* an *Academy* of *Naturæ Curioſi*, founded in 1652. by M. *Bauſch*, a Phyſician, and taken in 1670, under the Protection of the Emperor *Leopold*.

But the moſt famous in thoſe Parts, is the *Academy des Princes*, erected at *Berlin* in 1703. by *Frederick* I. King of *Pruſſia*, for the Education of the young Nobility of the Court ſuitable to their Extraction; and which is ſo likely to receive a new Luſtre, under the Protection of his preſent *Pruſſian* Majeſty; a Prince adorned with all the Merit, excellent Qualities, and rare Perfections, capable to form a King and a Hero; who, to ſhew his profound Knowledge, and juſt Diſcernment, and the noble Deſire he hath, to contribute all in his Power to the true and real Felicity of his People, has already called from all Parts of *Europe*, near his ſacred and auguſt Perſon, a ſelect Number of learned Men, in order to make the Arts and Sciences flouriſh in his Dominions, which had been ſo long confined in a Garret, in other Countries, where they uſed to mourn the Death of their late Protector *Lewis* XIV. King of *France*.

The Schools, where the Rabbins and other Doctors of the *Jewiſh* Law, inſtruct their Youth in the *Hebrew*, explain to them the *Talmud*; teach the *Caballa*, &c. are alſo called *Academies*, as well as the *Seminaries*, where our Non-conformiſt Miniſters are educated.

A riding or fencing School, is alſo called *Academy* by our modern Authors, and *Ephebeum*, or *Gymnaſium*, by *Vitruvius* and ſome other Antients.

The Ground ſet apart in an *Academy*, for Riding, is called Manage, with a Pillar in the Centre, and other Pillars placed two by two at the Sides.——That for Fencing, *Salle*.

Fencing is the Art of Defence, or of uſing the Sword, to wound an Enemy, and ſhelter one's ſelf from his Attacks.

The Art of Fencing is acquired by practiſing with Foils, called in *Latin*, *Rudes*, whence Fencing is alſo denominated *Gladiatura Rudiaria*.

Pyrad aſſures us, that the Art of Fencing is ſo highly eſteemed in the *Eaſt Indies*, that none but Princes and Noblemen are allowed to teach it.——They wear a Badge or Cognizance on their Right Arms, called in their Language *Eſaru*, which is put on with great Ceremony, like the Badges of our Orders of Knighthood, by the Kings themſelves.

Montaign informs us, that when he was a Youth, the Nobility all ſhunned the Reputation of being good Fencers; as ſomething too ſubtle and deſigning, and apt to corrupt virtuous Manners.

Fencing is divided into two Parts, *Simple* and *Compound*.

Simple, is that performed directly, and nimbly on the ſame Line; and is either offenſive, or defenſive.——The principal Object of the firſt, is, whatever may be attempted in puſhing or making Paſſes from this or that Point, to the moſt uncovered Part of the Enemy.——The ſecond conſiſts in parrying and repelling the Thruſts aimed by the Enemy.

The Compound, on the offenſive Side, includes all the poſſible Arts and Inventions to deceive the Enemy, and make him leave that Part we have a Deſign on, bare and unguarded, upon finding we cannot come at it by Force, nor by the Agility of the ſimple Play.

The principal Means hereof are Feints, Appeals, Claſhings, and Intanglings of Swords, half Thruſts, *&c.* and in the Defenſive, to puſh in Parrying.

Parrying, is the Action of defending a Man's ſelf, or of ſtaving off the Strokes offered by another.——Good Fencers puſh and parry at the ſame Time.——The *Spaniards* parry with the Poniard; the Ancients parried with their Bucklers.

Feint, is a falſe Attack, or a Shew of making a Stroke or Puſh in one Part, with Deſign to bring the Enemy to guard that Part, and leave ſome other Part unguarded, where the Stroke is really intended.

Feints are either ſingle, or double, high, or low, without, or in the whole Circle; of one, two, or three Meaſures.

The *ſimple Feint*, is a meer Motion of the Wriſt, without ſtirring the Foot, *&c.*

Guard, is an Action or Poſture proper to ſcreen the Body from the Attacks of an Enemy's Sword.

There are four general Guards of the Sword, to underſtand which, it will be neceſſary to imagine a Circle drawn on an upright Wall, and divided into four Cardinal Points, *viz.* Top, Bottom, Right, and Left.

Now when the Point of the Sword is directed to the bottom Point of the Circle, and conſequently the Head of the Sword tilted up to the top Point, with the Body inclining forwards; this is called *Prime*, or the *firſt Guard*.——The *ſecond Guard*, which ſome improperly call the *Third*, is when the Point of the Sword is directed to the Right, or ſecond Point of the ſame Circle, a Quadrant diſtant from the firſt; with the Fort of the Sword turned to the Right, and the Body raiſed proportionably.——*Tierce*, or the *third Guard*, is performed by directing the Sword's Point to the uppermoſt Point of the ſame Circle, diametrically oppoſite to that of *Prime*; in which Caſe the Body, Arm, and Sword, are in their natural Diſpoſition, being the Mean between the Extremes of their Motion.——*Quart*, or the *fourth Guard*, is, when the Point of the Sword is directed to the fourth Point of the Circle, deſcending to the Right, as far as one Fourth of the *Tierce*, with the external Side of the Arm, and the Flat of the Sword turned towards the Ground; and the Body out of the Line to the Right, and Fort of the Sword towards the Line to the Left.——There is alſo *Quint*, or a Kind of *fifth Guard*, being the Return of the Point of the Sword on the Right, after tranſverſing the Circle, to the point of the *Prime*, whence it had departed; and yet, with a different Diſpoſition of the Body, Arm, and Sword.

Theſe Guards are alſo called *Figures* and *Poſtures*; and the common Centre of all their Motions, is to be in the Shoulder.

In all theſe Kinds of Guards there are high *advanced*, high *retired*, and high *intermediate* Guards, when diſpoſed before the upper Part of the Body, either

either with the Arm quite extended, quite withdrawn, or in a mean State.——*Mean advanced* Guard, or simply *mean Guard*, is when the Sword is disposed before the middle Part of the Body.——*Low advanced*, *retired*, or *intermediate Guards*, are those where the Arm and Sword are advanced, withdrawn, or between the two Extremes, before the lower Part of the Body.

Some will have *Prime* the principal Guard; others *Quint*; others, with better Reason, *Tierce*, because it consists of right Lines, which are easier defended than oblique ones; such as those of *Prime*, *Second*, *Quart*, and *Quint*.

These Sorts of *Academies*, are seldom frequented by any other but the Nobility and Gentry; to whom they seem to be indispensibly necessary, since nothing is more ridiculous than to see a Person wear a Sword, who don't know how to use it; but then, that Sword should never be drawn but for the Service of the Prince, and in Defence of one's Country; seldom to be revenged of an Affront, unless it be a flagrant one; and never to acquire the scandalous Reputation of being accounted, what the *French* call *un bon Breteur*, a good Swordsman.——That ridiculous Vanity, has caused the Ruin of a vast Number of very noble and illustrious Families in *France*, before the entire Abolition of *Duels*, by their late King *Lewis* XIV. who had obliged himself, and all his Successors, by the most solemn Oath, to be taken at their Coronation, never to forgive a *Duel*, even in the Princes, their Children. Before that prudent and salutary Regulation, *France* might have been compared to an *Amphitheatre* of Gladiators, where the *French* Noblemen were seen to take Pleasure in cutting one anothers Throats; which was rather a Sort of Frenzy, than true Valour.

We *English*, though indued with as much Courage as any other Nation in the whole World, have seldom been guilty of those Excesses of Folly; and we seldom make any Parade of our Bravery, but in a glorious Cause; and then we do it effectually. Our *Skill* don't follow, always, all the capricious Directions of the Magnet; but when once justly directed, it strikes effectually its Poles. Therefore we have not so great a Number of *Academies* for *Fencing*, as our Neighbours, but the few we have, produce always very good Masters.

The best Fencing Master, for the small Sword, we have had in *England* for these twenty Years past, is one *Marin* a *Frenchman*, who has had the Honour to teach his Royal Highness the *Duke*, and most of our young Nobility.

Moliere seems to have had but a very indifferent Opinion of those *Academies* for Fencing, which he turns into Ridicule, in his Comedy of the *Bourgeois Gentilhomme*, in the Person of *Monsieur Jourdain*; intimating therein, that a Man's Courage is the best Master on those Occasions, and that *Prime*, *Second*, *Tierce*, *Quart*, *Quint*, *Feints*, &c. &c. are soon forgotten when two Persons are engaged in Earnest. I'll agree with him, that an Academical Education, without Courage, is of very little Service in an Encounter; but not so, when they both meet in the same Person; since it is a general Maxim, that Nature itself is often perfected by Art. He that follows nothing but the Impetuosity of his Bravery or Valour, is always more expos'd, than one who hath that Valour directed by an Academical Education.

AGRICULTURE.

AGRICULTURE (of the Latin *Ager*, Field; and *Cultura*, of *Colo*, I till) is the Art of tilling or cultivating the Earth, in Order to render it fertile, and make it bear Plants, Trees, Fruits, *&c.*

EARTH and SOIL, *Solum*, are synonimous, in Agriculture, and denotes Earth or Ground, considered with Regard to the Quality of its Mould, for the Production and Growth of Vegetables.

Mr. *Bradley* reduces all *Soils* to three Heads, or Kinds, *viz. Sand*, *Loam*, or *Mother-earth*, and *Clay*.

Gravels, and all the open *Soils*, till we come at Loam, are of the sandy Race; and the binding Earth, from Loam down to the Stiffness of Chalk, may be ranged under the Clay Kind.

M. de la Quintinie attributes all the Difference we find in Soils, to the different Quality of the *Sands* mixed in them. *Soft Sands*, according to him, make a soft, gentle Earth; *Unctuous Sands*, a stiff Earth; *Coarse Sands*, a rough, untractable Earth.

SAND is also applied to dry, crumbling Earths, which, wanting any Fatness to bind them together, the Wind easily breaks into Dust, and carries them away.

In this Sense it is that Travellers tell us, the Caravans in *Africa* are frequently lost, and buried under Clouds of *Sand*, torn up by Whirlwinds; and sometimes heaped up into Mountains.——The Desarts of *Lybia* are mere Sands; and hence their Sterility.

CLAY is a soft, viscous Earth, found in various Places, and used for various Purposes, of several Kinds and Properties.

Dr. *Lister*, in the *Philosophical Transactions*, gives us a Table of twenty-two several *Clays* found in the several Counties of *England*; five whereof he calls,

Pure, *i. e.* such as are soft, like Butter to the Teeth, with little or no Grittiness in them, *viz.* 1. Fuller's Earth, which he distinguishes by its Colour into Yellowish, Brown, and White. 2. Boles. 3. Pale yellow *Clay*. 4. Cowshot *Clay*. 5. Dark blue *Clay*, or Marle. The other seventeen,

Impure; whereof eight are harsh and dusty when dry: as, 1. Creta, or Milk-white *Clay*. 2. Potters pale yellow *Clay*. 3. Blue Potters *Clay*. 4. Blue *Clay*, wherein is found the Astroites. 5. Yellow *Clay*. 6. Fine red *Clay*. 7. Soft chalky blue *Clay*. 8. Soft chalky red *Clay*.

Three are stony when dry, *viz.* 1. A stony red *Clay*. 2. A blue stony *Clay*. 3. A white stony *Clay*.

Three are mixed with Sand or Pebbles, *viz.* 1. A yellow Loam. 2. A red sandy *Clay*. 3. A second Species of the same Kind.

Lastly, Three are mixed with flat or thin Sand, glittering with Mica: *viz.* 1. Crouch white *Clay*. 2. Gray, or bluish Tobacco-pipe Clay. 3. A red *Clay*.

Loam or Mother-earth, consisting of Clay with a small Admixture of Sand in it, is the Medium between the two, and includes all the intermediate Kinds.

Each of these *Soils* tend alike to Vegetation; and each has its Salts proper thereto, but in different Proportions; a Peck of Clay having twice as much Salts in it as the same Quantity of Loam; and four Times as much Sand.

Now it is found to be the Salts or Juices of the *Soil*, not the Earth itself, that Plants are fed and subsisted by. For in many Experiments of Vegetation, where Plants of fifteen or twenty Pounds Weight have been produced, there has been no sensible Diminution in the Weight of the Earth.

Hence at first Sight, it might seem, that Clay were the most proper, and Sand the least proper *Soil* to promote the Growth of Plants; which is contrary to Experience. The Reason is, that the Parts of Clay being close wrought together, do not so easily give out their Salts; nor can the tender Fibres of many Plants make their Way through it, in Search of their Food. But if its Parts be well opened, by digging, or breaking it in very small Pieces, and those Parts be kept open by a Mixture of some sharp Sand, or other like Matter, that Author adds, we shall see the

Effects of its Vigour. Sand, on the other Hand, giving its Salts readily, puts forth its Plants very early, and will make them germinate a full Month sooner than Clay; but as it is hastily, it is soon spent. The Sun's Warmth calls up all its Salts early in the Spring, and there is but little left for them to subsist long on, if the Heat continue.

Each Kind has its peculiar Plants, which will not grow in the other; but the peculiar Plants of both the other will grow in Loam, as partaking equally of the Qualities of both. Loam, then must be allowed the best and most beneficial *Soil*, where it can be had; and where it cannot, if, by a Mixture of other Earths, we can make a Compost to resemble it; we have more to expect from it, especially in Plantations of durable Trees, than from a Composition of Dung or other forcing Ingredients; which like Excess of high intemperate Food and Liquors, though they give a hasty Growth, yet make the Thing short liv'd. The Composition or *Soil* here meant, is equal Quantities of Sand and Clay well mixed.

Generally, such Composition, also called COMPOST or HOT-BED, is better than any simple *Soil*. A Mixture of two or three *Soils*, is better than any simple *Soil*, especially where the hot and dry are mixed with the cold and moist. Clay laid on Sand or Gravel, or Sand on Clay, is the better Manure.

But it is not the Nature of the *Soil* alone; but its Depth is also to be regarded, and what Soil is underneath. For the best Soil, if it be not above a Foot deep, or lie on a stiff Clay, or hard cold Stone, it is not so fertile as the leaner *Soil* of greater Depth, or lying on a warm Lime-stone, Sand or Gravel, thro' which the superfluous Moisture may descend, and not stagnate on the Clay or Stone, to chill the Roots of Plants.

Indeed, Regard is to be had to the Climate; for even in *England*, cold, moist Clays are more fruitful in the South than in the North.

Some general Rules with Respect to *Soils*, are as follow.

1st, All Land that moulders to Dust with Frost, with all Sorts of warm Lands, black Mould, yellow Clay, (if not too wet) and that turns black after Rain, are good for Corn.

2d, Lands bringing forth large Trees and Weeds, Black-thorns, Thistles, rank Grass, *&c.* generally prove fruitful.

3d, Strawberries, Betony, Thyme, *&c.* give Indication to Wood; and Camomile to a Mould disposed for Corn.

4th, All Land that binds after Frost and Rain, that turns white and full of Worms, that is extreamly moist, bears Holly, Yew, Box, Broom, Heath, Moss, *&c.* is of a cold Temperature.

5th, Black, dun and yellow Sand, and hot stony Gravel, are generally unfruitful.

COMPOST, is a Compound or Mixture of Earths, Dungs, *&c.* applied by Way of Manure, for the meliorating and improving of *Soils*, and assisting the natural Earth in the Work of Vegetation.

HOT BED, a Piece of Earth or Soil plentifully enriched with Manure, and defended from cold Winds, *&c.* to forward the Growth of Plants, and force Vegetation, when the Season or Climate of itself is not warm enough.

By Means of Hot-Beds skilfully managed, we can so nearly imitate the Temperature of other Climates, that Seeds of Plants brought from any Country between the Tropics, may be made to flourish even under the Poles.

Heat and Humidity being the great Instruments of Vegetation, to promote the Growth of any Plants, these must be duly proportioned, so as neither to exceed nor come short of the Bounds Nature has allotted for it. Too much Heat we find rather scorches a Plant than makes it grow; and too much Moisture frequently chills it, unless quickly exhaled from the Roots. With us a moderate Heat is found the most eligible; such as is raised by the Ferment of wet Straw and Horse-litter, which from the Earth lying thereon, will send forth for some Time a gentle Steam, impregnated with vegetable Salts.

The usual Way of making *Hot-Beds*, is of Horse-litter and Grass mixed together, and left on an Heap for eight or ten Days to putrify; and then removed into a Bed and covered up with Glasses, or Frames. ——Others chuse to take Horse-dung a Month or six Weeks old, and make a Seed Bed of it about four foot high, and cover it up with Straw a Foot thick, which is to be removed in three or four Days, and its Place supplied either with Cows-dung, or the last Year's Ridges.

The Process of ordering a good serviceable *Hot-Bed*, for the customary raising of Colliflowers, Cucumbers, Melons, Radishes, and other tender Plants and Flowers, in *January* or *February*, is directed by Mr. *Mortimer* in Manner following.

Provide a warm Place defended from all the Winds, by being inclosed by a Pale or Hedge made of Reeds or Straw, about six or seven Foot high, of such Distance or Capacity as Occasion requires.——Within this Inclosure raise a Bed two or three Foot high, and three Foot over, of fresh Horse-dung, about six or eight Days old; then tread it down very hard on the Top, make it level, and if you think fit, edge it round with Boards or Bricks, laying fine rich Mould about three or four Inches thick on it, when the extream Heat of the Bed is over, which you may perceive by thrusting in your Finger; plant your Seed at Pleasure, and set your Forks four or five Inches above the Bed, to support a Frame made of Sticks, and covered with Straw or Bass Matts, in order to secure the Seeds and Plants from Cold and Wet; only the Covering may be opened in a warm Day, for an Hour before Noon, and an Hour after.——But take Care to earth up your Plants as they shoot in Height; and when able to bear the Cold, they may be transplanted.

In *Holland* they make Use of *Hot-Beds* made of Sand, which are not so apt to raise unwholsome Damps as those of Horse-dung.——The *Dutch* likewise make *Hot-Beds* of Tanners Bark, which when once rightly prepared will maintain an equal Heat for six Months.

Bradley, with very good Reason proposes, a Thermometer to be used to regulate the Heat of *Hot-Beds*, for Plants that are either to be brought up in a colder Season, or a colder Climate than what they naturally require; you are to take the Height at which the Thermometer stands in their proper Season or Clime, as a Standard; and by applying the Thermometer to the *Hot-Bed*, judge whether the Heat is to be intended or remitted.——Thus a *Hot-Bed* for Cucumbers must be kept, to raise the Spirit in the Glass, to the same Height as the natural Temperature of the Weather will raise it to about the latter End of *May* and *June*, when Cucumbers will grow abroad without any artificial Heat or Shelter.

The principal and most general Operations in *Agriculture*, are manuring, ploughing, fallowing, sowing, harrowing; as also reaping, mowing, *&c.*

MANURING, is the Application of a Matter proper for meliorating the Soil and rendering it more fertile.

The Matters used for *Manure* are various in various Countries; the most ordinary are Dung, Lime and Marle.

MARLE, (from the antient *Celtic*, *Marga*, called afterwards *Margila*) is a Kind of dry, soft, fossile Earth, harsh to the Touch; used to be cast on the Land to make it more fruitful.

There are several Sorts of *Marle*, of different Colours, and Qualities, too much *Marle* thrown on the Earth is found to burn it.

In some Parts of *Ireland* they use Sea Shells, of those of Cockles, Periwinckles, *&c.* which are found well to agree with boggy, heathy, clayey, wet or stiff Land; as they seem to give it a Kind of Ferment, as Barm does to Bread, opening and loosening the Clods, and by

by that Means making Way for the Roots to penetrate, and the Moisture to enter into the Fibres of the Roots.

This Kind of *Manure* continues a long Time e're its Effects are exhausted; whereas Lime, *&c.* spend themselves at once. The Shells being hard, melt away very slowly, so that the Operation need not be repeated for twenty or thirty Years.

In the West of *England* they *manure* their Land with a brackish Sea-sand; which Dr. *Berry* observes, quickens dead Land: So that what would otherwise be the barrennest Part of that Country, is now the richest. The Sea Salt, he observes, is too lusty and active in itself, and that it does best when mingled with Lime. *Glauber* orders the Mixture to be made up and burnt, like Bricks, and then applied.

In some Countries they burn the Surface of their heathy Ground, instead of manuring it; which others think but ill Husbandry, inasmuch as it impoverishes it; and by destroying the Sap of the Earth, and Roots of the Grass, and other Vegetables, render it useless for several Years after the third, when it is ploughed.

Dr. *Jackson* observes, that all the Ground about *Nantwich*, where Salt or Brine is spilt, is, when dug up, an excellent *Manure* for grazing Ground; and even Bricks, thoroughly tinged with it, dissolve and fertilize Land very considerably.

Dr. *Beal* says, it is a common Observation of Gardeners and skilful Husbandmen, that Frost and Snow improve and fertilize the Land more speedily and more effectually, than the Influence and Warmth of the Sun.

Dr. *Lister* tells us, that in some Parts of the North-riding of *Yorkshire*, the Soil is sandy, and the People *manure* it with Clay. The Soil with any other *Manure*, bears nothing but Rye; but with Clay, bears Oats, Barley, *&c.* This Clay-manuring, will, by certain Experience, last forty-five Years in the Ground, e're it need be repeated.——The Bogs in *Ireland* are said to be best improved by sandy, or other gravelly Manure.

PLOUGHING, is an Operation performed with the *Plough.*

Plough, or Plow, is a popular Machine for the breaking up of Ground; consisting of a Train or Carriage, with two large Irons, the one pointed, the other edged, serving to cut, and open the Ground, and draw Furrows therein.

The Parts of the Plough are, the *Plough-Beam*, the *Handle*, *Tail*, *Stilts*, *Halet* or *Staves*, *Neck* or *Share-beam*, *Earth-board*, *Mould-board*, *Breast-board*, *Furrow-board*, *Shield-board*, &c. the *Sheath*, *Share-iron*, *Coulter*, *Plough-pin*, and *Collar-links*, *Plough-pillow*, and *Bolster*, and sometimes *Wheels*.

The Structure and Contrivance of the *Plough* is various, in various Kinds of Grounds: A particular Description of all would be endless.——The most usual are the

Double-wheeled PLOUGH, used throughout *Hertfordshire*, *&c.*——This is apparently one of the best, strongest, and of easiest Draught, of any; and suits all Kinds of Lands, except miry Clays in Winter; which are apt to clog the Wheels, which are about eighteen or twenty Inches high, and the Furrow-wheel sometimes larger than the other.

Lincolnshire PLOUGH is singular in its Shape, and very good for marsh or fenny Lands, subject to Weeds and Sedges, but free from Stones; by Reason of the Coulter, and the Largeness of its Share, which is often a Foot broad, and very sharp.

Sussex Single-wheel PLOUGH, is of a clumsy Make, very wide in the Breech; so that the Draught of it must be very hard.——It's chiefly remarkable for its Shape.

Caxton or *Trenching* PLOUGH, invented to cut Drains about *Caxton* in *Cambridgeshire*, in stiff, miry Clay Grounds.——It is larger than ordinary, and has two Coulters, one before the other; which bending inwards, cut each Side of the Trench.——The Mould-board is three Times the usual Length, to cast the Turf a great Way off from the Trench.

It cuts the Trench a foot wide at Bottom, a Foot and Half at Top, and a Foot deep; and is drawn with twenty Horses.

Dray PLOUGH is the most common.——It is made without either Wheel or Foot; of an easy Draught, best in Winter for miry Clays, where the Land is soft.

Spanish PLOUGH, varies much in its Make from our common *Ploughs*. It is a Kind of a Semicircle, pitched on one End, with the convex Side turned to the Ploughman, and the concave Side, a little turned to the Horse. Its Tail is in a right Line with the Share.

With this *Plough*, and one Horse, the *Spaniards* plough two or three Acres of their light Ground in a Day.

Colchester PLOUGH, is a fine Light-wheel *Plough*, with which, two Horses will cut up two Acres of their light Land in a Day.——It is peculiar for its Iron Earth-board made rounding, which turns the Turf better than any other *Plough* yet invented.

One-wheel PLOUGH, may be used in almost any Kind of Ground, being lighter and nimbler than any other wheel *Plough*.

Double PLOUGH, is this; there is one *Plough* fixed to the Side of another; so that by Means of four Horses and two Men, a double Furrow is ploughed, the one by the Side of the other.

Add to these another Kind of *Double Plough*, whereby two Furrows are ploughed at once, one under another, by which the Earth is stirred up twelve or fourteen Inches Depth, which is of great Benefit.

Ploughing, is principally either that of *Layes*, or of *Fallows*.

FALLOWING, is to prepare Land, by ploughing, long before it be ploughed for Seed. To do this twice, is to *Twifallow*, and thrice, to *Trifallow*, *&c.*

The first is as soon as the Husbandman has done sowing his Corn, and this to be very shallow, well turned, and clapped close together.——The second is in *June*, when they go the full Depth.——The third, about the Beginning of *August*.——If it rise full of Clods, they harrow it down; but soon strick-size, or plough it up again into Ridges.

In *Staffordshire*, besides the three Summer Fallowings, they usually give their Land a Winter Fallowing. *Pliny* commends the ploughing of Lands four Times, and so does *Virgil*.

Illa seges demum votis respondet avari
Agricolæ, bis quæ solem, bis frigora sensit.
Georg. *lib.* 1.

This is an ancient Piece of Husbandry; *Xenophon*, *Pindar*, and *Virgil* recommend it, witness these Verses of *Virgil*.

Alternis idem tonsas cessare novales,
Et segnem patiere situ durescere campum.
Georg. *lib.* 1.

SOWING, is the Art of shedding Seed, particularly that of Vegetables.

As soon as the Seed is ripe, Dr. *Crew* observes, Nature takes several Methods for its being duly sown, not only by the opening of the Uterus, but in the Make of the Seed itself.——Thus, the Seeds of many Plants, which affect a peculiar Soil or Seat, as Arum, Poppy, *&c.* are heavy, and small enough without farther Care to fall directly down to the Ground.

Others that are large, and light enough to be exposed to the Wind, are often furnished with one or more Hooks, to stay them from straying too far from their proper Place, thus the Seeds of Avens having a single Hook; those of Agrimony, and Goose-grass, many; both the former loving a warm Bank, and the last, a Hedge for its Support.

On the contrary, many Seeds are furnish'd with Wings,

Wings, or Feathers, partly with the Help of the Wind to carry them, when ripe, off the Plant, as those of Ash, *&c.* and partly to enable them to make their Flight more or less Abroad, that they may not by falling together, come up too thick; and that if one should miss a good Bed, another may hit.—— So the Kernels of Pines have Wings, though short ones, whereby they do not fly in the Air but only flutter on the Ground, but those of Typa, Dandelion, and most of the pappous Kind, have numerous long Feathers, by which they are wafted every way.

Others are sown by being laid in springy elastick Cases, which, when they crack and burst, dart their Seed at convenient Distances: Thus, Wood-sorrel having a running Root, Nature sees fit to sow the Seed at some Distance, the doing of which is effected by a white, sturdy, tendinous Cover, which beginning to dry, bursts open on one side in an Instant, and is violently turned inside outwards. The Seed of Hearts-tongue, and codded Arsmart, is flung or shot away, by Means of a Spring, wound or girt round the Seed-case. When the Spring is become stark and tense enough, it suddenly breaks the Case into two Halves, like little Cups, and so flings the Seed.

Divers notable Means of Semination are observed by other Authors: A Quantity of Fern-seed, Mr. *Ray* tells us, laid in a Lump, on a Paper, the seminal Vesicula are heard to crackle, burst, and, by a Microscope, the Seeds are seen to be projected to a considerable Distance from each other.—— Dr. *Sloane* observes, that the *Gentianella flore cæruleo*, or Spirit-leaf, requiring wet Weather to be sown in, as soon as the least Drop of Rain touches the End of the Seed-vessels, with a smart Noise, and sudden Leap, it opens itself, and with a Spring scatters its Seed.

The Plants of the Cardamime-family, throw their Cods open, and dart out their Seed upon a slight Touch of the Hand. Nay, Mr. *Ray* adds, that the Pods of the Cardamime impatient not only burst upon the slightest Touch, but even by an Approach of the Hand to touch them, without any real Contact.

Other Plants sow their Seeds by inviting Birds, by their agreeable Taste and Smell, to feed of them, swallow them, and carry them about; thereby also fertilizing them, by passing through their Bodies. ——In such Manner are Nutmegs and Misseltoe, sown and propagated.

Seed *Semen*, is a Matter prepared by Nature, for the Reproduction, and Conservation of the Species, both in Men, Animals, and Plants.

Mr. *Bradley* observes, that the Seeds of Plants in Gardening and Agriculture (those meant here) though exceedingly good, will degenerate from the Mother-plant, if they be sown on the same Ground, whence they were gathered; so that there is great Necessity for a yearly Change of *Seeds* of Forrest-trees, as Acorns, Masts, *&c.* If the Place be too cold to sow them when gathered in *August*, they may be kept barrelled, or potted up, in moist Sand or Earth, *stratum super stratum*, during the Winter, at the End of which they are found sprouted, and if gently sown, will be as forward, as if sown in Autumn; beside their missing the Vermin to which the Winter *Seed* is much exposed.

The Seed is not to be chosen from the most fruitful Trees, so much as from the most solid and fair, nor are we to covet the largest Acorns, but the most weighty, clean and bright; porous, insipid, mild Sorts of *Seeds*, are to be sown as soon as ripe; hot, bitter *Seeds* to be kept a Year before sown.

The Shape and Weight of *Seeds*, direct how they are to be set: Most of them, when they fall, lie on one side, with the small End towards the Earth, which shews that Posture to be best to set any Stone or Nut in: If they be heavy, sow them the deeper. Acorns, Peaches, *&c.* to be sown two or three Inches deep.

Harrowing is to break the Clods of Earth after Ploughing.

Harrow is a Drag made in a Square Form for that Operation.

It consists of five Parts; 1. The *Harrow* Bulls, which are the Holes where the Nails go in; 2. The Slots, which are the cross Pins; 3. The *Harrow* Tines, Pins, or Rushes, which are iron Nails; 4. The Hook, being that which fastens the Horse to them; 5. The Couples, when two *Harrows* are tied together.

To the Operation of *Agriculture* do also belong the Management of the Productions of different Countries, as Hops, Hemp, Vines, Tobacco, Saffron, Liquorice, Woad, *&c.*

Hop, *Lupulus*, is a Plant of the reptile Kind, whose Flower is a principal Ingredient in Beer, and other Malt-liquors.

The *Hop* creeps like Snake-weed, unless it find Pales or Shrubs to hang to; or unless they who cultivate it, plant Poles for the Purpose.——Its Stem is long, flexible, rough, and hairy.——Its Leaf indented like that of the Vine, and covered with a Kind of a prickly Down like that of the Cucumber. Its Flowers are of a greenish Yellow, resembling, both as to the Form and Size, those of the female Elm; and grow in a Kind of Bunch or Cluster. In this Flower is a blackish bitter Grain contained, which is the Seed of the *Hop*.

In the Spring Time, while the Bud is yet tender, the Tops of the Plant being cut off, and boiled, are eat like Asparagus; and found effectual to loosen the Body; the Heads and Tendrils are good to purify the Blood in Scorbutick and most cutaneous Diseases: Decoctions of the Flowers and Syrups thereof are of Use against pestilential Fevers: Juleps and Apozems are also prepared with *Hops* for hypochondriacal and hysterical Affections, and to promote the Menses.

The Propagation and Culture of *Hops*, being a Point of some Nicety, as well as great Advantage, we shall lay down a little System thereof.——It is certain there is nothing in all the rural Employments, that, under prudent Management, turns to more Account; very large Estates have been raised by this Commodity in a few Years past.——*Switzer* tells us, he has known Ground yield 30 *l. per Annum, per* Acre, planted therewith: To say nothing of the great Number of Poor that are employed therein, *viz.* in the planting, soiling, digging, houghing, poling, tying, picking, *&c.*

Culture of Hops *and* Hop *Gardens.*——*Hops* are of diverse Kinds: *Mortimer* reckons Four, *viz.* the *wild garlick Hop*, which is not worth Propagating; the *long and square garlick Hop*, which, though valuable, yet on account of the Redness towards the Stalk, does not bear the best Price; the *long white Hop*, which is the most beautiful and fertile; and the *oval Hop*.

Another Author distinguishes the *Hops* to be cultivated, into the *white* and *grey Kinds*; the latter being a large square *Hop*, more hardy, and bearing a plentifuller Crop than the former; though it does not ripen so early.

For the Soil of Hops.——There are scarce any but may serve, except stony, rocky, and stiff Clay Ground: the best, however, is that which is light, deep, and rich; which will be the better if Sand be mixed with it: A black Garden Mould is also excellent. If the Ground be cold, stiff, and sour, the best Improvement is to burn-beat it. *Mortimer* adds, that in *Kent*, where they esteem new Land best for *Hops*, they plant their *Hop* Gardens with Cherry-trees, and Apple-trees, at a good Distance; that when the Land is past the best for *Hops* (which happens in about ten Years) the Cherry-trees may begin to bear; and thirty Years after, when the Cherry-trees are spent, the Apple-trees may be in Perfection.

For the planting of Hops.——The Ground is first to be prepared by Tilling it the beginning of Winter, either with a Plough or Spade. In *October*, (and sometimes, though rarely, in *March*) they proceed to plant; marking out the Places where each Hillock or little Plantation is to be, some plant in Squares, Chequer-wise, which is the most convenient Form, where they intend, in the Course of the Tillage, to plough

plough with Horses between the Hills: But the best Form for the Hop, as well as the most pleasing to the Eye, is the Quincunx.

If the Ground be poor, or stiff, it is necessary some good Mould, or else a Compost of Manure and Earth, be laid in Holes a Foot square, in the several Places where the Hills are to be. —— The Distance of the Hills in dry hot Ground may be six Foot; but in moist and rich Ground, subject to bear large *Hops*, eight or nine.

For planting, the largest Sets are to be chosen, eight or ten Inches long, having each three or four Joints, these to be set in Holes, made for the Purpose, one at each Corner of a Hole, and a fifth in the middle, raising the Earth two or three Inches about.

For the dressing of Hops. —— If the *Hop*-ground be old, and worn out of Heart, they find it convenient to dig about them, towards the beginning of each Winter, and take away a Quantity of the old Earth; its Place to be supplied with what is fatter and fresher. —— If the *Hops* be in good Heart, manuring and pruning is most adviseable. In order to this they pull down the Hills, and undermine all about, till they come near the principal Roots. This done taking off the Earth from the Roots, they find by the Colour, *&c.* which are new Shoots, and which old ones; and cut off all the new ones. —— When the Roots are thus dressed, the new Mould or Manure to be applied.

For the Poling. —— The Time is when the *Hops* begin to appear above Ground; the Number and Dimensions of the Poles to be adjusted to the Distance of the Hills, the Nature of the Soil and Strength of the *Hop.* —— To prevent *Housling*, the Poles are to be made to lean outwards; and particularly towards the South, to receive more of the Sun's Beams; it being Matter of Observation, that a leaning Pole bears more *Hops* than an upright one.

As to tying. —— When the *Hops* are got two or three Foot above Ground, the next Business is to conduct and tye them to such Poles as are empty, and at a proper Distance from them. —— They are to be tied with withered Rushes, or woollen Yarn; but not so close as to hinder their climbing up the Poles: Two or three Strings may suffice for a Pole. This Operation is to be atended to in *April* and *May*.

About Midsummer, when they cease to run in Length, and begin to branch, such of them as are not yet got up to the Tops of the Poles, should have their Heads nipped off, or else be diverted from the Pole, that they may branch the better; which is more for the Increase of the *Hop*, than its extending in Length.

Sometimes in *May*, after Rain, the Hills are to be made up with a Hoe, or Spade, or by ploughing; which will be a Means to destroy the Weeds: And it is necessary, if the Spring or Summer prove dry, to water them twice or thrice in a Season.

Hops blow towards the latter End of *July*: And the forward ones are ripe by the Close of *August*. —— Their Ripeness is discover'd by their fragrant Scent, their changing of Colour, being easily pulled, and by the brownish Colour of the Seed.

Hops are to be gathered, when they look a little brownish, and that without Delay; the most expeditious Way is, to make a Frame with four short Poles or Sticks, laid on four Forks driven into the Ground, of such Breadth, as to contain either the Hair-cloth of your Kiln, or a Blanket tacked round about the Edges. —— On this Device, the Poles with the *Hops* on them, may be laid, being either supported by Forks, or the Edges of the Frame; at each Side whereof the Pickers may stand, and pick the Hops into it. —— When the Blanket or Hair-cloth is full, untack it, carry it away, and place another, or the same emptied, in the same Frame again; and this Frame may be daily removed, with little Trouble, to some new Place of the Garden near the Work.

Hops must not be gathered while wet; but if the Dew be on them, the Pole may be shaken, and they will dry the sooner; if they be over Ripe they will be apt to shed their Seed, wherein consists their chief Strength; neither will they look so Green, but somewhat Brown, which much lessens their Value; though some let them stand as long as they can; because they waste less in their dropping; for four Pounds of undried *Hops*, thorough Ripe, will make one of dry; whereas five Pounds of those scarcely Ripe, yet in their Prime, make but one. So that it is judged the Proprietors get more in the thorough ripe *Hop* by the Weight than they lose in the Colour.

As soon as the *Hops* are picked, they must be dried; some, especially the *Flemings* and *Hollanders*, make Use of an Oost or Kiln for this Purpose, others dry them on the ordinary Malt-kiln in an Hair-cloth: But the best Way, is to make a Bed of flat Ledges, about an Inch thick, and two or three Inches broad, sawn, and laid one across the other Chequer-wise, the flat way; the Distances about three Inches, or the like; the Ledges so entered, are put into another that the Floor may be even and smooth: This Bed may rest on two or three Joysts set edgewise, to support it from sinking; then cover it with large double Tin Plates sodered together at each Joint; and so order the Ledges before they are laid, that the Joints of the Tin may always lie over the Middle of a Ledge; and when the Bed is wholly covered with Tin, fit Boards about the Edges of the Kiln to keep up the *Hops*, only let the one Side be to remove, that the *Hops* may be shoved off as before. The *Hops* may be turned on this Tin Bed or Floor with great Safety and small Expence of Fuel; beside, that any Manner of Fuel will serve for this Purpose as well as Charcoal, the Smoke not passing through the *Hops*: But it must not be forgot to make Conveyances for it at the several Corners and Sides of the Kiln.

The turning of Hops, after the easiest and most secure Manner, is found to be not only a Waste and Injury to the *Hop*, but also an Expence of Fuel and Time; yet it may be prevented, in Case the upper Bed, whereon the *Hops* lie, have a Cover that may be let down and raised at Pleasure; which Cover may be tinned over, by nailing single Tin Plates to the Face of it; that when the *Hops* begin to dry, and are ready to be burnt, you may let down this Cover within a Foot and less of the *Hops*, which will reflect the Heat upon them, that the uppermost *Hop*, will be as soon dry as the lower, and every *Hop* equally dried.

The Method of Bagging Hops, (after they have lain a Month more to cool and toughen) is to make a round or square Hole in an upper Floor, big enough for a Man with Ease to go up and down, and turn and wind in it; then tack a Hoop about the Mouth of the Bag fast with Packthread, that it may bear the Weight of the *Hops* when full, and of the Man that treads them; that done let the Bag down through the Hole; and the Hoop will rest above, so as to keep the Bag from sliding wholly through; into this Bag cast a few *Hops*, and before you go in to Tread, let an Handful of *Hops* be tied at each lower Corner with a Piece of Packthread, to make, as it were a Tassel, whereby the Bag, when full, may be conveniently lifted or removed; then go into the Bag, and tread the *Hops* on every Side, another still casting in as fast as you require, till it be full; when it is well trodden and filled, let the Bag down, by unripping the Loop, and close the Mouth of the Bag, filling the two upper Corners as you did the lower: This Bag, if well packed and dried, will keep several Years in a dry Place; only Care must be taken, that Mice do not spoil or waste the *Hops*; not that they will eat them, but make their Nests therein.

HEMP, by Naturalists called Cannabis, bears a near Analogy to Flax, *Linum*; both in Respect of Form, Culture and Use.

The Plant is Annual; that is, must be sown afresh every Year. —— It rises quick, into a tall slender Sort of Shrub, whose Stem however is hollow, and big enough to be chari'd, and thus used in the Compoſi-

tion of Gunpowder.—Its Leaves arise by fives or sixes, from the same Pedicle, and are a little jagged; yielding a strong Smell, which affects the Head.——Its Flowers grow Grape-wise, opposite to each other, in Manner of St. *Andrew*'s Cross; each consisting of five yellowish Stamina, incompassed with a like Number of Petala, purple without, and white within.—Its Fruit or Seed is small and round, filled with a white solid Pulp; and grows on the Top of the Stem; having its Pedicles distinct from those of the Flowers.——Lastly, its Bark is a Tissue of Fibres, joined together by a soft Matter, which easily rots it.

Hemp is of two Kinds; Male, properly called *Karl*; and Female, or *fimble*.——It is the Male alone that produces Seed, to perpetuate the Kind; from the Seed of the Male, arises both Male and Female.

It does not appear, that the Antients were acquainted with the Use of *Hemp*, in Respect of the Thread it affords. *Pliny*, who speaks of the Plant in his *Natural History*, *l.* XX. *c.* 23. says not a Word of it; contenting himself with extolling the Virtues of its Stem, Leaves, and Roots. In Effect, what some Writers of the *Roman* Antiquities remark, *viz.* that the *Hemp* necessary for the Use of War, was all stirred up in two Cities of the Western Empire, *viz.* at *Ravenna*, and *Vienna*, under two Procurators, called *Procuratores linificii*; must be understood of Flax.

The Seed is said to have the Faculty of abating venereal Desires; and its Decoction in Milk, is recommended against the Jaundice, *&c.*——The Leaves are held good against Burns, and the Juice thereof against Deafness.——The Powder or Flower, mix'd with any ordinary Liquor, is said to turn those who drink thereof, stupid.

The Culture and Management of *Hemp*, makes a considerable Article in *Agriculture*; there being diverse Operations required therein, as pulling, watering, beating, swinging, *&c.*

The Plant is sown in *May*, in a warm, sandy, rich Soil; and is itself sufficient to destroy Weeds on any Ground.——About *Lammas* they begin to gather it; the Light or Female, being first ripe.

The Marks of its Maturity, are its Leaves turning yellow, and the Stalks white.

The Way of gathering, is to pull it up by the Roots; after which, they bind it up in Handfulls or Bundles. The Male, they let stand eight or ten Days in the Air, that the Seed may dry or ripen; after which they cut off the Heads, and beat or thrash them, to get out the Seed.——They also beat the Female, to get out a thick, fetid Sort of Dust, contained therein.

This done, they proceed to *water* or *rate* it, by laying it five or six Days in a Pool, or other stagnant Water, to rot the Bark. A Stream, or running Water, would do the Business much better; but that it infects the Water, and gives it a Quality very pernicious to the Health; for which Reason it is forbid to rate it in Waters used for domestick Purposes.

When rotted, and taken out again, they dry it; then *break* or beat out the dry Bun, or Hex, which is the woody Part of the Stem, from the Rind or Bark which covers it, by crushing it in a toothed or nicked Instrument, called a *Brake*, beginning with the Root End.

When the Bun is sufficiently broke, and hangs by small Shivers, they *swingle* or beat them out, with a Piece of Wood edged for that Purpose.

——Note, the *Karl Hemp*, they sometimes break with the Fingers, and strip off the Rind, without the Help of the *Brake* or *Swingle*.

The next Thing is to beat the *Hemp*; which is done either on a Block, or in a Trough, with a Hammer, or with Beetles; till it feel sufficiently soft and pliable.——It remains now to be *heckled*, or passed thro' divers toothed Instruments, not unlike the Wool-dressers Combs, of different Fineness; this separating the shorter Tow from it; the rest is fit to be spun, wove, *&c.* for Thread, Cloth, Cordage, or the like.

Flax or *Line*, *Linum*, is a Plant with a slender, hollow Stem, usually about two Foot high; whose Bark consists of Fibres, or Threads, much like those of Hemp; which being dressed and worked in due Manner, makes that noble Commodity Linen-cloth.

Flax thrives best in a Soil that has long lain fallow. To bear *Flax*, it must be well ploughed, laid flat or even, and the Seed sown thick, in a warm Season, about the Middle of *March*, or Beginning of *April*. The best Seed is that brought from the East; which, though dear, repays the Charges with Abundance. One Sowing, will produce two or three Crops, before it need be renewed.

Flax, pulled up in the Bloom, proves whiter and stronger, than if left standing till the Seed is ripe; but then the Seed is lost.

The Preparations *Flax* must undergo, to fit it for Spinning, are pulling, drying, and swingling.

The Seed of *Flax*, called *Linseed*, has several considerable Properties. It enters the Composition of divers Medicines, and yields an Oil by Expression, which has most of the Properties of Nut-oil; and which is frequently used, in Defect thereof, in Painting, to burn in Lamps, *&c.* That drawn cold, is reputed good in divers Diseases.

Vine, *vitis*, is a noble Plant or Shrub, of the reptile Kind; famous for its Fruit, or Grapes, and for the Liquor they afford.

The Kinds of *Vines* are almost infinite; denominated either from the Soil, and Place where they grow; as the *Bourguignon*, *Bourdelas*, *Italian*, *Mantua Vine*, *&c.* or from the Form, Colour, Taste, *&c.* of their Grapes; as the *Acorn*, *Apricot*, *Damask*, *Birds-bill*, *Muscadine*, *&c. Vine*.

Our Gardeners find that *Vines* are capable of being cultivated in *England*, so as to produce large Quantities of Grapes, and those ripened to such a Degree, as may afford a good substantial vinous Juice.——Witness the Vineyards in *Somersetshire*, particularly that famous one at *Bath*.

In Effect, it does not seem so much owing to the Inclemency of our *English* Air, that our Grapes are generally inferiour to those of *France*, *&c.* as to the Want of a just Culture.

Those fitted for the *English* Climate, Mr. *Mortimer* finds to be the small, black Grape, the white Muscadine, Parsley-grape, Muscadilla, white and red Frontigniac.——Mr. *Bradley* recommends the *July* Grape, the early sweet Water Grape, lately brought from the *Canaries*; the Arbois, or *French* sweet Water Grape: All which, if well managed, and the Weather favourable, are ripe by the Middle of *August*.——He also recommends the Claret and *Burgundy* Grapes.

The Spot of Ground planted with *Vines*, is called Vineyard, *Vinetum*, in *French*, *Vignoble*.

The best Situation of a *Vineyard*, is on the Declivity of a Hill, lying to the South.

The best Soil for *Vines*, according to *Mortimer*, is the hottest Gravel, Sand, or dry rocky Ground, provided it be well watered, and shaded.——At first planting, Mr. *Bradley* recommends chalky Hills as proper for *Vines*.

To amend a Soil that wants those Qualities, it is good to throw in the Rubbish of old Buildings, well mixed with twice as much Earth, and sifted about the Roots of the Vines.

The Vine is propagated by Slips, Layers, or Sucklers, planted in a Nursery, and thence transplanted, about *February*, into the *Vineyard*.

The Vines are to be planted in Lines, running North and South, five or six Foot apart; only two Vines in each Hole.——The *September* following, the Shoots of that Summer to be pruned, shorter, according to their Strength; and the Summer following, the strongest will begin to shew a little Fruit.——They are now to be supported with Stakes, *&c.* so as they may run about a Foot above Ground: The higher they run, the less Danger they are in of being

ing ſpoiled with Wet; but the lower, the ſweeter Grapes, and the ſtronger Wine.

If notwithſtanding due Pruning, they do not ſeem inclinable to bear large Bunches, the Ground to be helped by a Mixture of Rubbiſh of ſome old Building, with Sea-coal Aſhes, or drift Sand.——Thus managed, a *Vineyard*, in five or ſix Years, will produce good Store of Grapes.

The celebrated *Vineyard* at *Bath*, containing about ſix Acres of Ground, planted with white Muſcadine, and black Cluſter Grapes, Mr. *Bradley* aſſures us, by ſuch Management, ſome Years ago, yielded ſixty Hogſheads of Wine at a Vintage: though in the Year 1721, it only yielded three Hogſheads.

The ſame Author mentions a little *Vineyard* of a private Perſon at *Rotherhithe*; which, tho' only conſiſting of 100 Vines, and ſome of them only of the ſecond Years Growth, yielded, at a Vintage, 95 Gallons of Wine, which he adds, had the true *Burgundy* Flavour, as being made from that Sort of Grape; and exceeded any made from any *Vineyard* on this Side *Paris*.

From the Fruit of the Vine, is drawn a Liquor called WINE, the *Method of making and fining*, which, in the Southern Parts of *France*, is, for *red Wines*, to tread, or ſqueeze the Grapes between the Hands, and to let the whole ſtand, Juice and Huſks, till the Tincture be to their Liking; after which they preſs it.——But for *white Wines*, they preſs the Grapes immediately.

When preſſed they tun the Muſt, and ſtop up the Veſſel; only leaving the Depth of half a Foot or more empty, to give Room for it to work.——At ten Days End, they fill this Space with ſome other proper *Wine*, that will not provoke it to work again. ——This they repeat from Time to Time; new *Wine* ſpending itſelf a little, e're it comes to Perfection.

About *Paris*, and the Northern Parts of *France*, they let their Murk and Muſt ſtand two Days and Nights, for *white Wines*, and at leaſt a Week for *claret Wines*, e're they tun it.——While it continues working, it is kept as warm as poſſible.

Some upon ſtopping it up for good and all, roll the Caſk about the Cellar, to mix the Liquor with the Lees; and after ſettling a few Days, rack it off, with great Improvement.

To fine it down, they put Shavings of green Beech into the Veſſel; having firſt taken off all the Rind, and boiled them an Hour in Water, to extract their Rankneſs; and afterwards dried them in the Sun, or an Oven; a Buſhel of theſe ſerve for a Tun of Wine. Theſe put the Liquor in a gentle Working, and purify it in twenty-four Hours. Theſe alſo give it an agreeable Flavour.——The ſame Chips being waſhed ſerve again and again, till almoſt conſumed.

Some ſweeten their Wines with Raiſins of the Sun, trod in the Vat with the Grapes, having been firſt plumped by boiling; others, by boiling Half the Muſt, ſcumming it and tunning it up hot with the other.

For *Engliſh Wine*, the Method recommended by Mr. *Mortimer*, is, firſt, to gather the Grapes when very dry, to pick them from the Stalks, then to preſs them, and let the Juice ſtand twenty-four Hours in the Vat, covered. Afterwards, to draw it off from the groſs Lees, and then put it up in a Caſk, and to add a Pint, or Quart, of ſtrong red, or white Port, to every Gallon of Juice; and let the whole work: bunging it up cloſe, and letting it ſtand till *January*; then bottle in dry Weather.

By this Method, he aſſures us, he has made *Engliſh Wine*, as good as any the beſt and pureſt *Wine*, drank either in *Paris*, or *Champaigne*.

Mr. *Bradley* chuſes to have the Liquor when preſſed, ſtand with the Huſks, Stalks and all, in the Vat, to ferment, for fifteen Days.

He adds, that, according as the Vines have been managed, the *Wine* will be ſtronger, or weaker.——Thoſe *ex. gr.* which run at Liberty up high Trees, and are never pruned, make the ſmalleſt *Wines*: Thoſe kept tied to the Stakes, about four Feet high, and which have their Branches duly pruned, ſtronger *Wines*: And thoſe neareſt the Ground, the ſtrongeſt.

The Force of fermenting *Wine* is very great, being able, if cloſe ſtopped up, to burſt through the ſtrongeſt Caſk.——The readieſt and only Way to ſtop or abate the Fermentation, is by the Fume of burning Sulphur.

Add, that when *Wine* already made, is upon the Fret, or, by any Alteration in the Air, begins to ferment again; the Way uſed by the Vintners and Wine Coopers to ſave it, is by the Flame of common Sulphur, or a lighted Match dipped in it; which held under a Caſk, juſt ready to burſt its Hoops, calms its Fury, and makes it immediately ſubſide.

The Goodneſs of *Wine* conſiſts in its being neat, dry, fine, bright, and briſk, without any Taſte of the Soil, of a clean, ſteddy Colour; having a Strength, without being heady; a Body without being ſour; and keeping without being hard, or eager.

Wine being a Liquor, moſtly of foreign Produce; the divers Names, Forms, Kinds, Diſtinctions, *&c.* thereof, are borrowed from the Countries where it is produced; the Principal whereof, at this Day, is *France*: To *Wines* of which Country, a good Part of what we have to ſay of this noble Liquor, will more immediately belong.

Wine, in *France*, is diſtinguiſhed from the ſeveral Degrees and Steps of its Preparation, into,

Mere-goutte, Mother-drop; which is the Virgin *Wine*, or Liquor in the Vat, after the Grapes have been trodden, or ſtamped.

Preſſed WINE, *Vin de preſſurage*, which is that ſqueezed with a Preſs out of the Grapes half bruiſed by the treading.

The Huſks left of the Grapes, are called *Rape*, Murk, or Mark; by throwing Water upon which, and preſſing them a-freſh, they make a Liquor for Servants Uſe, anſwerable to our Cyder-kin, and called *Boiſſon*; which is of ſome Uſe in Medicine, in the Cure of Diſorders, occaſioned by viſcid Humours.

Sweet WINE, *Vin doux*, is that which has not yet worked or fermented.

Bouru, that which has been prevented working, by caſting in cold Water.

Cuvè, or *worked Wine*; that which has been let work in the Vat, to give it a Colour.

Cuit, or *boiled Wine*, that which has a Boiling e're it worked; and which by that Means, ſtill retains its native Sweetneſs.

Paſſe, or *ſtrained Wine*, that made by ſteeping dry Grapes in Water, and letting it ferment of itſelf.

Wines, are alſo diſtinguiſhed, with Regard to the Colour, into *White Wine*, *Red Wine*, *Claret Wine*, *Pale Wine*, *Roſe* or *Black Wine*.——And with Regard to their Country, or the Soil that produces them, into *French Wines*, *Spaniſh Wines*, *Rheniſh Wines*, *Hungary Wines*, *Canary Wines*, *&c.* And more particularly into *Port Wine*, *Madera Wine*, *Burgundy Wine*, *Champaign Wine*, *Falernian Wine*, *Tokay Wine*, *Schiras Wine*, *&c.*

Wines, again, are diſtinguiſhed, with Regard to their Quality, into *ſweet Wines*, *rough* or *dry Wines*, and *rich* or *luſcious Wines*, *Vins de liqueur*; of which laſt, ſome are exceedingly ſweet, others ſweet and poignant: All chiefly uſed by Way of Dram, after Meals, *&c.*

Such are the *French*, *Frontigniac*, *Madera*, the *Canary*, the *Hungary*, *Tokay*; the *Italian*, *Monteſiaſcone*; the *Perſian Schiras*; the *Malmſey Wines*, of *Candia*, *Chio*, *Leſbos*, *Tenedos*, and other Iſlands of the *Archipelago*, which antiently belonged to the *Greeks*, but now to the *Turks*.——Theſe are ſometimes called *Greek Wines*, and ſometimes *Turkey Wines*.

Wine is alſo variouſly denominated, according to its State, Circumſtances, Qualities, *&c.*

Natural WINE, is ſuch as it comes from the Grape,

Grape, without further Mixture or Sophiſtication.

Brewed or *adulterated* WINE, is that wherein ſome Drug is added to give it Strength, Fineneſs, Flavour, Briſkneſs, Sweetneſs, or ſome other Quality which is wanted.

Pricked or *eager* WINE, is that turned ſouriſh.

Flat WINE, is that fallen weak and vappid, for want of being drank in Time.

Sulphured WINE, is that put in Caſks, wherein Sulphur has been burnt; in order to fit it for Keeping, or for Carriage by Sea.

Colour WINE, is, ſome think, a *Wine* of a very deep Colour, ſerving to dye the *Wines*, that are too pale, *&c.* as the *black* or *Alicant Wines*, in Uſe among our *Vintners*.

Chip WINE, is that poured on Chips of Beech-wood to fine or ſoften it.

Rape WINE, is that put in a Caſk half full of freſh Grapes picked for the Purpoſe, to recover the Strength, Briſkneſs, *&c.* it had loſt by Keeping, *&c.*

The rearing up CORN, is alſo one of the principal Operations in *Agriculture*.

CORN is a Plant, or rather Genus of Plants, which produces a Grain fit for Bread, the ordinary Food of Man.

CORN is alſo uſed for the Grain or Seed of that Plant, ſeparated from the Spica, or Ear.

In the Commerce of Grain they diſtinguiſh three Kinds, *viz.* *Corn* properly ſo called, or Wheat; *Rye*, which is a Species very different, and of a Quality far inferior, and a third Kind reſulting from a Mixture of the two, called Maſlin.

The Farmers, indeed, rank among the Number of *Corn* ſeveral of the Grains ſowed in *March*; as Barley, Oats, and even Pulſe, as Peas, Vetches, *&c.* which, however, they ſometimes diſtinguiſh, by the Denomination of *ſmaller Corn*; Maiſe and Saraſin are numbered among the *Corns*; the firſt called *Turkey* and *Indian Corn*; the ſecond *French*, or *black Corn*.

Europe, in every Part of it; *Egypt*, and ſome other Cantons of *Africa*, particularly the Coaſts of *Barbary*; and ſome Parts of *America* cultivated by the *Europeans*, particularly *New England*, *New France*, and *Acadia*; are the Places which produce *Corn*. Other Countries have Maiſe and Rice in lieu of it, and ſome Parts of *America*, both in the Iſlands and Continents, ſimple Roots, ſuch as Potatoes and Manioc.

Egypt was antiently the moſt fertile of all other Countries in Corn; as appears both from ſacred and profane Hiſtory; it furniſhed a good Part of the People ſubject to the *Roman* Empire, and was called the dry Nurſe of *Rome* and *Italy*. *England*, *France*, and *Poland*, ſeem now in the Place of *Egypt*, and with their Superfluities ſupport a good Part of *Europe*.

For the firſt Diſcovery and Culture of Corn, Authors are much divided; the common Opinion is, that in the firſt Ages Men lived on the ſpontaneous Fruits of the Earth, as Acorns, and the Nut or Maſt produced from Beech, which they ſay took its Name *Fagus* from the *Greek* φαγὼ, I eat. It is added, that they had not either the Uſe of *Corn*, nor the Art of preparing or making it eatable.

Ceres has the Credit of being the firſt who ſhewed the Uſe of *Corn*, on which Account ſhe was placed among the Gods. Others give the Honour to *Triptolemus*: Others ſhare it between the two; making *Ceres* the firſt Diſcoverer, and *Triptolemus* the firſt Cultivater of *Corn*.

Diodorus Siculus aſcribes the whole to *Iſis*; in which, *Polidore Virgil* obſerves, he does not differ from the reſt; *Iſis* and *Ceres* being in reality the ſame. The *Athenians* pretend it was among them the Art began, and the *Cretans* or *Candiots*, *Sicilians*, and *Egyptians* lay Claim to the ſame. Some think the Title of the *Sicilians* beſt ſupported, that being the Country of *Ceres*; and others add ſhe did not teach the Secret to the *Athenians*, till ſhe had firſt inſtructed her own Country-men. Others ſay *Ceres* firſt paſſed into *Attica*, thence into *Crete*, and laſt of all into *Sicily*. Many of the Learned, maintain, however, it was in *Egypt*, the Art of cultivating *Corn* firſt began; and it's certain there was *Corn* in *Egypt*, and the *Eaſt*, long before the Time of *Ceres*.

For the Preſervation of Corn: It muſt be well dried and cleaned, the Granary have its Opening to the North or Eaſt, and Vent-holes a-top. For the firſt ſix Months it muſt be well ſtirred every fifteen Days; afterwards it will be ſufficient to ſift it once *per* Month; after two Years it heats no more; nor is there any thing to fear, but from the Air and foreign Moiſture.

A little Time after the Siege of *Metz* under *Henry* II. of *France*, the Duke *d'Eſpernon* laid up vaſt Stores of *Corn* in the Citadel, which was preſerved in good Plight to the Year 1707. when the *French* King and his Retinue paſſing that Way, eat Bread baked thereof.

The chief Thing that contributes to the Preſervation of *Corn*, is a Cruſt which is formed on its Surface, by the Germination of the Grain underneath, to the Thickneſs of an Inch and a Half. On that at *Metz* People walked, without its giving the leaſt Way. At *Sedan* was a Granary cut in a Rock, wherein a Heap of *Corn* was preſerved one hundred and ten Years: It was covered with a Cruſt a Foot thick.

At *Chalons* they have Granaries where they ſtill keep *Corn* thirty or forty Years; over the Heap they ſtrew Quick-lime, in fine Duſt, to the Thickneſs of three Inches; and ſprinkle this over with Water, whence ariſes a Cruſt. The Grain near the Surface ſprouts to the Height of a Foot and a Half; theſe the Winter kills; and the Heap is left untouched till Neceſſity obliges them to it.

To the ſame Art, *Agriculture*, belong Planting, Tranſplanting, Pruning, Engrafting; the Culture of Foreſts, Timber, Copſes, *&c.*

PLANTING, in *Agriculture* and Gardening, is the ſetting of a Tree, or Plant, taken up from its former Place, in a new Hole or Pit proportionable to its Bulk; throwing freſh Earth over its Root, and filling up the Hole to the level of the other Ground.

There are three Sorts of PLANTING, *viz.* *Planting* an *Orchard*, *Planting* of Foreſt-trees, and *Planting* of Wall-fruit Trees. But theſe are more properly adapted to Tranſplanting. —— *Tranſplanting* in *Agriculture*, is the Art of removing Trees or Plants from the Place where they were ſowed or bred up, and planting them in others.

ORCHARD, is a Seminary or Plantation of Fruit-trees, chiefly Apples, and Pears.

'Tis a Rule among the Gardeners, that thoſe *Orchards*, *cæteris paribus*, thrive beſt, which lie open to the South, South-Weſt, and South-Eaſt, and are ſcreened from the North; the Soil dry and deep.

Orchards are ſtocked by Tranſplantation; ſeldom by Semination.

The Seaſon for tranſplanting Apple Trees into *Orchards*, is in the Months of *October* and *November*.

If the Leaves be not all off at the Time they are removed, they muſt be pulled off. They are likewiſe to be pruned. Trees may be tranſplanted into *Orchards*, after three Years grafting; and ought not to be ſet at a leſs Diſtance than eight Yards, nor greater than fourteen: And the richer the Land, the greater the Diſtance.

The Trees are tranſplanted to beſt Purpoſe, when young: For Trees ten or twelve Years old, a narrow Trench muſt be dug the *November* before, deep enough to meet the ſpreading Roots, at ſuch a Diſtance all around the Tree, as the Roots are to be cut off at; in making the Trench, the Roots to be cut off clean, and without ſplitting or bruiſing the Bark, and the Trench filled up again. This will enable the Tree, upon Removal, to draw more Nouriſhment than otherwiſe it would; and ſo thrive better in its new Manſion.

The ſide Branches of all tall *Orchard* Fruit Trees, are to be cut off, till the Tree be arrived at the Height deſired.

If

If the Tree be to ſpread low, ſome are to be left on each Side; ſo as to form a kind of Ballance. For the firſt three Years, at leaſt, they muſt not grow thick and buſhy-headed: This muſt be prevented by cutting off ſome of the inſide Shoots, and ſuch as grow croſs each other, or pendant.

The Soil, if not rich enough, is to be amended in two or three Years; by opening it around the Tree, and on the Outſide of the Ground firſt dug, when the Tree was ſet; and in a Month's Time filling it up again with a proper Compoſt or Manure.

In the TRANSPLANTING *of Foreſt-Trees*, Care is to be taken to preſerve the Roots; and even the fine Hairs or Filaments thereof, with the Earth that ſticks thereto; theſe Filaments being the Mouths that ſuck the Nouriſhment, and transfuſe it to the Tree.

The Pits or Foſſes, into which Trees are *tranſplanted*, ſhould be left open for ſome Time beforehand, that the Rain, Froſt, and Sun may diſſolve the compacted Salt, render the Earth friable, and qualify it for nouriſhing the Tree. —— The ſame may be done, in ſome Meaſure, by burning Straw in the new Pits, and drenching the Mould with Water in dry Seaſons, and by enriching the Ground with Manure.

Pliny was of Opinion, no Tree ſhould be removed under two, or above three Years old. *Cato* would have none *tranſplanted* leſs than five Fingers in Diameter; but we are, now, able to *tranſplant* Trees of all Ages and Sizes, without Danger.

To tranſplant old Trees was reckoned ſo difficult, that *veterem arborem tranſplantare* is become a Proverb for a difficult Enterprize; and yet we are informed of a Grove of 600 Cocoa-trees of 80 Years Growth, and 60 Foot high to the loweſt Bough, *tranſplanted* by Count *Maurice*, to his Paradiſe of *Friburg*: And a great Perſon in *Devonſhire*, Mr. *Evelyn* tells us, *tranſplanted* Oaks, as big as twelve Oxen could draw to ſupply a Defect in an Avenue.

For the Tranſplantation of grown Trees, Mr. *Evelyn* gives the following Method, as practiſed with good Succeſs by the Lord *Fitzharding*: Chooſe Trees about the Thickneſs of a Man's Thigh; remove the Earth from about them; cut through all the ſide Roots, till the Tree may be, by Force, brought down on one Side; ſo that the Tap Roots may be conveniently come at to be cut off with the Ax: Then redreſs the Tree, and let it ſtand covered with the Mould from which it was looſened, till next Year, or longer; and by that Time it will have drawn new tender Roots fit for *Tranſplanting*, and may be taken up at a fit Seaſon.

Otherwiſe, for very large Trees, before the hard Froſts come on, make a Trench about the Tree at ſuch Diſtance from the Stem, as you judge ſufficient for the Root; dig ſo deep as almoſt to undermine it: Place Blocks, and Quarters of Wood to ſuſtain the Earth, and caſt in as much Water, as may fill the Trench, or ſufficiently wet it, unleſs the Ground were very moiſt before.——Thus let it ſtand till ſome hard Froſt bind it firmly to the Roots, and then convey it to its new Station, which may be preſerved from Freezing, by placing ſtore of warm Litter in it, ſo cloſe the Mould the better to the ſtraggling Fibres, and place the Earth taken out of the Pit about the Root of the new-planted Tree.

The common Rules for Tranſplanting are, 1. The lighter the Soil is, the deeper are the Trees to be planted. 2. If the Soil be Gravel, or Sand, mix Clay with it, and *vice verſâ*. 3. The beſt Seaſon is either in *October* or *February*; in warm, moiſt, clear Weather. 4. The large Roots to be abated, to prevent the Neceſſity of digging too deep; but the ſmall fibrous ones to be ſpared. 5. In taking up the Trees, to obſerve how the Roots grow, and in *Tranſplanting* to diſpoſe them in the ſame Order, and place the Tree to the ſame Aſpect. 6. To defend young Trees after *Tranſplantation*, both from the Wind and the Sun, till the Roots be fixed, and they begin to ſhoot. 7. If the Soil you tranſplant into, be good, do not top the Trees, but lop all the Boughs to one ſingle one, the moſt upright and promiſing among them: but if the Soil be poor, top them, and when they are ſhot out again, lop all the Branches to one.

TRANSPLANTING of Fruit-trees. —— After a Summer's Growth of Fruit Seedlings in the Seminary, ſuch are pulled up as are above a Foot high, and tranſplanted into a Nurſery; the reſt to be left in the Seed-plot till another Year.

When drawn up, the Spriggs are to be cut off, from about the Top, the Strings from the Roots, and the Extremities both of the Top, that it may not run too faſt upwards, and of the Tap or Heart-root, that it may not paſs directly downwards; leſt it go beyond the good Soil. The Holes or Pits to be ſo deep, as that the Plants may ſtand ſomewhat deeper in the Ground, than when in the Seed-plot; cloſe the Mould about them, and if it be a dry Time, water them the firſt Day, and cover the Soil with old Fern.

Mr. *Bradley* gives us a new Method of *Tranſplanting* Trees of all Kinds and Ages with Safety, either while they are in the Bloſſom, or with Fruit upon them, thus: The Holes to receive the Trees are to be prepared before the Trees are taken up; and the Earth which comes out of the Holes to be made very fine and put into large Tubs, and mixed with Water, till it be about the Conſiſtence of thin Batter. Then the Holes wherein the Trees are to be planted, are to be filled with this thus-tempered Earth, before the earthy Parts have Time to ſettle.

The Advantage hereof is, that the Trees thus planted have their Roots immediately incloſed and guarded from the Air; and the warm Seaſon of the Year diſpoſing every Part of the Tree for Growth and Shooting, it will loſe very little of its Vigour. —— In Winter it does not ſucceed.

The ſame Author adds, that in Conſideration of the Circulation of the Sap, it is as neceſſary to preſerve the Veſſels of the Trees entire, as thoſe in animal Bodies, and therefore in *Tranſplanting* Trees in the Summer Seaſons, it is not proper to cut off any of the Branches, or wound any of the Veſſels, till they have renewed their Roots, which it is of abſolute Neceſſity to wound in *Tranſplanting* them. For the wounded Roots he has provided a Plaiſter of a Mixture of Gums, to prevent the Canker and Rot, and promote their Healing.

PRUNING in Gardening and *Agriculture*, is the Operation of lopping or cutting off the ſuperfluous Branches of Trees; either to diſpoſe them to bear better, to grow higher, or appear more regular.

Pruning is one of the moſt important Branches of the Gardener's Province; and that whereon the Weal or Woe of his Fruit-trees, as well as the Form and Regularity of his Garden, in great Meaſure depends.

It is ſometimes practiſed purely for the trimming and adjuſting of Trees to the Eye, by taking away irregular Branches; as in Box, Holly, Yew, *&c.*

Sometimes, to make the Stem grow fairer, and riſe higher, by taking off all the large Branches, ariſing out of it, and thus ſending the Sap, which would otherwiſe be expended by them, to the Top of the Tree, to nouriſh and prolong the ſame.

But its more ordinary Uſe is to render the Tree more fertile and to mend its Fruit, by retrenching ſuch uſeleſs Branches as might impoveriſh the Trunk, and conſume the Juice neceſſary to nouriſh the Branches that bear.

Pruning is an annual Operation; the Amputation is uſually made ſloping, ſometimes Stump-wiſe. Its beſt Seaſon is about the End of *February*, though it may be begun as ſoon as the Leaves are off, *viz.* in *November*; and continued to the Time freſh Leaves come on, *viz.* in *April*.

As the Gardener has uſually three Kinds of Trees to manage, *viz.* ſome too weak, others too ſtrong, and others in a juſt Plight; he will find *Pruning-work* enough through all that Space; it being proper to prune ſome ſooner and ſome later. The weaker

and more languiſhing a Tree is, the ſooner it ought to be *pruned*, to eaſe it of its offenſive Branches: and the more vigorous the Tree is, the longer may the *Pruning* be deferred.

For PRUNING *a Tree of the firſt Year, i. e.* a Tree planted the Year before: If it have only ſhot one fine Branch from the Middle of the Stem, it muſt be cut to that Branch, and the Branch ſhortened to four or five Eyes or Buds: the Effect of which is, that the next Year there will be, at leaſt, two fine Branches oppoſite to each other.

If the Tree produce two fine Branches, well placed, with weak ones among them, all required is to ſhorten them equally, to the Compaſs of five or ſix Inches in Length; Care, however, being taken, that the two laſt Eyes or Buds, of the Extremes of the Branches thus ſhortened, look on the Right and Left, to the two bare Sides, that each may bring forth, at leaſt, two new ones, and the four being ſo well plac'd, that they may be all preſerved. If one of the two Branches be much lower than the other, or both on one Side, or the like, only one is to be preſerved, and that the fitteſt to begin a fine Figure; the other to be cut off ſo cloſe, as that it never may be able to produce thick ones in the ſame Place.——If a Tree have put forth three or four Branches, all in the Extremity, or a little beneath, they muſt be all pruned by the ſame Laws as the two above-mentioned: If they be equally thick, they are to be uſed alike; if ſome of them be ſmaller than the reſt, they muſt only be *pruned*, with a Proſpect of getting a ſingle Branch each, taking Care to have it on that Side which ſhall be found empty; in Order to which, they ſhould be ſhortened to an Eye or Bud, that looks on that Side; and the ſame Care to be taken in the larger, in Order to begin to fill up the better: If theſe fine Branches ſhoot a little below the Extremity, it is but ſhortening the Stem to them: On the contrary, if the Branches be moſt of them ill ones, two at leaſt, if poſſible, are to be preſerved, and *pruned* in the ſame Manner as the two fine ones above. Good weak Branches are to be carefully preſerved for Fruit, only cutting them a little at the Extremity, when they appear too weak for their Length, not failing to take away all the ſapleſs Branches.——If the Tree have produced five, ſix, or ſeven Branches, it is ſufficient to preſerve three or four of the beſt; the reſt to be cut quite off, at leaſt if they be thick; but if they be weak, *i. e.* fit for Fruit Branches, they ſhould be kept till they have performed what they are capable of doing; and if among the great ones, there happen to be many ſmall ones, two or three of the beſt only to be preſerved, pinching off the Ends of the longeſt.

PRUNING *of a Tree the ſecond Year.*——If having put out two fine wood Branches, and one or two ſmall ones, for Fruit the firſt Year, the Sap have altered its Courſe in the ſecond Year, from the thick Branches to the ſmall ones, ſo that the ſmall become Wood, and the large, Fruit Branches.——If a Tree from the firſt Year's *Pruning*, have produced four or five Branches, or more, it muſt needs be very vigorous: For which Reaſon it may be ſometimes adviſable to preſerve thoſe Branches; even though it be not neceſſary to the Figure of the Tree, but even to conſume Part of the Sap, which might otherwiſe be prejudicial to the Fruit Branches; theſe ſuperfluous Branches may be left long, without any ill Conſequence; but thoſe eſſential to the Beauty of the Tree, muſt be all *pruned*, a little longer than thoſe of the preceding Year, *i. e.* about two, or at moſt, three Eyes, or a good Foot. This is making an Advanvantage of the Figure of the Tree, which without this would not yield Fruit in a long Time; the redundant Sap converting all the Sap in Wood-branches. In theſe vigorous Trees, ſome Branches cut Stump-wiſe are to be left on, and even ſome thick ones, though of falſe Wood, eſpecially where there are any neceſſary to the Form of the Tree, or employ the Exceſs of Sap, and prevent its doing Miſchief. Still more to aſſuage its Violence, it may be neceſſary to preſerve many long, good, weak Branches, when placed ſo as to occaſion no Confuſion; and even on the thick Branches, a good Number of Out-lets for the Sap to range in.——Be it a general Rule, rather to ſpare the lower Branches, and cut off the higher, than the contrary: By this Means the Tree ſpreads more eaſily to the Bottom of the Wall.

PRUNING *of a Tree of the third Year.*——In a Tree that has been planted three Years, and *pruned* twice, if it be vigorous, as many old Branches as poſſible are to be preſerved, eſpecially for Fruit: If it be weak, it muſt be eaſed of the Burden of old Branches, as well thoſe for Fruit, as Wood, it muſt be cut ſhort, to enable it to ſhoot out new ones; which if it cannot do with Vigour, let it be pulled up, and a new one, with freſh Earth, planted in its Place.

In all *Pruning*, Proviſion is to be made for Branches to proceed from thoſe now under the *pruning Knife*, to prepare ſuch as may be proper for the Form; with this Aſſurance, that when the high Branch is taken down from over the lower, this latter being reinforced with the Sap that would have gone to the former, will certainly produce more Branches, than it would have done without ſuch Reinforcement.

General Rules of PRUNING *Fruit Trees*, 1. The more the Branches ſhoot horizontally, the apter and better diſpoſed the Tree is to bear Fruit; conſequently the more upright the Branches, the more inclined is the Tree to increaſe in Wood, and the leſs in Fruit.

Hence, ever take Care to keep the Middle of a Tree from great Wood, or thick Branches; and as thoſe increaſe and grow upon you, cut them out entirely; for the Place will be ſoon filled with better and more fruitful Wood.

In Dwarfs, you are to prune all open, and clear of Wood, leaving none but horizontal Branches; and in Wall Trees, if you do but furniſh your Walls with horizontal Branches, Nature will provide for the Middle.——Chuſe therefore ſuch Shoots as are not vigorous, to furniſh bearing Branches.

2. Take Care the Tree be not left over full of Wood; nor even of bearing Branches; as it is frequently ſeen in the Management of Peaches, Nectarines, and Cherries.

Nature cannot ſupply them all with Juice enough; whence none will be ſupplied well: The Conſequence of which is, that either the Bloſſoms will fall off, or the Fruit dwindle. It is certain, a Multitude of Branches crouding on one another, produces neither ſo good, nor ſo much Fruit, as where there is a convenient Space; beſide the diſagreeable Effect of croſſing one another.

3. All ſtrong and vigorous Branches are to be left longer on the ſame Tree, than weak and feeble ones; conſequently, the Branches of a ſickly Tree, muſt be *pruned* ſhorter, and fewer in Number than thoſe of a ſtrong healthful Tree.

4. All Branches ſhooting directly forward from Trees that grow againſt a Wall, are to be *pruned* cloſe to the Branch whence they ſpring, *&c.*

5. When a Branch, well placed either againſt a Wall, or in a Dwarf, has ſhot ſome falſe Wood, neither fit for the Figure nor the Fruit, prune it off within the Thickneſs of a Crown-piece, or ſlopingly; though this is beſt *pinched* off in the Beginning of Summer.

6. Cut off all Branches ariſing from hard Knobs whereon Pear-ſtalks grew; or from ſhort Branches, like Spurs.

7. If a Tree, in its Years, have produced Branches of moderate Vigour, and afterwards puts forth ſtrong ones, well placed, though of falſe Wood; the latter may be uſed as the Foundation of the Figure, and the other kept a Time for bearing Fruit.

8. When an old Tree ſhoots ſtronger Branches towards the Bottom than the Top, and the Top is in ill Caſe, cut it off, and form a new Figure from the lower

lower ones. If the Top be vigorous, cut off the lower ones, unless well placed.

9. The Order of Nature, in the Production of Roots and Branches, is, that Branch is always less than that out of which it shoots: If this Order be inverted, use them as false Wood.

10. Regard to be always had to the Effects of former *Pruning*, in Order to correct its Defects, or continue its Beauties.

11. In vigorous Trees, the weaker Branches are the Fruit Bearers; in weaker Trees, the stronger chiefly: Therefore in the latter, *prune* off the feeble and small.

12. In vigorous Trees, three good Branches may put forth at one Eye or Bud; in which Case, the two side Branches are generally to be preserved, and the Middlemost cut off in *May* or *June*.

13. It is difficult to strengthen a weak Branch, without cutting off others above it; sometimes it can scarce be done, without cutting off the End of the Branch it shoots out of.

14. The *pruning* of vigorous Peach Trees, to be deferred till they are ready to blossom, the better to know which are likely to bear Fruit.

15. Fruit-buds, next the Ends of Branches, are commonly thick and better fed than others. In weak Trees, therefore, it may be best to *prune* them early, that the Sap may not waste itself in such Parts as are to be retrenched.

16. The farther a weak Branch is from the Trunk, the less Nourishment it receives, and therefore, the more it is to be shortened; but thick Branches, the more distant they are from the Heart, the more they receive; and are therefore to be removed, that the Vigour may extend itself to the Middle, or lower Part.

17. A Branch for Wood must never be *pruned*, without especial Occasion; as where it annoys others.

18. If an old well-liking Tree be disordered with false Wood, through ill *Pruning*, or Want of *Pruning*; take it lower, by cutting off a Branch or two yearly, till it be sufficiently reduced. Some Trees put forth so vigorously, that they cannot be reduced to Compass, in one Year; but must be allowed to extend themselves, otherwise they will produce false Wood.

19. All Trees have a predominant Branch or two, if not more; yet the more equally the Vigour is divided, the better; where it runs much on one Side, it is faulty.

20. The Buds of all Stone-fruit, frequently form themselves the same Year, in which the Branch they grow on was formed: The same holds of Pears and Apples; tho' it is, generally, at least, two or three Years, e're the latter come to Perfection.

21. All Shoots, put forth in Autumn, are to be *pruned* off, as naught: The same may be said of all sapless Branches.

22. When a Tree puts forth much stronger Shoots on one Side, than the other, a great Part of the strong ones must be cut off close to the Body, or some of them Stump-wise.

23. In all Trees, less Length to be allowed the weak, than strong Branches.

24. Upper Branches to be cut off close to others, that they may heal over: Lower Branches are to be cut sloping, or at a little Distance, that new ones may grow out of them.

25. If a young crooked Tree produce a fine Branch beneath the Crook, cut the Head off close to the Branch.

26. Though five, six, or seven Inches, be the ordinary Lengths, Wood-branches are left at; yet must this be varied on Occasion of the Vigour or Weakness of the Tree, Thickness, or Smallness of the Branch, the Fulness or Vacuity of the Place, *&c.*

27. Be careful not to *prune* many thick Branches standing over weak ones; least the Sap, which fed the larger, flow so plentifully into the less, as to occasion them to put forth ill Wood, and Suckers.

28. Branches shot from the Ends of others are usually good Wood; sometimes it happens otherwise, and then they must be *pruned*.

As to the grand *Yearly Prunings*:—Fruit Branches being of short Continuance, and perishing the first Year, wherein they produce Fruit, are to be cut off, unless they put forth Shoots, for Blossoms, the succeeding Year. In the second *Pruning*, about the Middle of *May*, where the Fruit is so close, as to be like to obstruct each other, some of them, and their Branches to be taken off, as must also the Multitude of young Shoots, that cause Confusion. Branches more luxurious than others, to be cut clear off.

To preserve old Trees, they must be disburdened, by leaving few Branches, for Wood on them, and those to be shortened to five or six Inches; and very few weak ones, and none dry, and nigh wasted.

PRUNING *of Forest, or Timber Trees.*——For large Trees, it is best not to *prune* them at all; yet if there be an absolute Necessity for it, avoid taking off large Boughs as much as possible; and observe the following Rules,

1. If the Bough be small, cut it smooth and close, that the Bark may soon cover it; and sloping, that the Water may run off.

2. If the Branch be large, and the Tree old, cut it off at three or four Foot from the Stem, or where any young Shoots are found issuing out of it.

3. Boughs growing upright, not to be cut cross over, but sloping upwards. In Boughs leaning from the Head, the Slope to be on the lower Side.

4. If the Tree grow crooked, cut it off at the Crook, sloping upwards; and nurse up one of the most promising Shoots, for a new Stem. Indeed, in Trees that have great Piths, as the Ash, Walnut, *&c.* we must be cautious of cutting off the Heads.

5. If the Tree grow Top-heavy, its Head must be lightened; and that the rather by thinning the Boughs that grow out of the main Branches, than by cutting off the main Branches themselves. But if you would have them spring, it is best done by rubbing off the Buds, as they put out in the Spring, and shrowding up the side Shoots.

6. If the side Bough still break out, and a Top be able to sustain itself, give the Boughs that put forth in Spring, a *Pruning*, after Midsummer; cutting them close. This will cause the Bark to cover, and kill them, so as never to shoot out again; and is the only Method to make a Tree grow with a fine, strait, handsome Body.

ENGRAFTING, GRAFTING, or GRAFFING, in *Agriculture* and Gardening, is the Art, or Act, of inserting, or fixing, a Cyon, Shoot, or Bud, of one Tree, in the Stock of another; in order to correct and improve its Fruit.

Engrafting, is the Art of applying a Graft, or Shoot, of one Plant, to the Stock of another; in such Manner, as that the Sap passing freely through both, the Tree *grafted* on, may produce the same Kind of Fruit, with that whence the Graft is taken.

Engrafting only differs from *Inoculation*, in that the latter is performed when the Sap is at the highest in Summer; and the former e'er it rises, at least, in any Quantity.

INOCULATION, in *Agriculture* and Gardening, is a Kind of Grafting; or an artificial Operation, by which the Bud of one Fruit Tree, is set into the Branch or Stock of another, so as sometimes to make different Sorts of Fruit grow on the same Tree.

There are various Ways of performing this: The antient Method was, by making a shallow Incision in the Bark, where the Knot, or a Shoot or Eye, *Oculus*, (whence the Operation takes its Name) begins to bud forth, into which a promising Shoot of another Kind was inserted, and the Incision closed up with fat Earth or Clay.

The Method of *Inoculation* now in the best Repute, as delivered by Mr. *Lawrence*, is as follows: They cut off a vigorous Shoot, from the Tree that is to be propagated, a Month before, or after, Midsummer; then

then chuſe out a ſmooth Place in the Stock (which ſhould not be above three or four Years Growth) making a perpendicular Slit in the Bark a little above an Inch long, and another at right Angles to it, at the lower End, to give way to the opening of the Bark. This done, the Bark is gently looſened from the Wood on both Sides with a Pen-knife beginning at the Bottom.

They then prepare the Bud, cutting it off from the aforeſaid vigorous Suit, and taking with it as much of the Wood above as below it, and as near as may be to the Length of the Slit in the Stock.——When the Bud is thus cut off, they take out the woody Part of the Bud, and put the Bud itſelf in, between the Bark and the Wood of the Stock, at the croſs Slit before opened, leading it upwards by the Stalk, where the Leaf grew, till it exactly cloſes. They then bind it about with woollen Yarn, the better to make all Parts of it cloſe exactly, that the Bud may imbody itſelf with the Stock, which it will do in three weeks Time.

This Operation is ſaid to be beſt performed in a cloudy Day, or in an Evening; and it is obſerved, that the quicker it is done, the better it ſucceeds.

This Practice has the Advantage of Engrafting in many Reſpects, both as it is more ſecure, it ſeldom failing of having Effect, eſpecially if two or three Buds are put into the ſame Stock; and as its Succeſs is more readily diſcovered. Indeed when large Stocks are to be practiſed on, *Inoculation* is not proper, and they are obliged to have Recourſe to Grafting.

This one Rule is obſerved to hold univerſally, *viz.* That no Succeſs is to be expected in *Inoculation*, if the Sap does not run well; that is, if the Bark will not part readily from the Wood of the Stock.

ENGRAFTING is one of the principal Operations in Gardening, and that whereon the Goodneſs of our Fruit greatly depends.

It is very extraordinary that the Seeds, or Kernels, or Stones, of a Fruit, as an Apple, Pear, Peach, Plumb, Cherry, *&c.* being ſown degenerate in the Ground; ſo that the Tree ariſing from it is of another Kind, a ſort of Wilding, harſher, ſourer, and courſer than that of the parent Tree. To correct this, Trees thus reared, muſt be *grafted* from other better Kinds.

Apples are commonly raiſed by *Engrafting* the intended Kinds on Crab-ſtocks, procured by ſowing the Kernels: So are Pears procured by *Grafting* on the wild Pear-ſtock: Tho' for Dwarf or Wall-trees, they generally chuſe to *engraft* on the Quince-ſtock.

They will do alſo if *grafted* on the White-thorn. Peaches are produced on an Almond or Plumb-ſtock. Indeed in this Fruit, it ſometimes happens that the Stone ſown produces better Fruit than that from which it was taken: But this is not common; beſide, that the Tree in ſuch Caſe, is long e're it comes to bear. Plumbs are raiſed by *Engrafting* on a Damſon, or wild Plumb-ſtock: And Cherries on the black Cherry, or Merry-ſtock, raiſed from Stones.

Our beſt Gardeners likewiſe, *engraft* their leſs kindly Trees from other better of the ſame Sort, to mend them; as alſo the ſmaller and ſingle Flowers, Gilliflowers, *&c.* from the larger and finer.

To produce Stocks for ENGRAFTING *on.* The curious furniſh us with other extraordinary and anomolous Inſtances of *Engrafting*: As of Apples on Plane, Elder, Thorn, Cabbage-ſtalk, *&c.* and the like of Pears, *&c.* Pears on Apple-trees, on Elms, *&c.* Cherries on the Lawrel; Coral-berries on the Plumb: Beech on the Cheſnut, Oak on the Elm, Gooſberry on the Currant, the Vine on the Cherry-tree, *&c.*

Inſeritur lauro ceraſus, partuque coacto
Tingit adoptivus virginis ora pudor.
Auſon.

Even *Daphne*'s Coyneſs thou doſt mock,
And weds the Cherry to her Stock.
Cowl. to Evel.

——— *Mutatumque inſita mala*
Ferre pyrum, & prunis lapidoſa rubeſcere corna.
Virg. Geor. *Lib.* 2.

——*Steriles platani, malos geſſere valentes;*
Caſtaneæ, fagos; ornuſque incanuit albo
Flore pyri; glandemque ſues fregere ſub ulmis.
Id. Ibid.

The Origin and Invention of *Engrafting*, is differently related by Naturaliſts. *Theophraſtus* tells us, that a Bird having ſwallowed a Fruit whole, caſt it forth into a Cleft or Cavity, of a rotten Tree; where mixing with ſome of the putrified Parts of the Wood, and being waſhed with the Rains, it budded and produced within this Tree, another Tree of a different Kind. This led the Huſbandman to certain Reflections, from which ſoon afterwards aroſe the Art of *Engrafting*.

Pliny ſets the Thing in a different Light; a Countryman having a Mind to make a Palliſade in his Grounds; that it might endure the longer, he bethought himſelf to fill up and ſtrengthen the Bottom of the Palliſade by running, or wattling it with the Trunks of Ivy. The Effect of this was, that the Stakes of the Palliſades taking Root, became *engrafted* into the Trunks, and produced large Trees; which ſuggeſted to the Huſbandman the Art of Engrafting.

The Reaſon or Philoſophy of *Engrafting*, is ſomewhat obſcure; and had not Hazard given the firſt Hint, all our Knowledge of Nature had never led us to it. The Effect is ordinarily attributed to the Diverſity of the Pores, or Ducts, of the *Grafts*, from thoſe of the Stock, which change the Figure of the Particles of the Juices in paſſing through them to the reſt of the Tree.

Mr. *Bradley*, on Occaſion of ſome Obſervations of *Agricola*, ſuggeſts ſomething new on this Head; the Stock *grafted* on, he thinks, is only to be conſidered as a Fund of vegetable Matter, which is to be filtered through the Cyon, and digeſted, and brought to Maturity, as the Time of Growth in the Veſſels of the Cyon directs. A Cyon, therefore, of one Kind, grafted on a Tree of another, may be rather ſaid to take Root in the Tree it is *grafted* in, than to unite itſelf with it: For it is viſible that the Cyon preſerves its natural Purity and Intent, though it be fed and nouriſhed from a mere Crab; which is, without doubt, occaſioned by the Difference of the Veſſels in the Cyon from thoſe of the Stock; ſo that *Grafting* may be juſtly compared to Planting.

In Proſecution of this View of that ingenious Author we add, that the natural Juices of the Earth, by their Secretion, and Comminution, in paſſing through the Roots, *&c.* before they arrive at the Cyon, muſt doubtleſs arrive there half elaborated and concocted; and ſo diſpoſed for a more eaſy, plentiful, and perfect Aſſimulation and Nutrition, whence the Cyon muſt neceſſarily grow and thrive better and faſter than if it were put immediately in the Ground, there to live on coarſe Diet and harder of Digeſtion: And the Fruit produced, by this further Preparation in the Cyon, muſt be finer and farther exalted, than if fed immediately from the more imperfectly prepared and altered Juices of the Stock.

The Cyon, to ſay no more, is ſomewhat in the Condition of the *Fœtus in utero*, fed from the Mother's Blood: At leaſt, it is that of the Infant after Excluſion, fed with the Mother's Milk.

The Methods, or Kinds of *Engrafting* are various; as *Grafting* in the Cleft, *Grafting* in the Rind, Whip *Grafting*, *Grafting* by Approach, Scutcheon *Grafting*, Root *Grafting*, reiterated *Grafting*, *Grafting* on Branches, *&c.*

The Apparatus, or Inſtrument uſed therein, are Saws to cut off the Heads of Stocks; Knives to make Clefts; a Chiſſel to pare away the Wood; Clay, mixed with Horſe-dung, to prevent Freezing, and with Tanners Hair to prevent Cracking; Baſs-ſtrings,

or Woollen-yarn, to tie the *Grafts* with, and *grafting* Wax.

GRAFTING *in the Cleft*, or *Stock*, called alſo *ſlit* GRAFTING, is the moſt antient, and ordinary Way; we have a very beautiful Deſcription of it in *Virgil*, *Geor.* II. *v.* 78. It is chiefly uſed for middle-ſized Stocks, from one to two Inches Diameter. Its Seaſon is the Months of *January*, *February*, and *March*. ——The Method as now practiſed, is thus.

The Head of the Stock being ſawn, or cut off ſmooth and clean; a perpendicular Cleft is made therein, nearly two Inches deep, with a ſtrong Knife, or Chiſſel, as near the Pith as may be to miſs it. In this Cleft, the *grafting* Chiſſel, or Wedge, is put to keep it open. The *Graft*, or Cyon, is prepared by cutting it aſlope, in Form of a Wedge, to ſuit the Cleft; only leaving a ſmall Shoulder on each Side: and, when cut, is to be placed exactly in the Cleft, ſo, as that the inner Bark of the Cyon may aptly and cloſely join in the inner Part of the Bark or Rind of the Stock; in the dexterous Performance of which, the chief Secret conſiſts, if the Cleft pinch too tight, a ſmall Wedge may be left in it to bear the Streſs. And laſtly, the Cleft is covered over with Clay; or rather, as Mr. *Gentil* adviſes, with Moſs, or the freſh Bark of a Tree bound on with Oſier.

The Reader, who would have this in more elegant Terms, may be furniſhed from *Virgil*:

Aut rurſum enodes trunci reſecantur, & altè
Finditur in ſolidum cuneis via: deinde feraces
Plantæ immittuntur: nec longum tempus & ingens
Exiit ad cælum ramis felicibus arbos,
Miraturque novas frondes, & non ſua poma.

GRAFTING *in the Rind*, or *Shoulder* GRAFTING, called alſo *ſlicing*, and *packing*, is practiſed in the latter End of *April*, or the Beginning of *May*.—— The Method is as follows.

The Top of the Stock is cut off in a ſmooth, ſtrait Place: Then the Cyon, or *Graft*, is prepared by cutting on one Side from the Joint, or Seam down ſlopewiſe, making the Slope about an Inch long; and obſerving its Bent, that ſo when the Cyon is fixed to the Stock, it may ſtand nearly upright. At the Top of the Slope, they make a Shoulder, whereby it is to reſt on the Slope of the Stock. The whole Slope to be plain and ſmooth, that it may lie even to the Side of the Stock. As to the Length of the Cyon, for a Standard-tree, it may lie about four Inches from the Shoulder; but for a Dwarf, or Wall-tree, ſix Inches.

The Cyon prepared; the Out-ſide is applied to the Weſt, or South-weſt Side of the Stock, and its Length and Breadth meaſured thereon; which done, the Bark of the Stock is cut away to thoſe Dimenſions, that the cut Part of the Cyon may fit it. Wherein, Regard is to be had to the Bigneſs of the Stock, and the Thickneſs of the Bark, to proportion the Length and Breadth of the Chip thereto; otherwiſe the Paſſages of the Juice in the Stock and Cyon will not meet. Laſtly, laying the cut-part of the Cyon on that of the Stock, they bind them together with Woollen-yarn, and cover the whole with Clay an Inch above, and as far below, the Stock's Head; working it round the Cyon, till it become ſharp at Top, that the Rain may run down it.

This Method has ſeveral Advantages over the former: As, that the Wound heals up ſooner; and that, in the mean Time, it is in leſs Danger from the Weather; that it does leſs Injury to the Stocks, and *Grafts*, as avoiding thoſe ſevere Splittings and Pinchings, that the Bark is more eaſily placed in the Paſſage of the Sap here, than in the Cleft: That the Graft thrives and ſhoots with greater Vigour, and bears ſooner in this Way than in that; and that it is practicable on ſmaller Stocks than the other, which muſt have a good Body and Conſiſtence before they can bear cleaving.

GRAFTING, *in the Bark*, is performed thus.—— Prepare the Stock and Cyon, as in *Grafting in the Rind*; but inſtead of cutting the Bark of the Stock, ſlit the ſame on the South-weſt Side from the Top, almoſt as long as the ſloped Part of the Cyon; and at the Top of the Slit looſen the Bark, with the Top of your Knife. Thruſt your Inſtrument, made of Ivory, Silver or the like, and formed at the End like the ſlope End of the Cyon but much leſs, down, between the Bark and Wood, to make room for the Cyon; which being put in the Bark, is to be ſo managed, as that it may fall cloſe to the Stock, and Edges of the Cyon.

GRAFTING *by Approach*, called alſo *Inarching*, and *Ablactation*.

Whip-GRAFTING, or *Tongue*-GRAFTING, is a Sort of *grafting* in the Rind, proper for ſmall Stocks, from an Inch Diameter to a Quarter of an Inch. Mr. *London* ſpeaks of it as the moſt effectual Way of any, and that moſt in Uſe.

In this, the Stock and Cyon are to be of the ſame Bigneſs. The Cyon to be ſloped off a full Inch, or more; and the like to be done to the Stock; and ſo the one to be tied to the other. Otherwiſe the Top of the Stock being cut off, a Shoulder is to be made in the *Graft*: And the reſt to be performed as already ſhewn under *grafting in the Rind*.

This Method is alſo improved by what they call *tipping* or *tonguing*; which is the making a Slit with a Knife in the bare Part of the Stock downwards; and the like in the ſloped Face of the Cyon, upwards; and then joining them, by thruſting one Slice into the other, till the bare Place of the Cyon cover that of the Stock.

Side GRAFTING. In this the Cyon is prepared as in *Whip-Grafting*, but the Head of the Stock is not cut off, only from a ſmooth Part on the Weſt Side, ſo much of the Bark is pared off as the Cyon will cover; then ſlitting both Cyon and Stock, as in the laſt Article, they bind the two together, and cloſe them up with Clay. At the Years End the Top of the Stock is cut off at the grafted Place, ſlopewiſe, and the Place covered with Clay.

Scutcheon GRAFTING, is another Method of *Grafting*, in the Rind, practiſed in *June*, *July*, and *Auguſt*; when the Bark will not part from the Stock. It is performed, by ſlitting the Bark of the Stock in Form of the Capital Letter T, looſening it with the Point of a Knife, and clapping in a Cyon, prepared as above.

Crown GRAFTING, is when four or more *Grafts* are placed round the Stock, between the Bark and the Rind, ſomewhat in the Manner of a Crown.—— This is only practiſed in the larger Trees, which are capable of receiving a Number of *Grafts*, and are too big to be cloven.——The Method is in all Reſpects the ſame as that already delivered for *grafting in the Rind*.

Root GRAFTING, is a modern Invention, treated of at large by *Agricola*: Its Intention is ſomewhat different from the former, being for the Propagation, or Multiplication of Plants.

To perform this, take a *Graft*, or Sprig of a young Tree, which you intend to propagate; and a ſmall Piece of the Root of another Tree of the ſame Kind, or very like it; or elſe Pieces of Roots cut off of other Trees, in tranſplanting; and *Whip-graft* them together: Obſerving that the two But-ends of the Graft and Root be united, and that the Rind of the Root join that of the Graft. Theſe may, afterwards, be planted out at Pleaſure, and the Piece of Root will draw the Sap, and feed the Graft, as the Stock does the other Way.

This Way of Propagation is very eaſy and expeditious; Roots being more plentiful than Stocks: By this Method the Pieces of Roots of one Crab-ſtock, or Apple-ſtock, will ſerve for 20 or 30 Apple Grafts, and the like of other Trees. The ſame is an excellent Way for raiſing of tender Trees, that will hardly bear

being *grafted* in the Stock. Add, that Trees thus *grafted*, bear ſooner, and are more eaſily dwarfed than thoſe done any other way.

Reiterated GRAFTING, or *grafting by a double, or triple Inciſion*, is another Method mentioned by *Agricola*: To perform which, firſt graft a good Cyon on a Stock, and cut it away to one Half, or a third Part; then fix another *Graft* to it, of a better Kind; and a third to that: For ſtill the oftner a Tree is *engrafted*, the finer Fruit it produces.

By this Method, that Author aſſures us, he produced Muſcat Pears, that were admirable; making, at firſt, uſe of a Stock *grafted* with a Pound Pear, on which he *grafted* a Summer *Bon Chretien*; and when the Branch of this latter had ſhot, he *grafted* on it a Cyon of Bergamot, which he alſo cut, and *grafted* on it a Cyon of Muſcat Pear.

ENGRAFTING *of Branches*, *Agricola* mentions as a very certain and profitable Operation, beſt practiſed on large full grown, and even old Trees.

To do this, half or more of the Branches muſt be lopped off, and *Grafts* of three or four Years old be applied to them; taking Care to have Stakes or other Things to ſupport them againſt the Wind, *&c.*

He adds, that by this Method, you will have, perhaps, the ſame Year, at leaſt, the ſecond or third, ſuch a Quantity of Fruit, as the youngeſt and ſoundeſt Tree would hardly produce.

All Sorts of Trees are raiſed in a *Nurſery*, which is a *Seminary* or Seed-plot.

Some Authors make a Difference between *Nurſery*, and *Seminary*, holding the former not to be a Place wherein Plants are ſown; but a Place for the Reception and Rearing of young Plants, which are removed, or tranſplanted hither from the Seminary, *&c.*

Mr. *Lawrence* recommends the having ſeveral *Nurſeries*, for the ſeveral Kinds of Trees: One for tall Standards; *viz.* Apples, Aſhes, Elms, Limes, Oaks, Pears, Sycamores, *&c.* Another for Dwarfs; *viz.* ſuch as are intended for Apricots, Cherries, Peaches, Plumbs, *&c.* And a third for Ever-greens.

The *Nurſery* for Standards, ſhould be in a rich, light Soil, ſown with the proper Seeds, in *October* or *November*. For Apples, and Pears, Crab, and wild Pear Kernels, are to be preferred for Stocks: Elms and Lime are to be raiſed from planted Suckers: Walnuts to be ſown with the green Shell upon them, to preſerve them from Mice. This *Nurſery*, if it be well managed and weeded for two Years, the Crabs and Pears will be fit for grafting and inoculating the third Year.

Firs and Pines are to be raiſed from thoſe little Seeds taken out of their large Apples.

The *Nurſery* for Dwarfs does beſt by itſelf, that it may not be over-topped by taller Trees. Stones of Apricots and Peaches are not proper to raiſe thoſe Trees; but in lieu thereof, ſow the Stones of Pear-plumbs, Muſſel, or *bonum magnum* Plumb; which prove better and more laſting than the former. For Stocks of all Sorts of Cherries, black Cherry-ſtones do beſt.

Mr. *Mortimer* directs all Stone-fruit to be ſown quickly after gathering; for that if they be kept, they will be two Years e'er they come up. Add, that if they have not all the Moiſture of the Winter to rot the Shells, the Kernel will ſcarce come up at all.

To furniſh the *Nurſery* of Ever-greens, the ſeveral Sorts of Seeds or Berries, as Yew, Holly, Juniper, *&c.* are to be put in ſo many diſtinct Pots or Boxes, with fine Mould over them, and thus buried for a Year; after which, they are to be taken out and ſown.

EVER-GREENS, are a Species of Perennials, which continue their Verdure, Leaves, *&c.* all the Year.

Of theſe, our Gardeners reckon twelve, fit for *Engliſh* Air, *viz.* the Alternus, Arbutus, Bay Tree, Box Tree, Holley, Juniper, Lauruſtinus, Phylliirea, Pyracantha, or Ever-green Thorn, *Italian* green Privet, and the Yew Tree. If they were to be ſown when gathered, like other Seeds, they would not come up the firſt Year, nor grow ſo kindly.

GARDENING, or *Horticulture*, is alſo a Branch of *Agriculture*.

Gardening, *Horticulture*, is the Art of cultivating a *Garden*.

GARDEN, is an Incloſure, or Plot of Ground, curiouſly cultivated, and furniſhed with Variety of Plants, Flowers, Fruits, *&c.*

Gardens are diſtinguiſhed into Flower-gardens, Fruit-gardens, and Kitchen-gardens: The firſt for Pleaſure, and Ornament; and therefore placed in the moſt conſpicuous Parts: The two latter for Service; and thereof made in By-places.

In a *Garden*, the principal Things to be conſidered, are, the Form, Soil, Situation, and Aſpect or Expoſure.

For the Form; a Square, or rather Oblong, is moſt eligible; leading from the Middle of the Houſe, with a Gravel Walk in the Midſt; narrow Graſs-borders on each Side, and on either Side of theſe, Rows of Variety of Winter-greens. If the Ground be irregular, it may be made uniform, ſo as to afford a Proſpect, nothing inferior to the moſt regular; ſtrait Lines will reduce any Figure to Order. A Triangle has its Beauty, as well as a Square; and the moſt irregular Spots may be brought by Borders, and Walks, to thoſe two Figures.

Indeed an Irregularity is eaſily hid in a large *Garden*, by long Walks and tall Hedges, interrupting a diſtant View: And the little Corners, and triangular Spaces, may be agreeably filled up with Borders of Flowers, Dwarf Trees, flowring Shrubs, or Ever-greens. Nor is it prudent, to be ſolicitous to throw the whole *Garden* into a ſingle View; as Irregularities and Unevenneſſes, afford many uncommon, pretty Devices, *&c.*

For the ſecond Point, or the *Soil*; a deep, rich, black Mould, is beſt for Plants; ſandy Land is warm and forward, and good for Flowers; chalky Land is cold and backward. But both are eaſily corrected by Compoſts, or Materials of oppoſite Kinds.

For the Situation: If a *Garden* be too high, it will be expoſed to the Winds, which are highly prejudicial to Trees; if too low, the Dampneſs will be injurious, beſide the Breeding of Vermin: A Flat, therefore, or the Side of a Hill, are the happieſt Situations, eſpecially the latter, as it is uſually well watered, and ſheltered from the Extremities of the Weather; beſide that, the Water deſcending from on high, will ſupply Fountains, Caſcades, and other Ornaments of a *Garden*.

The EXPOSURE, or EXPOSITION, is the Aſpect, or Situation of a Garden, Wall, Building, or the like, with reſpect to the Sun, Winds, *&c.*

There are four regular Kinds of *Expoſures*, viz. *Eaſt*, *Weſt*, *North*, and *South*; but it muſt be obſerved, that among Gardeners, theſe Terms ſignify juſt the contrary to what they do among Geographers.

The Gardeners, in Effect, do not give the Names Eaſt, Weſt, *&c.* to the Places where the Sun is; but to thoſe whereon he ſhines, whether as to the whole *Garden*, or ſome one of its Sides.

If they find that the Sun, at his Riſing, and during the firſt Half of the Day, continues to ſhine on one Side of the Garden, or Wall; they call that an *Eaſtern Expoſure*, or *Eaſt Wall*, *&c.* And if the Sun begin to ſhine later, or end ſooner, it is not a proper *Eaſtern Expoſure*.

For the ſame Reaſon, they call the *Weſt*, the Side the Sun ſhines on the latter Part of the Day, *i. e.* from Noon to Night. And accordingly, the *South*, or *Southern Expoſure*, is the Place whereon he ſhines, from about nine o'Clock in the Morning, till Night, or which, in the general, he ſhines longeſt on in the whole Day; and the Part he ſhines leaſt on, is the *North*, or *Northern Expoſure*, at what Hour ſoever it begin, or end, being uſually from eleven o'Clock, to one.

Such

Such is the Gardeners Language, with Regard to the *Exposures*, and particularly those of Walls; by which we are let into the Signification of this, or the like Expressions, usual among them.—My East Wall proves, hits, or thrives better, than the West. My Eastern Fruit Trees, have had fewer Flowers, than my Western, *&c.* The *Eastern* and *Southern Exposures*, are, by common Consent of all Gardeners, the two principal; and have a considerable Advantage above the rest. A *West Exposure* is not much amiss; at least, it is better than a *Northern* one, which is the worst of all. Each has its Inconveniencies.

The *Eastern*, commencing differently, at different Seasons of the Year, and ending about Noon, subjects the Trees, *&c.* to the *N. E.* Winds, which wither the Leaves, and new Shoots, blow down the Fruit, *&c.* Beside that, it has little Benefit of Rains, which come mostly from the *West*. Yet does the Reverend Mr. *Lawrence*, judge the *East*, better than the *West* Wall, for all Kinds of Fruit: Not that it has more Hours of Sun, or that there are any peculiar Virtues in the *Eastern* Rays; but because the early Rays of the Sun, do sooner take off the cold, chilly Dews of the Night.

M. *Gentil* recommends the *Eastern Exposure*, as best for all Kinds of Peaches; adding, that they ripen soonest, grow bigger, are better coloured, and of a finer Taste than any other: But Mr. *Carpenter* restrains the Rule to the early and middle Sort; for the backward, he rather chuses a *Southern*, or *South-East Exposure*, which is the best for all late Fruits; because the Sun is strongest, and continues longest therein.

The *Eastern*, accounted from half an Hour past eleven, till Sun-set, is backwarder than an *Eastern* one, by eight or ten Days; but it has this Advantage, that it receives little Damage from the Frosts, which melt before the Sun comes to shine upon the Fruit, and fall off like Dew, without doing any Prejudice; so that it may bear Apricots, Peaches, Pears, and Plumbs, but it is incommoded with North-West Winds in the Spring, as also with autumnal Winds, which blow down a deal of Fruit.

The *Northern Exposure* has less Sun than the *West*; yet it is not without its Advantages. In the Northerly Parts of *England*, it bears little but Pears, Cherries, and Plumbs. But in the warmer Parts, it serves for Apricots, which have the Advantage of continuing later, than any other *Exposure*, besides being free from Insects.

The *Southern Exposure*, accounted from about nine till four, is recommended for Peaches, Pears, Grapes, and Plumbs.

Of all Things, the Ground or Soil of the *Garden* is the most important: Unless this be rich, and fertile, all the other Advantages will be in vain. To judge of the Quality of the Soil, some direct us to look, whether there be any Heath, Thistles, or other Weeds growing spontaneously therein, as a certain Sign of poor Ground. The Growth of the Trees, too, thereabout, is to be considered; if they grow crooked, ill shaped, and grubby, of a faded Green, and full of Moss; the Place is to be immediately rejected. If the contrary be found; you must proceed to examine the Depth of the Soil, by digging Holes under Ground. The Soil should be three Foot deep, but less than two is not sufficient.

The Chief Furniture of Pleasure-gardens are, Parterres, Vista's, Glades, Groves, Compartiments, Quincunxes, verdant Walls, arbour Work, Mazes, Labyrinths, Fountains, Cabinets, Cascades, Canals, Terraces, *&c.*

PARTERRE, is that open Part of a Garden, into which we enter, coming out of the House; usually, set with Flowers, or divided into Beds, encompassed with Platbands, *&c.*

The *Parterre*, is a level Division of Ground, which, for the most Part, faces the South, and best Front of the House, and is generally furnished with Greens, Flowers, *&c.*

There are divers Kinds of *Parterres*, as Bowling-green, or plain *Parterres*; *Parterres* of Embroidery; *Parterres* cut in Shell-work, in Scroll-work, *&c.* with Sand-allies between.

An Oblong, or long Square, is accounted the most proper Figure for a *Parterre*, the Sides whereof, to be as two, or two and a Half to one.

FLOWERS make the greatest Ornament of a Parterre; these Flowers are distinguished into early or *Spring Flowers*, which flourish in the Months of *March*, *April*, and *May*.

Such are the Animonies, Daffodils, Hyacinths, Tulips, Junquils, Cowslips, Primroses, *&c.*

Summer FLOWERS, which open in *June*, *July*, and *August*, as Pinks, Gilliflowers, Lillies, Daisies, Campanulas, Poppies, Sun-flowers, *&c.*

Autumnal, or *late* FLOWERS, denote those of *September* and *October*; as the *Oculus Christi*, Indian Pinks, and Roses, Pansy, Flower-gentle, *&c.*

Of these FLOWERS, those which subsist all the Year, we mean in the Stem, or Root, at least, are called *Perennials*.

And those which are to be planted, or sowed afresh every Year, according to the Season, are called *Annuals*.

Vista, is an open and light Passage made through a thick Wood, Grove, or other like, by lopping off the Branches of Trees, along the Way.

GROVE, is a little thick Wood.

The antient *Romans* had a Sort of *Groves* near several of their Temples, which were consecrated to some God, and called *Luci*, by *Antiphasis à non lucendo*, as being shady and dark. In large and magnificent Gardens, a *Grove* is usually a Plot of Trees, inclosed with Palisadoes, consisting of tall Trees, as Elms, Horse-chesnuts, *&c.* the Tops whereof make a Tuft, or Plump, and shade the Ground below.

At the Foot of the tall Trees, which generally run all along the Palisadoes at equal Distance; other lesser Trees are often planted, whose Tufts form a Resemblance of a Sort of Copse, within the former.

COMPARTIMENT, is a Design composed of several different Figures, disposed with Symetry, to adorn a *Parterre*.

ALLEY of Compartiment is that which separates the Squares of a Parterre.

ALLEY, in Gardening, a strait, parallel Walk, bordered or bounded on each Hand with Trees, Shrubs, or the like.

The Word *Alley*, is derived from the *French* Verb *aller*, to go; the ordinary Use of an *Alley* being for a Walk, Passage, or Thorow-fare, from one Place to another.

Alleys are usually laid either with Grass or Gravel.

An *Alley* is distinguished from a *Path* in this; that in an *Alley* there must always be Room enough for two Persons, at least, to walk a-breast: So that it must never be less than five Feet in Breadth; and there are some who hold, that it ought never to have more than fifteen.

Counter ALLEYS, are the little *Alleys* by the Sides of the great ones.

Front-ALLEY, is that which runs strait in the Face of a Building.

Transverse ALLEY, that which cuts the former at right Angles.

Diagonal ALLEY, that which cuts a Square, Thicket, Parterre, *&c.* from Angle to Angle.

Sloping ALLEY, is that which either by Reason of the Lowness of the Point of Sight, or of the Ground, is neither parallel to the Front, nor to the transverse *Alley*.

ALLEY in *Ziczac*, is that which has too great a Descent, and which, on that Account is liable to be damaged by Floods; to prevent the ill Effects whereof, it has Platbands of Turf run across it from Space to Space, which help to keep up the Gravel.

This last Name is likewise given to an *Alley* in a Labyrinth, or Wilderness, formed by several Returns

of

of Angles, in order to render it the more ſolitary and obſcure, and to hide its Exit.

ALLEY in *Perſpective* is that which is larger at the Entrance than at the Exit; to give it a greater Appearance of Length.

QUINCUNX, is chiefly uſed in Gardening, for a Plantation of Trees, diſpoſed originally in a Square; conſiſting of five Trees, one at each Corner, and a fifth in the Middle; which Diſpoſition repeated again and again, forms a regular Grove, Wood, or Wilderneſs, and when viewed by an Angle of the Square, or Parallelogram, repreſents equal and parallel Alleys.

Or, the *Quincunx* is the Figure of a Plantation of Trees, diſpoſed in ſeveral Rows, both Length and Breadth-wiſe; in ſuch a Manner as that the firſt Tree of the ſecond Row commences in the Centre of the Square formed by the two firſt Trees of the firſt Row, and the two firſt of the third; reſembling a Figure of five at Cards. —— The fineſt manner of planting Trees to form a Grove, is in the *Quincunx*. It is of this kind of *Quincunx* that *Cicero* ſpeaks in his *Catomajor*; and *Quintilian*, Lib. 8. cap. 3.

The modern *Quincunx*, *Daviler* obſerves, are made like thoſe of the Antients, except for the fifth Tree, which is now generally diſuſed; ſo that being as it were, netted, and their *Alleys* viewed by the Side of the Rectangle, they form a perfect Chequer.

The *Kitchen Garden* is to be planted with Fruit-trees, Pulſes, Salads, *&c.*

In the planting of Fruit-trees, if the Soil be a hungry Gravel, or Sand, Mr. *Switzer* directs where the Trees are to be planted, to be dug two Feet deep, and three or four over, and filled with rotten Horſes or Cows Dung, mixed with rich Mould: If it be Marle or ſtiff Clay, a Compoſt of Rubbiſh, Lime, Pieces of Brick, Aſhes, Sand, *&c.* with the beſt to mix with Dung and Mould; though he is of Opinion, that untried Earth, dug from a Waſte or Common where Cattle have been fed, would prove the beſt Soil for young Trees.

The Trees being now taken out of the Nurſery, the biggeſt Roots are to be ſhortened to about ſix Inches; all the ſmall Fibres taken off; and the Head to be pruned, ſo as not to leave above two Branches; and thoſe not above ſix Inches long.

The Wall-trees, to be placed as far from the Wall as poſſible; that there may be the more Room for the Roots to ſpread. Then filling up the Hole with Mould, there remains nothing but to ſecure the Roots from the Winter's Froſt, by covering the Spot with Straw, Fern, Dung, *&c.* And in Summer, from the Sun; by Sand, and pebble Stones.

For Trees planted in Borders, the common Practice is to make a Trench by the Wall Side, two Foot broad, and as many deep. This Trench they fill with old Dung, mixed with Earth, lightly laid, near as high as the Borders are intended to be; and then trodden down to half the Height in the Places where the Trees are intended to be. It is prudent to plant the Trees ſhallow, and to raiſe the Earth about them; eſpecially in a wet, clayey Soil. It is an Obſervation of ſome Importance, that Wall-trees and Fruit thrive beſt, when the Walks that run parallel to them, are Gravel; more of the Rays of the Sun being thereby reflected to them, than if they were Graſs. Add, that no ſort of tall Trees are to be ſuffered to grow in any of the oppoſite Borders, or intermediate Spaces, ſo, as their Shade might reach to the South-eaſt or South-weſt Walls. The Places near the Walls are moſt advantageouſly filled with Dwarfs.

DWARF-TREES, a ſort of diminutive Fruit-trees, frequently planted in the Borders of Gardens: Thus called from the Lowneſs of their Stature.

They ſeldom grow above four or five Foot high; and have uſually a Hoop tied within the Middle of the Branches to make them ſpread around.

Dwarf Trees are of ſpecial Advantage for Table Fruit, whether, Pears, Apples, Plumbs, or Cherries; the Fruit they yield is uſually the fineſt and beſt; and ſuch as make a conſiderable Article in the Gardiner's Province.

There are divers Ways of producing *Dwarfs*.—— *Dwarf-Pears* are uſually had by inoculating on Quince-ſtocks, which grow the *Dwarfs* Height.

As for *Dwarf-Apples*, the Stocks they chuſe to graft on are thoſe raiſed of the Cuttings of the Apple-tree. ——In order to provide Stocks of each Kind, they chuſe ſuch Stems, and Branches, as grow ſtraiteſt, in the Month of *October*, from Trees whoſe Cuttings will grow, or which in the Places they are to be grafted in are at leaſt an Inch thick: Theſe they cut off an Hand's Breadth below the Knots or Burs, which are the Places where they uſually put forth their Roots; and cut off the Top that they may not be above a Yard long. If they cannot be got ſo long of Quinces, ſhorter muſt do. Cut off all ſide Branches cloſe to the Body, except one ſmall Twig near the Top for the Sap to vent itſelf at. Set them in Beds, as ſeed Plants are: And keep them a Foot above Ground.

It being ſomewat difficult, to get enough of ſuch Branches as have Burs and Knots on them; a particular Method has been invented to bring thoſe Knots, and Burs, artificially, called *Circumpoſition*. It is performed by tying ſome Earth in a Piece of old Hat, a Foot long, about the Place where you intend to cut, in the Month of *February*, and in *October* it will have ſhot Roots therein.

Such Trees alone as are apt to put forth Roots, are proper for *Dwarf* Stocks; as the Kentiſh Codlin, Gennet Moil, ſome ſorts of ſweet Apples, Bitter-ſweets, the Quince-tree, Mulberry-tree, Paradiſe Apple-tree.

Stocks for *Dwarf* Apple-trees are likewiſe raiſed by cutting down an old Tree, which is apt to caſt forth good Suckers from the old Roots; which at two Years Age may be tranſplanted, or elſe inoculated where they ſtand.

As for *Dwarf* Pear-trees, Stocks may be raiſed for them from the Suckers of old Pear-trees: Elſe cut off the Top of ſome old ill Pear-tree, and the Roots will caſt forth Suckers.

For *Dwarf* Cherries and Plumbs, Suckers of the common Red Cherry, and ordinary Plumb-tree are the beſt.

As to the grafting or inoculating of *Dwarf Stocks*, it muſt be done as low as may be, with two Cyons, and thoſe longer than in grafting for long Standards that they may ſpread from the Ground.

As to the planting of *Dwarf-trees* it is beſt in a light, hot Earth, from the Beginning of *October*, to the End of *November*. In cold, wet Soil, it is beſt in *March* and *April*. The Stem of the Tree to be cut off ſeven or eight Inches above the Graft; and remember to cut off half the Length of the Roots and hairy Fibres; to turn the Cut of the Tree towards the North; to let the Graft always be two or three Inches above the Ground, leaſt it take Root; to plant them ſhallow, as being apt of themſelves, in light Ground to ſink a Foot deep, which is ſufficient; and to cover the Ground, when they are planted with Horſe-litter.

ESPALIER, in the *French* Gardening, is a Wall-tree; or a Fruit-tree; which is not left to grow at Liberty in full Air, but has its Branches nailed or faſtened to a Wall, near which it is planted; and thus growing, it is made to conform itſelf to the Flat, though unnatural, Figure thereof.

Eſpaliers, in our Gardening, are Rows of Trees, planted regularly round the Out-ſide of a Garden, or Plantation, for the general Security thereof, from the Violence and Injury of the Winds; or elſe only round ſome Part of the Garden, for the particular Security of a Plantation of Orange-trees, Lemon-trees, Mirtles, or other tender Plants; or laſtly, for the bounding of Borders, Walks, Avenues, *&c.*

Eſpaliers are now come into mighty Uſe, with Reſpect to the firſt of theſe Intentions: In Effect, it is found by Experience, that the beſt Brick, or Stone-Walls,

Walls, are not of themselves sufficient Security to Fruit-trees, from the Ravages of blighting Winds.

The Reason may be, that being built close and compact they repel the Winds, and by that Means damage the tender Plants, that lie within the Reach of the Repulsion. But these *Espaliers* serve to deaden the Violence of the Winds, so as the tender Greens, or Plants, encompassed by them, rest serene and quiet.

Thus, if the *Espaliers*, for Instance, be of spruce Holly, or Yew, they give way to the Force of tempestuous Winds beating against them without occasioning any Resilition thereof.

Mess. *London* and *Wise*, direct them to be planted at some Distance, without the utmost Bounds, or Walls of Gardens, *&c.* two or three Rows of Trees, they think sufficient, from 18 or 20 to 25 Foot apart. And as to the Method or Order, of disposing the Trees, the most commodious is where the Middle-row makes every where equilateral Triangles with the extreme Rows, in the following Manner.

The Trees recommended for making, or planting, these *espalier* Fences, are the Elm, Lime, *Scotch* Firpine, and Sycamores; but particularly the two first.

As for *espalier Hedges*, or Hedge-rows for Defence of tender Greens and Plants, from destructive Winds in the summer Season; if there be no Occasion to use them the first or second Year after they are planted; a substantial Frame of Wood must be made seven or eight Foot high, with Posts and Rails. And to this *espalier* Frame, must the side Boughs of the young Trees be tied, to cause the *Espalier* to thicken the sooner.

For the Form of such an *Espalier*, it must be Oblong, running North and South.——It may be planted with Apples, Pears, Holly, Laurel, Lime, Maple, White-thorn, Yew, *&c.*

To prevent the Disorders that might befal *espalier* Fruit-trees when in Blossom, Mr. *Bradley* mentions a nursery Man at *Brentford*, who having most sorts of Fruit in *Espaliers*, has portable Hedges made of Reeds in Frames, which he sets both at the Back, and Front of his *Espaliers*, as he sees Occasion.

With regard to *Fruit-trees*, Mons. *Quintinie* observes, 1. That the cutting and trimming of young Trees, hinders them from quick bearing; though it contributes both to the Beauty of the Tree, and the Richness and Flavour of the Fruit.

2. That *Kernel Fruit-trees*, come later to bear than *Stone Fruit-trees*; the Time required by the first before they arrive at a fit Age for bearing, being, one with another, about four or five Years: But that when they do begin, they bear in greater Plenty than *Stone-fruit*.

3. That *Stone-fruit*, Figs, and Grapes, commonly bear considerably in three or four Years; and bear full Crops the fifth and sixth Years; and hold it for many Years, if well ordered.

4. That *Fruits* in the same Neighbourhood will ripen a Fortnight sooner in some Grounds, than in others of a different Temperature.

5. That in the same Spot, hot or cold Summers set considerably forward, or put backwards the same *Fruit*.

6. That the *Fruits* of Wall-trees generally ripen before those on Standards; and those on Standards before those on *Dwarfs*.

7. That the *Fruits* of Wall-trees planted in the South and East Quarters commonly ripen about the same Time; only those in the South rather earlier than those in the East; those in the West are later by eight or ten Days, and those in the North by fifteen or twenty.

Monsieur *de Ressons*, in the *Memoires de l'Academie Royale des Sciences*, Anno 1716. gives a Method of grafting *Stone Fruit-trees* without losing of Time; so that a Tree which bore sorry Fruit the preceding Year, shall bear the choicest the Year following.

It frequently happens, that Persons are deceived in their *Fruit-trees*: Especially those bought of the nursery Men: And it is a melancholly thing, after having waited three Years for *Fruit*, to find it naught at last; and to be obliged to graft the Tree again, and wait four Years more, for the second Hopes; in Effect, in the common Methods of Grafting, they know nothing better than to cut off the Head of a Tree; and make it put forth new Wood, to graft in. This necessarily makes a long Delay; which Monsieur *Ressons* shews how to abridge.

Upon considering the Union of the Sap in Grafts, that Author was led to think, that all the Office the Bark has in Grafting, is to receive the Scutcheon; so that if the Bark be not quite hard, dry, and inflexible, and incapable of yielding without cracking, or bursting; it should seem indifferent, whether one grafted on new Wood, or old, the Sap passing equally into both; which Reasoning had the Fortune to be verified by a Number of Experiments made with that View.

We are at Liberty, then to graft at any Age, and in any Wood. Accordingly, a Peach-tree of a worse Kind or Quality, may be grafted from another of the best, in Autumn in the Height of its *Fruit* and Sap, without cutting off the Branches above the Grafts the Spring following; the same Graft inserted the preceeding Autumn will shoot vigorously; and being on a Wood of the same Kind, the *Fruit* thenceforth produced will be much the larger and finer. But this is not the great Point: For the Tree thus engrafted will not bear till the third Year; and we want *Fruit* the first.

In order to this, it is to be observed; that there are three Kinds of Branches: Wood-branches growing immediately from the Stem or Stock of the Tree: *Fruit*-branches; and Branches half Wood half *Fruit*; being such as arising from the largest Wood-branches preserve the Character thereof, but which in two Years Time will produce Fruit-branches. Now, it is these intermediate Kind of Branches, that we are to chuse for Scutcheons or Grafts. They are readily known by being bigger than the Fruit-branches, and less than the Wood-branches: They have each of them two, three, four, or even five Leaves to each Eye, and the Eyes are further distant from each other than those of the Fruit-branches, but closer than those of the Wood-branches. It must be added, that the Eyes on such Branches are three, one, intended for a Wood-branch, being scituate between the two Leaves and advancing further than the other two, which are intended for *Fruit*, and are placed without side the Leaves. These last are the precise Subjects to be chosen for the Grafting withal. Twelve of these Branches, more or less, according to the Strength of the Tree to be grafted on, being duly applied, we may depend on a Crop of good *Fruit* the very next Year, on the same Tree which last Year produced the worst.

The Production of a Fruit Tree, is called Fruit, as the Apple, Pear, Plumb, Apricot, Cherry, Grape, Currant, Orange, Fig, Almond, *&c.*

Fruits are distinguished into *Stone-fruit*, and *Kernel-fruit*; *Summer-fruit*, and *Winter-fruit*; *Wall-fruit*, and *Dwarf-fruit*, &c.

Monsieur *Quintinie* observes that cold, heavy, moist Lands produce the fairest and largest *Fruit*; but the hotter, dryer, and lighter, the more delicious and rich tasted.

Fruits, with regard to Commerce, are distinguished into *recent*, or *fresh*; and *dry*.

Recent FRUITS are those sold just as they are gathered from the Tree, without any further Preparation.——As are most of the Productions of our Gardens and Orchards, sold by the Fruiterers.

Dry FRUITS are those dried in the Sun, or by the Fire, with other Ingredients, sometimes added to them,

them, to make them keep; imported chiefly from beyond Sea, and sold by the Grocers.

Such are Raisins, Currants, Figs, Nutmegs, Pepper, and other Spices.

Under the Denomination of *dry Fruits* are also frequently included Apples, Pears, Almonds, Filberds, *&c.*

RAISINS, Grapes prepared by drying them in the Sun, or in Ovens; to fit them for keeping, and for some medicinal Purposes.

Of these there are various Kinds; as *Raisins* of *Damascus*, thus called from the capital City of *Syria*, in the Neighbourhood whereof they are cultivated. They are much used in the Composition of Ptisans, together with Jujubes and Dates; are brought flat and seeded, of the Size of the Thumb; whence it is easy judging of the extraordinary Bulk of the Grape, when fresh. Travellers tell us of Bunches weighing 25 Pounds. Their Taste is faintish and disagreeable.

Raisins of the Sun, are a Kind of *Raisins* brought from *Spain*, of a reddish or bluish Colour, seeded very agreeable to eat.

There are various other Sorts, denominated from the Place where they grow, or the Kind of Grape, *&c.* as *Raisins* of *Calabria*, *Muscadine Raisins*, &c.

CURRANTS or *Currans*, are a kind of little Raisins, or dried Grapes, of different Colours, black, white, or red; brought from several Places of the *Archipelago*, and amongst others from the Isthmus of *Corinth*; whence their Name, *Currants*, q. d. *Corinths*.

They must be chosen new, small, and in large Masses; and Care be taken that the little *Spanish Currants*, be not foisted in their Room. —— When made up in Bales, they may keep two or three Years, without stirring, or giving them air.——Their Use is in seasoning several Viands, and in some medicinal Composition; where they serve in lieu of Raisins. Sir *George Wheeler*'s Account of these Fruits, and the Manner of preparing them is very curious.——The Island of *Zant*, he observes, is the chief Place whence *Currants* are brought: The *Morea*, or the Isthmus of *Corinth*, which was antiently the principal Plantation, and whence the *Latins* denominated them *uvæ corinthiacæ*, now, produces no more; as having been much neglected: The Jealousy of the *Turks* not allowing large Vessels to enter the Gulf, to take them off their Hands.

They do not grow on Bushes, like our Gooseberries, though that be the common Opinion; but on Vines like other Grapes; except that the Leaves are somewhat thicker, and the Grapes somewhat smaller: They have no Stone; and, in this Country, are all red, or rather black.

They gather them in *August*, dispose them on Couches on the Ground till they be dry, clean them, and lay them up in Magazines, which the Natives call *Seraglio*'s; pouring them in at a Hole, till the Magazine be full; they cling so fast together by their own Weight, that they are forced to be dug out with iron Instruments.

To barrel them, for sending abroad, they have People who grease their Feet and Legs, and tread them close, that they may keep the better. They are sold for about twelve Crowns the thousand Weight, and pay as much Custom to the State of *Venice*.

Zant produces enough yearly to load five or six Vessels; *Cephalonia* three or four; and the other Islands one: The *English* have a Factory at *Zant*; the *Dutch* two or three Merchants, and the *French* one: The *English* consuming more than six times the Quantity than both *France* and *Holland* do together.

Those of *Zant* know but little of the Use we make of them; being perswaded they only serve in dying Cloth; and being intirely ignorant of the Luxury of *Christmas* Pyes, and *English* Puddings.

There are some other Particulars relating to the Art of Gardening, as *Pinching*, and *Variegating*.

PINCHING, is a Sort of Pruning performed by nipping, or breaking off the Branches, or Sprigs of a Plant, or Tree, between the Nails of two Fingers.

Most Gardeners hold that *Pinching* contributes to the Abundance of the Fruit as well as of the Branches; and say, that young Shoots, thus lopped, are less apt to grow black and dye, than when cut with a pruning Knife.

The Season for *pinching* is chiefly in *April* or *May*; sometimes it is also practised in *June* and *July*. —— The Fruits it is practised on are chiefly Melons, Cucumbers, *&c.* *Quintiny* also prescribes it for Fruit-trees.

It is chiefly to be practised on the large Branches towards the Top of the Tree, which are useless and yet consume a great Quantity of good Sap. It must rarely be employed on the large Branches below; which ought always to be preserved for the Winter's Pruning, that they may yield others, the following Year, fit to fill the empty Places. —— Nor must the Operation of *Pinching* be performed on the tender Shoots; because having just Sap enough for themselves, when they come to put forth more Branches in the Place where they were *pinched*, the small Stock of Sap allotted them being divided will starve them. ——The Operation is performed within two or three Eyes of the Branch they grow out of.

The Effect of *Pinching* is, that instead of one useless, perhaps, hurtful, Wood-branch, a vigorous Tree will put forth two or three at the Eyes remaining; and the Sap being thus divided, the Branches may be less, and fit for Wood and Fruit.

PULSES, SALLET, *&c.* are one of the principal Furniture of the Kitchen Garden.

SALLET, or *Sallad*, is a Dish of eatable Herbs ordinarily accompanying roast Meat, composed chiefly of crude fresh Herbage, seasoned with Salt, Oil, and Vinegar.

(*Menage* derives the Word from the *Latin*, *Salata*, of *Sal*, Salt; others from *Salcedo*: *Du Cange* from *Salgama*, which is used in *Ausonius*, and *Columella* in the same Sense.)

Some add Mustard, hard Eggs, and Sugar; others, Pepper, and other Spices, with Orange-peel, Saffron, *&c.*

Some define *Sallet* more generally, a Composition of Plants and Roots, of several Kinds to be eaten either raw or green, blanched or candied, by themselves, or mixed with others; and even, occasionally boiled, pickled, or otherwise prepared and disguised, to render more grateful to the Palate. —— But this Definition includes Pot-herbs, *&c.* which the Generality of Authors deny to be any proper *Salleting*.

The principal SALLET-*herbs*, and those which ordinarily make the Basis of our *English Sallets*, are Lettice, Sellery, Endive, Cresses, Radish, and Rape, *&c.* Along with which by way of Furniture, or Additionals, are Purslane, Spinnage, Sorrel, Tarragon, Burnet, Corn-sallet and Chervil.

The different Tastes of Mankind will not allow any certain Mixture of these to be prescribed as most agreeable; but, still, in mixing them, the Relish of the several Herbs is to be considered: Those for Instance, which are most hot and biting; as Cresses, Mustard, Sellery, Tarragon, Chervil, *&c.* with those that are more cool and insipid to Taste; as Turneps, Rape, Spinage, Lettice, Corn-sallet, Purslane, *&c.* By this Means the Herbs may be so judiciously mixed, that the too strong Taste of one Kind may not overpower all the rest; and the insipid Kinds be directly used to moderate and qualify the Heat and Pungency of the others, as the Season of the Year is more hot or cold; so as every *Sallet* may not only be agreeable to the Taste, but also Physick to the Body.

The Gardeners call *Small-Herbs*, in *Sallets*, those which should always be cut whilst in the Seed-leaf; as Cresses, Mustard, Radish, Turnip, Spinage, and Lettice: All which are raised from Seeds sown in Drills or Lines, from the Middle of *February* to the End of *March*, under Glasses or Frames, and thence to the Middle of *May*, upon natural Beds, warmly exposed; and during the Summer Heats, in more

shady

shady Places; and afterwards, in *September*, &c. as in *March*, &c. and lastly in the Rigour of the Winter, in Hot-beds. If they chance to be frozen in very frosty Weather, putting them in Spring-water two Hours e're they be used, recovers them.

In gathering small Herbs, the best Way is to pull them up by the Roots from the Hot-bed. If the Roots be left, and a second Crop of *Salleting* sown on the same Bed, it will not prosper.——In sowing second Crops it is to be observed, that Seeds of the same Kind, be not sown in the same Place; but the Ground is to be eased by varying its Burden, putting hot Seeds where cold ones grew before, *&c.* Another Rule is, that no Plant be placed in the same Spot where the same Kinds have grown before.

Winter *Sallets* are greatly improved by blanched Sellery, which is a hot Herb of a very rich Flavour; raised from Seed sown in *March* and *April*, in a well exposed Place, and transplanted six Weeks after its first Appearance, into Beds, where it remains till the Middle of *June*, and then planted in Trenches, eight or ten Inches wide; and as many deep, first pruning off the Tops and Roots. As they grow large, they are to be earthed up, within four or five Inches of the Top, which is repeated several Times, till they be fit for Use.——Endive blanched, is much used in Winter *Sallets*, though it have neither Taste nor Flavour; it is cultivated much after the Manner of Sellery.——Of Lettice there are various Kinds, the best are the *Roman*, *Dutch* brown, Imperial, and *Silesia* Kinds, all which cabbage well. They are commonly sown with other Crops in *March*, for Summer *Sallets*, and in *August*, to be transplanted, or *September*, to stand the Winter; either to be cut for Winter *Sallets*, or to cabbage early next Spring for Seed.

For the additional, or secondary SALLET-*herbs*: Burnet is a cool perennial Herb, whose tender Leaves, mixed with other Herbs in the Winter, give the agreeable Flavour of a Cucumber: It is propagated by Seed, sown in *March*. Corn *Sallet*, raised at the same Time, and in the same Manner, makes a good Winter *Sallet* Furniture; Purslane, an insipid, yet cooling Herb: is admired by some in Winter *Sallets*: It is raised by Seeds, sown in *March*, in a warm Place.——Sorrel is chiefly used in the Spring; when the young Leaves are very agreeable. It is raised from Seeds, sown in *March*, usually in Drills or Rows. Spinage is a necessary Ingredient in raw *Sallets*, to be cut in the Ear-leaf; but it is better for boiled *Sallets* in the Winter, or Spring. It is sown in *March*, *April*, or *May*; and again in *August*, in a Place well exposed to the Sun, that the Leaves may be large enough for boiling in the Winter.——Tarragon, of all others, should never be wanting; it is a cordial Herb, though not the most agreeably tasted; yet a few Leaves, or three or four of the tender Tops, give a *Sallet* a good Relish. It is propagated from Slips, taken from the Root, and planted in *March*. ——Note, in the Spring, Dandelion blanched, which is gathered in almost every ploughed Field, makes an excellent *Sallet*, mixed with other Herbs. Some likewise gather Violet Flowers, Cowslips, and Blossoms of Burrage, as Part of the *Sallet* Furniture; others, Fennel, and Parsley.

Dressing of SALLETS.—The Sellery and Endive are to have their hollow, green Stem, or Stalk, stripped of all its outside Leaves, and sliced in the blanched Part, cutting the Root into four Parts. The other ingredient Herbs being exquisitely culled and cleansed of all faulty Leaves, *&c.* are washed rather by sprinkling than sobbing them in Spring Water, laid to drain off all superfluous Moisture, then shook and squeezed together gently, in a coarse Cloth, to dispose them to receive the Seasonings, *viz.* the Salt, Vinegar, Oil, *&c.* The Oil not to be yellow or high Coloured, but of a pale Olive Green, without either Taste or Smell. The Vinegar perfectly clear, neither sour nor palled. The Salt to be the best, ordinary Bay-salt, clean, bright and dry.

Some indeed recommend the essential Salts and Spirits of Vegetables, or those of the alcalizate and fixed Kind, extracted from the Calcination of Balm, Rosemary, Wormwood, *&c.* and affirm, that, without eating the gross *Sallet* Herbs themselves, we might have healing, cooling, generous *Sallets*, wholly out of the Salt-seller.

Note, in the Proportion of Salt, Pepper, and Vinegar, Regard is to be had to the Season, Constitution, *&c.* the two first being best for cold, the second for hot Stomachs, and Seasons.——For a moderate Exaline, or *Sallet*-vehicle, to three Parts of Oil, put one of Vinegar, or Lemon, or Orange Juice, and in the Mixture, steep Slices of Horse-radish, with a little Salt; occasionally add a little *Guinea* Pepper, and Mustard, with the Yolks of two Eggs boiled, squeezed, and bruised into a Mash therein; pour the whole on the Herbs, stirring and mingling them till they be thoroughly imbibed.

We conclude the Art of *Gardening* by these Observations, that the *Sieur le Nostre* first carried *Gardening* to any Thing of Perfection: *M. la Quintinie* has gone yet farther. Nor have our own Countrymen of late been wanting to its Improvement; as *London*, *Wise*, *Bradley*, *Laurence*, *Fairchild*, &c.

M. Fatio has lately applied mathematical Reasoning to *Gardening*, and shewn how to make the best Use of the Sun's Rays in *Gardens*.

We forbear to say any Thing about the Antiquity or Usefulness of *Agriculture*; every Reader's Imagination will supply that Defect.——It has been cultivated by many of the greatest Men among the Antients, as Emperors, Dictators, and Consuls; and has been treated of by some of their greatest Authors, *Virgil*, for Instance, *Cato*, *Varro*, *Columella*, *Constantine*, *Porphyrogenitus*, *Palladius*, &c.

The late Authors in *Agriculture*, are *Baptista*, *Porta*, *Hereßbachius*, and *Agricola*, in *Latin*; *Alphonso*, *Herrera*, in *Italian*; *Quintinie*, *Stephens*, *Liebaut*, *de Serrée*, *de Croiscens*, *Bellon*, *le Notre*, and *Chomel*, in *French*; and *Nourse*, *Evelyn*, *Mortimer*, *Switzer*, *Bradley*, *Laurence* and *Miller*, in *English*.

ALCHYMY.

ALCHYMY is a supposed Art, which Avarice, and the inordinate Desire of growing immensely rich at once, hath fancied to be founded on the best and most infallible Principles, for a true Investigation or Research of Nature's most hidden and mysterious Secrets, and Operations; though but few of them have been yet reduced into Practice.

That Art hath three principal Objects; 1. The Transmutation of Metals. 2. The Discovery of an universal Medicine, which could cure all Diseases. 3. That of an universal Dissolvent, or *Alkahest*. Tho' none of the three hath ever tickled so much the Curiosity of the most famous *Alchymists*, as that of the Transmutation of Metals, which some of the most infatuated among them, have dignified with the Title of *Grand Œuvre*, or Work by way of Excellence; because, perhaps, it hath cost some of them more Money in endeavouring to discover that Grand Nothing, than ever any Body, but those who have worked at it, could imagine; since the *Artists* themselves, especially those who had not made yet an entire Divorce with their Reason, have been obliged to confess at last; that after an indefatigable Labour, and immense Expences, instead of finding the Secret

cret to change the moſt imperfect Metals into Gold, they, on the contrary, have only found the ruinous one, of changing Gold into nothing. This was the ſincere and ingenuous Confeſſion of *Penotus*, who, after he had ſpent the greateſt Part of his Life, and a very conſiderable Fortune, in the Reſearch of the Philoſopher's Stone, and being reduced to the greateſt Poverty, was forced to end his Days at the Hoſpital of *Yverdun* in *Switzerland*; proteſting at his Death, that if he had one Enemy in the World, he could wiſh him no greater Misfortune, than that of being infatuated with the ridiculous Notion of the Philoſopher's Stone.

Monſieur l'Emery, a famous Apothecary and Chymiſt, in the Reign of the late King *Lewis* XIV, don't ſuppoſe the Diſcovery of that Secret, of the Tranſmutation of Metals, abſolutely impoſſible, but ſays, that among the vaſt Number of Artiſts he knew, or heard of, who had attempted it, none had ever ſucceeded; which is enough to deter others from following ſo deſtructive an Example. That the greateſt Part of thoſe *Alchymiſts* were nothing elſe but Impoſtors and Juglers, pleaſed with the Opportunity of making an Advantage of the too great Credulity of ſome Perſons, really infatuated with the ridiculous Notion, and the Infallibility of the Principles, thoſe Juglers themſelves knew very well to be falſe.

Myſelf have known Artiſts of thoſe two Claſſes; ſome, who, after many Diſappointments in the Reſearch of their myſterious *Powder of Projection*, and after having quinteſſenced their Eſtate, their Subſtance, and their very Cloaths, perſiſted ſtill in their former Obſtinacy, that the Tranſmutation of Metals, was, not only poſſible, but that they were ſure to ſucceed therein; to have objected againſt, had been an Offence of the higheſt Nature.

I have likewiſe known ſome others, who though, in all Appearance, as obſtinate and as infatuated, as thoſe before mentioned; nevertheleſs, it was eaſy to diſcover that their Obſtinacy on that Subject, went no further than it could be ſubſervient to their intereſted Views; that they had been very ſorry, to ſpend any thing of their own, in their Reſearches; and would be Artiſts no longer than they could find Fools to anſwer their vexatious Demands, and defray their extravagant Expences. An *Engliſh* Benedictine Monk, Procurator, or Steward of their Convent at *Paris*, was an Artiſt of that Stamp. He found the Secret to perſwade his Brethren, that he could, with the Help of *Alchymy*, an Art he was entire Maſter of, multiply *ad infinitum*, a conſiderable Sum of theirs he had in his Hands. The honeſt Steward went to work, and pretended to do ſo, while the Money laſted, the greateſt Part of which, he laviſhed another Way, till being brought to an Account, the Monks finding their Store, inſtead of that vaſt Increaſe they had been flattered with, entirely evaporated, had the Artiſt committed for three or four Years to *Atenor*'s Tower, at the *Baſtile*, from whence he found at laſt the miraculous Secret to eſcape; and coming into *England* found ſome other Fools, who employed him alſo for a conſiderable Time, in the Reſearch of the Philoſopher's Stone, which at this preſent Time, is as far from him, as it was when he went firſt in Queſt of it; though, if we would believe him, he don't deſpair of finding it ſtill.

Another of thoſe Impoſtors, a *French* Man, would have perſuaded a noble Duke, nine or ten Years ago, that he could extract a conſiderable Quantity of Silver from the Tin of ſome Mines his Grace hath in *Cornwall*, pretending that he had made ſome Experiments of it, ſhewing even the Duke ſome Silver, which he was credulous enough to believe, was extracted from that Tin; in conſequence thereof, the Artiſt was to tranſport himſelf on the Spot, to work under the Direction, and at the Expences of his noble Maſter; who had no ſooner cloathed him, and provided him liberally with Money for his Journey; than the expert Artiſt, miſtook the Road of *Holland*, for that to *Cornwall*, and hath never been heard of ſince.

Another of his Countrymen has followed lately his good Example; the poor Gentleman had been here ſeveral Years looking for ſome Bubble, and was almoſt quite out of Hope of Succeſs; when unexpectedly he found one fit for his Purpoſe. The Gentleman tantalized with the Expectation of an immenſe Gain, received the Artiſt into his Houſe, and begun by covering his coarſer Subſtance, almoſt alcoholiſed, and in the ſame Condition, the firſt *Alchymiſt Adam* was, in the State of his Innocency; he was alſo ſupplied with Money for the neceſſary Preparations to be made, for that grand Operation. Accordingly a Vial was filled with ſomething, and put in Digeſtion, in Horſes Dung; and was to remain there a whole Year, at the End of which, the Powder of Projection, it was to produce, would be fit for Uſe; but before the Year was elapſed, the Artiſt, who in that Time had found the Secret to make up a pretty conſiderable Purſe, diſappeared, leaving to the Projector, the whole Care of the Bottle.

The greateſt Artiſt of this Kind, was the famous *Laws*, who in 1718. found the Secret in *France*, to change Paper into Money, Money into Paper; and at laſt Paper into nothing.

Jugglers, who, by Dexterity of Hands, play a great many very diverting and ſurpriſing Tricks, called by the *French des Tours de Paſſe*, *Paſſe*, as when they fix the Mercury with Verdigreaſe, or by fixing a ſmall Quantity of Silver at the End of the iron Rod, with which they ſtir the Matter in Infuſion increaſe it, and make the Spectators believe, that the Powder they have thrown into the Crucible, has occaſioned that Increaſe, are the more honeſt of the two; ſince they give the Curious ſomething for their Money; but the others are unſufferable, and thoſe that employ them true Bedlamites.

But however, let us ſuppoſe, for once, with Monſieur *L'Emery*, that the Diſcovery of the Philoſopher's Stone is poſſible; and for once ſpeak like an Artiſt.

Was I to follow my real Opinion on this Subject, the PHILOSOPHER'S STONE ſhould be defined by me, a certain grand *Nothing*, very much wiſhed for, long and often ſought for, and never to be found; but as I muſt appear in this Place prejudiced in its Favour, as ſuch,

The *Philoſopher's Stone*, is a Preparation for the *Tranſmutation* of the moſt imperfect Metals, into perfect ones.

This *Tranſmutation*, is to be attempted three ways; by Separation, Maturation, or real Tranſmutation.

If we can reaſonably ſuppoſe, that all other Metals, even the leſs perfect, contains ſome Quantity of *Gold*, more or leſs, this *Operation* may be effected by Separation. Thoſe that ſtand for the Affirmative, don't queſtion in the leaſt, but there is Gold in all other Metals, but to ſo ſmall a Quantity in ſome of them, that it would not defray the Expences of the Separation. For my Part, I cannot be of that Sentiment; ſince that Quantity of Gold could be found in the different Preparations, the *Chymiſts* are obliged to make of thoſe imperfect Metals, as in their Fuſion, Cryſtalization, Diſtillation, Sublimation, *&c. &c.* without any other additional Charges, ſince Gold, being not ſenſible of the ſame Mutations, and once freed from the heterogeneous Bodies it was wrapt in, would be found left by itſelf; though no *Chymiſt* has been pleaſed to inform us yet, that he hath ever made that advantageous Diſcovery.

None but *Mercury* could be changed into Gold by Maturation; the Principles of all other Metals being not pure Mercury, and the Abundance of heterogeneous Particles, and the ſmall Quantity of imperfect ones, which enter into their Compoſition, is confounded with, cannot be ſeparated from it, by a Digeſtion.

Mr. *Chambers* is pleaſed to ſuppoſe, that in the *Maturation* of *Mercury*, its Impurities being lighter than Mercury itſelf, if once purged of thoſe Impurities, it could eaſily be changed into Gold; becauſe it would be then as heavy as Gold; but that's but a very frivolous Reaſon to aſſert the Poſſibility of that *Tranſmutation*;

mutation; since Weight is not the essential Quality constitutive of that perfect Metal; the Artist should also find the Secret, to render the *Mercury*, thus freed of its Impurities, ductile and malleable, by making its Parts to have the same Attraction, and cohere with the same Force; which could scarce be perfected, since it would be almost impossible to render *Mercury* as free from Sulphur, as is Gold: But the most essential Quality is, that Mercury should equal Gold in its Fixedness in the Fire, resulting from the Homogenity and Equality of its Parts, which all have equal Pores or Interstices, through which the fiery Corpuscles find an easy Passage, and therefore cannot hasten its Fusion, with the same Facility, as that of less perfect Metals; where, through the Obliquity and unequal Position of their Pores, they meet with more Resistance: I confirm this Sentiment by an undeniable Fact, which happened in *Holland*, towards the Middle of the last Century.

Longueille, a *Frenchman*, had found the Secret of that *Metal*, which, Mr. *Chambers* supposes, would be pure Gold; nay, he had even carried it to a greater Perfection than Mr. *Chambers* seems to desire, since, besides the Weight, *Longueille*'s Metal had, in all Appearance, all the other Qualities of real Gold; till being put to the Crucible, its Pores being not in the same Position, nor at the same equal Distance, it evaporated into Smoak. This *Longueille*'s Gold cannot be supposed to be any Thing else but a Preparation of *Mercury*, as prescribed by Mr. *Chambers*.

The *Transmutation* of Metals, which is the third Method pretended to be used by the *Alchymists*, should be done, as they say, by melting them in the Fire, and casting some Quantity of a Powder, called by them *Powder of Projection*, unto the fused Matter, upon which the Fæces immediately retire, are votalized and burnt, and so carried off; and the rest of the Mass changed into pure Gold. But if such Method be practicable, is what at all Times, and in all Ages, hath been much controverted.

Cardan, and some others, will have the Transmuting other Metals into Gold, or Silver, utterly impossible; because, say they, it being absolutely necessary, that in such Operations, those Metals should be calcined, they never can afterwards, be brought again to their pristine Purity; besides the Generation, required in such Case, which is not the Work of Art, but of Nature. The same Authors even deny the Possibility of changing imperfect Metals into others the like imperfect; as Iron into Brass, or Copper; and Lead into Tin.

This Opinion squares very well with mine, for unless an ADEPT could persuade me, that in his Transmutation, he can perfectly imitate Nature in the Formation of the *Marcasite*, in its *Matrix*; that his Arts can furnish him with some infallible Rules, for the Direction of his Fire, whereby he can bring it to a Degree of Heat, equal to that of the *Sun* in those Climates where Gold is formed; he'll find me always equally prepossessed with the same Incredulity and Obstinacy. M. *l'Emery* himself, should have resolved those Difficulties, before he could have convinced me, that the Transmutation of Metals was possible, he should have produced Examples to prove it; for if it is possible, why, after so assiduous an Application to it, and so much Labour, have we not been able to find it yet? Is *Art* less industrious in this, and more sterile in Inventions, than it has been in an infinite Number of its Operations, in which it hath so well imitated, if not rivaled Nature herself? Why so many Directions and Rules in vain, and in all Appearance, so just and so well calculated; though when reduced to Practice, they prove ineffectual?

An *Alchymist* would answer to this, that a great many *Artists* have conducted their grand Operation with such Success, as to bring it to that Crisis, that it wanted but a lucky Moment, to have it perfected. That's almost such a ridiculous Story, as was that of *Fryer Bacon*'s brazen Head.

Time had been, in which the monstrous Prodigy could have appeared, if it had been minded, but that *lucky Moment* was so long a coming; and when come, did run with such Velocity, that it was impossible to lay hold of it.

Likewise, *Transmutation* had been effected, if the *Artist* had been more attentive; but for want of that Attention, the Operation hath miscarried, and it must be begun a-new; and SUBTLE must be supplied with more Money, by some *Tribulation* or *Ananias*, who have been cozened of their Senses, as well as of their Money, by the *Impostor*; who, to give a greater Notion of his pretended Capacity, expresses himself in a Dialect, which neither he, nor any Body else understand; giving to their Metals a Name quite different from that whereby they are known to the *Naturalists*; calling Gold, *Sol*; Silver, *Luna*; Iron, *Mars*; Copper, *Venus*; Lead, *Saturn*, &c.

What's the more surprizing is, that some of those *Alchymists*, not contented with searching what they call the Seed of Gold in less perfect Metals, look for it in Mixts or Substances, where's the less Appearance it could be found, as in Plants, in the Blood, Hairs, and even in the Excrements; and work upon it with as much Success, as they do upon Metals.

Mr. *Boyle*, (let it be said with all the Veneration I have for his profound Knowledge and Experience) seems to have been of that Opinion, and would have us believe, that even Rain Water is not deprived of that valuable Seed, since he assures us, in his *Scept. Chymist*, That Rain Water being distilled and redistilled, that is to say, if we speak the Language of the *Alchymists*, after a great Number of *Cohobations*, which he computes at 200, did leave at the Bottom of the *Alembick*, a considerable Quantity of white Chalk, or Earth; and that more plentifully in the latter Distillations, than in the former; which Chalk he leaves us to judge, could be changed into Gold; perhaps with the Help of the miraculous *Powder of Projection*.

But what is that *Powder of Projection*, that great *Arcanum*, capable to produce so extraordinary a Mutation? Whence does it come? And how does it work?

Ask an *Alchymist*, what is *Powder of Projection*; and he'll answer, that *Powder of Projection* is *Powder of Projection*, *i. e.* a Powder which hath the Power of changing any imperfect Metal, into a more perfect one, by the Admixture of a little Quantity thereof. If you want a more explicit Definition, you must make it yourself, or be contented with this, since the greatest *Artists* have not been yet capable to express themselves in Terms more significative or satisfactory.

They would be as much puzzled to trace the Origin of that Powder, as to find out its first Inventors; as for the Manner it operates, it is as well a Secret to themselves, as to any Body else; and it may be as skilfully prepared by a Person who hath never studied the Hermetick Art, as by one, who, all his Life-time, hath been buried in the Ashes of a *Furnace*, and produce the same Effects.

This Art, however, is not equally contemptible in all its Branches; since we know by Experience, that some Artists have found, by an assiduous and indefatigable Labour, if not the Secret of the Transmutation of Metals; some others, which from Time to Time have proved very beneficial to Mankind, as some general Remedies, which they have dignified by the Title of *Universal Medicine*; and sometimes called the *Grand Elixir*, which cure all Diseases. That *Elixir*, in the Opinion of the *Alchymists*, coincides with the *Philosophers Stone*, so what will make Gold will also cure all Diseases.

Kircher assures us, that the antient *Egyptians* had a very good Notion of that *Elixir*, which for its Subtility and Perfection, they called *Heaven*; and which they used to draw from the hardest and most precious Substances. This he takes to be that admirable

mirable and celestial Water, capable of removing all Diseases.

A great many since, have pretended to be Masters of that inestimable Secret; *in lieu* whereof, they have made Use of some poisonous Medicine, the Product of their vitiated Imagination, which seemed to have been found out for the entire Extirpation of human Race; or which they have found, perhaps, in some old Books of *Receipts*, and which they administer without Experience or Skill: All Nations and Countries have been pestered with those *Impostors*, *Quacks*, and *Charlatans*, *England* not excepted; which, at this present Time, sees its Inhabitants flock to one of them, who, through an unexpected Success, in the Distribution of a certain *Nostrum*, he hath pirated somewhere, and which he administers as a *Grand Elixir*, without Skill or Knowledge, for all Diseases, hath acquired a Reputation, which his too frequent Murders should have Tarnished; if the too great Credulity, and ridiculous Infatuation of the *Vulgar*, was not a second Nature, seldom to be conquered, even by the clearest Demonstration, or Evidence. The specious Pretext of a Christian Charity, serves, often, in those Occasions, to strengthen the Rabble in their Obstinacy: And a *Charletan* is never blamed for killing his Patients *Gratis*.

I have known an *Emperick*, of a quite different Character, who having found himself, by a serious and continual Application to *Alchymy*, an *Elixir*, which he called the *Tincture of Gold*, used to administer it with a great deal of Skill and Judgment, and surprizing Success; for we cannot deny the Possibility of finding such Secret, which could cure all Diseases; and which we will prove, when we treat of Medicine in general.

Chymistry and *Pharmacy* are indebted to *Alchymy*, for many other useful Discoveries of that Kind; so that the Hermetick Art hath not been always oppressive to the Commonwealth; especially when practised with Skill and Judgment; for if the *Artist* miss finding what he was looking for, he often discovers in that Research, what is more advantageous to Society, than the *Transmutation* of Metals, a *Specifick*, which cures effectually, and sooner, a *Chronick*, or some other dangerous Malady, than a *Galenical*, or other Preparations, used by our *Ancestors*, when we had but a confused Idea of *Alchymy*, and is preferable to a Secret, which once found, would only serve to foment and flatter one of our most criminal Passions, Avarice.

Some of the *Juggling Alchymists*, when they have kept their *Bubbles*, long in Suspence, and in the Expectation of seeing every Day the Accomplishment of their Wishes; conscious that their Imposture must be discovered at last, by the Miscarriage of their Project, and afraid of the dangerous Consequences such Miscarriage may be attended with, leave the *Philosophers Stone*, where it hath been so long hidden; and flatter their *Dupes*, with the Hope of another Discovery, which they promise will prove as beneficial to the *Society*, as the *Transmutation* of Metals.

One of those Impostors made a very good Use of that specious Pretext, towards the Beginning of the late Queen *Anne*'s Reign, to extricate himself out of the Labyrinth he had entered into; finding that he could wear the Mask no longer, and that his Imposture was on the *Point* of being discovered, excused himself to those who had set him to work, on his having missed the lucky Moment, in which the *grand Operation* was to have been perfected; but that if they would continue to encourage him, he had found a Secret in his Research of the Philosopher's Stone, which would make a Compensation for their past Expences, and which was the making of Gun-powder out of human Excrements, far preferable to that made of common *Salt-petre*. The Projectors, who had already more than a sufficient Reason to suspect the Truth of all he could say, even the most plausible; loth, however, to have sunk so much Money to no Purpose, approved also this second Scheme; and the *Artist* having contracted with the most considerable of his Brethren, the *Gold-finders* of the City of *London*, and its Suburbs; took a House at *Hammersmith*, and went chearfully to work, though not quite to the Satisfaction of his Neighbours, who often complained of him as a publick Nusance; but however, he found himself at last, in a Capacity of performing his new Covenant, and sent to the Tower a *Tun* of Gun-powder of his Invention, which, in Fact, was very good; with this small Difference, only, that it cost a great deal more than the common Gun-powder, and would not defray the Expences the Undertakers had been at for the making it: Therefore the too skilful *Artist* was dismissed.

The last Object of *Alchymy*, is to find out an Universal Dissolvent, which they call *Alkahest*, whereby they pretend to resolve all Bodies into their first Matter, Water alone excepted.

'Tis the real Opinion of *Paracelsus*, and *Van Helmont*, that there is a certain Fluid in Nature, capable to reduce all sublunary Bodies, as well homogeneous, as mixed, into their first Principle, or original Matter they are composed of; or into an uniform, equal, and potable Liquor, that will unite with Water, and the Juices of our Bodies, yet retain its seminal Virtues; and if mixed with itself again, thereby be converted into pure elementary Water.—Whence they imagine, it would at length reduce all Things into Water.

Van Helmont protesting that he was himself Master of that noble *Menstruum*, hath excited the Curiosity of all the succeeding *Alchymists*, in the Pursuit of it. Mr. *Boyle* had conceived so advantageous an Opinion of it, on the single Report of *Helmont*, that he is pleased to assure us, that had he ever been so happy as to find it, he had preferred it to the Philosopher's Stone; so would I, since there is not so great an Absurdity in the Notion of an universal *Ens*, that resolves all Bodies into their Ens genial, by freeing them of the heterogeneous Particles they were wrapt in, and thereby restore them to their pristine Liberty of directing themselves, as there is to believe, that at the same Instant they are thus freed, they acquire another Form, without the Allowance of the least Moment for a new *Direction*.

No Question, but all Bodies arise originally from a first Matter, which was once in a fluid Form, whose Particles, by the continual Agitation and Compression of the *Atmosphere*, the Diversity of their Figures, and the occult Quality, which direct them to their different Poles, have been concatenated together, for the Formation of those different Bodies.

Pantaleon, *Philalethes*, *Tachenius*, *Ludovicus*, *&c.* have left us several Treatises on the Subject of the ALKAHEST, which they thought worthy their most serious Application.

Paracelsus, if we believe *Helmont*, was the first Inventor of the Term *Alkahest*; in Fact, we don't find it before his Time, in any other Author; *Paracelsus* himself hath mentioned it but once, and that in his second Book *de viribus membrorum*.——*Est etiam* ALKAHEST *Liquor*, (says he, treating of the Liver) *magnum hepatis conservandi, & confortandi, &c.*

" There is, also, the Liquor *Alkahest*, of great " Efficacy in preserving the Liver; as also in curing " hydropical, and all other Diseases, arising from " Disorders of that Part. If it have once conquered " its like, it becomes superior to all other hepatick " Medicines; and though the Liver itself were " broken and dissolved, this Medicine should sup- " ply its Place."——Though, begging Mr. *Paracelsus*'s Pardon, I would not be forced to make the Experiment: For he may as well tell me, that his *Alkahest* would restore a dead Man to Life; which is more than our modern *Helmont*, WARD, hath pretended yet.

From the common Practice of *Paracelsus*, to transpose the Letters of his Words, as when he writes *Sustratar*, for *Tartar*; for *Nitrum*, Matrim, *&c.* some Authors imagine that his *Alkahest* is formed of *Alcali-*

est,

est, and consequently, was nothing else but the alkaline Salt of Tartar volatilized. *Glauber* seems to be of that Opinion. Others will have it the *German* Word *Algeist*, wholly spirituous and volatile. Others take it from *Saltz-geist*, which signifies Spirit of Salt; in Fact, Spirit of Salt was the great *Menstruum Paracelsus* used on most Occasions.——The Commentator of *Paracelsus*, who gives a *Latin* Edition of his Works at *Delft*, assures us, that the *Alkahest* was a Mercury converted into a Spirit.——*Zwelfer* judged it to be a Spirit of Vinegar from Verdigrease.——And *Starkey* thought he discovered it in his Soap.——The elder *Helmont* mentions the *Alkahest* by the compound Name of *Ignis-aqua*, Fire-water; from its Property of consuming all Things, and on Account of its liquid Form.——He also intitles it, *Summum & felicissimum omnium Salium*, "the "highest and most successful among Salts; which "having obtained the supreme Degree of Simplicity, "Purity and Subtility, alone enjoys the Faculty of "remaining unchanged, and unimpaired by the Subject "it works upon, and of dissolving the most stubborn "and untractable Bodies; as Stones, Gems, Glass, "Earth, Sulphur, Metals, *&c.* into real Salt, equal "in Weight to the Matter dissolved; and this with as "much Ease, as hot Water dissolves Snow.——"This Salt, continues he, by being several Times "cohobated with *Paracelsus*'s *Sal circulatum*, loses all "its Fixedness; and at length becomes an insipid "Water, equal in Quantity to the Salt it was made "from."

From thence we may easily draw this Inference, that *Paracelsus*, as well as *Van Helmont*, took Water for the universal Instrument of *Chymistry* and *Philosophy*; and Earth for the unchangeable *Basis* of all Things; that Fire was designed as their efficient Cause; that seminal Impressions were lodged in the Mechanism of Earth; and that Water, by dissolving and fermenting with the Earth, as it does by Means of Fire, brings every Thing forth; whence originally proceed the animal, vegetable and mineral Kingdoms. Even Man himself being thus originally created; and as easily dissolved into his *Ens Primum*, as to his natural Substance, abstracted from his spiritual one, which, though created, cannot return into his *Ens Primum*, otherwise than by his strict Re-union to him.

The *Alkahest* operates in the five following Ways.

1. The Subject, exposed to its Operation, is converted into its three Principles, Salt, Sulphur, and Mercury; afterwards into Salt alone, which then becomes volatile; and at length is wholly turned into an insipid Water.——The Manner of Application is by touching the Body proposed to be dissolved, *ex. gr.* Gold, Mercury, Sand, or the like, once or twice with the pretended *Alkahest*; and if the Liquor be genuine, the Body will be converted into its own Quantity of Salt.

2. It does not destroy the seminal Virtues of the Bodies dissolved thereby.—Thus Gold, by its Action, is reduced to a Salt of Gold.——Antimony to a Salt of Antimony; Saffron to a Salt of Saffron, *&c.* of the same seminal Virtues, or Character, with the original Concrete.——By seminal Virtues, *Helmont* understands those Virtues which depend upon the Structure or Mechanism of a Body, and makes it what it is. Hence an actual and genuine *aurum potabile*, might readily be gained by the *Alkahest*, as converting the whole Body of Gold into Salt, retaining its seminal Virtues, and being withal soluble in Water.

3. Whatever it dissolves, may be rendered volatile by a Sand-heat: and if after volatilizing the Solvend, it be distilled therefrom, the Body is left pure insipid Water equal in Quantity to its Original self, but deprived of its seminal Virtues.——Thus if Gold be dissolved by the *Alkahest*, the Metal first becomes Salt, which is potable Gold; but when the *Menstruum* by a farther Application of Fire is dissolved therefrom, it is left mere elementary Water, whence it appears, that pure Water is the last Production or Effect of the *Alkahest*.

4. It suffers no Change or Diminution by dissolving the Bodies it works on, and therefore sustains no Re-action from them, being the only immutable *Menstruum* in Nature.

5. It is incapable of Mixture, and therefore remains free from Fermentation, and Putrefaction; coming off as pure from the Body it hath dissolved, as when first put thereon, without leaving the least Foulness behind.

These are the Properties attributed to the *Alkahest*, if ever by an unexpected good Luck, some *Artist* was to discover a Dissolvent of that Kind; which, though possible, is however hidden yet, somewhere, with the Philosophers Stone, since the Commentator of *Paracelsus*, and *Van Helmont*, don't appear to be very well convinced, that *Paracelsus* was Master of a real and true *Alkahest*; the one pretending that it was some mercurial Preparation, and, the other, nothing else but the Spirit of Salt, which last, though we are Masters of, cannot produce those surprizing Effects attributed to the *Alkahest*.

Some Authors pretend, but upon what Foundation I know not, that *Alchymy* is as antient as the World; that *Adam* was the first *Alchymist*, as well as our first Parent; but how he acquired that profound Knowledge, if by *Infusion*, or by eating the prohibited Fruit, or after his Expulsion from the Garden, or by being condemned to get a Livelihood by the Sweat of his Brows, he thought he could never better obey that Order, than by looking after what was not to be found, or poring over an *Alembick* or a Crucible, is what *Moses* has kept a Secret.

It is true, that almost all the Philosophers agree, that *Adam*, from the first Instant of his Creation, had the Philosophy by Infusion; *i. e.* that he had a perfect Knowledge of all he was to know as a perfect Man; and of all that could contribute towards his temporal Felicity, till his divine Creator would be pleased to have it changed into an eternal one: But as that Knowledge was not without some Limitation (else the Serpent had not tempted *Eve* with the Promise of a more extensive one) and that he knew nothing, then, which could have excited the Tumult of his Passions, it is not reasonable to suppose, that *Adam* had the least Tincture of *Alchymy*, which owes its first Origin to *Covetousness*, a Passion capable to disturb the Tranquillity of *Adam*'s Mind, and which had not been known in the Garden of *Eden*.

Adam might have had, perhaps, some general Notion of Gold, but then he could not have considered it otherwise than as an Excrement of Nature, of no Utility or Service to him. What Use could he have made of it? Not to gain the Respect of his fellow Creatures; since he was then the only Man upon Earth, feared and respected by all other Creatures of an inferior Rank. To purchase Estates? He was then sole Possessor, Sovereign, and absolute Master of the whole World. To adorn himself, or his Wife *Eve*, embellish his Palaces, *&c?* They both knew, in those fortunate Days, no greater Ornament than that of their Innocency. They had then, all they could wish for, without Pains, Trouble, or Inquietude, and could have wished for nothing else.

Besides, if *Adam* had wanted Gold, he must have known where to find it, without having Recourse to laborious Researches, which his profound Knowledge could have told him were vain and fruitless.

But *Adam*, perhaps, became, or rather turned *Alchymist*, after his Understanding had been darkened, and his Senses depraved by his Sin, which would be the more plausible; though we don't find in *Holy Writ*, that any of the antient Patriarchs, had the least Knowledge of Metals, before *Tubal-Cain*.

If *Moses* be the *Trismegistus* of the Antients, he might have been an *Alchymist*; for if any Body hath ever been Master of the Philosopher's Stone, *Moses* must,

muſt; where could he have found elſe, that immenſe Quantity of Gold the *Iſraelites* were poſſeſſed of in the Deſart? For it is not reaſonable to ſuppoſe, that it roſe from the Spoils of the *Egyptians*, who could never have been perſuaded to lend ſo much Wealth, on the ſingle Pretence of a Feaſt; beſides, we don't ſee that they had then, ſo advantageous an Opinion of the Probity of the *Hebrews*, who could never have borrowed on that Occaſion, but of the few Friends they had in *Egypt*.

All this is but a mere Suppoſition confirmed by no Authority whatever; ſince we don't find any antient Poet, Philoſopher, or Phyſician, from *Homer*, till 400 Years after *Chriſt*, mentioning any ſuch Thing as *Alchymy*, whoſe Name, therefore, is not of ſo antient ſtanding as pretended.——The firſt Author who ſpeaks of making Gold, is *Zoſimus*, the *Panopolite*, who lived towards the Beginning of the fifth Century, and has an expreſs Treatiſe *of the divine Art of making Gold and Silver*, ſtill extant in Manuſcript in the King of *France*'s Library.——The next is *Æneas Gazeus*, another *Greek* Writer towards the Cloſe of the ſame Century, in whom we have the following Paſſage. "Such as are ſkilled in the Ways of Na-"ture, can take Silver and Tin, and changing their "Nature, turn them into Gold." The ſame Writer tells us, "He was wont to ſtile himſelf Gold-melter, "and Chymiſt."——Hence we may gather, there was ſome ſuch Art in that Age; but as neither of theſe Authors relate how long it had been known before, their Teſtimony will not carry us back beyond the Age wherein they lived; contrary to *Suidas*'s Opinion, who will have the Secret of the Philoſopher's Stone couched in the Fable of the *Argonauts*.

Neither do we find any earlier or plainer Traces of the univerſal Medicine: Not a Syllable of any ſuch Thing in all the Phyſicians and Naturaliſts, from *Moſes* to *Geber* the *Arab*, who is ſuppoſed to have lived in the ſeventh Century. That Author in one of his Works, intituled the *Philoſopher's Stone*, mentions "a Medicine which cures all Lepras." Some other Authors ſuppoſe, that this Paſſage has given the firſt Hint of the Matter; though *Geber* himſelf, perhaps, meant no ſuch Thing: For by attending to the *Arabic* Style, and Diction of this Author, which abounds in Allegory, it appears very probable, that by Man he means Gold; and by Lepras, or Diſeaſes, the other Metals, which are all impure in Compariſon of Gold.

Suidas accounts for this total Silence of Authors, in Reſpect of *Alchymy*, by obſerving, that *Dioclesian* procured all the Books of the antient *Egyptians* to be burnt; and that in thoſe all the great Myſteries of Chymiſtry were contained.——*Couringius* calls this Hiſtory in Queſtion, and aſks how *Suidas*, who lived but five hundred Years before us, ſhould know what had happened eight hundred Years before him? To which *Borrichius* anſwers, that he had learnt it of *Eudemus*, *Helladius*, *Zozimus*, *Pamphilus*, *&c.*

Kircher aſſures us, that the Theory of the Philoſopher's Stone, is delivered at large in the Tables of *Hermes*; and that the antient *Egyptians* were not ignorant of the Art, but declined to proſecute it. They had no Need to tranſmute Gold, they had Ways of ſeparating it from all Kind of Bodies from the very Mud of the *Nile*, and Stones of all Kinds. But he adds, that theſe Secrets were never wrote down or made publick; but confined to the Royal Family, and handed down traditionally from Father to Son.

The Chief Point advanced by *Borrichius*, and on which he ſeems to lay the greateſt Streſs, is the Attempt of *Caligula*, mentioned by *Pliny*, for procuring Gold by Diſtillation, from Orpiment; but this, it may be obſerved, makes very little for that Author's Pretenſions; there being no Tranſmutation, no Hint of any Philoſopher's Stone, but only a little Gold extracted or ſeparated from the Mineral.

The principal Authors in *Alchymy*, are *Geber*, *Ripley*, *Lully*, *John* and *Iſaac Hollandus*, *Baſil Valentine*, *Paracelſus*, *Van Zuchten*, *Sendivogius*, *&c.*

Towards the Beginning of this Century, and under the Reign of the late King *Lewis* XIV, two famous *Alchymiſts*, both *Capuchins Fryers*, appeared in *France*, protected by that great King, who took them into his Palace of the *Louvre*, from whence they have been called ſince, the *Capuchins du Louvre*, and had a magnificent Laboratory erected for them, where they uſed to work, not in the Reſearch of the Philoſopher's Stone, but for the Diſcovery of an univerſal Medicine, which could cure all Diſeaſes, in which they ſucceeded ſo far, as to be Maſters of ſeveral excellent Remedies, which ſince have proved very beneficial to Mankind.

The late Regent of *France*, the Duke of *Orleans*, if we believe the common Report, had a very advantageous Opinion of *Alchymy*, and as good a Notion of that Art, as any of the moſt famous ones heretofore mentioned; ſome even pretend that his Royal Highneſs had been himſelf a very ſkilful Artiſt; which, conſidering he was a Prince of a very profound Knowledge, and vaſt Capacity, could help to diſſipate ſome of my former Prejudices againſt *Alchymy*.

The late King of *Sweden*, *Charles* XII. thought alſo the Tranſmutation poſſible; though his Majeſty refuſed the granting his gracious Pardon to a Perſon, who proffered, on that Condition, to render *Charles* Maſter of that Secret, at that Time on his Expedition in *Saxony*; which being reported to *Auguſtus* II. anſwered, "That the King of *Sweden* had no Need "of the Philoſopher's Stone, ſince he had found it "in *Saxony*."

ALGEBRA.

ALGEBRA, is a peculiar Kind of Arithmetic, which takes the Quantity ſought, whether it be a Number, or a Line, or any other Quantity, as if it were granted; and by Means of one or more Quantities given, proceeds by Conſequence, till the Quantity, at firſt only ſuppoſed to be known, is found to be equal to ſome Quantitity or Quantities which are certainly known, and conſequently it ſelf is known.

ALGEBRA is of two Kinds, Numeral, and Literal.

NUMERAL, or vulgar *Algebra*, is that of the Antients, which had only Place in the Reſolution of *Arithmetical* Queſtions.——In this, the Quantity ſought is repreſented by ſome Letter or Character; but all the given Quantities are expreſſed by Numbers.

LITERAL, or ſpecious *Algebra*, or the new *Algebra*, is that wherein the given known Quantities, as well as the unknown, are all expreſſed, or repreſented by their Species, or Letters of the Alphabet.

This eaſes the Memory and Imagination of a vaſt Streſs, required to keep ſeveral Matters neceſſary for the Diſcovery of the Truth in Hand, preſent to the Mind.

Specious Algebra is not like the Numeral, confined to certain Kind of Problems, but ſerves univerſally, for the Inveſtigation of *Theorems*, as well as the Solution and Demonſtration of all Kinds of *Problems*.

Theorem is a ſpeculative Propoſition, deduced from ſeveral Definitions compared together.——Thus if a Triangle be compared with a Parallelogram, ſtanding on the ſame Baſe, and of the ſame Attitude, partly from their immediate Definitions, and partly from

from other of their Properties already determined, it is inferred that the Parallelogram is double the Triangle, that Proposition is a *Theorem*.

There are two Things to be chiefly regarded in every *Theorem*, *viz.* the Proposition and the Demonstration: In the first is expressed what agrees to some certain Thing, under certain Conditions, and what does not.——In the latter the Reasons are laid down, by which the Understanding comes to conceive that it does not agree thereto.

Theorems are of various Kinds, Universal, Particular, Negative, Local, Plain, Solid, Reciprocal, *&c.*

Universal THEOREM, is that which extends to any Quantity without Restriction, universally.——As this, that the Rectangle of the Sum, and Difference of any two Quantities, is equal to the Difference of their Squares.

Particular THEOREM, is that which extends to any particular Quantity.——As this; in an equilateral right-lined Triangle, each of the Angles is sixty Degrees.

Negative THEOREM, is that which expresses the Impossibility of any Assertion.—As that the Sum of two biquadrate Numbers cannot make a square Number.

Local THEOREM, is that which relates to a Surface.——As, that Triangles of the same Base and Altitude are equal.

Plane THEOREM, is that which relates to a rectilinear Surface, or to one terminated by the Circumference of a Circle.——As, that all Angles in the same Segment of a Circle, are equal.

Solid THEOREM, is that which considers a Space terminated by a solid Line, that is, by any of the three conic Sections.——*ex. gr.* this; that if a right Line cut two asymptotic Parabola's, its two Parts, terminated by them, shall be equal.

Reciprocal THEOREM, is one whose Converse is true.——As that if a Triangle have two equal Sides, it must have two equal Angles: The Converse of which is likewise true, that if it have two equal Angles, it must have two equal Sides.

The Letters used in *Algebra*, do each separately represent either Lines or Numbers, as the Problem is Arithmetical or Geometrical, and together they represent Planes, Solids, and Powers more or less high, as the Letters are in a greater or less Number.——For Instance, if there be two Letters, $a\,b$, they represent a Rectangle, whose two Sides are expressed, one by the Letter a, and the other by b, so that by their mutual Multiplication, they produce the Plane $a\,b$. Where the same Letter is repeated twice, as $a\,a$, they denote a Square; three Letters, a, b, c, represent a Solid, or a rectangled Parallelepepid, whose three Dimensions are expressed by the three Letters a, b, c, the Length by a, the Breadth by b, and the Depth by c, so that by their mutual Multiplication, they produce the Solid a, b, c.

The POWER in *Algebra*, is the Produce of a Number, or other Quantity, multiplied into itself.

The Moderns, after *Des Cartes*, are contented to distinguish most of their Powers by the Exponents; as, *first*, *second*, *third*, *&c.*

The particular Names of the several *Powers*, were introduced by the *Arabs*; *viz. Square*, *Cube*, *Quadrato quadratum*, or *Biquadrate*, *Surdesolid*, *Square of the Cube*, *second Surdesolid*, *Quadrato quadrato quadratum*, *Cube of the Cube*, *Square of the Surdesolid*, *third Surdesolid*, *&c.*

The Names given by *Diophantus*, followed by *Vieta* and *Oughtred*, are, the *Side* or *Root*, *Square*, *Cube*, *Quadrato-quadratum*, *Quadrato-cubus*, *Cuba-cubus*, *Quadrato-quadrato-cubus*, *Quadrato-cubo-cubus*, *Cubo-cubo-cubus*, *&c.*

The Characters wherewith the several *Powers* are denoted, both in the *Arabic* and *Cartesian* Notation, are as follow:

	2	4	8	16	32	64	128	256	512	1024
Arab.	*R*	*q*	*c*	*bq*	*s*	*qc*	*Bf*	*tq*	*bc*	*fq*
Cartes.	a	a^2	a^3	a^4	a^5	a^6	a^7	a^8	a^9	a^{10}

Hence to raise a Quantity to a given *Power*, or Dignity, is the same as to find the Factum arising upon its being multiplied a given Number of Times into itself: *e. gr.* to raise 2 to the 3d *Power*, is the same as to find the Factum 8; whose Factors are 2, 2, 2.

Powers of the same Degree, are to one another in the Ratio of the Roots as manifold as their Exponent contains Units: Thus Squares are in a duplicate Ratio; Cubes in a triplicate Ratio; Quadrato-quadrata, or fourth *Powers* in a quadruple Ratio.

The Powers of proportional Quantities, are also proportional to one another.

From a given Power to extract the Root or *Side*, is the same as to find a Number, *e. gr.* 2. which multiplied any Number of Times, *e. gr.* twice, produces the given *Power*, *e. gr.* the 3d *Power*, or 8.

To multiply or divide any Power by another of the same Root. 1. For Multiplication, add the Exponents of the Factors; the Sum is the Exponent of the Factum thus:

$$\begin{array}{lllll} \textit{Factors} \left\{ \begin{array}{l} x^3 \\ x^4 \end{array} \right. & y\,m & y\,m & a\,m & x\,n \\ & y^m & y^n & a^r & x^s \\ \hline \textit{Prod.} & x^7 & y^{2m} & y^{m+n} & a^{m+r}\,x^{n+s} \end{array}$$

2. For Division, subtract the Exponent of the *Power* of the Divisor, from the Exponent of the Dividend; the Remainder is the Exponent of the Quotient. Thus

$$\textit{Divid.}\ \begin{array}{l} x^7 \\ x^8 \end{array} \left(\begin{array}{l} x^7 \\ \\ \end{array}\right. \left\|\begin{array}{l} y^{m+n} \\ y^n \end{array}\right. \left(\begin{array}{l} y^m \\ \\ \end{array}\right. \left\|\begin{array}{l} a^m\ x^n \\ a^r\ x^s \end{array}\right. \left(\begin{array}{l} a^{m-r}\ x^{n-s} \\ x \end{array}\right.$$

M. de la Hire gives us a very odd Property common to all *Powers*. *M. Carre* had observed with regard to the Number 6, that all the natural cubic Numbers, 8, 27, 64, 125, whose Root is less than 6, being divided by 6, the Remainder of the Division, is the Root itself; and if we go further, 216, the Cube of 6, being divided by 6, leaves no Remainder; but the Divisor 6, is itself the Root. Again, 343, the Cube of 7, being divided by 6, leaves 1; which, added to the Divisor 6, makes 7 the Root, *&c.*

M. de la Hire, on considering this, has found that all Numbers, raised to any *Power* whatever, have Divisors, which have the same Effect with Regard thereto, that 6 has with Regard to cubic Numbers.

For the finding of these Divisors, he discovered the following general Rules.

If the Exponent of the *Power* of a Number be even; *i. e.* if the Number be raised to the 2d, 4th, 6th, *Power*, *&c.* it must be divided by 2; the Remainder of the Division, in Case there be any, added to 2, or to a Multiple of 2, gives the Root of this Number, corresponding to its *Power*, *i. e.* the 2d, 6th, *&c.* Root.

If the Exponent of the *Power* be an uneven Number; *i. e.* if the Number be raised to the 3d, 5th, 7th *Power*, the Double of that Exponent will be the Divisor, which has the Property mentioned.

Thus is it found in 6, Double of 3, the Exponent of the *Power* of all the Cubes. Thus, also 10 is the Divisor of all Numbers raised to the 5th *Power*, *&c.*

Root in ALGEBRA, denotes a Quantity which is multiplied by itself; or a Quantity considered as the Basis or Foundation of a higher Power.

Thus if any Number, as 2, be multiplied by itself, the Product 4 is called the *Square*, or second Power of 2;——and 2 itself, with Regard to that Power, is called the *Root*; or, particularly, the *square Root* of 4.

Since as Unity is to the square *Root*, so is the *Root* to the Square; the *Root* is a mean Proportional between Unity and the Square.——Thus, 1:2::0:4.

If a Square Number, as 4, be multiplied by its Root 2, the Product 8 is called the *Cube*, or third Power of 2; and with Respect to this cubic Number

8, the Number 2 is called *Root*; as particularly the *Cube Root*.

Since as Unity is to the *Root*, so is the *Root* to the Square; and as Unity is to the *Root*, so is the Square to the Cube, the *Root* will be to the Square, as the Square to the Cube, *i. e.* Unity, the Root, the Square, and the Cube, are in continual Proportion: Thus, 1:2::4:8. And the *cube Root* is the first of the two mean Proportionals between Unity and the Cube.

To extract the ROOT, out of a given Number, or Power, as 8, is the same Thing as to find a Number, as 2, which being multiplied by itself a certain Number of Times, *v. gr.* twice, produces the given Number, 8.

A *Root*, whether square or cubick, or of any higher Power; if it consists of two Parts, is called a *binomial Root*, or simply a *Binomial*; as 24, or 20 + 4. If it consists of three, a *Trinomial*; as 245, 240 + 5. Or 100 + 140 + 5. If of more than three, it is called *Multinomial*; as 2456, or 2450 + 6, or 2400 + 56, or 2000 + 456, or 2000 + 400 + 50 + 6.

ROOT *of an Equation*, denotes the Value of the unknown Quantity in an Equation.

Thus if the Equation be $a^2 + b^2 = x^2$, the Root of the *Equatian* is the square *Root* of a, and that of b; expressed thus $\sqrt{(a^2 + b^2.)}$

Real ROOT — If the Value of x be positive, *i. e.* if x be a positive Quantity; *e. gr.* $x = r$, the *Root* is called a *real* or *true Root*.

False ROOT, If the Value of x be Negative, *e. gr.* $x = -5$. the *Root* is said to be false.

POSITIVE Quantity, in *Algebra*, is a real, or affirmative Quantity; or a Quantity greater than nothing; —— thus called, in Opposition to a privative or negative Quantity, which is less than nothing.

Positive Quantities, are designed by the Character + prefixed to them, or supposed to be prefixed.

NEGATIVE *Quantities*, in *Algebra*, those affected with the Sign —— and which are supposed to be less than nothing.

REDUCTION *of Equations*, in *Algebra*, is the clearing them from all superfluous Quantities, bringing down the Quantities to their lowest Terms, and separating the known Quantities from the unknown; till, at length, only the unknown Quantity is found on one Side, and known ones on the other.

The *Reduction* of an Equation is the last Part of the Resolution of the Problem.

The End of all algebraical Operations, is to have the unknown Letter alone in one Member of the Equation; and in the other all the known Letters, without any Mixture of the unknown; for in this Case, it is evident the Value of the unknown Quantity is found.

This Reduction is effected by adding the Quantities subtracted; subtracting those added; multiplying those divided, and dividing those multiplied; extracting the Root out of Powers, and raising Roots to Powers, so as still to preserve an Equality, this suffices for the *Reduction* of simple Equations; but for higher Equations, the Process is less obvious.

From the Manner wherein Powers are formed, it is evident, that as the unknown Letter is raised to a higher Power, it will be found, in its lower Powers, mixed and combined so many more Times with known Quantities, and of Consequence will be so much the more difficult to be disengaged there-from. And the Difficulty is the same, where there are several unknown Letters multiplied singly one into another, and again multiplied by known Letters.

The *Reduction* of the Equation being made; from the last Quantity thus gained, the geometrical Construction is to be deduced.

The Method of performing the several Operations in *Algebra*, is by Addition, Subtraction, Multiplication, Division, *&c.*

ADDITION in *Algebra*, is performed by connecting the Quantities to be added by their proper Signs; and also by uniting into one Sum, those that can be so united.

Thus, a and b make $a + b$; a and $-b$ make $a - b$; $-a$ and $-b$ make $-a - b$; ya and ga make $ya + ga$; $-a\sqrt{ac}$ and $b\sqrt{ac}$ make $-a\sqrt{ac} + b\sqrt{ac}$, or $b\sqrt{ac} - a\sqrt{ac}$; for it is all one in whatever Order they be written.

Addition of single whole Quantities (when the Quantities are alike, and have the like Signs) is performed by adding the prefixed Numbers, and adjoining the Quantities with the same Sign.

Thus	1	a	$-3b$	$+5bc$	$-6abc$
1 + 2	2	a	$-5b$	$+4bc$	$7abc$
	3	$2a$	$-8b$	$9bc$	$13abc$

When the Quantities are alike, but have unlike Signs, then the Quotient is subtracted from each other, and the Quantities adjoined with the Signs of the greater.

Thus	1	$3a$	$-5b$	$-9bd$	$10abcd$
1 + 2	2	$-a$	$+7b$	$+7bd$	$-12abcd$
	3	$2a$	$+2b$	$+2bd.$	$-2abcd.$

But when the Quantities are unlike (be the Signs so or not) the Quantities must be set down with their respective Quotients, without altering their Signs, and thence arise compound Quantities.

Thus	1	a	a	$-7bcd$
1 + 2	2	b	$-b$	$+5bdg$
	3	$a+b$	$a-b$	$5bdg-7bcd.$

Addition of compound Quantities is performed in the same Manner, and by the same Rules as single Quantities are.

Thus	1	$a+e$	$a+e$	$+3a-b+3c$
1 + 2	2	$a+e$	$a+e$	$-3a+b-2c$
	3	$2a+2e$	$2a$	*c &c. &c.*

SUBTRACTION in *Algebra* is performed by connecting the Quantities with all the Signs of the Subtrahend changed; and at the same Time uniting such as may be united, as is done in *Addition*.

Thus $+7a$ subtracted from $+9a$ makes $+9a - 7a$, or $2a$ in the *Subtraction* of compound algebraick Quantities; the Characters of the Subtrahend are to be changed into the contrary ones, *viz.* + into − and − into +.

If one will subtract specious Numbers or Quantities from one another, both those affected with the same, and those with contrary Characters, the Method is this. — 1. If the Quantities designed by the same Letters have the same Signs, and the less to be subtracted from the greater; the Subtraction is performed as in common Arithmetick, *e. gr.*

$5b + 4d - f$	$= 5ß + 4p -$	¾
$2b + d - f$	$= 2ß + 1p -$	¼
$3b$	$3d - 0$	$3ß + 3p$	0

2. If a greater Quantity be to be subtracted out of a less; the less must be subtracted out of the greater, and to the Remainder must be prefixed the Sign −, if the Quantities be affected with the Sign +; or the Sign +, if they be affected with −.

$16a + 2b - 9d$	$= 16$ *lib.*	$+ 2ß -$	$9d$
$19a + 3b - 11d$	19	$+ 3$	$- 11$
$-3a - 16 + 2$	-3	-1	$+2$

3. If

3. If the Quantities have different Signs; the Subtraction is converted into Addition, and to the Aggregate is prefixed the Sign of the Quantity, whence the Subtraction is to be made, *v. gr.*

$$\begin{array}{l} 8a-5c+9d := 8\,lib.\ -5+9d \\ 6a-8c+7d\ \ = 6\ \ \ -8-7 \\ \hline 2a+3c+16d = 2\,lib.+3+16 \end{array}$$

4. If the Quantities be expressed in different Letters, they must be connected; only the Character of the Subtrahend must be changed into the contrary ones for Example;

$$\begin{array}{l} a+b-c \\ d-e+f \\ \hline a+b-c-d+e-f \end{array} \qquad \begin{array}{l} a+d \\ c-c-g \\ \hline a+d-c+e+g \end{array}$$

MULTIPLICATION in *Algebra* is either of single whole Quantities, or of compound Quantities; the Multiplication of single whole Quantities, is performed by joining the Quantities together, whether they be like, or unlike, and to the Product prefixing the Sign +.

Thus	1	a	ab	$-bc$	$-ab$
1+2	2	b	cd	$-df$	$-d$
	3	ab	$abcd$	$6bcdf$	$abd.$

If there be Coefficients, multiply them, and to their Product join the Quantities, set together as before.

Thus	1	$5a$	$7bc$	$-24bc$
1+2	2	b	$4ad$	$-6\ df$
	3	$5ab$	$28adbc$	$+144bcdf$

And when the Quantities have unlike Signs, the Operations are the same with the foregoing, only to the Product is prefixed the Sign −.

From hence it appears, that like Signs produce the Affirmative Sign +, but unlike produce the negative Sign −. The Reason thereof may be thus stated: Suppose a = any affirmative Quantity, and let $-b = -2$, than is b equal to 2 less than nothing; (for so are all negative Quantities). Now to multiply any Number or Quantity, implies a putting together of the same, so often as is the Number in the Multiplier, as $a \times 2 = 2a$, or a twice put together; but if the Multiplier be -2, then it implies the taking away of the a twice; and therefore the Product must needs be $-2a$, that is $a \times -2 = -2a$, or $a \times -b = -ab$, as above. But to multiply $-a$, into -2 by the same Reason, it will take away the Defect of a twice, which is the same as to supply it: Therefore $-a \times -2 = +2a$, or $-a \times -b = ab$.

MULTIPLICATION of compound Quantities is the same with that of single Quantities; for the Product of each Member of the Multiplier, into all the Members of the Multiplicand, (Respect had to the Signs) is the Product.

Thus	1	$3a+5d$	$2b+c-4d+f$
1+2	2	b	$2bc$
	3	$3ab+5db$	$4bbc+2bcc-8cbd+2bcf$

DIVISION in *Algebra*, is performed by reducing the Dividend, and the Divisor into the Form of a Fraction, this Fraction being the Quotient.

Thus, if ab were to be divided by cd, it must be placed thus $\frac{ab}{cd}$, and that Fraction is the Quotient.

To perform the *Division* algebraically, these Rules are to be observed: 1. when the Dividend is equal to the Divisor, the Quotient is Unity, and must be placed in the Quotient, because every Thing contains itself once.

2. When the Quotient is expressed Fraction-wise, (as in simple Division) if the same Letters are found equally repeated in each Member of the Numerator, and Denominator; cast away those Letters, and the Remainder is the Quotient: Thus, $\frac{ab}{b}$ (a and $\frac{abc}{ac}$ (c, &c.

3. When there are any Co-efficients, divide them as in common Arithmetick, and to the Quotients annex the Quantities expressed by Letters: Thus, $\frac{3bo\ ab}{2y\ \ 6}$ ($=15a$.

4. The general way of Division of compound Quantities, is like the ordinary way in common Arithmetick, Respect being had to the Rules of Algebraical Addition, Subtraction, and Multiplication, as also, that like Signs give +, and unlike − in the Quotient; taking Care to divide every Part of the Dividend by its corresponding Divisor, (that is, that whose Letters shews it of the same Kind with the other) to prevent a Fraction, which otherwise would arise: Thus $a+b)\underline{aa+ab-ca-cb}(a-c$

$$\begin{array}{l} aa+ab \\ \ \ o \\ \\ \qquad\qquad a-ca-cb \\ \qquad\qquad -ca-cb \\ \qquad\qquad\ \ o \end{array}$$

The *Algebraical* Operations, are also performed by *Involution*, *Evolution*, *Fraction*, *Equation*, &c.

INVOLUTION is performed as Multiplication is, (and indeed is no more but Multiplication; differing only in this, that Multiplication may be performed by different Multiplicators, but Involution still retains the same) if any Quantity, or Quantities be involved, or drawn into itself, and afterwards into that Product, or again the third Time into the last Product, &c. as manifold as is the Power, so great must be the Number that is used to express it; and this Number is called the Index of the Power, and is set after the Sign in the Margin.

Thus	1	a	$-2a$	bc
1@2	2	aa	$+4aa$	$bbcc$
1@3	3	aaa	$-8aaa$	$bbbccc$
1@4	4	$aaaa$	$+16aaaa$	$bbbbcccc$
1@5	5	$aaaaa$	$-32daaaaa$	$bbbbbccccc$

This Involution is only of single Quantities; but the Involution of compound whole Quantities, is performed in all respects like Multiplication.

EVOLUTION of single whole Quantities, is done by dividing the Index of the Power of the Quantity (if that Quantity has a Root) by 2, if the square Root be desired, or by 3, if the cube Root, &c. and the Quotient will give the Root required, dealing with the Co-efficients, or prefixed Numbers, as in vulgar Arithmetick.

But if either out of the Indices, or out of the Co-efficients, no exact Root can be extracted according to the Root required; then prefix before it the Sign of the required Root; and thence will arise a sure Quantity.

EVOLUTION of compound Quantities, is the Converse of Involution, and consequently performed by contrary Operations, in the following Manner.

Take so many distinct Quantities, as there are concerned in the Power given to be evolved, and involve those Quantities, so taken, to the Height of the given Power, without respect to the Signs; this new raised Power being compared with the given Power, will shew whether it has a Root or not; which if it have, then it is easily evolved: If not, then it is a sure Compound, and must have its Sign prefixed to it, and is no otherwise to be expressed, till it come to be evolved in Numbers.

As

As the Procefs in *Fractions* in algebraick Quantities is almoft the fame as in *Numbers*, it is not improper to give here (for the Inftruction of a Pupil) a clear Demonftration of both.

FRACTION, is a Number which ftands to an Unit in the Relation of a Part to its whole.

Fractions are ufually divided into Decimal, Sexagefimal, and Vulgar.

DECIMAL *Fractions* are thofe, whofe Denominator is 1, with one or more Cyphers, as 10, 100, 1000, 10,000, *&c.* Thus $\frac{5}{10}$ $\frac{6}{100}$ $\frac{7}{1000}$ $\frac{8}{10000}$, *&c.* are decimal Fractions.

The *Denominator* of a *Fraction* is the Number, or Letter below the Line; fhewing into how many Parts, the Integer is fuppofed to be divided by the *Fractions*. Thus in the *Fraction* $\frac{7}{12}$, feven twelfths, the Number 12 is the *Denominator*; and fhew that the *Integer* is here divided into 12 Parts.

The *Denominator* always reprefents an *Integer*: In the writing of *decimal Fractions*, we ufually omit the *Denominator*, as only confifting of Unities with Cyphers annexed, and in lieu thereof a Point, or Comma, is prefixed to the *Numerator*. Thus $\frac{5}{10}$ is wrote 5; $\frac{46}{100}$, 46, *&c.*

The *Numerator* is that Part of the *Fraction*, which is placed over the little Bar, by which it is feparated from the under Number, called the *Denominator*, which fhews into how many Parts the Integer is divided. Thus, *v. gr.* $\frac{7}{10}$ expreffes feven Tenths, where feven is the *Numerator*, and ten the *Denominator*.

As Cyphers on the Right-hand of Integers do increafe their Value decimally, as 2, 20, 200, *&c.* fo when fet on the Left-hand of *decimal Fractions*, they decreafe the Value decimally, as 5, 05, 005, *&c.* when fet on the Left-hand of *Integers*, or the Right-hand of Decimals, they fignify nothing but only to fill up Places; Thus, 5000, or 0005, is but five Units.

SEXAGESIMAL *Fractions*, are Fractions whofe *Denominator* proceeds in a fexagecuple Ratio.

In thefe Fractions, which fome alfo call aftronomical Fractions, the *Denominator*, being always 60, or a Multiple thereof, is ufually omitted, and the Numerator only written down; thus, 4°, $59'$, $32''$, $50'''$, $16''''$, is to be read, 4 Degrees, 59 Minutes, 32 feconds of a Degree, or both Parts of a Minute, 50 Thirds, 16 Fourths, *&c.*

VULGAR *Fractions*, called alfo fimple *Fractions*, are always expreffed by two Numbers, the one wrote over the other, with a Line between them.

The *Denominator* of the Fraction, denotes the Unit, or whole, that is divided into two Parts; and the *Numerator* of the Fraction expreffes the Parts given in the prefent Cafe. Thus two third Parts of a Line, or other Things are wrote $\frac{2}{3}$, where the *Denominator* 3, fhews, that the whole Line is fuppofed to be divided into three equal Parts; and the Numerator 2, indicates, or affigns two of fuch Parts.

The real Defign of adding the Denominator is to fhew what aliquot Part the broken Number has in common with Unity.

To reduce *Fractions* in *Algebra* to their leaft Terms, the Numerators and Denominators are to be divided by the greateft common Divifor, as in Numbers.

Thus Fraction $\frac{aac}{bc}$ is reduced to a more fimple one $\frac{aa}{b}$ by dividing both aac and bc by c: and $\frac{203}{667}$ is reduced to a more fimple one $\frac{7}{23}$ by dividing both 203 and 667 by 29: and $\frac{203aaac}{667bc}$ is reduced to $\frac{7aa}{23b}$ by dividing by $29c$. and fo $\frac{ba^3-9acc}{baa+3ac}$ becomes $\frac{2aa-3cc}{2a+c}$ by dividing by $3a$. and $\frac{a^3-aab+abb-b3}{aa-ab}$ becomes $\frac{aa+bb}{a}$ by dividing by $a-b$.

To reduce Fractions to a common Denominator, the Term of each are to be multiplied, by the Denominator of the other.

Thus having $\frac{a}{b}$ and $\frac{c}{d}$ multiply the Term of one $\frac{a}{b}$ by d, and alfo the Term of the other $\frac{c}{d}$ by b, and they will become $\frac{ad}{bd}$ and $\frac{bc}{bd}$, whereof the common Denominator is bd, and thus a and $\frac{ab}{c}$, or $\frac{a}{1}$ and $\frac{ab}{c}$, becomes $\frac{ac}{c}$ and $\frac{ab}{c}$.

But where the Denominators have a common Divifor, it is fufficient to multiply them alternately by the Quotients.

Thus the *Fraction* $\frac{a^3}{bc}$ and $\frac{a^3}{bd}$ are reduced to thefe $\frac{a3d}{bcd}$ and $\frac{a3c}{bcd}$, by multiplying alternately by the Quotients c and d, arifing by the Divifion of the Denominators by the common Divifor b.

The Procefs of *Addition*, and *Subtraction* of Fraction in *Species*, is, in all Refpects, the fame as in Numbers. *E. gr.* fuppofe it be required to add the *Fractions* $\frac{a}{b}$ and $\frac{c}{d}$ thefe when reduced to the fame Denomination, will be $\frac{ad}{bd}$ and $\frac{bc}{bd}$ confequently their Sum is $\frac{ad+bc}{bd}$

So, if the *Fraction* $\frac{a}{b}$ were to be fubtracted from $\frac{c}{d}$: having reduced them they will be $\frac{ad}{bd}$ and $\frac{bc}{bd}$ as before: Their Difference therefore, is $\frac{bc-ad}{bd}$

The *Multiplication* and Divifion of *Fractions*, are alfo perfectly the fame here as in vulgar Arithmetick. —Thus *e. gr.* Suppofe the Factors, or Fractions, to be multiplied, $\frac{a}{b}$ and $\frac{c}{d}$ the Product will be $\frac{ac}{bd}$.

Or fuppofe the *Fractions* required to be divided, $\frac{ac}{bd}$ and $\frac{a}{b}$: the Quotient will be $\frac{ac}{bd}\frac{b}{a}=\frac{abc}{abd}=\frac{c}{d}$ hence as $a=\frac{a}{1}$: the Product of a into $\frac{c}{d}$ that is of an integral Quantity into a *Fraction*, $\frac{c}{d}\frac{a}{1}=\frac{ac}{d}$ whence it appears that the Numerator of the Fraction is to be multiplied by the Integer.

Hence alfo the Quotient of $\frac{c}{d}$ by a, that is of the broken Quantity, divided by the whole one, $\frac{c}{d}\frac{1}{a}=\frac{c}{dd}$.

Befides the common Notion of a *Fraction*, there is another neceffary to be underftood thus.

Suppofe $\frac{3}{4}$ of 20 *s.* or a Pound Sterling, were the Fraction; this Fraction inftead of three Quarters of one Pound, may be confidered as a fourth Part of three Pounds; that is by taking as many of the Integers, as the Numerator expreffes, (*viz.* 3.) and dividing them by 4, the Denominator; for then the Quotient of the fame Value, will arife for 4) 60 *s.* 15 *s.* this fhews the Reafon of the Manner of Expreffion ufed by *Geometers*, and *Algebraifts*, who read $\frac{a}{b}$, thus, as divided by b.

SURD, denotes a Number that cannot be expreffed, or a Number that is incommenfurate to Unity.

When any Number, or Quantity, hath its Root propofed to be extracted, and yet is not a true figurate Number of that Kind; that is, if its fquare Root be demanded, and it is not a true Square: If its cube Root be required, and itfelf be not a true Cube, *&c.* then it is impoffible to affign, either in whole Numbers, or Fractions, any exact Root of fuch Number propofed. And when even this happens, it is ufual in *Mathematicks* to mark the required Root of fuch Numbers or Quantities by prefixing before it the proper Mark of Radicality which is $\sqrt{}$: thus $\sqrt{}$: 2 fignifies the fquare Root of 2, and 3.

$\sqrt{}$: 16, or $\sqrt{}$: (3) 16, fignifies the cubic Root of 16: which Roots, becaufe they are impoffible to be

be expressed in Numbers exactly, are properly called *surd Roots*.

Roots can also be expressed by their Indexes without the radical Sign; thus x^2, x^3, x^4, signify the square Cube, and fifth Power of x; so $x^{\frac{1}{2}}$, $x^{\frac{1}{3}}$, $x^{\frac{1}{5}}$, signify the square Root, Cube, *&c.* of x.

EQUATION, or ÆQUATION, in *Algebra*, an Expression of the same Quantity, in two different, that is, dissimilar, but equal Terms or Denominations.

As when we say, $2.3=4+2$; that is, twice three is equal to four and two.

Stifelius defines *Equation* to be the Ratio of Equality between two Quantities differently denominated: As when we say 3 Shill. = 36 Pence. Or 50 Shill. = 2 *l.* 10 Shill. = 600 Pence = 2400 Farth. Or $b = d + c$. Or $12 = \frac{a - P}{5}$, &c.

Hence the Reduction of two heterogeneous or dissimilar Quantities to the same Value, *i. e.* to an Equality, is called the *bringing them to an Equation*.

The Character, or Sign of an *Equation*, is = or x.

The resolving of Problems, by Means of *Equations*, is the Business of *Algebra*.

Terms of an EQUATION, are the several Quantities, or Parts, of which an *Equation* is composed, connected together by the Signs + and − thus in the Equation $b + c = d$; the Terms are b, c and d. And the Tenor or Import of the *Equation* is, that some Quantity represented by d, is equal to two others represented by b and c.

Root of an EQUATION, is the Value of the unknown Quantity in the *Equation*. *E. gr.* If $a^2 + b^2 = x^2$; the Root will be $\sqrt{(a^2 + b^2)}$.

Equations are divided, with regard to the Powers of the unknown Quantities, into *Simple*, *Quadratick*, *Cubick*, &c.

Simple EQUATION, is that wherein the unknown Quantity is only of one Dimension, or in the first Power. As, $x = (a + b) : 2$.

Quadratick EQUATION, is that wherein the unknown Quantity is of two Dimensions, or in the second Power: As $x^2 = a^2 + b^2$.

Cubick EQUATION, is that wherein the unknown Quantity is of three Dimensions: As $x^3 = a^3 - b^3$, *&c.*

If the unknown Quantity be of four Dimensions, as $x^4 = a^4 - b^4$, the Equation is called a *Biquadratick*; if of 5, a *Surdesolid*.

Equations are considered two Ways; either as ultimate Conclusions, we arrive at in the Solution of Problems; or as Means, by the Help whereof we arrive at those final Solutions.

An *Equation* of the first Kind, consists only of one unknown Quantity, intermixed with other known Quantities. Those of the latter Kind, consist of several unknown Quantities, which are to be compared, and connected together, till out of them all arises a new *Equation*, wherein the unknown Quantity sought, is mixed with the known. To get the Value of which unknown Quantity, the *Equation* is generally turned, and transformed various Ways, till it be brought as low, and rendered as simple as possible.

The Doctrine and Practice of *Equations*, that is, the Solution of Questions by *Equations*, consists of several Steps or Parts, *viz.* 1. The Denominating of the several Quantities, or expressing them in proper Signs or Symbols. 2. The bringing the Quantities thus denoted, to an *Equation*. 3. The reducing that *Equation* to its lowest and simplest Terms. To which 4. may be added, the Construction of the *Equation*, or representing it in geometrical Lines.

With Regard to the first; a Question or Problem being proposed, we conceive the Thing sought or required, as already done; and accordingly note or express it by one of the Vowels, as a, or more usually by one of the last Letters of the Alphabet, x, y, or z; noting the other known Quantities by the Consonants, or the beginning Letters of the Alphabet, b, c, d, *&c.*

The Question being thus stated in Species, it is considered whether or no it be subject to any Restrictions, *i. e.* whether it be determinate or no; which is found by these Rules.

1. If the Quantities sought or required, be more than the Number of Equations given, or contained in the Question, it is indeterminate, and capable of innumerable Solutions. The *Equations* are found, if they be not expresly contained in the Problem itself, by the Theorems of the Equality and Quantities.

2. If the Equations given or contained in the Problem, be just equal in Number with the unknown Quantities, the Question is determinate, or has one only Solution.

3. If the unknown Quantities be fewer than the given Equations, the Question is yet more limited, and sometimes discovers itself impossible, by some Contradiction between the *Equations*.

Now, *to bring a Question to an* EQUATION, that is, to bring the several mediate *Equations*, to one final one; the principal Thing to be attended to, is to express all the Conditions thereof, by so many *Equations*. In order to which it is to be considered, whether the Proportions or Sentences, wherein it is expressed, be all of them fit to be noted in Algebraick Terms; as our Conceptions used to be in *Latin* or *Greek* Characters: And if so, as is generally the Case in Questions about Numbers, or abstract Quantities; then let Names be given both to the known and unknown Quantities, as far as Occasion requires; and thus the Drift of the Question will be couched, as we may call it, in the *Algebraick Language*; and the Conditions thus translated to algebraick Terms, will give as many *Equations* as are necessary to solve it.— To illustrate this by an Instance: Suppose it required to find three Numbers, in continual Proportion, whose Sum is 20, and the Sum of their Square 140; putting x, y, z, for the Names of the three Numbers sought, the Question will be translated out of the verbal to the symbolical Expression, thus:

The Question in Words.	In Symbols
Required three Numbers on these Conditions,	x, y, z,
That they be continually proportional.	$x : y :: y : z$, or $xz = yy$.
That the Sum be 20,	$x + y + z = 20$.
And the Sum of their Squares 140.	$xx + yy + zz = 140$.

Thus is the Question brought to these *Equations*, viz. $xz = yy$. $x + z + y = 20$ and $xx + yy + zz = 140$ by the Help whereof x, y, and z, are to be found.

The Solution of Questions are, for the most Part, so much the more Expedite and Artificial, by how much the unknown Quantities, you have at first, are the Fewer; thus, in the Question proposed, putting x for the first Number, and y for the Second $\frac{yy}{x}$ will be the third Proportional; which being put for the third Number, bring the Question into *Equations* as follows.

The Question in Words.	Symbolically.
There are sought three Numbers in continual Proportion,	$x, y, \frac{yy}{x}$
Whose Sum is 20.	$x + y + \frac{yy}{x} = 20$.
And the Sum of their Squares 140.	$xx + yy + \frac{y4}{xx} = 140$.

You have therefore the Equations $x + y + \frac{yy}{x} = 20$

and $xx + yy + \frac{y^4}{xx} = 140$ by the Reduction whereof, x and y are to be determined.

Take another Example: A Merchant increases his Estate annually by a third Part, abating 100 *l.* which he spends yearly in his Family; and after three Years he finds his Estate doubled. *Query*, What is he worth? To resolve this it must be observed, that there are (or lie hid) several Proportions which are all thus found out and laid down.

In *English.*	Algebraically.
A Merchant has an Estate,	x
Out of which the first Year he expends 100*l.*	$x - 100$
And augments the rest by one Third,	$x - 100 + \frac{x - 100}{3}$ or $\frac{4x - 400}{3}$
And the second Year he expends 100 *l.*	$\frac{4x - 400}{3} - 100$, or $\frac{4x - 700}{3}$
And augments the rest by one Third,	$\frac{4x - 700}{3} + \frac{4x - 700}{9}$ or $\frac{16x - 2800}{9}$
And so the third Year he expends 100 *l.*	$\frac{16x - 2800}{9} - 100$ or $\frac{16x - 3700}{9}$
And by the rest gains likewise one Third,	$\frac{16x - 3700}{9} + \frac{16x - 370}{27}$ or $\frac{64x - 14800}{27}$
And he becomes at length twice as rich as at first.	$\frac{64x - 14800}{27} = 2x.$

Therefore the Question is brought into this Equation $\frac{64x - 14800 = 2x}{27}$ by the Reduction whereof you will find $x = 14800$, *viz.* Multiply it into 27 and you have $64x\ 14800 = 54x$; subtract $54x$, and there remains $10x - 14800 = 0$, or $10x\ 14800$ and dividing by 10 you have $x = 1480$ so that the Value of his Estate at first was 1430 *l.*

It appears then, that to the Solution of Question about Numbers, or the Relations of abstract Quantities, there is scarce any Thing more required, but to translate them out of the common, into algebraick Language, *i. e.* into Characters proper to express our Ideas of the Relations of Quantities. Indeed, it may sometimes happen, that the Language wherein the Question is stated, may seem unfit to be rendered into the Algebraical; though by making a few Alterations therein, and attending to the Sense, rather than the Sound of the Words, the Translation becomes easy enough. The Difficulty here, results merely from the Difference of Idioms, which is as observable between most Languages, as between the Common and Symbolical.

Algebra has been also applied to the Consideration and Calculus of Infinites; from whence a new and extensive Branch of Knowledge has arose, called the *Doctrine of Fluxions*, or *Analysis of Infinites*, or the *Calculus Differentialis.*

Fluxion, in the *Newtonian Analysis*, denotes the Velocity with which a flowing Quantity is increased by its generative Motion.——By which it stands contradistinguished from the *Fluxient*, or the *flowing* Quantity, which is gradually and indefinitely increasing; after the Manner of a Space, which a Body in Motion describes.

Method of Fluxions, is the Arithmetick and Analysis of *Fluxions*, and Fluents, or flowing Quantities.

Foreigners usually define the Method of *Fluxions*, the Arithmetick, or Analysis, of infinitely, or rather indefinitely, small variable Quantities; or the Method of finding an infinite small, or an infinitely small Quantity, which being taken an infinite Number of Times, becomes equal to a given Quantity.

Sir *Isaac Newton*, and after him the *English* Authors, call these infinitely small Quantities, *Moments*; as considering them the momentary Increments and Decrements of variable Quantities, *e. gr.* of a Line, considered as generated by the Flux of a Point; of a Surface generated by the Flux of a Line.

Accordingly, the variable Quantities are called Fluent, or flowing Quantities; and the Method of finding either the *Fluxion* or the Fluent, the Method of Fluxions.

M. Leibnitz considers the same infinitely small Quantities, as the Differences or Differentials of two Quantities; and calls the Method of finding those Differences, the *Differential calculus.*

Each of these Ways of considering and denominating, has its Advantage, which the Retainers to this or that Method, strenuously assert.

Flowing Quantities, *i. e.* such as in the Genesis of Figures by local Motion, are continually increasing and diminishing, are certainly very properly denominated *Fluents*: And as all Figures may be conceived as so generated; the infinitely small Increments or Decrements of such Quantities are very naturally denominated *Fluxions.*

Beside this Difference in the Name, there is another in the Notation.

Sir *Isaac Newton* expresses the *Fluxion* of a Quantity, as x. by a.

Dot placed over it, as $\dot{x}$; and Mr. *Leibnitz* expresses his Differential of the same x, by prefixing a d, as dx; each of which Methods of Notation has likewise its Advantage.

Setting aside these Circumstances, the two Methods are the same.

The Method of Fluxions is one of the greatest, most subtil and sublime Discoveries of this, or perhaps any other Age; it opens a new World to us, and extends our Knowledge, as it were to Infinity. It carries us beyond the Bounds that seemed to be described to the human Mind, at least infinitely beyond those to which antient Geometry was confined.

The History of this important Discovery, as fresh as it is, is a little dark and embroiled. Two of the greatest Men of this Age, do both of them claim the Invention, Sir *I. Newton*, and *Leibnitz*; and nothing can be more glorious for the Method itself, than the Zeal wherewith the Partizans of either Side have asserted their Title.

To give the Reader a just View of this noble Dispute, and of the Pretensions of each Party, we shall lay before him the Origins of the Discovery, and mark where each Claim commenced, and how it was supported.

The first Time the Method made its Appearance in Publick, was in 1684; when *M. Leibnitz* gave the Rules thereof in the *Leipsic Acts* of that Year; but the Demonstrations he kept to himself. The two Brothers the *Benoulli's*, were presently struck with it; and found out the Demonstrations, though very difficult; and practised the *Calculus* with surprizing Success.

This is all we hear of it, till the Year 1687; when Sir *I. Newton's* admirable *Principia* came forth, which is almost wholly founded on the same *Calculus.*

The common Opinion at that Time was, that Sir *Isaac*, and *M. Leibnitz* each had invented it about the same Time: And what confirmed it was, that neither of them made any Mention of the other; and that, though they agreed in the Substance of the Thing, yet they differed in their Way of conceiving; called it by different Names, and used different Characters.

In effect, *M. Leibnitz's* Character, was supposed by Foreigners to be somewhat more commodious than that of Sir *Isaac Newton*; accordingly the Method soon spreading itself throughout *Europe*, *M. Leibnitz's* Character went with it; by which Means the Geometricians were insensibly accustomed to look on him as the sole and principal Inventor.

The two great Authors themselves, without any seeming Concern, or Dispute, as to the Property of the Invention, enjoyed the glorious Prospect of the Progresses continually making under their Auspices, till the Year 1699; when the Peace began to be disturbed.

M. Fatio, in a Treatise *of the Line of swiftest Descent*, having declared that he was obliged to own Sir *I. Newton* as the first Inventor of the *Differential calculus*,

calculus, and the first by many Years; and that he left the World to judge, whether Mr. *Leibnitz*, the second Inventor, had taken any Thing from him: This precise Distinction between first and second Inventor, with the Suspicion it insinuated, raised a Controversy between *M. Leibnitz*, supported by the Editors of the *Leipsic Acts*, and the *English* Geometricians, who declared for Sir *Isaac Newton*.

Sir *Isaac* himself never appeared on the Scene; his Glory was become that of the Nation, and his Adherents, warm in the Cause of their Country, needed him not to animate them.

Writings succeeded each other, but slowly on either Side; probably on Account of the distant Places; but the Controversy grew still hotter and hotter; till at length it came to such pass, that in the Year 1711, *M. Leibnitz* complained to the Royal Society, that Dr. *Keil* had accused him of publishing the Method of *Fluxions* invented by Sir *Isaac Newton*, under other Names and Characters.

He insisted that no Body knew better than Sir *Isaac* himself, that he had stolen nothing from him; and required that Dr. *Keil* should publickly disavow the ill Construction which might be put on his Words.

The Society, here appealed to as Judge, appointed a Committee to examine all the old Letters, Papers, *&c.* that had passed among the several Mathematicians, relating to the Point; and after a strict Examen of all the Evidences that could be produced, gave in their Report, "That it did not appear that *M. Leibnitz* knew "any thing of the *Differential Calculus* before a Let-"ter wrote him by Sir *Isaac Newton*, and sent to "him at *Paris*, in the Year 1672; wherein the Me-"thod of *Fluxions* was sufficiently explained, to let a "Man of his Sagacity into the whole Matter; and "that Sir *Isaac Newton* had even invented his Me-"thod before the Year 1669, and of Consequence "fifteen Years before *M. Leibnitz* had given any "thing on the Subject in the *Leipsic Acts*," and thence they concluded, that Dr. *Keil* had not at all injured *M. Leibnitz* in what he had said.

The Society printed this Censure of theirs, together with all the Pieces and Materials relating thereto, under the Title of *Commercium epistolicum de analysi promotâ*, London 1712. This Book was carefully distributed through *Europe*, to vindicate the Title of the *English* Nation to the Discovery; for Sir *Isaac*, as already hinted, never appeared in it; whether it were that he trusted his Honour with his Compatriots, who were zealous enough in the Cause; or whether it were that he was even superior to the Glory thereof.

M. Leibnitz and his Friends could not shew the same Indifference: He was accused of a Theft; and the whole *Commercium epistolicum*, either expresses it in Terms, or insinuates it.——Soon after the Publication thereof, a loose Sheet was publish'd at *Paris*, in Behalf of *M. Leibnitz*, then at *Vienna*; it is wrote with a World of Zeal and Spirit, and maintains boldly, that the Method of *Fluxions* has not preceeded that of *Differences*; and even insinuates, that it might have arisen from it.

The Detail of the Proofs on each Side would be too long, and could not be understood without a large Comment, which must enter into the deepest Geometry.

M. Leibnitz had begun to work upon a *Commercium epistolicum*, in Opposition to that of the Royal Society; but he died before it was compleated.

It must be own'd there are strong Presumptions in Favour of *M. Leibnitz*; Presumptions, we mean, that he was no Plagiary: For that Sir *Isaac Newton* was the first Inventor, is past all Dispute; his Glory is secure, the reasonable Part, even, among the Foreigners, allow it; and the Question is only whether *M. Leibnitz* took it from him, or fell upon the same Thing with him: For in his *Theory of abstract Motions*, which he dedicated to the Royal Academy, in 1671. before he had seen any Thing of Sir *Isaac Newton*'s, he already supposed infinitely small Quantities, some greater than others, which is one of the great Principles of the System.

The Doctrine consists of two Parts, *viz. the direct Method of Fluxions*, called also *calculus differentialis*; and the *inverse Method of Fluxions*, or *calculus integralis*.

The latter is directly opposite to the former; and is a Sequel of it. Both of them are adopted into a new Geometry, and make reigning Methods therein.

The First descends from finite to infinite; the latter ascends from infinitely small, to finite; the one de-compounds a Magnitude, the other re-establishes it.

The Foundation of the direct Method of *Fluxions* amounts to this Problem: The Length of the Space described being continually, (that is, at all Times given) to find the Velocity at any Time propos'd.

The Foundation of the inverse Method of *Fluxions* amounts to this Problem: The Velocity of the Motion being continually given to find the Space described by it any Time proposed.

Direct Method of FLUXIONS.——All finite Magnitudes are here conceived to be resolved into infinitely small ones; which are the Elements, Moments, or Differences thereof. The Art of finding these infinitely small Quantities, and of the Working on them, and discovering other infinite Quantities by their Means, makes the direct Method of *Fluxions*.

What renders the Knowledge of infinitely small Quantities of such infinite Use and Extent, is that they have Relations to each others, which the finite Magnitudes, whereof they are the Infinite-smalls, have not.

Thus, *e. gr.* in the Curve of any Kind whatever, the infinitely small Differences of the Ordinate and Absciss, but of the Ordinate and Subtangent; and of Consequence, the Absciss and Ordinate alone being known, give the Subtangent unknown; or, which amounts to the same, the Tangent itself.

The Method of Notation in Fluxions, introduced by the Inventor Sir *Isaac Newton*, is thus:

The variable or flowing Quantity, to be uniformly augmented, as suppose the Absciss of a Curve, he denotes by ‡, or Unite; and the other flowing Quantities he denotes by the Letters $v\ x\ y\ z =$: and their *Fluxions* by the same Letters, with Dots placed over them, thus $\dot{v}\ \dot{x}\ \dot{y}\ \dot{z}$.

Again, as the *Fluxions* themselves are also variable Quantities, and are continually increasing or decreasing; he considers the Velocities with which they increase or decrease, as the *Fluxions* of the former *Fluxions*, or second *Fluxions*, which are denoted with two Dots over them, thus, $\ddot{x}\ \ddot{y}\ \ddot{z}$.

After the same Manner one may consider the Augments and Diminutions of these, as their *Fluxions* also; and thus proceed to third, fourth, fifth, *&c.* *Fluxions*, which will be noted thus $\dddot{y}\ \dddot{x}\ \dddot{z}\ \ddddot{y}\ \ddddot{x}\ \ddddot{z}$ $\dddddot{y}\ \dddddot{x}\ \dddddot{z}$, *&c.*

Lastly, if the flowing Quantity be a Surd, as $\sqrt{:a-b}$; he notes its *Fluxion* $\dot{\sqrt{}}:a-b$: If a Fraction $\frac{x}{x}$ he notes it, $\frac{\dot{x}}{}:\frac{\dot{x}}{}$. *V. Wallis*'s *Algebra*, p. 392.

The chief Scope and Business of *Fluxions*, is from the flowing Quantity given, to find the *Fluxion*: For this we shall lay down one general Rule, as stated by Dr. *Wallis*; and afterwards apply and exemplify it in the several Cases.

"Multiply each Term of the Equation separately "by the several Indices of the Powers of all the "flowing Quantities contained in that Term; and in "each Multiplication, change one Root or Let-"ter of the Power into its proper *Fluxion*: The Ag-"gregate of all the Products connected together by "their proper Signs, will be the *Fluxion* of the E-"quation desired."

The Application of this Rate will be contained in the following Cases.

In

In the general: To expreſs the *Fluxions* of ſimple variable Quantities as already mentioned, you need only put the Letter or Letters, which expreſs them, with a Dot over them: Thus the *Fluxion* of x is $\dot{x}$, and the *Fluxion* of y is $\dot{y}$, and the *Fluxion* of $x+y+v+z$, is $\dot{x}+\dot{y}+\dot{v}+\dot{z}$, &c.

Note, for the *Fluxion* of permanent Quantities, when any ſuch are in the Equation, you muſt imagine 0, or a Cypher; for ſuch Quantities can have no *Fluxion*, properly ſpeaking, becauſe they are without Motion, or invariable.

To find the Fluxions of the Products of two or more variable or flowing Quantities.——Multiply the *Fluxion* of each ſimple Quantity by the Factors of the Products, or the Product of all the reſt; and connect the laſt Products by their proper Signs; the Sum or Aggregate is the *Fluxion* ſought.

Thus the *Fluxion* of xy, is $\dot{x}y+x\dot{y}$, and the *Fluxion* of xyz, is $\dot{x}yz+x\dot{y}z,+xy\dot{z}$; and the *Fluxion* of $xuyz$ is $\dot{x}vyz+x\dot{v}yz,+xv\dot{y}z,+xvy\dot{z}$; and the *Fluxion* of $a+x\times$ by $b-y$ (the common Product being $ab+bx-ya-xy$) will be $\dot{b}x-\dot{y}a-x\dot{y}-\dot{x}y$.

To find the Fluxion of a Fraction, —— Multiply the *Fluxion* of the Numerator by the Denominator, and after it place (with the Sign $-$) the *Fluxion* of the Denominator; this will be the Numerator, and the Square of the Denominator will be the Denominator of the Fraction, expreſſing the *Fluxion* of the given Fraction.

Thus the *Fluxion* of $\frac{x}{y}$ is $\frac{\dot{x}y-x\dot{y}}{yy}$

For ſuppoſe $\frac{x}{y}=z$, then will $x=yz$; which equal Quantities will have equal *Fluxions*; therefore $\dot{x}=\dot{y}z+z\dot{y}$, and $\dot{x}-z\dot{y}=z\dot{y}$, &c. and dividing all by y $\frac{\dot{x}-x\dot{y}}{y}=\dot{z}=$ becauſe $\frac{x}{y}=z$) $\frac{y\dot{x}-x\dot{y}}{yy}$: wherefore this laſt is the *Fluxion* of the Fraction $\frac{x}{y}=z$ becauſe z being $=\frac{x}{y}$, z will be equal to the Fluxion of $\frac{x}{y}$.

And the *Fluxion* of $\frac{a}{x}$ will be $\frac{-\dot{x}a}{xx}$; for the permanent Quantity a, having no *Fluxion*, there can be no Product of the Fluxion of the Numerator into the Denominator, as there would have been had a, been x, z, or any other variable Quantity.

To find the Fluxion of a Power, – multiply the Power (firſt brought one Degree lower) by the Index of that firſt Power; and the Product by the Fluxion of the Root.

Thus the *Fluxion* of xx will be $2x\dot{x}$; for $xx=x\times x$; but the *Fluxion* of $x\times z=x\dot{x}+\dot{x}x=2x\dot{x}$, &c. and the *Fluxion* of x^3 will be $3x\dot{x}x$. That of x^8 will be $8x^7\dot{x}$, &c. or if m, expreſs the Index of any Power, as ſuppoſe x^m, its Fluxion will be $mx^{m-1}\dot{x}$, or $mx\dot{x}^{m-1}$: For x^m brought one Degree lower (m being a general Index) muſt be x^{m-1}; then that $\times$ by m, the Index, makes mx^{m-1}; and this laſt by the Fluxion of the Root produces $mx^{m-1}\dot{x}$.

If the Power be produced from a Binomial, &c. as ſuppoſe $xx+2xy+yy$, its Fluxion will be $2x\dot{x}+2\dot{x}x+2x\dot{y}+2y\dot{y}$.

If the Exponent be Negative, as ſuppoſe x^{-m} or $\frac{1}{x^n}$, its Fluxion will be $-mx\dot{x}^{-m-1}$.

Or if you would do it by way of Fraction, $\frac{-mx^{m-1}\dot{x}}{x^{2m}}$ (for the Square of x^m is as well x^{2m} as as x^{m^2} or according to Sir *Iſaac Newton*'s Method, which is yet ſhorter, $\frac{-\dot{x}m}{x^{m+1}}$.

If the Power be imperfect, *i. e.* if its Exponent be a Fraction as ſuppoſe $\sqrt[n]{x^m}$; or in the other Notation $\frac{m}{x^n}$, ſuppoſe $\frac{m}{x^n}=z$: Then if you raiſe up each Number to the Power of n, it will ſtand thus, $x^m=z^n$; the *Fluxion* of which will be, by this general Rule, $mx^{m-1}\dot{x}=nz^{n-1}\dot{z}$ wherefore $\dot{z}$ will $=\frac{mx\dot{x}^{m-1}}{nz^{n-1}}$ (by dividing both Parts by nz^{n-1}) and $\frac{mx\dot{x}^{m-1}}{nz^{n-1}}=\frac{m}{n}x\frac{m}{n}^{-1}\dot{x}$; or $\frac{m}{n}\dot{x}\sqrt[n]{x^{m-n}}$, putting inſtead of nz^{m-1}, its Value $nx^{m-\frac{m}{n}}$.

Hence, to find the *Fluxion* of any Kind of Power, proceed thus. —— Multiply the Power given by its Index or Exponent, and then that Product by the Fluxion of the Root of the Power given; and after that ſubtract 1, or Unity, from the Index of the Power.

To find the Fluxion of ſurd Quantities —— ſuppoſe if required to find the *Fluxion* of $\sqrt{2rx-xx}$, or $\overline{2rx-xx}|\frac{1}{2}$. Suppoſe $\overline{2rx-xx}|\frac{1}{2}=z$; then is $2rz-xx=zz$: and conſequently $r\dot{x}-x\dot{x}=z\dot{z}$; and, by Diviſion, $\frac{r\dot{x}-x\dot{x}}{z}=\dot{z}=$ (by Subſtitution $\frac{r\dot{x}-x\dot{x}}{\sqrt{2rx-xx}}=$ to the *Fluxion* of $\sqrt{2rx-xx}$.

If it be required to find the *Fluxion* of $\overline{ay-xx}|3$; for $\overline{ay-xx}|3$ put z; then $ay-xx=z^{\frac{1}{3}}$, and $ay-2xx=\frac{1}{3}z^{\frac{2}{3}}\dot{z}$: and multiplying by 3, $3ay-6xx=z^{\frac{2}{3}}\dot{z}$; and conſequently $3az^{\frac{2}{3}}\dot{y}-6z^{\frac{2}{3}}x\dot{x}=\dot{z}$ equal (ſubſiſting $\overline{ay-xx}|^2=z^{\frac{2}{3}}$) $3a^3y^2\dot{y}-ba^2x\dot{y}+3ax^4\dot{y}-6a^2y^2x\dot{x}+12ayx^3\dot{x}-6x^5\dot{x}=$ to the *Fluxion* of $\overline{ay-xx^3}$.

To find the Fluxions of Quantities compounded of rational and ſurd Quantities —— let it be required to find the *Fluxion* of $bx^2+cax+ca^2\times\sqrt{xx+aa}=z$. Put $bx^2+cax+ea^2=p$, and $\sqrt{xx+aa}=q$. Then the given Quantity is $pq=z$, and the *Fluxion* thereof is $p\dot{q}+q\dot{p}=\dot{z}$: But $\dot{q}$ is $\frac{x\dot{x}}{\sqrt{xx+aa}}$, and $\dot{p}$ is $=2bx\dot{x}+ca\dot{x}$; therefore in the Equation $p\dot{q}+q\dot{p}==\dot{z}$, if in the Place of p, q, $\dot{p}$, $\dot{q}$, we reſtore the Quantities they repreſent, we ſhall have $\overline{bx+ca}x^2+ca^3x\times\dot{x}+2bx\dot{x}\sqrt{xx+aa}\times x+cax\sqrt{xx+aa}$, $\overline{xx+aa}\times\dot{x}.=\dot{z}$. which being reduced to one Denomination, gives $\overline{3bx^3+2acx^2+ea^2x+2ba^2}\overline{x}+xa^3\times\dot{x}=\dot{z}=$ to the *Fluxion* of $\sqrt{xx+aa}$ the given Quantity.

Inverſe Methods of Fluxions, or *calculus integralis*, conſiſts in finding finite Magnitudes, from the infinitely ſmall Parts thereof.

It proceeds, as already obſerved, from infinitely ſmall Quantities to finite; and recompounds and ſums up what the other had reſolved; whence it is alſo called the *Summatory calculus*.

But what that has decompounded, this does not always re-eſtabliſh; ſo that the inverſe Method is limited, and imperfect, at leaſt hitherto. If it were once compleat, Geometry would be arrived at its laſt Perfection.

To give an Idea of its Nature and Office, take the Inſtance already propos'd in the direct Method; in that the infinite ſmall Quantities of the Ordinate and Abſciſs, being known, give the Subtangent required. In this, on the contrary, the Subtangent of an unknown Curve being had, gives the infinitely ſmall Quantities of the Abſciſs and Ordinate themſelves; which are finite Magnitudes, in whoſe Relation the whole Eſſence of the Curve is founded.

But the diſtinguiſhing Uſe of this Method is in meaſuring the Baſe of a Parallelogram multiplied by the infinitely ſmall Element of its Altitude, gives an infinitely ſmall Parallelogram which is the Element of the finite Parallelogram, and is repeated an Infinity of Times therein, *i. e.* as many Times as there are Points in the Height of the Parallelogram.

To have the finite Parallelogram, therefore, by Means of its Element, the Element muſt be multiplied by its Altitude; which is the inverſe Method of *Fluxions*; re-aſcending from the infinitely ſmall Quantity to the finite.

Such a Circuit of Infinite-ſmalls, it is true, were impertinent in ſo ſimple a Caſe; but when we have to do with Surfaces terminated by Curves, the Method then

then becomes neceſſary, or at leaſt ſuperior to any other.

Suppoſe, *e. gr.* in a Parabola, the Space included between two infinitely near Ordinates, an infinitely ſmall Portion of the Axis, and an infinitely little Arch of the Curve; it is certain, this infinitely ſmall Surface is no Parallelogram, ſince the two parallel Ordinates which terminate it on one Side, are not equal; and the Arch of the Curve, oppoſite to the little Portion of the Axis, is frequently neither equal nor parallel thereto. And yet this Surface, which is no Parallelogram, may be conſidered, in the ſtricteſt Geometry, as if it really were one, by reaſon it is infinitely ſmall, and the Error, of conſequence, infinitely little, *i. e.* none.

So that to meaſure it, there needs nothing but to multiply an Ordinate of the Parabola by the infinitely ſmall Portion of the Axis correſponding thereto. Thus we have the Element of the whole Parabola; which Element being raiſed by the inverſe Method to a finite Magnitude, is the whole Surface of the Parabola.

This Advantage ſo peculiar to the Geometry of Infinites, of being able without any Error to treat little Arches of Curves, as if they were Right-lines; curvilinear Spaces, as if rectilinear ones, *&c.* enables it not only to go with more Eaſe and Readineſs than the antient Geometry, to the ſame Truths; but to reach a great Number of Truths inacceſſible to the other.

Its Operations, in Effect, are more eaſy, and its Diſcoveries more extenſive; and Simplicity and Univerſallity are its diſtinguiſhing Characters.

To find the flowing Quantity belonging to any FLUXION *given*, —— To have the Doctrine of the inverſe Method correſpond and keep Pace with that of the direct, we will apply it in the ſame Caſes.

In the General, to expreſs the variable Quantity of a *Fluxion* there needs nothing but to write the Letters without the Dots.

Thus the flowing Quantities of $\dot{x}\ \dot{y}\ \dot{z}$, are $x\ y\ z$, To find the flowing Quantities belonging to the FLUXION of the Product of two Quantities.

Divide each Number of the *Fluxion* by the fluxionary Quantity, or Letter, or change the fluxionary Letter into the proper flowing Quantity of which it is the *Fluxion*; the Quotient connected by their proper Signs will be the flowing Quantities ſought.

Only, if the Letters be all exactly the ſame, the flowing Quantity will be a ſimple one, whoſe Parts are not to be connected together by the Signs + and −.

To find the flowing Quantity belonging to the *Fluxion* of any Power either perfect or imperfect, − take the fluxionary Letter or Letters out of the Equation: Then augment the Index of the *Fluxion* by 1, or Unity: Laſtly, divide the *Fluxion* by the Index of its Power ſo increaſed by Unity.

Thus ſuppoſe $3\,\dot{x}\,\dot{x}\,\dot{x}$ propoſed; by taking away $\dot{x}$ it will be $3\,\dot{x}\,\dot{x}\,\dot{x}$: and by increaſing its Index by Unity, it will be $3\,\dot{x}\dot{x}\dot{x}$: then dividing it by 3, its now (augmented) Index, the Quotient will be $\dot{x}\,\dot{x}\,\dot{x}$, the flowing Quantity required.

Again ſuppoſe $\frac{n-1}{n.m}\,\dot{x}\,\dot{x}$ a *Fluxion* propoſed: By taking away the fluxionary $\dot{x}$, it will be $\frac{n}{m}\,x^{\frac{n}{m}-1}$: By augmenting the Index by Unity (*i. e.* by taking away -1) it will be $-\dot{x}\,\frac{n}{m}\,\dot{x}^{\frac{n}{m}}$:

And laſtly, by dividing the remaining Part of the *Fluxion* by $\frac{n}{m}$, prefixed to, or multiplied into $\dot{x}$ the Quotient will be $\dot{x}\,\frac{n}{m}$; which is the flowing Quantity ſought.

The Method of Fluxions is the ſame with that *de Maximis, Minimis, Tangents*, &c.

MAXIMUM in *Algebra* denotes the greateſt Quantity attainable in any given Caſe; and *Minima* the ſmalleſt Quantities attainable in any Caſe.

The Method *de Maximis & Minimis*, is that whereby Mathematicians arrive at the greateſt or leaſt poſſible Quantity attainable in any Caſe.

If the Semi-ordinates (which are the Halves of the Ordinates or Applicates) of any Curve continually increaſe or decreaſe to ſome certain Term, which once paſſed, they begin again to increaſe or decreaſe, the Method whereby their *Maxima & Minima*, i. e. their greateſt and leaſt States is determined, is called the Method *de Maximis & Minimis*; which it is true, may be uſed to determine other Quantities that increaſe or decreaſe to any certain Term: But then they muſt always be repreſented by the Semi-ordinates of Curves.

If a flowing Quantity in an Equation be propoſed to be determined to any extreme Value. —— The Rule is; having put the Equation into Fluxions, let the Fluxion of that Quantity (whoſe extreme Value is ſought) be ſuppoſed $= 0$; by this Means all thoſe Members of the Equation, in which it is found, will vaniſh, and the remaining ones will give the Determination of the *Maximum* or *Minimum* deſired.

The Reaſon of the Rule is, that every *Maximum* or *Minimum*, is in its own Nature a ſtable Quantity: To determine thereof any flowing Quantity to a *Maximum* or *Minimum*, is to make it (inſtead of a flowing) a permanent one; but the Fluxion of a permanent Quantity is equal to nothing. —— This we ſhall illuſtrate by an Example or two.

To determine the greateſt or leaſt Applicate in an algebraick Curve. Since in Curves they have a *Maximum* and a *Minimum*, the Tangent degenerates at length, and becomes parallel to the Axis, and ſo the Perpendicular concludes with the greateſt or leaſt Applicate, in the Caſe of *Maximum* and *Minimum* the Subtangent becomes infinite, and the Sub-normal equal to nothing, but $= y\,dy : dx$. If then $y\,dy : dx = 0$; we ſhall find $dy = 0$, and becauſe of $= y\,dx : dy = 00$ (the Note of Infinity) $dx = 00$.

It is poſſible for the Tangent, to lie directly againſt the Semiordinate; in which Caſe the Sub-tangent is equal to nothing, and the Sub-normal infinite. But $= y\,dx : dy = 0$; therefore if $y\,dx : dy = 0$ we ſhall have $dx = 0$; or becauſe of $= y\,dy : dx = 00$ we find $dy = 00$ both dx and y, being, in reſpect of dy, Infinite-ſmalls. From the Equation of the Curve therefore we are to find the Value of dy, which is to be made equal either to nothing, or to Infinity, that we have the Value of the Abſciſſe to which the greateſt Applicate is Co-ordinate.

To cut a Right-Line in ſuch a Manner that the Rectangle ſhall be the greateſt that can poſſibly be thus conſtructed. Let $= a = x$, then will $= a - x$; conſequently $= ax - x$ ſome *Maximum*; and hence its Differential will be equal to nothing, as being conceived at a Circle, to which

$$\begin{array}{l} \underline{ax - xx = yy.} \\ \text{Wherefore } \underline{a\,dx - 2x\,dx = 2y\,dy = 0} \\ \qquad \underline{a - 2x = 0} \\ \qquad \frac{d}{2}\,a = x \end{array}$$

The Line therefore is to be cut into two equal Parts; and the Square is the greateſt of all Rectangles, whoſe Altitudes, taken together, are equal to each other.

TANGENT is a Right-line which touches a Circle, that is, meets in ſuch Manner, as that, though infinitely produced, it would never cut the ſame; that it never comes within the Circumference.

TANGENT of a *Conic Section*, as of a Parabola, is a Right-line which only touches or meets the Curve in one Point, and does not cut or enter within the Curve.

Method of TANGENTS, a Method of determining the Quantity of the *Tangent* of any algebraick Curve; the Equation defining that Curve being given.

This Method is one of the great Results of the *Calculus Differentialis.*

Its Use is very great in Geometry; because in determining the *Tangents* of Curves, we determine at the same Time the Quadratures of the curvilinear Spaces, on which Account it well deserves to be here particularly insisted on.

To find the SUB-TANGENT in an algebraick Curve, let the Semi-ordinate $p\,m$ be infinitely near another, then will be the Differential of the Abscis; and letting fall the perpendicular $= p$; will be the Differential of the Semi-ordinate. Draw therefore the *Tangent*, the infinitely little Arch m will be a Right-lined Right-angled Triangle, usually called the *Characteristick Triangle of the Curve*, in regard Curve-lines are distinguished from each other hereby.

Now by reason of the Parallelism of the Right-lines P M and $p\,m$; the Angle M m R = T M P wherefore the Triangle M m R is similar to the Triangle T M P. Let therefore M P = x P M = y, then will P p = M R = dx and R m = dy consequently

$$\begin{array}{ccccccc} Rm & : & MR & :: & PM & : & PT \\ dy & : & dx & :: & y & : & \frac{y\,dx}{dy} \end{array}$$

If then from the given Equation of any Curve, you substitute the Value of dx to $y\,dx : dy$, in the general Expression of the *Sub-tangent*; the differential Quantities will vanish, and the Value of the *Sub-tangent* will come in common Quantities; whence the *Tangent* itself is easily determined. —— This we shall illustrate in a few Examples:

1. The Equation defining the common Parabola, is,

$$ax = y^2$$

Hence $ad\,x = {}^2y\,dy$

$$dx = {}^2y\,dy : a$$

$PT = y\,dx : dy = 2y^2\,dy : a\,dy = 2y^2 : a = 2ax : a = 2x$. That is the Sub-tangent is double the Abscis.

2. The Equation defining a Circle is

$$ax - xx = yy$$
$$adx - 2xdx = 2ydy$$
$$dx = 2y\,dy : (a - 2x.)$$

$PT = dx : y\,dy = 2y^2\,dy : (a - 2x)\,dy = 2y^2 : (a - 2x) = (2ax - 2xx) : (a - 2x) = (ax - xx) : (\frac{1}{2}a - x)$ that is PC : PB :: AP : PT.

Therefore $AT = (ax - xx) : (\frac{1}{2}a - x) - x = (ax - xx - \frac{1}{2}ax + xx) : (\frac{1}{2}d - x) = \frac{1}{2}ax : (\frac{1}{2}a - x)$ that is PC : PA :: CA : AT.

3. The Equation defining an Ellipsis, is;

$$ay^2 = abx - bx^2$$

Hence $2ay\,dy = ab\,dx - 2bx\,dx$

$$2ay\,dy : (ab - {}^2bx) = dx$$

$PT = dyx : dy = 2ay^2 : (ab - 2bx) = (2abx - 2bx^2) : (ab - 2bx) = (2ax - 2ax^2) : (a - 2x)$ that is, as the Distance of the Semi-ordinate from the Centre, is to the half Axis, so is the Abscis to the Portion of the *Subtangent* intercepted between the Vertex of the Ellipsis and the *Tangent*.

Lastly, For all algebraick Curves, the Equation being,

$$ay\,m + bx^n + cy^r x^s + d = 0$$
$$m\,ay^{m-1}\,dy + n\,bx^{n-1}\,dx + fc\,q^r - x^{s-1}\,dx + r\,cy^{r-1}x^s\,dy = 0\; n\,bx^{n-1}\,dx + fcy^r x^{s-1}\,dx = -m\,ay^{m-1}\,dy - rcy^{r-1}x^s\,dy\;dx = -m\,ay^{m-1}\,dy - rcy^{r-1}x^s\,dy\;n\,bx^{n-1} + fcy^r x^{s-1}.$$

$$PT = \frac{y\,dx}{dy} = -\frac{m\,ay^{m-1} - rcy^r x^s}{n\,bx^{n-1} + fcy^r x^{s-1}}$$

Suppose, *e. gr.* $y^2 - ax = 0$; then, by comparing with the general Formula,

$$ay^m = y^2 \qquad bx^n = ax$$
$$a = 1\,.\,m = 2 \qquad b = -a\,.\,nn = 1$$
$$cyrx^s = 0 \qquad f = 0$$
$$c = 0,\ r = 0,\ f = 0.$$

These Values being substituted in the most general Formula of the *Sub-tangent*, we have the *Sub-tangent* of the Parabola of the first Kind, $(-2\,.\,1y^2 - 0\,.\,0y^0x^0) : 1 - ax\,1 - 1 + 0.\,0y^0x^0) = -2y^2 : = 2y^2 : a$.

Suppose $y^3 - x^3\,axy = 0$ then will

$$ay^m = y^3 \quad bx^n = x^3$$
$$a = 1\ m = 3\ b = 1\ n = 3$$
$$cyrx^s = -axy\ f = 0$$
$$c = -a\ r = 1\ f = 1.$$

These Values being substituted in the general Formula of the *Sub-tangent*, we have the Sub-tangent of the Curve, whose Equation is given, $PT = (-3.\,1y^3 - 1.\,-ayx) : (3.\,-1x\,1 - 1 + 1.\,-ayx^{1-1}) = (-3y^3 + ayx) : (-3x^2 - ay) = (3y^3 - axy) : (3x + ay)$ consequently $AT = (3y^3 - axy) : (3x^2 + ay) - x = 3y^3 - axy - 3x^3 - axy) : (3x^2 + ay) = (3axy - 2axy) : 3x^2 + ay$. The Value of $y^3 - x^3$, that is $axy : (3x^2 + ay)$ being substituted from the Equation to the Curve.

In the *Philosophical Transactions*, we have the following Method of drawing *Tangents*, to all geometrical Curves, without any Labour, or Calculation, by M. *Slusius*.

Suppose a Curve, whose Points are all referable to any Right-line given, whether that Right-line is the Diameter or not; or whether there be more given Right-lines than one, provided their Powers do but come into the Equation. In all his Equations he puts v for the Line D A, y for B A; and for E B, and the other given Lines, he puts $b\,d$, &c. that is, always Consonants.

Then, supposing D C to be drawn touching the Curve in D, and meeting with E B produced in C; he calls the sought line C A, by the Name of a.

To find which he gives this general Method. 1. Reject out of the Equation all Members, which have not either v or y in them; then put all those that have y on one Side; and all those which have v, on the other; with their Signs + or −; and the latter for Distinction and Ease sake, he calls the right, the former the left Side. 2. On the right Side, let there be prefixed to each Member, the Exponent of the Power, which v hath there, or which is all one, let that Exponent be multiplied into all the Members. 3. Let the same be done also on the left Side, multiplying each Member there by the Power of the Exponent of y, adding this moreover, that one y must in each Part, be changed into a. This done, the Equation thus reformed, will shew the Method of drawing the required *Tangent* to the Point D: for that being given; as also y, v, and the other Quantities expressed by Consonants, a cannot be unknown. Suppose an Equation $by - yy = vv$, in which E B is called b; B A = y, D A = v, and let a, or A C be required, so as to find the Point C, from whence C D being drawn, shall be a true *Tangent* to that Curve Q D in D. In this Example, nothing is to be rejected out of the Equation, because y or v are in each Member; it is also disposed, as required by the Rule 1; to each Part therefore, there must be prefixed the Exponent of the Powers of y or v, as in Rule 2; and on the left Side, let y be changed into a, and then the Equation will be in this Form, $ba - 2ya = 2vv$, which Equation reduced, gives easily the

the Value of $a = \frac{2vv}{b-2y} =$ A C. And so the Point C is found, from whence the *Tangent* D C may be drawn.

To determine which Way the *Tangent* is to be drawn, whether towards B or E, he directs to consider the Numerator and Denominator of the Fraction, For, 1. If in both Parts of the Fraction, all the Signs are affirmative; or if the affirmative ones are more in Number; then the *Tangent* is to run towards B. 2. If the affirmative Quantities are greater than the Negative in the Numerator, but equal to them in the Denominator, the Right-line drawn thro' D, and touching the Curve in that Point, will be parallel to A B: for in this Case, a is of an infinite Length. 3. If in both Parts of the Fraction, the affirmative Quantities are less than the Negative, changing all the Signs, the *Tangent* must be drawn now also towards B: For this Case, after the Change, comes to the same as the first. 4. If the affirmative Quantities are greater than the Negative in the Denominator, but in the Numerator are less, or *vice versa*, then changing the Signs in that Part of the Fraction, where they are less, the *Tangent* must be drawn a contrary Way, that is, A C must be taken towards E. 5. But whenever the affirmative and negative Quantities are equal in the Numerator, let them be how they will in the Denominator, a will vanish into nothing; and consequently, the *Tangent* is either A D itself, or E A, or a Parallel thereto; as will easily be found by the Data. This he gives plain Examples of, in Reference to the Circle; thus: Let there be a Semicircle, whose Diameter is E B, in which there is given any Point; from which the Perpendicular D A is let fall to the Diameter. Let D A $= v$, B A $= y$, B E $= b$; then the Equation will be $by - yy = vv$, and drawing the *Tangent* D C, we have A C, or $a = \frac{2vv}{b-2y}$ Now, if b be greater than $2y$, the *Tangent* must be drawn towards B; if less, towards E; if it be equal to it, it will be parallel to E B, as was said in the first, second, and fourth Rules.

Let there be another Semicircle inverted; as N D D, the Points of whose Periphery are referred to the Right-line B E, parallel and = to the Diameter. Let N B be called d; and all Things else as before; then the Equation will be $by - yy = dd + vv - 2dv$; which being managed according to his Rules, you have

$$a = \frac{2vv - 2dv}{b - 2y}$$

Now, since v is here supposed to be always less than d; if b be greater than $2y$, than the *Tangent* must be drawn towards E, if equal, it will be parallel to B E; if less, changing all the Signs, the *Tangent* must be drawn towards B, as by Rules, fourth, fifth, and third.

But there could be no *Tangent* drawn, or at least E B would be it, if N B had been taken equal to the Diameter.

Let there be another Semicircle, whose Diameter N B is perpendicular to E B, and to which its Points are supposed to be referred. Let N B be called b, and all the Things else as above; the Equation will be $yy = bv - vv$, and $a = \frac{bv - 2vv}{2y}$ If now b be greater that $2v$, the *Tangent* must be drawn towards B, if lesser, towards E, if equal, D A will be the *Tangent*, as by Rules 1, 4, and 5 appears.

Inverse Method of TANGENTS, is a Method of finding the Equation, or the Construction, of any Curve; from the *Tangent*, or any other Line, whose Determination depends on the *Tangent* given.

This Method is one of the great Results of the new *Calculus integralis*.

Its Application we shall give in what follows.—— The differential Expressions of the *Tangent*, *Sub-tangent*, *&c.* being delivered under the last Article; if you make the given Value equal to the differential Expression, and either sum up the differential Equation, or, if that cannot be, construct it, the Curve required, is had. For Example:

1. *To find the curve Line, whose* Sub-tangent $= 2yy : a$.

Since the *Sub-tangent* of an Algebraic Line is $= y\,dx : dy$ we have

$$\begin{array}{c} y\,dx : dy = 2yy : a \\ \hline ay\,dx = 2y^2\,dy \\ \hline a\,dx = 2y\,dy \\ \hline ax = y^2 \end{array}$$

The Curve sought therefore is a Parabola.

2. *To find the Curve, whose* Subtangent, *is a third Proportional to* r − x *and* y.

Since $r - x : y = y : \frac{y\,dx}{dy}$

We have
$$\begin{array}{c} r - x : y = dy : dx \\ \hline r\,dx - x\,dx = y\,dy \\ \hline rx - \frac{1}{2}x^2 = \frac{1}{2}y^2 \\ \hline 2rx - xx = y^2 \end{array}$$

The Curve sought therefore, is a Circle.

3. *To find a Line, wherein the* Sub-tangent *is equal to the Semiordinate.*

Since
$$\begin{array}{c} y\,dx : dy = y \\ \hline y\,dx = y\,dx \\ \hline dx = dy \\ \hline x = y \end{array}$$

Hence it appears, that the Line sought, is a Right-Line, which respects the Cathetus of an equicrural Triangle, as an Axis, or the Hypothenuse of an equicrural, rectangled Triangle. If x had been taken for the Arch of a Circle, the sought Line had been a Cycloid.

As to the Origin of this Art, we are much in the Dark.——The Invention is usually attributed to *Diophantus*, a *Greek* Author, who wrote thirteen Books, though only six of them are extant, first published by *Xylander*, in 1575; and since commented on and improved by *Gasper Bachet*, of the *French* Academy, and since by *M. Fermat*.

And yet *Algebra* seems to have been wholly unknown to the antient Mathematicians, long before the Age of *Diophantus*: We see the Traces, the Effects of it, in many places; though it looks as if they had designedly concealed it.—— Something of it there seems to be in *Euclid*, or at least in *Theon* upon *Euclid*, who observes, that *Plato* had begun to teach it. ——And there are other Instances of it in *Pappius*, and more in *Archimedes* and *Pollonius*.

But the Truth is, the Analysis used by those Authors is rather Geometrical than *Algebraical*, as appears by the Examples thereof, which we find in their Works: So that we make no Scruple to say, that *Diophantus* is the first and only Author among the *Greeks* who has treated of *Algebra* professedly.

This Art, however, was in Use among the *Arabs* much earlier than among the *Greeks*. And it is said that the *Arabs* too borrowed it from the *Persians*, and the *Persians* from the *Indians*; it is added, that the *Arabs* carried it into *Spain*, whence some are of Opinion, it passed into *England*, before *Diophantus* was known among us.

The first who wrote on the Subject in this Part of the World, was *Lucas Pacciolus*, or *Lucas de Burgos*, a Cordelier; whose Book, in *Italian*, was printed at *Venice* in 1494.——This Author makes Mention of one *Leonardus Pisanus*, and some others, of whom he had learned the Art, but we have none of their Writings.——He adds, that *Algebra* came originally from the *Arabs*; and never mentions *Diophantus*; which

which makes it probable, that that Author was not yet known in *Europe*.——His *Algebra* goes no farther than ſimple and quadratick Equations.

After *Pacciolus*, appeared *Stifelius*, a good Author; but neither did he advance any further.

After him came *Scipio Ferreus*, *Cardan*, *Tartaglia*, and ſome others; who reached as far as the Solution of ſome cubick Equations.——*Bombelli* followed theſe, and went himſelf a little further.——At laſt came *Nunnius*, *Ramus*, *Schoner*, *Salignac*, *Clavius*, *&c.* who all of them took different Courſes, and none of them went beyond Quadratics.

About the ſame Time, *Diophantus* was firſt made publick; whoſe Method is very different from thoſe of the *Arabs*, which had been followed till then.

In 1590, *Vieta* entred on the Stage, and introduced what he called his *Specious Arithmetick*, which conſiſts in denoting the Quantities both known and unknown, by Symbols or Letters.——He alſo introduced an ingenious Method of extracting the Roots of Equations, by Approximations; ſince much facilitated by *Ralphſon* in his *Analyſis Æquationum*.

Vieta was followed by *Oughtred*, who in his *Clavis Mathematica*, printed in 1631, improved *Vieta's* Method; and invented ſeveral compendious Characters, to ſhew the Sums, Differences, Rectangles, Squares, Cubes, *&c.*

Mr. *Harriot*, another *Engliſhman*, cotemporary with *Oughtred*, left ſeveral Treatiſes at his Death; and among the reſt an *Analyſis*, or *Algebra*, which was printed in 1631; where *Vieta's* Method is brought into a ſtill more commodious Form, being that which obtains to this Day.

In 1657, *Des Cartes* publiſhed his Geometry, wherein he made Uſe of the literal Calculus, and the *Algebraick* Rules of *Harriot*; and as *Oughtred* in his *Clavis* and *Marin*. *Ghetaldus*, in his Book of *Mathematical Compoſition and Reſolution*, publiſhed in 1630, applied *Vieta's Arithmetick to elementary Geometry*, and gave the Conſtruction of ſimple and quadratick Equations, and adding the Conſtructions of cubick, biquadratick, and other higher Equations.

Des Cartes's Rule for conſtructing cubick and biquadratick Equations, was further improved by *Thomas Baker*, in his *Clavis Geometrica Catholica*, publiſhed in 1634; and the Foundation of ſuch Conſtructions, with the Application of *Algebra* to the Quadratures of Curves, Queſtions *de maximis* and *minimis* the centrobarye Method of *Guldinus*, *&c.* was given by *R. Sluſius* in 1668; as alſo by *Fermat*, in his *Opera Mathematica*; *Roberval* in the *Mem. de Mathem. & de Phyſique*; and *Barrow*, in his *Lect. Geomet.*—— In 1708, *Algebra* was applied to the Laws of Chance and Gaming, by *R. de Montmont*, and ſince by *De Moivre*, and *James Bernoulli*.

Thus much for the Progreſs of *Algebra*.——*The Elements of the Art* were compiled and publiſhed by *Kerſey* in 1671; wherein the ſpecious Arithmetick, and the Nature of Equations are largely explained, and illuſtrated by Variety of Examples: The whole Subſtance of *Diophantus* is here delivered; and many Things added concerning mathematical Compoſition and Reſolution, from *Ghetaldus*. The like has been ſince done by *Preſtet*, in 1694; and by *Ozanam* in 1703. But theſe Authors omit the *Algebra* to Geometry, which Defect is ſupplied by *Guiſne*, in a *French* Treatiſe expreſly on the Subject, publiſhed in 1704; and *L'Hopital* in his analytical Treatiſe of the conick Sections, in 1707.——The Rules of *Algebra* are alſo compendiouſly delivered by Sir *Iſaac Newton*, in his *Arithmetica Univerſalis*, firſt publiſhed in 1707, which abounds in choice Examples, and contains ſeveral Rules and Methods invented by the Author.

ANABAPTISM.

ANABAPTISM from ἀνὰ, *denuo*, again; and βαπτίζω, I baptize, is a religious *Sect* whoſe diſtinguiſhing Tenet, is, that Children are not to be baptized, till they arrive to Years of Diſcretion, that they may give Reaſon of their Faith before they can receive a regular Baptiſm.

This Definition don't anſwer very well the Etymology of *Anabaptiſm*; and in Fact the *Anabaptiſts* of theſe Days, are but improperly called *Anabaptiſts*. The *Novatians*, *Cataphrygians* and *Donatiſts* were the true *Anabaptiſts* of the primitive Church; ſince they uſed to re-baptize all thoſe who had been baptized out of their Communion; and conſidered all other Baptiſm, which was not conferred by ſome of their Sect, as null.

This Opinion was one, if not the principal Pretext of the Schiſm of the *Donatiſts*, and afterwards of their entire Separation from the Church. They could not believe, or elſe pretended ſo, that the Baptiſm conferred by Hereticks was valid, or that any Body could be initiated into the Church, by thoſe who were excluded from it.

This new Opinion cauſed a great deal of Confuſion and Trouble in the *African* Church; and was followed afterwards, by ſome very eminent Biſhops of the ſame Church, even by thoſe who had Zeal enough to ſeal their Faith with their Blood; St. *Cyprian* is one of them; he declares openly his Sentiment on that Subject, which is ſo agreeable to that of *Donatus*, that St. *Auguſtin* reproaches him publickly with being a *Donatiſt*; which was the Occaſion of a long Diſpute between the *Partiſans* of thoſe two great Lights of the Chriſtian Church, conducted with much Warmth on both Sides, and which laſted till St. *Cyprian's* Death.

This Miſtake of St. *Cyprian*, (for it was certainly one) was rather to be attributed to the Exceſs of his Zeal, and to his too great Severity, than to any Deſire of making or fomenting any Innovation in the Church. The Opinion was new, it is true, and even proceeded from a very corrupted Source, and what in all Appearance, rendered him leſs excuſable, is, that the *Donatiſts* had been anathematized in two Councils, one held at *Rome* two Years after their Separation, and the other at *Arles*, the Year following; but St. *Cyprian* was not, perhaps, fully convinced, that the Tenet of the *Donatiſts*, as to rebaptizing the *Hereticks*, had deſervedly incurred the Cenſure of thoſe two Councils; he himſelf condemns the *Donatiſts* in all their other Articles, but this; and to convince the *Auguſtinians* that he was neither Heretick himſelf, nor a Favourer of Hereticks, but only acted on that Occaſion, according to the Dictates of his Conſcience, and profound Knowledge, he ſhewed himſelf a declared Enemy of the *Donatiſts*, and had the Decrees of the two Councils executed againſt them, with the utmoſt Severity; though in the mean Time, he defended their Opinion *de Rebaptizandis Hereticis*, againſt St. *Auguſtin*. The Proofs he employs to ſupport it, are a certain Evidence of the great Penetration and Strength of Reaſoning of St. *Cyprian*; but are neither ſupported by the Scripture, nor the Tradition, nor the Practice of the primitive Church; ſince there is no other eſſential Condition required, even by *Chriſt* himſelf, who inſtituted it, than the baptizing in the Name of the *Father*, *Son*, and *Holy Ghoſt*, neither the Church thought fit to declare, that the Efficacy, or In-efficacy of that *Sacrament*, depended on the Worthineſs, or Unworthineſs of the *Miniſter*. A Sacrament is a viſible Sign, or Symbol, of an inviſible

 Grace,

Grace, if that Symbol is adminiſtred according to the Intention of the *Divine Inſtitutor*, no Doubt but it is accompanied with what is repreſented. In the Adminiſtration of the Lord's Supper, for Example, the Worthineſs of the Miniſter, cannot procure the Efficacy of the Sacrament, if he that receives it is unworthy; ſince the Efficacy of that Sacrament proceeds *Ex opere operantis*, *i. e.* conditionally to the Diſpoſition of the Perſon that receives it. Why ſhould then the Unworthineſs of the Miniſter, fruſtrate the Baptiſm of its Efficacy; which is *Ex opere operato*, *i. e.* confers the Grace of itſelf? and conſequently confers the Grace, without any Regard to the Worthineſs or Unworthineſs of the Perſon baptized, much leſs to that of the Miniſter of the Baptiſm.

The primitive Church was ſo well convinced of this Truth, that they thought every Body capable of adminiſtring *Baptiſm*, in Caſe of Neceſſity, a *Phyſician*, a *Midwife*, or any other Perſon of both Sexes, without even excluding a Pagan *Executioner*, or any other like Miniſter, who could baptize a *Martyr* with his Blood, which Baptiſm the Church called *Baptiſmus ſanguinis*.

But Hereticks are excluded, or rather baniſhed the Church, and thereby uncapable of initiating others into it? To which it may be anſwered, that that Excluſion is but temporal, and conditional, *i. e.* till they abjure their Errors; and only from the Congregation of the Faithful: But that Excluſion don't deprive them of their firſt Initiation into the Chriſtian Church, by Baptiſm, which is an *undelible Character*, and which conſequently they can confer on others.

St. *Cyprian* himſelf could not have been perſuaded that a Biſhop or a Prieſt, ſuſpended *ab officio*, was thereby deprived of the Power he received at his Conſecration, or Ordination; or that he was to be re-conſecrated, or re-ordained, before he could reaſſume his Functions; therefore I muſt ſay of St. *Cyprian*, with St. *Auguſtin*, *De rebaptizandis Hereticis*, *non credo quod credidit* CYPRIANUS, *quia non credit Eccleſia*, *pro quâ* CYPRIANUS *ſanguinem ſuum fudit*, *i. e.* as to re-baptizing Hereticks, I do not believe what *Cyprianus* believed, becauſe that Church, for which *Cyprianus* has ſpilt his Blood, does not believe it.

There were alſo different Sects of *Anabaptiſts*, or *Re-baptizans* in the twelfth Century, ſuch as the *Petrobruſſians*, *Waldenſes*, and *Albigenſes*.

The PETROBRUSSIANS, ſo called from their Leader *Peter Bruys*, a Provincial, appeared in *France* and the *Netherlands*, about the Year 1126.

The next to *Bruys* was a Monk, one *Henry*, from whom the *Petrobruſſians* were alſo called *Henricians*.

Their chief Opinion, together with many others they were reproached with by *Peter de Clugny*, was, that they denied that the Children before the Age of Reaſon, could be juſtified by Baptiſm; in Regard that it is our own Faith that ſaves by Baptiſm.

The *Waldenſes* and *Albigenſes* agreed in this Article, as well as in many others, with the *Petrobruſſians*.

Peter de Bruys was the firſt who gave Riſe to the *Albigenſes*, thus called from their having firſt appeared at *Alby* in *Languedoc*.

Theſe *Albigenſes* grew ſo formidable in a little Time, that a *Croizade* was preached againſt them by one Father *Dominick*, Native of *Bolonia* in *Italy*, and Founder of the *Dominican Fryers*, otherwiſe called *Jacobins*. Some Authors pretend that the Pope himſelf raiſed the firſt Standard againſt them; but nothing contributed more to their Reduction, than the Inquiſition, eſtabliſhed at *Thouloufe*, upon the Model propoſed by the ſame Friar *Dominick* for that Purpoſe. The Truth is, that under Pretence of Religion, they committed a vaſt Number of Diſorders, which were not to be ſuffered, either by their own Sovereign, or by the other neighbouring Princes.

The *Anabaptiſts* of this preſent Time, are a Sect of Proteſtants who firſt appeared in the ſixteenth Century, in ſome Provinces of *Germany*, particularly *Weſtphalia*, where they committed ſeveral Outrages. They taught that Baptiſm was not to be conferred on Children; that it is unlawful to war or bear Arms, which Opinion, they alſo ſupported with this Paſſage of St. *Cyprian*, *non militabis*, go not to War; that a true Chriſtian cannot be a Magiſtrate, *&c.*

Some pretend, that *Carloſtad* was the Author of this Sect; others, *Zuinglius*. *Cocklæus* ſays, it was *Balthazar Pacimontanus*, who begun to teach in 1527, and was burnt at *Vienna* ſome Time afterwards.——*Mezorius* affirms it was firſt broached by *Pelargus* in 1522, ſeconded by *Stubner*, *Bodenſtein*, *Carloſtadius*, *Weſtemberg*, *&c. &c.*

But the common Opinion is, that *Thomas Munſter*, or *Munzer*, is their firſt Patriarch, who, deviating from the primitive Chriſtian Simplicity, (he pretended to revive) declared himſelf King of the *Anabaptiſts*. *Munſter* was a Native of *Zwickau*, a City of *Miſnia*, and had been originally a Diſciple of *Luther*, from whom he took Occaſion to ſeparate, under Pretence that his Doctrine was not perfect enough; that he had only carried the Reformation half-way, and that to arrive at the true eſſential Religion of Chriſt, immediate Revelation muſt be added to the dead Letter of the Scripture.——A Doctrine, in Fact, quite oppoſite to the true Principles of the Reformation, which were, that every Chriſtian could inſtruct himſelf in the Scripture (without any other Aſſiſtance) of all that's requiſite for his Salvation; looking on immediate Revelation, as on the Gift of Miracles, as entirely ceaſed, ever ſince the Time of the Apoſtles.

Munſter took for his Coadjutor or Aſſociate, in his pretended Miſſion, *Nich. Strock*, or *Pelargus* of *Halberg* in *Saxony*; and though theſe two Perſons were not the firſt Inventors of their Doctrine, they however appear to have been the firſt Teachers or Propagators thereof.

We have the beſt Account of the Origin of the *Anabaptiſts*, in the hiſtorical Commentaries of *Sleidan*.——He obſerves that *Luther* had preached up ſo ſtrenuouſly for the evangelical Liberty, that the Peaſants of *Suabia* flocking together, leagued themſelves againſt the eccleſiaſtical Powers, on Pretence of defending the evangelical Doctrine, and ſhaking off the Yoke of Servitude. *Luther* wrote them ſeveral Letters of Exhortation to lay down their Arms; but if himſelf, under-hand and ſecretly, did not encourage them in their Revolt, as ſuppoſed by the moſt impartial Authors of thoſe Times; or rather if *Luther*, was not ſorry they had taken them in the Defence of two of his Diſciples who had *apoſtatized* from him, is what *Sleidan* has left undecided: However, in Anſwer to his charitable and truly chriſtian Exhortations, they retorted his own Doctrine upon him; maintaining, that having been made free by the Blood of Chriſt, it was injurious to the Name of Chriſtians, that they had hitherto been reputed Servants.——A Doctrine very agreeable to this Advice of Chriſt himſelf, *reddite quæ ſunt Cæſaris*, *Cæſari*, render to *Cæſar* the Things that are *Cæſar*'s.——And to this other of the *Apoſtle*, *obedite Præpoſitis veſtris*, obey them that are ſet over you.——And conſequently founded on the firſt Principles of Chriſtianity.——Accordingly they proclaimed every where, that they only took up Arms, by Reaſon they eſteemed themſelves obliged thereto by Commandment of God; but where to find that Commandment, is what could not have been eaſily done.

Luther finding all his Exhortations ineffectual, publiſhed a Book wherein he invited all the World to take up Arms againſt thoſe Fanaticks, who thus abuſed the Word of God.—He was obliged ſoon after to write a Second, to juſtify his Conduct, which to many, appeared too ſevere, and even cruel.

The *Anabaptiſts*, to the Number of forty Thouſand ravaged all the Places where ever they came, (no doubt through a Principle of a truly Chriſtian Charity, and to re-eſtabliſh the Kingdom of Chriſt, upon its firſt Foundation.) Some Authors are of Opinion that *John* of *Leyden*, who headed them, then declared himſelf their King, but it is an Error, ſince

Munster had took that Title at his first setting out, and *John* of *Leyden* was but his General; though, at the same Time, he never used to stir out, or appear in publick, without a large Retinue of principal Officers: Two young Men rode always immediately after him, the one bearing a Cap, made in the Form of a Crown, and the other a naked Sword.——Their Pretence was, to establish the new Reign of *Jesus Christ* on Earth, who says positively, *That his Kingdom is not of this World.*——Who, while living, had not so much as a Place to rest his Head upon.——And who reprimanded *Peter* for having drawn his Sword in his Defence; though at the same Time they were pleased to condemn all Use of Arms for other purposes.

Calvin wrote a Treatise against the *Anabaptists*, still extant in his *Opuscula*; though he was possessed with the same Ambition, and had found the Secret to render himself almost absolute at *Geneva*.——What they chiefly supported their great Doctrine on, was those Words of our Saviour, *He that believes and is baptized shall be saved*, Mark xvi. 16. As none but Adults are capable of believing, they argue that no others were capable of Baptism; especially as there is no Passage in all the New Testament where the Baptism of Infants is clearly enjoined.——*Calvin*, and other Writers who have wrote against them, are pretty much embarrassed to answer this Argument. Though we find in several Places of the same Book, the *Generation of Water*, and of the *Holy Ghost*, as indispensably necessary for Salvation, and no Reason why Infants should run the Risque to die without that Regeneration; and as it has always been the common Opinion of the Christian Church from its Infancy, that by the original Sin, we were excluded from the Kingdom of Heaven, and the Baptism instituted for the Ablution of that Sin, consequently that Ablution was as necessary to Infants, as to the *Adults*. ——Those that object against infant Baptism, pretend that on such Occasion the Faith of Parents supply the Defect of the Ceremony.

'Tis true that the Church has acknowledged a Sort of Baptism which they called *Baptismus Flaminis*; but it was only in Time of Persecution, when *Catechumens*, died in Prison, or by some other Accident, before they could have been baptized; but when such Things happen'd through the Obstinacy or Negligence of Parents, (when the Baptism of Water, or *Fluminis* can be so easily administered, without the least Danger) That of *Flaminis*, has never been thought sufficient. Besides the Infant-Baptism is mentioned by *Origen*; by the Author of the Questions attributed to *Justin* the Martyr, in a Council of *Africa*, spoke of by St. *Cyprian*, where the Baptism of Infants immediately after they were born was expressly enjoined; and in several other Councils of *Autun*, *Mascon*, *Girone*, *London*, *Vienna*, &c. Besides other Fathers, as St. *Irenæus*, St. *Jerom*, St. *Ambrose*, St. *Austin*, &c.

It must be added that several Arguments may be drawn from the Scripture against the *Anabaptists*, to which the *Anabaptists* will answer, that the Children mentioned in *Mark* x. 14. and *Luke* xviii. 16. were grown big since they could come to him; and consequently were capable of an Act of Faith; but this is contrary to the express Terms of the Scripture, which in St. *Matthew*, and St. *Mark*, calls them παιδία, *Children*, and in St. *Luke* βρέφη, *little Children*: The same St. *Luke* writes that they were brought to *Jesus*; which is a Presumption that they were not yet able to walk.

Though I must confess that these Passages of the Evangelists are not a very strong Argument for the Infant-Baptism. Since *Jesus Christ* may be supposed to speak rather of the Innocency of those Children which rendered them fittest to inherit the Kingdom of Heaven, than of their being fit to be baptized.

This other Passage of the Apostle St. *Paul* to the *Romans* v. 17. is a great deal stronger, "If by one "Man's Offence Death reigned, says he; much more "they who receive abundance of Grace, and the Gift "of Righteousness shall reign in Life by one *Jesus* "*Christ*;" for if one become criminal by one, then are Children criminal; consequently if all are justified by one, then are Children justified; but this cannot be without Faith; and consequently Children may have the Faith required for the receiving of Baptism, *i. e.* an actual Faith preceding the Sacrament, as a Disposition requisite thereto. This Faith they have not of themselves, but by others, *viz.* their Parents, or their Godfathers and Godmothers, who answer for them.——Nor is there any thing in the whole Dispensation, but what is very equitable: It being but just, that as they had sinned in the Will of another, they might also be justified by the Will of another. Neither is there any more Inconveniency in this Profession of Faith made by Proxy, than in that made by those baptized at the Age of Discretion, and who can answer for themselves; on the contrary, there is, in my Opinion, more to be feared that an Adult, over whom his Passions have gained a greater Ascendant, and who is more exposed to Temptations, could be persuaded to renounce the Faith he has professed in his Baptism, than an Infant, who being born of Christian Parents, is instructed in his Faith, as soon almost as he begins to know his Existence, being made acquainted with his Religion as soon as his Reason is capable of the least Instruction.

The Impressions he received then, which we call Prejudices of Infancy, must be a great deal stronger than those made on the Mind of an Adult, whose Reason, which he is in a Condition to consult, revolt often against what's above her Apprehension.

The *Anabaptists* adopted several other Dogmata from the *Gnosticks*, &c. touching the Incarnation, *&c.* but their favourite Opinion, was that of being directed by a secret and divine Inspiration to establish the Kingdom of *Jesus*, on the Ruin of all Sorts of Government whatever, in Hope that *Jesus* being an invisible King, they could appoint themselves his Lieutenants.

As they multiplied, they divided into a great Number of *Sects*; which took particular Denominations either from the Leaders thereof, or the peculiar Opinions they superadded to the general System of *Anabaptists*.——The Principal were the *Muncerians*, *Catharists*, *Enthusiasts*, *Silentes*, *Adamites*, *Georgians*, *Independants*, *Hussites*, *Melchiorites*, *Nudipedalians*, *Mennonites*, *Bulcholdians*, *Augustinians*, *Servetians*, *Monasterians*, *Libertins*, *Deoreliftians*, *Semperorantes*, *Polygamites*, *Ambrosians*, *Clancularians*, *Manifestarians*, *Babalarians*, *Pacificators*, *Pastoricides*, *Sanguinarii*, &c.

But all those different Sects, were re-united, or rather confounded, towards the Beginning of the 17th Century, into that of the *Independents*, a Sect so called, as denying not only any Subordination among their Clergy, but also all Dependency on any other Assembly.

They maintain that every separate Church, or particular Congregation, hath in itself radically and essentially every Thing necessary for its own Government; that it has all ecclesiastical Power and Jurisdiction, and is not at all subject to other Churches, or their Deputies, nor to their Assemblies or Synods.

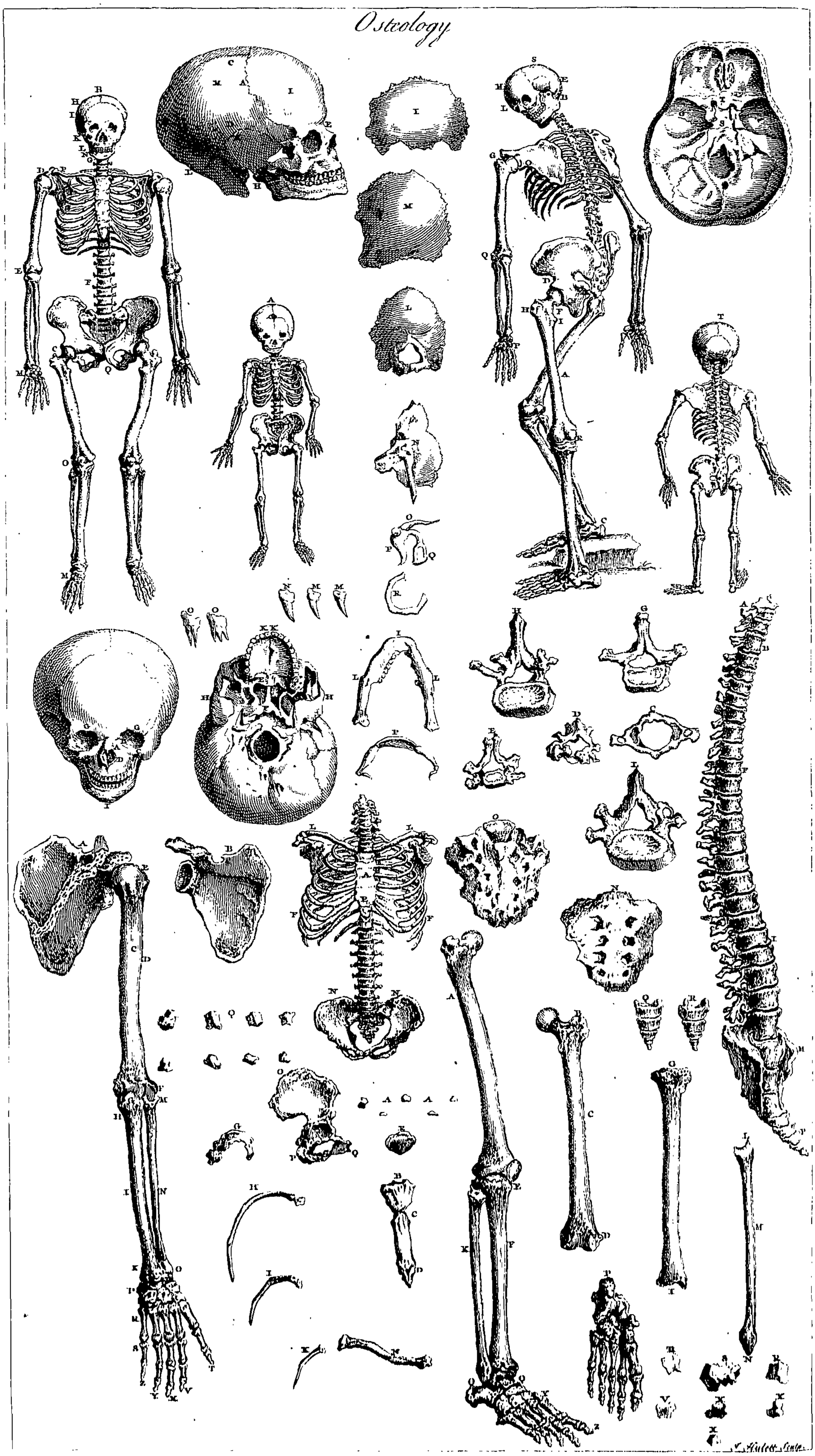
Though the *Independents* do not think it necessary to assemble Synods; yet if any be held, they look on their Resolutions as weighty and prudential Counsels, but not as Decisions to be peremptorily obeyed.

They agree that one or more Churches may help another Church with their Advice and Assistance, and even reprove it when it offends; provided they do not pretend to any superior Authority, or Right to Excommunicate, *&c.*

In Matters of Faith and Doctrine the Independents agree with the rest of the reformed, so that the Difference is rather Political than Religious.

During the Civil Wars in *England*, the *Independents* becoming the most powerful Party, and getting to the

Osteology



the Head of Affairs, most of the other Sects, that were averse to the Church of *England*, joined them; which occasioned them to be distinguished into two Sects.

The first are in Effect Presbyterians, only differing from them in Matter of Discipline; for though, like the *Independents*, they allow of no Hierarchy, of no Subordination in the Persons of their Ministers; and maintain, that Bishops and Priests in the Times of the Apostles, were the same, they nevertheless, have a Series of Assemblies or Synods; every Minister is obliged to be obedient to the *Classis* under which he lives; and that Class to a Synod Provincial, Classical, or Œcumenical.

The Power of Ordination, with them, resides in a *Classis*, and none are admitted to administer the Sacrament, but those ordained by the Imposition of Hands of other Ministers.

They make Use of Deacons to take Care of their Poor; and in the Government of the Church, call in Lay-Elders.

This is now the reigning Discipline in the Church of *Scotland*, as it was during the *Inter-regnum* in *England*.

Father Orleans speaks of the Rise of the *Independents* in the following Terms. "Out of the same "Sect (the *Anabaptists*) had risen some Time ago a "new Sect, not only averse to the Monarch, but "to Monarchy, both which it undertook to de-"stroy, and in lieu thereof to form a Republick.— "They were called by the Name of Independents, "in Regard that professing to carry the Gospel Li-"berty still further than the other *Puritans*, they "rejected not only Bishops, but also Synods, pre-"tending each Assembly ought to govern itself, *in-"pendently* of all others; in which, said they, con-"sists the Liberty of the Children of God. At first "they were only distinguished among the Presby-"terians, as the more zealous from the more indif-"ferent, the more rigid from the more remiss, by "a greater Aversion to all Pomp and Pre-eminence, "both in Church and State; and by a more ardent "Desire to reduce the Practice of the Gospel to its "primitive Purity. It was their Maxim of Inde-"pendency that first distinguished them, and ren-"dered them suspected of the Rest: But they had "Address and Artifice enough to gain Ground, and "in Effect made Abundance of Proselytes out of all "other Parties and Persuasions."

Independentism is peculiar to *Great Britain*, the *British* Colonies, and the United Provinces. One *Morel*, in the sixteenth Century, endeavoured to introduce it into *France*; but it was condemned at the Synod of *Rochel*, where *Beza* presided; and again at the Synod of *Rochel*, in 1644.——Though the *French* Protestants agreed with the *Independents* in the most material Point, and in their civil Wars under *Charles* IX, and *Henry* III, had shewed plainly, that they were declared Enemies of Monarchy, and of monarchical Government; but they had among them a Sort of Subordination, and *Beza* with their other Reformers had usurped to themselves a Sort of Supremacy, they could never have been persuaded to renounce.

Those who now retain the Name of *Anabaptists*, have abandoned the greatest Part of their antient Dogmata; and in lieu of the fanatick Zeal of their Founders, have given into an exemplary Simplicity in their Morals, Actions, Discipline, Dress, *&c.*

ANATOMY.

ANATOMY is an artificial Dissection of a Body, in order to know the Parts which compose it.

ANATOMY is divided into two Parts, *Osteology* and *Sarcology*.

The first treats of the Bones, and Cartilages; and the second of the Flesh, and other soft and tender Parts.

OSTEOLOGY, from the *Greek*, ὀστέον, a Bone, and λόγος, a Discourse, contains an exact Disquisition of what belong to the Bones in common, and what to each in particular; but before we enter into that Disquisition, we must consider their Definition, their Differences, their Articulations, their Causes, their Parts, and their Number.

A *Bone* is defined by *Galen*, to be the hardest, the driest, and most terrestrious Part of the whole Body; and, by me, the hardest and most solid Part of the Body of an Animal.

The Differences of the Bones, consist in their Substance, Quantity, Figure, Situation, Uses, Motion, Sense, Generation, and Cavities.

They differ in their Substance, because there are Bones which have a very hard Substance, as the *Tibia*; others less hard, as the *Vertebræ*; and some are soft and spongy, as the *Sternum*.

In their Quantity, because their Number is very great, and all the Bones are not equal; for some are large, as those of the Arms and Legs; some of a moderate Dimension, as those of the Head; and some small, as those of the Fingers.

The Figure of the Bones is as different as there are Bones in the Body; some are long, as the *Femur* or the *Tibia*; others short, as the Bones of the Wrist, and the Heel; some round, as the *Rotula*; others flat, as that of the Palate; others square, as the *Ossa Parietalia*; and some triangular, as the first Bone of the *Sternum*.

As for their Situation, some are placed in the Head; others in the Trunk of the Body; and others in the Extremities; with this Observation, that among those of the Head, some have a deeper Situation, as the three *Ossicula* of the Hearing; and others a more superficial, as those of the *Cranium*.

The Bones have also different Uses, some serving to support the Body, as those of the Thighs, and Legs; other to contain Parts, as the *Costæ*; and others both to contain and defend, as the Bones of the *Cranium*.

Their Motion is either manifest, as that of the great Bones of the Extremities; or a secret one, as that of the Wrist, and the Heel; and some have no Motion at all, as the Bones of the Head.

None of the Bones have any Sensation, except the Teeth.

The Bones differ in their Generation, and Perfection, because some of them do grow to Perfection even from the Mother's Womb; such as the small Bones that lie in the Cavities of the Ear; and others are only perfected with Time and Years, as all the Bones of the Body: Of these some harden sooner, as the lower Mandible; and some later, as those of the *Vertex*, or Top of the Head.

The last Difference is taken from the Cavities of the Bones; for some of them have very large Cavities for the Reception of the Marrow, as those of the Extremities of the Body; and some have only Porosities which contain a medullary Juice, as the *Calcaneum*; again, some of them have Holes for Transmission of the Vessels, as the Bone of the Basis of the *Cranium*, and the *Vertebræ*; others have only a Hollowness as the *Os Sternum*, and some Sinus's, as the *Ossa frontis*, and *Temporum*; and lastly, some consist of Abundance of little Holes like a Sieve, as the *Os Ethmoides*.

The Conjunction of the Bones, is either by Articulation or *Symphisis*.

Articulation, is a natural Conjunction of two Bones touching one another by their Extremities.

Symphysis,

Symphysis, is a natural Union or firm Adhesion, as when Bones that were at first, plainly distinct, seem to be grown altogether one Bone.

There are two Sorts of Articulation, one called a *Diarthrosis*, and the other *Synarthrosis*.

The *Diarthrosis* is a Kind of Articulation, in which the Motion is manifest, and is again subdivided into three Sorts, *Enarthrosis*, *Arthrodia*, and *Ginglymus*.

Enarthrosis, is when a large and long Head is received into a deep Cavity, as the Head of the *Femur* is received into the Cavity of the *Os Innominatum*. (C)

Arthrodia, when a superficial Cavity receives a flat Head, as the Head of the *Humerus*, that's received into the glenoide Cavity of the *Scapula*; or the Heads of the *Metacarpus* or *Metatarsus*, into the Cavities of the first *Phalanx*. (D)

Ginglymus, is a third Sort of *Articulation*, in which two Bones receive mutually each other, as the Bone of the *Carpus* is receiv'd into that of the *Cubiti*; and that of the *Cubiti* into that of the *Carpus*. (E)

Synarthrosis, is an Articulation, so firm and so strong, that it has no distinct Motion. (G)

There are also three Sorts of *Synarthrosis*, viz. the *Suture*, *Harmonia*, and *Gomphosis*.

The *Suture*, is when two Bones appear in their Conjunction, as if they had been sown together. There is a true and genuine, and false, or bastard Suture. The true *Suture* (H) is when two Bones are joined like two Saws, whose Teeth meet close together, as the *Ossa Parietalia* with the *Os Coronale*; and the false Suture (I), when two Bones are articulated in Form of Scales or *Lamina*, placed one over the other, as the *Parietalia*, with the *Os Temporum*.

Harmonia, is an Articulation whereby the Bones are joined in a simple streight Line, or a circular one, as the Bones of the Face, the Nose, and the Palate. (K)

Gomphosis is a compact Articulation, when a Bone is sunk or driven hard into another, as the Teeth are into their *Alveoli*. (L)

Amphiarthrosis, is a Sort of neutral Articulation, which is neither a Diarthrosis, having no manifest Motion, nor a Synarthrosis, as being not entirely deprived of it; such is the Articulation of the *Costæ* with the *Vertebræ* of the Back, and such is that of the Bones of the Carpus and the Tarsus among one another. (M. M.)

Symphysis, which I have said to be a natural Union of Bones, is of two Sorts, either made without some intermediate Substance, or with it.

That without some intermediate Substance, is when we find nothing that makes the Union of two Bones, as the *Epyphysis*, or Appendage, with the principal Bone to which it is joined, as we observe in the Bones of the upper Jaw.

Symphysis, which is made with some intervening Substance, is of three Sorts, *Synneurosis*, *Sysarcysis*, and *Synchondrosis*.

Synneurosis is that Kind of *Symphysis*, which unites Bones by the Means of Ligaments, as the Articulation of the *Rotula*, or *Patella*, with the *Tibia*. In the *Sysurcosis*, Bones are joined by the Flesh, and have no other Ligaments, as the *Os Hioides*, and the *Scapula*.

When Bones are united together by a Cartilage, as the two Bones of the *Os Pubis*, or the Share-bone, such Articulation is called *Synchondrosis*.

The Bones have their Origin or Principle in common with all the other Parts of the human Body, which is the seminal Liquor elaborated by the natural Heat.

Bones are composed of many Parts, of which some are prominent, and some hollow; of the First, there are three Sorts, as the principal Part, the *Apophysis*, and the *Epiphysis*. There are, also, three Sorts of Cavities in them, called either Holes, Pits, or *Sinus*'s.

The principal Part of a Bone, is the hardest and strongest Part of it, it is called the principal Part, because it contains, almost, the whole integral Bone, and retains the Name of the Whole to itself, having no other Denomination, till one's come to the Extremities, where lye the *Apophysis*, and *Epiphysis*.

Apophysis, is a Protuberance that rises on the Superficies of the Bones with which it has the very same Continuity; such is the Prominence of the *Os Petrosum* called *Apophysis Mastoides*. (B)

The Inequalities of Bones, serve to render their Articulation more convenient; for the *Origination* and Insertion of divers Muscles, and for the Defence of some Parts, as are those of the *Scapula*, and the *Vertebra*.

Epiphysis is an Appendage or an additional Bone, joined to the Principal, by a simple Contiguity; as the Prominence on the *Os Tarsi*. (C).

The Use of the *Epiphyses* is, 1. To strengthen the Articulation; and 2. To serve as well as the *Apophyses*, for the Insertion of divers Muscles and Ligaments, without which there can be no Articulation, and which could not adhere to a Substance harder than the *Epiphyses*.

All *Epiphyses*, are reduced to three Kinds, the Head, the Neck, and the *Corona*.

When a Bone terminates or rises in a great round Branch, it is called the Head, as is that of the *Femur*; but if it be a small Prominence, *Condilus*. Such is that of the lower Jaw, which enters into the Cavities of the *Os Petrosum*. (D) (E).

The *Neck* (F) is the narrowest Part of the Bone, but from a narrow Beginning dilates itself by Degrees. It is always placed under a Head; the Neck of a Bone differeth from the Head, in that the Head is almost always *Epiphysis*, and the Neck *Apophysis*.

The *Corona*, is when a Bone has a sharp Prominence, which sharp Prominences have divers Figures, and are called by the Name of the Things they most resemble; that in the *Os Petrosum* is called *Styloides*, because made like a *Styletto*; another is called *Mastoides*, because it resembles a Nipple, *&c.* (G).

The Magnitude of *Epiphises* is not alike in all the Bones; the *Tibia*, *V. G.* which is a large Bone, has large ones; and the small Bones, as those of the Fingers, very small ones; one and the same Bone, has some Time, also, *Epiphisis* of a different Bigness, as the *Femur* has a large one called the great *Trochanter*, and another small one, called the lesser *Trochanter*. (H)

The Bones have not all the same Number of *Epiphyses*, for some of them have none at all, as the Bone of the lower Mandible; and others have many, the Costæ have each one, the Bones of the Legs and Arms, each two; those of the *Os Ilium*, three; those of the *Femur*, four; and each *Vertebra*, five.

The *Epiphyses* are not always placed at the Extremities of the Bones, but some are found in the Middle of them.

In Infants the Substance of Epiphyses is cartilaginous, and doth not acquire the Consistence of a Bone, until after the twentieth Year of the Age.

The Epiphyses are covered at their Extremities with a Cartilage; not only to facilitate the Motion of the Joints, but likewise to hinder the Bones from rubbing or grating against one another.

Besides those Prominences, the Bones have also their Cavities, which consist, as I have observed already, in their Holes, Pits, and *Sinus*'s.

A *Hole* is a Cavity that has both Ingress, and Egress, which may be seen in the Cavities at the *Basis* of the *Cranium*, whereof some give an Entrance to the Arteries, and others to let the Nerves and Veins go out. (K)

A *Pit* is a Cavity that has an Entrance, but no Passage out, and whose Brims are raised by small Prominences like little Hills. These Cavities serve to give a Part some Figure, or else to contain something; such is the Cavity of the Orbite that contains the Eye. (L)

A *Sinus* is a Cavity, whose Orifice, or Entrance is very

very narrow and the Bottom large. These Sinus's are found in the *Basis* of the *Coronale*. (M)

There are, besides these, internal and external Cavities.

The internal are two, either great and apparent, as are those of the great Bones, which contains the Marrow; or little and porous Cavities, as those in the *Vertebræ*, and *Epiphases*; which contains only a Medullary Juice.

The External are of three Sorts, either great Cavities incircled with thick Brims, and are called *Cotylæ* or *Cotyloides*, (N) from the Name of an old Measure among the Antients; such is that of the *Os Ischium*, that receives the Head of the *Femur*; or moderate and less deep Cavities, called *Glenoides*, (O) such as that of the *Scapula*, which receives the Head of the *Humerus*; or else little and flat, (P) as those at the Ends of the Bones of the first Rank of the Fingers, which receives the Heads of the Bones of the *Metacarpus*.

These Cavities are simple (Q) or double; the first Sort receive only one Head, as that at the End of the *Radius*; and the double (R) ones receive two, as that which receives the End of the *Tibia* from above; and those of the Bones of the two last Ranks of the Toes. They are also of a different Figure, some are like a Pulley, as those of the lower Extremity of the *Humerus*, which receive the *Os Cubiti*; others like a Half Moon, as those of the upper Part of the *Cubitus*.

All these external Cavities which serve for Articulation, have every one of them an Eminence on their Circumference, to which is tied a circular Ligament, which inclosing the Head of the Bone they receive, serve to strengthen the Articulation, and prevent *Luxation*, which would often happen, if such Ligament was not there.

The same Bones are not always of the same Bigness in all Bodies, not even in Persons of the same Stature or Height; for it happens that among them, some have their Bones smaller than others, and consequently are better shaped.

The Difference of Age, make also a very great Difference in the Magnitude of the Bones; for they grow and magnify from the Birth to the twentieth Year, or thereabout; from twenty to threescore, continue of the same Bigness; and after threescore begin to decrease, because, at that Age, the bony Fibres grow dry, and waste, and come closer together.

Bones are likewise different in their Colour; for some are white, others less white, and others of a greyish Colour; which proceeds from the different *Habit*, or Constitution of the Bones, and not from the first Matter they are formed of, as supposed by Mr. *Dionis*.

The Bones are nourished, like the other Parts of the Body, by the Blood, and not by the Marrow, which only serve to cement them; for there is a vast Number of *Ductus* in the Body of Bones, through which the Nourishment is conveyed, by Means of the Arteries, and the remaining Superfluity returning thro' the Extremities of these *Ductus*, is received by the little Veins which carry it back into the Mass of the Blood.

There is no Sensation in the Bones, but they are covered with the *Periosteum*, which is a very small and very sensible Membrane.

There are 249 Bones in the whole human Body, *viz.* Sixty in the Head; sixty-seven in the Trunk; in the Arms and Hands sixty-two; and Sixty in the Thighs and Legs.

Of sixty Bones in the Head, there are Fourteen of them in the *Cranium*; and forty-six in the Face, reckoning among them the *Os Hyoides*; the fourteen belonging to the *Cranium*, are the *Os Coronale*, the *Os Occipitis*, the two *Bregma*'s or *Parietalia*, the two Temporal, the *Os Ethmoides*, the *Sphenoides*, and the six auditory Bones, or the *Incus*, Stapus, and Malleus on each Side. Of forty-six that are in the Face, there are seven and twenty of them in the upper Mandible, the Cheek Bone, the Nail Bone, the Maxillary or Jaw Bone, the Bone of the Nose, and that of the Palate, and the same Number on the other Side; the Eleventh, which is single having no Fellow, is in *French* called *La Pomet*, being like the Coulter, or Share of a Plow; there are sixteen upper Teeth, eighteen in the lower Mandible, to wit, two Bones and sixteen Teeth, to which being added the *Os Hyoides*, will compleat the whole Number of sixty Bones in the Head.

Of sixty-seven in the Trunk of the Body, there are thirty-two of them in the Spine, and twenty-nine in the Breast. Those of the Spine are seven in the Neck, twelve in the Back, five in the Loins, five in the *Os Sacrum*, and three in the *Coccix* or Rump Bone. Those of the Back are the four and twenty Ribs, the two *Clavicules*, and three in the *Sternum*. There are likewise six *Ossa Innominata*, which are the two *Ilia*, the two *Ischia*, and the two *Ossa Pubis*.

Of sixty-two, in the upper Limbs, each Arm and Hand has one and thirty, which are the Shoulder-blade, the *Humerus*, the *Cubitus*, the *Radius*, eight in the Wrist, four in the *Metacarpus*, and Fifteen in the Fingers; the same Number in the other Arm.

Of sixty in the lower Limbs, there are thirty in each, as the *Femur*, the *Rotula*, the *Tibia*, the *Fibula*, seven in the *Tarsus*, five in the *Metatarsus*, and fourteen in the Toes. The same on the other Side.

We could increase the Number of the Bones, if we would make several of the *Os Hyoides*, or add to them the *Sesamoises*; or decrease it, if we were to reckon the two Bones of the lower Mandible to be but one; and make but one Bone of the *Os Sacrum*, instead of five; but as it is better to keep to some determinate Number, that of 249, being the most universally received among the best Authors, I judge proper to stick to it.

Next to the Bones, the *Cartilages* are, of all the Parts of the Body, the hardest, and almost of the same Nature with the Bones, from which they differ, only, in more or less. They are of three Sorts, some are hard, and become quite bony with Time, as those which enter into the Composition of the *Sternum*, and those that tye the Appendages to the principal Bone: Others are softer and contribute to the Composition of the Parts, as the Cartilages of the Nose, the Ears, the *Xiphoides*, and that of the *Coccix*; and some are of the Nature of Ligaments, very soft, and therefore, are called Ligamentary Cartilages.

They are also different in their Figure, and are called by the Name of those Things they resemble most; *Annular*, if like a Ring; *Xiphoides*, or *Ensiformis*, if in the Shape of a Sword, *&c.* They commonly associate themselves with the Bones, yet there are some that do not touch together, as those of the *Larinx*, and the Eye-lids.

As the *Cartilages* receive neither Membranes nor Nerves into their Composition, they have no Sensation, neither have they any Cavities, and instead of Marrow, they have a viscous and flexible Substance that preserves them.

The Uses of the *Cartilages*, are to hinder the Bones from hurting one another by a mutual Collision; to join them together in divers Places by Syncondrosis, and to contribute much to the better Shape of many Parts, as do those of the Nose, the Ears, the *Trachæa*, the Eye-lids, and some others.

A *Ligament* is of a solid and white Substance, it is softer than the Gristle, and harder than a Nerve or Membrane. It has neither Cavity nor Sense, nor Motion. Some of them are strong, being placed within between the Bones; some thick and round, called Cartilaginous Ligaments; and some thin, and of a membranous Nature, which cover the Bones outwardly. They are of divers Figures; some large, called Membranous, and others round or nervous; not that they are in reality Membrane or Nerve, but for the Resemblance they have to those Parts.

The only Use of the Ligaments, is to tie, like a Cord, the Parts of the Body, and chiefly the Bones, which they keep joined and united together, and hinder them from being displaced by the frequent Motions of the Body.

Thus far of the Bones in general; but to enter into a more particular Description of them, I divide a *Skeleton* into three Parts, *viz.* the Head, the Trunk, and the Limbs; and begin with the Head as the most apparent and the noblest Part of the Body.

Hippocrates defines the HEAD a bony Part consisting of two Tables woven together with the *Diploe* between them, and covered outwardly with the *Pericranium*, and lined inwardly with the *Dura Mater*.

The Substance of the Head differeth both from the *Thorax*, and the *Abdomen*, by its being altogether Bony, whereas the *Abdomen* is wholly fleshy, and the *Thorax* partly fleshy, and partly bony.

The HEAD is divided into two Parts, of which one is covered with Hairs called the Cranium; Skull, or Scalp; and the other without Hairs called the Face.

The CRANIUM comprehends the Bones which contain the Brains and the *Cerebellum*. It is divided into two Tables which are like two *Lamina*, laid one upon the other; between which there is the *Diploe* or a medullary Substance, full of little Cells of a different Bigness, that receive their little Arteries from the Brain, and transmit the little Veins into the Sinus of the *Dura Mater*. It is between these two Tables that the Blood is lodged which nourishes the *Cranium*; and it is this same Blood which is seen to drop forth in the Operation of the *Trepan*, when the first Table is bored through.

The exterior and superior Superficies of the *Cranium* is smooth and polished; but the inferior is very rough and unequal, by reason of the many Processes and Appendages found in it. Likewise its internal and superior Superficies is smooth, some little Channels excepted, made in it by the Vessels that creep upon the *Dura Mater*, when the *Cranium* is still moist and cartilaginous; but it has its internal and inferior Superficies unequal, by reason of its Productions and Cavities.

The *Cranium* has many Holes of a different Bigness, which gave Passage to the *Medulla Spinalis*, and to the Nerves, Arteries, and Veins, which fill up those Holes so exactly, that neither Vapours nor Fumes can come into them nor go through them, but by Means of the Vessels themselves.

The *Cranium* is composed of a great many Bones, distinguished by the Junctures called Sutures.

Those Sutures are either proper or common; and the proper are divided into true and false Sutures. The true Sutures are those indented together like the Teeth of a Saw. The Cranium has three of that Sort, the Coronal, the Lamboide, and the Sagistal.

The Coronal is placed on the Fore-part of the Head, and extending from one Temple to the other, joins the *Os Frontis*, with the two Bones of the *Sinciput*; that Suture is called Coronal, from its circular Figure. (A)

The *Lamboide* is opposite to the Coronal, and unites the *Os Occipitis*, with the two Bones of the *Sinciput* behind, 'tis called Lamboide from its being like a *Greek* Λ. (B)

The *Sagistal*, from the *Latin Sagitta* an Arrow, because this Suture is strait like it, is placed in the superior Part of the Head, it goes from the Coronal to the *Lamboide*, and joins the two Bones of the *Sinciput* in their uppermost Part. The *Sagistal* sometimes descends to the Root of the Nose, and then it divides the *Os Frontis* in two Parts, and in some Bodies, the *Os Occipitis*. These three Sutures are sometimes so strongly united in old People, that they seem to be but one entire Piece. (C)

The false Sutures are those that are joined like the Scales of Fish, for that Reason called *Squammosæ*, Scaly; they are two in Number, one on each Side; and joins the superior and smaller Parts of the *Os Petrosum*, with the *Parietalia*, or Bones of the *Sinciput*. (D)

The Sutures that separate the Bones of the *Cranium* from those of the Face are called Common, there are four of them, the Transversal, Ethmoidal, Sphœnoidal and Zigomatick.

The *Transversal*, so called, because it transverses the Face from one Side to the other; begin at one of the small Angles of the Eye, and passing by the Bottom of its *Orbit*, by the Root of the Nose, finishes its Course at the other little Angle.

The *Ethmoidal* incircle the *Os Ethmoides*, and separate it from the neighbouring Bones. (E)

The *Sphænoidal* incompasses the *Os Sphænoides*, and separate it from the *Os Coronale*, the *Os Petrosum* and the *Os Occipitis*. (F)

The *Zigomatick* is placed wholly in the *Zigoma*, from whence it derives its Name. It is a very small Suture, and separates the *Os Petrosum* by its Process from the Cheek-bones. These Sutures are not so apparent as the former, and we must observe them very near to see the little Pieces of Bones that fall into their intermediate Spaces. (G)

These Sutures are of three principal Uses, 1. They are for the Adhæsion of the Ligaments, which tie the *Dura Mater*. 2. They give Passage to the Vessels which go in and come out of the *Diploe*; and 3. They help the Perspiration, since those who have the Sutures of the *Cranium* too much closed are subject to intolerable Pains of the Head, because the Perspiration is thereby hindered.

The Bones of the *Cranium* are either Proper or Common. The Proper are six, the *Os Coronale*, *Occipitis*, the two Bones of the *Sinciput*, and the two Parietal Bones. The Common two. The *Os Sphænoides* and *Ethmoides*.

The *Coronale* or *Os Frontis*, is the hardest of all the Bones of the Head next to that of the *Occiput*; it is smooth outwardly, and rugged inwardly; its Situation is in the uppermost Part of the Face, and the foremost of the *Cranium*, whence it makes the *Front* or Forehead, and is therefore called *Os Frontis*. This Bone is bounded above by the Coronal Suture, and below by the Transversal. By the first 'tis joined with the Bones of the *Sinciput*, and by the second to those of the Nose and Cheek, as well as to the *Sphænoides* by the Sphœnoidal Suture.

The Parts of this Bone are either solid or hollow; the solid are the four Processes, whereof there are two at the great Angles of the Eye, and two at the small Angles, which form the Cavity of the *Orbits*. The hollow Parts are of three Sorts, Holes, Pits, and Sinus. The Holes are three in Number, two external placed at the Eye-brows; a Branch of the fifth Pair of Nerves passes through them, and is distributed into the two frontal Muscles, and to the proper Elevator of the upper Eye-lid. The third Hole is internal, and situated above the *Christa Galli*; in this Hole adheres the Root of the right *Sinus* of the *Dura Mater*, which makes a small Fold that sinks into it in shutting it.

The *Os Coronale* has four Pits, two externals, which form the superior Part of each *Orbit*; and two internal, for the anterior Cavities of the *Cranium*, and serve to lodge a great Portion of the Brain, with the two mamillary Processes.

There are two *Sinus's* of the *Os Coronale*, called the *Sinus* of the Eye-brows, because they are situated at the lower Part of that Bone, near the Eye-brows. Those *Sinus* are formed by the Elongation of the two Tables of the *Os Coronale*, whereof the external Table advances outwardly, to form the superior Eye-brow of the *Orbit*, and the internal Table retires inwardly, to make the Roundness of the anterior Cavity of the *Cranium*; and therefore I am of Opinion, that the Use of those *Sinus* is to hinder an Angle, which otherwise would be formed in the mechanical Structure of the *Os Coronale*, and very much incommode the Brain; though I would not deprive those *Sinus* of some others of the Uses attributed to them;

them; since I really believe with some Authors, that they are, besides, like two Sources, that furnish Abundance of moist Humour to the Nose: But I reject all other Uses, as meerly imaginary and fictitious.

The *Os Occipitis*, which is the second Bone of the *Cranium*, is opposite to the *Coronale*. This Bone is the hardest of all the Skull; it is of an oblong Figure, having five Sides, or two circular Lines, that terminate in a Point: It makes the whole hinder Part of the Head, where it is placed; bounded by the *Lambdoide*, and *Sphænoidal* Suture; the one joins it with the Bones of the *Sinciput*, and the other with the *Os Sphænoides*.

The Parts of this Bone are either solid or hollow; the solid are two Processes received into the *glenoide* Cavities of the first *Vertebra*, and join the Head with the Spine, by *Synarthrosis*. The hollow Parts are either Holes or Pits.

The Holes are either common or proper. There are two common, one on each Side of the *Os Petrosum*, which give Passage to the *Nervi vagi*, and to the internal Jugular Veins. The Proper are five, the first is single, and very great, through which the *Medulla Spinalis* passes, and the vertebral Arteries, which slip into a little Notch that is behind the *Condyli* of the *Os Occipitis*, as they pierce the *Dura Mater*. Two others give Passage to the ninth Pair of Nerves, which distribute themselves wholly in the Tongue. The two last let the vertebral Veins come forth.

The *Os Occipitis* hath four Pits, two lower ones, which are the greatest, and serve to lodge the *Cerebellum*; and two Superiors that are smaller, and contains the posterior Lobes of the Brain, separated from the *Cerebellum*, by a transversal Inclosure, formed by the *Dura Mater*, in order to hinder the *Cerebellum* from suffering Compression.

The third and fourth Bones of the *Cranium*, are those of the *Sinciput* (M M) and called *Ossa Parietalia*, from their being a Kind of Wall to the Head, the Sides whereof they possess entirely; they surpass in Magnitude all the other Bones of the Head; they are of a square Figure, joined together in their superior Part, by the sagittal Suture; in their anterior Part to the *Os Frontis*, by the Coronal to the *Os Occipitis*; in their posterior Part, by the *Lambdoide*, and to the *Os Petrosum*, in their inferior, by the squammous Suture. These Bones have their external Surface very smooth; but their internal is unequal, by Reason of the Impressions that represent the upper Side of a Fig-leaf, and which have been made by a Branch of the external *Carotide*, which makes a Kind of Wrought-work on the *Dura Mater*, that covers all which lies under these Bones.

They have each a little Hole near the sagittal Suture, through which pass the Branches of the external Jugular, to receive the superfluous Blood, that could not be used in nourishing the Teguments, and to dispose it into the longitudinal *Sinus* of the *Dura Mater*.

The fifth and the last Bones of the *Cranium*, are those of the Temples, (N N) divided, by the *Anatomists*, into a superior Part, which is semicircular; and an inferior which resembles a Rock. They are placed on the Side, and the lower Part of the Head, and circumscribed upward by a Suture, called false Suture, and thereby united to the Bones of the *Sinciput*; behind, to the *Os Occipitis*, by the Lambdoide Suture; and forward and below, with the *Os Sphenoides*, by the Sphœnoidal.

The Parts of these Bones are prominent or hollow. The protuberant Parts of the *Os Petrosum*, are their internal or external Processes; the internal are two, one on each Side like a great Rock, in which are the auditory Cavities, and the four little Bones that belong to it. The external Processes are three, the *Mastoides*, the *Apophysis Stiloides*, and the *Zigomatick* Processes, which by advancing outwardly, and joining to the Eminence of the *Os Malum*, form the *Zigoma*.

The Bone of the Temples hath five Holes, four externals and one internal: This last is internal, and called the internal Auditory Hole. The first of the external Holes, is the external Auditory, otherwise the Conduct of Hearing. The second is called the oblique Hole, it is large and of an oval Figure, it opens obliquely into the Canal or bony *Sinus*. The third is a little Hole found at the Bottom of two Processes, between the Apophyses, Mastoides, and the Styloides, through which comes forth the hard Part of the Auditory Nerve; and the fourth of the external Holes, is the Canal of Communication, which opens to the Barrel of the *Tympanum*.

The Pits are likewise internal and external; the internal are two, and make the middle Cavities of the *Basis* of the Brain. The External which are two, also serve for the Articulation of the lower Mandible. The *Sinus* are two, there is one in each of the *Apophyses Mastoides*.

In this Rock which forms the *Os Petrosum*, there are four little Bones, the *Malleus*, (O) *Incus*, (P) *Stapes*, (Q) and the *Os Orbiculare*, which are thought as hard and as big at first as ever they will be during the whole Life; nevertheless they grow stronger with Age, and are really harder at the End than they were at their first Formation, though all of a Cartilaginous Nature.

In this Rock there are three Cavities, the *Drum*, the *Labyrinth*, and the *Shell*. In the first of these Cavities are placed those four little Bones which are articulated together, so that the Process of the *Malleus* is tied to the *Tympanum*, and articulated by its Head in the Cavity of the *Incus*. The *Incus* or Anvil hath two Legs, whereof the shortest is placed on the *Tympanum*, and the longest on the *Stapes* or Stirrop. The Stapes, whose two Branches are placed on a large *Basis*, receive the little Tubercle of the *Incus* by its sharp and exterior Part. In Infants is found a Bone called *Orbiculare*, (R) It is circular like a Ring, on which the *Tympanum* or Drum is stretched, as the Skin of a Drum is stretched on a Barrel. This Bone was first discovered by *Silvius de la Bòe*, and is tied by a small Ligament to the lateral and superior Part of the *Stapes*.

The *Os Sphænoides* (S) is the first of the two Bones that are common to the Scalp and the Face. It is thick in its *Basis*, and very thin in the Cavity of the Temples; it is sufficiently large and hard, and accounted but one Bone, although in Infants it may be divided into four. It is of such an Extent that it touches all the Bones of the Head, and many of the upper Mandible, with which 'tis united by a Part of its Suture. The *Sphœnoides* hath, like the other Bones of the Head, its Holes, Pits and *Sinus*.

It hath six Holes. The *Optick* through which the optick Nerve passes. The great Cleft in the *Orbit* through which the nervous Branches of the 3d, 4th, 5th and 6th pass, together with the Blood-branches of the Carotide and Jugular. Its third Hole is under the aforesaid Cleft; it is round, and gives Passage to some of the Branches of the fifth Pair of Nerves, but they are its inferior Branches. The fourth is a bony Channel dug into the *Os Petrosum*, which goes obliquely to the Saddle of the *Os Sphænoides*. In this Channel or bony *Sinus* the internal *Carotide* lie, which rises thence towards the Saddle. The fifth Hole is the oval Cleft, that lets the great Branch of the fifth Pair of Nerves, which is the Posterior Branch, come forth. The sixth Hole is a little round one, through which passes a Branch of the external *Carotide*, that make the Resemblance of a Fig-leaf on the *Dura Mater*, under the Bone of the *Sinciput*.

Its Pits are three in Number, one internal on the Saddle of the *Os Sphænoides*, and which serve as a Basis for the *Glandula Pituitaria*; and two external placed in the *Apophyses Pterygoides*.

In the Middle of the *Os Sphænoides*, under the Saddle, are found two *Sinus's* seperated by a bony *Lamina*, which open in the Nose. These two *Sinus's* are invested with a Membrane altogether glandulous, and always covered with a *Mucus*, because the little Glands of this Membrane separate from the Blood a *Serum*, which

which acquires Consistence by its Continuance in the *Sinus*, and when they are full of it, this *Mucus* is thrown out at the Apertures into the Hole, by mixing with the Snivel it there meets.

The *Ethmoides* (T) is the last of the Bones that are common to the Scalp and Face. It is the smallest of all the Bones that compose the *Cranium*, and is joined to the *Os Coronale* in its upper Part by a common Suture called Ethmoidal; and by the Sphœnoidal to the *Sphœnoides*. It is divided into three Parts; the Upper or Sieve-like Part, which hath Abundance of little Holes; the Lower which is spungy, and separates the Cavity of the Nostrils in two; and into lateral Parts which are full and flat, and make Part of the *Orbit*.

This Bone hath a Prominence called *Crista Galli*, because it resembles the Comb of a Cock, it is very hard, and Part of the *Dura Mater* is tied to this Place called *Falx*, which Falx or Scythe divides the Brain into two Parts.

From the Bones of the Head we proceed to those of the Face.

The Face consists of two Mandibles or Jaws, *viz.* the Upper Jaw which comprehends all from the Eye to the Bottom of the upper Lip; and the Lower Jaw which extends from the Top of the under Lip to the End of the Chin.

The upper Jaw hath no Motion, the lower, on the contrary, is moveable, since Mastication is its Office.

There are eleven Bones in the upper Jaw, five on each Side, and one in the Middle, *viz.* the Bone of the Nose, the *Os Unguis*, the *Pomettæ*, the Jaw-bone, the Bone of the Palate or Roof of the Mouth, and the Share-bone. These Bones are separated from the *Cranium* by common Sutures, and joined together by *Harmonia*, which is the Cause that they have no Motion.

The Bones of the Nose, (A) though they be very thin, are of a solid Substance; they are very small, and of a Piramidal Figure; they are placed on the upper Part of the Nose, and compose what is called its Bridge. These Bones are terminated above by the transversal Suture, whereby they are joined with the *Os Frontis*, and on the Sides by two *Harmonia's*, that is, one of those Sutures joins them together, and is in the Middle of the Nose; and the other unites them with the two Jaw-bones. These Bones are smoother in their outward Surface than they are in the inward, and their lower Part is unequal and in Slits, that the Cartilages may the better stick to them.

The *French* call *Os Unguis* (B) two Bones of the Bigness and Figure of a Nail, placed at the great Corner of the Eye; they are of a thin Substance like a Scale, and the smallest Bones of the upper Jaw. These Bones touch four other Bones, the *Os Frontis*, the Bone of the Nose, the Jaw-bone, and that Part of the *Os Ethmoides* which forms the Orbit of the Eye, though they hold fast to neither of those Bones, and are seldom found in a Skeleton, for they are easily lost in the boiling.

The Bones of the Cheeks, which are the fifth and sixth Bones, are very large, and of a hard and solid Substance; their Figure is triangular, their middle Part is a little prominent outwards, and round like an Apple. These Bones compose the Cheek and the lower Part of the *Orbit*; and are fastened to the *Os Frontis*, the Sphœnoides, the Jaw-bone, and the *Os Petrosum*. Each of them hath three Processes, one forms an Eminence, which, rising upwards, makes the little Corner of the Eye; another advancing toward the Nose, makes the greatest Part of the lower Eyebrow of the *Orbit*, and the third joining with a Prominence of the *Os Petrosum*, helps towards the Formation of the *Zygoma*.

The *Jaw Bones* (D) are the greatest of all the Bones of the Face, and the most spungy. They make some Part of the Cheek, contribute to the Formation of the inferior Part of the Orbit; compose the greatest Part of the Palate, and articulate all the upper Teeth. They are situated on the Side, and under the Bones of the *Os Malæ*, possessing the inferior Part of the upper Jaw; and they touch the Bones of the Nose, the Palate, the *Os Malæ*, and those of the Orbita.

These Bones have also their Holes, Pits, and *Sinus*. Their Holes are internal and external; of the Internal, which are four in Number, two are called Incisives, because directly under the Teeth *Incisores*; and the two others are placed on the lateral and posterior Parts: The two external ones are called Holes of the Orbit, the Nerves of the fifth Pair pass thro' them, and are distributed into the Face. There are sixteen Pits in each Jaw, which are the *Alveoli*, in which sixteen Teeth are fastened; and two Sinus in each, situated along the Extremities of the Roots of the Teeth.

The two Bones of the *Palate*, (E) which are the ninth and tenth Bones of the upper Jaw, are situated at the Bottom of the Palate, and make the deepest Part of the Roof of the Mouth; they are joined together by the Suture of the Palate, which advancing forward near the *Dentes incisores*, unite also the two Jaw-bones: They are likewise fastened to the *Apophyses*, *Pterigoides*, by the sphœnoidal Suture. Each of them hath a Hole called *Foramen Gustavium*, through which passes a Branch of the fifth Pair of the Nerves: These Bones are very hard, but so small that they make but the least Part of the Palate; they are almost square, being a little bigger than they are long.

The Bone which divides the Nostrils into two, is called the *Plough-bone* (F) from its Resemblance to the Coulter of the Plough; it is the eleventh Bone of the upper Jaw, is placed in the Middle, above the Palate, is hard and small, is a single Bone, and is joined with the *Os Ethmoides* and *Sphœnoides*, which have both some small Eminences that are received in the Cavities of the Plough-bone, and which thereby strengthen it in its Position.

The ORBITS (GG) of the Eye, situated at the lower Part of the Forehead, appointed for a Mansion to the Eyes, and to defend them against all that may offer to hurt them; are of a piramidal Figure, and composed of six different Bones, which, altogether, form their Extent and Depth. Of these Bones there is one proper to the *Orbit*, which is the Orbitary-bone, situated in the great Corner of the Eye; and five common, as the *Os Frontis*, which forms the superior Part of the *Orbit*, and serves for an Arch to it; the *Ethmoides*, which makes the lateral Part of it, towards the Nose; and the *Sphœnoides*, which form the most inward Part of it; these three Bones belong to the *Cranium*. The Bone *de la Pomette*, makes that Part which is near the little Corner of the Eye; and the Jaw-bone, that which is next the great Corner.

The ZIGOMA (HH) is a Union or Coalition of two Prominences of Bones, whereof one comes from the Temporal-bone, and the other from the Cheek-bone: These Prominences are joined by a small oblique Suture; these two Bones form an Arcade, which hath two very considerable Uses; one is to give Passage to the Muscle *Crotaphytes*, and to serve for a Defence to it; and the other is to give Rise to the Muscle *Masseter*, whose Office is, with the Crotaphites, to help the Mastication.

The lower Jaw (I I) consists of two Bones until the seventh Year of Age, after which they turn into one, joining together in their anterior and middle Part by *Symphysis* without a Medium. They serve for *Basis* to sixteen Teeth articulated into them; their Substance is very hard, that they may be strong enough to bite and chew.

The TEETH (L) are defined by Anatomists, small hard Bones, white and smooth, articulated in the Jaws by *Gomphosis*.

They differ from other Bones in that they have no *Periosteum*, and therefore have no Sense of Pain, but only at their Root where the Nerve enters.

Although the Teeth exceed all the Bones of the Body

Body in Point of Hardness, they nevertheless consume by their continual Action and Friction against one another; for which, cautious Nature has given them Vessels to convey them a Matter, to nourish and repair them.

The Time is not certainly fixed by Nature for the Expulsion of the Teeth; some Infants have had some Teeth from their Birth, (as the late King of *France*, *Lewis* XIV, which is rather to be attributed to a Caprice of Nature, than to any other Cause, from whence a superstitious Rabble is but too prone to draw false Inferences) others in the first Month; others in seven or eight, which is the most usual Time; and some not till they are a Year or two old.

The Teeth don't come forth all at a Time, because then, the Infants would not be able to overcome, without the most imminent Danger, the Convulsions they are subject to at the Time of their toothing; which to avoid, Nature expells them one or two at a Time; though it sometimes happens that they have three or four coming together, which is always to be feared, as a very dangerous Case.

The Infants have commonly twenty Teeth in twenty Months, which is all they ought to have at that Age, (the rest not coming forth for some Years after) and which is the propereſt Time to wean an Infant, and not before; because the Milk is not only the best Nourishment for breeding the Teeth, but also for keeping the Gums moist, especially when the latter Teeth are bred; because they having their Ends thicker, they break forth of the Gums harder than the first.

The twenty first Teeth are called the Milk-teeth; they commonly fall, toward the sixth or seventh Year, because they are double from their first Conformation; and because those under the *Alveoli*, push forward the former toward that Time. It is good to help out those Milk-teeth, so soon as they begin to loosen, that those which come underneath, and are to continue for Life, may rise strait, and in a good Position.

The twenty first Teeth being cut, the Child remains in that Condition unto the seventh Year of his Age; and then four more appear behind the former: At fourteen there comes four more; and four more at twenty; which put together, make up the whole Number of thirty-two.

All the Teeth are ranged in Order, one by another, although sometimes there will happen a double Row of them, which is a vicious Conformation, because it is both a Deformity, and inconvenient.

Every Tooth hath its Cavity in the Middle, where the Nerve is inserted. In that Cavity a certain Acrimony is sometimes found, which corrodes and spoils the Tooth; and not Worms, as vulgarly supposed.

The Teeth have three different Uses; the first and chiefest is for Mastication; the second, to distinguish the Voice; and the third for Ornament.

The Teeth are divided into *Incisores*, Dog-teeth and Grinders. The INCISORES, (MM) so called, because they cut the Meat like a Knife, are eight, four in each Jaw, placed before the rest outwardly, and in the Middle of the others. Their outward Surface is like an Arch; and the anterior is hollow; they are sharper and shorter that the rest; and each hath but one single Root which terminate in a Point.

There are four DOG-TEETH, (N) two in each Jaw; they are called Dog-teeth, because they break the hardest Bodies. Their Situation is next to the *Incisores*, one on each Side; they are thick, strong, and solid, fastened in their *Alveoli*, by single Roots, like the *Incisores*, but deeper; for they exceed all the rest in Length. The upper Dog-teeth are called Eye-teeth, because Part of the Nerve which moves the Eye is ramified, or branched toward them.

There are twenty Grinders, (OO) ten in each Jaw, and five on each Side; they are large and hard, and encrease in Bulk, according to their deeper Situation in the Mouth; they have divers Roots, which serve the better to fasten them in their *Alveoli*: The lower *Grinders* have but two or three Roots, and the upper ones three or four; because those upper ones being in a hanging Position above, have Occasion of a greater Quantity to keep them fixed and firm.

The *Os Hyoides*, (P) the last of the sixty Bones of the Head, is placed at the *Basis* of the Tongue, upon the *Larynx*, and kept in its Place by ten Muscles. It touches no other Bone, but is tied above by Bones, called its superior *Cornua*, to the two *Apophyses Styloides* of the Bone of the Temples, by small Ligaments; and below, at its inferior *Cornua*, it is joined unto the two Wings of the *Cartilage Thyroides* of the *Larynx*, by Ligaments of the same Nature with those that tied its upper Part, which is a true *Syneurosis*. This Bone is composed of five others, the greatest of which makes the *Basis*. This *Basis* is arched outwardly, and hollow within; two other lesser Bones are united to this, one on each Side; and two very small ones, are joined at the End of these last; which four Bones, make the Sides of the *Os Hyoides*, and what we call the *Cornua*. (Q Q)

The principal Use of this Bone, is to facilitate the Admittance of Air into the *Aspera Arteria*, and the Passage of Meat and Drink into the *Œsophagus*, by keeping the *Pharynx* in that just Bigness it ought to have, for the free Passage of the Nourishment.

From the Bones of the *Cranium*, I descend gradually to those of the *Spine*.

The SPINE, is a Complex of many Bones articulated together, to serve for Habitation and Rampire to the Marrow. It is divided into five Parts, the Neck, the Back, the Loins, the *Os Sacrum*, and the *Coccyx*. If the *Spine* be considered before, or behind, it appears direct and strait; but if on either Side, it falls inward, or outward, both for its better Support, and to remove from, or to approach to the Part of the *Thorax*, and the *Abdomen*.

The sharp End of the *Spine*, at the Neck, bends inwards, the better to sustain the Head which is there placed, as on a *Pivot*.

The *Spine* (R) serves to support the Body, for the Insertion of several Muscles, and for the Conveyance of the Marrow. The Parts it is composed of are called *Vertebræ*, from *Verto* to turn, because the Body turns several Ways by their Means.

Each of the *Vertebræ* hath its Body in its internal Part, wherewith they support one another; they have all a great *Foramen*, through which the *Medulla Spinalis* passes; all three Sorts of Processes, four oblique, two transverse, and one acute; and all five *Epiphyses*, or Appendages, *viz.* two at their Body, two at the Extremities of their transverse Processes, and one at the End of their acute Process. They are likewise all pierced through on their Sides, for the Passage of the Nerves that come through them; *i. e.* that two *Vertebræ* make a Hole between them, but one Half of the Hole appearing in each of them, the other Half being hidden in the Cartilage, which ties two *Vertebræ* together; if they are not perforated in their middle Part, 'tis because such Perforation would weaken them too much.

There are seven VERTEBRÆ in the *Neck* (B) more solid and harder than those of the Back, (because their Office is to support the Head, which is a very weighty Part) though they are smaller, for were they as big as those of the Back and Loins, the Neck had not been able to move so easily as it does.

The first of these seven *Vertebræ* is called ATLAS, (C) because it supports the Head, which being of a round Figure resembles the World, which the antient Poets have feigned to be borne by Mount *Atlas*. This *Vertebra* hath no acute Process, because the Head don't move upon it, but upon the second; and because it being obliged to turn as often as the Head has a circular Motion, an acute Process would have discommoded the Posterior Muscles of the Head, especially the two little right Muscles which rise from the second *Vertebra*, and are inserted in the *Occiput*.

This differs from the other *Vertebra*, in that it is of a more delicate, thinner, and harder Substance,

and that it receives at both its Extremities while the others receive on one Side, and are received on the other; for two Prominences of the *Occiput* enter into its two superior Cavities, whereby it is articulated with the Head; and, at the same Time, two other Prominences of the second *Vertebra* enter its two inferior Cavities which join them both.

The Articulation of the Head is made on the anterior Part of this *Vertebra*, not on its posterior, that it may be the better supported, and the better kept in its *Æquilibrium*. This *Atlas* giving Passage to the *Medulla Spinalis* as all the other *Vertebræ* do, and receiving besides the Tooth of the second, which passing thro' it, unites itself to the *Os Occipitis*; its Aperture must be greater than that of the rest.

The Head and the first *Vertebra* turning upon the second as on a Pivot, it is called for that Reason the wheeling *Vertebra*, (D) and from the Process, which rises from the Middle of its Body, in the Form of a Tooth, *Dentata*. This Process would expose the *Medulla Spinalis* to some dangerous Compression, was not the second *Vertebra* environed with a strong, solid and curious Ligament; other particular Ligaments join it with the first *Vertebra*, and tie them both strongly to the Head.

The third *Vertebra* is called the *Axis*, (E) because it begins to form a Body, on which the two former *Vertebræ* and the Head are supported, as on an Axle-Tree; the four following have no particular Name. There is only this to be observed, that the last hath no acute Process forked like the others, and that it begins to assume the Figure of the *Back*, (F) which is composed of twelve *Vertebræ*, larger than those of the Neck, and smaller than those of the Loins; tho' they are not at all equal, becoming larger and stronger in Proportion as they descend lower. They are all of a Pyramidal Figure; have their Processes spiney, simple, and acute, which rest upon one another; their transverse Processes very large, for the Articulation of the Ribs fastened to them; for each *Vertebra* of the Back articulates two Ribs, both by its Body and its transverse Processes.

The first of these *Vertebræ* (G) being higher than the rest, is called *Eminent*; the second *Axillary*, from its being nearest to the Arm-pit. The eight following, articulating those Ribs inwardly invested with the *Pleura*, are called both Costal and Pleuretical. The Eleventh (H) is called the Direct, because its acute Process don't bend downwards to rest upon the next below; and the Twelfth, Girdler, from its being situated in the Place where Girdles are worn.

The *Vertebræ* of the Loins, (I) because they support all the rest, are thicker and larger than those of the Back; have not their Articulations so close and compact, that they may be free in their Motions, and we able to stoop with more Ease; have their Processes longer and finer, which serve there instead of Ribs, the first and fifth of them excepted, which have them shorter. Those Processes are nine in Number, the ascending ones which articulate them together being double. Their Spines are also thicker and larger, the better to fasten to them the Muscles and Ligaments of the Back.

The Reins or Kidneys being placed on the Side of the first of these *Vertebræ*; or because, perhaps, it is in that Place that the Nephretick Pain begins to be felt, it is called Nephretick (L) or Renal. The three following next have no particular Name; and the fifth, which is the Prop and Support of the whole Spine, is called Λοφωσίτις.

If the Os SACRUM (M) derives its Name from its being offered in Sacrifice to the Pagan Divinities, or from its Bigness, or from its enclosing the *Pudenda*, is what must be very indifferent to us. The Truth is, that the *Os Sacrum* is a great, large and immoveable Bone, which serves for a Basis to the Spine. Its Figure is triangular; its being hollow within serves to form the *Pelvis*, a Cavity situated in the lower Part of the *Hypogastrium*; and, for the better Insertion of the Muscles, its posterior Part is convex and unequal. This Bone hath three different Articulations; the first with the last *Vertebra* of the Loin, like that of the other *Vertebra*; the second by *Synchondrosis*, with the *Coccyx*, and the third with the *Ossa Innominata* by an indenting.

The *Os Sacrum* (N) is divided into five *Vertebræ* of a different Bigness, the superior thereof is the biggest, and which in Adults are so strongly united, that they make but one Bone, the better to support the whole Spine, and to articulate the *Ossa Innominata*.

The *Coccyx*, (P) so called, because it resembles the Beak of a Cuckow, is the last Extremity of the *Spine*, it is composed of three Bones, the greatest of which touch the *Os Sacrum*, the second is less than the former, and the third is very small, at the whole End is fastened a small Cartilage; they are all three joined together by a very loose Connexion, which makes them pliant, and to draw back easily behind. In Women they jet outward more than they do in Men, because they want a greater Cavity to inclose the *Matrix*, and to contain the Infant during their Pregnancy. The End of these Bones (Q) always bends inwards, that it may be no Inconvenience in Setting, but they draw backwards a little for the better Extrusion of the Excrements, as they do in Women at the Time of their Delivery, (R) to facilitate a Passage to the Infant.

From the *Coccyx* we come by a necessary Retrogradation to the THORAX, or Breast, from ἀπὸ τοῦ θόρου, *Salio*, is that Part of the human Body which forms the Capacity of the Breast; its Figure is oval, especially when the *Diaphragma* moves downwards, terminated above by the Clavicles, before by the *Sternum*, behind by the Vertebræ of the Back; on the Sides by four and twenty Ribs; and below by the Cartilages of the *Costæ Nothæ*, and the Cartilage *Xiphoides*.

The larger and deeper is the Cavity of the *Thorax*, the Parts contained therein move with greater Facility, and we are supposed to live longer. It is composed with the *Sternum*, the Ribs and the Clavicles.

The STERNUM (A) is all that anterior Part of the *Thorax*, which, above, touches the Clavicles, and ends below at the *Cartilago Xiphoides*, and laterally both on the Right and Left is joined to the Ends of the Ribs before. Its Body proceeds forward, but bends towards the Ribs, in order to form the round and oval Figure of the Breast, on which it appears as if couched.

In Adults it consists of one single Piece or Bone, but in Infants, of several, according to the Diversity of Age; if we believe *Kerkringius*, it never exceeds six, though Mr. *Dionis* pretends he has found eight in some Infants, which, by growing together, are reduced to four, and commonly to three.

The first of those three Bones (B) is the superior one, larger and thicker than the Rest, which hath a *Sinus* on each Side of its upper Part, which receives the Head of the Clavicle, with which it is joined by a Cartilage; and the other sinous Cavity found in the Middle of its internal and superior Part makes Room for the *Trachea*. The second (C) is placed under the former, is straiter and thinner, but longer, with divers Sinus's on both Sides, which receive the Cartilages of the Ribs that articulate in them. The third (D) is still less in length, but thicker; it is placed under the two former, and ends at the *Cartilago Xiphoides*.

This CARTILAGE, (E) so called, because it ends like the Point of a Sword, is commonly triangular and oblong; sometimes it is round, and sometimes divided in two: Whenever it sinks inwardly by some Stroke or Fall it occasions Vomiting, which ceases not until it is restored to its proper Place. This Cartilage serves to defend the Stomach, to tie and fasten the *Diaphragma*, and to support the Liver before by a large Ligament that's tied unto it. These three Bones are joined together by Cartilages, which serve

ſerve inſtead of Ligaments to them. They alſo form a Cavity which appears outwardly, and is called by the Vulgar the Pit of the Heart.

The *Sternum* forms the anterior and middle Part of the Breaſt, joins and articulates the *Coſtæ* and the Clavicles, contains and defends the Heart and the Parts for Reſpiration, and faſtens all along its middle and internal Part to the *Mediaſtinum*, which is a Membrane which divides the Breaſt into two parts.

The COSTÆ or *Ribs* (FF) form the two Sides of the Breaſt. Their Subſtance is partly bony, and partly Cartilaginous, which Cartilages ſerve them inſtead of *Epiphyſes*. Their Figure (F) is concave within to form the Capacity of the Breaſt, and Convex without to reſiſt any Accident. The further they are diſtanced from the *Sternum*, they become narrower and round; flatten, and are larger the nearer they approach unto it. The ſuperior Ribs are ſhorter than the middle ones, and the inferior very ſmall, which Difference is neceſſary to form the Arch of the Breaſt. The Ribs are articulated at the Extremities of their anterior Part with the *Sternum*, by *Synchondroſis*, and by *Arthrodia* at their Poſterior, with the *Vertebræ*.

There are four and twenty Ribs, twelve on each Side, and divided into true and falſe Ribs. The true Ribs are the ſeven ſuperior, as the laſt five are the falſe ones; the true Ribs touch the *Sternum*, (H) with which they have a ſtrong Articulation, and the falſe ones (K) don't touch the *Sternum*, and have but a very ſlack Articulation, though they are faſten'd to the *Vertebræ* behind; but, before, they terminate in long and ſoft Cartilages.

The Uſe of the Ribs is to form the Capacity of the Breaſt, to defend the Parts they incloſe, and to give Origin and Inſertion to ſeveral Muſcles.

The two Bones which ſhut the ſuperior Part of the *Thorax*, and faſten the *Sternum* to the Shoulders, are called CLAVICLES. (LL) There is one on each Side, and they both have a tranſverſe Situation at the lower Part of the Neck, and upper Part of the Breaſt a little above the firſt Rib. Their Subſtance is thick, but porous and ſungous; whence it is that they are often fractured, and when fractured, ſooner reunited than any other Bone. Their Figure is like an ∿, Convex outwardly towards the Neck, (N) and a little Concave inwardly, that the Veſſels under them may not ſuffer Compreſſion. The *Clavicles* help the different Motions of the Arms, which move eaſier backwards and forwards, becauſe ſupported on theſe Bones, as upon a Baſis; they are likewiſe of great Uſe to hinder the Arms from too great an Extenſion forwards.

The HIP-BONES, (NN) or *Oſſa Innominata*, form the laſt Part of the Trunk of the Body. There are two Hip-Bones, one on each Side, articulated at their poſterior Part by *Ginglymus* with the *Os Sacrum*; and at their lateral with the *Femur* by *Enarthroſis*.

Theſe Bones have this common with all the other Bones, that, like them, they ſerve for the Inſertion of the Muſcles, and for Support to the whole Body; with this Difference, that they ſerve alſo to tie the inferior Extremities with the Trunk, to ſupport the Spine, to help to form the Capacity of the *Abdomen*; and for a *Baſis* to the Parts, and couch to the Parts contained in the *Hypogaſtrium*.

Theſe Bones conſiſt of three different Bones, which are the *Os Ilium*, *Iſchium*, and *Os Pubis*, joined together by Cartilages, which remain ſuch until about the tenth or twelfth Year of Age, but grow drier with Time, 'till they become ſo bony that they ſeem to make but one Bone with the others in adult Perſons.

The Os ILIUM, (O) ſo called, becauſe it contains the inteſtine, *Ilium*, being the greateſt of the three, offers itſelf firſt; it is articulated with the *Os ſacrum* by *Ginglymus*, ſtrengthened by a Cartilage, and a very ſtrong membranous Ligament.—Its Figure is Semicircular, having two Surfaces, the one internal, filled with one of the *Muſculi Flexores Femoris*; and the one external where the *Muſculi Extenſores Femoris* are inſerted.

The *Coſta* placed between theſe two Surfaces is bordered with two Lips, one whereof is likewiſe internal, and the other external. The two Extremities of this Rib end with two Prominences called Spines, of which the Superior is much greater than the Inferior. Near to this laſt, which is placed before, is ſeen an Indenting or Notching that facilitates the Paſſage of the Tendons of the *Muſculi Iliaci*, and *Pſoas*; of the crural Veins and Arteries, and of the ſpermatick Veſſels.—With its inferior Part it forms a Part of the Cavities, which receives the Head of the *Os Femoris*.

This Bone is larger in Women than Men, for the Support of the Infant in the *Matrix*; and near this Bone Women with Child often feel a Pain, occaſioned by the Weight of the Infant.

There are three Parts to be conſidered in the Os ISCHIUM. (P) Its ſuperior, which makes the greateſt Part of the *Cotyla*; its anterior which makes Part of the *Foramen Ovale*; and the inferior, in which two Proceſſes are obſerved, the one poſterior, called the Spine Proceſs; and the other anterior, and inferior.—There is likewiſe ſeen a *Sinus* or Cleft, which gives Paſſage to the *Obturator Internus*.

This Bone is annexed to the *Os Sacrum* by a double Ligament that riſes from it; one is inſerted in the acute Proceſs of the Hip; and the other behind at its Appendage, which ſupports the *Rectum Inteſtinum*. ——Its Extremity, called the tuberous Part of the *Iſchium*, gives Riſe to the Muſcles of the *Penis*, the *Levatores Ani*, and many of the *Flexores Femoris*.

The Os PUBIS, (Q) called alſo *Os Pectinis*, is ſituated at the middle and anterior Part of the Trunk. Its anterior Part is joined by Means of a Cartilage with its Fellow; its poſterior forms one Part of the *Cotyla*. Between this Part and the Extremity of the *Os Ilium*, the *Sinus* is placed, through which the Tendons of the *Muſculi Lumbares* and *Iliaci* paſs. The Muſcles of the *Abdomen* are inſerted in the ſuperior Part, otherwiſe called the Spine; and the inferior is joined with a Prominence made by the tuberous Part of the *Iſchium*, both which Prominences make the *Foramen Ovale*; into which Prominences there are many Muſcles inſerted.—The *Muſculi Obturatores Femoris*, which ſerve to move the Thigh ſemicircularly inward or outward, are annexed to a ſtrong, tendinous Membrane that ſhuts intirely this Hole.

The *Oſſa Pubis* are ſlenderer and larger in Women than Men; and thoſe who have them advanced more outwardly, undergo their Labour the eaſier; though I am not of *Bartholin*'s Opinion, who pretends that they ſeparate aſunder in the Time of Delivery; ſince the Anatomiſts, who have opened and diſſected Women newly brought to Bed, have not been able to ſeparate them without a great deal of Pains. This Error of their Separation may have been occaſioned, perhaps, by the Cartilage which joins the two *Oſſa Pubis* together, being of a pliable Subſtance. This Cartilage in hard and painful Labours may be diſtended a little, but not to facilitate alone the Delivery of the *Fœtus*.

We'll conclude our *Oſteology* by a Demonſtration of the Bones of the Extremities.

Theſe Extremities are ſuperior and inferior; both the one and the other are like ſo many Branches ſpringing from the Trunk, and growing to it; the firſt are the Hands, and the ſecond the Feet. We'll begin with the Bones of the Hands.

The HANDS are divided into three Parts, the Arm, the Cubit, and the Hand. The Arm conſiſts of one Bone only; the Cubit of two; and the Hand of ſeven and twenty; but we muſt examine, firſt, the *Scapula*, or Shoulder-blades, comprehended in the Number of ſixty-two Bones that compoſe the Arms.

The SCAPULA, (A) or Shoulder-blade, is the Bone that forms the Shoulder, defined, a large and ſlender

Bone,

Bone, especially in the Middle, and thick in the Processes: It is situated at the posterior Part of the superior Ribs, where it serves instead of a Buckler to them. There are four Things to be observed in it; its Figure, Connections, Parts and Uses.

The Figure of the *Scapula* (B) is triangular; of which two Angles are posterior, and the third anterior. It is convex without, and concave within, both for its better Apposition in the Ribs, and for containing a Muscle, of which I shall speak hereafter.

It hath three Sorts of Connections, one by *Arthrodia*, with the *Humerus*, having at its anterior Angle, a glenoide Cavity, which receives the Head of the *Humerus*; this Cavity is covered over with a Cartilage, that facilitates the Motion, and it hath a ligamentous Brim, which, by making the Cavity deeper, and embracing the Head of the *Humerus*, strengthens its Articulation; the other is made by *Synchondrosis*, with the Clavicle, by means of a Cartilage that unites this Bone with the Clavicle; and the third is made by *Sysarcosis*, with the *Vertebræ* and the Ribs; there being nothing but Muscles in all the posterior Part, that unite it with the adjoining Bones.

There are a great many Parts to be considered in this Bone. First, its *Basis*, which is in its posterior Part, ends next to the *Vertebræ* of the Back; this *Basis*, and with two Angles, the one superior, and the other inferior; the Parts coming from these Angles towards the Neck, are called the *Costæ* of the *Scapula*, of which there are also two, the one called the upper *Costa*, which is the slendereſt and shortest; and the other the lower *Costa*, which is the thicker, and the longer.

The two Surfaces of this Bone differ one from the other; the Internal is hollow, to lodge the scapular Muscle; the External is elevated, to form a considerable Eminence, which from the Bottom of the *Basis*, rises strait upwards, called the Spine of the Shoulder-blade, the End thereof is called *Acromium*, from its Resemblance to an Anchor.

On each Side of this same Spine, there are two Pits, one above, called *Fossa supra Spinata*; and the other underneath, called *Fossa infra Spinata*, greater than the former; because, besides the *Musculi infra Spinati*, it contains some other Muscles, which serve for the Motion of the Arm; and in the Middle of the Spine, there is a crooked Eminence, called the Crest, or the Wing of a *Batt*, from its Resemblance to it.

The Process *Caracoides*, placed at the superior Part of the Neck, and which advances above the Head of the Shoulder-Bone, strengthens the Articulation of the Shoulder, and gives Rise to one of the Muscles of the Arm, called also *Carocoides*.

The two other Cavities, one between the Neck of the *Acromium*, and the other between its superior *Costa*, and the *Apophysis Carocoides*, serve for the Passage of Vessels; and that Cavity which is at the End of the exterior Angle, is called the glenoide Cavity.

The Uses of the Shoulder-blade, are, 1. To give Origin and Insertion to the Muscles, like all the other Bones. 2. To fasten the Arm to the Body. 3. To support the Arm, that it may more conveniently make its Motions. And 4. To make the Shoulder, and defend the internal Parts, with its Bulk and Largeness.

The *Arm* is composed only of the HUMERUS (C). This Bone is articulated at both its Ends; the upper End with the *Scapula*, by *Arthrodia*; and the lower Part by *Ginglymus*, with the *Cubitus*; and by *Arthrodia*, with the *Radius*. The *Humerus* is also joined with the *Radius* by *Arthrodia*, having a Prominence at its End, which is received into the Cavity placed at the End of the *Radius*.——This Articulation causes the Motions of the *Cubitus* Inwards, and Outwards.

The *Humerus* is often divided into its Body, (D) and its Extremities, which are two, the one superior, the other inferior.——The Body of the *Humerus* is long and round; it hath an internal Cavity all its Length, which contains the Marrow; its Figure is not absolutely strait, but a little hollow on the inside, and raised on the outside, for the strengthening of it in its Actions. The Line observed in it, to descend and terminate in two *Condyles*, serve to fasten more strongly, the Muscles inserted in this Bone.——The upper End of the *Humerus* (E) is much larger, and more spungy than the lower; it contains a medullary Juice, and is called the Head of the *Humerus*. A little from under this Head, is the Neck, which is a round, and somewhat strait Part; and as the Fore-part of this Head appears a pretty long Cleft, which goes to the middle Part of the Bone, and made like a Gutter, to make Room for one of the Tendons of the Muscle *Biceps*. This Head is not only invironed on all Sides, with Ligaments and Membranes, which come from the *Glenoide* Cavity of the *Scapula*, but is likewise involved with four *Aponeuroses* of the Muscles that compass it.

The lower Part of the *Humerus* (F) is smaller, flatter, and harder, than the other; it is also bigger, because it is joined with the two Bones of the *Cubitus*, placed on the Side of one another, and which have two different Motions. In this Place there are three Processes and two Cavities; the first called the superior Process, is a round Head, articulated with the *Radius*. The second, which is the inferior, articulate with no Bone, because it only serves for the Origin of the *Musculi Flexores* of the Hand: This is smaller than the former, and is called *Apophysis Condiloides*. In the Middle of these two *Condili*, is a third Process that is smooth, oblong, and made in the Form of a Pully, round which the *Cubitus* hath its Motions: The two Cavities are near this Process, one internal and smaller; the other external and greater; they receive the *Apophyses Coronoides* of the *Cubitus*, and the Pully is received into the Cavity *Sigmatoides* of the *Cubitus*.

The Elbow consists of two Bones, which are not so long nor so big as the *Humerus*, but both of them much of the same Magnitude, though the *Cubitus* is a little larger than the other; they are removed from one another in their Middle, for the more convenient Situation of their Muscles, for the Passage of the Vessels, and especially for their easier Motion; one is called the *Cubitus*, and the other the *Radius*.

The CUBITUS, (G) or Bone of the Elbow, is articulated at both Ends, at its upper End two ways; with the lower End of the *Humerus*, by *Ginglymus*, and with the upper Part of the *Radius*, by *Arthrodia*, at its lower End, it is also joined two Ways, by *Arthrodia*; by its End with the *Os Carpi*, and with the lower Part of the *Radius*, by its lateral, or Side-part.

The *Cubitus* is divided into its superior, (H) middle, (I) and inferior Part (K). Its superior Part has two Processes, and two Cavities; the smallest of these Processes, which has no particular Name, is situated before, and the other (called *Olecranum*, and is larger than the former) behind. The *Carpus* is supported on this Process; it makes an acute Angle, when the Arm is bent, and hinders it from bending backwards. These two Processes enter into the two Cavities, situated on the lower End of the *Humerus*. Of the two Cavities, at the superior Part of the *Cubitus*, the greatest, called *Sinus Sigmatoides*, is placed between the two Processes, and receives the End of the *Humerus*. There is a Line, or Eminence in the Middle of this Cavity, which goes from one Process to the other, and enters into the *Sinus* of that Part, which is at the lower End of the *Humerus*. The other Cavity, situated on the lateral and internal Part of the *Cubitus*, (which is very small) by receiving the *Radius*, joins them together.——There are three Angles at the middle Part of the *Cubitus*, one internal, and very sharp, called the Spine; two others not so keen, one anterior, and the other posterior.

Two Prominences, and a Cavity are discovered at the

the inferior Part; the first of these Prominences situated at the lateral and inferior Part, is received into the *Glenoide* Cavity of the *Radius*; the second, called *Styloides*, and placed externally at the End of this Bone, serves to fortify the Joint; and the Cavity at the End of the Bone helps to make an *Arthrodia*, with the *Carpus*.

The second Bone of the Elbow, called RADIUS, (L) is articulated like the *Cubitus* in its superior, and inferior Part; in its superior Part two ways, both by *Arthrodia*, the one with the External *Condylus* of the *Humerus*, and the other with the *Cubitus*; in its inferior Part, either with the *Os Carpi*, or with the *Cubitus*, and both Ways by *Arthrodia*.

The *Radius* is also divided into three Parts, the superior (M), the Middle (N), and the Inferior (O). It has in its superior Part, a Head, a Neck, and a Tuberosity: The Head is round and smooth, for its better Motion, and over it a *Glenoide* Cavity, that receives the superior *Condylus* of the *Humerus*; the Neck is very long for oblique Motions; under this Neck is situated the Tuberosity or Eminence, into which the *Musculus Profundus*, and one of the *Flexores* of the Thumb are inserted. There is an acute Angle in its Middle, called the Spine, which grows still bigger, as it comes nearer to the Wrist, contrary to the *Cubitus*, that lessens according as it is elongated from the Elbow.

There are many Sinuosities and Inequalities observed at its inferior Part, made to avoid hurting the Tendons, that go to the outward Part of the Hand. There are likewise two Cavities, one at its Extremity, which receives the Bones of the *Carpus*; and the other at its lateral and internal Part; but smaller, for a Prominence of the *Cubitus*. The Prominence at the external Part of its Extremity, form, with the *Apophysis Styloides*, a great Cavity, which receives the Bones of the *Carpus*, and hinders their Luxation.

The Hand is made up of the *Carpus* or *Wrist*, the *Metacarpus*, and the Fingers. It begins where the Bones of the Elbow end, and it terminates with the Ends of the Fingers.

The *Carpus* (P) or *Wrist*, which is the first Part of the Hand, is a Heap of Bones, situated between the inferior Articulation of the Elbow, and the *Metacarpus*. These Bones are eight in Number, placed in two Rows, (Q) four in each Row.——Of the four Bones of the first Row, the two greatest are received into the Cavity of the *Radius*, by their upper Part, for the Motion of the Hand; and touch the three first Bones of the second Rank, by their lower Part. The third, next to this in Bigness, is placed in the Cavity, at the End of the *Cubitus*, joining to its *Apophyses Styloides*; and united in its lower Part, with the fourth Bone of the second Rank. The fourth Bone of the first Rank, (the smallest of them all) is situated upon the third, on the Inside of the Hand, making a Prominence, like unto the crooked Process of the fourth Bone of the second Rank.

The first Bone of the second Row, is placed more within the Hand than without, that it may the better support the Thumb, and answer to the crooked Process of the fourth Bone of the same Rank. The second and the third, support the first and second Bones of the *Metacarpus*; and the fourth and last Bone of the *Carpus*, supports, by its two small glenoide Cavities, the third and fourth Bones of the *Metacarpus*.——The Figure of the Bones of the *Carpus*, joined together, is round, and raised on the Outside, but it is unequal and hollow on the Inside, for the Facility of the Motion.

There are three Sorts of Articulations in the Bones of the *Carpus*; the first, with the Bones of the Elbow, by *Arthrodia*; the second, with the Bones of the *Metacarpus*, by *Amphiartrosis*; and the third, by *Syneurosis*, between themselves.——None of these Articulations has a manifest Motion but the first.

The METACARPUS, (R) which is the second Part of the Hand, makes its Palm, by its internal Part; and its Back, by its External.——The *Metacarpus* is composed of four long, slender, and unequal Bones, each of them having a Cavity that contains a Marrow. These four Bones are joined with the *Carpus*, by a strong Connection, by means of many cartilaginous Ligaments, which allows them but an obscure Motion; and with the Fingers, by *Arthrodia*; each of them having a round Head at their End, which enters into the glenoide Cavity, placed at the End of the first Bone of the Fingers. ——Besides these two Articulations, they mutually touch, and are united together by their lateral Part, very near the Place where they are joined to the *Carpus*, and this for their greater Strength.——They afterwards separate towards the Middle, in order to leave a convenient Space to the *Musculi interossei*.

The middle Part of these Bones is of a round Figure, though a little convex outwardly, for Strength-sake; and a little hollow inwardly, for the better taking up Things.——Their superior Extremity, whereby they are united with the *Carpus*, is their largest Part; and their lower Extremity, which ends with a Head that joins them with the Fingers, their smaller Part.——These four Bones are not equally large, that which supports the *Index*, is larger than the others; the next to it less; the next to that lesser; and the fourth the smallest of all. This last is the Supporter of the little Finger, and has a more apparent Motion than the three others.

There are five FINGERS (L) which differ from one another, both in Bigness and Length.——The first, called the *Thumb*, is bigger and stronger than the others, and the only one opposite to the rest in the Matter of Apprehension.——The second is called the *Index*, (U) because we make Use of it when we shew, or point at something; the third, the *middle Finger*, (X) by Reason of its Situation, and is the longest of them all; the fourth, *Annularis*, (Y) because the Ring is worn upon it; and the fifth, (Z) *Auricularis*, because being little and pointed, some commonly use it to cleanse their Ears of *Sordes*.——The Bones of the Fingers are fifteen, three in each Finger, placed in three Ranks, called *Phalanxes*, from their Resemblance to the Ranks in Battle-array.——The first Rank is of larger Bones than the second, and the second than the third, which is the smallest; and whose Extremities end in a Semicircle or Crescent. The Figure of these Bones is hollow on the Inside, for the Convenience of Flexion; convex on the Outside, for strength Sake, and a little flattened on the Inside, that they might not hurt the Tendons of the *Flexores*, and for the better bending the Fist.——They are joined together by *Ginglymus*, all of them having both little Bones, and little Cavities, which reciprocally receive one another; their Articulation with the *Metacarpus*, is by *Arthrodia*——Each Finger has likewise Ligaments the whole Length, on the Inside; and these Ligaments tie these Bones mutually together.

We will conclude our *Osteology* with the Bones of the lower Limbs, which are those of the Leg.——By the *Leg* is understood all that is comprehended from the *Os Illium* unto the Ends of the Toes.

We will divide the *Leg*, as we have done the Arm, into three Parts, the *Thigh*, the *Leg*, and the *Foot*.

The FEMUR (A) or Thigh, is made like the *Humerus* of one Bone only, the greatest and strongest of all the Bones of a human Body, and which alone bears the Burthen or Weight of the whole.—This Bone has two strong Articulations at both its Ends; the first and superior, called *Enarthrosis*, is made by the means of a very large Head received into a great Cavity. The Head is at the End of the *Femur*, and the Cavity at the lateral Part of the *Os Illium*; This Cavity has a cartilaginous Brim for the better inclosing this Head, and to hinder it from Luxation; which Head is tied besides by a strong Ligament to the Bottom of the Cavity.—— The second Connexion is made at its lower End by *Ginglymus*, having two

Heads which are received into two Cavities, situated at the superior and extreme Part of the *Tibia*. Between these two Heads there is a Cavity, which receives a Prominence of the same Tibia, and makes the *Ginglymus*.

The *Femur* is divided into a superior, middle, and inferior Part.

The Superior has a Head, Neck, and two Processes. The Head, (B) which is large and round, is formed of that Process which is inserted into the *Cotyla* of the Hips, from the little Pit that is in its middle Rise, the Ligament that ties it unto the *Os Illium*. The Neck, for the Support of this large Head, is also very large, and long, inclining outwardly, not only for the convenient Situation of the Parts of the Thigh, but for the stronger Going. This Neck is oblique, because the Cavity of the *Ischium* not being situated in a strait Line, the Head of the *Femur* had not been able otherwise to enter well into it. Moreover this Neck stretching thus outwardly, separates these two Bones from one another, and causes the Rest of the Bones to descend in a strait Line, and the Body to be more conveniently and surely supported.

The two Processes behind the Neck of the *Femur* are called *Trochanters*, divided into the great and lesser *Trochanter*.— The great *Trochanter*, which is also the superior, gives Insertion to the *Musculi Extensores* of the Thigh, and for this Reason its exterior Part is rough and unequal, that they may insert the better; and at its internal Part, which regards the Neck, there is a Cavity, over which there is found a Kind of *Sinus*. This Bone has a great Cavity, its whole Length (C) which contains Marrow; it is Convex outwardly, and a little crooked or concave on the Inside, insomuch that it serves for a Buttress to our Body, to hinder it from falling and from inclining too much forward.

At the inferior Part of the *Femur* (D) there are two Processes called *Condyli*, covered with a large Cartilage, as all the other Extremities of Bones.— Between these *Condyli*'s there is a Cavity which receives the Prominence of the *Tibia*. Likewise at the upper Part of the *Femur*, there is a Vacuity which gives a Passage to the Vessels that go down to the Leg. This Vacuity is invested like all other Cavities, as well as the Processes which serve for the Connexion of the Bones. They are plaistered over with a smooth and slippery Cartilage, in the Mass of which there are small Glands, each of them having a *secretory Duct*, through which runs that slimy Liquor which serves to facilitate the Motion of the Joint.

The Knee, placed at the lower End of the Thigh, and at the upper Part of the *Leg*, has a round and large Bone that lies at the Articulation of the *Femur* with the *Tibia*, and called the Rotula, (EE) or *Knee-Pan*.— Its Substance in Infants is cartilaginous for some Time, afterwards it comes to be bony. Its Figure is like the circular Boss of a Buckler, its middle Part being thicker, and more prominent than its Brims.— The *Rotula* is moveable, and articulated by a Kind of *Ginglymus*; it is covered with the *Aponeuroses* of the four *Extensores* of the Leg, inserted at its external Part and its Brims. It is invested at its internal Part with a slippery Cartilage, to facilitate its Motion, and serves to strengthen the extensor Muscles of the Leg.

The Leg, which is the second Part of the lower Limbs, comprehends the whole Space from the Knee down to the Foot, and has two Bones, one whereof is very big, called the *Tibia*, and the other smaller, called the *Fibula*.— These two Bones differ only in Bigness, being of the same Length; for if the *Tibia* rises higher, the *Fibula* descends the lower; both of them have a triangular Figure, though that of the *Fibula* is more irregular; they are united together at their End, but separated asunder in their Middle to give Room to the Muscles, and a Passage to the Vessels. They also each of them make a *Malleolus* or Ankle-Bone, the *Tibia* making the inward Ankle, and the *Fibula* the outward.

The Tibia (F) is the largest Bone of the Leg, hollow within, its whole Length (to contain the Marrow) situated on the Inside of the Leg, articulated at both its Ends by *Ginglymus*, above with the *Femur*, and below with one of the Bones of the *Tarsus*, called *Astragalus*. It is also joined at both its Ends, but laterally with the *Fibula*, by *Arthrodia*.— The *Fibula* has a small Cavity in its superior Part that receives the *Tibia*, and below a small Prominence received into the *Tibia*, which *Tibia* has also three Parts, the superior, middle, and inferior Part.

The superior Part of the *Tibia* (G) has a Process in its Middle, received into the Cavity, which is at End of the *Femur*. There are on both Sides of this Process two small Cavities, which receive the Heads of the Femur. Their Depth is encreased by a *Cartilago Lunata*, which is not deprived of Motion, altho' it be fastened by Ligaments.— The middle Part of the *Tibia* (H) has three Angles, the most remarkable thereof is the *Shin*, being long and sharp before like the Edge of a Knife; whence it happens that Blows received upon that Part are very much felt, by Reason that the *Periosteum* which cover it is often cut with the Blow: According as this Bone approaches to the Foot, it lessens in Bigness, but in Recompence it grows harder as it descends.— The inferior Part of the *Tibia* (I) terminates in two little Cavities for the Insertion of the Prominences of the *Astragalus*; and from the Middle of these Cavities there rises a small Protuberance, inserted into the Cavity found at the upper Part of the *Astragalus*; and from the Side of this Cavity there is a pretty large Prominence which forms the internal Ankle.

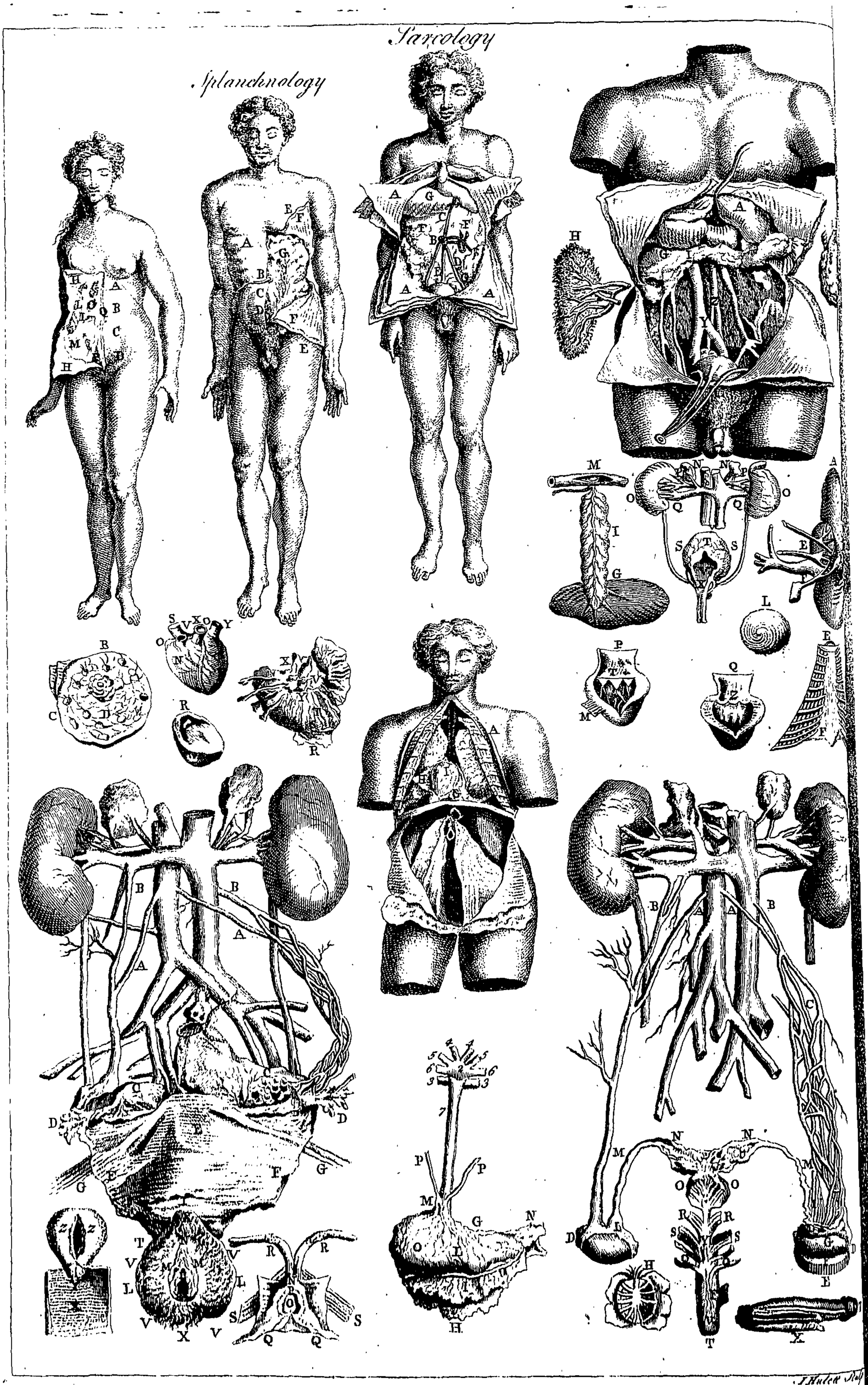
The Fibula (K) is the least of the Bones of the Leg, situated at its external Part, and articulated at both its Ends by a Kind of more compact *Arthrodia*, fortified by a Ligament both above and below it.— This Bone has also three Parts, a superior, middle, and inferior Part.— The Superior (L) is a round Head which don't touch the Knee, ending a little under it at the Place where it is articulated with the *Tibia*.— The Middle (M) is slender and long, and of a triangular Figure like the *Tibia*, but a little more irregular.— And the lower Part (N) has a *Condylus*, which makes a Process called the outward Ankle; it is a little hollow within for a free Motion of the *Astragalus*.— The lower End of this Bone descends a little lower than that of the *Tibia*.

The Foot, (O) which is all that's comprehended from the inferior Articulation of the Leg unto the End of the Toes, is of an oblong Figure; its superior and external Part is Convex, the better to form the Cavity of its inferior and internal one, called the Sole of the Foot. (P) — The Uses of this Cavity are, besides that of contributing to the Convenience of walking, and of standing firm, to leave a free Passage to the Tendons that go to the Toes, and to lodge one of their *Flexores*.

The first and largest Part of the Foot is the Tarsus, (Q) composed of seven Bones, four of which have distinct Names, and the three others only that of *Cuneiformia*.—The first is the *Astragalus*, (R) articulated under the Bones of the Leg, and which has six several Surfaces; the first and superior is smooth, and made like a Pully, upon which the great Bone of the Leg is placed; The second, which is anterior, is a large Head that enters into the Cavity of the *Os Naviculare*, with which the *Astragalus* is strongly articulated; The third and posterior receives the Head of the *Calcaneum*, (S) with which it is strongly united; the fourth and inferior is rugged and unequal; the fifth and sixth Surfaces of the *Astragalus* are the two lateral, inclosed by the two *Malleoli* or Ankles.

The Calcaneum, or Heel-Bone, is the second of the *Tarsus*, the greatest and the most porous, and situated at the posterior Part of the Foot.— In this Bone the Tendon *Achilles*, the biggest and strongest of all the Tendons, is inserted.— It is doubly joined with the *Astragalus*, and also by a flat Head with the *Os Cuboides*.

The


Sarcology
Splanchnology

The Third is the Os SCAPHOIDES, (T) or *Naviculare*, from its Resemblance to a little Boat; it has a pretty large Cavity that goes from one of its Ends to the other, for the Insertion of the large Head of the *Astragalus*, which joins them both strongly together; and to the three Protuberances found on the other Side of this Cavity, the three last Bones of the *Tarsus* are articulated.

The Os CUBOIDES (V) is the fourth Bone of the *Tarsus*, situated before the *Calcaneum*, unto which it is joined by an unequal Surface, and articulated with the seventh Bone of the *Tarsus*, whose fifth, sixth, and seventh Bone are called *Cuneiformia*, because they have the Figure of a Wedge that cleaves Wood.— These three Bones, although the same in Figure, differ moreover in Magnitude; for one of them is greater than the rest, another of a middle Size, and the other is the least of all.— They are all three articulated with the *Os Scaphoides* by one of their Ends; and by the other they do one of them support one of the Bones of the *Metatarsus*, the two others being supported by the *Os Cuboides*.

The METATARSUS, (Y) or Instep, consists of five Bones, situated Sideways to one another, for the sustaining each of them a Toe. These Bones are compactly join'd together at that End where they are united with the *Tarsus*; but they separate from one another in their Middle for the Insertion of the *Musculi interossei*. They are convex outwardly and hollow within, for the better Reception of the Tendons of the Muscles.—— They are long and slender, and end with a little Head, which entring the Cavity at the End of the first Phalanx of the Toes, unite them together by *Arthrodia*.—— They differ in Magnitude, like the Bones of the *Tarsus*, and have at their slendereſt End a Head covered with a little Cartilage for the freer Motion of the Toes.

There are fourteen Bones of the *Toes*, (Z) two to the great Toe, and three for each of the four others, distributed into three *Phalanxes*, or Ranks, as those of the Fingers: Those of the first Order or Rank, are greater than those of the Second; those of the Second are less, and so of the rest.—— They are of the same Figure as those of the Hand, convex without, and concave within; and are articulated with the *Metatarsus*, by *Arthrodia*, and by *Ginglimus* with one another.

There are also found in the Joints of the Bones, of the Hands and Feet, some very small Bones, of the Bigness of a Pea, flat on their Inside, and round without, called *Ossa Sesamoidea*. (aa) Their Number is uncertain, although we commonly count twelve of them in each Hand, and the same in each Foot; those Bones, small as they are, not only serve to strengthen the Joints, and hinder Luxation, but their principal Use is to serve for Pulleys to the Tendons of the Muscles which go to the Fingers, in order to keep them in their due Places, and hinder them from falling upon the Joint.

Here ends our *Osteology*, and the *Sarcology* begins; which is the second, and most essential, and most curious Part of *Anatomy*, as treating of the Flesh, and other the soft and tender Parts contained in the human Body.

SARCOLOGY is divided into three Parts, *viz.* into *Splanchnology*, *Myology* and *Angiology*. The First gives an Account of all the internal Parts, and especially of the *Viscera*; the Second of the Muscles, and the Third of the Vessels; such as the Nerves, the Arteries, and the lymphatick Vessels.

In order to demonstrate well all these Parts, I must divide the human Body (which we all consider as the Subject of *Anatomy*) into the Trunk, and the Limbs; and again subdivide the Trunk into three Parts or principal Regions, which are the Head, the Breast, and the *Venter*, or *Abdomen*; beginning our anatomical Dissertations on the the *contained Parts*, with the *Abdomen*.

The ABDOMEN is all that Cavity, extended from the *Diaphragma* unto the *Os Pubis*.——Its Substance is soft and fleshy before, and can, therefore, extend, and contract itself freely both for easier Concoction, and for the Expulsion of Excrements, as well as to make room for the Extension of the Matrix, in a Pregnancy. —It is terminated above by the *Diaphragma*; below and before by the *Os Pubis*; on the Sides by the Hipbones, and behind by the *Vertebræ* of the Lines and the *Os Sacrum*.

The *Abdomen*, is also subdivided into three Regions or Cavities; the Uppermost, called the *Epigastric*; commences from the *Diaphragm* and *Cartilago Xiphoides*, and terminates two Fingers breadth above the Navel; the Second, called the Umbilical, begins where the former ends, and terminates two Fingers breadth below the Navel; the Third, called the *Hypogastric*, descends as low as the *Os Pubis*.—— Each of these three Regions, is subdivided into three Parts, a Middle and two lateral Parts; the middle Part of the *Epigastric*, is called *Epigastrium*, and the two Sides *Hypochondria*, of which one is the Right, and t'other the Left *Hypochondrium*. (AA)

The EPIGASTRIUM incloses the small Lobe of the Liver and a Part of the Stomach with its inferior Orifice, and also the middle Part of the *Colon*. The great *Hypochondrium* contains the great Lobe of the Liver, and the Bladder of Gall; and the left contains the greatest Part of the Stomach, and the Spleen.

The middle Part of the umbilical Region (BB) is called the *Navel*; its two Sides are the two Loins; the *Navel* contains the greatest Part of the *Intestinum Jejunium*, and the *Mesentery*; the right Loin contains the right Kidney, the *Intestinum Cæcum*, and part of the *Jejunium*, and *Colon*; and the left Loin the left Kidney, and some Part of the *Colon* and *Jejunium*.

The Middle of the *Hypogastric* Region (CC) is called the *Hypogastrium*; its Sides are the *Ilia*, or Flanks, and under it we find the *Rectum*, the Bladder, and the *Matrix* in Women.

The lower Part of the *Hypogastric* (DD) is likewise divided into three, the Middle, or that of the *Pubis*, and two lateral, called the Groins——the *Pubis* begins to be covered with Hairs at fourteen Years old.—— The Groins give Passage to the *Spermatic* Vessels.

The posterior Part of the *Venter* extends from the last Rib unto the End of the *Os Sacrum*; and is divided into a superior Part called the Loins, and an inferior, called *Nates*, the Buttocks, between which there is a Fissure, and a Foramen called *Anus*, which is the Sink of the grosser Excrements.— The *Venter*, or Belly, is that Cavity which contains the Parts which serve for Nourishment, and for Generation. It is composed of two Kinds of Parts, whereof the one external, and containing, and the others internal and contained.— The first of these are common or proper; the common Parts containing, are the Teguments, as the *Epidermis* or *Cuticula*, the *Cutis* or Skin, and the Fat. The Proper are, the Muscles of the *Abdomen*, and the *Peritonæum*.

The EPIDERMIS (EE) is a very thin Membrane, and strongly fasten'd to the Skin which it covers, and is as thin as the Peel of an Onion.— The *Epidermis* is produced, after the same Manner with the other Parts, it being found in Fœtus's of all Ages in the Womb; it has neither Veins, Arteries, nor Nerves, whence it is insensible.

The *Epidermis* has the same Figure, and the same Magnitude as the Skin. In Burns it separates from the Skin, but it regenerates very easily without leaving a Mark afterwards.— Let an Anatomist be ever so skilful or expert, he can never dissect this *Cuticula*, unless he does it by burning a Part with the Flame of a Candle; it is this which rises in large Pustules when Vesicatories are applied to some Part of the Body; and when it separates from the Skin without an outward Cause, it is a Sign that the Part has a Disposition to Mortification or Gangrene.

The Uses of the *Epidermis* are to cover the Skin, to render it smoother and equal, to hinder the Evacuation of Humours from the Extremities of the Vessels which terminate to it, and blunt the Sense of touching,

touching, which could not be made upon the Skin without Pain, if the Impreſſion of Objects were to be made immediately upon the Fibres, and upon the Nerves, which end and are inſerted into the Skin itſelf.

The SKIN (FF) is the ſecond Tegument, and the greateſt Membrane of the Body, very thick, eſpecially in the Back, at the Kidnies, and in the Limbs; very thin in the Face, and exceedingly ſo in the Lips.——It has its true Principle, in common, with all the other Parts.

The *Skin* is formed of Fibres, intertwiſted together like unto Nets, which make its Thickneſs; under theſe Nets, thouſands of ſmall Glands are placed. A ſmall Branch of an Artery comes into every one of theſe Glands; out of them a ſmall Vein, and a lymphatick Veſſel going from the Gland, which paſſing through theſe Nets, terminate at the Superficies of the Skin.

The Knowledge, or rather Diſcovery of this Structure, has taught us in what Manner Sweating is performed; thereby we find, that a ſufficient Quantity of Blood being brought hither by ſo many Arteries, as there are Glandules in it, is carried back again by ſo many little Veins; and that whilſt it is paſſing through the Pores of the Glandules, a Serum is filtrated from it, which coming through the excretory Veſſel, furniſhes Matter for Sweat.

There is alſo another Sort of Evacuation through the Skin, which we call inſenſible Tranſpiration, no leſs advantageous than ſweating; becauſe, being made without Intermiſſion, it purifies and cools the Blood, by an abſolutely neceſſary Diſſipation thereof, and preſerves the Skin moiſt, as well as the *Epidermis*, which, without it, would become too dry, and hurtful to the Senſe of Touching.

The Skin is a Membrane that can extend or contract itſelf eaſily, as it is evident, in Women with Child, in hydropical Perſons, and in ſuch as grow exceeding big, and fat.——Throughout all its Extent, it adheres to the Parts which it touches; but more in the Palm of the Hand, and the Sole of the Foot, than in the Forehead or Belly.——If the Skin happens to ſuffer a Solution of Continuity in any Part, it never re-unites without making a Scar, which remains afterwards all the Life.——The Skin of a Man, is all over covered with Hairs, that of a Woman leſs ſo.——We don't perceive eaſily thoſe on the Surface of the Skin; but however, they are more or leſs diſcovered, as they are more of a fair, or a dark Colour.——Thoſe of the Head, Arm-pits, Face, and of the *Pudenda* are always very apparent.

Although White is the natural Colour of the Skin, all Men have it not equally ſo; the Colour often changes, according to the Temper of the Body, and to the predominant Humour. Fat People have it whiter, becauſe the Fat which lies under the Skin, gives them a white Luſtre. Lean Perſons, on the contrary, have it ruddier, becauſe the Fleſh, which immediately touches it, gives them that Colour.

The *Skin* has three very conſiderable Uſes; the firſt is to cover all the Parts of the Body; the ſecond is, to be the Organ of Touching; and the third is, to ſerve for an Emunctory to the *Humours*, which paſs forth by Sweat and Tranſpiration.

The FAT (G) is the third of the common Teguments,——It is a white Body of a middle Conſiſtence, formed of the unctuous and oily Parts of the Blood, and condenſed by a certain Degree of Heat, which not being ſtrong enough to diſſolve it, cannot be a Hindrance to its Production.——This oily Matter is incloſed in little Bags, called *Cellulæ Adipoſæ*, adhering to the outward Surface of a Membrane, called *Adipoſa*, all over the Body, except on the Forehead, Eye-lids, *Penis* and *Scrotum*.——In ſome Subjects, the *Cellulæ* are ſo full and diſtended, that the Fat is above an Inch thick; in others they are almoſt flat; and in emaciated Subjects, inſtead of *Fat*, we find a Sort of flaccid, tranſparent Subſtance, which is nothing but the bare Membrane.——This Sort of *Fat*, is what the Phyſicians call *Pinguedo*; but there is a ſecond Sort of *Fat*, called *Adeps*, *Sæbum*, *Sevum*, and ſometimes *Axungia*, which is whiter, harder, more brittle, and leſs eaſy to liquify than the former.

The *Fat* of both Kinds ſerves as a natural Balſam to preſerve the Body; and by mixing with, and enveloping the Salts, wherewith the Blood and *Serum* are highly ſaturated, keeps them from fretting and coroding the Parts of the Body, through which they paſs.

The *Fat* has alſo ſeveral other Uſes; that which inveſts the whole Body keeps it warm, whereof thoſe who are fat, are very little ſenſible of Cold; that about the Heart ſerves to keep it moiſt, and pliant in its Motions; that at the Kidnies, preſerves their *Pelvis* from being hurt by the Salts of the Urine; and that found near the Joints, facilitate their Motion, by its Lubricity.——For which Reaſon, there is Abundance of it found in Places, where the Motions are great and violent, as at the Heart, and the Eye.

It is thought, likewiſe, and not without Probability, that the *Fat* makes a conſiderable Part of the Nouriſhment of our Body; whence the fatteſt Perſons falling into an *Aſtrophy*, gradually loſe all their *Fat*, which is always quite expended in ſuch Caſes, before the Diſeaſe becomes fatal.

Too much *Fat* is uſually attended with Heavineſs, and Drowſineſs, not only from the Unwieldineſs of an overgrown Body, nor from the ſtuffing the Cavities and *Thorax* alone, which ſometimes obſtructs the Expanſion of the *Diaphragm* and Lungs, and produces a *Diſpnœa*, or an *Orthropnœa*; but it is likewiſe probable, that the Abundance of fatty, or oily Particles returned into the Blood, and implicating the more ſubtle and active Parts, may hinder the neceſſary Secretions in the Brain.

There are ten Muſcles which poſſeſs all the anterior Parts of the *Abdomen*; which are the four oblique, two tranſverſal, two *recti*, and two piramidal.——They all receive their Names from their Situation, and from the Order and Diſpoſition of their Fibres.——By Means of thoſe Muſcles, the *Abdomen* can expand and contract itſelf.

Of the four oblique *Muſcles*, there are two of them deſcending and external, and two aſcending and internal: Thoſe which appear firſt, after the raiſing of the Teguments, are the obliquely deſcending (L) ſo called, becauſe their Fibres deſcend obliquely from above downwards; they are alſo called external, to diſtinguiſh them from thoſe placed under them; and great *Obliqui*, becauſe they exceed the others oblique in Magnitude.——Their Figure is triangular.

They proceed by Digitation, from the *Serratus Major*, *i. e.* from the ſixth and ſeventh of the true Ribs, from all the baſtard Ribs, and from the Edge of the tranſverſe Proceſs of the *Vertebræ* of the Loins; are inſerted in the external Part of the *Os Illium*, and of the *Os Pubis*, and end with a large and ſtrong *Aponeuroſis* in the *Linea Alba*.——Theſe Muſcles are indented with the *Serrati Majores*, which are Muſcles of the *Thorax*, by five or ſix Digitations, each whereof receives a Nerve from the Interſtices of the Ribs.

The obliquely aſcending *Muſcles* (M) ſo called, becauſe their Fibres riſe from below, upwards, are ſituated juſt under the former, and are a great deal leſs.——They proceed from the ſuperior Part of the *Os Pubis*, and terminate with a large double Tendon in the *Linea Alba*; the upper Part whereof creeping over the *Rectus*, and the other creeping under it, and joining together at the *Linea Alba*, do, as it were, ſheath the *Rectus*.

The *Tranſverſal* (N) are ſituated under the oblique, placed upon the *Peritonæum*, proceed from the Proceſſes of the *Vertebræ* of the Loins, are inſerted in the internal Part of the *Os Illium*, and of the Cartilage of the lower Ribs, and paſſing under the *Rectus*, terminate in the *Linea Alba*, by a large *Aponeuroſis*.——They are perforated in their middle Part to give Paſſage to the umbilical Veſſels; and at their lower Part for the

Communication in Men, of the spermatick Vessels with the Testicles; and so in Women the round Ligaments of the *Matrix*, which proceed to make their Insertion in the Thighs.

The fourth Pair of the *Muscles* of the *Abdomen* are the *Recti*, (O) which arise from the *Sternum*, and the Extremity of the last two Ribs, and go strait down to the fore Part of the *Abdomen*, to be inserted in the *Os Pubis*.— They have three, four, sometimes more tendinous Coarctations of their fleshy Fibres, which divide them, as it were, into so many distinct Muscles.

The *Recti*, or *Rectus*, has Veins and Arteries which creep on its Inside from the Mamillary and Epigastric Vessels, which communicate together that the Blood may return by the mamillary Veins, when the Passage is stopped by the Epigastric which are compressed in Women with Child.

The two *Piramidal Vessels* (P) of the *Abdomen*, lie upon the lower Tendons of the *Recti*, proceed from the upper and internal Part of the *Os Pubis*, and terminate in a Point in the *Linea Alba*, three or four Fingers Breadth above the *Os Pubis*, and sometimes reach the Navel.

Fallopius, *Riolanus*, and *Gelee*, pretend that those Muscles serve to fortify the Tendons of the *Recti*; That they help the Excretion of the Urine, and contribute to the Erection of the *Penis*; though their sole Function is to raise the *Peritonæum*, and hinder the Region of the Bladder where they are inserted from too much Compression, that one be not obliged, or rather forced to make Water as often as the other Muscles compress the internal Parts.

The LINEA ALBA (Q) is a Concourse of all the Aponeuroses of the Muscles, I have heretofore-mentioned; it is called *Linea*, a Line, because it is strait like a Line, and white, because there's no Flesh in it.— It extends from the *Cartilago Xiphoides* unto the *Os Pubis*. It is straiter below the Navel than above it, and divides the Muscles of the right Side from those on the left.

The PERITONÆUM (aaaa) is a thin soft Membrane, covering and containing all the *Viscera* of the *Abdomen*.—— The Figure and Size of the *Peritonæum* answer to those of the *Abdomen*, which it lines throughout; its internal Surface is smooth, and lined with an unctuous Humour, serving to prevent its wounding the Intestines, and other Parts it touches, as well as to lubricate and facilitate their Motion; when the Glands which furnish it are obstructed, the *Peritonæum* grows thick, as is frequently found in Dropsies.—— It's external Surface is fibrous and unequal, that it may adhere more firmly to the Muscles of the *Abdomen*, *Linea Alba*, *Ossa Pubis*, *Ischium*, *Ilium*, *Sacrum*, and the *Vertebræ Lumbares*, to which it is fastened; and from the last whereof many suppose it to have its Origin.—— It is also connected to the inferior or convex Surface of the Liver, which it suspends by a strong Ligament, called *Suspensorium Hepatis*.

The *Peritonæum* is double every-where, but most apparently so from the Navel to the *Os Pubis*, and near the *Lumbar Vertebræ*, as appears not only from its extraordinary Thickness in both, but from its spontaneous parting in the latter, to receive the Kidneys.— It is perforated in the upper Part to give Passage to the *Œsophagus*, *Aorta*, and *Cava*; in the under for the Fundament, the Neck of the *Matrix*, and the Vessels that go to the Thighs; and in the Fore-Part to give Passage to the umbilical Vessels.

Its exterior Coat has two Processes, which in Men fall down into the *Scrotum*, wrap up the spermatick Vessels, and dilating make the *Tunica Vaginalis* of the Testicles; in Women they form a Cover for the round Ligament of the Womb.

The *Peritonæum* receives Veins and Arteries from the *Mammaria*, *Diaphragmatica*, *Epigastricæ*, *Sacræ*, and *Lumbares*. Nerves from the *Os Sacrum* and Loins. *Rudbeckius* pretends to have likewise discovered Lymphaticks, which being scarce visible, are not much taken Notice of.

In morbid Cases great Quantities of *Serum* have been found between the Duplicatures of this Membrane, when there was none in the Cavity of the *Abdomen*.

The Use of the *Peritonæum* is to contain and keep in their Place the *Viscera* of the *Abdomen*; this is so manifest, that whenever this Membrane happens to be broken, or extraordinarily dilated, some of the Parts are apt to fall down, and to form those Tumors called *Hernias* or *Ruptures*.

The NAVEL, (B) is a *Nodus* formed by the Reunion of the umbilical Vessels, and cut so soon as the Infant is born; called also *Umbilicus* from *Umbo*, the Middle, because situated not only in the Middle of the *Venter*, but also in the Middle of the Body.

In a *Fœtus* the *Navel* is a String of a *French* Ell long, or thereabouts, that goes from the After-Birth to the Belly of the *Fœtus*, and then incloses four Vessels, which are a Vein, two Arteries, and the *Urachus*.— This String serves to conduct these Vessels, which would have been too weak of themselves for so long a Passage, and not been able to resist the Motions of the Infant; its Length is of Use to the Infant, that he may remove conveniently to and fro in the Womb, and that both the Infant and the After-Birth may come away one after another in the Delivery. So soon as the Infant is born, this String is to be tied within two Fingers Breadth of his Belly, and then cut above the Ligature. Nature afterwards rids itself of what remains of it, so that there remains only the *Nodus* or Knot, we have heretofore mentioned.—— The four umbilical Vessels are annexed to it; the Vein ascends upwards, and the Arteries and *Urachus* descend; and are all four inserted between the Muscles and the *Peritonæum*.

My Opinion on the Use of the *umbilical Vessels* (CDD) is, that the Arteries of the Mother carry a certain Quantity of Blood into the *Placenta*, which being therein dispersed, is received by the Branches of the umbilical Vein, which carries it into the *Vena Porta*, to be filtrated through the Substance of the Liver in the *Fœtus*, before it is to enter into the *Vena Cava*, that carries it into the right Ventricle of the Heart, from whence it passes into the Left through the *Foramen Botalli*, in order to be distributed, afterwards, into all the Parts of the Body by Means of the *Arteries*. The Superfluity of this Blood is brought by the two umbilical Arteries to the After-birth, where being dispersed, it is received by the Veins of the Mother spread therein, and which carries it into the great Veins to circulate with the whole Mass of Blood; and thus there is made a continual Circulation of the Blood of the Mother to the Infant, and of that of the Infant to the Mother.

The EPIPLOON (FF) is a Membrane situated under the *Peritonæum*, which floats upon the Intestines, and follows their sinuous Windings; it extends from the Bottom of the Stomach unto the *Navel*, where it commonly ends; but when it happens to descend unto the lower Region of the *Hypogastrium*, and even to lapse into the *Scrotum*, then it causes the *Hernia Epiploceles*; and when in Women it happens to slip between the *Matrix* and the Bladder, it makes a Compression on the Orifice of the *Uterus*, and thereby, if we believe *Hyppocrates*, hinders Generation.

The Figure of the *Epiploon* is like a Fisher's Net.— It has a great Cavity in its middle Part, formed by two Membranes, one external or anterior, annexed to the Bottom of the Stomach, and to the Spleen; and the other internal and posterior, annexed to the *Colon*, and to the Back, under the Diaphragm.—— The *Epiploon* has small Vessels of *Fat*, as well as the *Membrana Adiposa*, and which terminate in Globules; this Fat often melts in those that have a Hectick Fever.

The *Epiploon*, when it comes to the Air, corrupts soon; wherefore in Wounds of the *Abdomen* we are obliged to cut off any such Part of it, as has had any Irruption outwards. There are likewise some Distem-

pers which ſpoils and corrupts it, as it is eaſy to obſerve in ſcorbutick, pthiſical, and hypochondraical Perſons.—— It has more Veſſels than any other Membrane, in Proportion to its Magnitude; for it receives ſmall Nerves from the intercoſtal Branches of the eighth Pair, many Arteries from the *Cœliack*, and many Veins which diſcharge themſelves into the *Porta*.

The Uſes attributed to the *Epiploon* are to warm the Stomach, and thereby help the Digeſtion; to cover the Inteſtines; and to conduct the ſplenick Branch, and the other Veſſels which go to the Stomach, the *Duodenum*, or the Colon. Though for my Part I believe that it does more Hurt by the Ruptures it cauſes, than by its ſuppoſed Services.

From the Mouth unto the *Anus*, there is a continued and a very long Body, whoſe Beginning gives an Entrance to the Nouriſhment; the Middle receives, and preſerves it; and whoſe End gives a Diſcharge to its Excrements. The Part from the Mouth unto the Diaphragm is called *Œſophagus*, or Gullet; the next to it, Stomach; and the next, Inteſtines, or the Guts; and the Membrane which retains them all is the *Meſentery*.

Leaving the *Aſophagus* till I come to the Breaſt, I'll begin with the STOMACH, (GG) which is an organical Part, deſtined to receive the Meats after Deglution, and the principal Inſtrument of Chylification, ſituated in the *Epigaſtrium* immediately under the Diaphragm, between the Liver and the Spleen, and of a round and oblong Figure, reſembling a Bag-pipe, particularly when the *Œſophagus* is left with it and a Part of the *Duodenum*.—— Its external Surface is ſmooth and whitiſh, and the internal wrinkled and reddiſh; it is annexed above to the Diaphragm, below to the *Epiploon*, on the Right Side to the *Duodenum*, and on the Left to the Spleen.

The Stomach conſiſts of four Membranes or Coats; the Firſt and inmoſt is formed of ſhort Fibres, which ſtand perpendicular upon the Fibres of the next Coat, and are plainly to be ſeen towards the *Pylorus*; when the Stomach is diſtended with Meat, theſe Fibres become thick and ſhort, whilſt they endeavour to reſtore themſelves by their natural Elaſticity; they contract the Cavity of the Stomach for the Attrition and Expulſion of the Aliments.——This Coat is much larger than the reſt, being full of Plaits and Wrinkles, and chiefly about the *Pylorus*: Theſe Plaits retard the Chyle that it runs not out of the Stomach before it be ſufficiently digeſted.——In this Coat there are alſo a great Number of ſmall Glands which ſeparate a Liquor, which beſmears all the Cavity of the Stomach, and helps the Concoction of the Aliments; for which Reaſon this Coat is called the *Tunica Glanduloſa*.

The Second is much finer and thinner; it is altogether nervous; is of an exquiſite Senſe, and is called *Nervoſa*.

The Third is *Muſcular*, being made of ſtreight and circular Fibres: The ſtreight run upon the upper Part of the Stomach, between its ſuperior and inferior Orifices; and the circular run obliquely from the upper Part of the Stomach to the Bottom.——Of theſe the innermoſt deſcend towards the right Side, and the outermoſt towards the Left; ſo that by their Action both Ends of the Stomach are drawn towards its Middle, and the whole is equally contracted: By their Contraction and continual Motion, the Attrition and Digeſtion of the Aliments is in great Meaſure performed.

The fourth *Tunic* is common, and comes from the *Peritonæum*.

The Stomach has two Orifices, the one Superior, and the other Inferior; the Superior (M) one, called the Mouth of the Stomach, is on the left Side, and begins where the *Œſophagus* ends; it is ſituated over againſt the eleventh *Vertebra* of the Back, and cloſely ſhut up by Abundance of fleſhy and circular Fibres, at the Time when it receives no Nouriſhment, a Thing very neceſſary, not only for the better Concoction, but to hinder the Aliments from being caſt up again into the Mouth, and alſo hinder the Fumes, cauſed by Digeſtion, from being offenſive.

The inferior (N) Orifice, called *Pylorus*, is on the right Side; which although called the inferior Orifice, 'tis only with reſpect to the other placed a little higher, and not with reſpect to the Fund or Bottom of the Stomach, ſince both Orifices are almoſt equally removed from this.——The *Pylorus* is a little bent, very narrow, becauſe full of tranſverſe Fibres, and is begirt with a thick Circle or a *Sphincter*, that ſhuts it.

The Stomach ſends Veins to the *Porta*, and branches the *Gaſtrepiploica*, accompanied with others of the *Cœliac*, all lying immediately under the Fourth Coat.

The eighth Pair of Nerves give two conſiderable Branches to the Stomach (PP) which are ſpread much about the upper Orifice; by which it is rendered very ſenſible: Whence alſo proceeds the great Sympathy betwixt the Stomach, Head, and Heart; on account whereof *Van Helmont* thought that the Soul had its Seat in the upper Orifice of the Stomach.

The Uſe of the Stomach is for the Concoction of the Aliments, and converts them into Chyle. This Concoction or Digeſtion, is performed in the following Manner.

The internal Coat of the Stomach, being all over bedeck'd (as we have already obſerved) with Glandules, which continually tranſmit into it an acid Juice, the Aliments, after having been pounded in the Mouth, and penetrated with the *Saliva*, which ſprings from the *Parotide*, and maxillary Glandules, are conducted through the *Œſophagus* into the Stomach, and either by the Help of the acid Juice both of that they find in it, and of that which diſtils into it without Intermiſſion, they become more liquid; then this Liquor not being able to riſe upwards through the *Œſophagus*, by reaſon of its Situation, and the *Diaphragma* making Compreſſion upon the Stomach, does gently run through the *Pylorus* into the Inteſtines, where it comes to greater Perfection by the Mixture of the Bilis, and Pancreatick Juice.

The INTESTINES, (QQ) or Guts, are long, round, hollow, and continued Bodies from the *Pylorus* unto the *Anus*; ſituated under the *Epiploon* in the *Abdomen*, whoſe whole Capacity they almoſt fill.——They are knit or annexed to the Back by the *Meſentery*, which ties them together; ſo that the *Tenuia Inteſtina* are in the Middle of the *Abdomen*, towards the *Umbilical* Region, and the *Craſſa* in the Circumference.

The *Inteſtines* ſeem to be nothing but a Continuation of the Stomach, as conſiſting of the ſame Number of Coats, and fabricated in the ſame Manner. They are, when ſeparated from the *Meſentery*, of a very great Length; ordinarily about ſix times as long as the Perſon's Height, whoſe they were; and though they ſeem to be but one continued Channel, or *Fiſtula*, yet becauſe in ſeveral Parts, their Magnitude, Figure, and Thickneſs are different, they are generally divided into the Thick and Small, as we have done it already; and theſe again are each of them ſubdivided into three. The three Small are called *Duodenum*, *Jejunum*, and *Ilium*; and the Thick, *Cæcum*, *Colon*, and *Rectum*.

They have all of them in common, a Kind of vermicular Motion, which, beginning at the Stomach, is propagated downwards, and is called the *Periſtaltick* Motion; to facilitate which, they are generally lubricated with a great deal of Fat, eſpecially the thick ones, whoſe Surface being ſomewhat uneven, and the Contents leſs fluid than thoſe of the ſmall, they need ſomewhat more to make them ſlide eaſy.

The firſt of the *Inteſtina Tenuia*, or ſmall Guts, is called *Duodenum*, and reaches from the right Orifice of the Stomach, as far as the *Vertebræ* of the Back, on the left Side, where it ends, at the firſt Angle made by the Inteſtines, which is about twelve Inches, from which Meaſure, it ſeems to have taken its Name.——Into this Gut, the *Meatus Cholodocus*, and

Ductus

Ductus Pancreaticus are inserted; whereunto each of them discharges its Juice, for the second Preparation of the Chyle.

The next *Intestine* is the *Jejunum*, so called, because it is generally found more empty than the rest; which may be occasioned, partly by the Fluidity of the Chyle, which is greater in this Intestine, than in any of those that follow it; and partly by its Capacity, being somewhat larger than that of the *Duodenum*, and therefore gives a freer Passage, and, perhaps also the Irretation of this Gut, through the Acrimony of the Bile discharged into the Intestines, a little before the Beginning of this Gut, may contribute something towards accelerating the Passage of the Contents. However it may seem sufficient, that through the great Number of Lacteals, with which this Gut abounds more than any other, the Descent of the Contents, which are here deprived of their most fluid Parts, should in the rest be more sluggish, by Reason of their great Consistence.——This Intestine possesses, almost the whole umbilical Region; Mr. *Dionis* says, that its Length is an Ell and an Half, *Paris* Measure.

The third of the small Intestines, is the *Ilium*; it possesses almost all below the Navel, and extends, by its Circumvolutions, towards the *Ilia* on both Sides; from whence it takes its Name. It begins immediately where the *Jejunum* ends, and terminates at the *Cæcum*.—It has fewer *Venæ Lacteæ* than the *Jejunum*, and therefore is always fuller.—This *Gut* not being so fast tied to the Neighbouring Parts, as the *Colon*, and the *Cæcum*, often fall into the *Scrotum*, and makes the *Hernia Enterocelis*; it is also in this Gut, that the *Volvulus*, or *Miserere* happen, called *Iliaca Passio*, occasioned by its *antiperistaltick* Motion.

The first of the *Intestina Crassa*, is called *Cæcum*, which has a lateral Insertion into the upper End of the *Colon*, and is not perforated at its other Extremity; but hangs to it like the Finger of a Glove, and is about three or four Inches long.—The true Use of this Part is not yet determined; *Bartholin* pretends that the Name of *Cæcum* is given to it, because its Use is but blindly known, and some late Anatomists have thought, that that very Name was mistaken, not allowing this to be the *Cæcum* of the Antients, which they imagined to be that thick globous Part of the *Colon*, which is immediately appended to the *Ilium*; and therefore they have given this Part the Name of *Appendicula Vermiformis*.—This *Cæcum* or Appendix, is proportionably bigger in Infants than Adults, and in many other Animals, even smaller than in Men; and is at the unperforated Extremity, slightly connected to the right Kidney.

The next of the thick Intestines, is the *Colon*, the largest of them all; it begins at the End of the *Cæcum* towards the right Kidney, unto which it is annexed, and ascending up to the concave Part of the Liver, it touches the Bladder of *Bile*, which tinges it with its yellow Colour in this Place; from thence it passes along the inferior Part of the Stomach, and fastens to the Spleen and to the Left Kidney; from whence it descends like an S, unto a little above the *Os Sacrum*, and terminates at the *Rectum*, insomuch that it encompasses all the *Abdomen*.——At the Entrance of the *Ilium* into this *Gut*, is placed a Valve formed out of the Production of the inward Coat of the *Ilium*, which, like the Finger of a Glove, when its Extremity is cut off, hangs loose in the Cavity of the *Colon*; by which Means it stops the Return of the Excrements, though sometimes, as in Inversions of the *Peristaltic* Motion, it proves not sufficient for that Use.——It has a great many *Cellulæ*, or, as it were, distinct Cavities, framed by a Coarctation of the Gut by two Ligaments or Bundles of membranous fleshy Fibres, about half a Finger broad, each running on either Side the Gut opposite to each other, the whole Length of it; and, as it were, girding it in at certain Distances, thereby making it resemble a Glass Incorporator used in mixing Oil and Vinegar.

The last of the Intestines is the *Rectum*, which reaches from the *Os Sacrum* to the *Anus*, and is plain, without Cells. It is fast tied to the *Ossa*, *Sacrum*, and *Coccygis*, by Means of the *Peritonæum*, in Men to the Neck of the Bladder of Urine; and in Women to the *Vagina Uteri*, to which it is strongly connected by a membranous Substance. That Substance of the *Vagina* and Intestine is hardly distinguishable from one another. The Length of this Gut is ordinarily about a Hand's Breadth and an half, and its Capacity about the Thickness of three Fingers; its lower End the *Anus* is furnished with three Muscles, *viz.* the *Sphincter Ani*, and the two *Levatores Ani*.

The *Sphincter Ani*, is like a Ring; its Bigness is two Fingers breadth, annexed, before, to the *Penis* in Men, and to the Neck of the *Matrix* in Women; behind, it is fastened to the *Coccyx*, and laterally, to the Ligaments of the *Os Sacrum*, and to the Hips; it serves to open and shut the *Anus* according to our Will.—The *Levatores Ani* proceed from the inferior and lateral Part of the *Os Ischium*, and insert in the *Sphincter* of the *Anus* to lift it up again, after the Evacuation of Excrements is over.

The *Intestines* in general are furnished with Blood from the *Mesenteric* Arteries, which is returned by the *Mesaraic* Veins; but the *Duodenum* receives a Branch from the *Cœliac*, which is called *Duodena*; to which answers a Vein of the same Name, that likewise returns the Blood to the *Porta*—the *Rectum* receives others called *Hæmorrhoids*; the Internal from the inferior *Mesenteric*, and the External from the *Hypogastric*, with Veins corresponding of the same Name, that also go to the *Porta*.—These Vessels spread the Intestines with Abundance of Ramifications, and are frequently diversified in several Subjects of the same Species; much less are they to be depended upon, for an uniform Appearance in Animals of different Kinds. —The Nerves of the *Intestines* come, some of them, from those of the Stomach, and some from the great *Mesenteric Plexus*, which distributes Branches to all the Intestines.

The MESENTERY (V) is a double Membrane situated in the Middle of the *Abdomen*, and of a Figure near unto Circular: If the Elongation of the *Colon*, and the *Rectum* be excepted in it, it has about four Fingers breadth Diameter, and three *Paris* Ells, in its Circumference, round about which the Intestines are folded. ——The *Mesentery* contains a vast Number of lateral Veins, which carry the Chyle from the Intestines to the Glands, which are abundantly more in Number in its Center, than in its Circumference.——From these Glandules the Chyle goes by other lacteal Veins, into the common Receptacle, and from thence into the *Ductus Thoracicus*, in order to fall into the left axillary Vein.—The other Vessels of the *Mesentery* are the *Lymphaticks*, which distil their Limpha into the Receptacle, in order to make the Chyle more fluid.

Fat is collected into the *Mesentery* as in the *Epiploon*, from an oily and sulphurous Blood, which evaporates from the Vessels, and retained there by the Thickness of the Membranes. This Fat is to preserve the natural Heat of these Parts, and to moisten the *Venæ Lacteæ*, which having only a very thin Membrane, and being filled only in the Time of the Distribution of the Chyle, would otherwise grow dry.—The Glandules (X) of the *Mesentery*, have each of them a little Artery, which bring Blood to them, a little Vein which carries back the Blood, and an excretory *Ductus*, which discharges into the Guts what has been filtrated through these Glandules.

The Use of the *Mesentery* is to tie the Intestines together unto the *Vertebræ Lumbares*, and to hinder any Disorder which could happen in their Circumvolutions; and its double Membrane is to shelter from all Dangers the Vessels which pass between them to the Intestines.——The *Mesentery* receives its Nerves from the *Vertebræ Lumbares*, and from the intercostal Branch. They are so interlaced together in the Middle of the *Mesentery*, that they form there a *Plexus*, out of which come abundance of nervous Ligaments,

as fine as Hairs, which overſpread the Membranes of the Inteſtines.

The Arteries incloſed in the Duplicature of the Membranes of the *Meſentery*, come from the ſuperior and inferior Meſenterick Arteries, which are two great Branches that come from the Trunk of the *Aorta*, and terminate in all the Inteſtines.——— All the Veins which run through the *Meſentery* unite together as they approach its Baſis, and form larger Veins, which larger Veins form a Trunk called the Meſenterick Vein, which joining with another, called the Splenick, make together the *Vena Porta*, which has no other Uſe than that which is common to all the Veins of the Body, and which is to carry back the Blood to the Heart.

We muſt obſerve in this Place that the VENÆ LACTEÆ, (Y) which I have ſo often mentioned already, were never diſcovered 'till the Year 1622, by *Aſellius*, which is the Cauſe that the Antients have attributed Part of their moſt eſſential Functions to the *Vena Porta*.

There are two Sorts of *Venæ Lacteæ*, the one called firſt Lacteal, and the others Secondary; the firſt bring the Chyle from the Inteſtines unto the Glandules ſpread through the *Meſentery*; and the Secondary carry the Chyle from theſe ſame Glandules into the Receptacle of *Pequet*, a famous Phyſician, who in 1651 diſcovered that Receptacle placed between the two Origins of the Diaphragm, in the Place where the *Lumbares* Glandules are found. The two Branches which proceed from theſe Glandules joining together form the *Ductus Thoracicus*. This *Ductus* aſcends along with the *Aorta*, between the Ribs and the *Pleura*, and terminates by one, two, or three Branches in the left Subclavian Vein, near unto the Axillary Vein, from whence the Chyle is carried into the right Ventricle of the Heart by the deſcending *Vena Cava*. ———This Canal, or *Ductus*, and all the *Venæ Lacteæ* have *Valvules* from Place to Place, which give Admittance to the Chyle, and hinder its ever returning.

Bartholin diſcovered in 1652 the lymphatick Veſſels, which ſome of the Antients had miſtaken for the *Venæ Lacteæ*.

All theſe Veſſels are employed in the Chylification, which is perfected in the following Manner.——— After the Victuals are by the Diglution conveyed into the Stomach, (as I have already obſerved) and have been penetrated with the *Diſſolvent*, ſo as to appear as an uniform Liquor; that Liquor being ſqueezed by the Stomach equally on all Sides, is forced through the *Pylorus*, and ſo enters the Inteſtines: There it meets with two others diſſolvent, *viz.* the Bile, and the Pancreatick Juice, which finiſh the Liquefaction of the Aliments. This done, it purſues its Courſe through the Inteſtines; and mean while the ſubtileſt Part of it enters the Orifices of the firſt *Venæ Lacteæ*, and is carried unto the Glands at the *Baſis* of the *Meſentery*; then that ſame ſubtileſt Part is taken up by the ſecondary *Venæ Lacteæ*, and conveyed to *Pequet's* Receptacle, where we'll leave it 'till we conduct it to the Heart through the *Ductus Thoracicus*.

The LIVER, (aa) which is the next Part of the *Abdomen*, which falls under our Conſideration, is a large glandulous Viſcus, of a red ſanguine Colour, ſituated immediately under the Diaphragm in the right *Hypochondrium*, which it almoſt fills; and then ſtretching itſelf over the right Side of the Stomach towards the left *Hypochondrium*, reaches behind the *Cartilago Xiphoides*, growing gradually thinner and narrower.

The upper Part of the Liver is convex and perfectly ſmooth; the under concave, and ſomewhat more uneven, having four large Fiſſures; one through which the umbilical Ligament paſſes; a Second on the left Side receiving the *Pylorus*, and the Beginning of the *Duodenum*; a Third on the right Side, near the Margin in which the Gall-bladder is lodged; and the laſt in the upper Part affording a Paſſage to the *Vena Cava*.

Its Figure is ſomewhat approaching round with thin Edges, not altogether even, but notched in ſome Places.—Its Magnitude is various in different Subjects, according to the Proportion of the Body; though in a *Fœtus* it is always larger, in Proportion, than in Adults.——The Liver is faſtened by two Ligaments, the Firſt, which is the ſtrongeſt and chief Ligament, penetrates into the Subſtance of the Liver and ties it up to the *Diaphragm*.——This ſuſpenſory *Ligament* proceeds from the common *Capſula* of the *Porta*, and Gall Duct.———The other Ligament has its Origin from the external Coat of the Liver, or, which amounts to the ſame, from the *Peritonæum*, and terminates in the *Cartilago Xiphoides*.———Theſe Ligaments ſerve to keep it in its due Situation.——Some Authors give in the dry'd umbilical Vein for a third Ligament, which cannot be, ſince, thereby the Liver and the Midriff, to which 'tis tied, would be drawn downward, and ſo would hinder its Motion, eſpecially in Expiration.

The Liver has a Motion, not of itſelf, but depending on that of the Diaphragm; to which being very firmly connected, it muſt needs obey its Motion.—— The Subſtance of the Liver is vaſcular and glandulous, which latter Part is very ſoft and friable, and eaſily ſcraped off from the Veſſels, to which the Glands every-way adhere, as it were, in Bunches; which has made the Anatomiſts call the conſiderable ones, the internal Lobes of the Liver.

The Glands adhering thus to the Veſſels, and conſtituting thoſe Lobes, are wrapped up together in proper Membranes, whence this Appearance of diſtinct Lobes.—Every one of theſe Glands, according to *Malpighi*, is compoſed of ſix unequal Sides, or Faces.—They are all cloathed with their proper Membranes, and have each an excretory Duct; ſeveral of which joining together form little Trunks, which run all along with the Branches of the *Porta*; and theſe again uniting form longer Trunks always full of *Bile*, and which conſtitute the *Porus bilarius*, which being diſtributed all over the *Liver*, receives, in the foregoing Manner, the *Bile*, which is ſeparated by theſe Glands; and terminating in the *Meatus hepaticus*, and in the *Ductus Communis*, at length diſcharges that *Bile* into the *Duodenum*.——Beſides this Diſcharge by the *Porus bilarius* (ſuppoſed to be the great one) the *Liver* delivers alſo Part of its *Bile* into the Gall-bladder, by a Duct, called the *Cyſt-hepatick Duct*, firſt diſcovered by Dr. *Gliſſon*, and therefore called, alſo, *Gliſſon's Capſula*, by Means whereof there is an immediate Communication, between the *Porus bilarius*, and the Gall-bladder.

Beſides theſe Gall-veſſels, peculiar to the Liver, it has alſo Nerves, Arteries, Veins, and lymphatick ones.

It receives two Nerves from the eighth Pair, one from the ſtomachick Branch, and the other from the Intercoſtal, which not piercing through its Subſtance, but only being loſt in its Tunicles, is the Reaſon why its Senſe is not ſo quick, as the other Parts which are better ſtock'd with Nerves.

The *Arteria Cœliaca*, ſpringing from the *Aorta*, divides itſelf into two Branches, one of which repairs to the *Liver*, and the other to the *Spleen*. The firſt, which is the leaſt, detaches from it the Gaſtrick, the two *Cyſticæ*, the Epiploick, the inteſtinal, and the Gaſtro-epiploick, before it enters the Liver; where, at laſt, 'tis divided into almoſt as many ſmall Branches, as the *Vena Porta*, which is diſſeminated, with the *Cava*, through its whole Subſtance.——And here it is particularly remarkable of the *Porta*, and the *Cava*, that, contrary to the Sentiment of ſome *Anatomiſts*, they are both equally diſperſed through the whole Subſtance of the *Liver*, with this ſingle Difference, that the Branches of the *Porta* arrive there, and thoſe of the *Cava* ſet out from thence.

The lymphatick Veſſels of the Liver, proceed from the

the small conglobated Glands found under the Tunicle of its concave Part, towards the Entry of the *Vena Porta*, in the *Capsula*, of which, *Glisson* says, these Vessels are seen to enter, though they have no Communication with the *Liver*, contrary to *Bartholin*, who first discovered them, and believed that they deriv'd their Original from the *Parenchyma*.——These Vessels serve to carry the Lympha of these Glands to *Pequett's Cistern*.

Although the *Liver*, is not the Organ of Sanguification, as imagined by the Antients, it nevertheless contributes towards the refining of the Blood, which is effected in this Manner.——It is almost unquestionable, at present, that it performs the Office of an Artery, and supplies the *Liver* with Blood, by promoting the Filtration performed in the Glands, which opens into the Extremities of the biliary Vessels, the Capillaries of the *Vena Cava*, and those of the Arteries which convey Blood to them, as well as the *Vena Porta*. Now all this Blood is filtrated in such a Manner, that its Particles, which are proportioned to the Shoots of the Extremities of the biliary Vessels, flow perpetually into them; after which some of them are conveyed to the Gall-bladder, and others to the Hepatick Duct, and from thence to the *Duodenum*; whereas the other Particles of Blood, the Figure and Size of which is disproportioned to the above-mentioned Orifices, are reconducted by the Capillaries of the *Vena Cava*, into its large Trunk, and at last to the right Ventricle of the Heart; which, the better to perform, Nature has taken Care to join the Hepatick Artery to the *Vena Porta*, that its continual Pulsation may facilitate and augment the Motion of the Venous Blood; and has also placed the *Liver* under the Diaphragm; and the Muscles of the *Abdomen*, that the Concourse of the Blood may be quickened by their continual beating.

In the concave Part of the Liver, towards the lower Margin, is the GALL-BLADDER (B), which is a membranous Receptacle, in Figure, somewhat like a Pear, being about the Bigness of a Pullet's Egg; though it is sometimes larger, especially in those of a bilious Temperament.

The *Gall-bladder* adheres to the Liver, both by its Vessels, which it receives from it; and by its Membranes; whereas the External is common with that of the *Liver*.——The lower Part, which hangs out of the *Liver*, rests on the *Pylorus* of the Stomach, which it dies yellow, with the Gall transuding through its Membranes.

Its Membranes are five; an outer or common one, from the *Peritonæum*; an inner one, from the *Capsula* of the *Porta*, and *Porus biliarius*; and three proper ones.——The first, *vasculous*, consisting of white Fibres, interwove with Vessels. The second, muscular, consisting of a double Row of fleshy Fibres, the one longitudinal, the other angular; the third or inner Coat, glandulous, consisting of a great Number of Glands, like the *Crusta Villosa* of the Stomach, which separates a Mucus that lines the Inside of the *Gall-bladder*, and defends it from the Acrimony of the Bile.

The *Bladder* is usually divided into two Parts, the *Fundus*, or Bottom (C), and the *Collum*, or Neck (D), at the Orifice of which latter, is placed a Ring or Circle of muscular Fibres, which serve as a Sphincter, to constringe it, and hinder the too liberal Discharge of the Bile.

The DUCT, called *Cholidocus* (E), is a long Vessel, twice as broad as the Neck of the *Bladder*, which runs straight from the Liver, through the common Passage to the *Duodenum*, and throws the Gall directly into that Intestine.

The *Common Duct* (F), or Passage of the Bile, is formed by the Union of the *Cholidochus*, and *Porus bilarius*. It terminates obliquely, in the End of the *Duodenum*; and sometimes in the Beginning of the *Jejunum*, but very rarely in the Ventricle. It runs between the Coats of the Intestine, and cuts through the outer Coat two Fingers Breadth higher than the inner.——When any Obstruction happens in this Duct, the *Bile* not having a free Egress, flies back into the Blood, and so occasions a Jaundice, which oftentimes proves mortal.

There are two Sorts of BILE, one is subtle and fine, being conveyed by the biliary Vessel to the *Bladder*, and from thence to the Intestine; the other is of a grosser Substance, and being strained out of the Glands of the Liver, in which the Shoots of the *Vena Porta* terminate, is carried by small Ducts to the *Cholidochus*, and from thence to the common Passage, where the two Sorts meet; and so repair with joint Forces to the Intestines.

The *Bile* being a potent Dissolver, compleats in the first Intestines, the breaking and mincing of such Parts of the Aliments, as were not entirely dissolved in the Stomach, so that the *Bile* is so far from being a mere Excrement, as fancied by the Antients, that it is a necessary Liquor, without which, the Chyle would never attain to that Degree of Perfection, that is requisite for its Sanguification.

Dr. *Quincy* thinks the principal Use of both Sorts of *Bile*, called by the Moderns, *Cystic*, and *Hepatic*, is to sheath and blunt the Acids of the Chyle, entangling them with its Sulphur, so as to prevent their being sufficiently diluted by the pancreatic Juice to enter the Lacteals.

Borelli asserts, that Part of the *Bile* discharged into the Intestines, re-enters the meseraic Veins, and mixing with the Blood of the *Vena Porta*, is again percolated through the Liver; and *Boerhaave* seems of the same Opinion, which, if true, the *Bile* has its Circulation, as well as the Blood.

The *Bile* is a Juice of great Importance, with Regard to the good or ill Habitude of the Animal.—Dr. *Woodward* has traced its Effects throughout the Body, very minutely, and makes no Scruple to ascribe most of the Diseases thereof, to some Disorder of the *Bile*. This he takes to be the chief Spring in the animal Machine, and from this accounts for most of the Phœnomena of a Body, whether healthy or diseased.

Many, even among the modern Anatomists, from the small Quantity of *Bile* secerned, have been led into a Mistake, that this Secretion is not the sole End of so considerable a *Viscus*, as the Liver. Dr. *Keil* observes, that in a Dog, whose common Duct was near as big as that of a Man, he gathered about two Drams an Hour; though in a human Body, there is Reason to think the Quantity secreted to be greater. Mr. *Tauvry* observes, that the *Bile* becomes one of the principal Causes of Thirst, by mixing with the salival Juice.

Sometimes the *Bile*, from yellow, becomes greenish, like Verdigrease, and frequently pale, like the Yolks of Eggs, and that without any other apparent Cause, than a little Motion, a Convulsion, or a violent Passion of the Mind.——This occasions many and terrible Diseases, as Nausea's, an Abhorrence of Food, Anxiety, Sighing, Cardialga's, Wind, Diarrhœa's, Dysenteries, acute Diseases, Fevers, and Convulsions.

Sometimes it becomes black, and takes the Name of Choler: In this Case, it sometimes tastes like a very sharp Vinegar; sometimes like putrified Blood, gnawing, burning, dissolving, consuming, occasioning Inflammations, Gangrenes, Mortifications, violent Pains, and terrible Fermentations.

Of *Atra bilis*, or black *Bile*, *Boerhaave* distinguishes three Kinds. 1. The mildest, arising from the Matter of the Blood, put in too great a Motion, which, hence, takes the Name of *Adust*. The 2d, is an Aggravation of the first, arising from the same Causes, only heightened. The 3d, is a corrupt, parched *Bile*, which if it arose from a greenish, or palish Sort, is still worse.

Too great an Evacuation of the *Bile*, either upwards or downwards, robs the Chylefaction of its main Instruments; hence it prevents Digestion, Secretion, Excretion of the *Feces*, produces an acid

Temperature, Coldness, Weakness, Paleness, &c.

The SPLEEN (GG), (the next Part to be considered in the *Abdomen*) is a *Viscus*, of a darkish red, or rather a livid Colour, ordinarily resembling the Figure of a Tongue, though sometimes triangular, and sometimes roundish.——It is situated in the left Hypochondrium, between the spurious Ribs, and the Stomach; is somewhat convex on the Side towards the former, and concave towards the latter. Its ordinary Length is six Inches; Breadth, three; and Thickness, one.——It is connected to the *Omentum*, and by Means of that and the Blood Vessels, to the Stomach, and left Kidney, and sometimes to the Diaphragm.

The *Spleen* has but one Membrane, which is very Thick, its inward Surface sends out hard Fibres which run a-cross it: All these Fibres make a Net, the Interstices of which are of different Figures. These Fibres are fleshy, like those of the Lungs.——The Bulk of the *Spleen* is composed of innumerable Cells, or little Bladders, which communicate with each other, and discharge themselves into the Trunk of the Splenick Vein.——Their inside, according to *Malpighi*, is furnished with various minute Glands adhering together; six, seven, or eight whereof form a Kind of small conglomerate Glands, wherein the Arteries and Veins seem to terminate.

Its Blood Vessels are the *Splenic Artery*, which furnishes it with Blood from the *Cæliaca*, and the Splenic Vein, which carries it thence, by the *Porta* to the Liver.——Its Nerves come from the *Plexus Lienaris*, near the Bottom of the Stomach.——The Vessels are all, as soon as they enter the *Spleen*, wrapt up in one common *Capsula*, or Membrane, and plentifully distributed together, throughout the Substance of the *Spleen*. Besides these, are Lymphaticks in Abundance.—— The *Anastomoses* between the Arteries, and Veins of the *Spleen*, are more apparent than any other Part of the Body; and this *Viscus*, is observed to be furnished with a greater Quantity of Blood, than any other Part.

The *Anatomists* have been divided, in all Ages, upon the Use of the *Spleen*.——Some have imagined the *Spleen* only served to make a Ballance in the Weight of the Body; others, that it was only intended for the Sake of Symmetry; others hold it an useless Load, (since it appears from Dissection, that Animals from whom it has been cut, live very well without it) others a Pit, or common Shore, to discharge the *Fæces* of the Blood into; others a Fire, by the Heat whereof, the Action of the Stomach is animated.

Mr. *Cowper*, from the great Quantity of Blood, and the apparent Inosculations of the *Spleen*, draws a very natural Conjecture of the Use thereof, at least of the peculiar Mechanism.——He takes then the *Spleen* to be only a subordinate Organ, ministring to the Circulation; and thinks, that by this Congress of the arterial and venal Blood, an *Impetus* is communicated to the latter; by which its Progress thro' the Ramifications of the *Porta*, to the *Cava*, is promoted, which would otherwise be so broke, by the double Ramifications of the *Porta*, as to want Strength sufficient to carry to the Heart.

This Action or Effect of the *Spleen*, according to Dr. *Boerhaave*, is to receive the fresh Arterial Blood, prepare it in its Glands, and pour it into its Cells; to return what Blood is left from this Action, to the little Veins, and thence to the splenic Vein; to mix the Humour thus prepared with the nervous Juice, and to prepare, attenuate, and more intimately unite them together into one Humour.

Malpighi and Dr. *Keil* take the Spleen to be a viscous Assistant to the Liver, in the Secretion, &c. of the Bile.— And in Fact the Blood may receive some Alteration there, that may facilitate the Secretion of the Bile in the Liver; since Filtration ought always to be ushered in by Precipitation; that is the *Moleculæ*, or little Particles, should be already separated before they come to the Strainer, and therefore those of the Bile should be parted from those of the Blood before they arrive at the Glands of the Liver.

The PANCREAS is a conglomerate Gland, or a Body composed of a great Quantity of Glands, seated under the lower and back Part of the Stomach near the first *Vertebra* of the Loins; it reaches from the *Duodenum* to the Spleen, the principal Part of it being in the left *Hypochondrium*, 'tis tied very fast to the *Peritonæum*, and weighs about five Ounces; commonly it has ten Fingers Breadth in Length, one in Thickness, and two in Breadth; furnished with a Nerve from the Intercostal, with Arteries from the *Cæliaca*, with Veins leading to the Splenick, and with lymphatick Vessels which run to the *Receptaculum*.

Besides all these Vessels it has a peculiar *Duct*, called the *Pancreatic*, discovered in 1642, by *Virtsungus*, a celebrated Anatomist at *Padua*.— This *Duct* running along the Middle of the *Pancreas*, opens into the Cavity of the *Duodenum*, where its Orifice is guarded by a Valve, allowing an *Exit* to the contained Liquor, and opposing the Entrance of the Chyle, and other Liquors contained in the Intestine; there is but one Passage of this Nature, though *De Graaf* observes that it is frequently double; and in its natural State 'tis no bigger than a small Quill.

The *Pancreas* serves neither for a Cushion to the Stomach, nor for Support to the Vessels dispersed over the *Abdomen*, but, by Virtue of its Glands, to separate and strain out a certain Juice from the Blood called the *Pancreatick Juice*.

This *Juice* is not acid, as some Authors have supposed; nor *Alkaline*, as some others; but a little Saline, and much resembling the *Saliva* in its Origin, Vessels, and Properties.— It is carried by the Pancreatic Duct into the *Duodenum*, where it serves to dilute the Bile, to change its Viscidity, Bitterness, Colour, &c. and make it mix with the Chyle, in Order to reduce the several Tastes, Odours, and Properties of the several Foods in an homogeneous one.

Jansson of *Almeloveen*, thought that the *Pancreatic Juice* had been known to *Hippocrates* and *Galen*.—— *De Graaf*, a *Dutch* Physician, had found Means to collect a Quantity of it for Experiments, and has published an express Treatise *de Succo Pancreatico*.

Brunner relates, that the *Pancreatic Duct* having been tried in several Dogs, and cut, they still continued to eat as usual, and performed all the other Functions of Life; one of them seemed to have the better Stomach for it.

Before we proceed to the Kidneys, we must take Notice of two Parts, called *Capsulæ Atrabilariæ*, because there is found in their Cavity an Humour resembling the *Atra Bilis*.

Those two *Capsulæ* are placed sometimes above the Kidneys, and sometimes between it and the great Artery.——They are enclosed in a thin Membrane, and entangled with Fat, which occasions the Difficulty of tracing them.—— That on the Right Side is commonly less than the other. Each of them is as big as a Walnut laid flat, and has a Cavity large enough in Proportion to its Bigness.—— In a *Fœtus* they are generally as big as Kidneys, from which they differ, in this, that their Substance is softer and more flaggy.

Their Figure is as inconstant as their Situation, for, in Fact, they have no determined Figure.—— Their Colour is sometimes red, sometimes the same with that of the Fat they are wrapp'd in.——In their Cavity they have small Holes, which penetrate through their Substance.——They have a Nerve derived from the Intercostal, which makes a *Plexus* in this Place; one or two Branches detached from the emulgent Artery, and sometimes from the *Aorta*, and a small *Duct* inserted into the upper Part of the emulgent Vein.——Their Cavity has a Valve, which opens towards the emulgent Vein.

The *Capsulæ Atrabilariæ*, are probably Glands for the Secretion of some Humour from the Blood,

imported by the Arteries, which Humour is afterwards conducted by their ſmall Veins to the emulgent Vein, and there mixed with the Blood.

The Parts which purge the Blood of the ſuperfluous Serum, called Urine, are of three Sorts, *viz.* the *Kidneys*, the *Ureter*, and the *Bladder*. The firſt make a Secretion of the *Serum*; the ſecond convey it to the *Bladder* as ſoon as it is ſeparated; and the *Bladder* ſerves for a Ciſtern, where it is kept for ſome Time, and evacuated when it ſwells to a ſufficient Quantity.

The KIDNEYS are called *Renes*, from Ῥέω, to flow, becauſe the Urine flows inceſſantly into the *Pelvis*.—— They are ſeated in the Region of the Loins under the *Pſoas* Muſcle, upon the Sides of the *Aorta*, and *Vena Cava*, without the *Peritonæum*, one on the Right Side under the Liver, and the other on the Left under the Spleen, at the Diſtance of about four Fingers Breadth one from the other.

They are faſtened to the *Vena Cava*, and the great Artery by the emulgent Arteries and Veins, and to the Bladder by the *Ureter*; the Right *Kidney* is knit to the Inteſtine *Cæcum*, and ſometimes to the Liver; the Left one is tied to the *Colon*, and ſometimes to the Spleen.—— Their Figure reſembles that of a Half-Moon or a Bean; that Side which faces the Veſſels is concave, the oppoſite Side is *convex*. Commonly they are four or five Fingers breadth long, three broad and two thick.—— Their Surface is ſmooth and ſoft, like that of the Liver, and their natural Colour a dark Red.

The Kidneys have a proper and very thin Membrane, which keeps all their Glands in their natural Order, which Membrane ſome imagine to be nothing elſe but a Continuation of the Tunicle of the Veſſels inſerted in the Kidneys, which by dilating themſelves line their Inſide; and then turning back upon the Outſide cover that too.— They are covered, beſides, with the *Peritonæum*, and always with a great deal of Fat.

Each of them receives two Nerves, one from the ſtomachic Branch, which ſpreads itſelf along the Membrane; and one other from the Neighbourhood of the *Meſentery*, which enters the concave Part of the Kidneys, and is loſt in its Subſtance; theſe Nerves occaſion the Vomiting in the Nephretick Pains.—— The Trunk of the *Aorta* ſends out two large Veſſels to the Kidneys, which, before they enter, divide themſelves into three or four Branches, and which paſſing through the Subſtance of the Kidney, by its concave Part, are loſt in an Infinity of little Glands, to which they convey the Blood and its *Serum*, promiſcuouſly mixed.

The Blood imported by the Arteries to the Glands, which cannot paſs through the Orifices of theſe ſmall Pipes, is taken up by the Branches of the emulgent Vein, which conducts it to the *Vena Cava*.

The *Pelvis*, or Baſon, is a Cavity made of the upper End of the *Ureters*, in the Form of a Funnel, the narrow Part thereof marches out of the Kidney, and makes the Beginning of the *Ureter*.—— Its Office is to receive the Urine that diſtils from the Nipples, which are ſmall mamillary Bodies, ſhooting out a little to a Point where they are perforated, in Order to let the Urine fall into the Baſon, and to which repair the Arteries diſtributed through the whole Circumference of the *Kidneys*.

The URETERS, (SS) are two Canals of a peculiar Form, which ſpring upon each Side from the *Pelvis* of the Kidneys, are covered with the *Peritonæum*, and terminate in the Bladder not far from its Neck.— They are furniſhed with annular Fibres, to enable them to contract themſelves, and thereby facilitate the Courſe of the Urine into the Bladder.—— Their Length is equal to the Interval between the *Kidney* and the *Bladder*; they are no bigger than a Writing Pen, except in the Nephretick, when their Cavities are ſometimes ſo dilated as to receive one's little Finger, and reſemble an S.—— They receive Nerves from the intercoſtal Branch, which occaſion their exquiſite Senſe in the Gravel, and Arteries from the neighbouring Parts, and return 'em ſmall Veins.

The *Ureters* proceed from the Kidneys, beginning at the End of the *Pelvis*, and terminating in the Bladder. which they perforate very artificially, for having pierced through the outer Membrane, they run for two Fingers breadth between the two Membranes, and then perforate the inner one near the Neck of the *Bladder*. By this Contrivance the Urine having once entered the Bladder cannot return back, the Orifice of one Membrane being ſtopped by the other.—— The *Ureters* receive the Urine from the *Pelvis* and convey it to the *Bladder*.

The BLADDER (T) is a membranous Part, which forms a conſiderable Cavity, fit to contain the Urine and the ſolid Bodies that are preternaturally bred in it, ſuch as Stones, *&c.*

The *Bladder* is ſituated in the *Pelvis* of the *Abdomen*; in Men immediately on the *Rectum*; in Women on the *Vagina Uteri*; its Figure in Quadrupedes reſembles a Pear with the Baſis upwards; but in human Bodies the lower Part is almoſt on a Level with the upper; and its Orifice, or Neck, placed Sideways, while the *Fundus*, (V) or Bottom, which in a human *Bladder* is very broad, reſts either on the *Rectum* or the *Vagina Uteri*.—— It is faſtened to the Navel by the *Urachus*, degenerated into a Ligament, its Sides to the umbilical Arteries, and its Neck to the *Inteſtinum Rectum* in Women.

The *Bladder* is compoſed of three Coats; the firſt a Covering of the *Peritonæum*; the ſecond conſiſts of muſcular Fibres, which run irregular ſeveral Ways; and the third, which is full of Wrinkles for facilitating its Dilatation, is both glandulous and nervous.—— Its Glands ſeparate a viſcous and ſlimy Matter, which defends the *Bladder* from the Acrimony of the Salts in the Urine.—— Around its Neck there goes a ſmall Muſcle, called *Sphincter Veſicæ*, which contracts the Orifice of the *Bladder*, to prevent the Urine from dripping involuntarily, or 'till it thruſts open the Paſſage by the Contraction of the ſecond Coat of the *Bladder*, called, therefore, *Detruſor Urinæ*.

Having already conſidered all the Parts of the *Abdomen*, which contribute to the Perfection of the Blood, it will not be improper to conſider in this Place the *Aorta*, or great *Artery*, and the *Vena Cava*, which are two large Veſſels of the *Abdomen*.

The AORTA, or *great Artery*, (Y) riſes directly out of the left Ventricle of the Heart, where it receives the Blood, in order to diſperſe it all over the Body.— We'll only examine in this Place the Arteries it ſends to the *Abdomen* after its Perforation of the Diaphragm, which are ſeven.—— The firſt is the *Cæliaca*, which ſplits into two Branches, one on the Right Side for the Liver, and the other on the Left for the Spleen.— The ſecond is the upper Meſenterick, which viſits the upper Part of the Meſentery.— The third are the Emulgents, which run to the Kidneys.— The fourth, the Spermaticks, which repair to the Parts calculated for Generation.— The fifth, the lower Meſenterick, which goes to the Inteſtines and the lower Part of the Meſentery.— The ſixth, the *Lumbares*, which ſerve the Muſcles of the Loins.—And the ſeventh, the upper *Muſculares*, which are loſt in the Fleſh.

When the *Aorta* reaches the *Os Sacrum*, it gets over the *Vena Cava*, and divides itſelf into two large Arteries, called the *Iliacæ*. Each Side has one of them, which ſubdivides itſelf into the internal and external.—— The internal iliack Artery detaches four other Arteries, *viz.* the *Sacra*, *Muſcularis*, *Inferior*, the *Umbilicalis*, and the Hypogaſtrick. The external Iliack, which is the larger of the two, ſends out the Epigaſtrick and the *Pudenda*, and then marches to the Thighs, where it changes its Name, and aſſumes that of *Arteria Cruralis*.

Where the *Iliac* Artery terminates, there's a Vein of the ſame Size, called the *Iliaca Externa*, which receives not only three other ſmall Veins, called *Muſcularis inferior*, *Pudenda*, and *Epigaſtrica*; but alſo the internal Iliac Branch, conſiſting of two Veins, *viz.* the

the *Hypogastrica*, and the *Muscularis Media*.——— These two Iliack Veins upon one Side, and the other two on the opposite, begin about the *Os Sacrum* to form a very large Vein, called the ascending *Vena Cava*, further enlarged by the Accession of the *Sacra*, and *Muscularis Superior*.

I call it *Ascendens*, since its Office is to convey the Blood from the inferior Parts to the Heart.—It begins to assume the Name of *Vena Cava* upon the *Os Sacrum*, where the four *Iliacæ* join. As it rises higher 'tis joined by four Sorts of Veins, *viz.* the *Lumbares*, which come from the Muscles of the Loins; the *Spermatica*, springing from the Instruments of Generation; the Emulgents from the Kidneys; and the *Adiposa* from the *Membrana Adiposa* of the Reins. This done, the *Vena Cava Ascendens* strikes through the Diaphragm into the Breast, and terminates in the right Ventricle of the Heart.

The last Parts to be considered in the *Abdomen*, are those calculated for Generation, which Nature has formed to perpetuate itself, by producing new Creatures to supply the Room of those who are gone; and to the End that Man might be excited to the Production of his own Image, that prudent Mother of all created Beings has given to those Parts such a quick, tender Sense and transporting Titillation, that often without consulting his Reason he courts Satisfaction; and indeed it is oftener the Prospect of Pleasure, than the Desire of eternizing ones-self that inflames the Imagination, so as to raise a furious Passion for Embraces.

The Organs for Generation are either common or proper; the Common are met with in both Sexes, such as are the spermatick Vessels, the Testicles, and the *Vasa Deferentia*. The proper Parts are peculiar either to a Man, as the *Parastatæ*, the seminal Vesicles, the Prostates, and the Yard or *Penis*; or the Womb to a Woman.

We must consider first the Parts of a Man, not only those peculiar to his Sex, but likewise those which are common to both Sexes, that we may observe wherein they differ.

The Parts of a Man which fall first under our Consideration, are the spermatick Vessels, which are four in Number, *viz.* two Arteries, and two Veins.—The two spermatick (AA) Arteries spring from the Trunk of the *Aorta*, run obliquely upon the *Ureters*, and along the Muscle *Psoas*, 'till they arrive at the Groin, where they are received by a Production of the *Peritonæum*, and so conducted to the Testicles, by passing through the Rings of the *Aponeuroses* of the Muscles of the *Abdomen*.——— The two spermatick Veins (BB) march out from the Testicles towards the *Vena Cava*; the Right runs strait to the Trunk of the *Cava*; but the Left one terminates in the emulgent Vein.——— In their Progress they are joined by small Veins from the *Peritonæum*, and the neighbouring Muscles, loaded with the superfluous Blood of their Parts, in order to lodge it in the *Cava*.

The *Artery* in its Ascent, and the Vein in its Descent, on each Side, approach to one another, and are covered with the *Peritonæum*.—The various Branches of the Vein form in their Progress (without the Assistance of the Artery) what we call *Corpus Varicosum*, or *Pyramidal*; but the *Artery* descends almost in a strait Line, without dividing itself, unless it be at the Place of its Insertion, where it's split into two Branches, the least whereof terminates under the *Epidydimis*, and the other in the Testicle.

The *Spermatick Vessels* are larger in Men than in Women, and in both the Arteries are always larger than the Veins.—They don't perforate the *Peritonæum*, as in Dogs, but a Production of that Membrane conducts them along, together with some Branches of the intercostal Nerves, and some from the one and twentieth Pair of the Spine, which supply the Testicles with animal Spirits, and not with the Matter of the Seed, as some have imagined, since they have not a sufficient Cavity to contain such Liquor.

The Reason why the less spermatick Vein terminates in the emulgent, and not in the *Cava*, is the spermatick Vein, in passing over the emulgent Artery, its Bulk would have hindered the Reflux of the Blood to the *Cava*.

The Preparation of the Seed is not commenced in the spermatick Vessels, as falsly supposed by the Antients; for if the two Arteries penetrate the Substance of the *Testicles*, 'tis only to procure a more exact Separation of the seminal Particles that accompany the arterious Blood, since the Remains of that Blood are carried back by the Spermatick Veins to the *Vena Cava*, and the Arteries have no *Anastomoses* with the Veins, either in this Place, or any other Part of the Body.

Therefore the Use of the *Spermatick Vessels*, is to have the Blood conveyed by the Arteries, to the upper Part of each Testicle, where the seminal Particles are separated, and the Remains of the Blood carried back, by the Branches of the Veins to the *Cava*.

The TESTICLES, are so called from the *Latin* Word *Testes*, Witnesses; as giving Testimony of Virility; they are what we properly call *Genitalia*.—The *Greeks* call them *Didymi*, or Twins.—Some Men have only one, some have three, and even four; but ordinarily, they have but two.

The Testicles (DD) are soft, white Bodies of an oval Figure, and about the Size of a Pigeon's Egg: They have been thought to be of a glandulous Substance; and according to the present Doctrine of the Glands they may be allowed to be so still.

They are formed of a Convolution of divers Kinds of Vessels, particularly of the spermatick Veins and Arteries, the latter of which bring the Blood, whence the Particles of the *Seed* are to be secreted in the Meanders of the *Testicles*, and the former return it back again, after the Secretion made.

The rest of the *Testicles* is made up of Seed-vessels, which, indeed, are but one continued Series, or Rope intricately convoluted, and wound up, as it were, into a Bottom; but adhering so laxly, that it is easily drawn out into Length, and in Rats shaken from its close Contexture.—These seminal Vesicles terminate in the *Parastatæ*.

They are seated, in Men, without the *Abdomen*, at the Root of the Yard, wrapped up in five Coats, two of which are common, *viz.* the *Scrotum*, and the *Dartos*; and three proper, *viz.* the *Eritroides*, the *Elitroides*, and the *Albuginea*.

The first of the common Sort is the *Scrotum*, or Purse, composed of a scarf Skin, and a true Skin, which is here thinner and tenderer than in any other Part of the Body; 'tis soft, wrinkled, and void of Fat.—At fourteen or fifteen Years of Age, 'tis covered with Hair.—'Tis divided into the right and left Halves by a Line, or Suture, which commences at the *Anus*, passes through the *Perinæum*, and terminates in the *Glans*, or Nut.

DARTOS, is a cutaneous Muscle, consisting of a Texture of many fleshy Fibres, by Virtue whereof, the *Scrotum* contracts and furls itself.—It receives several Vessels from the *Arteriæ Pudendæ*, and not only covers the two Testicles, like the *Scrotum*, but runs in between them, and keeps them from grating one upon another.

The ERITROIDES (E), is the first of the proper Class; it is interlaced with fleshy Fibres, which makes it appear red; and is produced by the *Cremaster*, a Muscle which holds up the *Testicles*.

The ELITROIDES (F), called also *Vaginalis*, is a Dilatation of a Production of the *Peritonæum*.——— Its internal Surface is even and smooth, and the external, rough and unequal, whereby it sticks very close to the *Eritroides*.

The ALBUGINEA (G), so called from its Whiteness, is the immediate Cover of the *Testicles*, and impresses them with a Figure answerable to its own.—It proceeds from the Coat, in which the spermatick Vessels are wrapped.

The *Testicles* are suspended by two Muscles, called

Cremastores (H), or *Suspensores*; which are inserted in the *Ossa Pubis*, at the End of the transverse Muscle of the *Abdomen*, and surround the *Testicles* like a Membrane, which if they happen to be stronger than ordinary, move the *Testicles* of themselves, pulling them up, and letting them fall at Pleasure.

I have already given a Hint, that the Office of the *Testicles* was to secrete the Particles of the Seed from the Blood brought to them, by the spermatick Arteries, the most refined and volatile Part whereof, is strained out from the rest, by the glandulous Pith of the *Testicles*, which gives Passage only to the finest Particles, and obliges the rest to return by the Veins. ——This Part of the Blood, thus filtrated, is raised to a just Degree of Perfection, by the Length of the Pipes, through which it passes.——A further Addition to its Refinement, accrues from the Windings and Turnings of these Pipes.——Nay, it is also depurated in the excretory Duct of the *Testicle*, and the *Epididymis*.——In the Passage, we call *Deferens*, 'tis perfecter than any where else; since it begins there to turn white and frothy, whereas in the *Testicles*, it was grey and fluid.——But the Features and Impression of true Seed, is owing to the animal Spirits employed in the amorous Passion, which then put the Seed in Motion, and renders it sparkling and active.

The *Seed*, thus prepared, is laid up in the Expansion of the *Vasa Deferentia*; and that filtrated through the *Vesiculæ Seminales*, remains in their Cavity; from whence it breaks out, when the Imagination is inflamed by amorous Thoughts.——'Tis then stirred up, and rarified, in such a Manner, that it forces up the Suckers which guard the Orifices; and at the same time the *Prostrates* squirt out a fat, oily Liquor, which covers and embraces the volatile and penetrating *Seed*, which otherwise would evaporate and disperse.——This Liquor flows incessantly in the *Urethra*, to guard off the Acrimony, and Sting of the Urine.

The PARASTATÆ (LL), or *Epididymidæ*, are two tuberous, varicose Bodies, lying upon, and adhering to the upper Part of the *Testicles*, whereof they properly appear to be a Part; though different from the rest in Form and Consistence.

The *Parastatæ* consists, like the *Testicles*, of a Convolution of seminal *Tubuli*, mixed with bloody Vessels; the Difference between them lying only in this, that the *Parastatæ*, and the *Tubuli*, are united into one, the various Convolutions of which being more firmly bound together, by a strong Membrane, arising from the *Tunica Albuginea*, it feels more compact than the *Testicles*.

The Use of the *Parastatæ*, is to receive the Seed separated in the *Testicles*, and pour it into the Trunk of the *Vas deferens*, with which it is continuous.

The VASA DEFERENTIA (M), are white and nervous Vessels, of a round Figure, and of the Bigness of a Quill, seated partly in the *Scrotum*, and partly in the *Abdomen*.——They are rooted in the Testicle; from one End of which they proceed, and march upwards, in the same Process of the *Peritonæum*, that covers the spermatick Vessels.——They turn about, upon their Arrival at the upper Part of the *Pubis*, and climb over the *Uterus*; and then, approaching to one another, run under the upper Part of the Bladder, where they have a Communication with the seminal Vessels.——The two Extremities of the *Vasa deferentia*, being arrived between the Bladder and the *Rectum*, dilate themselves, and form the *Vesiculæ Seminales*.——They resemble a Bunch of Grapes, and their Cells, the Cavities of Pomegranate Kernels; though not separated by a Membrane, like Grapes, for their Cells communicate with one another. ——Their broadest Part is about an Inch over, they have one Side thicker and larger than the other, and their Cavities are unequal, some being greater than others.—They are seated between the Bladder and *Rectum*, near the *Prostatæ*, and serve for a Cistern to the Seed.

From these Vesicles, proceed two small *Ducts*, called EJACULATORY VESSELS, because in the Heat of Action, they really throw the *Seed* of the Vesicles into the *Urethra*; and are of such an exquisite Sense, that they are the chief Subjects of the Pleasure that attends Ejaculation.—These *Ducts* are broad near the Vesicles, from whence they proceed, but dwindle as they approach the *Urethra*, which they perforate; and on its Inside, at the Place of their Entry, form a small Caruncle or Tuft, called *Verumontanum*, which is a Sort of small Valve, which keeps the Urine out of the two Ducts, in its Passage to the *Urethra*; and obliges the *Seed*, when squirted out, to turn towards the *Penis*, and not towards the Bladder.—This *Caruncle*, some Surgeons have mistaken for a Carnosity, upon the Resistance they feel in putting a Probe down the *Urethra*.

The PROSTATÆ (OO), are two white, spungy, glandulous Bodies, situated at the Root of the *Penis*, or just below the Neck of the Bladder, and about the Size of Walnuts.

Authors ascribe two Kinds of Substance to the *Prostatæ*, the one glandulous, the other spongeous, or porous; which last seems nothing but a Congeries of minute Vessels, and Cells, through the Middle of which pass the *Vesiculæ Seminales*, without any Communication therewith.

The *Prostatæ* have many excretory Ducts of their own: *De Graaf* does not remember to have known them fewer than ten in the *Prostatæ* of Men.—Out of these issues a whitish slimy Humour, secreted in the glandular Parts of the *Prostatæ*, and conveyed into the Cavity of the *Urethra*.

The Use of this Humour is to line and lubricate the Cavity of the *Urethra*, and prevent it from being annoyed by the Acrimony of the Urine, in its Passage through it, and to serve as a Vehicle to the *Seed*, in the Time of Ejaculation.

Boerhaave thinks that this Humour may serve to nourish the Animalcula, during the first Moments after Coition.—This Humour, he adds, remains after Castration, but is not prolifick.

The same Author, from the Memoirs of the *French* Academy, makes the *Prostatæ*, to consist of an Aggregate of twelve Glands, each of which terminates by its excretory Duct, in a little Bag into which it discharges its Humour.——These twelve Bags open by as many excretory Ducts, into the Cavity of the *Urethra*, so as to encompass the Exit of the *Vesiculæ*; whence the *Seed* and the Humour of the *Prostatæ* are the more accurately mixed.

'Tis alledged, that this Place is the ordinary Seat of a Clap, upon the Plea, that some volatile Salts fastening there, occasion Ulcers that corrode the Caruncles; and upon that, the Orifices of the heretofore mentioned Ducts, throw out their slimy Liquor, the Flux of which is sometimes never cured.

The PENIS (PP), which is the Instrument appointed by Nature to convey the *Seed*, thus prepared and elaborated, to the Womb, for the Formation of Man, is placed at the lower and external Part of the *Abdomen*, and fastened to the *Os Pubis*.

Its Body consists of the two *Corpora Cavernosa*, the *Corpus Cavernosum Urethræ*, and the *Urethra* itself.

The *Corpora Cavernosa* of the *Penis*, have two distinct Origins in the *Os Pubis*, whence they proceed, growing both in Bulk and Thickness, till they meet the *Corpus Cavernosum* of the *Urethra*, where they join; leaving an Interstice or Channel, for its Passage along them; and thus continue their Progress connected together by a membranous Body called the *Septum*, and terminating at length in the *Glans*.

The Cavernous Body of the *Urethra*, includes the *Urethra*, or urinary Passage.——Its Form, contrary to that of the other cavernous Bodies, is largest at the two Extremes, and smallest in the Middle.—— That Part included between the two Origins of the cavernous Bodies of the *Penis*, Mr. *Cowper* calls the

Bulb of the Urethra: Its other Extremity being dilated, forms the *Glans.*

The *Penis* receives Arteries (QQ) from the internal iliac Branches, and umbilical Arteries, from the capillary Extremities whereof arise so many Veins, in whose Channels are Apertures, corresponding to so many Cells, which communicating with each other empty themselves into larger venous Ducts, running on the superior Surface of the *Penis*; some whereof join the Vein of the Prepuce; others make one large Trunk, called *Vena Penis*, which marching on the *Dorsum Penis* to the *Prostatæ*; there divides and enters the internal Iliac on either Side.

The *Penis* has Nerves from a Trunk, composed of a Coalescence of the Third of the *Os Sacrum*, and a Branch of the great Crural: These ascending the cavernous Bodies, expand themselves over the upper Surface thereof, and are thence distributed to all Parts of the *Penis.*

It has a great Number of lymphatick Ducts, on its Surface under the Skin, which discharge themselves into the *Glandulæ Inguinales.*

The *Penis* has two Pair of Muscles, and an odd one; the odd Muscle is called *Accelerator Urinæ:* Its upper Part, which covers the Bulb, serves to streighten the Veins passing through it, from the *Corpus Cavernosum* of the *Urethra*, and thus hinders the Reflux of the Blood in Erection, and, by repeated Contractions, drives the Blood into the Bulb towards the *Glans.*— Its Elongation serves to compress the Channel of the *Urethra*, and to force out the contained *Seed*, or Urine.

The first Pair of Muscles is called the *Erectores Penis* (RR). By their Action the *Penis* is sustained and drawn towards the *Pubes*; and by the Assistance of the suspensory Ligament of the *Penis*, the *Vena Penis*, is applied to the transverse Ligament of the *Ossa Pubis*, and the refluent Blood hindered from passing that Way, whereby the *Corpora Cavernosa* become distended.

The last Pair of Muscles are the *Transversales Penis* (SS), which vary in various Subjects, and are sometimes wanting; their Use is to dilate that Part of the cavernous Body of the *Urethra*, to which they are fastened.

The *Penis* has also three Glands (TT), first discovered by Mr. *Cowper*; These all empty themselves into the *Urethra*, and from the Tenacity of the Liquor they separate, are called the *Mucous Glands.*

The whole Compages of the *Penis*, is invested with a cellulose Membrane, of admirable Texture; which, again, is covered with a firm nervous Coat; and that with a *Cuticula*, and *Cutis*; the Duplicature of the *Cutis* on the *Glans* makes the *Prepuce.*

The Prepuce (V), is tied to the lower Part of the *Glans*, by a Ligament, called *Frænum.*——By another Ligament, called *Suspensorium*, the *Penis* is tied to the *Ossa Pubis.*

The Use of the *Penis* is for evacuating the Seed, and Urine.——Indeed Dr. *Drake*, from a View of its Structure, thinks it originally intended for the former only; and that the Conveyance of the Urine, was not considered by Nature, in the Mechanism of this Part.——He adds another Use, *viz.* An Incitement to Venery, and the Propagation of the Species.— Indeed, without such an Instrument, the Seed of the most perfect Animal could not be conveyed to the Place of Prolification. Add to this, that an Alternation of Erection, and Flaccidity is absolutely necessary; the first for the Performance of its Office; the second, for the Security of the Part.

Without an Erection, it were impossible to emit and lodge the *Seed* where it ought to be: And with a constant one, almost as impossible to secure the Part from Injuries, without mentioning the Want of Instigation, which would be the Consequence of constant Erection, or *Priapism.*

The Erection of the *Penis* proceeds from the Swelling up of the cavernous Bodies, which, at that Time, are filled, not only with Spirits, (as the Antients have imagined) but also with a considerable Quantity of arterious Blood, which is the principal Part of the Erection, the Number of the Spirits being insufficient to compass it, and which is effected Thus.

The imaginative Faculty, being struck with the Apprehension of the Pleasure, the animal Spirit is thereupon rouzed, and repairs with an impetuous Force, to the Nerves of the Organs of Generation, which it puffs and blows up, by mixing with the arterious Blood, imported thither by the Arteries; and upon the Mixture of these two Liquors, a Fermentation, or Ebullition ensues, which causes Erection.

The Urethra (Y) is a nervous Passage reaching from the Neck of the Bladder to the End of the *Penis*, seated underneath, and between the nervous Bodies.—'Tis composed of two Membranes; the Outermost fleshy and uneven, with transverse Fibres; the inner one thin and nervous.

The *Urethra* descends from the Bladder, and passes under the Share-Bone, after which it ascends and accompanies the *Penis* to its End, where it terminates; therefore its Figure resembles an S (which should be minded by Surgeons when they probe the Bladder).— The Use of the *Urethra* is to be a common Passage to the Seed and Urine.

Having thus examined with all possible Care and Attention the Parts calculated for Generation in a Man, we must proceed to another Historical Account, far more capable of inflaming our Curiosity, and which is a distinct View of the same Organs in a Woman.

To observe the same Order I have followed in the Description of the Parts of a Man, I'll begin with the spermatick Vessels.—A Woman has four spermatick Vessels, *viz.* an Artery (AA) and a Vein (BB) on each Side, as 'tis in a Man.—In both the Arteries proceed, in the same Manner from the Fore-part of the *Aorta*, but have in both a different Insertion; for, in a Woman, they divide themselves half-way into two Branches, the greatest of which after several Circumvolutions marches to the Testicles; and the least to the *Matrix*, where it splits into several Twigs, some of which repair to the Sides of the *Tubæ*, and Neck of the Womb, and others to the upper Part of its Bottom.

This Ramification of the *Arteries* is accompanied with an equal Number of Branches of Veins, which wind up again from the Womb and the Testicles, and joining together make two considerable Veins; of which that on the Right Side terminates in the *Cava*, and that on the Left in the emulgent Vein.

These Spermatick Vessels differ from those of Men in two Points; 1. They are not so long as in Men; since the Womens Testicles, or *Ovaria*, being lodged within the *Abdomen*, whereas those of Men, hang out in the *Scrotum*, consequently the Passage from the *Aorta* to the Testicles, and from the Testicles to the *Vena Cava* must be much shorter in a Woman than in a Man.

Women have two Testicles (CC) as well as Men, but differ in their Situation, Magnitude, Figure, Connexion, Covers and Substance.—They are seated in the *Abdomen* upon the Sides of the Bottom of the Womb, at the Distance of two Fingers breadth from it, by Reason that their Commerce and Alliance with the *Matrix* requires that they should not lie at a great Distance.——They are connected to the *Uterus* by a strong Ligament, which the Antients improperly called *Vas Deferens*, (for it is not at all hollow) and in some Measure by the *Fallopian Tubes*, and the broad Ligament about the Region of the *Ilium.*—They are fastened to the *Peritoneum* by the Spermatick Vessels, by which Means they are kept suspended about the same Height with the *Fundus Uteri.*

Their Figure is semi-oval; their Surface somewhat uneven, their Size different in the different Stages of Life. At the Time of Puberty, when largest, they usually weigh a Drachm and half.

They

They are covered with a common Membrane from the *Peritonæum*; their Substance is whitish, composed of a Number of little thin membranous and slender Fibres, intervowen with Arteries, Veins and Nerves.

Among these Fibres and Vessels are interspersed a Number of little round Bodies, like Bladders; full of a limpid Substance, and called *Ova* or Eggs, which include the Sperm that contains the *Fœtus*.

On each Side of the *Fundus uteri* are discovered two Ducts arising from it, called *Tubæ Fallopianæ* (D) or Trumpets, in Respect of their Form; for that in their Rise or Opening into the Womb, they are exceeding small, but in their Progress towards the *Ovary* they grow much bigger, and at length are capable to receive the Finger; from whence they contract again, and at the Extremity next the Ovaries are expanded into a Sort of Flanch or Foliage, fringed round with innumerate little Fibres, bearing some Resemblance to the Flanch of a Trumpet.

The FALLOPIAN TUBES are four or five Inches long; they consist of a double Membrane, derived from the outer and inner Membrane of the *Uterus*.—The Extremity next the *Ovary*, at the Time of Impregnation, at which Time the whole Tube is expanded, reaches to, and embraces the *Ovary*; tho', at other Times, it seems to fall a little short of it, and is only slightly tied by the Fringe to the under Side of the Ovary.

The Use of the *Tubes* is to convey the *Seed*, or rather *Ova* of Women, from the Testicles, or Ovaries into the *Uterus* or *Womb*.

Their inner Substance is composed, in good Measure, of Ramifications of Veins and Arteries, which form a Kind of reticular or cavernous Body, not unlike that of the *Clitoris*. This Structure makes them capable of Dilatation and Contraction, according to the Quantity and Stop of the Blood; and consequently of being, as it were, erected *in Coitu*, and of embracing the *Ovary* at that Time, which in their State of Flaccity they did not.

They take their Denomination *Fallopian* from *Gabriel Fallopius*, a *Modenese*, who died in 1562, commonly reputed their first Inventor, though we find them described long before in *Rufus* of *Ephesus*.

The *Ova*, or *Embryos*, are sometimes detained in the *Tubæ Fallopianæ*, and cannot make their Way into the Womb.— *Abraham Cyprianus*, a celebrated Physician of *Amsterdam*, in a Letter to Sir *Thomas Millington*, describes the Manner in which he drew a *Fœtus* twenty-one Months old out of the *Tuba* of a living Woman, who lived and had several Children after the Operation.

TWINS spring always from two *Eggs* disengaged from the *Ovarium* at one and the same time. The *Egg* has two Membranes strew'd with Vessels, which at first are very small and fine, but grows larger after it has been fecundated by the more volatile Part of the *Seed* of Man carried to the *Ovarium*, through the *Tubæ Fallopianæ*.

The MATRIX (E) *Uterus*, or *Womb*, is the principal Organ of Generation. 'Tis placed in the lower Part of the *Hypogastrium*, between the *Rectum* and the Bladder; lodged in a Cavity called *Pelvis*, so large as to give the Womb Liberty to distend itself upon Impregnation. It is surrounded and defended by mighty Bones; before by the *Os Pubis*, behind by the *Sacrum*, on each side by the *Ilium* and *Ischium*. It is in Figure somewhat like a flat Flask, or dried Pear. In Women with Child, it expands and receives different Forms, according to the different Times and Circumstances of Gestation.——It has several Coats, Arteries, Veins, Nerves, and Ligaments, and is interwoven with several Kind of Fibres.

Anatomists divide the *Matrix* into the *Fundus* and *Cervix*; a broad Part, and a Neck.——It is in Extent from the Extremity of the one to that of the other, about three Inches in Length; its Breadth at the *Fundus* is about two and a half, and its Thickness two.——It has but one Cavity, unless we distinguish between the Cavity of the *Uterus*, and that of its Neck. That of the *Cervix* is very small, scarce sufficient to contain a Garden Bean. At the Bottom or Neck towards the *Fundus*, it grows very narrow in Virgins; the Extremity of it is called the *Osculum Internum*; in pregnant Women it opens, more especially towards the Time of Delivery.——The other and lower Orifice of the Neck towards the *Vagina*, called *Osculum Externum*, is a little prominent, resembling, in some measure, the Glans of the virile Organ.

The Substance of the *Matrix* is membraneous, which enables it to receive the *Seed*; to stretch and spread itself for the growth of the Child; to contract itself for the Egress of the Child, and Afterbirth, and at last to reinstate itself in its natural Posture.

The *Matrix* is tied fast at the Bottom and at the Neck. The Neck which is covered with the *Peritonæum*, is knit before to the Bladder and the Share-Bone, and behind to the *Rectum* and the *Os Sacrum*; the Bottom is more at Liberty in order to move, dilate, and contract itself upon Occasion, though equipped with four Ligaments, two upper ones (FF), which are nothing else but the Productions of the *Peritonæum*, which proceed from the Loins, and are inserted in the Sides of the Bottom of the Womb, to prevent its falling down upon the Neck; and two Inferiors (GG) which rise from the Sides of the Bottom of the Womb, towards its Horns, and passing through the Reins in the *Aponeuroses*, or Tendons of the Muscles of the *Abdomen*, march to the Groins, where they divide themselves into several Branches, some of which are inserted into the Share-Bone, and others in the Thighs, from whence proceed the Pains which pregnant Women feel in those Parts, which increase as the Belly rises.

From the Nerves dispersed over the Bottom of the Womb, as well as its Neck, and which proceed some from the intercostal Branch, and some from those that pass through the *Os Sacrum*, the *Matrix* receives its exquisite Sense of Pain, or Pleasure; and are the Occasion of its Sympathy with all the Parts of the Body.

The Womb is sprinkled all over with Blood imported, part by the spermatick Arteries, we have mentioned above, and part by other Arteries, which spring from the hypogastrick ones.

These Arteries not only furnish the Womb with Blood for its Nourishment, but likewise pour in Blood through an Infinity of small Branches upon the whole Body of the *Placenta*, in order to be sent through the Navel-String to the *Fœtus*.—When a Woman is not with Child, the same Blood slips away through several Passages that open into the Circumference of the Bottom of the Womb, and falls into its Cavity, from whence it makes its *Exit* through the *Vagina* every Month; and this is what we call menstrual Blood.

There are some of these Arteries that supply the inner Orifice with Blood, which is sometimes let out in pregnant Women, especially when the Person has more than is necessary for the Nourishment of the Child; so that we must not be surprized upon seeing some Women visited by their *Terms* several Times during their being with Child, who nevertheless go their full Time; since in that case the Flux comes from the Vessels of the Neck of the Womb, and not from the Bottom, for if from the Bottom it would occasion a Miscarriage, but no otherwise.

The Hypogastrick and Spermatick are the two principal Veins of the *Matrix*, which consists of an Infinity of Branches, springing from all the Parts of the Womb, and exporting the Blood to the Trunk of the *Vena Cava*.

Since we have already compared the *Matrix* to a Flask, we must believe that it has a Bottom, a Neck, and Orifices; and in Fact it has two Orifices, the one internal, and the other external.

The external Orifice (H) called PUDENDUM, is composed of several Parts, some of which are obvious,

ous, as the *Pubes*, the *Mons Veneris*, the Lips, and the great Slit; but the others are only descry'd after the Deduction of the Lips, such are the *Nymphæ*, the *Clitoris*, *Urinary Passage*, and the *Caruncles*.

The PUBES (I) is seated on the Forepart of the Share-Bone, and immediately above the *Pudendum*. It consists of Fat, which serves as a little Cushion to hinder the Hardness of the Bones from being hurtful in the amorous Embraces.

MONS VENERIS (K) is seated a little lower than the *Pubes*, above the great Lips, and at fourteen Years of Age, begins to be covered as well as the *Pubes* with little Hairs, which serve to prevent the grating of the Man's Parts against the Woman's in time of Action.

The great LABIA (LL) descend from this Hill, one on the right and the other on the left, and meet in the *Perinæum*.—They consist of the Skin doubled, and spongy Flesh and Fat, which renders them pretty thick.——In Girls they are firmer than in those who have received Man, and in those who have bore many Children they are soft and flaggy.——The Space between the two Lips is called the great Cleft, or Chink, and reaches from the *Mons Veneris* to the *Perinæum*.

Upon spreading the Thighs, and drawing aside the *Two Lips*, we find two fleshy soft and spongy Excrescences, and called

NYMPHÆ (MM) which descend from the Tip of the *Clitoris* to the Sides of the Urinary Passage; thus reaching to about the Middle of the Orifice of the *Vagina*, where they grow less and less till they disappear.

Their Breadth is uncertain, usually in Maids half a Finger; some times they are larger, and capable of being distended to a great Degree; so as to hang a good Way out of the Body, and in such Cases are often extirpated.

The Use of the *Nymphæ* is, by swelling in Act of Coition, to embrace the *Penis*, and by their Sensibility to affect the Woman, and mutually invite to Procreation.

Their Substance is very spongy, composed of Membranes, and Vessels loosely cohering, and therefore easily distendible.

Within the great Cleft above the *Nymphæ*, there is a long round and glandulous Body, which encreases towards the Extremity, called CLITORIS.

Some call the *Clitoris* (NN) *Ostreum Veneris*, from its exquisite Sensation, for all *Physicians* as well as *Anatomists* agree in this, that the *Clitoris* is the principal Seat of Pleasure, and some of them believe that Women of a wanton Constitution procure to themselves, by the Friction of this Part, a Pleasure that supplies the Room of a Man's Embraces.

Its Appearance commences in Virgins about the fourteenth Year of their Age; after which it enlarges as the Years advance, or in proportion to the greater or lesser Salaciousness of the Person.—— In the Ardour of Enjoyment it swells and becomes hard, just as the Yard swells in the Time of Erection, and by the same Cause.——In some Women 'tis very large, and shoots without the Lips; in others it has the Size of a Man's Yard, and serves for an Instrument to abuse other Women, as in the *Hermaphrodites*.

The *Clitoris* is composed of the same Parts with those of the *Penis*; it has, like it, two cavernous or spongious Bodies, and a *Glans* (O) at the Extremity covered with a *Præputium* (P), but not perforated like the *Penis*.

It has two Muscles (RR) which erect it in Coition, on which occasion it swells and grows hard.

The spongious Bodies of the *Clitoris*, arise distinctly from the lower Part of the *Os Pubis*, and approaching one another unite, and form the Body of the *Clitoris*; before their Union they are called *Crura Clitoridis*, and are twice as long as the Body of the *Clitoris*.

Its Muscles arise from the Protuberance of the *Ischium*, and are inserted into its spongious Bodies; it has Veins and Arteries from the hemorrhoidal Vessels and *Pudenda*; and Nerves from the intercostal, which serve not only to raise and stiffen the *Clitoris*, but likewise to contract and straiten the Orifice of the *Vagina*; for when they swell themselves, they oblige the *Labia* to draw close to one another; by which Means the Yard is extremely squeezed in the amorous Approaches.——'Tis also by virtue of these Muscles that some Women move the *Labia* at pleasure.

The *Arteriæ Pudendæ* furnish the *Clitoris* with Blood, and the *Venæ Pudendæ* carry it back into the *Cava*.

Under the *Clitoris* appears the Urinary Passage, surrounded with a *Sphincter*, which serves to imprison or release the Urine at pleasure, and this Passage being larger and shorter in Women than in Men, their Urine being thereby provided with more Dispatch, sweeps off the small Stones, Sand, and Gravel, which oftentimes remain in the Bottom of a Man's Bladder, so that Women are less subject to the Stone.

Graaf calls *Lacunæ* a glandulous Body, of about a Finger's Breadth thick, situated between the fleshy Fibres of the *Urethra*, and the Membrane of the *Vagina*, and which spreads itself along and round the Bladder.——Those Conducts terminate in the lower Part of the *Vulva*, and there throw out a slimy Matter that mixes with the Male Seed.

The CARUNCLES MYRTIFORMES (VVVV) come next; placed, as it were, in the four Corners of a Quadrangle, and in the midst of a long Cavity called *Fossa Navicularis*.——They are made of the fleshy Wrinkles of the *Vagina*, which render the Passage so much the straiter, especially in Virgins, in whom they are joined side-ways to one another by some small Membranes, which make them resemble a Rose-bud half blown; but when those Membranes are once broken, by the Ingress of the *Penis*, or the Egress of a Child, they are separated, and never rejoin.——These *Caruncles* serve for two Uses, one is to heighten the mutual Pleasure of Enjoyment, by clinging round and locking up the Yard; the other is to facilitate the Egress of the Child, by extending themselves.

I am of Opinion that the Union of these two *Caruncles*, is the sole Mark of Virginity in a Woman, and that the Pains felt in the first Embraces, and the spilling some Drops of Blood proceed from the forcing of a Passage through these *Caruncles*, and lacerating the little Membranes that unite them, and not from the Renting of a certain imaginaty Membrane called HYMEN, by some *Anatomists*, but which none of them could ever yet discover; therefore, we must not suppose that the trifling Pains felt in the first Adventure, and the few Drops of Blood spilt, are always a certain Evidence of getting a Maidenhead, since that pretended *Hymen*, supposed to obstruct the Entrance of the *Vagina*, is but a Fiction, and the *Caruncula Myrtiformes*, are some times ranged in such a manner, that the Yard may enter without Violence.

Having thus carefully examined the Parts calculated for Generation, both in Men and Women; it will not be improper to give here, some account of the Generation itself.

To proceed with some Order in this curious Discovery, we must consider, that an Animal cannot be produced without a Couple, *i. e.* a Male and a Female, each of which acts its respective Part in the admirable Work of Generation. Let us therefore inquire first into the Man's Part.

The whole of his Action may be reduced to two Heads, *viz.* the producing of Seed, and the conveying it into the Womb,

The SEED, *Semen*, is a white Liquid Matter, the Thickest of any in the Body, separated from the Blood in the Testicles, and reserved in proper Vessels to be the Means of *Generation*.

The Parts concerned in the Preparation of the *Seed* are the ſpermatick Arteries, which bring the Blood to be ſecreted into the Teſticles; the Teſticles and *Paraſtatæ*, where the Secretion is chiefly effected; the *Vaſa Deferentia*, which convey the ſecreted Matter out of the Teſticles; and the *Veſiculæ Seminales*, which receive and preſerve it to be emitted in Coition.

Some admit of four ſeveral Kinds of *Seed*; the Seed of the Teſticles, that of the *Veſiculæ Seminales*, that of the *Proſtates*, and that of the Glands of the *Penis*; though the Liquor of the *Proſtates*, and that of the Glands of the *Penis*, are generally allowed not to be any true Seed, no more than that emitted by Women; nor is there any good Reaſon why either of them ſhould be called ſo, as their Appearance is very different, and as other ſufficient Uſes are aſſigned for them, *viz.* to line and lubricate the Parts, that the Seed, Urine, *&c.* may paſs more freely, and without adhering.

The ſeminal Liquor however, ſuch as emitted for Uſe, is a Mixture of ſeveral Fluids, poured at the ſame Time into the common Canal of the *Urethra*, either from the Glands that have ſecreted them, or the Reſervoirs that have kept them.

Mr. *Du Verney* obſerves, that in different Species, the Number and Structure of theſe Organs is different.—In Man the principal are the *Veſiculæ Seminales* and *Proſtates*, beſides what was diſcovered by Mr. *Cowper*, *viz.* a Number of new glandulous Bodies on each ſide the *Urethra*, towards the Root of the Yard.——Mr. *Du Verney* has found that the ſame are likewiſe in moſt other Animals, and placed in the ſame manner.

It is controverted, whether or no the Liquor filtrated hereby, be neceſſary for Generation. Mr. *Du Verney* thinks it is, and his chief Reaſon is, that in Animals that have been caſtrated, theſe Glands, as well as all the other Sources of Generation, are found dried up and decayed.——Mr. *Littre* objects to this, that the *Veſiculæ Seminales* and *Proſtates* having little Cells where their filtrated Liquor is depoſited, it is eaſily conceived, that their Humours may wait ſome time for an Occaſion of being emitted; but that theſe new *Proſtates* or Glands of Mr. *Cowper* having no ſuch Reſervoirs, their Liquor muſt come out into the Cavity of the *Urethra*, in proportion as it is ſeparated, and be deſtined for ſome continual, a momentary, or occaſional Uſe.

I will not amuſe myſelf here to enter into a ſtrict Examen of the different Opinions on the Nature of the Seed; if it is prepared by the Concoction or Converſion of Blood into it; or if it is a Juice imported by the Nerves to the Organs of Generation; or if the Seed is compoſed of an Infinity of little Animals, called Seminary, which late Opinion has been much in Vogue for ſeveral Years paſt, and has ſet the two celebrated Faculties of *Paris* and of *Montpelier* at Variance.

Mr. *Leewenhoeck* was the firſt Diſcoverer of theſe *Animalculæ*, and many after him make no Scruple to call them true Fœtus's, little Men; and ſome have even pretended to diſcover ſomewhat of the human Figure therein.——But *Verheyen*, and others after him deny the Exiſtence of any ſuch *Animalcula*; maintaining that it is only the inteſtine Motion of the Parts of the Seed, kept on Foot by the Warmth thereof, that exhibits this Appearance, which fanciful Perſons have improved into friſking *Animalcula*; and urging in Confirmation hereof, that no ſooner is the Warmth gone than all the Appearance of Animals ceaſes.

Mr. *Hartſocker* publiſhed his *Dioptrical Eſſay* in the 31*ſt Journal des Sçavans*, for the Year 1678, wherein he pretends to have examined the Seed of Animals with a Microſcope, and diſcovered that 'tis full of an Infinity of other Animals.—That in Man theſe ſeminal Animals are ſo many Seeds of other Men, which being conveyed to the *Ovarium*, ſtrike at the firſt Egg they meet with; upon which one of them perforates the Membrane, or gets into the Egg by a ſuppoſed Artifice, and preſently ſhuts itſelf up, leaving the reſt to periſh without Doors, unleſs ſome of them be ſo lucky as to ſlip into another Egg. The Animal that enters the Egg ſerves for Sperm, which by ſwelling it up prompts it to diſengage itſelf from the *Ovarium*, and tumble into the *Tuba*, which conducts it to the Womb.

I muſt confeſs that this Diſcovery, if true, is a very curious one, but I'll rather follow my firſt Notion, which is, that the ſeveral ſeminal Particles being ſeparated from the Blood by the natural Diſpoſition of the Teſticles, are received by an infinite Number of the ſmall Roots of the *Epididymes*, which convey them to theſe glandulous Bodies; from whence they repair to the *Vaſa Deferentia*, and are by them conducted by Drops to the ſeminal Veſicles.——In theſe Veſicles all theſe Particles being joined make a prolifick Liquor, called *Seed*, laid up for a Reſerve in theſe little Bags.

All the Care that Nature takes in raiſing this Liquor to a due Degree of Perfection, would prove of no Uſe if it continued always in the Ciſterns. It muſt have an Egreſs, and be transferred to a Place that's qualified for the Production of Man. This Place is the Womb; and the Action which transfers the *Seed* is called Copulation, to which, a Man, when arrived at a certain Period of Years, is inclinable of his own Accord, without being egg'd up to it, or inſtructed in the Way of going about it.

COPULATION is the joining of a Male to a Female; in the Action the Male gives, and the Female receives; but there are three neceſſary Circumſtances in performing the Act of *Copulation*; the firſt is the Erection of the Yard; the ſecond its being lodged in the Neck of the Womb; and the third is the Ejaculation of the *Seed*.

The *Erection of the Penis*, conſiſts in a Diſtention of its *Corpora Cavernoſa*, by an extraordinary Quantity of Blood pent up therein; and which is effected in the following Manner.

The Fancy being warmed with the Idea of Pleaſure, the animal Juice falls out, and repairs with Expedition to the Nerves of the Genitals, where it throws itſelf into the Cavernous Bodies, and mixes with the arterious Blood then lodged in the ſame Bodies; upon which enſues the Ebullition of the two Liquors, and conſequently an Erection.

The only Uſe of the *Erection* is to enable the Yard to enter the Neck of the Womb, and ſquirt in the *Seed* upon it.——Sometimes the Erection is ſo ſtrong, that the Yard is always bent, as in a *Priapiſm*, or a *Satyriaſis*, but that Sort of *Erection* is not proper for Generation.——A large Yard does not ſtand ſo readily as a ſmall one; and when it does, it cannot hold ſo long, becauſe it requires more Blood to fill it; and when 'tis full it is heavier, and conſequently apt to fall in a very ſhort Time.

Nature has taught all Animals (and Man among the Reſt) the moſt convenient Poſture for Copulation, and every one is acquainted with the Meaſures of Decency that Reaſon enjoins; I ſhall therefore paſs over this Head in Silence, and only now obſerve to you, that the Buſineſs of Generation ſuffers no Alteration from the Shortneſs or Length of the Yard within the Neck of the Womb; for the Action of the two round Ligaments conſiſts in making the Bottom of the Womb to approach the Head of the Yard, in order to receive the *Seed* in Time of *Ejaculation*.

The EJACULATION, which ought to follow the Lodging of the Yard in the Neck of the Womb, is thus performed.——The Seed taking Leave of the Seminal Veſicles, paſſes through the ejaculatory Veſſels, and enters the *Urethra*, from whence 'tis ſquirted out with a Jirk, by Virtue of the Convulſions that then ſeize the Yard.——This Emiſſion is performed more nimbly in ſome than others, occaſioned by this, that ſome are keener than others, or that their ſeminal Veſicles are fuller of Seed.——The Quantity of Seed thus emitted cannot be determined; ſome ſquirt out more than others; and no more is ne-

ceſſary than what can keep up its Conveyance to the *Ovarium*.——The principal Pleaſure aimed at by the Animal, at that Time, is confined to that critical Moment of *Ejaculation*; which tickling Pleaſure ſprings from the Spirits mixed with the Seed; for theſe being pliant and moveable Particles, they tickle and lightly graze up and down in the Parts, rather than pierce and gall them. The Fineneſs and Bending of the nervous Fibres of the Parts contributes likewiſe towards the quick Senſe of Pleaſure.

Of all Temperaments the Sanguine are moſt amorous.——The Blood of bilious Conſtitutions is too ſharp and ſubtile; that of Melancholick too heavy and too watery to produce laudable *Seed*; but the Blood of a ſanguine Complexion is poſſeſſed of the due Softneſs, Warmth, and Conſiſtency that enables it to furniſh Abundance of laudable *Seed*.

We'll now take a View of the Woman's Part in the Act of *Generation*; but before we proceed further we muſt make ſome Remarks upon the Teſticles of Women. 1. That the Teſticles of Women are Glands which filtrate the Seed; and that each of them has an excretory Veſſel, which conveys the filtrated Seed to the Veſicles. 2. That in Women each of theſe Veſicles is ſeparated from its neighbouring Veſicle, as one Grape is from another in the ſame Bunch. 3. That in each Veſicle there is a Seed which is capable to form a Child, juſt as a Hen-Egg contains all the neceſſary Particles for producing a Chick; and, 4. That each Veſicle may diſengage itſelf from the Teſticle, and be tranſported to the Bottom of the Womb.—Upon this Principle we call the Veſicles Eggs, and change the Name of Teſticles into that of *Ovarium*.

It is a common Opinion that Women have ſome Advantage from their Teſticles being placed within, as that of receiving of more Pleaſure than Men, in the amorous Embraces; but I am apt to believe that the Evils it occaſions outvye the Pleaſure; for the Seed being retained there turns ſharp and ſour, and cauſes thoſe cruel Vapours, to which they are ſubject. ——We ſee by Experience that moſt Girls arriving at the Age in which the Secretion of the Seed is performed in the Teſticles, turn Yellow and Pale, and are never cured of that Illneſs till they marry. Now this proceeds from the Seed turned Sour by its long Abode, which mixing with the Blood breaks its Texture, and changes its Conſiſtence; ſo that by rendring it more ſerous, liquid, and cold, and by flattening its Redneſs, it makes the Colour of the Skin leſs lively.——'Tis very probable that moſt of the *Nuns* and other Girls that are taken to be poſſeſſed with Devils, were ſubject to Vapours when they acted the awkard Extravagances Hiſtory is full of.—Men themſelves are diſordered by Seed; for we find that thoſe eſpecially, who live in Continence, are attacked with Vapours which incommode them very much.

The Matrix, or Womb, is the proper and peculiar Organ of Generation. 'Tis certain that the *Fœtus* is formed within it out of the Seed that it foments; but we are at a Loſs to know in what Manner it is formed.

There are two principal Theories or Methods of accounting for the Generation of Animals: The one ſuppoſes the *Embryo* or *Fœtus* to be originally in the Seed of the Male; the other in the *Ovum* or Egg of the Female.

The *First* ſuppoſes Animalcules in the male Seed (as I have already obſerved) to be the firſt Rudiments of the *Fœtus*; and that the Female only furniſhes a proper *Nidus* and Nutriment to bring them forwards.

The *Second* ſuppoſes the firſt Rudiments of the Animal to be in the *Ova*; and that the Male-Seed only ſerves to warm, cheriſh, and ripen the *Ova*, 'till they fall off out of the *Ovary* into the Womb; which is chiefly ſupported (ſay the Retainers to that Syſtem) from the Conformation in Rabits, Cows, *&c.* where the *Vagina* of the Womb is ſo long and ſinous, that it is ſcarce poſſible the Male-Seed ſhould ever arrive within the Body of the *Uterus*, eſpecially in Cows, whoſe *Vagina* is filled with a thick, viſcid Ichor, and the inner Orifice of the Womb exactly cloſed.——They add to this that it is highly improbable that the Animalcules (mentioned by Mr. *Leewenhoeck* and others) ſhould contain the Rudiments of a future Body; ſince their large Number would produce too plentiful an Offspring; in ſo much that it would be neceſſary for 9999 Parts of them to be in vain and periſh, which is contrary to the Œconomy of Nature in other Things.

Analogy is likewiſe urged in Favour of this Syſtem: That all Plants are maintained to ariſe from Eggs; Seeds being no other than Eggs under another Denomination. All *oviparous* Animals do unexceptionably ariſe from Eggs; which the Female caſts forth; and it is highly probable, that the Females lay and hatch their Eggs within themſelves.

Againſt this Hypotheſis it is urged, that what are uſually called *Ova*, or Eggs, in Women, are no other than little Cells or Bladders, full of a certain Liquor: And how can a Drop of Liquor paſs for an Egg? And that theſe imaginary Eggs have no proper Membrane belonging to them, nor any Covering but that of the Cell; which ſeems ſo inſepable therefrom, that when they are diſcharged, it is hard to conceive how they ſhould take it with them. And beſide, how ſhould they make themſelves a Paſſage through the common Membrane, wherewith the *Ovary* is inveſted, which is of ſo cloſe a Texture, that it muſt ſeem abſolutely impenetrable, by a round Body of ſo ſoft a Conſiſtence, as one of theſe Veſicles.——Laſtly, *Veſiculæ*, in all Reſpects perfectly like *Ova*, have been found in other Parts of the Body, where it is apparent they could not ſerve for any Purpoſes of Generation. *Mem. de l'Academ. Royal des Scien.* An. 1708, 1709.

To this it is anſwered, that *Ova*, or *Veſiculæ*, have been actually found in Diſſections, detached and ſeparated from the *Ovary*, and the Ruptures in the Membranes in the *Ovary*, through which they had paſſed, ſtill viſible.

Mr. *Littre* even obſerved ſome of theſe ſeparated *Ova*, ſpread with blood Veſſels, like thoſe in the Yolks of Birds Eggs.——Nay more, the ſame Author is poſitive, that he ſaw an *Embrio* in one of the *Ova* not yet ſeparated; could diſcern its Head, Mouth, Noſe, Trunk, and *Funiculus umbilicalis*, whereby it adhered to the Membranes of the *Ovary*.

Sir *John Floyer* ſtarts a Difficulty, which ſeems to preſs equally againſt each Syſtem, taken ſingly: It is fetched from Monſters; in a Mule, for Inſtance, which is the Production of a *venereal Copula*, between an Aſs and a Mare, the Bulk of the Body partakes of the Form of the Dam; and the Feet, Tail, and Ears of that of the Sire; hence it is argued, that the Rudiments of the greater Part of the *Fœtus*, are laid in the *Ovum*; and that the Impregnation, either conveys, or changes the Extremities. If the Male ſupplied the *Animalcula*, the *Fœtus* ſhould always be of the ſame Species as the Male: If the Female ſupply it, it ſhould be of her Kind; whereas Monſters are of both.

But notwithſtanding this Objection, all Anatomiſts agree, at preſent, that the *Fœtus* is certainly lodged in an Egg; and that the Proceſs of Generation, on the Part of the Female, is thus,

The *Clitoris* being erected, after the like Manner as the *Penis* in Man; and the neighbouring Parts all diſtended with Blood, they more adequately embrace the *Penis* in *Coitu*; and by their Intumeſcence, preſs out a Liquor from the Glands about the Neck of the Womb, to facilitate the Paſſage of the *Penis*.—At the ſame Time the Fibres of the Womb contracting, open its Mouth, (which at other Times is extremely cloſe) for the Reception of the finer Part of the Seed.

Thus the Seed, pregnant with Animalculas, is conveyed, with ſome Impetus, into the *Uterus*; where, being retained by the convulſive Conſtriction of

of the inner Membrane thereof, and further heated and agitated therein, it is prepared to impregnate the *Ovum*.

During the Act of Coition the *Fallopian Tubes* growing stiff, embrace the Ovaries with their strong musculous Edges, like Fingers, and compress them; till their Mouth being dilated, and expanded by this Embrace, force the Egg, now ripened, into their Cavities, and gradually drive it forwards, by their vermicular Motion, till at last, they protrude it into the Cavity of the Womb, to meet the Seed; some of the Animalcules whereof, entring the dilated Pores of the glandulous Membrane of the Egg, are there retained, nourished, grow to its Navel, and suffocate the rest of the less lively *Animaculæ*.

Thus speak the Asserters of that System.

They who set aside the *Animalcules*, as unconcerned in *Generation*, account for it thus: The Seed containing oily, volatile, and saline Parts (as appears from its fetid Smell, oleaginous Substance, *&c.*) being lodged in the Womb, and there further digested and exalted; grows yet more volatile, fetid, pungent, and stimulating; and thus adding to the Heat occasioned by Coition, vellicates the nervous Fibres of that Part, and occasions a Fermentation; and by that Means an extraordinary Flux of Humours to that and the adjacent Parts.

By this Means the *Tubæ* become rigid, and fit to grasp the *Ovaries*, which are also heated by the *Effluvia* of the *Semen*, and the Warmth of the Parts surrounding; till at length, some of them at least, by such greater Supply of Nourishment, increase in Bulk; and as those grasped by the Edges of the *Tubæ*, will be kept warmest, and the greatest Flux be made thereto, they will sooneft be ripened, fall off, and be received by the *Tubæ*, and conveyed to the Womb; where growing after the Manner of the Seed of Plants, the *Placenta*, at length, lays hold of, and adheres to the *Uterus*; from which Time the *Embryo* begins to be nourished after a different Manner.

Here we conclude the historical Description of the Parts contained in the *Abdomen*, and proceed to the *Thorax*.

The THORAX (A), or *Breast*, is the whole Cavity that reaches from the *Claviculæ*, or channel Bones, to the Midriff, with the *Sternum*, or Breast-Bone before, the Ribs on the Sides, and the *Vertebræ* of the Back behind.——Its Figure is almost oval; 'tis flat behind, and broad and arched before.——Its Magnitude is not always the same, but generally speaking, it ought to be rather larger than lesser, for the easy Expansion, and Motion of the Lungs.——Its Substance is partly bony, and partly fleshy.

The *Thorax* or Breast, is divided, like the *Abdomen*, into containing and contained Parts. The containing Parts are either common or proper; the common are those I spoke of under the Head of the *Abdomen*, with this Difference, that the Skin is covered with Hair always under the Arm-pits, and sometimes upon the Breasts; and that the Fat of the *Thorax*, (abating for the Breasts) is but in a small Quantity.

The Proper, containing Parts of the *Thorax*, are ranked in four Classes; some are glandulous, as the Breasts, in both Sexes; some cartalaginous or bony, as the Breast-bone, the Ribs, the Channel-Bone, the Shoulder-blades, and the *Vertebræ* of the Back. Some fleshy, as the Pectoral, Intercostal, and other Muscles; and some Membranous, as the *Pleura*, and the *Mediastinum*.

The Parts contained in the *Thorax* are the *Viscera*, and the Vessels.——The *Viscera*, are the Heart, with its *Pericardium*; and the Lungs, with Part of the Wind-pipe, and the Gullet.——The Vessels are several Nerves, the great Artery, the *Vena Cava*, and the Thoracick Duct.

The most apparent of the proper containing Parts, are the Breasts, *Mammæ*, a prominent, fleshy Part on the Outside of the *Thorax*, serving to separate the Milk.

The *Breasts* are much more perfect, more conspicuous, and of more Use in Women, than in Men: Their Magnitude is various; always biggest in Time of Gestation and Lactation.—Their Figure represents a large Section of a Globe, having in the Middle a Prominence, terminating in a blunt Point, called the *Papilla* or Nipple, in the Extremity of which are Perforations, to which reach lacteal Tubes.

The PAPILLA or *Nipple* (C), is of a fungeous and spungy Substance, not unlike the Nut of the Yard, by Virtue of which it droops or raises itself, when sucked or handled——'Tis possessed with an exquisite Sense, to the End that the Woman may perceive a sort of Pleasure from the soft Titillation that the Child makes in sucking, and for that Reason be the readier to suckle it when Occasion calls.

In Virgins the *Nipple* is red and little; but in Nurses, and those who are past Child-bearing 'tis livid and big.

For the Choice of a Nurse, we commonly prefer those who have the least *Nipples*, because a large *Nipple* hinders the Child from sucking, by over cramming his Mouth.—Some pretend that a large *Nipple* is to be avoided, because it enlarges the Child's Mouth, but that's a vulgar Error.—The *Nipple* is surrounded with a Circle called *Areola*, of a pale Colour, in Maids, brown in pregnant Women and Nurses, and black in old Persons.

The internal Substance of the *Breasts*, is composed of a great Number of Glands of various Sizes, and an oval Figure, intermixed with Globules, and Vessels of Fat. Their excretory Ducts, as they approach the *Nipple*, join and unite together, till at last they form seven, eight, or more small Pipes, called *Tubuli Lactiferi*, which have several cross Canals, by which they communicate with one another, to obviate the Inconveniencies, that might accrue from the casual Obstruction of one or more of them.——These Tubes are not every where of equal Capacity, but in some Places more, in others less dilated; so as to form Cells, which seem contrived to hinder the spontaneous Efflux, and to create a Necessity of sucking, to fetch out the Contents.

Of the Concurrence of these *Tubuli* or Pipes, is the Substance of the *Papillæ* in some Measure formed; among which is interspersed a glandulous Substance, serving to keep them from pressing too close on each other: And with it are intermixed Abundance of Fibres, derived from the external Tegument of the *Papilla*; by Means whereof, the lacteal Tubes are constringed, and the Motion of the Milk modified.

Besides these Vessels are abundance of fatty Globules called *Ductus Adiposi*, which some would have only to fill up the Interstices of the Glands; but Dr. *Drake*, after *Malphighi*, thinks they contribute to the Composition of the Milk.

In Virgins, the Tubes which compose the Glands of the *Breasts*, like Sphicter Muscles, contract so closely, that no Part of the Blood can enter them: But when the Womb grows big with a *Fœtus*, and compresses the descending Trunk of the great Artery, the Blood flows in greater Quantities, and with a greater Force through the Arteries of the Breasts, and forces a Passage into their Glands; which being at first narrow, admit only of a thin Water; but growing wider by Degrees, as the Womb grows bigger, the Glands receive a thicker *Serum*; and after the Birth, they run with a thick Milk; because that Blood which before flowed to the *Fœtus*, and for three or four Days afterwards, by the *Uterus*, beginning then to stop, does more dilate the mamillary Glands.

The *Nerves* of the *Breasts*, are derived from the fifth Pair of the *Vertebræ*, which being dispersed through the whole Substance of the Breast, terminate in the *Nipple*, and entitle it to a very tender Sense.

The *Breasts* have two Sorts of Arteries, *viz.* the Internal, which visit their inner Part; and External, which run along the outward Surface. The latter

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are the upper *Thoraciæ*, springing from the *Axillares*; and the former are the *Mammariæ*, which spring from the *Subclaviæ*, and bestow a Branch upon each of the oval Glands, which compose the Breast.

The same Glands give Rise to several Sprigs of Veins, which form the *Venæ Mammariæ*, and unload in the *Subclaviæ*——In the like Manner the external Part of the Breast sends out several Branches, which are the Trunks of the *Thoraciæ superiores*, and repair to the *Axillares*.——The outer Arteries import Blood for the Nourishment of the Breasts, and the inner ones feed all the Glands.——The Blood thus imported, is exported by the Veins, *viz.* the *Mammariæ*, and the *Thoraciæ Superiores*; the former disemboguing in the *Subclaviæ*, and the latter in the *Axillares*.

'Twas formerly the received Opinion, that the *Breasts* produced Milk for the Nourishment of the Child after his Birth, by turning the Blood, the *Fœtus* had been fed with in the Womb, into Milk, by a peculiar concocting Virtue in the Glands of the Breasts, and these Glands communicating a Whiteness to the Blood by an assimulating Faculty.

But the Moderns are of Opinion, that the *Milk* comes from the pure Chyle, conveyed by the Arteries to the Breast, and without any other Coction filtrated through the Glands, whereof they are composed like Urine through the Reins, without undergoing any considerable Change.

According to Mr. *Leewenhoeck*'s Observations, Milk consists of little *Globules*, swimming in a clear, transparent Liquor, called *Serum*, or *Whey*.

MILK is a Composition of three different Kinds of Parts, butyrous, caseous, and serous.——The *Butyrous* Parts, are the Cream, and Oil that swims atop.—The *Caseous*, are the grosser Parts, and those that coagulate, and are made into Cheese.—The *Serous* are properly a *Lympha*, and make what we call *Whey*.

The *Milk* is prepared after this Manner. The Chyle being conveyed by the *Thoracick Duct*, to the *Subclavian* Vein, near the Axillary, runs from thence to the *Cava*, and to the right Ventricle of the Heart, where it joins in with the Blood, and accompanies it to the great Artery, which distributes it into all the other Arteries of the Body. As that Chyle which is most serous, is thus conveyed by the emulgent Arteries to the *Reins*, so that which is most milky, is carried by the small Branches of the *Mammariæ*, to all the Glands of the Breasts, which makes a Secretion and Filtration of one, as the *Papillary Bodies* in the Kidneys, do of the other.—All the lacteal Particles being thus rallied, and reunited, make up a Body of *Milk*, which is thrown by the Pipes of these Glands, into the Cistern of the *Milk*, and continues there till the Child sucks it out through the small *Tubuli*, that runs from the Cistern.

This Opinion is confirmed by a particular Case, mentioned by Mr. *Dionis*, who affirms, that in 1684, he saw at *Valenciennes*, a young Girl, who voided a great deal of Milk at one of her Thighs, which had began to issue from her about the eighth Year of her Age, and had still continued upon her, notwithstanding she was visited by her Terms at the usual Period; that in each Porosity, through which the *Milk* issued, there was a small Hardness resembling a swell'd Gland; and that this Milk was of the same Nature with that of the Breasts.

These Circumstances prove that Milk is a thick Chyle, which circulates along with the Blood, and is separated from it in the *Breasts*; and may find an Exit in the other Parts of the Body, when their Porosities are over dilated, as those of the Glandules of the Thigh were in this Case.

The Fermentation of the Milk in the Breasts, the first Days after a Woman is delivered, occasions a Fever, which takes its Name therefrom.

Aristotle says, there are some Men who have Milk in their Breasts.—*Cardan* tells us he saw one that had enough to suckle a Child.

Milk, corrupted in the Stomachs of Children, occasions the several Diseases incident to that Age. *Dobel*, a *Danish* Physician, who has wrote expresly on this Subject, tells us, an excellent Remedy in such Case, is a Glass of Water with a little Salt dissolved in it: This acts as an Emetic, and throws up the Corruption that occasioned the Disorder.——*Celsus* mentions this Remedy. *l. c.* 3.

'Tis a common Allegation, that Children take their Manners from their Nurses, and partake of their good and bad Qualities; but this is not to be always credited; forasmuch as Children brought up with Cows-Milk or Goats-Milk, are unacquainted with the brutish Dispositions of these Animals.

Another Remark which I'll make *en Passant*, is, that Nurses injure their Children by suckling them too often: They use to say that it is a good Sign when Children throw up the *Milk*; but, on the contrary, that Redundancy of *Milk* makes them so fat, that they are oftentimes carried off with a continual Fever.

The Parts of the *Thorax* that lie next in Order are the *Muscles*, which I'll pass over in Silence 'till I come to speak of the *Muscles* in general.

The next to these are the bony and cartilagineous Parts of the *Breast*, of which I have discoursed at large in the *Osteology*.—Therefore we'll proceed to the fourth Class of the containing Parts of the *Breast*, which are called Membranous, *viz.* the *Pleura* and the *Mediastinum*.

The PLEURA is a Membrane, which lines the Inside of the Cavity of the *Breast*, and incloses all the Parts contained therein, being of the same Figure and Extent as the *Thorax* itself, and of the same Substance with the *Peritonæum*.

It is very fine and thin, yet manifestly double; thickest about the Back, where it is fastened to the Ligaments of the *Vertebræ*, from whence it takes its Rise. 'Tis likewise fastened to the *Periosteum* of the *Costæ*, and the intercostal Muscles, and after that is inserted in the Inner and Fore-part of the *Sternum*.

In the Middle of the *Thorax* it is doubled, which Duplicature forms what we call *Mediastinum*. (G)—It has several Holes, some of which lie above and afford a Passage to the great Artery, the *Vena Cava*, the Gullet, the Wind-pipe, and the Nerves of the eighth Pair; the others lie below for the Passage of the *Vena Cava* and the Gullet.

The *Pleura* receives several Nerves from the *Vertebræ* of the Back, and from the eighth Pair, which renders the Wounds of that Part both dangerous and painful. It derives its Arteries from the intercostal and great Artery, and sends its Veins to the *Intercostalis Superior*, and the *Œgygos*.

The Use of the *Pleura* is to defend the Inside of the *Thorax*, and render it smooth that the Lungs may not be hurt in their Motion.

The MEDIASTINUM is a double Membrane, formed by a Duplicature of the *Pleura*; serving to divide the *Thorax* and the Lungs into two Parts; and to sustain the *Viscera*, and prevent their falling from one Side of the *Thorax* to the other.

It proceeds from the *Sternum*, and passing strait down through the Middle of the *Thorax* to the *Vertebræ*, divides its Cavity into two.—It contains the Heart between its two *Lamellæ*, and it affords a Passage to the *Vena Cava*, the *Œsophagus*, and the stomachic Nerves.—The Membranes of the *Mediastinum* are finer and thinner than the *Pleura*, and have a little Fat.—It receives Branches of Veins and Arteries from the Mamillary and Diaphragmatic, particularly one called *Mediastina*; its Nerves come from the Stomachic: It has also some Lymphatics, which open into the *Thoracic Duct*.

The *Mediastinum* divides the *Thorax* longitudinally into two Parts; to the End that one Lobe of the Lungs may officiate, if the other be hindered by a Wound on the other Side.——Sometimes there is Matter contained betwixt its Membranes, immediately under the *Sternum*, which may occasion the Tapping of this Place.

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The PERICARDIUM (K) is a Membranous *Capsula*, or Pouch, which includes the Heart.——It consists of a double Membrane; the inner arising from the Coats of the Vessels of the Heart, and the outer from the *Mediastinum*.——Its Figure resembles that of the Heart Conoidal; and it embraces the Heart laxly, allowing Room for its Pulsation.

It is connected either immediately, or by *Vesiculæ*, emitted from it to the *Sternum*, Back, Jugulum, and to the tendinous Parts of the Diaphragm.

Its Use is supposed to be to defend the Heart; as likewise to contain a soft, serous Humour, which serves to lubricate, and moisten the Heart, and prevent any Inflammation that might probably arise, from the dry Friction of the Heart, and its *Capsula*. But this latter Use is controverted; for some take the Humour found in it to be unnatural; and will have it forcibly separated, by the convulsive Agonies supervening in the Articles of Death. In Effect, Anatomists are puzzled to find whence it should come, or from what Vessel it is secreted.

Dr. *Keil* in his Treatise of Animal Secretion, shews that the Liquor in the *Pericardium* must be the most fluid of any separated from the Blood, because its Particles uniting first, will have the greatest attractive Force, consequently their Particles must be the most spherical, and most solid; and therefore their Contact the least of any, therefore the most fluid.

In the Memoirs of the *French* Acadamy, M. *de Mortal* gives an Instance of a *Pericardium*, which being opened, the Liquor contained therein was found congealed into a Consistence, fit to be cut with a Knife, and two square Fingers thick about the Heart.

When the *Pericardium* is opened, we come in Sight of the *Heart*, the most considerable Part in Men.——This Part is look'd upon as the first and last Principle of Life; for it no sooner moves, than the *Fœtus* begins to live; and the Cessation of its Motion, dissolves the whole Machine. So that 'tis justly called the first Thing that lives, and the last Thing that dies.

The HEART (L) is a musculous Part of the animal Body situate in the *Thorax*, wherein the Veins all terminate, and from which all the Arteries arise; and which by its alternate Contraction and Dilatation, is the chief Instrument of the Circulation of the Blood.

The Figure of the *Heart* is a Cone, or Pyramid reversed; the upper and broader Point whereof, is called the *Basis*; and the lower, the *Cone*, *Apex*, or Point, which is turned a little towards the left Side.

Its Magnitude is indeterminate, and different in several Subjects, according to their respective Dimensions.—Its ordinary Length is about six Inches, its Breadth, at the *Basis*, four or five; and the whole Circumference fourteen.——Its Place is the Middle of the *Thorax*, between the two Lobes of the Lungs; and it is fastened to the *Mediastinum*, and *Pericardium*, and supported by the great Blood-vessels, to which alone it is immediately connected; being for the Conveniency of its Motion, disengaged from any other impediments.—It is covered with a thin Membrane, which, about the *Basis*, is guarded with Fat; and which is no other than the common Membrane of the Muscles.

The Substance of the *Heart* is carnous, and resembles that of other Muscles, abating that it's harder, especially at the *Tip*, and that its Motions are involuntary.——It consists of two Sorts of fleshy Fibres, *viz.* an outer, and an inner Sort, both of which have their Origin and Insertion in the *Basis* of the Heart.

The outer Fibres descend from the *Basis*, in a spiral Line, moving from the Right to the Left, towards the *Tip*, where they cast a Semi-circle; and re-ascend in a spiral Line from the Left to the Right, towards the *Basis*.——The inner Fibres descend in a strait Line, from the *Basis* to the *Tip*, and then ascend directly from the *Tip* to the *Basis*, where they terminate.——The little fleshy Columns of the Ventricles, are formed of these inner Fibres; and in the Middle of these Fibres, the two Ventricles are seated; the Orifice, and Valves of which, are made by the Dilatation of their Tendons.

The Fibres of the *Heart* (L) appearing to be the same with those of the other Muscles, that Part, now, generally passes for a real Muscle; though some think the Inference not over just, in as much as the *Aorta* has the same Claim to be reputed a Muscle.

Some late Authors, upon considering the Structure and Position of the spiral Fibres, chuse rather to make the *Heart* a double Muscle, or two Muscles tied together.——In Effect, the two Ventricles, with their respective Auricles, are found two distinct Bodies, two Vessels, or Cavities which may be separated, and yet remain Vessels; the *Septum*, which was supposed to belong only to the Left, being now found to consist of Fibres derived from them both.——To say no more, the two Ventricles, according to Mr. *Winslow*, are two several Muscles, united together, not only by the *Septum*, but by several Plans of Fibres, arising from the exterior *Base* of the *Heart*, and meeting at the *Apex*, which entering the left Ventricle, line the *Parietes*, *&c.*

The *Heart* is covered with a Membrane (M) as well as all the other Muscles of the Body; and this Membrane sticks so close to the Flesh, that 'tis very hard to part 'em. We meet with a great deal of Fat underneath it, especially about the *Basis* of the *Heart*, for the *Tip* has not near so much. This Fat is of Use to moisten the *Heart*, for fear its Motion should over dry it.

Sometimes we find the *Tendons* of the fleshy Fibres of the *Heart* ossified towards the upper Part of the *Septum*, in human Bodies; and sometimes there are Lumps of Fat in the Ventricle, with Caruncles, and Hair, rendring 'em all over rough; but these Instances are so rare, that they scarce deserve our Attention.

The Nerves of the *Heart* come from a *Plexus* of the *Parvagum*, called by WILLIS, *Plexus Cardiacus*. Those Nerves are so small, and so hard to be traced, that a great many Anatomists have concluded, that the *Heart* has no Nerves; which Slenderness proceeds, perhaps, from the little Occasion the *Heart* has of animal Spirits to perform its Motion, the Entry of the Blood being sufficient for its Dilatation, and Contraction; and as for its Sense, that requires but few Spirits; for the continual Agitation of the *Heart*, supersedes the Use of an exquisite Sense.

(N). The two Arteries of the *Heart* are called *Coronariæ*, because they gird its *Basis* like a Crown.—They proceed from the great Artery, immediately upon its Egress from the *Heart*, and even before its *Exit* from the *Pericardium*: So that here, the *Heart*, distributes the first Portion of the Blood that is but just perfected, in its Ventricles.——The *Heart* has, likewise, a Vein (called *Coronaria*) which climbs along its outer Part, and consists of several Branches flowing from all the Parts of the *Heart*.——This Vein repairs to the *Cava*, and there deposites the superfluous Blood, imported by the *Arteriæ Coronariæ*.——The *Heart* is in like Manner provided with *Lymphæ Ductus*, which disembogue in the Thoracick Duct.

The *Heart* has two great Cavities, called VENTRICLES, somewhat unequal, the Right being larger, capable to contain two or three Ounces of Blood.—They are divided by a fleshy Partition, consisting of the same muscular Fibres, with the *Parietes* themselves, and called the *Septum*, the Figure whereof is concave, towards the left *Ventricle*, and convex towards the Right.——There is no immediate Communication between the *Ventricles*; but for the Blood to pass out of one into the other.

The *Parietes*, or Sides of these *Ventricles*, are of a Thickness and Strength very unequal; the Left much exceeding the Right, because of its Office, which is

to force the Blood through all the Parts of the Body; whereas the Right drives it through the Lungs only, and is therein greatly assisted by other Parts.——The right *Ventricle*, in Effect, seems wholly intended to the Lungs; whence in Animals, who have no Lungs, we only find one *Ventricle*, which is the Left.

In the *Ventricles* are little Muscles (called *Columnæ Carneæ*, or *Lacertali*) derived from the *Parietes*, and connected by tendinous Extremities, to the Valves of the *Heart*.

(OO) The *Ventricles* are capped each with an *Auricle*, which are Productions or membranous Appendages made of a Duplicature of the Membranes of the Vessels in which they are placed; the right *Auricle* being the Extremity of the *Vena Cava*, and the Left that of the *Vena Pulmonaria*, so that they seem to make but one Body with these Vessels. In Size they are Proportional to the Vessels in which they are seated, and to the *Ventricles* of the Heart; for the right *Auricle* is larger than the Left, because the *Vena Cava* is bigger than the *Pulmonaria*, and the right *Ventricle* larger than the Left.—— If we take a narrow View of the Structure of these *Auricles*, we'll perceive all their Actions depend on the Motions of the *Heart*, for their *Diastole* is Cotemporary with the Heart's *Systole*, and so their Motions are Alternatives.

The *Auricles* of the *Heart* receiving the Blood from the Veins serve for a Measure to the Heart, and to prevent Irruption of too great a Quantity, or the over-precipitant Course of the Blood into the Ventricles, which might suffocate the Animal.—— But upon the Suppression of a violent Passion, the Heart may so contract itself, that the Blood repulsed into the *Auricles* may break their Spring, and unbend them, so as that they will gradually extend themselves, pursuant to the following Observation.

Captain *Du Bouisson* dying at *Brest* in *France*, in the 42d Year of his Age, soon after his Return from *Carthagena*; his Body was opened, and the right *Auricle* of the Heart was found as big as the Head of a new-born Child, and capable to contain a Pint and a half of Blood: 'Twas lined within with a bony and scaly Substance, which kept it always extended like a Foot-Ball.——It seems the Captain had a very great Difficulty of breathing, a rough and frequent Pulse, and a continual Pulsation of the Heart, which was so violent that it was observable under the *Sternum*. The Patient still averr'd, that his Malady had commenced twelve or thirteen Years before, and was occasioned by the Violence he did to himself in suppressing the first Motions of a great Passion, at which Time he was first attacked by the fore-mentioned Symptoms, that encreased ever after 'till the Day of his Death.

The Use of the Heart, and its appendant *Auricles*, is to circulate the Blood through the whole Body: In Order to which, they have an alternate Motion of Contraction and Dilatation.—— By the Dilatation, called the Diastole, their Cavity is opened, and their internal Dimensions enlarged, to receive the refluent Blood from the Veins; and by their Contraction, called the Systole, their Cavity is shrunk, and their Dimensions lessen'd, to expel the Blood again into the *Arteries*.—— It must be observed that these alternate Motions of the Heart and *Auricles* are opposite in Time to each other; the *Auricles* being dilated whilst the Heart is contracted again; and contracted whilst it is dilated to drive the Blood into it.

By means of the right *Ventricle*, the Blood is driven through the Pulmonary Vein, from which being received into the Pulmonary Artery, it is returned to the left *Ventricle*; from which, by the *Aorta*, it is distributed all over the rest of the Body, and thence returned to the right *Ventricle* by the *Vena Cava*; so making an entire Circulation through the whole Body.

The Principle of Motion in the *Heart*, or the Power from which its alternate Contraction and Dilatation arises, has been greatly controverted among the late Physicians and Anatomists.

The Expulsion of the Blood out of the *Ventricles* argues a very considerable Motion in the Part.—— The motive Power, it is certain, must surmount the Resistance made to it; and according to *Borelli*'s Computation, the Resistance made to the Motion of the Blood through the Arteries, is equal to 180000 Pounds, which therefore are to be removed by the *Heart*, or else the Circulation must cease. Now whence comes the Machine of the Heart to have such a Power? And after the Expulsion, what other Power is it that surmounts the former, and restores its Part to the Dilatation, to produce a reciprocal *Æstus*?

Des Cartes alledges, that in each Ventricle, there are some Remains of the Blood, which missing of an *Exit*, when the Heart was contracted, turn sour, and become a Ferment, qualified to ferment with the fresh Blood, just as Oil of Tartar does with Spirit of Vitriol; upon this Foundation he accounts for the Motion of the *Heart* in the following Manner.

When a gross Drop of Blood falls by its own Weight into either Ventricle, it presently swells, and rarifies, because of its mixing with the Ferment it meets with.—— The Drop thus fermented taking up more Room in the Heart than before, removes its *Parietes* from one another, enlarges it and obliges the Point or *Tip* to approach to the *Basis*.—— At last when the Heart admits of no farther Dilatation, this *Drop* tending still to take up more Room, storms the *Sigmoides* Valves, and repairs to the Arteries.—— But when its Ebullition ceases, and the Blood thus rarified has lost its great Motion, as being condensated; the Heart by Virtue of its Elastick Spring lengthens itself, and removes its Point from the *Basis*; upon which a fresh Drop of Blood repairing to each Ventricle, because nothing then shuts the *Tricuspides* Valves, is fermented by the Ferment, or sharp Remains of the preceeding Blood; and after separating the Walls of the Ventricles, passes into the Arteries as above.

Some believe this *Hypothesis* contrary to Reason. 1. Because they pretend that it cannot be accounted for the first Origin of that Ferment. 2. They ask (since the sharp Remains are the only Cause of the Fermentation of the fresh Blood) what causes a Fermentation in the first Moment of Circulation; since there can be no sour Blood in the Heart, antecedently to the first Drop that repairs thither.—— To alledge, say they, that Nature forms the first Ferment, is to explain one Difficulty by another.—— But even supposing (say they again) such a Ferment to be there, how can we conceive that it always continues in the Ventricles? Why does not it accompany the Blood in its Egress some Time or other; which would be enough to interrupt the Course of Circulation? As for the Plea that the Egress of the Ferment is immaterial, because the Blood that remains acquires a Sourness sufficient to produce the same Effect; this, say they, is scarce credible; for whenever we find a *Fermentation*, we find likewise that the Liquors must continue for some Time in one Place, in order to compass it; and that it is not to be supposed, that the Blood remaining in the Heart, can in so small a Compass of Time, be qualified to cause such a great Effervescence; for 'tis no sooner in than its *Exit* ensues.

Upon this Account 'tis more probable that the Pulsation of the Heart is owing to the animal Spirits; for if you cut or tie a Ligature upon the intercostal Nerve, and the eighth Pair, it ceases in the Space of twenty-four Hours; and indeed it would not continue so long, if it were not for the Spirits imported by the vertebral Branches, which are joined to the intercostal.—— This Pulsation depends likewise on the Blood; for if you tie a Ligature upon the Vessels, the *Vena Cava* for Instance, the Pulsation ceases, and recommences when the Ligature is taken off.—— The Recommencement is owing to the Heat of the Blood.

In fine this Motion is owing to the Weight of the Blood; for the Heart being without an Antagonist Muscle,

Muſcle, would never dilate itſelf after Contraction, if the Weight and Impetuoſity of the Blood, was not to force it to a Dilatation; for we ſee in moribund Animals, that five Pulſations of the *Vena Cava* anſwer only to one of the right *Auricle*, and two of the *Auricles* correſpond to one of the Heart, which in human Bodies is in ſome Meaſure promoted by the Motion of the Midriff, the Point of the *Pericardium* being faſtened to it.

To ſhew how, and in what Manner this Motion is compaſſed, let's conſider this double Spiral formed by the Fibres of the Heart, and how theſe Fibres croſs one another upon the inner Surface of the *Ventricles*.— Upon a due Conſideration, we ſhall have the Pleaſure to conceive, that as often as theſe Fibres act, they endeavour, by all their Parts, to deſcribe a ſtrait Line, the Conſequence thereof is, that the Spiral muſt be ſhortened, and tend to the Form of a double Ring, ſo that the Middle of the Heart will be enlarged, and its *Tip* approach to the *Baſis*, in Order to make an exact and forcible Expreſſion of what is contained in the *Ventricles*; now this is what we call *Syſtole*, in which the Heart beats againſt our left Breaſt.——— But when the Fibres unbind, they tend to diſengage themſelves, and to re-aſſume their firſt natural State; being aſſiſted therein by the Impulſe and Weight of the Blood flowing from the Veins, and the Motion of the Midriff, which draws the *Tip* of the Heart towards it, ſo that the Heart is lengthened, and the Blood fills the Ventricles; this we call *Diaſtole*.

We muſt obſerve farther that the *Auricles* of the Heart have, likewiſe, their *Diaſtole* and *Syſtole*, but different from thoſe of the *Heart*; for when the *Auricles* empty themſelves, the Heart fills, and as often as the Heart ſqueezes the Blood out of its *Ventricles*, the *Auricles* ſwell. The Occaſion of this Difference is, that the *Auricles* are the Ciſterns of the Heart.— The Blood flowing from the Veins is firſt conveyed into the Cavities of the *Auricles*, and does not repair to the Heart 'till the *Tricuſpides* Valves give Way, and that happens juſt when the *Heart* is emptied.—— Further, the Paſſage, through which the *Auricles* empty themſelves, is much more conſiderable than that which fills them; and 'tis plain, that even this would give them Time to contract themſelves, tho' their muſcular Fibres were inactive.

At the *Baſis* of the *Heart* we meet with four large Veſſels, *viz.* the *Vena Cava*, the *Arteria Pulmonaris*, the *Vena Pulmonaris*, and the *Aorta*; of which the two former are inſerted in the right *Ventricle*, and the other two in the Left.

(S) The VENA CAVA is the Biggeſt of all the four Veſſels, and terminates in the left *Ventricle* of the *Heart*, to which it is knit ſo faſt, that it cannot be ſeparated.——— It opens into that Ventricle by a wide Mouth, and pours into it the Blood that it has received from the ſeveral Branches of Veins.——— Its Membrane, which is thin every where elſe, is very thick and full of fleſhy Fibres at its Mouth; and that prevents its being rent by the continual Motion of the *Heart*, as well as its being over-extended by the large Quantity of Blood, which repairs to it from all Parts.—— Theſe fleſhy Fibres ſerve likewiſe to render the Vein capable of ſome Contraction, in Order to forward the Blood to the Ventricle.

(T) The three triangular and membranous VALVES, called *Tricuſpides*, are placed at the Mouth of the *Cava*.—— They are formed of a Dilatation of the Tendons of the Muſcles, of which the Heart conſiſts. ——They open from without inwards; and are ſo diſpoſed as to favour the Paſſage of the Blood from the *Cava* to the *Heart*, and oppoſe its Retreat.

The *Vena Cava* ſerves to receive the Blood from the Branches of the Veins, repairing to it from all the Parts of the Body, and to pour it into the Cavity of the *Auricle*, from which, as from a Meaſure, it falls into the right Ventricle of the *Heart*.

The *Arteria Pulmonaris*, or *Vena Arterioſa*, riſes from the right Ventricle of the Heart, but its Mouth is leſs than that of the *Cava*.— This Artery is divided into two great Branches, which, after a Subdiviſion into ſeveral ſmall Shoots, are diſperſed upon the Right and Left, through the whole Subſtance of the Lungs.—— The three Valves (called *Sigmoides* from their Reſemblance to the *Greek Sigma*) are placed at the Entrance of the *Arteria Pulmonaris*.———Theſe *Valves* are little Membranes, ſeated by one another in a different Manner from thoſe of the *Cava*; for they open from within outwards, to afford a Paſſage for the Blood from the right Ventricle into the Artery, and oppoſe its Retreat.

The *Arteria Pulmonaris* ſerves to receive the Blood from the right Ventricle of the *Heart*, and diſperſe it in the Subſtance of the Lungs.

(X) The VENA PULMONARIS, or *Arteria Venoſa*, proceeds from the Lungs by an Infinity of ſmall Shoots, which, after uniting into one Trunk, march out of the Subſtance of the Lungs, and empty themſelves into the left Ventricle of the *Heart*.

At the Entrance of this Vein are placed two *Valves* (called *Mitrales*, from their Reſemblance to a Biſhop's Mitre) their Situation is like that of the *Tricuſpides*, for they open from without inwards, to favour the Blood's Entry into the left Ventricle, and oppoſe its Return to the Veins.—— The Capillary Branches of the *Vena Pulmonaris*, being diſperſed through the Subſtance of the Lungs, takes up the Blood imported by the *Arteria Pulmonaris*, and convey it to the left Auricle of the *Heart*.— Together with the Blood this Vein imports likewiſe, the ſubtileſt Parts of the Air, which paſs from the Extremity of the *Trachea* into its Trunk.

(Y) The GREAT ARTERY, called *Aorta*, is the Trunk and Source of all the other Arteries of the Body, thoſe of the Lungs excepted, which are the Branches of the Artery of the right *Ventricle*.— It has ſeveral hard and thick Coats.— It proceeds from the left Ventricle of the *Heart*, at which Part it ſeems to be cartilaginous, being thereby kept always open, and ready to receive the Blood which flows with great Impetuoſity from the Ventricle.

(Z) The Head of the *Aorta* is provided with three *Valves*, or membranous Appendages.— They look from within outwards, in Order to let the Blood paſs from the left Ventricle to the *Aorta*; and prevent its Reflux from the *Aorta* to the *Ventricle*.

The *Aorta* diſtributes the Blood, that flows into it from the Heart, to all the Parts of the Body, which is effuſed in the following Manner.

The Blood ſallying out with an impetuous Force from the left Ventricle, is thrown into the *Aorta* by the Contraction of the *Heart*. The ſubtileſt Part of this Blood mounts upwards through the upper Trunk of the *Aorta*, and is diſtributed into the Arms by the Axillary Arteries, and into the Head by the *Arteriæ Carotides*, and *Cervicales*.— On the other Hand the courſer Sort of Blood falls downwards through the lower Branch of the ſame Artery; and is diſperſed to all the Parts that lie below the *Heart*, by the Arteries called *Celiack*, *Meſenterick*, *Emulgent*, *Spermatick*, *Iliack*, and an Infinity of other Branches.

In this *Circulation* the ſeveral Liquors contained in the Maſs of the Blood, are ſeparated from it in ſeveral Parts, by Virtue of the Configuration of the Pores of the Parts through which it paſſes, *viz.* The *Animal Juice* is ſeparated in the Brain; the Secretion of the *Saliva* is performed in the *Parotides*, and the Glands of the Jaws; that of the acid Liquor in the Glands of the *Œſophagus*, and the Stomach; the *Pancreatick Juice* in the *Pancreas*, or Sweet-Bread; the Choler in the Liver; the Urine in the Kidneys; the Seed in the Teſticles; the Milk in the Breaſts, and ſeveral other Liquors in an Infinity of other Parts.

The Blood being conveyed by the two Trunks of the *Aorta*, to all the Parts of the Body, both above and below, marches out of the Extremities of the capillary Arteries, in order to nourith the Parts: And for as much as the whole Maſs thus extravaſated, is not quite conſumed, the Surpluſage re-enters the Orifices of the capillary Veins, by the Impulſe of the

freſh

freſh Blood, which ouzes without Intermiſſion from the little Arteries, and obliges its Fore-runners to return thro' the ſmall Veins to thoſe of a larger Size; by which means the Blood ſent to the Head, returns by the jugular Veins, and that to the Arms by the Axillary, and both theſe terminate in the Subclavian, which leads to the upper Trunk of the *Cava*, and ſo to the Heart: In like Manner, the Blood diſpenſed to the lower Parts, returns to the Heart by the Iliack, and all the other Veins of the *Abdomen*, which unload in the lower and aſcending Trunk of the *Cava*, and with joint Forces falls into the right Auricle; where the Diſpoſition of the *Tricuſpides* Valves, and the Contraction of the Heart, forward it to the *Arteria Pulmonaris*.

The *Arteria Pulmonaris* having received the Blood, conveys it to the Lungs, and diſperſes it through their whole Subſtance, from whence being accompanied with the ſubtileſt Part of the Air that joins it from the Extremities of the *Trachæ*, it paſſes to the Branches of the *Vena Pulmonaria*, from thence to the left Auricle of the Heart, and ſo it enters the Ventricle of that Side.——In that Part the Diſpoſition of the Valves prevents its Reflux; upon which, by the Contraction of the Heart, it flies out impetuouſly into the great Artery, and this Artery diſpenſes it to all the Parts of the Body.——From all theſe Parts it returns by the capillary Veins, to the great ones, and from thence to the upper and lower Trunk of the *Cava*, in Order to renew the inceſſant Circulation, the Ceſſation of which, for one Moment, would put a Period to the animal Life.

Mr. *Rohault* ſuppoſes that it is very eaſy to diſcover, by the Pulſation of the *Heart*, in what Space of Time, the Circulation of the Blood can be accompliſhed.—He preſuppoſes, that a certain Quantity of Blood enters the *Aorta*, at each Pulſation of the *Heart*, which he believes cannot be leſs than a Drachm. This preſuppoſed, he begins his Calculation thus.

He finds by his Pulſe, that there happen, ſixty-four Pulſations of his Heart, in the Space of a Minute; whence it follows, that his Heart beat 3840 Times in the Space of an Hour, and conſequently, that 92160 Drachms, or 11520 Ounces, or 720 Pounds of Blood, paſs every Day through the Heart; ſo that if it could be reaſonably ſuppoſed, that there is ſo much Blood in a human Body, there would be in twenty-four Hours, but one Circulation of the whole Maſs of Blood: But as in Mr. *Rohault*'s Opinion, there is ſcarce more than ten Pounds of Blood in a human Body. He believes that the whole Maſs paſſes 702 Times through the Heart in twenty-four Hours, and conſequently, there happens three Circulations of the whole Blood in the Space of an Hour.

In a *Fœtus*, the *Apparatus* for Circulation is ſomewhat different from that above deſcribed.——The *Septum* which ſeparates the two Auricles of the Heart, is pierced through with an Aperture, called the *Foramen Ovale*; and the Trunk of the Pulmonary Artery, a little after it has left the Heart, ſends out a Tube in the deſcending *Aorta*, called the *Communicating Canal*.

The *Fœtus* being born, the *Foramen Ovale* cloſes, by Degrees, and the Canal of Communication dries up, and becomes a ſimple Ligament.

This Mechaniſm once known, it is eaſy to perceive its Uſe.——For, while the *Fœtus* is incloſed in the *Uterus*, it receives no Air but that little, furniſhed by the umbilical Vein: Its Lungs therefore cannot ſwell and ſubſide as they do after the Birth, and after the free Admiſſion of the Air. They continue almoſt at Reſt and without any Motion; their Veſſels are, as it were full of themſelves, and do not allow the Blood to circulate either in Abundance, or with Eaſe.

Nature therefore has excuſed the Lungs from the Paſſage of the greateſt Part of the Blood; and has contrived the *Foramen Ovale*, by which Part of the Blood of the *Vena Cava*, received into the right Auricle, paſſes into the left Auricle, as the Mouth of the Pulmonary Veins; and by this Means is found as far in its Journey, as if it had paſſed the Lungs.

But this is not all; for the Blood of the *Cava*, which miſſing the *Foramen Ovale*, paſſes from the right Auricle, into the right Ventricle; being ſtill in too great Quantity to paſs by the Lungs, whither it is driven through the Pulmonary Artery; the communicant Canal intercepts Part of it in the Way, and pours it immediately into the deſcending *Aorta*.

This is the Doctrine of *Harvey*, *Lower*, and moſt other Anatomiſts. But M. *Mery*, of the Royal Academy, has made an Innovation in it.

He aſſigns another Uſe for the *Foramen Ovale*; and maintains that the whole Maſs of Blood, brought from the *Cava* to the right Ventricle, paſſes, as in Adults, into the Pulmonary Artery, whence Part of it is conveyed by the communicant Canal, into the *Aorta*; and the reſt brought from the Lungs by the Pulmonary Veins into the left Auricle, where it is divided into two Parts, the one paſſing through the *Foramen Ovale*, into the right Ventricle, without circulating thro' the *Aorta*, and the reſt of the Body; the other Part puſhed, as in Adults, by the Contraction of the left Ventricle, into the *Aorta*, and the whole Body of the *Fœtus*.

Mr. *Du Verney* aſſerts, on the contrary, that the *Foramen Ovale*, has a Valve ſo diſpoſed, as to be opened by the Blood driving into the right Ventricle, but ſhut the more firmly, by its puſhing into the Left. Mr. *Mery* denies the Exiſtence of any ſuch Valve.

According to the common Opinion, the *Aorta* receiving more Blood than the Pulmonary, ſhould be bigger.——According to the Opinion of Mr. *Mery*, the Pulmonary Artery ſhould be the biggeſt, as being eſteemed to receive a larger Quantity of Blood.

Therefore, to judge of the two Syſtems; it ſhould ſeem there needed nothing, but to determine which of the two Veſſels were the biggeſt in the *Fœtus*.

Mr. *Mery* always found the Pulmonary Artery half as big again as the *Aorta*; and, on the other Hand, Mr. *Tauvry*, who ſeconded Mr. *Du Verney*, produces Caſes, where the Pulmonary is leſs than the *Aorta*. The Facts on both Sides was examined by the *French* Royal Academy.

Mr. *Tauvry* adds, that though the Pulmonary Artery ſhould be greater than the *Aorta*, yet this does not prove, that more Blood paſſes the firſt, than the ſecond; ſince it may be accounted for, from the Blood's preſſing more ſlowly towards the Lungs, which it finds ſome Difficulty to penetrate, and accordingly ſwells and is driven back.

Mr. *Littre*, upon diſſecting an Adult, in whom the *Foramen Ovale* was ſtill open, and meaſuring the Capacities of the Veſſel on each Side, declares for Mr. *Mery*.

For the Source of the *Circulation* in the *Fœtus*, Anatomiſts are again divided.——The popular Opinion is, that during Geſtation, the Arteries of the *Uterus* convey their Blood into the *Placenta*, which is nouriſhed by it, and the Surplus conveyed into the Root of the umbilical Vein, which makes Part of the Navel-ſtring: Thence it is carried to the Liver of the *Fœtus*, where it enters the *Vena Cava*, and is thence conveyed to the right Ventricle of the Heart, and diſtributed as before.

Again, the Blood brought from the Iliac Arteries of the *Fœtus*, enters the Navel-ſtring, by the umbilical Arteries; thence paſſes into the *Placenta*, where it is reſumed by the Veins of the *Uterus*, which carry it back again to the Mother; and perhaps alſo, by the Roots of the umbilical Veins, which mix it afreſh with the Blood of the Mother.

Therefore, according to this Syſtem, it is the Blood of the Mother that ſupplies the Child, which is here only regarded as a diſtinct Member, or Part of her Frame.

The Beating of her Heart ſends it a Portion of her Blood;

Blood; and so much of the Impulse is preserved, as suffices to maintain that languid Circulation, which a *Fœtus* enjoys: And in all Probability, gives that feeble Pulsation observed in the Heart.

Other Anatomists maintain, that the *Fœtus* is only supplied with Chyle, from the Glands of the *Uterus*; which is further elaborated, and turned into Blood, in the Vessels of the *Fœtus*; and circulates therein, without any further Communication with the Mother.—These allow of no reciprocal *Circulation*, excepting between the *Placenta* and the *Fœtus*.

But the former Opinion is best supported; for the *Placenta* being separated from the *Uterus*, during the Time of Gestation, neither yields any Chyle, nor any Thing but Blood.

The Circulation of the Blood has been generally allowed to have been first discovered in *England*, in the Year 1628, by the celebrated Dr. *Harvey*, though there are several Authors who dispute it with him.

Jansson of *Almoloveen*, in a Treatise of *New Inventions*, printed in 1684, quotes several Passages from *Hippocrates*, to prove that the Circulation was known to him.—*Wallæus Epist. ad Barthol.* pretends it was known not only to *Hippocrates*, but also to *Plato* and *Aristotle*.—It is added, that the *Chinese* Physicians taught it 400 Years e're it was spoke of in *Europe*.

Some go back as far as *Solomon*, and imagine they see some Traces of it in the *Ecclesiastes*, Chap. xii. *Bern. Genga* in an *Italian* Treatise of *Anatomy*, quotes several Passages from *Realdus Columbus* and *And. Cæsalpinus*, whereby he endeavours to prove that they admitted a *Circulation* long enough before *Harvey*.

He adds, that *Fra. Paolo Sarpi* the famous *Venetian*, from a Consideration of the Structure of the Valves of the Veins, and other Experiments, concluded a Circulation.

Leonicenus adds, that *Fra. Paolo* durst not make known his Discovery for fear of the Inquisition; that he therefore only communicated the Secret to *Fabius ab Aquapendente*; who, after his Death, deposited the Book he had composed on it in the Library of *St. Mark*, where it lay hid a long time, till *Aquapendente* discovered the Secret to *Harvey*, who then studied under him at *Padua*; and who, upon his Return to *England*, a Country of Liberty, publish'd it as his own.—But much of this is Fable. Sir *George Ent* has shewn, that Father *Paul* received the first Notice of the Circulation of the Blood from *Harvey*'s Book on the Subject, which was carried to *Venice* by the Ambassador of the Republick at the Court of *England*, who shew'd it to Father *Paul*, by whom some Extracts were made from it, which coming afterwards into the Hands of his Heirs, gave Rise to an Opinion in several Persons that he was the Author of the Papers, and the Inventor.

The Lungs (AA) which are the next Part we are to observe in the *Thorax*, are nothing else but a Collection of little membranous Vesicles heaped one above another, and interlaced with Branches of Arteries and Veins.

(BB) Those Bladders are formed of the Extremities of the inner Coat of the *Trachæa*, or Windpipe, and all wrapt up in a Membrane.—Their outside is convex, and raised upon the Sides where they touch the Ribs, but their Inside is concave, whereby they can embrace the Heart with greater Facility.

The *Lungs* are connected above to the *Fauces* by means of the *Trachæa*; and below to the *Vertebræ* of the *Thorax*; and to the *Sternum* and *Diaphragma* by means of the *Pleura*, to which they sometimes adhere, even from the first Conformation of those Parts, which Adhæsion is more useful than pernicious, not only because the *Lungs* being obliged to follow the Dilatation of the *Thorax*, do it more easily when they are thus fastened; but likewise because by this means they do not press so much upon the Heart.

(CC) They are divided into two great *Lobes* by the *Mediastinum*, and those again subdivided into several other Lobes or Lobules; the Right sometimes into three or four, by means of some Fissures running from the fore to the back Edge.—The great Lobes, when inflated, resemble each of them a Horse's Hoof in Figure, but together they are like an Ox's inverted.

The whole Substance of the *Lungs* is covered with a common Membrane, which is divisible into two Coats; the outer, thin, smooth, and nervous; the inner, somewhat thicker and rougher, consisting mostly of the Extremities of Vessels and Vesicles, thro' the Impression of which it is pitted, and resembles in some measure a Honey-comb.

The Vessels of the *Lungs* are the *Bronchia*, the Pulmonary and Bronchial Arteries and Veins, Nerves and Lymphaticks.—Of these Vessels some are proper, and some common; the common are the *Bronchia*, the Pulmonary Artery and Vein, the Nerves and Lymphaticks; the proper are the Bronchial Artery and Vein.

(ΔΔ) Dr. *Willis* and Mr. *Dionis* ascribe to the *Lungs* a great Number of Nerves from the *Par vagum*, which are dispersed all over its Substance, and embrace the aerious and sanguiferous Vessels. He also asserts, that the *Vesiculæ* have musculous Fibres, to enable them to exerce a greater contractive Force in Expiration, though others deny such Fibres.

Diemerbroeck observes, that the Vesicles admit not only of Air, but also of other grosser Matters; and instances two asthmatick Persons which he opened; the one a Stone-cutter, the *Vesiculæ* of whose *Lungs* were so stuffed with Dust, that in cutting, his Knife went as if thro' a Heap of Sand; and the other a Feather-Driver, in whom the Vessels were full of the fine Dust, or Down of Feather.——*Si credere fas est.*

(EF) Before we inquire into the Use of the *Lungs*, it is not improper to observe, that the *Trachæa*, or Wind-pipe, is a Passage which reaches from the Mouth to the *Lungs*.—'Tis placed upon the *Œsophagus*, or Gullet, which it accompanies to the fourth *Vertebra* of the Breast, and there splits into two Branches which enter the *Lungs*, one on each side. These Branches are afterwards divided into as many Twigs as there are Lobes; and the Twigs are again subdivided into a Number of smaller Shoots, answerable to that of the Lobules in each Lobe; so that all the small Vesicles in each little Lobule are furnish'd with Branches.

The Branches of the Artery, and Pulmonary Vein, are constant Companions of those of the *Trachæa*, and they jointly terminate in the Lobes and Lobules; so that we may justly apprehend, that each Lobule being composed of several little round Vesicles, is a sort of little Lungs; just as every small Cluster of Grapes, is a little Bunch.

The constituent Parts of the *Trachæa* are several Cartilages, Ligaments, and two Membranes.—The Cartilages are semicircular before, and upon the Sides they are hard, and sometimes ossified; but their backside is membranous, which give them the Form of an Half Moon.——They are ranged one above another, and grow smaller as they approach to the *Lungs*. They are so contrived, that by entering into one another, like the Scales of a Crab's Tail, they lengthen themselves in Inspiration, and shorten in Expiration and Expectoration.

They are all fastened to one another by Ligaments which run between them, and which some have mistaken for Muscles.

The *Trachæa* has two Membranes; a very strong outer one which ties the Cartilages together, and hinders their Dilatation; and the inner Membrane, which is but a Continuation of the Palate of the Mouth, and serves to line its Inside in the *Larynx*, or Entrance of the *Trachæa*; this Coat is very thick, indifferent in the Middle, and very thin in the Branches inserted in the *Lungs*.——Its Sense is so exquisite

that it can suffer nothing; for when any Portion of Food, or Drink, falls into its Cavity, we never cease coughing till we have dislodged it again.——'Tis liquored over with a Fat Humour that keeps it always supple, in order to form the Voice, and prevent its being dry'd or injured by the sharp and fuliginous Excrements that pass through the Wind-pipe. The Abundance of this Humour causes a Hoarseness; but its excessive Redundancy occasions the Loss of one's Voice, which retrieves so soon as the Humour is consumed.

The *Trachæa* receives Branches of Nerves, from the recurrent Branches of the eighth Pair; Arteries from the *Carotides*; and its Veins unload in the external *Jugulares*. Its Nerves being dispersed through its whole inner Membrane, cause its exquisite Sense.

The *Trachæa*, and its *Bronchia* serve to conduct the Air into the Lungs, in the *Inspiration*, and to return it again in the Time of *Expiration*.

The INSPIRATION is the Ingress of the Air, ensuing upon the Dilatation of the *Thorax*, and the *Lungs*; and the Expiration, the Egress of the Air; together with a vaporous Lympha, procured by the Contraction of the same Parts.

This Ingress or Admission of the Air depends immediately on its Springs, or Elasticity, at the Time when the Cavity of the Breast is enlarged, by the Elevation of the *Thorax* and *Abdomen*, and particularly by the Motion of the *Diaphragm* downwards: So that the Air does not enter the Lungs, because they are dilated; but those dilate because the Air enters within them. Nor is it the Dilatation of the Breast which draws in the Air, as is commonly thought, but an actual Intrusion of the Air into the *Lungs*.

EXPIRATION is performed by a Contraction of the Cavity of the Breast, and the Parts employed in the Inspiration, re-assuming their first Station.

Inspiration, and *Expiration*, form together, what we call *Respiration*.

But for a clearer Explanation of this Subject, and of the Manner wherein *Respiration* is perform'd, we must observe, that the *Lungs*, when suspended in the open Air, by the contractive Power of the muscular Fibres which tie together the squamous Parts, the *Bronchia* are reduced to less Space, than they possessed, while in the Cavity of the *Thorax*; and when thus contracted, if a Quantity of new Air be injected through the *Glottis*; they again become distended, so as to possess an equal, nay, a greater Space, than that assigned them in the *Thorax*.

Hence it appears, that the Lungs, by their proper Force, are always endeavouring to contract themselves into less Compass than they possess when inclosed in the *Thorax*; and that therefore they are always in a State of violent Dilatation, while the Man lives.——For the Air that encompasses them in the *Thorax*, shut up betwixt their external Membrane, and the *Pleura*, is not of equal Density with common Air.

In Effect, the Ingress of the Air, through the *Glottis*, into the Lungs, is always free; but that on the Outside, wherewith they are compressed, is impeded by the *Diaphragm*, so as it cannot enter the *Thorax* in a Quantity sufficient to make an *Equilibrium*.

Since then in *Inspiration*, the Air enters the Lungs in greater Quantity than it was before; it will dilate them more, and overcome their natural Force.——The Lungs therefore are wholly passive in the Matter: What it is that acts must be learnt from the *Phænomena*.

1. Then it is observed, that in *Inspiration*, the nine upper Ribs, articulated to the *Vertebræ*, and the *Sternum*, rise archwise towards the *Clavicles*; and the three lower are turned downwards; and the eighth, ninth, and tenth are drawn inwards. 2. That the *Abdomen* is dilated. And, 3. The *Thorax* enlarged. 4. The *Diaphragm* is brought from its Convex, and sinuous Position to a flat Figure.

Now as these are the only visible Actions in Inspiration, the Cause of the Operation must be referred to them; or rather to the Muscles of these Parts, which are the Intercostal, the Subclavian, *&c.*

The Capacity of the *Thorax*, being enlarged by the Action of these Muscles on the Ribs, *&c.* a Space is left between the *Pleura* and the Surface of the *Lungs*; so that the Air entring the *Glottis*, inflates them till such Times, as they become contiguous to the *Pleura* and *Diaphragm*.——In this Case now the Air presses the *Lungs* as much as the *Thorax* resists them; and hence the Lungs become at rest; the Blood passes less freely, and is forced in less Quantity into the left Ventricle of the Heart, and so less comes into the *Cerebellum*, and its Nerves, and the arterial Blood acts less on the intercostal Muscles, and *Diaphragm*.

The Causes, therefore, which at first dilated the *Thorax*, grow weaker; consequently the Ribs become depressed, the distended Fibres of the Muscles of the *Abdomen*, restore themselves, the *Viscera* thrust the *Diaphragm* up again into the *Thorax*, the Space whereof being thus contracted, the Air is drove out of the *Lungs*; and thus is *Expiration* performed.

Immediately the Blood being quickened in its Motion, begins to flow stronger, and more plentifully to the *Cerebellum* and Muscles; and thus the Causes of the Contraction of the Intercostals, and Diaphragm being renewed, *Inspiration* is repeated.——Such is the true, immediate, adequate Manner of vital *Respiration*.

The Uses and Effects of RESPIRATION are greatly disputed among *Anatomists*.——*Boerhaave* takes the principal Uses thereof to be the farther Preparation of the Chyle, its more accurate Mixture with the Blood, and its Conversion into a nutricious Juice proper to repair the Decays of the Body.

Borelli takes the great Use of *Respiration*, to be the Admission, and Mixture of Air with the Blood, in the *Lungs*, in order to form those Elastick Globules it consists of; to give it its red florid Colour: and to prepare it for many of the Uses of the animal Œconomy: But how such Admission should be effected is hard to say.——It is impossible it should be done in the Pulmonary Arteries; nor can it be proved in the Pulmonary Veins.——In Effect, such Communication must be hindered and obstructed by the Air distending the Vesicles, and compressing the Veins in *Inspiration*; and by the slimy Humour that lubricates the Membrane lining the Inside of the *Trachæa*; add to this the difficult Passage of Air through such small Pores as will admit Water; and the ill Effect Air ordinarily has, when admitted into Blood.

Other Authors, as *Sylvius*, *Etmuller*, *&c.* take the great Use of *Respiration*, to be by the Neighbourhood of the cold, nitrous Air, to cool the Blood coming reeking hot out of the right Ventricle of the Heart, through the *Lungs*; and to act as a Refrigeratory.

Mayow and others, assert one *grand Use* of *Respiration* to be, to throw off the fuliginous Vapours of the Blood along with the expelled Air; and for *Inspiration*, he asserts, that it conveys a nitro-aerial Ferment to the Blood, to which the animal Spirits, and all muscular Motions are owing.

But Dr. *Thurstow* rejects all these, from being principal Uses of *Respiration*, which he shews to be, to move or pass the Blood, from the right to the left Ventricle of the Heart, and so to effect the Circulation.

He instances an Experiment made by Dr. *Croon* before the Royal Society, who by strangling a Pullet, so as not the least Sign of Life appeared; yet by blowing into the *Lungs*, through the *Trachæa*, and so setting them a playing, he brought the Bird to Life again.——Another Experiment of the same Kind is that of Dr. *Hook*, who after hanging a Dog, cut away the Ribs, Diaphragm, and Pericardium, and also the Top of the Wind-pipe, that he might tie it on to the Nose of a Pair of Bellows; and thus by blowing into the *Lungs*, he restored the Dog to Life; and then ceasing to blow, the Dog would soon fall into

into dying Fits, but recover again by blowing, and thus alternately, as long as he pleased.

The only Animal exempted from this Necessity of breathing, is a *Fœtus*; but this while included, in the Womb, seems to have little more than a vegetative Life, and ought scarce be reckoned among the Number of Animals; it is rather a Graft on, or Branch of the Mother.

The Neck, (which being nothing else but an Extention of the *Thorax*, we'll examine in this Place) commences at the *Atlas*, which is the first *Vertebra*, next to the Head, and terminates at the first *Vertebra* of the *Thorax*.——It has the Length of seven *Vertebræ*, and is not so broad as it is long.——Its Fore-part is called the Throat, and the Back-part the *Nucha*, or Nape.——'Tis divided into the containing Parts, which are the same with those of the whole Body; and the contained, among which the *Trachæa*, the *Larynx*, and *Œsophagus* are of the greatest Note.

(HH) The LARYNX is the principal Organ of the Voice, and the upper Part of the *Trachæa*, placed on the Fore-Side of the Neck, directly in the Middle.—Its Figure is circular.—It rises before, and is flat behind, to prevent its hurting the *Œsophagus* just placed under it. This Rising is called *Adam*'s Bit, upon the ridiculous Opinion that the forbidden Fruit stuck in his Throat, and so occasioned a Bunch.

The Magnitude of the *Larynx* varies according to the Difference of Ages. In young Persons 'tis strait, and renders the Voice shrill; in Persons of riper Years 'tis larger, and renders the Voice strong.——'Tis bigger in Men than in Women.——It does not appear so visibly in Women as in Men, because the Glands of the lower Part of the *Larynx* are larger in Women, and thereby their Neck becomes rounder, and their Throat fuller.——It moves in Diglution, for when the *Œsophagus* lowers itself, to receive the Food, the *Larynx* rises to press it down.

The *Larynx* consists of Cartilages, Muscles, Membranes, Vessels, and Glands.

The whole Body of the *Larynx* is formed of five Cartilages, *viz.* the *Thyreoides*, *Cricoides*, *Arytænoides*, the *Glottis* and *Epiglottis*.

The *Thyreoides* is hollow within, and Convex without, and divided in the Middle by a Line, which give Occasion to say 'twas double, though 'tis very rarely found to be such.——The *Larynx* is square, and each of its Angles has a Production.—The two upper Productions are the longest, and are tied to the Sides of the *Os Hyoides* by a Ligament; and by the two lower Productions to the *Cricoides* Cartilages.

The *Cricoides* resembles a Ring, and goes round the whole *Trachæa*.—'Tis narrow before, but broad and thick behind.—It serves for a Basis to all the other Cartilages, and joins them all to the *Trachæa*, and for that Reason is immoveable.

(L) The *Ærythænoides*, which is the third Cartilage, is placed in the *Thyreoides*, and supported by the annular Cartilage.—It forms the back Part of the *Larynx*.

(M) The *Glottis* forms the upper and back Part of the *Larynx* where 'tis narrowest, and renders the Voice either shrill or strong, according as it contracts or dilates itself.

(N) The *Epiglottis* serves for a Cover to the *Glottis*.——It resembles an Ivy-Leaf, and has a softer Substance than any of the other Cartilages, which qualifies it to rise, or lower itself commodiously.—'Tis fasten'd to the concave and upper Part of the *Thyreoides*.—The *Orifice* of the *Larynx* stands always open for *Respiration*, except when the *Epiglottis* shuts it. Now the Weight of the Aliment makes the *Epiglottis* fall down upon it, least any Thing should fall into the *Trachæa*; but as soon as the Aliment is pass'd the *Œsophagus*, or Gullet, the *Epiglottis* recovers itself by a natural Rebound, in Order to afford a Passage to the Air.

The *Larynx* is provided with fourteen Muscles, seven on each Side, which dilate or contract the Wind-Pipe, or *Trachæa*, upon Occasion.—Of the fourteen, four are common, and ten are proper.—The Common are inserted in the *Larynx*, but rise elsewhere; The Proper have both their Origin and Insertion from it.

(OO) The two first Common proceed from the upper and lower Part of the first Bone of the *Sternum*, and mount along the Cartilages of the *Trachæa*, 'till they arrive at the lateral Part of the *Thyreoides*, where they are inserted.

The two other common Muscles proceed from the Fore-Part of the *Hyoides* Bone, and are inserted in the outer and lower Part of the *Thyreoides*.—They serve to raise the *Larynx*, by contracting the upper, and dilating the lower Part of the *Thyreoides*.

The first Pair of the proper Muscles proceed from the lateral and Fore-Part of the *Cricoides*, are inserted in the lower Part of the Wing of the *Thyreoides*, and therefore placed in the fore and lateral Part of the Wind-Pipe.

Of the remaining four Pair, two serve to open the *Larynx*, and two shut it.

The first Pair employed in opening the *Larynx* proceed from the lower and back Part of the *Cricoides* Cartilage; and are inserted into the upper and hinder Part of the *Ærythænoides*.

The next Couple for the same Use, take their Origin from the Edge of the lateral and upper Part of the *Cricoides*, and their Insertion from the lateral and upper Part of the *Ærithænoides*.

The first Pair that serve to shut the *Larynx* spring from the hinder and lower Part of the *Ærythænoides*, and have an oblique Insertion in the same Cartilage.

The second Couple, for that Use, proceed from the hollow and inner Part of the *Thyreoides*, and terminate in the Fore-Part of the *Ærythænoides*.

The *Larynx* has two Membranes; an outer one, which is continuous with the outer Cover of the *Trachæa*; and an inner one, which is the same with that of the Palate, for it lines the whole Mouth, and descends as an inner Coat through the *Pharynx*, the *Larynx* and the *Trachæa*.

It receives two Branches of Nerves from the Recurrents; and is moistened by four large Glands, two situate above, called *Tonsils*, and two underneath, called *Thyroideæ*.

The *Tonsils* are of a spongy Substance, seated on each Side the *Uvula*, near the Root of the Tongue. The common Coat of the Mouth is their Cover; their Nerves are derived from the fourth Pair; their Arteries from the *Carotides*, and their Veins unload in the Jugular.——These Glands are frequently liable to Abuses, which ripen easily by Virtue of the Heat of the Mouth.

These Glands serve to make a Secretion of the Blood imported by the *Carotides*. This *Serum* they unload in the Bottom of the Mouth, in Order to keep the Wind-pipe moist, and Part of it trickles down the *Trachæa*.

The two lower Glands called *Thyroideæ*, are placed under the *Larynx*, by the annular Cartilage, and the first Ring of the *Trachæa*; one on each Side; they have the Figure of a little Pear. Their Substance is more solid, viscous, and inclining to a muscular Consistence than that of the other Glands.—Their Nerves are from the recurrent Branches; their Arteries from the *Carotides*; their Veins run to the Jugular, and their Lymphatick Vessels unload in the Thoracick Duct.

These Glands make a Secretion of a viscous Humour, with which the *Larynx* is done over, in Order to facilitate the Motion of its Cartilages, to qualify the Acrimony of the *Saliva*, and to soften the Voice.

The *Larynx* is of a very considerable Use, not only in modulating and softening the Voice, by the different Apertures of its *Rima*, or Chink, but also in compressing the *Lungs* to a greater or less Degree by the Air; for if the internal Diameter of the *Larynx* had been equal to that of the *Trachæa*, the Lungs could have undergone little or no Compression at all;

nor consequently without the *Larynx* could we have reaped the Advantage from breathing, in regard the Air would not have resisted that Force wherewith it is driven out in Expiration, nor consequently could the Compression have been made in the Lungs, which is found necessary for the Comminution of the Globules of the Blood; and the mixing of the two Fluids, Air and Blood together.

2. Behind the *Larynx* there is a very large Cavity, called the PHARYNX, which is only the Orifice of the *Œsophagus*, dilated to a great Extent.——'Tis made like a Funnel, and some call it *Gula*, or Gullet, in which the Action of Diglution commences, and where it is chiefly performed.

It is assisted by three Pairs of Muscles, which chiefly compose the *Pharynx*.—The first, called the *Stylopharyngæus*, serves to draw up and dilate the *Pharynx*. The second, *Pterygopharyngæus*, serves to constringe it; the third, which is called the *Œsophagus*, serves to close it.

The Office of the *Pharynx* consists in receiving the Aliment into its widest Part, and conveying through its narrower Passage into the *Œsophagus*, which conducts it to the Ventricle; and which is performed in the following Manner. When the Muscles heretofore mentioned have widened the *Pharynx*, then the *Œsophagus* contracting itself, raises the *Larynx*, and presses down the *Pharynx*, which clings round the Aliment on all Sides, and obliges it to descend thro' the *Œsophagus* into the Ventricle.

The ŒSOPHAGUS, or *Gullet*, is a membranous Pipe or Passage, whereby our Food and Drink is conveyed from the Mouth to the Stomach.

The *Œsophagus* descends from the *Fauces* to the Stomach, between the *Aspera Arteria* and the *Vertebræ* of the Neck and Back, in a strait Line, excepting for a little Deflection about the fifth *Vertebra* of the *Thorax*, where it turns a little to the Right to make Way for the great Artery, which runs along with it to the Ninth; where turning again towards the last, it crosses the Artery, and piercing the Diaphragm, ends at the left Orifice of the Stomach.

It consists of three Membranes, which qualify it for an easy Dilatation upon the Swallowing of a Bone, or an ill-chewed Morsel.—Of these three Membranes the outer one is a Continuation of that which invests the Stomach.

The first proper or middle one is carnous, thick, and soft like a Muscle, and is possessed of round and oblique Fibres, which effect the Motion of the *Œsophagus*.

The second proper is nervous, and contiguous with that, which invests the Mouth and Lips, by which means it comes to pass that the Lips tremble, when a Vomiting approaches. This Coat has long and strait Fibres, and like that of the Stomach, is strewed with an Infinity of Glandules, which strain out an acid Humour into the *Œsophagus*; and this Humour gliding to the Bottom of the Stomach, affects it with the Sense of Hunger.

M. *Duncan* observes, that when any acid Vapours proceeding from the Stomach, irritate the nervous Membrane of the *Œsophagus*, by provoking the Spirits to crowd particularly to that Part, it never misses to make us yawn, and therefore this Membrane is the true Seat of yawning; for in that Case, the nervous Fibres of the inner Membrane swell by the Irritation; and by dilating the *Œsophagus*, oblige the Mouth to answer their Motion, it being lined with the same Membrane.

The *Œsophagus* receives Nerves from the *Par vagum*; Arteries from the *Aorta*, and *Cœliaca*; and two Sorts of Veins, one above, which runs to the *Azygos*, and another below, which terminates in the stomachick *Coronaria*.

The Glands placed at the hinder Part of the *Œsophagus* serve to separate the viscous Humour with which its Cavity is moistened, and rendered more slippery in order to facilitate the Descent of the Aliment.

The Action of the *Œsophagus* belongs to the animal Class, and not to the natural, for it is effected by the means of the Muscles, and Swallowing is known to be a voluntary Action.——Its Motion is of Undulation, like that of the Intestines, and is performed by the oblique and circular Fibres of its fleshy Membrane.——When this Motion tends from above downwards, 'tis called *Peristaltick*, and the Reverse of that *Antiperistaltick*.

From the *Neck* we proceed to the Parts contain'd in the Head, since we have already given, in the *Osteology*, an entire and full Description of the containing ones.

The first Part that offers itself to our View after the lifting up of the Skull, is the DURA MATER, which consists of a double Plan of Fibres, that cross one another a thousand different ways; though sometimes one may divide it into two very easily.——'Tis much thicker in young Persons, and sticks very close to the Skull, by a great many little Vessels, which nourish the inner Part of the *Cranium*; of which this Membrane is thought by many Authors to be a Continuation.

Arteries and Veins rise above the outer Surface of the *Dura Mater*, and so contrived that the Arteries are always covered with Veins to prevent any Injury accruing to the *Cranium* from the continual Pulsation of the Artery.—The Arteries of the Brain proceed from the inner *Carotides*, and those of the *Cerebellum* from the *Vertebrales*.—The Veins of the Brain empty themselves into the inner jugular Veins, and those of the *Cerebellum* into the Vertebral.—In these Vessels there are mutual *Anastomoses* of Arteries with Arteries, and Veins with Veins, to the end that the Blood being stopt on one side, the Brain may be sufficiently supplied on the other.

To prevent the Compression of the Vessels, Nature has run the Vertebral Artery through a bony Gutter, digged out of the transversal Processes of the Neck, and conducted the same Artery to the *Cranium*, by the *Foramen* of the *Occiput*, where it is defended from Pressure by being laid in a hollow Cut of the first *Vertebræ* of the Neck.

'Tis to be observed, that some Arteries run off obliquely, after they have gone some Rounds upon the *Dura Mater*, to mitigate the boiling of the Blood, which otherwise would occasion grievous Head-achs. —These Arteries unload in the longitudinal *Sinus* of the *Dura Mater*, which does not happen in any other Part of the Body; for the Blood of the Arteries never mingles elsewhere with that of the Veins, without passing first through some Glands, or the Fibres of some Parts.——In effect the Veins have no immediate Communication with the Arteries in any other Part of the Body; and perhaps, 'tis allowed of here, to render the Blood in the *Sinus's* very liquid; for being as it were extravasated and robbed, not only of its finest and subtilest Part in the Glands of the Brain, but even of all its *Serum* in the Glands of the *Plexus Choroides* would readily congeal, if it was not quickened and inspired with fresh Warmth by the arterious Blood.

The *Dura Mater* invests the whole Substance of the Brain and *Cerebellum*; serves, 1. To keep the Brain from rattling against the Skull in the great Commotions of the Head; 2. To let in the more volatile Parts, which are perpetually evaporated from the Brain; 3. To fill up and stop the Holes of the Skull through which the sanguine and nervous Vessels pass; and, 4. For a Cover to the Nerves, and defends them from being annoyed by the Hardness and Roughness of the Skull in passing through its Perforations.

This Membrane is endowed with an exquisite Sense, independent from the Brain, for if the Brain is stript of the *Dura Mater*, it might be cut without Pain. —This Sense proceeds from its immediate Contact and Union with the Nerves, to which 'tis a Cover, and from some Threads it receives of the fifth Pair of Nerves, at the Place of its Perforation.

In that Part which runs out in length under the *Sagittal Suture*, the *Dura Mater* is double, and by a gradual Diminution enters the Substance of the Brain. This Duplicature contracting itself, marches from the *Cerebellum* to the Fore-part of the Head, and is fastened to the hollow Part of the coronal Bone above the *Crista Galli*.

(D) This Duplicature is called FALX, from the Resemblance of a Sickle.—This Membrane has another Duplicature towards the *Lamboides* Suture, where 'tis four times thicker, than in other Places, the better to part the Brain from the *Cerebellum*; besides dividing the Brain by its Length into its left and right Side, to keep one side from pressing the other (when one lies on one side of the Head) to keep up the second longitudinal *Sinus*, and to hinder the Corruption of one Side to be imparted to the other; from whence it happens, that one Side may be found, while the other is spoiled.

The second Duplicature of the *Dura Mater* serves to guard the *Cerebellum*, from the Pressure of the two hinder Lobes of the Brain, and to keep up the two lateral *Sinus's* in savage Animals.——In this Place called the *Torcular*, or Press, there stands a bony Protuberance which fortifies the last Use of the Duplicature.

The *Dura Mater* presents us with ten *Sinus's* or Cavities, *viz.* (E) the superior Longitudinal; (FE) the two Lateral; (G) the Streight; (H) the inferiour Longitudinal; one at the Crist of the *Os Occipitis*, and two upon the stony Process, one above and another below, which communicate with one another towards the *Sella* of the Wedge-like Bone, and after that communicate with those of the other Side towards the hinder *Clinoides* Processes.

The upper longitudinal *Sinus* runs upon the *Falx*, along the sagittal Suture, and terminates together with the *Falx* above the *Crista Galli*. The lateral Cavities commence towards the *Lamboides* Suture, where the *Falx* and the back longitudinal *Sinus* take their Rise. The streight *Sinus* commences towards the Union of the lateral, or the Division of the upper longitudinal, and marches streight to the *Glandula Pinealis*.——The lower longitudinal runs along the Extremity of the *Falx*, and terminates the streight *Sinus*.

The Cavity that lies by the *Crist* of the *Os Occipitis*, extends no further than the *Crist*, and disembogues in the lateral *Sinus's*; the other Cavities in the Base of the *Cranium*, all empty themselves into the lateral *Sinus's*, some higher, and some lower, and commonly at that Place, where they wind in the Form of a Roman S, and then unload in the jugular and internal vertebral Veins.

These ten Cavities serve to contain the Blood in the Brain, for some Time, in order to heat it, by their moderate and cherishing Heat, for the Generation of animal Spirits, and to check its rapid Course, they serve also to receive the Residue of the Blood from the Capillary Veins of the Brain, and convey it to the jugular and vertebral Veins, in order to Circulation.

The *Dura Mater* has a Motion of *Diastole*, and *Systole*, which is caused by the Arteries which enter the Skull.

(I) The PIA MATER lies immediately under the *Dura Mater*, and is a fine, thin Membrane, which covers the Brain so intimately, that it can scarcely be separated from it; it accompanies the Brain in all its Circumvolutions; and conducts all the Vessels that either enters its Substance, or depart from it.

Dr. *Willis* observes, that 'tis filled with a great many little Glands, which serve to separate a watery Humour that moistens the two Membranes.——'Tis alledged that this *Pia Mater* is extream sensible, and the Seat of the Head ach.

(M) Under the *Meninges* appears a large, soft, whitish Mass, wherein all the Organs of Sense terminate, called BRAIN.

Its Figure is the same with that of the Bones that contain it, *viz.* roundish, oblong, and flat on the Sides: It is divided into three principal Parts, *viz.* the *Cerebrum*, or Brain, strictly so called, the *Cerebellum*, and the *Medulla oblongata*.

The BRAIN is divided by the *Falx*, into two equal Parts, called right and left *Hemispheres*; though the Figure of the *Brain* be pretty far from a Sphere. It is also separated from the *Cerebellum*, by another Duplicature of the *Dura Mater*.

(N) It consists of two Kinds of Substance; the one Cineritious, or Ash-coloured, soft and moist; which, being Exterior, is also called the *Cortex*, or cortical Part of the Brain: The Thickness of this is about half an Inch, though by Reason of the *Sinus's*, and *Sutures* in the Brain, it appears more.——The other or inner Substance is white, more solid, as well as more dry than the *Cortex*, and is called the *Marrow*, or *Medullary*, and sometimes the *fibrous* Part, in Contradistinction to the other, which is also called the *glandulous* Part.

The *Cortex*, according to *Malpighi*, is formed from the minute Branches of the *Carotides* and vertebral Arteries; which being woven together in the *Pia Mater*, sends from each Point thereof, as from a *Basis*, little Branches, which being twisted together into the Form of a Gland, inclose the *Medulla*, ordinarily to the Thickness of half an Inch; but in some Places make deeper Sinus's, and Furrows within it. These little Branches make Circumvolutions like the Intestines; each of which may be resolved into others, like, but less than the first.

(Δ) This Part, therefore, most Authors take to be glandulous; or an Assemblage of innumerable minute Glands, contiguous to each other, destined for the Secretion of animal Spirits from the Blood, brought hither by the *Carotides*, *&c.*

Dr. *Willis* alledges, that these Glands serve likewise to filtrate the nervous Juice, which is an oily, and very subtile Liquor, affording a Vehicle to the animal Spirits, and assisting the Blood, in the Nourishing of the Parts, as it appears from the Arms and Legs of Paralitick Persons, which dwindle, and grow meagre for Want of that Juice.

(O) The inner or medullary Part of the *Brain*, consists of infinitely fine Fibres, arising from the minutest Branches or Filaments of the Glands of the *Cortex*; as is distinctly seen in the *Cerebellum*, tho' scarce visible in the *Cerebrum*: These receive the Fluid separated and subtilized from the Glands of the *Cortex*; and by Means of the Nerves, which are no more than Productions of this Part, distribute it all over the Body.

Authors here, however, are divided; the Generality, with *Malpighi*, making the Substance of the *Cortex* glandulous, as above; others with *Ruysch*, and *Leewenhoek*, deny any Thing like Glands in it; and allow nothing but little *Cryptæ*, or Sinks, opening laterally to the Arteries; and thence receiving a Juice already screened from the Blood, and transmitting it to the *Medulla*.

In the Space between the two Hemispheres of the *Brain*, under the *Falx*, or rather under the longitudinal *Sinus* of the *Dura Mater*, is a white Substance, of a Texture, more compact than the *Medulla* of the *Brain*, called *Corpus Callosum*, which runs along the whole Tract of the *Falx*, and receives from each Side the Terminations of the *Medulla*, interspersed between the several Windings of the *Cortex*, and supposed by some to be a Kind of Base, or Support to it.

(QQ) Under the CORPUS CALLOSUM, there are two great Cavities, called by some, the superior, or anterior Ventricles, and by others, lateral, tho' they have one besides, on each Side of them. Both these Cavities are of the same Magnitude and Figure; and their Situation and Uses are likewise the same.——They begin from a narrow Point towards the Root of the Nose, and enlarging by Degrees, form each of them a great Cavity towards the End; by

 which

which Means they are larger towards the lower, than towards the upper Part of the *Brain*.

They are ſeated in the Middle of the *Brain*, being equally diſtant from the *Os Frontis*, and the *Os Occipitis*; and their Diſtance from the Bottom of the *Cranium*, is very near the ſame with that from the Crown of the Head.

Theſe two *Ventricles* are parted by a very fine Portion of the medullary Subſtance, encloſed between two Membranes, or Continuations of the *Pia Mater* (wherewith the Inſide of theſe two Ventricles is lined) called, from its Tranſparency, *Septum lucidum*.

(RR) The CORPORA STRIATA (called thus from their Streaks or Furrows) are two conſiderable Eminences, of a browner Colour, than the reſt, there being one in each Ventricle.

Dr. *Willis*, under Pretence that the great Number of Channels or Gutters, which run like Skrews in this Place, were dug out by the Impreſſion which the Soul receives from Objects, is ſuppoſed to have made it the principal Seat of that noble and mental Part of ourſelves.

(S) The INFUNDIBULUM, which is a Cavity in the Form of a Funnel, deſcends to the *Baſis* of the *Brain*, and terminates with a Point in the *Glandula Pituitaria*, is formed of the *Pia Mater*, and placed in the Middle of theſe *Ventricles*.

The antient Anatomiſts pretended, that the animal Spirits received their laſt Degrees of Perfection in theſe Ventricles, as the vital ones were ſubtilized in the Ventricles of the Heart, which Ventricles were nothing elſe but Ciſterns, from whence the animal Spirits were ſent by the Nerves to all the Parts of the Body, as the vital Spirits are ſent from the Heart by the Arteries.

Modern *Authors* pretend, on the contrary, that theſe *Ventricles* are rather Ciſterns for the ſuperfluous Moiſture of the *Brain*, than a Place of Nativity for the animal Spirits; alledging that the animal Spirit is too ſubtil, not to ſlip out through the Holes that anſwer the *Chriſta Galli*, or the Arches of the *Fornix*, that go to the third Ventricle, without mentioning the Seroſity of which theſe Ventricles are commonly full, the Situation of the *Infundibulum*, which is placed in their Middle, and ſerves them as a Sink, and the *Glandula Pituitaria*, placed immediately underneath, in Order to receive the Seroſity.

Monſieur de la Cambre is of Opinion that the Ventricles were formed only to facilitate the Motion of the Brain, which could not perform its Functions, if its whole Body was full and ſolid, ſince it is like Bellows, which can never enlarge their Cavity without a Vacuum in their Sides.

(T) That which appears red in each of theſe Ventricles, is Part of the *Plexus Choroides*; more of which hearafter.

The FORNIX is a Production of the *Medulla*; which at its Extremities next the *Cerebellum*, ſends out two Proceſſes, by whoſe Juncture is formed a Kind of Arch, thence called *Fornix*, which ſeparates the third *Ventricle*, from the two upper ones——At the Bottom of the *Fornix* are two Holes, by which the third *Ventricle* has Communication with the others; that before, is called *Vulva*, and that behind, *Anus*.

(V) The THIRD VENTRICLE, or *Rima*, which is in the *Medulla Oblongata*, has likewiſe two Apertures; the one the Orifice of the *Infundibulum* or Funnel; the other is a Duct, whereby the third *Ventricle* communicates with the fourth, in the *Medulla Oblongata*, under the *Cerebellum*.——The whole Cavity of the third *Ventricle* is filled with the *Plexus Choroides*, which is an Aſſemblage of minute Veins and Arteries; and four Eminences; the firſt the *Corpora Striata*; the others the *Thalami Nervorum Opticorum*.——Some believe this Aſſemblage or Texture, to be like a Water-bath to the *Brain*, which by its gentle Heat, preſerves the Motion of the Spirits in the *Corpus Calloſum*.——Others alledge, that the Heat of this Texture, keeps up the Liquidneſs of the *Serum* in the *Ventricle*, which without the warm Influence of its numerous Veſſels would thicken and condenſate; ſo that it hinders the Humours from Stagnating, and cauſes Obſtructions in the *Infundibulum*.

(X) At the Entrance of the Canal, reaching from the third Ventricle to the fourth, is ſituated the PINEAL Gland; ſo called from the Figure of a Pine-Apple, which it reſembles.——This Gland *Des Cartes* ſuppoſes to be the Seat of the Soul, though, in my Opinion, the Soul is not confined to any Part, but is preſent wherever it acts, after the Manner of the Spirits, which have no Ubiquity; ſo that 'tis ridiculous to place it, with *Empedocles*, in the Heart; or, with *Van-Helmont*, in the Stomach or Spleen; or in the Brain, with the greateſt Part of Philoſophers, who after all are not agreed, whether its Reſidence extends to the whole *Brain*, or only to one Part of it. Therefore I may venture to advance, that the *Soul* is *Tota in Toto*, and *tota in quâlibet Parte*, *i.e.* That it is entire in the whole Body, and entire in each Part.

The Uſe of the *Glandula Pinealis*, is to ſeparate ſome Liquor (as well as the other Glands) in order to be thrown into the *Ventricles* of the *Brain*.

Behind the *Pineal Gland* are four Eminences; two upper and greater, called *Nates*; and two ſmaller, and lower called *Teſtes*.

(YY) The CEREBELLUM is the hind Part of the *Brain*, and eſteemed a kind of little Brain by itſelf. It is placed in the hinder and lower Part of the Skull, underneath the hind Part of the *Brain* or *Cerebrum*: It lies open to the *Cerebrum* at Bottom; but is ſeparated from it at the Top by a Duplicature of the *Dura Mater*; its Figure ſomewhat reſembles a flat Bowl, broader than long.

Duncan remarks, that 'tis formed by two Branches, which ſetting out from the Sides of the Trunk of the *Medulla Oblongata*, make a Sort of Cradle, by joining in the Middle, and leaving between them a Cavity, called the fourth Ventricle.

Its Subſtance is harder, drier, and more ſolid than that of the Brain, but of the ſame Nature and Kind, being compoſed like it of a cortical, or glandulous, and a medullary Part; the Branches of which laſt, when opened, reſemble thoſe of a Tree, meeting in the Middle, and forming a Kind of Stem, which runs quite through it. Its Colour is yellowiſh, that of the Brain whiter.

Its Surface is unequal, and furrowed, but not ſo much as that of the *Cerebrum*; appearing rather as if laminated, like ſome Shells; the middle Circles being the largeſt, and deepeſt: Between the *Laminæ* are Duplicatures of the *Pia Mater*. The fore and hind Parts of the *Cerebellum* are terminated by *Apophyſes*, called *Vermiformes*, from the Reſemblance they bear to Worms. It is joined to the *Medulla Oblongata*, by two Proceſſes, called by *Willis* PEDUNCULI.

Beſides theſe are two or three other medullary Proceſſes, which paſſing a-croſs the *Medulla Oblongata*, form an Arch; from the Diſcoverer, called *Pons Varolii*.

Thoſe who took the animal Spirits to be formed in the *Ventricles* of the *Brain*, gave this Part the Title of Noble; upon the Apprehenſion that it raiſed the Spirits to the laſt Degree of Perfection, and diſperſed them through the whole Body, by Means of the ſpinal Marrow.

The Blood Veſſels of the *Cerebellum* are the ſame with thoſe of the *Cerebrum*, and its Uſe the ſame, *viz.* to ſeparate the nervous Juice from the Blood, and convey it through the ſeveral Parts of the Body.

Dr. *Willis*, however, diſtinguiſhes between the Functions of the *Cerebrum* and *Cerebellum*, making the firſt the Principle of voluntary Motions, and Actions; and the laſt the Principle of involuntary ones, *viz.* that of Reſpiration, the Motion of the Heart, *&c.*

It is commonly aſſerted that a Wound, either in the *Cortex*, or the *Medulla* of the *Cerebellum* is mortal,

tal, which it is not in the Brain, from which there have been entire Parts taken away, without Harm; the Truth is, we have Instances of People living, not only without *Cerebrum*, but also without any *Cerebellum*.

We have a History from *Paris* of a Child delivered at Maturity, and living four Days, not only without *Brain*, but even without a Head; instead of both which, was a Mass of Flesh like Liver.

Mr. *Dennis* gives another Instance of a Child born in 1673, which, setting aside the Head, was well formed, but without any *Brain*, *Cerebellum*, or *Medulla Oblongata*: It had not any Cavity for a *Brain*, the Skull, if such it might be called, being solid; nor was this any Ways connected to the *Vertebræ*; so that the Marrow in the Spine had no Communication with the Head: The Optic Nerves terminated in the solid Bone.

Mr. *Le Duc* gives a third Instance in 1695, where there was neither *Cerebrum*, *Cerebellum*, *Medulla Oblongata*, nor even spinal Marrow; the Cavity that should contain them being extremely shallow, and full of a black livid Substance, like congealed Blood: He adds, this was the third Subject of the Kind he had met with.

Dr. *Preston* tells us, that M. *Du Verney* found here a spinal Marrow, though of much less Consistence than ordinary: In which, however, he could distinguish all the four Tunics, and the two Substances, *viz.* the cortical and fibrous Part, as in the Brain.

By turning up the *Brain*, the Origins of the Nerves proceeding from it are distinctly seen; these are in Number ten Pair, *viz.* the olfactory, optic Movers of Eyes, Pathetic; the fifth Pair and sixth Pair, called also the *Gustatoriæ*, the auditory Nerves, *Par Vagum*, and the ninth and tenth Pair.

The Olfactory Nerves proceed from the *Basis* of the *Corpora Striata*, by a medullary Fibre, which is largest in that Place, where they fetch a winding Turn near the optic Nerves.

The Optic Nerves rise from the Extremity of the *Corpora Striata*, and the medullary Part, called *Thalami Nervorum Opticorum*. After gradual Approaches, they unite above the *Sella* of the Wedge-like Bone; and afterwards divide into two Strings, which repair to the Eyes.

These Nerves are surrounded with small Branches of the *Motores*. As the Carotide Arteries enter the Brain, they run along the Trunk of the *optic Nerves*, whence Dr. *Willis* infers, that after eating, these Arteries being then fullest of Blood, cause Sleep by pressing down the *optick Nerves*.

The Motores, or Movers of the Eyes, proceed from the *Basis* of the *Medulla Oblongata*, near the *Infundibulum*, pass through a Hole under the *optic Nerves*, divide into four Branches, which are distributed to the Muscles of the Eyes, and the Eye-lids, and oftentimes disperse likewise a Branch to the *Crotaphites* Muscle, which occasions its Communication with the Eyes.—— The *Carotides* Arteries, and the *Infundibulum*, lie between these Muscles.

The Pathetic rises from the lower Part of the *Medulla Oblongata*; behind the *Nates* and the *Testes*. ——They divide into four Branches, one of which visits the great oblique Muscle; the second the upper Lip, the Nose, and the Gums; the third, the Membrane of the Nostrils; and the fourth, the *Crotaphites*.

The Fifth Pair, which is bigger than all the rest, commences from the Sides of the annular Protuberance behind the *Pathetici*, and divides into three Branches, *viz.* the *Opthalmic*, the *Maxillaris Superior*, and the *Maxillaris Inferior*.

The Opthalmic, so called from its repairing to the Eyes, after detaching several Threads, which surround the optic Nerves, and are distributed to the *Carotides*, divides into two Branches; the biggest of which is subdivided into two, *viz.* one that marches out by a Hole, called the outer Orbital, and another which passes through the Hole of the Eye-brows, and is lost in the Muscles of the Forehead, the great orbicular Muscle of the Eye-lids, the Lachrymal Gland, and the Nose-bag. The last Branch passing through the Orbital *Foramen*, is lost in the Membranes of the Bony *Laminæ* of the Nose. The upper Maxillary Nerve is distributed to the upper Part of the Teeth, as the lower Maxillary to their lower Part.

The Sixth Pair, improperly called *Guttatoria* (since it does not run to the Tongue, but to the Eyes, as well as the *Motores*, *Pathetici*, &c.) rises by the last Pair, in the lower Part of the annular Eminence, marches out of the Skull by the same Hole with the third and four Pair, and is distributed upon the Muscle of the Eye, called *Indignatorius*, after having sent out a small Branch, which, together with two Branches of the fifth Pair, forms the intercostal Nerves.

The Intercostal is bestowed upon the Heart, the Breasts, and the Privy Parts. By this mutual Communication Dr. *Willis* explains several *Phænomena*, *viz.* the mutual Pleasure that affects Lovers in their Caresses and reciprocal Kisses. Sometimes the Intercostal is formed only by the *sixth Pair*.

The *Intercostal* receives in its first *Plexus* the *tenth Pair*, with a Branch from the first vertebral Nerve of the Neck, that's united with the *tenth Pair*; and another Branch from the second Vertebral of the Neck; at last there springs from this *Plexus* a Branch that serves the Head of the *Trachæa*. As soon as it arrives under the Channel-bone it forms a second *Plexus*, which sends out two Twigs, which embrace the axillary Arteries in the Form of a Ring, from whence proceeds a third *Plexus*, formed by the Junction of the *Intercostal*, with several Branches of the *Bronchiales*, and *Dorsales*, that descends along the *Vertebræ*.

Of the Productions of this Nerve, in Conjunction with others from the *eighth Pair*, are formed the *Nervi Cardiaci*, and those of the Lungs; and of three other Productions which join together in one Trunk, before they enter the *Abdomen*, are formed, likewise, the hepatic *Plexus* on the Right, and the *Splenic* on the left Side.

From the *Hepatic Plexus* there spring several Branches, some of which cross over the *Duodenum*, and the *Vena Porta*, and repair to the Liver; some run to the *Pancreas*, or Sweet-bread, and to the right Side of the Stomach; and others to *Glisson's Capsula*; and two larger than the former pass over the emulgent Artery, and run to the right Kidney.

The *Splenick Plexus* furnishes several Branches to the left Side of the Stomach and *Pancreas*, some to the Spleen, and the left *Capsula Atrabilaria*, and two very considerable Branches to the left Kidney.

From the several Branches both from the *Hepatick* and *Splenick*, is formed the *Mesenterick Plexus*, which serves as a Cover to the Mesenterick Arteries, and accompanies them thro' their whole Distribution.

Further, there is a Trunk on each Side formed out of several Branches, both from the *Hepatick* and *Splenick Plexus*, which descending along the *Aorta*, continues its Course, accompanied with the Twigs of the *Intercostal*, to the Division of that Vein. This done, 'tis dispersed thro' all the Parts of the *Hypogastrium*, particularly the *Rectum*, or strait Gut, the Bladder, the Womb and the *Vagina* (in Women) and the Male seminal Vesicles and *Prostates*.

At last the Trunk of the *Intercostal* descending along the *Vertebræ*, is lost in Capillaries dispersed thro' all the Parts of the *Hypogastrium*, particularly the Bladder, the *Anus*, the *Rectum*, and the Genitals.

The Auditory Nerve, proceeds from the lower Part of the annular Rising, and passes through the Perforation of the stony Process of the Temple-bone.——This Nerve is composed of two Branches, one soft, which serves the immediate Organ of hearing, and forms the nervous Membrane which cover the *Cochlæa*, and the inner Side of the semicircular Passages; and the other hard, which marches out thro' a Hole

a Hole that lies between the *Maſtoides* and *Styloides* Proceſſes, and goes to unite with the third Branch of the *fifth Pair*.

The PAR VAGUM, ſo called from its ſerving ſo many different Parts, proceeds from the Sides of the *Medulla Oblongata*, and lies behind the *Acouſtici*.——To this is joined another Nerve, riſing from the ſpinal Marrow, called acceſſory by Dr. *Willis*.——Theſe two Nerves march out with joint Forces through the Perforation of the *Os Occipitis*, but as ſoon as they are out of the Skull, the ſpinal Parts from the *Eighth Pair*, and is quite ſpent upon the *Trapezium* Muſcle.

The *Eighth Pair* is no ſooner departed from the Skull, but it forms a *Plexus*, as well to ſupply the *Larynx* and *Pharynx* with its Branches, as to produce the recurrent Nerve. The right Branch whereof encompaſſes the axillary Artery, as the left does the *Aorta*.——Theſe two Nerves return upwards by the Sides of the *Aſpera Arteria*, and ſend forth Shoots to the Fibres that faſten the *Annuli*.

The *Cardiaci* and the *Pneumatici*, are alſo form'd from the ſeveral Shoots which the *Intercoſtal* and *Eighth Pair* ſend to the *Pericardium*, the Heart, the Lungs, and the *Cava*.

(9) The NINTH PAIR proceeds from ſeveral Fibres of the *Eighth*, receives two Branches from the firſt Vertebral, and one from the ſecond, in its Paſſage through the Muſcles of the Bone *Hyoides*; one of theſe Branches is diſperſed through the Muſcles *Sterno-Thyreoides*, and the other ſpent upon the Muſcles of the Bone *Hyoides*.——Its Trunk furniſhes the *Baſis* of the Tongue with ſeveral Branches, and comes to a Period.

(10) The TENTH and laſt PAIR proceeds likewiſe from ſeveral Threads, and deſcends along the Pith of the Back-bone; marches between the firſt *Vertebra* of the Neck and the *Os Occipitis*, ſends Branches to the oblique Muſcles of the Head, and in its Progreſs to the *Plexus* of the *Intercoſtal*, receives one from the firſt vertebral Pair.

Duncan obſerves, that though all the *Nerves* proceed from the *Brain*, yet it may be ſaid to have no Nerves, ſince not one of them is inſerted in it; ſo that the proper Subſtance of the *Brain*, which diſpenſes Senſe to the whole Body, is of itſelf inſenſible.

(14) The BASIS of the *Brain* is no leſs curious than its other Parts. It has ſix great Prominences lodged in the ſix great Pits of the *Cranium*; the four firſt and anterior are formed by the *Brain*; two of them are lodged in the Cavities of the *Os Frontis*, and the other two in thoſe of the *Oſſa Petroſa*; the two laſt and poſterior Riſings, are placed in the Cavities of the *Os Occipitis*, and formed by the *Cerebellum*.

(aa, bb) The Blood is conveyed into the Brains by the *Carotides*, and ſervical Arteries, which at their Entrance, form one great Trunk at the *Baſis* of the *Brain*, from whence they ſend an Infinity of Arteries throughout its whole Subſtance.

(c) The Union of theſe Arteries ſerves to mingle the arterious Blood, before its Diſtribution to the *Brain*, and to check its Rapidity; otherwiſe it would have made too precipitant a March through the whole Brain, and ſo have baulk'd the Filtration of the Spirits.

(Z) MEDULLA OBLONGATA is the medullary Part of the *Brain* and *Cerebellum*, joined in one, the Fore-part of it coming from the *Brain*, and the Hinder-part from the *Cerebellum*.——It lies on the *Baſis* of the Skull, and is continued through the long Perforation thereof into the Hollow of the *Vertebræ* of the Neck, Back, and Loins, though only ſo much of it retains the Name of *Oblongata* as is included in the Skull.

The Subſtance of the *Medulla Oblongata* is harder than that of the *Brain*; it riſes by four Roots, of which the two greateſt ſpring from the *Brain*, and the other two from the *Cerebellum*.——Theſe Parts uniting afterwards, are again divided into two, by the *Pia Mater*, whence it happens, that one Side may be paralitick, while the other is ſound.

MEDULLA SPINALIS, or the *Spinal Marrow*, is a Continuation of the *Medulla Oblongata*, or medullary Part of the Brain without the Skull. It conſiſts, as the Brain does, of two Parts, a white, or *medullary*, and a cineritious or glandulous; the former without and the other within.——The Subſtance of the exteriour Part is much the ſame with that of the *Corpus Calloſum*, only ſomewhat tougher, and more fibrous; which Difference becomes more apparent as is deſcends the lower, by Reaſon of the Streightneſs of the Cavity, which growing gradually more narrow, preſſes the medullary Fibres cloſer together, and renders them more compact, and gathers them into more diſtinct *Faſciculi*, till having deſcended the whole Tract of the *Spina*, they end in the *Cauda Equina*.——It is the Origin of moſt of the Nerves of the Trunk of the Body.——It ſends out thirty Pair on each Side to the Limbs, the great Cavities, and other Parts, which are nothing but *Faſciculi*, of medullary Fibres, covered with their proper Membranes.

The *Spinal Marrow* is covered with four Coats; the firſt, or external one, is a ſtrong nervous Ligament, which ties the *Vertebræ* together, to the Inſide of which it firmly adheres. The ſecond is a Production of the *Dura Mater*; it is exceedingly ſtrong, and ſerves to defend the *Spinal Marrow* from any Hurt, from the Flexures of the *Vertebræ*.

The third is a Production of the *Arytænoides*, and is a thin pellucid Membrane, lying between the *Dura* and *Pia Mater*, or the ſecond and fourth Membrane of the *Medulla*.——This Membrane gives a Coat to the Nerves that go out of the *Spina*, which is the inner Membrane of the Nerves, as the *Dura Mater* gives the outer.——The fourth Coat is a Continuation of the *Pia Mater*, and is an extremely thin, fine, tranſparent *Membrane*; ſtrictly embracing the whole Subſtance of the *Medulla*, dividing it in the Middle into two Tracts, and making, as it were, two Columns of it.

The Uſe of the *Medulla Oblongata*, as well as that of the *Spinalis*, is to give an Origin to all the Nerves; for of forty Pair of Nerves, which march through the whole Machine, ten proceed from the *Medulla Oblongata*, and thirty from the *Spinalis*.

'Tis well known that SENSATIO FIT IN CEREBRO, that the *Brain* is the principal Organ of the Soul, and that the Soul makes Uſe of it in exerciſing its Functions; but what the Soul is, or where its particular Reſidence is fixed, we are at a Loſs to know; all the Light we have from Anatomy upon this Head amounts to no more than this, that the *Brain* is compoſed of an Infinity of ſmall Glands, and little *Tubuli* or Pipes; that theſe ſmall Glands are by their Figure and Diſpoſition qualified to filtrate no Liquor but what is very ſubtile; and that there are ſo many Millions of ſmall Pipes, or hollow Fibres, which being formed into Nerves, diſperſe that ſubtile Liquor all over the Body.——From whence we conclude, that theſe Parts are not capable to act of themſelves, and that therefore all the Springs of the *Machine* muſt be put in Motion, by ſome immaterial Thing called a SOUL.

The FACE, which is the next to be examined, in the *ſuperior Venter* or *Head*, is divided into two Parts, one above called *Forehead*; and another below, extending from the Eyebrows to the Chin.

The FOREHEAD is alſo called *Front*, from the Latin *Frons*, and from the Greek, φρονειν, to think, perceive; of φρην, *Mens*, the Mind; though *Martinius*, to make out this Etymology, obſerves, that from the Forehead of a Perſon we perceive what he is, what he is capable of, and what he thinks of.——*Du Laurens* chuſes to derive it from *Ferre*, by Reaſon it bears the Marks of what we have in our Head.

(A) The Motions of the *Forehead* are performed by

by the Means of two Muſcles called *Frontales*, one on each Side the *Forehead*, which ſpring from the upper Part of the Head, near the Crown; or rather it appears that the *Frontales*, and *Occipitales* Muſcles, are only one continued *Digaſtric* Muſcle, on each Side, moving the Scalp, and Skin of the Forehead, and Eye-brows.

The *Frontales* begin to be thus denominated, after they have began to paſs the Coronal Suture, with Fibres paſſing obliquely to the Eye-brows, where they terminate, and in the lower Part of the Skin of the Forehead.

They have each two Appendages; the Superior, or External, is commonly fixed to the Bone of the Noſe; the lower is fixed to the *Os Frontis*, and is, by *Volcherus Coiter*, made a diſtinct Muſcle, and called *Corrugator*, from its Uſe in drawing the Eye-brows to each other.

The Face is divided, as well as the Breaſt and the *Abdomen*, into the containing and contained Parts. The former are either common or proper. The common are the Teguments, which are the ſame with thoſe of the other Parts of the Body. The proper are the Muſcles and Bones. The contained Parts are the Organs of four Senſes, *viz. Seeing*, *Hearing*, *Smelling*, and *Taſting*; for the Senſe of the *Tact*, reaches all over the Body.

The Skin of the Face reſembles that of the other Parts, except that it is perforated in four Places, *viz.* the *Eyes*, *Ears*, *Noſe*, and *Mouth*. In Children and Women, 'tis ſmooth and fine; but in Men, 'tis covered with Hair round the Chin, after the Age of Maturity; inſomuch that as Women are privileged with a fair Skin, and with regular and handſome Features, ſo the Want of that Privilege is made up to Men, by a Majeſty and Fierceneſs, that raiſe them above the Softneſs of a Woman.

The *Seed* and the *Beard* appearing both about the ſame Time, is a convincing Proof that there is ſome Correſpondence between them. In Effect, they are both formed of the ſame Matter, with this Difference, that the ſubtileſt Parts are ſtrained out by the Teſticle, form the Body of the *Seed*, and the coarſer being conveyed to the Skin, produce the *Beard*.——'Tis upon this Account, that thoſe who have the greateſt Stock of Seed, are always roughest; and that Eunuchs are without a Beard, as well as without Seed. This Opinion is confirmed by what happens to Women; for we ſee they have Hairs in the Arm-pits, and the *Pubes*, at the ſame Time when they begin to have Seed. 'Tis true, they have no Beard upon the Chin, as Men have, and that muſt proceed from the Evacuation of the Matter in the menſtrual *Flux*, which attends the Arrival of the Seed: And for a further Proof of this Matter, it is to be obſerved, that ſome Women have had Beards upon a Suppreſſion of the *Terms*.

The Eye is, without Diſpute, the handſomeſt, and moſt wonderful Part of the Body.——'Tis ſeated below the Forehead, in a Cavity, called the *Orbita* or Socket, which is all over Bony.——If we conſider only its Globe or Ball, its Figure is round; but if inveſted with its Muſcles, 'tis oblong, and pyramidal, throwing its Baſe outwards, and its Point inwards.

The Magnitude of the *Eye* varies in different Perſons.——A large *bulging Eye*, is the handſomeſt; but at the ſame Time, 'tis not ſo ſerviceable as little Eyes, or thoſe which are ſunk deeper, for its Perception is not ſo nice, and 'tis more expoſed to Rheums and external Injuries.

Men and Horſes, are the only Animals that have *Eyes* of different Colours; they are ſometimes grey, ſometimes black, and ſometimes blue; and this Diverſity depends upon the different Colours that appear in the *Iris*.——They are eaſily annoyed by the Extreams of Heat and Cold, ſo that a temperate Air, and whatever is moderately hot, agrees beſt with them.

The *Eyes* are divided into external and internal Parts; the former cover and guard it, and ſuch are the Eye-brows, and Eye-lids: The latter are lodged within the Socket, and are the conſtituent Parts of the Globe of the *Eye*.

The Eye-brows, by the *Romans*, called *Supercilia*, are Hairs, ranged in the Form of a Creſcent; the Point thereof, that approaches to the Noſe, is called the Head; and the other towards the Temples, the Tail of the *Supercilia*.

The *Eye-Brows* conſiſts of four Parts. 1. A Membrane, which by its Thickneſs forms a riſing Eminence, and by its Hardneſs, keeps the Hairs faſt. 2. Muſcular Parts, which ſerve to raiſe 'em. 3. The Hairs to prevent Sweat, and other Nuſances, falling down into the *Eyes*. 4. Fat, which ſerves for Nouriſhment to the Hairs.

The *Eyes* are alſo covered and defended with the *Palpebræ*, or Eye-lids, whoſe Motion is ſo quick, in human Bodies, that nothing is reckoned ſo ſhort as the Twinkling of an *Eye*.

The Palpebræ, or *Eye-lids*, conſiſt of a thin, muſcular Membrane, covered without Side, with a ſtrong, yet flexible Skin; and lined within Side with a Production of the *Pericranium*.——Their Edges are fortified with a ſtrong Cartilage, by Means whereof they are enabled to cloſe the better.

Out of theſe Cartilages, grows a Paliſade of ſtiff Hairs, called *Cilia*; of great Uſe to warn the Eye of the Approach of Danger, either in ſleeping or waking; to keep off Motes, Flies, *&c.* and break the too fierce Impreſſion of the Rays of the Light.

Theſe Hairs, it is obſerved, only grow to a certain convenient Length, and never need cutting, as moſt others do; add to this, that their Points ſtand out of the way; thoſe of the upper *Eye-lid* being bent upwards, as thoſe of the lower downwards.

At the Commiſſure or joining of the upper and under *Eye-lids*, are formed two Angles called *Canthy*.

(G) In the inner of theſe, is placed the *Glandula Lachrymalis*, which is furniſhed with Arteries that ſpring from the *Carotides*, Veins that unload in the *Jugular*; Nerves derived from the fifth and ſixth Pair; and excretory Veſſels, which perforate the inner Coat of the *Eye-lids*, near the *Cilia*.——This Gland filtrates a viſcous Seroſity, which it throws in between the Body of the Eye, and the *Palpebræ*, in order to facilitate their Motion.

Near the other Angle is a Gland, called *Innominata*, which helping by ſeveral Branches to irrigate the *Eye*, the Overplus is carried to the greater Angle, and tranſmitted to the Noſe, through the *Puncta Lachrymalia*, which are the Orifices of a little membranous Bag, whoſe Ulceration occaſions a *Fiſtula Lachrymalis*, and hinders the Tranſfuſion of Tears into the Noſtrils.

The *Eye lids* are both moveable; eſpecially the upper, which has two Muſcles to raiſe, and depreſs it, called *Attollens* and *Deprimens*, or *Orbicularis*.

(H) The *Attollens* ſprings from the Bottom of the *Orbita*, above the Perforation of the optick Nerve, and is inſerted with a broad Tendon in the Edge of the upper *Palpebra*.

(I) The *Deprimens* proceeds from the great, or inner Corner of the *Eye*, and paſſing above the upper *Eye-lid*, marches to its Inſertion in the little or outer Corner.——When this Muſcle is employed, it draws down the upper *Eye-lid*, and covers the *Eye*; and in Order to a more exact Shutting of the *Eye*, one Part of it paſſes through the lower *Eye-lid*, and is inſerted in the little Corner; for by the two Parts it ſhuts the Eye very nicely.

Animals that have hard *Eye-lids*, as Lobſters, and the Generality of Fiſhes, have no *Palpebræ*, as being ſufficiently ſecured without.

In the Generality of Brutes, is a Kind of third *Eye-lid*, which is drawn like a Curtain, to wipe off the Humidity which might incommode the *Eyes*; it is called the *Nictitating Membrane*.

The Monkey is almost the only one that wants it, as being furnished like Man, with Hands to wipe the Eye on Occasion.

At present for the inner Parts of the *Eye*.—— The EYE, properly so called, is of a globular Figure, and consists of Tunics, Humours and Vessels.—— In some Parts it is lined with Fat, (as in the Cavity of the *Orbita*) and is moved with six Muscles, four of which are strait, and two obliques.

(IIII) The *Streights* come from several Points of the Bottom of the Orbit, and run immediately between the *Sclerotica* and *Adnata*; they derive their several Denominations from their several Offices, *viz.* *Attollens*, or *Superbus*, which draws the Eye upwards: *Deprimens*, or *Humilis*, which casts it down; *Adducens*, or *Potator*, which draws the *Eye* towards the Nose: And *Abducens*, or *Indignator*, which draws it the other Way towards the lesser Angle.

(K) The two *Obliques* are the Superior, called *Rotator*, which proceeds from the inner Part of the *Orbita*, ascends along the Bone to the upper Part of the great Corner, where its Tendon passes through a little annular Cartilage, called *Trochlea*, and afterwards terminates in Company with the *Obliquus Minor*, near the lesser Corner.

(L) The inferior *Oblique* sets out from the lower and outer Part of the *Orbita*, above the Union of the two Bones of the upper Jaw, and is inserted in the lower Part of the *Cornea*, near the lesser Angle.—— These two Muscles move the Eye obliquely, and wind it round; and such are the usual Motions of Lovers Eyes, when fixed upon the Object they love.

When the Muscles of the *Eyes* have not acquired an Habit of acting in Concert, (which falls out very often in Children) they render the Person squint-ey'd.

The Nerves of the *Eye* are the *optic Pair*, which issuing thro' a Perforation in the Skull, behind the Orbit, enter the Ball of the Eyes, deface and lose themselves therein; besides which the *Motorii Pathetici*, the first Branch of the fifth Pair called *Opthalmicks*, and the sixth Pair are bestowed on the Muscles of the Eye.

The *Eyes* receive Arteries both from the internal and external *Carotides*, and return the Blood by Veins that go to the Jugular.

The *Eye* has six Membranes, four of which are Common, *viz.* the *Conjunctiva*, *Cornea*, *Uvea*, and *Retina*; and two Proper, *viz.* the *Vitrea*, that contains the vitrous Humour, and the *Arachnoides*, in which is the Crystalline Humour.

(M) The CONJUNCTIVA is smooth, polished, and of an Alabaster white Colour, in a sound State, and is fastened by some Ligaments to the *Pericranium*. —The *Conjunctiva* does not form the whole Ball of the *Eye*, for it terminates upon the Edge of the *Cornea*.—— 'Tis strewed with Millions of Arteries and Veins, which never appear but when the Blood is more rapid than usually, as it happens in the Diseases called *Ophthalmics*.

(N) The CORNEA proceeds from that Part of the *Dura Mater*, in which the optick Nerve is wrapped, and passing under the *Conjunctiva* becomes conspicuous in the Gap which that Coat leaves in the Fore-Part of the *Eye*.—— This Membrane being transparent on the Fore-Side, bears the Name of *Cornea* in that Part; but being thick and opaque at the Bottom, where the *Conjunctiva* covers it, that Part of it is therefore called *Sclerotis*, *i. e.* hard.

(O) The third Coat is the UVEA, called also *Choroides*, from its Resemblance to the *Chorion*. It proceeds from the *Pia Mater*, which covers the optic Nerve. Of the Duplicature of this Part, is formed a striped, variegated Circle, called the *Iris*.—— In its Middle is an Aperture, called the *Pupil*, or *Apple* of the *Eye*, about which the *Iris* forms a Ring. From the Inside of this Tunic spring certain Fibres, which spreading round the Crystalline Humour, form the *Ligamentum Ciliare*.

(P) The RETINA, so called, from its being drawn up in the Form of a Net behind the Humours, consists of a Dilatation of the optic Nerve, and receives the Impression of Objects; for of all the Tunicles of the *Eye*, this alone is untransparent; so that the *Species* of Objects, after passing through the other Membranes and Humours, reflect upon the *Retina*, which represents them to the Brain, according as it receives them.

(Q) The VITREA, from its glassy Humour is the 5th Coat, and the first of the proper ones; it spreads out through the whole Substance of the Humour, small Filaments, which hinder it from slipping out of its Place; but when the Coat, which is very thin, is broken, the Humour melts, and turns all into Water.

(R) The Second of the proper Coat is entitled *Arachnoides*, from its being thin, like a Cobweb. This Tunic serves for an immediate Cover to the Crystalline Humour, and is transparent, that the Images of Objects might appear in it as in a Looking Glass.

The *Humours of the Eye*, enclosed within these Tunics, are three, *viz.* 1. the *Aqueous*, a limpid, transparent Humour, situate in the Fore-part of the *Eye* immediately under the *Cornea*, and occasioning its Protuberance.

(S) 2. The CRYSTALLINE is situated immediately under the Aqueous, behind the *Uvea*, opposite to the *Pupil*.

(T) 3. The *vitreous*, or glassy Humour, which fills all the Part of the Cavity of the Globe; and is that which gives the spherical Figure to the *Eye*.

The whole Structure and *Apparatus* of the *Eye* tends to this, that there be produced a distinct and vivid Collection in the Bottom of the *Eye*, directly under the *Pupil*, of all the Rays, which proceeding from any Point of an Object, and entring the *Eye*, penetrate the crystalline Humour; and that so many Points being painted in the Bottom of the *Eye*, as are conspicuous in an Object, that so a small Image like thereto, may be represented in the *Retina*.

In Order to this the Rays from any radiant or reflecting Point, striking on the *Cornea*, are refracted towards the Perpendicular, and thus determined to proceed through the Aperture of the *Pupil* to the Surface of the Crystalline, while other Rays, which entered so obliquely as to be thrown upon the *Iris*, are reflected out again, that they may not disturb the Distinctness of the Sight; and others, whose less Obliquity threw them between the *Uvea* and vitreous Humour, are extinguished in the Darkness thereof; that none can be propagated through the *Vitreous*, but such as passing through the *Pupil*, strike on the *Crystalline*.

In the mean Time the *Iris* contracting by its Circular, or dilating by its right Fibres, the *Pupilla* of the *Eye*, admits fewer or more Rays, as the Object is nearer, or more vivid; or remoter and more languid.

Now the flatter the Figure of the *Cornea* is, the less does it collect the Rays emitted from any lucid Point; whence fewer arrive at the *Crystalline*, and those more diverging, unless when they come from a very remote Object: On the contrary, the rounder it is, the more of the Rays from any Point does it collect and throw on the *Crystalline*, and those the more converging; whence one great Cause of the Defects of the *Eyes* both of old Men and Myopes. Again, the Rays transmitted through the *Pupil* to the *Crystalline*, are there refracted a-new, further collected, and rendered converging; so as that those which came from the same Point of Object, are now thrown in one Point through the *Vitreous*, upon the *Retina*, where they paint or exhibit that precise Point of the Object whence they flowed. Accordingly if the *Crystalline* be very dense, or spherical, the *Focus*, or the Point wherein they are united will be too near; and if too flat or rare, the Point will be too remote: The Effect of both which, is Confusion.—— And hence another Cause of the Defects of *Myopes* and *Presbitæ*.

As complex as the Mechanism of the *Eye* may seem, and as manifold as the Parts are which have Relation thereto, the Justness of Vision seems to require

quire an exact Habitude in them all.—— Thus, tho' the *Pupil* be no substantial Part of the *Eye*, but only an Aperture of the *Uvea*, almost perpetually changing its Bigness, according to the different Degrees of Light, the *Eye* chances to be exposed to; and therefore should seem, while this Hole remains open, to perform its Office, by giving Entrance to the incident Rays of Light; yet Mr. *Boyle* saw a Woman, who, after a Fever, not being able to dilate the *Pupilla* of her Eyes, as before, though they were little narrower than ordinary; yet had she thereby almost lost her Sight.— And on the other Side, though a competent Wideness of the *Pupil* be requisite to a clear and distinct Vision, yet if its Dilatation exceeds the due Limits, there is thereby produced a considerable Distemper of Sight. It may seem also but a slight Circumstance, that the transparent Coats of the *Eye* should be void of Colour; and of as little Moment, that the *Cornea* should be very smooth, provided it remain transparent; yet, when either of these Circumstances is wanting, the Sight is greatly vitiated.— Thus we see that in the Yellow Jaundice, the adventitious Colour wherewith the *Eye* is tinged, makes the Patient think he sees many Objects yellow, which are of a contrary Colour.

It has of late been an Opinion, that though both Eyes be open, and turned towards an Object, yet only one of them at a Time is effectually employed in giving the Representation; so that the having of two Eyes should seem in some Sort a Redundance.— But Mr. *Boyle* furnishes several Considerations which invalidate this Opinion, and shew, that both the *Eyes* are of Use at the same Time.— He assures us he has found by frequent Experiment, that his two *Eyes* together beheld an Object in another Situation, than either of them a-part would do.— He adds, that he has met with a noble Person, who, in a Fight had one of his Eyes strangely mangled by a Musket-Ball, which came out at his Mouth; after which Accident, he could not well pour Drink out of one Vessel into another, but had broken many Glasses, by letting them fall out of his Hand, when he thought he had given them to another, or set them down on the Table: He added, that this Aptness to misjudge of Distances and Situation continued with him, though not in the same Degree, for two Years.

The noblest and most excellent Sense next to Seeing is that of *Hearing*; therefore I will examine here the admirable Structure of the Parts employed therein.

The EAR is the Organ of *Hearing*, or that Part whereby Animals receive the Impression of Sounds.

The *Ear* is divided into the outer and inner Part. The Former is that which appears upon the external Surface; the Latter consists of several Particles and Cavities within the *Ossa Petrosa*.

(X) The outer Part, or *Auricle*, is Semicircular, and contains divers Sinuosities.— Its upper Part, which is the broadest, is called *Ala*, or Wing, and the Latter, which is narrow, soft, and pendulous, the *Lobe*, or *Fibra*, being that to which Ladies hang their Earrings, *&c.*

The outer *Area*, or Extent of the *Auricle*, is called the *Helix*, and the inner, opposite thereto, the *Anthelix*; the little Protuberance of the Side next the Face, is called the *Tragus*, or *Tircus*; and the Ridge just above, and opposite to it, an *Antitragus*: And the Cavity, leading to the Beginning of the *Meatus*, the *Concha*.

The *Auricula*, or the outer Part of the *Ear*, consists of a thin Cartilage covered with a Skin, Ligament, Nerves, Arteries, Veins, and Muscles.— The Cartilage is not divided in Men, as it is in other Animals.— The Ligament fastening the Ear to the *Os Petrosum* is strong, and proceeds from the *Pericranium*.— The Nerves spring from the second *Vertebra* of the Neck; the Arteries from the *Carotides*; and the Veins repair to the *Jugulares*.

Though the *Auricula* has no manifest Motion, yet 'tis provided with four Muscles; one Superior and three Posteriors.

(Y) The *Superior* proceeds from the *Musculus Frontalis*, it being Part thereof, and is inserted in the *Auricle*, which it pulls upwards. The other three; which make but one fleshy Body, rise from the *Os Occipitis*, and the mamillary Processes, and is inserted behind at the Root of the *Ear*.— It serves to pull the Ear backwards and downwards. (ZZZ)

The external *Ear* is not the principal Organ of Hearing, though, at the same Time, it contributes very much to the Perfection of that Sense, in receiving the Sounds, and introducing them to the *Meatus* of the internal *Ear*; since those, whose *Ears* are cropt or cut off, have but a confused Way of Hearing, and are obliged either to form a Cavity round the Ear with their own Hands, or else to make use of a Horn, and apply the End of it to the inner Cavity of the *Ear*, in Order to receive the agitated Air.

Under the *Ears* we meet with big conglomerated Glands, for the Secretion of the *Saliva*, called *Parotides*.

The inner Part of the external *Ear* is possessed by the *Meatus Auditorius*, or Auditory Passage, which commences from the Bottom of the *Concha*, called the *Alvearium*, and is continued in a winding Direction, turning sometimes this Way, and sometimes that, to the *Membrana Tympani*.—— The *Meatus* is dug out of the *Os Temporis*, and lined with a Membrane, furnished with divers little Glands that separate a thick, yellow, glutinous Humour, called *Cerumen*, or Ear-wax, serving to defend the *Ear* from the Ingress of Vermin, and other extraneous Bodies.—— The external *Ear* is separated from the internal by a thin, dry, round, and transparent Membrane, called, improperly *Tympanum*, or *Drum*, and placed at the further End of the *Meatus*.

Behind this Membrane is a Cavity, called the Barrel of the Drum, being three or four Lines deep, and five or six broad.—— In this Cavity are three little Bones, *viz.* the *Malleus*, *Incus*, and *Stapes*; *i. e.* the Hammer, the Anvil, and the Stirrop, which we have seen in the *Osteology*.—— Their Articulation is such, that the *Malleus* is fastened to the *Tympanum*, which communicates to them that which it receives from the Air.

To give Motion to these Bones is the Office of a Muscle placed in the Barrel of the *Drum*, which produces a Tendon, which fastens it to the Process, which the Handle of the Hammer obliges to approach to its Head.—— The Action of this consists in pulling the Handle of the Hammer inwards, and in stretching the Membrane of the *Drum*, which afterwards unbends when the Muscle ceases to pull; for the little Bones are so articulated, and mutually joined by Ligaments, that they make a Sort of elastick Spring, which, in Conjunction with that of the *Drum*, serves for an Antagonist to the Muscle.

Two *Meatus* are situate at the Side of the Cavity, one opening into the Palate, called *Aqueduct*, which is partly cartilaginous, and partly membranous, and the other shorter and bigger, opening into the *Sinus* in the mamillary Process.

We come next to two Gaps, or Apertures, called *Fenestræ Tympani*, which are placed in the Surface of the *Os Petrosum*, which is opposite to the Membrane of the *Tympanum*. The first, called *Fenestra Ovalis*, by Reason of its Figure, is situate a little higher than the other, and receives the *Basis* of the *Stapes*; the other *Rotunda*, notwithstanding its Figure, is oval like the former, and closed by a thin, dry, transparent Membrane, resembling that of the *Tympanum*.

Anatomists are not agreed upon the Use of a *small Chord*, which lies in the Cavity of the *Tympanum*, and runs over the inner Surface of the Membrane, called *Chorda Tympani*; some will have it an Artery, some a Nerve, others a Vein, or the Tendon of the Muscle of the *Malleolus*; but it is now discovered to be

be a Branch of the fifth Pair of Nerves, which meets the *Portio Dura*, the hard Part of the auditory Nerve.

The two *Windows*, or *Feneſtræ*, above-mentioned, open into a Cavity, dug out of the *Os Petroſum*, which for its *Detours* and Meanders is called the *Labyrinth*.

The Pipes whereof the *Labyrinth* conſiſts, are called by different Names.——The Beginning of the Cavity is called *Veſtibulum*, by Reaſon it leads into the other two; in it are obſerved nine Apertures, or *Foramina*.—From the *Veſtible* there ſet out three ſemicircular *Meatus's*, which return to it by another Road.—All theſe ſurround the *Forinx* of the Veſtible, and one of them has the Name of *Orizontal*, while the other two are called *Vertical*.——In the *Labyrinth* is ſuppoſed to be contained the innate Air.

The COCHLEA, Snail or Shell, is the laſt Cavity which conſiſts of two Parts, *viz.* a ſpiral, ſemi-oval Canal; and a *Lamina* formed into a ſpiral Flight. The Canal makes two Turns and a Half round a Newel, or Axis, ſtill growing leſs as it aſcends.——The ſpiral *Lamina* divides this Cavity into two, being faſtened by its Baſe to this Axis, and by its other Extremity, to the Surface of the Canal, oppoſite to the *Axis*, by Means of a very fine Membrane.——The Cavity of the *Cochlea* thus divided, forms, as it were, two Stair-caſes, both formed on the ſame Newel, one over the other, but without any Communication between them.

The *Aquæduct* is the *Auditory Nerve*, which conſiſts of two Branches or Parts; the one ſoft, called *Portio Mollis*; and the other harder, *Portio Dura:* The firſt Part is ſpent on the Organ of Hearing, being divided into five Branches, which form a delicate Web, that lines the *Veſtibulum*, *Cochlea*, &c.——The hard Part paſſing out of the *Cranium*, is diſtributed among the Parts of the external Ear.

The Senſe of Hearing is performed in the following Manner.

The external Air being toſſed by very quick and nimble Concuſſions, enters the firſt *Meatus*, and ſtrikes upon the Drum; and that Membrane being thus *connected*, ſhakes the ſmall String behind it, and the three little Bones that are knit to it; and by that Means conveys the external Motion to the internal Air: Upon which this Air ſubtilizes itſelf, and fortifies its Agitation in the Windings of the *Labyrinth*, and by entering into the ſpiral *Cochlea*, as advancing from a broader to a narrower Space; the Air thus ſubtilized, communicates itſelf to the Nerve, which conveys it to the common *Senſorium*. So that theſe different Modifications of the Air, move the Imagination, to form the Senſation, called *Sound*; for Hearing is no Action, but only the Reception of the Impreſſion of the Air, into the Nerves that viſit the *Ear*.

Diſtempers incident to the *Ear*, and adjacent Parts, are Noiſes, *Otalgia*, *Otocel*, Deafneſs, *&c.* of which more at large in our Treatiſe of the Maladies incident to the human Body, under the Letter *M*.

Several Naturaliſts and Phyſicians have held, that cutting off the *Ears* renders Perſons barren and unprolifick, which Notion was what firſt occaſioned Legiſlators to order the *Ears* of Thieves, *&c.* to be cut off, leſt they ſhould produce their like.

The Dauphineſs, Grandmother to the preſent King of *France*, *Lewis* XV, had brought into a Cuſtom in *France*, the cutting off of *Ears*, as a Puniſhment for Deſerters, which having been found ſince, too cruel and barbarous, has been changed into that of ſplitting only the *Lobe*.

The *Ear* has its Beauties, which a good Painter ought by no Means to diſregard: Where it is well formed, it would be an Injury to the Head to be hidden.——*Suetonius* inſiſts particularly on the Beauties of *Auguſtus*'s *Ears*; and *Ælian*, deſcribing the Beauties of *Aſpaſia*, obſerves, ſhe had ſhort *Ears*.——*Martial* ranks large *Ears* among the Number of Deformities.

Among the *Athenians*, it was a Mark of Nobility and Diſtinction, to have the *Ears* bored and perforated, as it is ſtill in ſome Parts of *Aſia* and *Africa*.——Among the *Hebrews* and *Romans*, it was a Mark of Servitude.

The next Senſe which offers itſelf to our Conſideration, is that of Smelling, and the *Noſe* is the Organ thereof.

The NOSE is divided into the Root or upper Part, which lies between the two *Eyes*; the lower or *Dorſum*; the *Spina* or pointed Part, which is yet lower; the cartilaginous moveable Tip; the little Globe; the lateral Parts; the *Alæ* or Wings; and the *Columna* or Pillar, which is the fleſhy Part that advances in the Middle, and ſeparates the two Noſtrils.——Theſe are called external Parts.

The Teguments of the *Noſe* are common to the reſt of the Face; under theſe appear the Muſcles of the *Noſe*, which are ſeven in Number, *viz.* one common, and ſix proper——Of the laſt Sort, four dilate it, and the other two contract it.

The common Muſcle is a Part of the orbicular Muſcle of the Lips; it draws the Noſe downwards, when it brings the upper Lip to approach the lower.

3. The *Pyramidales* or *Triangulares*, which are the two firſt of the proper Claſs proceed from the Suture of the Forehead, and are inſerted with a broad Tendon in the *Alæ* of the *Noſe*, which they ſerve to draw aſunder.

4. The *Dilatantes*, ſo called from their ſerving to widen the external Apertures of the Noſtrils, and reſemble a Myrtle-leaf, proceed from the Bone of the *Noſe*, near the *Alæ*, and terminate in the round place of the ſame Wing.

5. The *Conſtringents*, which draw the Wings of the Noſe downwards, and at the ſame Time the upper Lip alſo downwards, have an inner Situation, being hidden under the Coat that inveſts the Noſtrils. They ſpring from the inner Part of the Bone of the *Noſe*, and are inſerted in the internal *Alæ* of the *Noſtrils*.

The upper Part of the *Noſe* being bony, there are five *Cartilages* under theſe Muſcles, which form the lower Part; the two ſuperior *Cartilages*, which are broad upwards, but ſoften and grow narrow in their Deſcent, adhere to two Bones of the Noſe: The other two, which form the *Alæ*, are faſtened to the Extremities of the ſuperior ones, by membranous Ligaments; and the fifth is placed in the Middle for a Partition between the two Noſtrils.

The Membrane of the *Noſe* is furniſhed with large Arteries from the *Carotides*; and Veins which empty themſelves into the Jugular; and Nerves from the fifth Pair, as well as the olfactory Nerve.

In this Membrane is a great Number of ſmall Glands, which filtrate a white viſcous Liquor, called *Snot*.——Beſides theſe two Sinks, there are ſome others that convey a Liquor like the former into the Noſtrils.

By Means of this *Mucus* or *Pituita*, is the Membrane kept ſoft, and defended from the Injuries of extraneous Bodies, eſpecially thoſe of the Air; which muſt paſs this Way in Inſpiration, when the Mouth is ſhut.

The firſt of the excretory Ducts is the *Canalis Naſalis*, formed by the Coition of the two lachrymal Points, that paſs through the *Foramen* of the *Os Unguis*.——Through this Paſſage, Part of the Humour that waters the Eye, diſtils into the *Noſe*.——The ſecond, is the two Holes of the *Sinus Frontales*, which unload in the *Noſe*, a Snot filtrated by the Glands of their Membrane.——The third is the two Holes of the *Sinus's* of the *Os Sphenoides*, there being one on each Side.——The fourth is the two Orifices of the maxillary Cavities.——The fifth is the *Aquæduct*, ſome Part whereof is inveſted with the glandulous Membrane of the Noſtrils.

The NOSTRILS are the two Apertures at the Baſis of the *Noſe*, or the Commencement of two Cavities, which

which afford a continual Ingreſs and Egreſs to the Air. —Each of theſe Cavities divides afterwards into two others, one of which aſcends towards the Sieve-like Bone, and the other deſcends to the Palate, in order to empty itſelf in the Bottom of the Mouth, and the Throat.

There are two other Conduits, which run from the *Noſtrils* to the Mouth. They commence at the Bottom of each *Noſtril*, and paſſing over the Palate, perforate it under the fore Teeth, where they come to a Period.

The whole inner Capacity of the *Noſe* is lined with a pretty thick Coat, which is a Continuation of the *Dura Mater*, at the lower Part whereof grows ſome Hairs, viſible at the Entry of the *Noſe*, and of very little, or no Uſe.

The internal *Noſe* is filled with ſeveral cartilaginous Plates ſeparated from one another, whoſe Extremities terminate at the Root of the *Noſe*, and which ſerve to ſupport its inner Coat, which having a very long Extent, is therefore folded into the little Cavities of the *Noſe*, runs quite round theſe *Laminæ*, in Order to employ all its Length in a narrow Space, and covers their Surface exactly.

In this inner Tunicle of the *Noſe*, the Olfactory Nerves are diffuſed, and rendered capable of the Perception of *odoriferous Effluvia*, which is effected in the following Manner.

The little Atoms that exhale from odoriferous Bodies, are carried along with the Air to the *Noſe*, where, by ſtriking upon its inner Membrane, they jog the ſmall Pipes of the Olfactory Nerves, immediately the ſubtile Matter with which they are filled, partakes of this Commotion, which by Virtue of the Continuity, flies in a Moment to the *Corpora Striata*, from whence theſe Nerves proceed, and whereof our Imagination, ſenſible of the different Undulations, which each Object can occaſion in the Spirits, perceives that this is the Impreſſion of an odoriferous Body; whence proceeds the Senſation, called *Smelling*, which is not an Action, but a paſſive Quality of the Olfactory Nerve.

Beſides this Uſe of the *Noſe*, which is the Principal, Nature has made it, as it were, a *Diverticulum* to the *Eyes*, there being a conſiderable Paſſage into each Noſtril, that empties itſelf under the Middle of *Os turbinatum*, ariſing from two Apertures, called *Puncta Lachrymalia*, at the great *Canthus*.

By this Way the ſuperfluous Moiſture of the Eyes is carried off, which would otherwiſe incommode the Cheeks, as in Effect it does, when thoſe Parts are affected with any Diſorder; as in the *Ægilops*, and *Fiſtula Lachrymalis*.

The Diſeaſes of the *Noſe*, are a *Coryza*, *Ozæna Polypus*, *Sarcana*, *Noli me Tangere*, *Sneezing*, and the *Loſs of Smelling*.

The Figure and Magnitude of the *Noſe* cannot be nicely adjuſted, becauſe ſome have bigger *Noſes* than others. A great hawk Noſe is preferable to a flat one; for beſides that, a large *Noſe* never ſpoils the Face, open and wide Noſtrils are ſtill better than little narrow ones, upon the Account of the Conveniency of Reſpiration, as well as Beauty.

In *Tartary*, the greateſt Beauties are thoſe which have the leaſt *Noſes*; the Wife of *Zinghiſchan*, Mother of *Tamerlane*, is mentioned by *Raybrock*, as a celebrated Beauty, becauſe ſhe had only two Holes for a *Noſe*.——Thoſe Sorts of Beauties are not often toaſted under our Hemiſphere; for though our Wives have often their *Noſe*, in their Way, and we are often led by the *Noſe*, by them; we nevertheleſs prefer all thoſe Inconveniencies to that of having no *Noſe* at all.——Therefore we are very far from following the Cuſtom of the *Crim-Tartars*, who break the *Noſes* of their Children in their Infancy, for Fear it ſhould ſtand before their Eyes; for when they have their Noſe broken, they muſt have done it themſelves; and very much againſt our Inclination.——We muſt reaſonably ſuppoſe, that in thoſe Countries they have not the leaſt Notion of the Uſe of *Spectacles*, or that the Extirpation of the *Noſe* ſtrengthens their Sight, in ſtrengthening the *Optick*, by the Obſtruction of the *Olfactory Nerve*.——It is true, that among us, the Loſs of one's *Noſe* is a Mark of Diſtinction, and of the Courage and Bravery of thoſe who have fought under *Cupid*'s Standard, but that Badge is not much ambitioned, not even by the greateſt of our Heroes.

The *Italian* Noſe-mender, mentioned by *Amb. Paré*, would be of ſome Service to our *Gladiators* on *Venus*'s Amphitheatre, who in their warm Encounters have ſometimes the Misfortune to loſe their *Noſe*.——His Method (ſays our Author) was to make an Apperture in the Patient's Arm, and there to engraft the mutilated *Noſe*; the Arm being bound up for four and twenty Days, the *Noſe* took Root in the Wound, and glewed itſelf with the Fleſh of the Arm, and grew to its Bulk; which done, he cut off the Fleſh of the Arm, and faſhioned the *Noſe* to its liking, applied it in its Place, and healed the Wound at his Leiſure.——In all Appearance, the Veſſels of this new *Noſe*, had alſo a very great Analogy with thoſe of the Parts it was applaced to; and the Artiſt was ſo dextrous in the Application, as to have their *Tubercules*, meet exactly for the Circulation of the Juices, and the Nouriſhment of the additional Part. ——Which ſeems to me ſomewhat difficult in the Execution; for really I cannot ſay of this, that *Si non e vero, e bene trovato*.

Before we examine the *Tongue*, which is the Organ of Taſte, it will not be improper to premiſe an Account of the *Mouth* which contains it.

The MOUTH has two Lips, one above, and another below, which are a fungous Fleſh, covered with a very thin Coat, continuous with that of the Mouth.

The LIPS have ſeveral Glands placed under the Coat that covers them, and which are furniſhed with little Arteries from the *Carotides*, and Veins which carry back the Blood to the external Jugulars.

The *Lips* have thirteen Muſcles, eight proper, and five common. Of the proper, four belong to the upper, and four to the lower *Lips*; of the common, two are allotted to each *Lip*, and an odd one.

(7) The firſt of the Propers, which belong to the upper *Lips*, proceeding from the upper Jaw-bone, where the Fore-teeth *Inciſores* are placed, is called *Inciſivus*, and inſerted in the upper *Lip*, which it pulls upwards.

(8) The ſecond, its Antagoniſt, is called *Triangularis*, ſprings from the lateral and external Part of the *Baſis* of the lower Jaw-Bone, and is inſerted near the Corner of the Mouth in the upper *Lip*, which it pulls downwards.

(9) The third, called *Montanus*, allotted to the lower *Lip*, proceeds from the fore and lower Part of the Chin, and from the Root of the Fore-teeth of the lower Jaw; and terminates in the Brim of the lower *Lip*, which it draws down.

(9) The fourth is the Antagoniſt of the laſt, and is called *Caninus*, from its proceeding from the upper Jaw-Bone above the Eye-teeth. 'Tis inſerted in the lower *Lip*, near the Corner of the Mouth, and ſerves to draw up this *Lip*.

(10) The *Zigmaticus*, from its Proceſſion from the *Zygoma*, is the fifth Muſcle, and the firſt of the common Sort. 'Tis inſerted in the Corner of the Mouth, to draw it towards the Ears.

(12.) The ſixth riſes from the Roots of the Grinders of both Jaws, and terminates in the Circumference of the Lips. 'Tis called the *Buccinator*, from its Action in ſwelling and enlarging the Cheek, when we ſound a Trumpet.

(13) The odd Muſcle, called *Orbicularis*, is the Fleſh that encompaſſes the two *Lips*, like a *Sphincter*, and ſhuts the Mouth, by drawing them together.

The Nerves of the *Lips* come from the fifth, ſixth, and eighth Pair of the Head, and ſome from the *Par Acceſſorium*.

When the Mouth is well made, with ruby Lips, it contributes much to a beautiful Face. The Mouth is of a contrary Mould from the Eyes; for a little

Mouth is always handsomest; whereas the largest Eyes are hardly such.

Under the Eyes, between the Nose and Ears, lies a round Prominence called the POMUM, stiled the Seat of Shame, because it reddens or grows pale in the Recess of that Passion; the loose Part under it is called the Cheek, or *Bucca*; the upper Part of the upper *Lip*, *Mystax*; in the Slit between the two Lips, Mouth; the prominent Parts of the *Lips*, *Prolabia*; the lower Part of the Under-Lip, Chin; and the fleshy Part under the Chin, *Buccula*.

Within the Mouth are contained the *Gums*, the *Palate*, the *Uvula*, and the *Tongue*.

The GUMS serve to keep the Teeth fast in their Sockets, and consist of a hard and solid Sort of Flesh, that possesses the upper Part of those Sockets or *Alveoli*.——When the *Teeth* are corrupted, sometimes small Abscesses happen in the *Gums*, which Surgeons are obliged to open with a Launcet.

The PALATE, also called the Roof of the Mouth, from being its upper Part, is formed by the maxillary Bones, and the Bones of the *Palate*, and covered with a thick, shrivelled Membrane.

The Substance of this *Tunicle*, is strewed all over with conglomerate Glands, which are continued to the *Tonsillæ* or Almonds.—These Glands separate a Sort of Serosity, which they discharge into the Mouth by an Infinity of little Pipes that perforate it as if it were a Sieve.

The UVULA is a small pyramidal Prominence, which hangs down from the Palate upon the Root of the *Tongue*——'Tis formed by the Union of two little round Muscles, that spring from the *Septum*, or Partition-wall of the Nose; these Muscles serve to raise it, and when the Action ceases, it falls by its own Weight.——Upon the Sides of the *Uvula*, are two Arches, called *Rimæ Nasales*, which consist of semi circular Fibres, covered with a thin Skin, upon which are dispersed little glandulous Grains. When the semi-circular Arches stretch themselves lengthwise, they become strait, in Order to confine the Air within the Mouth, when we blow or heave up the Cheeks; they likewise stop the Entry of the *Larynx*, and so hinders the Air to spring from the *Aspera Arteria*, when we breath, in performing the same Action.

(15, 15) The Motions of the *Uvula* are very manifest in some Persons, and are performed by four Muscles, two called *Peristaphylini Externi*, and two *Peristaphylini Interni*. The two first proceed from the upper Jaw under the last Grinder; and terminate by a slight *Tendon* in the *Uvula*.

(16, 16) The *Peristaphylini Interni* rise from the inner Wing of the *Pterigoides* Process, where there stands a little moveable Cartilage that ministers to their Motion. After that they mount along the Wing of the Process, and are inserted in the *Uvula*. These four Muscles serve to advance, and draw back the *Uvula*, when we swallow Victuals.——Oftentime the *Uvula* is swelled and inflamed, (which the Vulgar call the Falling of the Roof of the Mouth) and sometimes it runs out to such a Length, that Surgeons are obliged to cut off the Tip of it.

(17, 17) Upon each Side of the *Uvula*, betwixt the *Larynx* and the Muscles of the *Os Hyoides*, there stand the *Tonsillæ* or *Amigdalæ*, conglomerate Glands, I have mention'd with the *Larynx*. They are furnished with all Sorts of Vessels, and strain out the *Serum* that moisten the Tongue, the *Larynx*, and the *Œsophagus*.

The TONGUE, which is the Organ of Taste, and the principal Instrument of Speech and Deglution, is seated in the Mouth under the Arch of the Palate.

The *Tongue* is fastened to the *Os Hyoides*, the *Larynx*, and the *Fauces*, by Means of a membraneous Ligament running along the lower Side of it, about half-way, called the *Frænum*.

Its Size is indifferent bulky, and proportioned to that of the Mouth; when too short we cannot shoot it out; when too thick it makes us stammer; and when too flaggy and moist, as in Children, they can't well articulate their Words.

The main Bulk and Body of the *Tongue* is made up of Muscles, which are covered on the upper Part with a papillary nervous Substance, over which is spread a pretty strong Membrane, instead of the *Epidermis*, and full of *Papillæ* of a pyramidal Figure, especially towards the Tip; which *Papillæ* stand pointing towards the Root of the Tongue in a bending Posture, which make their Figure to be *Concavo-Convex*.——These *Apices* or *Papillæ* are so very minute and slender in Men, that they make the Coat appear on the upper Part to be villous, especially as they approach towards the Root. The Figure of the *Papillæ* in human *Tongues*, is not so plainly discernable to the naked Eye, as not to need the *Microscope*.

Under this lies a soft reticular Sort of Coat, full of Holes like a Sieve, and always lined with a thick yellowish *Mucus*. This Membrane is so exceeding tender, that it is not to be examined with the naked Eye unless boiled.——After boiling, it appears like a Kind of Gauze, between whose Threads innumerable Holes appear, through which the *Apices* of the papillary Bodies underneath are exerted.——This Membrane on the upper Side next the outward, appears white with a Cast towards yellow, but black on the Side next the *Tongue*.

The greatest Part of the Body of the *Tongue* is musculous, consisting of Plans of Fibres in different Directions: The first or external Plan, consists of strait Fibres, which cover the *Tongue* from one Extreme to the other; when these contract they shorten it. Under this are several other Plans running from the under to the upper Side, which serve to make it broad and thin. These two Kinds of Fibres lie *stratum super stratum*, a Plate of the one, and then a Plate of the other.——'Tis by the Means of these Fibres that the *Tongue* moves itself, and turns like an Eel in the Mouth.

Though the *Tongue* consists of a fibrous and musculous Substance, and by that Means is qualify'd to turn itself any way in the Mouth, yet it is furnished with Muscles for the Performance of its great Motions.——These Muscles are eight in Number, four on each Side.

(23, 23) The first Pair is the *Genyoglossi*, which proceed from the lower Part of the Chin, and are inserted in the anterior and interior Part of the *Tongue*; which Muscles pull the *Tongue* forwards, and put it out of the Mouth.

(24, 24) The second is the *Styloglossi*, which spring from the *Styloides* Process, and terminate in the lateral and upper Part of the *Tongue* in order to pull it upwards.

(25, 25) The BASIOGLOSSI, which move the *Tongue* towards the Bottom of the Mouth, are the third, proceed from the upper Part of the *Basis* of the *Os Hyoides*, and are inserted in the Root of the *Tongue*.

(26, 26) The fourth Pair is the CERATOGLOSSI, which rise from the upper Part of the *Cornu* of the *Os Hyoides*, and are inserted in the Sides of the *Tongue*, which they pull aside and backwards.--When these four Muscles on each Side act successively, they move the *Tongue* round.

Mr. *Cowper* allows no more than three genuine Pair of Muscles to the *Tongue*, *viz.* the *Genioglossum*, *Ceratoglossum*, and *Styloglossum*.

Down the Middle of the *Tongue*, length-wise, runs a Seam, called *Linea Mediana*, which divides it to the Bottom into two equal Parts, but not so effectually, but that the Blood Vessels of one Side communicate with those of the other.—These Vessels are Arteries from the *Carotides*, and Veins called *Ranulæ*, and are very conspicuous about the *Frænum* under the *Tongue*, serving to re-convey the Blood to the external Jugulars.——These Veins are frequently opened in the *Angina*, and are the last Resort of old Women in this Case.——The Nerves of the *Tongue* come from the fifth, sixth, and ninth Pair, the two first of which have been called *Gustatorii*, and the latter *Motorii Linguæ*.

The

The *Tongue* serves for four Uses, 1. To assist the chewing Faculty by turning the Morsels in the Mouth. 2. To promote Deglution. 3. To join with the Lips in articulating the Voice; for it is by their joint Motion that the Air springing from the Lungs is form'd into Words. 4. To be the principal Organ of Taste.

The TASTE consists in the Fluttering of the Spirits of the *Tongue*, caused by the Salts of the Aliment, which strike upon the Nerves in which they are contained, which Salts grating against the papillary Prominences, occasion Undulations with them, which in the same Moment are imparted to the Spirit contained in the Nerves, and by them transmitted to the *Corpora Striata*, with which they are continuous, and which represent to the Imagination such Impressions as they receive.

We'll conclude our SPLANCHNOLOGY with a Demonstration of the salivary Vessels: Which are four in Number, two of which being superior proceed from the *Parotides*, and the other two which are inferior rise out of the maxillary Glands.

(29) The *Parotides* are large conglomerate Glands placed behind the Ears, and which fill all the Space, between the hinder Corner of the lower Jaw, and the *Mastoides* Process.——They receive Arteries from the *Parotides*, which reach within their Substance; and their Veins run to the Jugulars. The *Saliva* is secreted from the Blood which passes through their Substance; which *Saliva* is received by two Vessels, called *Salivares*, and formed out of several little Branches, which unite upon their Departure from the Glands, and marching along the Cheeks, make a Breach thro' the Middle of them, in order to terminate in the Mouth.

3. The MAXILLARY GLANDS (also of a conglomerate Nature) are placed under the lower *Maxilla*, between the *Larynx* and the *Os Hyoides*. The Arteries, Veins, and *Ductus Salivares*, they are furnished with, are formed by the joint Union of several Branches under the *Digastrick* Muscle.——The *Saliva*, filtrated thro' these Glands, is taken up by those salivary Ducts which unload it in the Mouth, under the Tip of the *Tongue* upon the two Sides of the *Frænum*, by the lower Fore-teeth.——This *Saliva* acts the Part of the first Dissolver of the Aliment.

Here ends my historical Account, or Demonstrations of all the Parts of the Trunk of the human Body, which must be followed in course, by as plain a Demonstration of all the Parts of the Limbs, which are four in Number.——Two superior, called the *Arms*; and two inferior, called the *Legs*; but as those Parts (the Bones excepted, which I have demonstrated in my *Osteology*) are almost entirely musculous, I'll entertain my Readers with a general History of the Muscles, and their Motions, called *Myology*.

MYOLOGY, from the *Greek* μυς, μυος, *a Muscle*, and λογος, *Discourse*, is a Description of the Muscles; or the Knowledge of what relates to the Muscles of the human Body.

The MUSCLE is a Bundle of thin parallel Plates; and is divided into a great Number of *Fasciculi*, or little *Muscles*, each inclosed in its proper Membrane, from the internal Surface whereof, pass an infinite Number of transverse Filaments, which intersect the Muscles into several distinct *Areas*, filled with their respective *Fasciculi* of Fibres.

A *Muscle* is usually divided into three Parts, the *Head*, the *Tail*, and the *Belly*.——The *Head* and *Tail*, which are also called *Tendons*, are the two Extremes of the *Muscle*; whereof the first is fixed to the stable Part; and the latter to the Part intended to be moved.

The *Venter*, or *Belly*, is the Body of the *Muscle*, being a thick fleshy Part into which are inserted Arteries and Nerves; and out of which issue Veins and Lymphatick Ducts.

All these Parts of a *Muscle*, the *Belly* and the *Tendons* are composed of the same Fibres; their only Difference consists in this, that the Fibres of the *Tendons* are more closely and firmly bound together than those of the *Belly*, which are more loose. Hence in the *Belly* there is Room for a sufficient Quantity of Blood to give them an Appearance of Redness; and the Whiteness of the *Tendons* only proceeds from the Blood being in some measure excluded from the Tightness of their Contexture.——The Difference then between the *Belly* and the *Tendons*, seems to be the same, as between a Skein of Thread, and a Cord made of the same Thread.

As the *Muscles* act by having their Belly inflated or swell'd; for by that means they are shortened so as to draw or press the solid Bodies to which they are fastened, according to the Direction of their Fibres. ——All the Difficulty then, in muscular Motion, is, to assign their Fabrick and the Cause of their Swelling.

Every single *Muscle* consists of one fleshy Body, and two *Tendons*; but may be again divided into others similar, tho' less; and those again into others still less, yet still similar to the great ones; which Division may be carry'd on to a Degree of Subtility, that exceeds all Imagination, though it is reasonable to think it must have an End.——The last therefore being similar to the first, must, in like manner, have its *Belly* and *Tendons*; and this is what we commonly call a muscular Fibre, in an Assembly or Union of several whereof a Muscle properly consists.

Dr. *Boerhaave*, from a Consideration, that the Nerves enter every Muscle along with its Veins and Arteries, and that there laying aside their outer Integument, they are so distributed thro' the whole Body of the *Muscle*, as that no one Point can be assigned wherein a Part of them is not found; that those Nerves terminated here, and that in other Parts of the Body, the Extremities of the Nerves are expanded, as it were, into Membranes; concludes that the muscular Fibres are nothing else but extremely slender Expansions of the Nerves stript of their Integuments, hollow within, and of the Figure of a *Muscle*, and full of a Spirit communicated by the Nerve from its Origin in the *Cerebellum*, by the continual Action of the Heart.

Of these *Fibres* united are form'd *Fasciculi*, or Bundles; which again have their several Membranes wherein they are involved, and kept distinct from others. This Membrane is extremely slender and porous within, full of Oil, which is accumulated in time of Rest, and spent in Motion, furnished by the Arteries; and this Oil, in Conjunction, with a smooth mucous Juice, secreted by small mucilaginous Glands, interspersed among these *Fasciculi*, serves to lubricate the Parts, and preserve the *Fasciculi*, from fretting on each other.

Now, besides the Nerves, there are Arteries also carry'd into the *Muscles*, and those in such Abundance, and of such Contexture, that one might be inclined to think the whole Body of the *Muscle* composed of them.

A *Muscle* has two Sorts of Motion, *viz.* Contraction and Extension; in the first it shortens, and lengthens itself in the second; and this is the Source of all the different Motions of the Body.

The *Motions* are either simple or compound. Those which tend directly upwards, downwards, forwards, backwards, to the right, or the left, are called simple; because they are performed by one Sort of *Muscle*; but when several *Muscles* act jointly and successively, as when one moves the Arm quite round, it is then a compound Motion.

All *Anatomists* agree that the *Muscles* serve to move all the Parts of the Body, when we please, but they do not all equally conceive in what Manner the *Muscles* act; though it is generally believed that the Cause of their Motion proceeds from the Brain; that as soon as the Will is determined to bow the Wrist, for Example, the *Muscles* immediately obey, and the Wrist is actually bowed; and that after this Manner.--

The

The Blood which is thrown by the Artery into the Body of the Muſcle without Interruption, is always ready to rariſy itſelf in order to ſwell the *Muſcle*, but that it cannot compaſs of itſelf; for it is by a Mixture of the animal Juice imported to the Muſcle by the *Nerve*, that this Rarifaction is brought about; which by enlarging the Diſtance between the Fibres, ſhortens them, and thereupon enſues the Motion of that Part, which is tied to the Tail of the *Muſcle*.

This Influx of the animal Juice into the Muſcle never takes Place but when we pleaſe; and it is that which renders their Motion voluntary; but after all we muſt not think that the animal Juice is conveyed from the Brain to the Muſcles, at the ſame Time, that the Soul wills the Motion; for the Motion follows ſo cloſe upon the Reſolution of the Will, that the Juice cannot go ſo far in that Time. But the Caſe lies here; the Nerves are ſo many Conduits full of animal Juice, and when the Soul reſolves to move any *Muſcle*, the Fibres of the Brain preſs gently upon the Extremity of the Nerves; this Compreſſion forwards the Animal Juice, with which the Nerve is filled, and obliges it to march through the Muſcles, where mixing with the Blood, never wanting in ſuch Places, it makes an Ebullition, which is followed by an Intumeſcence or Swelling.

Dr. *Boerhaave* finding all that's requiſite in the nervous Juice, for the Motion of the *Muſcles*, thinks it needleſs to have Recourſe to a Mixture of ſeveral Liquors where one will do; and therefore makes no Scruple to attribute the whole Buſineſs to it alone.— The Manner of Action he conceives thus:

Suppoſe the Spirit from any Cauſe to be moved more ſwiftly from the Origin of ſome one Nerve than through the Reſt; the *Influx* will be here greater, into the muſcular Fibre open to this Nerve than into another: This will therefore be more dilated; and the other *Phænomena*, mentioned above, will ſucceed. The ſame Cauſe continuing, the Effect will be increaſed, ſo that in a Moment the whole will be ſwelled up; and while the ſame Determination laſts, will remain contracted: And this obtaining in an infinite Number of *Fibrillæ* at once, the whole *Muſcle* will be inflated.

Hence it neceſſarily follows, that as the Celerity is increaſed in one Nerve, the Motion will be leſs in another; this therefore being relaxed, the Effort in Contraction will be the ſtronger, for which Reaſon all the turgid Fibres of a *Muſcle* will compreſs the intermediate Place, and Blood, with a great Force, whence the Veins will be emptied, and the Arteries being compreſſed will repel the groſſer, that is the red Parts of the Blood, but will drive the more ſubtile Parts, by the Force of the Heat and their own into the moſt minute Canals; and thus the *Cruor* being expelled, the whole Body of the Muſcle will be found to act by a ſubtile Humour, concurring from the Nerves and Arteries.

Thus are all the *Phænomena* accounted for, without any other Aſſumption than an accelerating Force in the Origin of the Nerves; which is common to all Hypotheſes, and cannot be traced any further.

Dr. *Lower* and Mr. *Cowper*, and after them Dr. *Morgan* and others of the lateſt Authors on that Subject, ſetting aſide all adventitious Fluids, account for *muſcular Motion*, from the intrinſick Elaſticity of the nervous *Fibrillæ*, contracting and reſtoring themſelves againſt the ſtretching Force of the circulating Blood.

All the *Muſcles* employed in the ſame Motion are called *Congeneres*; and thoſe which perform oppoſite Motions *Antagoniſtæ*.

As for the Number of the *Muſcles* it is hard to determine it, for ſome *Anatomiſts* have enlarged it ſo far as to reckon 529.

From this Demonſtration of the *Muſcles* in general we'll deſcend into a more particular Deſcription of them.—— I'll begin by the Muſcles of the lower Jaw, the *Os Hyoides*, the Head, and the Neck.

But to proceed with ſome Order in this *Myology*; and to eaſe the Reader's Memory, we'll reduce the Deſcription of the Muſcles, aſſigned to each Part of the human Body, to the following clear and conciſe Method or Table, divided into four Columns; The firſt whereof will point the References to the Print; the ſecond contain the Number of the Muſcles of each Part; the Third, whence they proceed; the Fourth, their Inſertion; and the Fifth, the Nerves, Arteries, Veins, *&c.* each of them is furniſhed with.

Reference.	Number 12.	The *Muſcles* of the *Lower-Jaw* are	Proceed	Inſerted	*Nerves and Veſſels.*
A	1ſt	*Crotaphites*,	from the *Coronal*, *Parietal*, and *Petroſum*,	with a nervous Tendon in the *Corona* of the lower Jaw.	Nerves from the 3d and 5th Pair; Arteries from the *Carotides*; its Veins are emptied in the *Jugulares*.
B	2d	*Pterygoides Exterior*,	from the *Pterygoides* Proceſs,	in the Interſtice betwixt the Head and the *Corona* of the lower Jaw.	
D	3d	*Maſſeter*,	from the Cheek-Bone and the lower Part of the *Zygoma*,	in the external Corner of the Jaw, and in its Middle.	
C	4th	*Pterygoides Interior*,	from the inner Part of the *Pterygoides* Proceſs,	in the inner Part of the Corner of the lower Jaw.	
F	5th	*Cutaneus*,	from the upper Part of the *Sternum*, *Clavicula*, and *Acromeon*,	in the external Part of the *Baſis* of the lower Jaw.	
G	6th	*Digaſtricus*,	from a *Fiſſura* or Chink between the *Os Occipitis* and the *Maſtoides* Proceſs,	in the lower and inner Part of the Chin.	

REMARKS.

The *Crotaphites* is knit to the Outſide of the *Corona*, (its Wounds are oftentimes mortal by Reaſon of the Convulſions they cauſe) and the *Pterygoides* exterior to the Inſide; the *Maſſiter* to the Outſide Corner of the Jaw, and the *Pterygoides* interior to the Inſide.

Theſe four Muſcles concur jointly to the Action of Chewing, by drawing up the lower Jaw to the upper, and joining them very cloſe.

The Office of the *Cutaneus* and *Digaſtricus* is to open or pull down the lower Jaw, aſſiſted therein by its own Weight.

Reference.	Number 10.	The *Os Hyoides* has five on each Side,	Proceed	Inserted.	Nerves, Vessels, &c.
AA	1st	*Geniohyoideus*,	from the lower and inner Part of the Chin,	in the upper Part of the *Basis* of the *Os Hyoides*, which it pulls upwards.	
BB	2d	*Mylohyoideus*	from the inner Part of the Side of the lower Jaw near the Grinders,	in the lateral Part of the *Hyoides*-Bone, which it pulls upwards and Side-ways.	
CC	3d	*Stylohyoideus*,	from the Extremity of the *Stylohyoides* Process,	in the *Cornu* of the *Hyoides* which it draws aside.	
DD	4th	*Coracohyoideus*,	from the *Caracoides* Process of the Shoulder-Blade,	in the lower and lateral Part of the *Basis* of the *Hyoides*, which it draws Side-ways downwards.	
EE	5th	*Sterno-hyoideus*,	from the inner Part of the first Bone of the *Sternum*,	in the *Basis* of the *Os Hyoides*, which it pulls down.	

OBSERVATION.

Of these ten Muscles of the *Os Hyoides*, there are five on each Side, to hold it fast in its Situation, and hinder it from falling to one Side or t'other.— These Muscles are the Instruments wherewith it performs its Motions, which consist in facilitating the Action of Swallowing.

Reference	Number 14.	The *Head* has seven on each Side.	Proceed	Inserted	Nerves, Vessels, &c.
F	1st	*Sterno-Clinomastoideus*,	from the upper and lateral Part of the first Bone of the *Sternum* and the Middle of the *Clavicula*,	in the upper Part of the Process *Mastoides*.—— It bows the *Head* upon the Breast, and makes what we call the *Nod*.	
G	2d	*Splenicus*,	from the Tops of the spinal Processes of the five uppermost *Vertebræ* of the Back, and the three lowermost of the Neck,	in the posterior and lateral Part of the *Occiput*.	
H	3d	*Complexus*,	from the transverse Processes of the same *Vertebræ*,	in the posterior and middle Part of the *Occiput*.——This and the preceding cross one another.	
I	4th	*Rectus Major*,	from the Extremity of the acute Process of the 2d *Vertebra* of the Neck,	in the *Occiput*.	
K	5th	*Rectus Minor*,	from the first *Vertebra* of the Neck,	in the *Occiput*.	
L	6th	*Obliquus Major*,	from the Spine of the second *Vertebra* of the Neck,	obliquely in the transverse Process of the first.	
M	7th	*Obliquus Minor*,	from the *Occiput*,	obliquely in the transverse Process of the first *Vertebra*, at the same Place with the former.	

REMARKS.

There are four Muscles on each Side, which raise up the *Head*, and only one that pulls it down, because the *Vertebræ* of the Neck, which serve for a *Pivot*, or *Axis* to the *Head*, are not placed directly in the Middle, so that the Weight of the Head leaning more forward, one Muscle is sufficient to bow it, whereas four have enough to hold it up.

The two oblique Muscles of the same Side make the *Head* perform a Semi-circular Motion; because the *Head* does not move upon the first *Vertebra*, but upon the second, which has a Tooth-like Process, round which the first *Vertebra* turns as a Wheel round an Axle-Tree.

Reference.	Number 8.	The *Muscles* of the *Neck* are four on each Side.	Proceed	inserted	Nerves, Vessels, &c.
N	1st	*Scalenus*,	from the upper Part of the first Rib, and from the *Clavicula*,	in the Extremities of the transverse Processes of the three and four uppermost *Vertebræ* of the *Neck*.	
O	2d	*Longus* or *Rectus*,	from the lateral Part of the Body of the four upper *Vertebræ* of the Back,	in the Body of the upper *Vertebra* of the *Neck*, or in the *Occiput*.	
P	3d	*Spinosus*,	from the *Spinosus* Processes of the fourth and fifth uppermost *Vertebra* of the Back,	in all the Spines of the six *Vertebræ* of the *Neck*, which it extends.	

Reference	Number 8.	The *Muscles* of the *Neck* are four on each Side,	Proceed	Inserted	Nerves, Vessels, &c.
4th	Q	*Transversus*,	from the transverse Processes of the five upper *Vertebræ* of the Back,	in the Extremity of the third and fourth uppermost *Vertebra* of the *Neck*, which it extends.	

REMARKS.

Two of these Muscles bend the Neck, and two stretch it out.—— When they all act with joint Forces, they keep the Neck firm and strait; and when an *Inflexor* and an *Extensor* act in Concert, they bend the Head to one Shoulder.

In the Interstices of the *Muscles* of the *Neck* there are the fourteen Jugular Glands, knit to one another by Membranes and Vessels; whose Substance resembles that of the *Maxillares*. Their Office is to separate the Lymph carried off by the lymphatic Vessels of all these Muscles.

Reference	Number 6.	The *Shoulder-blade* has four Proper, two Common,	Proceed	Inserted	Nerves, Vessels, &c.
P	1st	*Trapezium*,	from the posterior Part of the *Occiput*, from the *Spinæ* of the six inferior *Vertebræ* of the Neck, and the nine uppermost of the Back,	in the whole Spine of the *Shoulder-blade*, and in the external Part of the *Clavicula*.	
Q	2d	*Rhomboides*,	from the Spine of the three lower *Vertebræ* of the Neck, and the three superior *Vertebræ* of the Back,	in the whole *Basis* of the *Scapula*, which it pulls backwards.	
R	3d	*Levator Proprius*,	by different Heads from the transverse Process of the four upper *Vertebræ* of the Neck,	in the upper Angle of the *Scapula*, which it draws up.	
S	4th	*Pectoralis Minor*,	by Way of Digitation from the second, third, and fourth upper Ribs of the *Thorax*,	in the *Coracoides* Process of the *Scapula*, which it pulls forwards.	

REMARKS.

The two common *Muscles* of the *Shoulder-Blade*, are the *Latissimus*, and *Profundus*, which though designed for the Arm, fasten upon the *Shoulder-Blade* as they pass, and in some Measure assist it in its Motions.

The superior Limb, is divided into the Arm, the *Cubitus*, and the Hand. The Arm is that Part that lies between the Shoulder and the Elbow. The *Cubitus* is limited by the Elbow and the Wrist; the Hand, by the Wrist and the Top of the Fingers; these Parts are moved by several Muscles, of which in Order.

Reference	Number 9	The *Arm* has	Proceed	Inserted	Nerves, Vessels, &c.
T	1st	*Deltoides*, from the Resemblance of a Greek Δ,	from the *Clavicula*, the *Acronium*, and the whole Spine of the Shoulder-blade,	with a strong Tendon almost in the Middle of the Arm,	Compounded of 12 simple Muscles.
V	2d	*Supraspinatus*,	from the external Part of the *Basis* of the Shoulder-blade,	under the Neck of the Shoulder-bone, it encompasses with a broad Tendon, and moves upwards.	
X	3d	*Latissimus*,	from the three of four inferiour *Vertebræ* of the Back, from all the *Vertebræ* of the Loins, from the Spine of the *Os Sacrum*, the posterior Part of the Edge of the *Os Illium*, and the external Part of the inferior short Rib,	in the upper and internal Part of the Shoulder-bone, which it pulls downwards.	
Y	4th	*Rotundus Major*,	from the external Part of the inferior Angle of the *Scapula*,	with the *Latissimus*, in the upper and internal Part of the Shoulder-bone, which it pulls downwards.	
Z	5th	*Pectoralis Major*,	from the Middle of the *Clavicula*, upon that Side that faces the *Sternum*, and from the lateral and middle Part of the *Sternum*,	by a short Tendon in the upper and fore Part of the Shoulder-bone.— It moves the Arm forwards.	
I	6th	*Coracoides*,	from the *Coracoides* Process of the *Scapula*,	in the Middle and inner Part of the Shoulder-bone. It moves the Arm forwards,	Its Belly is perforated to give Way to the Nerves that repair to the Muscles of the *Cubitus*.

Reference

Reference	Number 9.	The *Arm* has	Proceed	Inserted	Nerves, Vessels, &c.
2	7th	*Sub-Spinatus*,	from the outer Part of the *Basis* of the *Scapula*,	in the upper back Part of the Shoulder-bone, which it draws back.	
3	8th	*Rotundus Minor*,	from the lower Side of the *Scapula*, near its anterior Corner,	in the posterior and superior Part of the Shoulder-bone, which it moves backwards.	
4	9th	*Sub-Scapularis*,	from the inner *Labium* of the *Basis* of the *Scapula*,	in the inner and superior Part of the Shoulder-bone, which it draws close up to the Ribs.	

REMARKS.

By Virtue of these, the *Arm* performs five Sorts of Motions; two, *viz.* the *Deltoides*, and *Supraspinatus* lift it up; two, the *Latissimus*, and *Rotundus Major* draw it down; two, the *Pectoralis Major*, and *Coracoideus* pull it forwards; two, the *Infra Spinatus*, and *Rotundus Minor* pull it back; and one, *viz.* the *Scapularis* draws it into the Side of the Body.——The alternate Actions of the first eight Muscles, move the *Arm* round.

The CUBITUS is divided into two Parts, *viz.* the *Ulna* and the *Radius*, each of which has their separate Motions, and consequently peculiar *Muscles*.

Reference	Number 6	The *Ulna* has	Proceed	Inserted	Nerves, Vessels, &c.
4	1st	*Biceps*,	from the *Caracoides* Process, and from the upper Part of the cartilaginous Edge of the glenoides Cavity of the *Scapula*,	by one Tendon in a Knob, at the upper, and inner Part of the *Radius*. It bows the Arm.	
5	2d	*Brachiæus internus*,	from the anterior and superior Part of the Shoulder-Bone,	in the superior and inner Part of the *Ulna*.—It bows the *Cubitus*, in Conjunction with the *Biceps*.	
6	3d	*Longus*,	from the superior Part of the *Scapula*, near its Neck.	by a strong Tendon in the *Olecranum*.	
7	4th	*Brevis*,	from the superior and posterior Parts of the *Humerus*,	in the *Olecranum*.	
8	5th	*Brachiæus Externus*,	from the posterior Part of the *Humerus*,	in the *Olecranum*, by the same Tendon with the two last *Muscles*.	
9	6th	*Anconæus*,	from the lower Part of the *Condylus* or Shoulder-bone,	by a Tendon in the lateral and back Part of the *Ulna*, about two or three Fingers Breadth under the Elbow.	

REMARKS.

The *Ulna* has only two Sorts of Motion, *viz.* that of Flexion, or Bowing, and that of extending itself. The first it compasses by Means of the *Biceps*, and *Brachiæus Internus*, and the other by the the Help of the *Longus*, *Brevis*, *Brachiæus Externus*, and *Anconæus*.

References	Number 4	The *Radius* has two Pronatores, two Supinatores.	Proceed	Inserted	Nerves, Vessels, &c.
Pronatores 10	1st	*Rotundus*,	by a carnous Head from the internal Process of the Shoulder-bone,	obliquely in a membranous Tendon upon the Outside of the *Radius*, a little below the Middle.	
11	2d	*Quadratus*,	from the inferior and almost external Part of the *Ulna*,	in the lower and external Part of the *Radius*.	
Supinatores 12	1st	*Longus*,	about three or four Fingers Breadth above the outer Process of the Shoulder-bone,	in the inner Part of its inferior Process.	
13	2d	*Brevis*,	from the lower Part of the inferior and external *Condylus* of the Shoulder-bone,	in the superior and anterior Part of the *Radius*.	

REMARKS.

The RADIUS has two Sorts of Motion, one called *Pronotio*, whereby the Palm of the Hand, with the Help of the two *Pronotores* Muscles, is turned down; and the other *Supinatio*, in which the two *Supinatores* turn it upwards.

The HAND is the third Part of the superior Limbs; it commences from the Articulation of the Wrist, and terminates at the Fingers ends.—Its inner Part is called the Palm, and the outer the Back of the Hand.—'Tis divided into the *Carpus*, or *Wrist*, the *Metacarpus*, and the *Fingers*.

Reference	Number 6	The *Carpus* has 3 to bend and 3 to extend it.	Proceed	Inserted	Nerves, Vessels, &c.
Flexores					
14	1st	*Cubitæus Externus*,	from the lower and interior *Condylus* of the Shoulder-bone,	by a thick Tendon in the small Bone of the *Carpus*, that lies above the rest.	
15	2d	*Radiæus Internus*,	from the lower and inner *Condylus* of the Shoulder-bone,	in the first Bone of the *Carpus*, that supports the Thumb.	
16	3d	*Palmaris*,	from the lower and interior *Condylus* of the Shoulder-bone,	in the Skin of the Palm of the Hand.	
	Zatuders				
17	1st	*Cubiteus Externus*,	from the posterior Part of the *Ulna*,	in the superior and external Part of the Bone of the *Metacarpus*, that supports the little Finger.	
18	2d	*Longus*,	from the interior Part of the Shoulder-bone,	in that Bone of the *Carpus*, that supports the fore Finger.	
19	3d	*Brevis*,	from the lowermost Part of the Shoulder-bone,	in the Bone of the *Carpus*, that answers the middle Finger.	

REMARKS.

Besides these six *Muscles*, three of which serve to bend, and three to extend the *Carpus* or *Wrist*, it has also a Ligament called *Annular*, which surrounds it like a Bracelet; this Ligament serves not only to join the two Bones of the *Cubitus*, in the Neighbourhood of the Wrist, but likewise to hold fast all the Tendons of the *Muscles*, and prevent their slipping out of their Place when they are in Action.

We find also, at the Root of the Hand, under the *Mons Veneris*, a certain Musculous Heap of Flesh in a square Form, which begins at the *Thenar*, and ends in the eighth Bone of the *Carpus*. Some alledge, that it serves to render the Hand hollow, by drawing towards the *Thenar*, the fleshy Eminence that lies under the little Finger.

The FINGERS have three and twenty *Muscles*; thirteen of which are common, and ten proper; the common ones, *viz.* the *Sublimis*, *Profundus*, *Extensor Communis*, the four *Lumbricales*, and the six *Interossei*, serve all the Fingers; the proper ones, are those peculiarly calculated for each Finger, *viz.* five for the Thumb, three for the fore-Finger, and two for the little Finger, and are situated as follow.

Reference	Number 23	The *Muscles* of the Fingers are	Proceed	Inserted	Nerves, &c.
The Common.					
20	1st of the Benders.	*Sublimis*,	from the inner Part of the inferior and interior *Condylus* of the Shoulder-bone,	in the second Row of the Bones of the four Fingers, being fastened in its Passage to those of the first,	divided into four Tendons.
21	2d	*Profundus*,	from the upper and interior Part of the *Ulna*, and the *Radius*,	in the third Row of the Bones of the Fingers,	divides into four Tendons.
22	3d	*Extensor communis Major*,	from the posterior Part of the external and inferior *Condylus* of the Shoulder-bone,	in the second and third *Phalanx*,	before its Arrival at the Wrist, divides itself into four flat membranous Tendons.
	4th, 5th, 6th, 7th	four *Lumbricales*,	from the *Tendons* of the *Profundus*, and the annular *Ligament*,	in the second Articulation of the Fingers, for their Abduction,	
	8th, 9th, 10th	three *Ossei Interni*,	from the superior Part of the Interstices, between the four Bones of the *Metacarpus*,	in the lateral Part of the Bones of the Fingers, which they move towards the Thumb,	They join their Tendons with those of the *Lumbricales*.
	11th, 12th, 13th	*Ossei Externi*,	for the same Interstices of the Bones of the *Metacarpus*,	in the last Articulation of the Bones of the Fingers.	

REMARKS.

The Tendons of the *Sublimis*, and *Profundus*, are very strong, because the true Action of the *Hand* is performed by them.—The Tendons of the *Sublimis*, are perforated to give Way to those of the *Rotundus*, to the End that the Flexion of the Fingers may be circular, and stronger.—Those Tendons are enclosed in a long, strong, and membranous Sheath, which hinders 'em to fly off to the Right or Left, or to raise up against the Palm of the *Hand*, in their Motions; which Sheath contains a fat and oily Humour, that moistens them.

The *Tendons* of the *Communis Major*, are flat, that they may jut out less upon the Back of the Hand, thro' which they pass, for that Part had been deform'd if these Tendons had been round.

There is but one *Extender Muscle* for two *Benders*, because the Strength of the *Hand* consists in its Flexion.

Reference

Reference	Number 5	The THUMB has five peculiar *Muscles*,	Proceed	Inserted	Nerves, Tendons, &c.
23	1st	*Flectens Proprius*,	from the superior and interior Part of the *Radius*,	in the first and second Bone of the *Thumb*, which it bends.	
24	2d	*Longus*,	from the upper and outer Part of the *Ulna*,	in the second Bone of the *Thumb* which it stretches out,	by a forked Tendon.
25	3d	*Brevis*,	from the same Place with the *Longus*,	in the third Bone of the *Thumb*, which it serves, also, to stretch out.	
26	4th	*Thenar*,	from the first Bone of the *Wrist*, and the annular Ligament,	in the second Articulation of the *Thumb*, which it removes from the other Fingers.	
27	5th	*Antithenar*,	from the Bone of the *Metacarpus*, that supports the middle Finger,	in the first Bone of the *Thumb*, which it pulls to the other Fingers.	

REMARKS.

Of these five *Muscles*, one of them bend or bows the *Thumb*, two extend it, one draws it away from the other Fingers, and one pulls it towards them.

Reference	Number 3	The *Fore-finger* has	Proceed	Inserted	Nerves, Tendon, &c.
28	1st	*Indicator*,	from the middling and posterior Part of the *Ulna*,	in the second *Phalanx* of the Index or Fore-finger, and in the Tendon of the *Extensor Major*	by a double Tendon.
	2d	*Indicis Adductor*,	from the Fore-part of the first Bone of the *Thumb*,	in the first Bone of the *Fore-finger*, which it draws towards the *Thumb*	
	3d	*Indicis Abductor*,	from the external and middling Part of the *Ulna*,	in the lateral and outer Part of the Bones of the *Index*, which it pulls toward the other three Fingers	

REMARKS.

By virtue of these three *Muscles*, the *Fore-finger* performs three Sorts of Motion; one of them stretches it, another brings it in to the *Thumb*, and the third removes it from the *Thumb*.

Reference	Number 2	The *Little-finger* has	Proceed	Inserted	Nerves, Tendons, &c.
29	1st	*Extensor Proprius*,	from the lower Part of the exterior *Condylus* of the Shoulder Bone,	in the second Articulation of the *Little-Finger*, it assists the *Extensor Communis* in stretching out the *Little-Finger*,	by a double Tendon.
	2d	*Hypothenar*,	from the little Bone of the *Carpus* that lies above the rest	on the Out-side of the first Bone of the *Little finger*, which it pulls away from the rest.	

REMARKS.

With these two *Muscles* the *Little-finger* is capable of Extension and Abduction; since one of them extends it, and the other enlarges its Distance from the other Fingers.

Having thus examined all the *Muscles* of the superior Limbs, I must be obliged, to satisfy entirely the Curiosity of the Reader, and render this Course of *Anatomy* as perfect as I can, to proceed to the Examen of the Nerves, Arteries, and Veins we meet with in the Arm.

We have observed already, that the Nerves proceed from the *Medulla Oblongata*, and the *Medulla Spinalis*. The first sends forth ten Pair of Nerves, which we have seen, and the second thirty more, which we are to see.

Of the thirty Pair which proceed from the *Spinal* Marrow, seven belong to the Neck, twelve to the Back, five to the Loins, and six to the *Os Sacrum*.

The first Pair of the *Cervical Nerves* arise between the first and second *Vertebra* of the *Neck*, and contrary to the rest comes out before and behind; whereas the other six Pair come out laterally from the Junctures of the *Vertebræ*, thro' particular Perforations near the transverse *Processes*.—They go to the Muscles of the Head and Ears.

The second Pair contributes the main Branch towards the Formation of the *Diaphragmatick Nerves*, which, according to *Vieussens*, spring only from the fourth and sixth Pair.

The three last Pair of the *Neck*, joining with the two first of the *Dorsum*, or Thorax, make the *Brachial Nerves*.

These *Brachial Nerves* are six in Number, which range all over the Arm to the very Fingers Ends.

(32) The first, which is the uppermost, and least, is spent upon the *Deltoides* Muscles and the Skin of the Arm.

(33) The second is larger, and passes through the Middle of the Arm. It detaches Branches to the *Biceps* and the *Supinator*; and when it arrives at the Cubit divides it into three Branches, the first of which marches by the outer Part of the Arm to the Thumb; the second descends obliquely to the Wrist; and the third keeping Company with the *Basilica*, runs to its Period in the Skin of the *Cubitus* and the Hand.

(34) The third joins the second under the *Biceps*, furnish the Muscles called *Brachiales*, with some of its Branches, the Thumb, Fore-finger, and Middle-finger, with small Twigs, and is spent upon the Benders of the Fingers.

(35) The fourth, which is the greatest of all, lies very deep in the *Arm*, and accompanies the Artery

and Vein, called the *Basilica*. It dispenses Shoots to the external Muscle of the *Cubitus*, and the Skin of the Inside of the *Arm*; but as soon as it arrives at the Elbow, it slits into two Branches, one of which glides along the *Radius*, and the other the *Ulna*.—The first of these sends out five Branches, two of which repair to the *Thumb*, two to the Fore-finger, and the fifth to the Middle-finger.——The other Branch dispatches Twigs to the Extenders of the Fingers, and then is lost in the Wrist.

(36) The fifth joins in with the fourth, and descending along the inner Part of the Arm, distributes Branches upon the *Ulna*; and from thence it comes to pass, that when one leans upon any of these Branches, the Arm is benumbed.——Then it is divided into two Branches, one of which visits the Benders of the Fingers and the Wrists, and loose the Remainder in the same Quarter with the former; the other creeps along the inner and lateral Side of the Arm, in order to send two Branches to the Little-finger, two to the Ring-finger, and one to the Middle-finger.

(37) The sixth, and last, almost all over cutaneous, descends along the inner Part of the *Arm*, in company with the *Basilica*, and is lost in the Skin of the Elbow and *Cubitus*.

The *Arms* are also provided with Arteries and Veins.——The *Arteries* have their Origin from the ascending great Artery, which divides itself into the right and left *Subclavian*, which passing through the Chink that lies between the two Heads of the *Scalenum* Muscle, proceeds to the *Arm*; and at the Armpits, is called *Axillary Artery*, which passing under the Head of the Shoulder Bone, is lost between the two Extenders of the *Cubitus*.

The Trunk itself continuing its Descent along the inner Part of the *Arm*, dispenses Branches to the *Biceps*, and the *Brachiæus Internus* and *Externus*, and above the Bending of the Elbow sends out a Twig, which is lost in the Interior, and back Part of the inner and lower Part of the Arm.

(40) At the Bending of the Elbow this arterious Trunk splits into two Branches, one internal, and the other external.

(41) The External creeps along the *Radius*, and shoots forth a Branch which re-ascends, and comes to a Period between the *Supinator Longus* and *Brachiæus Internus*. In its Descent it distributes Branches to the Benders of the Wrist and Fingers. At the Wrist it affords a Branch to the Head of the *Thenar*, which is the Artery we meet with when we feel the Pulse. After that it slides under the Tendon of the Extender of the Thumb, and having bestowed Branches on the outside of the *Hand*, terminates into two Shoots, one of which runs to the Thumb, and the other to the Fore-finger.

We must trace the *Veins* in a different manner from the *Arteries*; for as the *Arteries* import the Blood from the Heart to the Circumference, so the *Veins* export it from the Circumference to the Heart; therefore they have both a different Origin. The *Arteries* of the *Arm* proceeding like those of the other Parts from the Heart; and the *Veins* of the *Arm* from the Extremities of the Fingers, like the Roots of a Tree, which by their smallest Strings receive the Sap, in order to convey it to the bigger Roots, and from thence to the Trunk itself.

The *Cephalica*, *Basilica* and *Mediana*, are the three considerable Veins of the *Arm*, form'd from several Branches of *Veins* proceeding from the five Fingers.

(44) The CEPHALICK consists of some small Branches, which form a Vein between the Little and the Ring-finger, called *Salvatella*. It lies between the Skin and the Muscles, and is divided into two Branches, *External* and *Internal*. The External goes down to the Wrist, where it joins the *Basilica*, and turns up to the Back of the Hand. The Internal Branch, together with a Sprig of the *Basilica*, makes the *Mediana*.

It is thus called, in regard the Antients used to open it in the Disorders of the *Head*; from a mistaken Notion, that it had a nearer Concern with the *Head* than any of the other Veins.

(45) All the little Veins which spring from the five Fingers to the *Hand*, form that great *Vein* which runs the whole Length of the Arm, and is called BASILICA, from its being seated almost on its *Basis*.——The *Basilica* is divided into three great Branches, one of which is usually opened when we are blooded in the Arm, as being the more superficial and apparent.——The other is deeper, and consists of two Branches, one directing its Course to the inner Part of the Hand, and the other to the outer.——The third is the *Cubitalis*, which lies nearest the *Os Cubiti*.——These three Branches ascend towards the Arm, and in the Way receive a Vein from the *Median*, after which they slip under the Tendon of the Pectoral Muscle, and unload in the Axillary Vein.

From a Branch which arises between the Thumb and the Fore-finger, joined to another that springs between the Middle and Ring-finger, is formed a large Vein, which ascends along the Middle of the Arm to the Bending of the Elbow, called the MEDIANA, which afterwards divides itself into two Branches in the Form of an Y, one of which terminates in the *Cephalica* and the *Basilica*, where it is lost; while the *Cephalica* and *Basilica* continue their Course to the Axillary, where they unload themselves, the *Axillary* into the *Subclavian*, and the *Subclavian* into the *Cava*.

Before we examine the *Muscles* of the inferior Limbs, we must take some Notice of those employ'd in the Dilatation and Contraction of the *Thorax*, which amount to fifty seven. Thirty thereof, in the Opinion of the Antients, serve for the Dilatation of the Breast, fifteen on each Side, *viz.* the *Subclavian*, *Serratus Major*, two *Serrati Posteriores*, and eleven *Interossei Externi*; and twenty six, thirteen of each Side for its Contraction, *viz.* the *Triangularis*, *Sacrolumbaris*, and eleven *Interossei Interni*; the Diaphragm employ'd indifferently in both Motions, being the fifty seventh.

Reference	Number 57	The *Muscles* of the *Thorax* or *Breast*.	Proceed	Inserted	Nerves, Vessels, &c.
Dilators AA	1st	*Subclavian*,	from the Internal and inferior Part of the *Clavicula*,	in the upper Part of the first Rib, which it pulls upwards and outwards.	
BB	2d	*Serratus Major*,	from the internal *Basis* of the Shoulder-blade,	by Digitation in the five lower-most long Ribs, and the two upper-most short ones; it pulls the Ribs outwardly and dilates the Breast.	
CC	3d	*Serratus posterior* and *superior*,	in a broad Tendon from the acute Processes of the lower-most *Vertebræ* of the Neck, and from the first of the Loins,	in four Points in the lower-most Ribs, to pull them down and outward.	

Reference	Number 23	The *Muſcles* of the *Thorax* or *Breaſt*.	Proceed	Inſerted	Nerves, &c.
EE	11 in all 15 Dilators. Contractors.	*Intercoſtales Externi*,	from the inferior and external Part of each upper Rib,	obliquely from behind forwards in the ſuperior and external Part of each of the lower Ribs, which they pull backwards, and outwards, to promote the Dilatation.	
F	1ſt	*Triangularis*,	from the lower Part of the *Sternum* on which it lies,	in the Cartilages of the ſuperior Rib, reaching even the Twelfth. It draws the Ribs downwards, and contracts the Breaſt.	
GG	2d	*Sacrolumbaris*,	from the poſterior Part of the *Os Sacrum*, and the *Spinæ* of the *Vertebræ* of the Loins,	in the poſterior Parts of the Ribs near the Root; by its Tendons contract the Breaſt,	beſtows two Tendons on each Rib, one on the Outſide, and one on the Inſide.
	11	*Intercoſtoles Interni*.	from the upper Part of each lower Rib,	in the inferior and interior Edge of each upper Rib, they contract the Breaſt in Conjunction with the two laſt mentioned.	

REMARKS.

Some modern Anatomiſts are of Opinion that the internal and external Intercoſtal Muſcles, make but one Muſcle, which has two Plans of Fibres with contrary Directions.

The Action of theſe *Muſcles* is effected in this Manner. When the internal Air is preſs'd by the external, the Diaphragm, being forced thereby to dilate itſelf, the dilating Muſcles are alſo in Action; and when that Air, after having paſſed through the Lungs, is forced to ſally out, the Diaphragm contracts itſelf, as well as the Muſcles Antagoniſts to thoſe that acted before; though ſome of our modern Anatomiſts believe, that it is not the Air that cauſes the Dilatation, or Contraction of the *Muſcles* of the *Thorax*, but the Dilatation and Contraction of thoſe *Muſcles* that procure the Ingreſs and Egreſs of the Air, into or out of the Breaſt.

(H) The *Diaphragm*, which is the principal Organ of the Reſpiration, alſo called *Septum tranſverſum*, is a nervous *Muſcle*, ſeparating the Breaſt or *Thorax* from the *Abdomen*, or lower Venter, and ſerving as a Partition between the natural and vital Parts.——Its Figure is round, reſembling a Ray or Thornback.—It conſiſts of two Circles, the one membranous, the other fleſhy. Though others will have both of them muſcular.

The firſt, or ſuperior Circle ariſes from the *Sternum*, and the Ends of the laſt Ribs; the ſecond or inferior comes from the *Vertebræ* of the Loins. The Upper is covered a-Top with a Membrane derived from the *Pleura*; and the Lower lined at Bottom with another from the *Peritonæum* (I).

Its Situation is Oblique, being extended from the Cartilage *Xiphoides*, by the Extremes of the Ribs, to the Region of the Loins.

(L) It is pierced in the Middle for the Paſſage of the *Vena Cava*; and in its lower Part for the *Œſophagus*; and between the Productions of the inferior Circle paſs the *Aorta*, *Thoracic Duct*, and *Vena Azygos*.

(MM) It receives two Sorts of Nerves, one from the *Parvagum*, and the other from the Interſtices of the four lowermoſt *Vertebræ* of the Neck. Both the one and the other paſs through the Cavity of the *Thorax*, and being ſupported by the *Mediaſtinum*, are diſperſed in three or four Branches all over its Subſtance.

It receives likewiſe two Arteries, called *Phrenicæ*, which ſpring from the Trunk of the *Aorta*; and two Veins of the ſame Name, which march to the Trunk of the *Cava*.

The *Diaphragm*, in its natural Diſpoſition, is convex on the upper Side towards the Breaſt, and concave on the lower, towards the *Abdomen*. Hence it has two Motions, the one of Contraction, and the other of Relaxation.

By the Contraction, or Swelling of the Fibres, the *Diaphragm* becomes flat on each Side; the Conſequence of which is, that the Cavity of the Breaſt is enlarged to give Liberty for the Lungs to receive the Air in Inſpiration; and the Cavity of the *Abdomen* leſſened, and conſequently the Stomach and Inteſtines preſſed, for the Diſtribution of the Chyle.——In its Relaxation, whereby it reſumes its natural Situation, the Cavity of the Breaſt is diminiſhed, and the Lungs preſſed, for the Expulſion of the Air in Expiration.

On the *Diaphragm* alſo, in great Meaſure, depends the Action of Coughing, Sneezing, Yawning, Laughing, the Hiccups, &c.

Reference.	Number 6.	The *Muſcles* of the *Back* and *Loins* are	Proceed	Inſerted.	Nerves, Veſſels, &c.
P	Extenders 1ſt	*Sacer*,	from the poſterior Part of the *Os Sacrum*, and the poſterior and ſuperior Edge of the *Os Ilium*,	in the Spines of the *Vertebræ* of the Back.	
Q	2d	*Semiſpinatus*,	from the Spines of the *Os Sacrum*, and from thoſe of the *Vertebræ* of the Loins,	obliquely in all the tranſverſe Proceſſes of the *Vertebræ* of the Back, reaching even to the Neck.	
P	Bender of the *Loins*.	*Triangularis*,	from the poſterior Part of the *Coſta* of the *Os Ilium*, and the lateral, internal Part of the *Os Sacrum*,	in the laſt of the ſhort Ribs, and in all the tranſverſe Proceſſes of the *Vertebræ* of the Loins with its Fellow, it bends the Back-bone forewards.	

REMARKS.

REMARKS.

These six Muscles are common to both the Back and the Loins, in their Extension, Flexion, and bending Side-ways.

The *Semi-spinatus*, *Sacer*, and *Sacrolumbaris*, seem to make but one Body or Mass of Flesh, which covers the whole Back from the *Os Sacrum* to the Neck.

These are the Muscles that grace the Mein and Carriage of Women, by keeping their Body very strait, and when they neglect their Parts, either through Weakness or an ill Custom, the Body stoops, and sometimes becomes Hunch-backed.

The *inferior Limb* (called *Pes*) is divided like the superior into three Parts, *viz.* the *Thigh*, the *Leg*, and the *Foot*.——In the *Thigh* are distinguished the Fore-part, the Back-part, the Inside and the Out-side. ——The Fore-part of the inferiour End is called the Knee, and the Hinder-part the *Ham*.

The LEG begins at the Knee, and ends at its Articulation with the Foot, on each Side thereof, are the two Prominences, called *Malleoli*, or *Ancles*.—— Its Back-part is called the Calf of the *Leg*.

The FOOT, which is that Part that extends from the Ankles to the End of the Toes (and whose upper Part is called the *Cubitus* or *Instep*, and the lower, the Sole of the *Foot*) is divided into the *Tarsus*, *Metatarsus*, and the *Toes*, as we have observed, already, in our *Osteology*.——These three Parts are assisted in their Motions by several Muscles.

The THIGH, in its Flexion, or Bending by the *Psoas*, *Iliacus*, and *Pectineus*; in its Extension by the three *Gluttei*; in its Aduction by the three *Tricipites*; in its Abduction by the *Pyramidalis*, the *Quadratus*, and the two *Gemini*; and in its *Rotation* by the two *Obturatores*, which make in all fifteen Muscles.

Reference	Number 15	The *Thigh* has	Proceed	Inserted	Nerves, Vessels, &c.
S	1st Benders.	*Psoas*,	from the transverse Processes of the lowermost *Vertebræ* of the Back, and the uppermost of the Loins,	with a strong and round Tendon in the lesser *Trochanter*,	seated in the *Abdomen*.
T	2d	*Iliacus*,	from the whole Edge of the inner Cavity of the *Os Ilium*,	in the little *Trochanter*,	seated in the *Abdomen*.
V	3d	*Pectineus*,	from the first Part of the *Os Pubis*,	in the fore Part of the *Thigh-Bone*, under the little *Trochanter*. These three *Muscles* make the Thigh bend.	
X	1st Extenders.	*Glutæus Major*,	from the lateral Part of the *Os Sacrum*, and from the hinder and outer Part of the Lip of the *Os Ilium*,	in the Bone of the Thigh, about the Breadth of four Fingers under the great *Trochanter*.	
Y	2d	*Glutæus Intermedius*,	from the posterior Part of the Lip of the *Os Ilium*,	about three Fingers Breadth under the great *Trochanter*.	
Z	3d	*Glutæus Minor*,	from the deepest and hollowest Part of the external Cavity of the *Os Ilium*,	in a little Cavity at the Root of the great *Trochanter*. These three stretch out the Thigh.	
1	1st *Abductores*.	*Triceps Superior*,	from the upper and outer Part of the *Os Pubis*,	in the upper Part of a Line that runs along the Inside of the Thigh.	
2	2d	*Triceps Medius*,	from the Middle of the *Os Pubis*,	in the Middle of the same Line.	
3	3d	*Triceps Inferior*,	from the inferior Part of the *Os Pubis* and the lower Part of the *Os Ischium*,	in the inferior Part of the same Line.	
	1st *Abductores*.	*Pyramidalis*,	from the upper and lateral Part of the *Os Sacrum*, and the lateral Part of the *Os Ilium*,	in a small Cavity at the Root of the great *Trochanter*.	
4	2d	*Quadratus*,	from the outer and lateral Part of the rising Part of the *Ischium*,	in the posterior and external Part of the great *Trochanter*.	
	3d, 4th	*Gemini*,	from the two little Processes in the hinder Part of the *Os Ischium*,	in a small Cavity at the Root of the great *Trochanter*. They join with the *Quadratus* in opening the Thigh,	separated by the Tendon of the *Obturator Internus*.
	1st *Obturatores*.	*Obturator Internus*,	from the whole Circumference of the oval *Foramen* of the *Os Ischium*,	by a Tendon in a small Cavity at the Root of the great *Trochanter*.	
	2d	*Obturator Externus*,	from the outer Circumference of the same Hole,	by the Cavity at the Root of the great *Trochanter*. These two *Muscles* serve for the Rotation of the *Thighs*.	

Reference.	Number 11	The *Tibia* or *Leg* has	Proceed	inserted	Nerves, Vessels, &c.
5	four Extensors. 1st	*Rectus*,	from the fore and lower Part of the *Os Ilium*,	in the upper and fore Part of the *Leg*,	comes to a Tendon, and covers the whole *Rotula*, or Knee-Pan.

Reference	Number 20	The *Tibia*, or *Leg* has	Proceed	Inserted	Nerves, Vessels, &c.
6	2d	*Vastus Internus*,	from the inner and upper Part of the *Femur*, a little below the lesser *Trochanter*,	in the superior and interior Part of the *Tibia*,	marches in a broad Tendon.
7	3d	*Vastus Externus*,	from the upper and fore-Part of the Thigh-bone,	with the former.	
8	4th three Benders.	*Cruralis*,	from the anterior and superior Part of the Thigh between the two *Trochanters*,	along with the three I mentioned last. These four stretch out the *Leg* by pulling it forwards.	
9	1st	*Biceps*,	from the lower Part of the Knob of the *Os Ischium*, and the outer Part and Middle of the Thigh,	in the upper and hinder Part of the superior Appendage of the *Perone*.	
10	2d two *Abductores*.	*Semi-nervosus*,	from the Knob of the *Os Ischium*,	in the hinder Part of the upper *Epiphysis* of the *Tibia*. These three *Muscles* bend the *Leg* by pulling it backwards.	
12	1st	*Longus*,	from the upper and anterior *Spina* of the *Os Ischium*,	obliquely in the internal and superior Part of the *Tibia*, which it pulls in.	
13	2d two *Abductores*.	*Gracilis*,	from the lower and fore-Part of the *Os Pubis*,	in the upper and inner Part of the *Tibia*. These two perform the *Adduction* of the *Leg* by pulling it inwards.	
14	1st	*Membranosus*,	for the external and lateral Part of the Lip of the *Os-Ilium*,	by a broad Membrane in the upper and outer Part of the *Fibula*.	
15	2d	*Popliteus*,	from the outer and lower Knob of the *Femur*,	obliquely in the superior and interior Part of the *Tibia*. These two *Muscles* form the Abduction of the *Leg* by drawing it to the Out-Side.	

Reference	Number 9.	The *Foot* has	Proceed	Inserted	Nerves, Vessels, &c.
	two Flexores.				
16	1st	*Crureus Anterior*,	from the upper and fore-Part of the *Tibia*,	by two Tendons, one to the first Wedge-like Bone, and the other to the Bone of the *Metatarsus* that supports the great Toe.	
17	2d	*Peroneus Anterior*,	from the outer and middling Part of the *Perone*,	on the fore-Side in the Bone of the *Metatarsus* that supports the little Toe. These two *Muscles* bend the *Leg* by pulling it forwards.	
	seven Extensores				
18	1st 2d	*Gemelli*,	from the posterior of the two lower *Condili* of the Thigh-bone,	by a Tendon common to them, and the two following *Muscles*, in the posterior and superior Part of the Bone of the Heel. These with the two following form the Calf of the Leg.	
19	3d	*Soleus*,	from the posterior and superior Part both of the *Tibia* and the *Fibula*,	by a *Tendon* in the Heel-bone.	
	4th	*Plantaris*,	from the outer Knob of the Bone of the Thigh,	by confounding its slender Tendon with that of the three last in the same Place with them,	
20	5th	*Crureus Posterior*,	from the posterior Part of the *Tibia*,	in the inner Part of the *Scaphoides*, or navicular Bone.	This is called the Tendon of *Achilles*, because 'tis said he died of a Wound in that Place, which is always very dangerous.
21	6th, 7th	*Peronei Posteriores*,	the first from the upper, and very near the fore-Part of the *Perone*,	in the upper, and in a manner the external Part of the Bone of the *Metatarsus* that supports the great Toe.	
			the second from the lowermost Part of the *Perone*,	in that Bone of the *Metatarsus* that supports the little Toe. They stretch out the Foot by pulling it backwards.	

REMARKS.

The Reason why that skilful Artist, Nature, has introduced into the Mechanism of the Foot but two Flexores, for seven Extensores, is, that such a great Number of Muscles that draw the Foot back, and keep a Man from falling forwards, was necessary to counterpoise the Center of Gravity; and two were sufficient for bending the *Foot*, which naturally bend but too much.

Two and twenty Muscles are assigned for the Motion of the Toes, of which sixteen are common, *viz.* two *Extensores*, two *Flectentes*, four *Lumbricales*, and eight *Interossei*; and six proper, *viz.* four for the great *Toe*, one for the second, and the sixth for the little *Toe*.

Reference	Number 22.	The *Toes* have	Proceed	Inserted	Nerves, Vessels, &c.
	two Extendors.				
22	1st	*Extensor Communis*,	from the upper and fore-Part of the *Tibia*, where it joins the *Fibula*,	by four Tendons in the four Articulations of the four *Toes*, which it extends.	
23	2d	*Pedieus*,	from the lower Part of the *Fibula* and the annular Ligagament,	divided into four Tendons in the outer Part of the first Articulation of the four *Toes*. They both perform the Extention.	
	two Flexores.				
24	1st	*Sublimis*,	from the lower and inner Part of the Heel-bone,	divided into four perforated Tendons, in the upper of the first Rank of the Bones of the four *Toes*, in order to bend them.	
25	2d	*Profundus*,	from the superior and posterior Part of the *Tibia*, and the *Fibula*,	divided into four Tendons in the last Row of the Bones of the *Toes*. These *Muscles* bend the four least *Toes* of the *Foot*.	
5th, 6th 7th, 8th		*Lumbricales*,	from the Tendons of the *Profundus*,	in the lateral and inner Part of the first Bones of the four *Toes*. They form the Sole of the Foot.	
9th, 10th 11th, 12th		*Interossei Interni*,	from the Bones of the *Tarsus*, and the Intervals of those of the *Metatarsus*.	along with the *Lumbricales* in the upper and inner Part of the Bones of the first Articulation of the four lesser *Toes*, which move towards the great *Toe*.	
13th, 14th, 15th, 16th,		*Interossei Externi*,	from the upper Part of the Interstices of the Bones of the Instep,	in the lateral and external Part of the first Bones of the *Toes*, which they remove from one another by Abduction.	

References	Number 4.	The great *Toe* has	Proceed	Inserted	Nerves, Vessels, &c.
26	1st	*Flexor Proprius*,	from the superior and posterior Part of the *Perone*,	in the Bone of the first *Phalanx*, retaining the great *Toe*, which it bends.	
27	2d	*Extensor Proprius*,	from the fore and upper Part of the *Perone*, between the Bone and the *Tibia*,	in the upper Part of the first Bone of the great *Toe*, which it extends.	
28	3d	*Thenar*,	from the lateral and internal Part of the Heel-bone, the navicular Bone, and *Ossa Innominata*,	in the upper Part of the second Bone of the great *Toe*, which it pulls in.	
29	4th	*Antithenar*,	from the Bone of the *Metatarsus* that sustains the little *Toe*,	in the inner Part of the first Joint of the great *Toe*, it pulls the great *Toe* outwards towards the other *Toes*.	
30	5th	*Abductor of the Index*.	from the inner Part of the first Bone of the great *Toe*,	in the Bones of the second *Toe*, which it pulls towards the great one.	
	6th and last	*Hypothenar*,	from the outer Part of the Bone of the *Metatarsus*, which sustains the little *Toe*, for which it is calculated,	in the upper and outer Part of the Bones of the little *Toe*, which it draws off from the Rest.	

I'll conclude this Historically Mechanical Account of the *Muscles* of the Body, by an exact List of them, to help the Memory of young Pupils or Candidates.

MUSCLES.

The *Forehead* has	2	The *Ulna*	12
The *Occiput*	2	The *Radii*	8
The *Eye-lids*	6	The *Carpi*, or *Wrists*	12
The *Eyes*	12	The *Fingers*	48
The *Nose*	7	*Respiration*	57
The *external Ears*	8	The *Loins*	6
The *internal Ears*	4	The *Abdomen*	10
The *Lips*	13	The *Testicles*	2
The *Tongue*	8	The *Bladder*	1
The *Uvula*	4	The *Yard*	4
The *Larynx*	14	The *Anus*	3
The *Pharynx*	7	The *Thighs*	30
The *Os Hyoides*	10	The *Legs*	22
The *Lower-Jaw*	12	The *Feet*	18
The *Head*	14	The *Toes*	44
The *Neck*	8		
The *Shoulder-Blades*	8	In all	434
The *Arms* or *Shoulder-Bones*	18		

This done, I have nothing left, to render this Treatise of *Anatomy* a perfect one, but to finish by the ANGIOLOGY; which is a Description of the Nerves, Arteries, and Veins of the inferior Extremity of the Body.

We have seen, already, seven, of the thirty Pair of Nerves, which march out from the Spinal Marrow, through the Holes of the *Vertebræ*, and those seven belong to the Neck; now we must discover those that belong to the Back, Loins, and *Os Sacrum*.

The twelve Pair of Nerves, which sally out from the *Vertebræ* of the Neck, extend no further than the Circumference of the *Thorax*; each of them divided into two Branches, the larger whereof are placed before, and the latter behind. The fore Branches are distributed into the internal and external intercostal Muscles, in each of the *Interstices* of the Ribs, send Shoots to the Muscles of the Breast, and to the oblique descending of the *Abdomen*.——The hinder Branches bend back, and are lost in the Muscles of the Back, and those which adhere to the *Vertebræ*.

Each of the five Pair which proceed from the *Vertebræ* of the Loins, is likewise divided into an *anterior*, and a *posterior* Branch; distributed partly in the Muscles of the Loins and the *Hypogastrium*, and partly in the Thigh.

Of the six Pair of the *Os Sacrum* (that Pair between it and the *Vertebræ* of the Loins included) none, but the first, marches out by its lateral Part, the other five make their Way before, and behind, because the Articulation of its lateral Parts, with the Bones of the *Ilia*, obstruct its Perforation in those Places; but by way of Recompence, it has ten *Foramina* before, and ten behind; and of these, five on each Side, which give an Egress to as many Nerves.

The *Spinal Marrow* terminates in a *Nerve*, which is distributed in the Skin between the Buttock and the *Anus*, and sends Branches to the Muscles of the Thighs, both on the right and left Side.

The biggest Branches of the three lowermost Pair of the Loins, and those of the four uppermost of the *Os Sacrum*, joining together in their Descent, form four Branches of Nerves, two of which are no lower than the Thighs; a third terminates in the Leg, and a fourth reaches to the Foot.

(33.) The first Pair of the Nerves of the *Thighs* is formed of the third and fourth Pair of the *Lumbares*, and passing near the lesser *Trochanter*, is distributed in the Skin and Muscles of the Thigh, and in some of those which move the Leg.—'Tis quite spent above the Knee.

(34.) The second, which springs from the same Source, and accompanies the crural Artery and Vein, is distributed to the anterior Muscle, the Skin of the Thigh, and the Circumference of the Knee, and sends out a Branch to accompany the *Saphana* to the inner Ankle, where it sinks.

(35) The third, which rises between the fourth and fifth *Vertebræ* of the Loins, and passes through the *Foramen* at the End of the *Pubes*, is dispersed in the Muscles of the upper Part of the Thigh, the *Pudenda*, and the *Triceps*, and lost in the Skin of the Groin.

(36) The fourth, is formed of the four superior Nerves of the *Os Sacrum*, which together form the *Cruralis*; which descends in an entire Body to the Ham, after having passed first near the Prominence of the *Os Ischium*.——At the *Ham* it divides again into two Branches, the outermost thereof runs from the Outside of the Foot to the Muscles of the *Perone*, and then turns back to the outer Ankle, where it terminates.——The inner Branch descends along the *Leg* to the Muscles of the Foot, and after spreading itself upon the inner Ankle, is spent upon the Sole of the Foot, and all the Toes, to each of which it dispenses two Branches.

To this Conclusion of all the Nerves of the Body, succeeds the Description of the Arteries, and Veins of the inferior Limbs.

We must have observed already that an ARTERY is a hollow fistulous Canal, appointed to receive the Blood from the Ventricles of the Heart, and distribute it to all Parts of the Body, for the Maintenance of Heat and Life, and the Conveyance of the necessary Nutrimient.

The Arteries are ordinarily composed of three Coats, or Membranes; the first or outermost, nervous or tendinous, being a Thread of fine Blood-vessels, with Nerves for nourishing the other Coats. The second muscular, and made up of spiral Fibres; of which there are more, or fewer *Strata*, according to the Bigness of the Artery: These Fibres have a strong Elasticity, by which they contract themselves with Force, when the Power by which they have been stretched out, ceases.——The third, and inmost Coat, is a fine, dense, transparent Membrane, which keeps the Blood within its Channels, which otherwise, upon the Dilatation of an *Artery*, would easily separate the spiral Fibres from one another.——As the Arteries grow smaller, these Coats grow thinner.

All the *Arteries* are conical, *i. e.* begin with a Trunk, and growing less and narrower, ends in Branches so minute, that they escape the Sight, unless assisted with Microscopes; by which in the Tails of Tadpoles, and very small Eels, the Extremities of the *Arteries* seem, by the swift, uninterrupted Course of the Blood, to be inosculated or continued to the Originations of the Veins; though by the Transparency of those Vessels, the actual Continuation be not visible.

The Coats of the *Arteries* are of a very dense, close, Contexture, by which Means the Blood not being visible through them, they generally appear white. Add, that the Blood proceeding from a greater Capacity to a less, is thereby somewhat obstructed in its Passage; but being forced on by the Motion of the Heart, distends the Coats, and thereby occasions a *saliant* Motion, called the *Pulse*.——By this Thickness and Whiteness of the *Arteries*, with the Pulsation observed therein, *Arteries* are distinguished from *Veins*.

The *Pulse* of the *Arteries*, as that of the Heart, consists of two reciprocal Motions, a *Systole*, or Contraction, and a *Diastole*, or Dilatation; but they keep opposite Times; the *Systole* of the one answering to the *Diastole* of the other.

All the Arteries of the Body, we have observed, arise in two large Trunks from the two Ventricles of the Heart, *viz.* the *Pulmonar Artery* from the right Ventricle, and the *Aorta* from the Left.

The AORTA, or *great Artery*, after it leaves the Heart,

Heart, divides itself into two large Trunks, called the *ascending*, or upper; or *descending*, or lower *Trunks*.

The descending Trunk (for we have seen already the ascending one) or *Aorta descendens*, carries the Blood to the Trunk and the lower Parts of the Body.

Out of this arise the *Bronchial*, *Intercostal*, *Cæliac*, *Phrenic*, *Mesenteric*, *Emulgent*, *Spermatic*, *Iliac*, *Umbilical*, *Epigastric*, *Hypogastric*, *Crural*, &c. with their several Ramifications.

(37) The ARTERIA ILIACA, which is one of those great Branches of the *Aorta descendens*, changes its Name at its Egress out of the *Abdomen* into that of *Arteria Cruralis*, upon its Arrival into the Thigh, where it produces three or four Branches, which are spent upon the Skin, and Muscles of the upper and Fore-part of the *Thigh*, but at the Distance of three or four Fingers Breadth, under the Groin, it produces,

(38) 1. The MUSCULARIS INTERNA (thus called from its Situation in the inner Muscles of the Thigh) which sends out four Sprigs, one to the *Abductores* of the Thigh, and to the *Triceps*, *Biceps*, and *Semi-nervosi*, and the *Semi-membranosi*; one to the upper Part of the *Triceps*; the two others to the Body of the *Triceps*, and to the *Gracilis*.——After this, the Trunk of the same *Artery* divides into three Branches; the first of which passing by the End of the third of the *Tricipites*, is lost in the *Semi-membranosus*; the second passing under the Thigh-bone, is spent in the *Vastus Externus*; and the third moving downwards, sends out Branches at the End of the third of the *Tricipites*, and is lost in the *Semi-nervosus*, and the Head of the *Biceps*.

(39) The MUSCULARIS EXTERNA is the second which runs to the outer Part of the Thigh, and passing under the *Sartorius* and the *Gracilis Rectus*, sends out Branches at the End of the *Iliacus*, to the *Vastus Externus*, the *Cruralis*, and the *Membranosus*.

(40) The third springs from the *Cruralis*, detaches Branches to the *Cruralis*, and *Vastus Externus*, and is lost in the Membranes and Fat of the Thigh.

(41) The *Cruralis* in its farther Progress to the lower Limbs, furnishes the adjacent Muscles with several Branches, passes near the Tendons of the *Triceps*, and at its Arrival at the Ham, sends out little Branches, to the Tail of the Muscles of the hinder Part of the Thigh, which are lost in the Fat.——Below the Ham it produces the two *Popliteæ*, which embrace the Knee, one on the Inside, and the other on the Outside; and a little lower the *Surales*, which direct their Course to the *Gemelli*; the *Soleus*, the *Pantaris*, and the *Popliteus*; and encompass the Bones of the Leg by several Branches, that terminate there.

(42) Here the *Cruralis Anterior*, and *Posterior* begin. The former runs a-cross the Membrane that joins the Bones of the Leg, and continuing its Course, dispenses Branches to the *Tibæus Externus*, and *Extensores* of the *Toes*.

(43) The *Cruralis Posterior*, which is the largest of the two, divides itself into the *Primus Posticus*, which dispenses Branches to the *Soleus*, *Peroneus Posterior*, and the Bender of the great Toe, ascending by the outer Ancle, goes to be lost in the upper Part of the Foot; and the *Secundus Posticus*, which in its Descent sends out Sprigs to the *Soleus*, the Benders of the Toes, and the *Crureus Posticus*; and then passing through the Cavity of the *Fibula*, is divided into two Branches, one that passes under the *Thenar* to the great Toes, and another between the *Brevis*, and the *Hypothenar*, under the Sole of the Foot, and is spent upon the four other Toes.

We'll begin the Demonstration of the *Veins* of the lower Limbs, as we have done that of the *Arteries*, by some general Observations upon the *Veins*.

The VEINS are Vessels or Canals which receive the Blood from the divers Parts of the Body, to which the Arteries had convey'd it from the Heart, and carry it back to the Heart again.

The *Veins* are only a Continuation of the capillary Arteries, reflected back again towards the Heart.

In their Progress uniting their Channels as they approach the Heart, they at last form three large Veins, or Trunks, *viz.* the *Vena Cava descendens*, which brings the Blood back from all the Parts above the Heart.——The *Ascendens*, which brings the Blood back from all the Parts below the Heart.——And the *Porta*, which carries the Blood to the Liver.

The *Anastomosis* or Inosculation of the *Veins* and *Arteries*, was first seen by the Microscope, in the Feet, Tail, *&c.* of Frogs, and other amphibious Animals, by *Livenhoek*; but has since been observed in other Animals, particularly the *Omentum* of a Cat, by Mr. *Cowper*.

The Coats of the Veins are four, the same with those of the Arteries; only the muscular Coat is thin in all the *Veins*, as it is in the capillary Arteries; the Pressure of the Blood against the Sides of the *Veins*, being less than against the Sides of the Arteries, because the Force of the Heart is much broke in the Capillaries.

In the *Veins* there is no *Pulse*, because the Blood is thrown into them with a continual Stream, and because it moves from a narrow Channel into a wider; but they have a peristaltick Motion, which depends on their muscular Coat.

The capillary *Veins* unite with one another, as has been said of the capillary Arteries, only their Course is directly opposite; for instead of a Trunk distributed into Branches, and Capillaries, a *Vein* is a Trunk, formed out of a Concourse of Capillaries.

In all the *Veins*, which are perpendicular to the Horizon, excepting those of the *Uterus*, and the *Porta*, there are small Membranes or *Valves*; sometimes there is only one, sometimes two, and sometimes three placed together, like so many half Thimbles stuck to the Sides of the *Veins*, with their Mouth towards the Heart.

These, in the Motion of the Blood towards the Heart, are pressed close to the Sides of the *Vein*; but shut the *Veins* against any Reflux of the Blood that way from the Heart, and thereby sustain the Weight thereof in the great Trunks.

The *Veins* are distinguished with Respect to their Situation, into *superior* and *inferior*, *descending*, and *ascending*; *right* as the *Mesenterick*, and *left* as the *Splenick* Branch; *internal* as the *Basilica*, and *external* as the *Humeral*, *&c.*

One of the Principal among the ascending *Veins*, is the *Cruralis*, formed by six Branches of other *Veins*, inserted in that Part; the first whereof is,

(45) The ISCHIADICA MAJOR, which proceeds from ten Sprigs of Veins, two whereof come from each Toe, and form a Branch which is joined by another that comes from the *Fibula*, and the Heel-bone, and both ascending by the Muscles of the Calf of the Leg, unload, by a joint Stream, in the *Cruralis*.

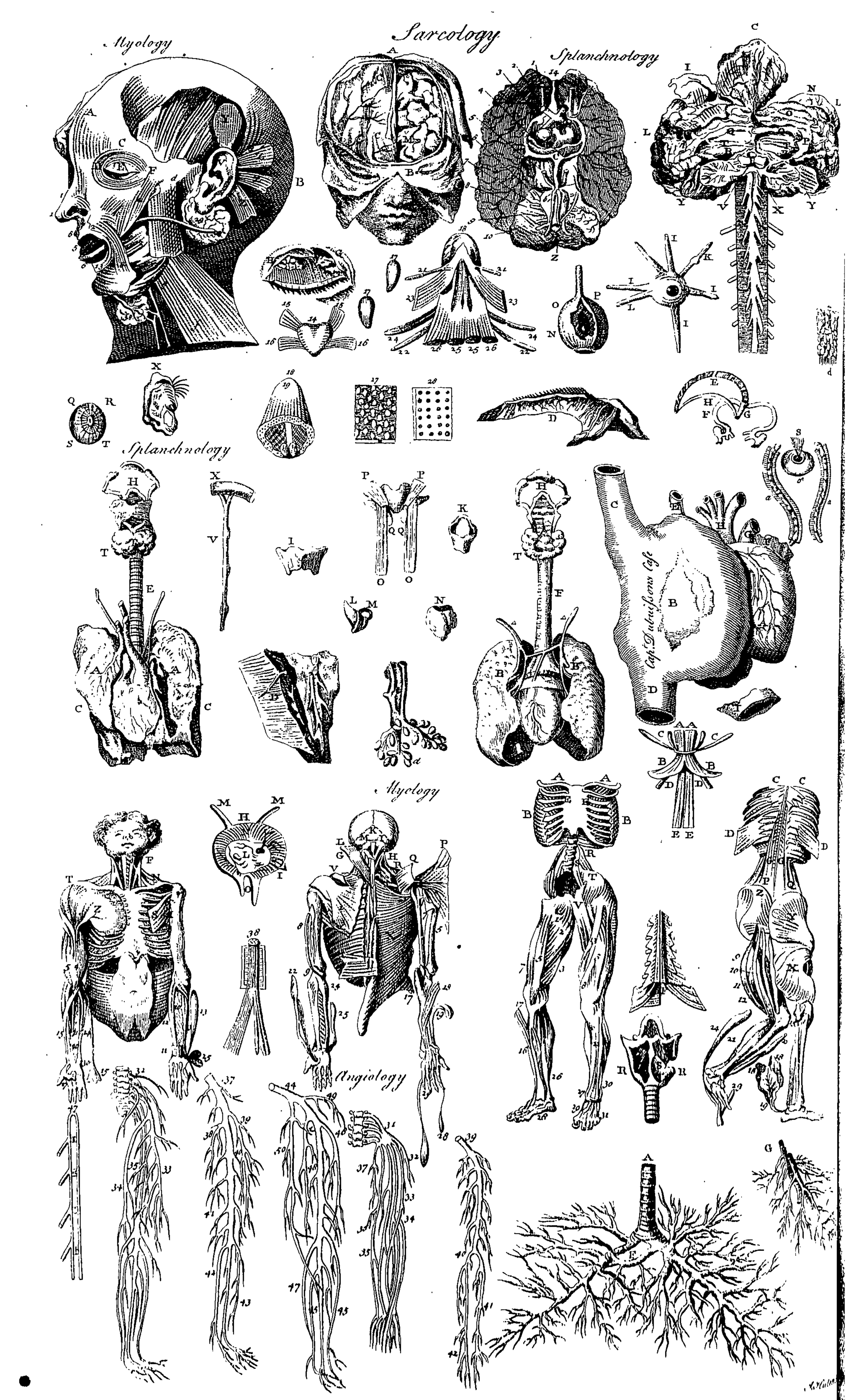
(46) The SURALIS is the second, formed by almost all the Veins that creep along the Foot, and by those that come from the Calf of the Leg.

(47) The third is the POPLITEA, produced by the Sprigs of the Heel, and Part of those of the Neck of the Foot, from whence it ascends, passes by the Ham, and terminates in the *Cruralis*.

(48) The MUSCULAR is the fourth, and comprehends two Branches, *viz.* the *Muscular Externa*, which proceeds from the external Muscles of the Thigh, and the *Interna* from the internal Muscles.—These two Branches enter the *Cruralis* opposite to one another.

(49) The ISCHIADICA MINOR, which is the fifth and the least of all, is produced by several Ramifications from the Skin, and the Muscles that surround the Jointing of the Thigh.

(50) The longest and biggest of all the six, is the *Saphena*, which begins at some Branches from the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the great Toe, and by ascending by the inner Ankle along the Leg, and the inner Part of the Thigh, between the Skin and the fleshy Membrane, terminates in the *Cruralis*, which mounting upwards, and having past the Groin, empties it self in the *Iliaca*, the *Iliaca* into the *Cava*, and the *Cava* into the right Ventricle of the Heart.

ANGIOLOGY treats likewise of the lymphatick Vessels, which are small Pipes, consisting of a very thin Coat, full of *Valves*, which open like those of the *Veins* towards the Heart, and shut upon the Reverse.——They have no common Cistern, for some of them unload in the Thoracick Duct, and others immediately in the *Veins*——Some proceed from the *Viscera*, and others from the Glands dispersed all over the Body.—Those that spring from the Conglobate Glands, convey their Lymph to the *Veins*; and those from the Conglomerate disembogue in particular Cavities, as the Eyes, Mouth, *Duodenum*, *&c.*

The Number of these Vessels is infinite, but they cannot be all discerned with the Eyes.—Their *Lymph* proceeds from the Serosities of the Blood filtrated in the Glands. Commonly it is clear and transparent, but it changes its Colour in Proportion to the Tinctures it receives from the *Chyle*, the *Bile*, and the other Humours contained in the Blood.—Of itself it is insipid; but sometimes it has been found, acid, bitter, or brackish.——It fixes and congeals by the Mixture of Humours, and the Dissolution of Salts, as well as the *Serum* of the Blood.

I don't believe I have left any Part of the human Body pass unobserved, except the *Nails*, which are hard, round, white and transparent Bodies, seated at the Ends of the Fingers.

The NAILS are nothing more but the Covers, or Sheaths of the *Papillæ Pyramidales* of the Skin, on the Extremities of the Fingers, and Toes, which dry, harden, and lie upon one another.

Their Use is to strengthen, and defend the End of the Fingers, in handling any hard and rugged Bodies; that part being extremely sensible, by Reason of the great Number of Nerves, which terminate here, for the Sensation of Feeling.

The *Nails* are formed, and grow after the same Manner as the rest of the Body; their Nourishment they receive from their Roots, as is easily observable, from the white Specks sometimes seen on them, and which constantly recede from the Root.

The *Romans* were very curious in cutting their *Nails*, and had it done by Artists, who made an Employment of it.

The *Chinese* Doctors, and *Literati*, pique themselves on the excessive Length of their *Nails*.—Father *le Compte* says, some of them wear *Nails* near as long as their Fingers.

According to *Malphighi*, the HAIRS (wherewith we'll conclude this Course of *Anatomy*) have Roots that resemble those of the bulbous Heads of Tulips; and these Roots are nourished by Blood-vessels, accompanied with Nerves; insomuch that the Hairs grow, and sometimes become so big, that they are carnous and sensible of Pain, and bleed plentifully when they are cut; pursuant to the Remarks made upon the Disease called *Plica*.

The *Hairs* ordinarily appear round and cylindrical, but the Microscope also discovers triangular, and square ones; which Diversity of Figures arises from that of the Pores, to which the *Hairs* always accomodate themselves. Their Length depends on the Quantity of the proper Humour to feed them, and their Colour on the Quantity of that Humour, whence at different Stages of Life the Colour usually differs.

The antient Writers of ANATOMY, *Hippocrates*, *Democritus*, *Aristotle*, *Galen*, and others, look upon this as the most important Part of Physick, and that without which, the Uses of the Parts of an human Fabrick, and consequently the Causes of Diseases incident thereto, could no way be discovered. And yet this Art, useful as it is, was intirely discontinued for several Ages; till in the sixteenth Century, it began to flourish afresh.—The Dissection of an human Body was looked upon as Sacrilege before that Time; and we have seen a Consultation which the Emperor *Charles* V. appointed to be held by the Divines of *Salamanca*, in order to be satisfied whether or no it were lawful in Point of Conscience, to dissect a dead Carcase.—We may add, that to this Day the Use of *Anatomy*, and Skeletons is forbid in *Moscovy*; the first as inhuman, the latter as subservient to Witchcraft; and *Olearius* assures us, that one *Quirin*, a *German* Chirurgeon, being found with a Skeleton, hardly escaped with his Life; and the Skeleton, after being solemnly dragged about the Streets, was burnt in Form.

Vesalius a *Flemish* Physician, who died in 1564, was the first who set *Anatomy* on any tolerable Footing; he was seconded by *Carpus*, *Sylvius*, *Fernelius*, *Fallopius*, *Eastathius*, *Fabricius*, *Pareus*, *Bacchinus*, *Hoffman*, *Riolanus*, *&c.*

These were succeeded by others, to whom some of the finest Discoveries in *Anatomy* are owing.—*Assellius* in the Year 1622, discovered the lacteal Veins; and in 1628, the immortal *Harvey* published his admirable Discovery of the Circulation of the Blood.——*Pecket* discovered the Reservoir of the Chyle, and the Thoracick Duct, in 1651.—*Rudbecks*, a *Swede*, and *Bartholine*, a *Dane*, found out the Lymphatic Vessels, in 1650 and 1651.—*Wharton* in 1655, discovered the lower *Salival* Duct; and *Steno*, the upper *Salival* Ducts, those of the Palate, the Nostrils, and Eyes, in 1661. *Wirtsungus*, in 1642, discovered the Pancreatick Duct.—*Willis*, who came after him, published an *Anatomy* of the Brain and Nerves, in a Manner much more exact than had been done before him; yet he had omitted some considerable Things, which were afterwards observed by *Vieussens*.—*Glisson* treated particularly of the Liver; *Wharton*, of the Glands; *Havers* of the Bones; *Graaf*, of the Pancreatick Juice, and the Parts of Generation; *Lower*, of the Motion of the Heart; *Thruston* of Respiration; *Peyer* of the Glands of the Intestines; *Brown*, of the Muscles; *Drelincourt*, of the Conception of the *Ova* in Women, the *Placenta*, and the Membranes of the *Fœtus*.

Malpighi, who died in 1694, is one of those to whom *Anatomy* owes the most: He made a great Number of Discoveries in the *Lungs*, *Brain*, *Liver*, *Spleen*, *Glands*, and *Lymphaticks*, by the Help of the Microscope, *&c.*—*Ruythe*, who died in 1727, has let great Light into many of the finer and more intricate Parts of the human Frame, particularly the Glands; by Means of his Injections.

Manget, and *le Clerc*, two Physicians of *Geneva*, have giving us *Bibliotecha Anatomica*, containing all the new Discoveries that have been made in this Art.—The best Systems of the Art, as it now stands, are those of the *Verheyen*, *Drake*, *Keil*, *Keister*, *Winslow*, *Rohault*, *Purchot*, *&c.*

ANATOMY is sometimes used to denote the Subject to be anatomized. Thus (by 32 *H.* VIII. *cap.* 42.) the Company of Barbers and Surgeons may have and take yearly, four Persons condemned, adjudged, and put to Death for Felony, for Anatomies; and to make Incision of the same dead Bodies.

ANGELS.

ANGEL is a created Spirit, perfect in his Kind.

The Word is not properly a Denomination of Nature, but of Office, denoting as much as *Nuntius*, Messenger; since the principal Office of *Angels*, is to be God's Messengers, and execute his divine Orders; as when the *Angel Gabriel*, *Luke* i. 26. was sent to the Virgin *Mary* to carry her the News of the Incarnation of the WORD.——St. *Paul*, *Heb.* i. 14. calls *Angels* (for the same Reason) *ministring Spirits*. The same Name is given to Priests, *Malachi* ii. 7. because Priests are appointed as God's visible Messengers to us, to inform us of every thing relating to our eternal Felicity.——The *Divine Percursor*, St. *John Baptist*, is also called an *Angel*, by St. *Matthew* xi. 10. because sent to prepare *Christ's Ways*.——*Jesus Christ* himself, according to the *Septuagint*, is called in *Isaiah* ix. 6. *the Angel of the mighty Council*; which Denomination belongs to *Christ* in several other Places of Scripture; though, according to *Tertullian*, *de Carne Christi*, c. 4. it speaks his Office, not his Nature.

Angel is defined a created Spirit, not a created Body, or an extended Substance, because a corporal Substance cannot see *God*, and the *Angels*, *Matth.* xviii. 10. *see the Face of God*. Besides, they occupy no Place, or have no *Ubiquity*, as it appears from the *Legion* of *Evil Spirits*, which *Christ* expelled from the *Energumenus*, *Mark* v. 13.

Angel is also called a *created Spirit*, by Distinction, from GOD, who is likewise a Spirit, but uncreated, being himself his own *Esse*, or *Being*; or *Ens*, by his proper Essence; while an *Angel* has his *Ens*, or Being, only by *Participation*, and is but like a *Shadow* of a spiritual Being, when compared to GOD. ——Tho' an *Angel* is a perfect Creature in his Kind, *i. e.* he is created to subsist by himself, and has not been created, like the rational Soul, to form, in conjunction with a Body, an entire Nature; since the angelical Nature is perfect, and can subsist of itself, without any Mixture or Composition.

This Definition of *Angels*, is not agreeable to the *Epicurean* System, which knows nothing in the whole Creation, but corporal Substances; nor to that of the *Sadducees*, who deny'd the Resurrection, and the Existence of Spirits, or spiritual Substances, *Acts* xxiii. 8.——Even some of the *Fathers* of the primitive Church, who admitted the Existence of *Angels*, thought they could not exist, without their spiritual Substance being united to a corporal one, formed of the Co-adunation of the most subtle Particles of the Air and Fire, which Doctrine they had learned from the *Platonicians*, and which they attempted to defend and authorise by this Passage of *Genesis* vi. 2. *when the* Angels *of* GOD *saw the Daughters of Men that they were fair, they took them Wives of all which they chose*: And whereas pure Spirits could not take Wives, those *Fathers* concluded, that *Angels* were united to a corporal Substance in the same Manner our Soul is united to our Body; with this Difference only, theirs was formed of a finer Clay; which Error proceeded from the imperfect Notion they had in those Days of the Nature of a spiritual Substance. Tho' the Opinion of spiritual Substances existing of themselves, and without an Union with corporal ones, is not of a new Date, or of a Christian Invention.

Aristotle, Lib. IV. *Metaph.* cap. 7, 8. long before the Foundation of the Christian Church, had asserted, not only that *God* was an immaterial Substance, of an Order quite superior and different from a corporal one, but there existed also, other Substances, called *Intelligences*, or thinking Substances, free from all Commerce and Union with *Matter*, such as were those he supposed to give the first Motion to the Planets and other celestial Bodies.

However the Passage of *Genesis* quoted by the Fathers to support the Doctrine of the *Platonicians*, cannot be understood of *Angels*, as properly *Angels*, but of the Righteous of those Days, *viz.* the Posterity of *Seth*, who, in Consideration of their Father's Piety are called the *Sons of God*, or as some read it, the *Angels of God*, and who took Wives among the Daughters of *Cain*, called in this Place the Daughters of *Men*.

Another strong Argument used against the *Angels* existing without the Concurrence or Conjunction of a corporal Substance, is taken from the fifth Session of the second Council of *Nice*, where the Opinion of *John* Bishop of *Thessalonica*, that *Angels were to be painted*, was approved, and consequently the Inferences which *John* of *Thessalonica* draw'd from his Premisses, that the *Angels* were corporal and not spiritual; since Bodies only, not Spirits, could be drawn by a Pencil.

To which it may be answered, that that Part of the Opinion of *John* of *Thessalonica*, as to painting *Angels*, was approved by the Council, but not the other, whereby he is pretended to have proved, that the Substance of *Angels* was *material*.

Denis the *Areopagite*, divides the nine Orders of spiritual *Intelligences*, called *Angels*, into three *Hierarchies*, which Division *Estius*, *in* 2 *Lib. Magistr. Sentent. Distinct.* 23. pretends to be founded on the Scripture, *viz.*

The first HIERARCHY to consist of the *Seraphims*, *Cherubims* and *Thrones*.

The second, of the *Denominations*, *Virtues*, and *Powers*.

And the third to comprehend the *Principalities*, *Archangels* and *Angels*.

The SERAPHIMS make that Class of *Angels* supposed to be the most inflamed with divine Love, by their nearer and more immediate Attendance on the Throne; and communicate their Heat to the inferior and remoter Orders. Penetrated and inflamed with the immediate Irradiations of an eternal and divinely consuming Fire, they reflect its immensely radiant Beams, which are the Source and sacred Origin of an eternal Beatitude on the other Inhabitants of the celestial Mansions.

CHERUBIMS are celestial Spirits placed next in Order to the *Seraphim*, and also inflamed with a greater Degree of divine Love, with regard to the inferior Orders; and thus down to the *Angels* who are the last Order of the third Hierarchy. And although the Theologians, authorised by the holy Writ, suppose that Sort of Subordination among those *Celestial Intelligences*, it would be a criminal Error in them to imagine, that those different Mansions, render their Felicity more or less perfect; that those of the last Hierarchy, are not wholly penetrated and inflamed with the divine Love so as to be reduced to the Impossibility of wishing for more, or that they are not equally happy in the Contemplation of the divine Essence with those of the first Hierarchy.

It is true, we are obliged to believe that Jealousy and Ambition were once introduced into Heaven, that once the brightest, the most exalted of all the created spiritual Intelligences, and the nearest to the Throne of the *Most High*, were seduced by those two dangerous Passions; that, dazzled with the extreme Radiancy of his own Light, seeing himself raised above all the other Hierarchies, and none above him but the *Almighty himself*, with the Help

Of Rebel *Angels*; by whose Aid aspiring
To set himself in Glory above his Peers,
He trusted to have equall'd the MOST HIGH,
If he opposed; and with ambitious Aim,

 Against

Against the Throne and Monarchy of God,
Rais'd impious War in Heav'n.——
Milton's Paradise Lost.

That this War was terminated by his total Overthrow, and of all his Partizans, the *Rebel Angels.* But how could the being possessed with Pride, Ambition, and Jealousy agree with the Nature of a spiritual Intelligence, impassible, unalterable, and entirely *perfect in his Kind?* How could that Revolt, Trouble, and Confusion be supposed compatible with the eternal Felicity of the celestial Mansions? is what cannot be accounted for, otherwise than by saying that we are obliged to believe it.

Some of the Fathers pretend, that the original Cause of *Lucifer's* Overthrow, was the Proposal of the Incarnation of the second Person of the *Blessed Trinity.* That God by his divine Prescience, having foreseen *Adam's* criminal Disobedience, and determined by the irrevocable Decrees of his supreme Wisdom, that for the Preservation of the human Race, a Reparation should be made adequate to the Offence, *God the Son* had taken upon himself that Reparation, which was to be effected in a Manner, which *Lucifer* (who must be supposed to have been ignorant of the Possibility of the hypostatick Union) believing far beneath the Nature of a Supreme Being, thought had rendered the divine Essence inferior to his own, and consequently undeserving to have the first Seat in Heaven, which he supposed then devolved to him, as the more perfect Intelligence, and the nearer to it.

But how could *Lucifer* see in the Contemplation of the divine Essence, the Fall of *Adam*, and the Incarnation of the second Person, as a Reparation for it; and not see at the same Time, that he was to be the Occasion of those great Changes? That the Incarnation was to be preceded by *Adam's* Disobedience, and *Adam's* Disobedience by his seducing *Eve*; after having been himself first banished Heaven, in Punishment of his Ambition and Temerity? If *Lucifer* saw all those Changes (as certainly he must have seen them all or none) why did he not prevent them, by contenting himself with his happy Station, since thereby he must have been convinced, that acting otherwise, should infallibly be the Cause of his entire Ruin? Could it be supposed that *Angels* were created less perfect than Man was, whose Passions in his State of Innocency were so well subordinated to one another, so regular among themselves, and had continued so, if there had not been, then, a crafty Tempter of *Mankind?* which was not the Case of that spiritual Intelligence, who mistook perhaps his extravagant Ambition for a Mark of the Sublimity of his Apprehensions, and consequently look'd upon it rather as a Perfection, than a Crime deserving an eternal Punishment.

Those who admit of no *Evil Spirits*, consider this Point of a Christian Belief, as a fabulous Story, invented by some *Enthusiasts* to frighten the Vulgar. They cannot be persuaded that it is agreeable to the just Notions we must have of the Equity and Justice of the supream Being, to believe that he would have created a spiritual Intelligence, and by placing him nearer his Throne, take Occasion from thence, not only to accelerate his Ruin, but also to make him subservient to that of others; for, say they, (supposing the History true) there is rather more Appearance of Cruelty in the Condition of the fallen *Angels* than in that of *Adam*, after his Disobedience; since at the same Instant, *Adam's* Fall was foreseen, a Sacrifice was prepared in Expiation for it: But that of the *Angels* was foreseen (and all that's foreseen by the All seeing Omnipotent must infallibly happen) without Resource or Remedy. In that Sense *Adam* was to fall, but he was to meet on the Brink of the Precipice, with a strong and powerful Hand to hinder him from falling to the Bottom; the *Angels* were to fall, and before their Fall, that bottomless Abyss, from whence there's no Redemption, was opened to receive them.

A Dungeon horrible on all Sides round,
As one great Furnace, flam'd; yet from those Flames
No Light, but rather Darkness visible,
Serv'd only to discover Sights of Woe:
Regions of Sorrow! doleful Shades! where Peace
And Rest can never dwell! Hope never comes
That comes to all; but Torture without End
Still urges, and a fiery Deluge, fed
With ever burning Sulphur unconsumed!
Such Place eternal Justice had prepared
For those rebellious.—— *Milton's Paradise Lost.*

If it is not a sacrilegious Presumption to attempt to fathom the Depth of the *Almighty's* incomprehensible Judgments, we could ask why so great a Difference is made between two Criminals, equally guilty, since they had both offended a *Supreme Being*, to whom they were both equally indebted for their Origin; nay, if, in this Case, we were to consult nothing else but our weak Reason, the rebellious *Angels* would appear to us less guilty than *Adam*; since the Temptation was not so great on his Side. *Adam* was created as perfect in his kind as the *Angels* were; he found himself all at once absolute Master of all that was offered to his Sight, with an unlimited Power of disposing of it at his Pleasure, a single thing excepted, which, by the little Notice *Adam* had taken of it, must have appeared to him far beneath his Wishes; *Adam*, besides, knew nothing above him which could flatter his Ambition, but his divine Creator himself, who never appeared to him with that Immensity of Glory, he was contemplated in by the *Angels* in Heaven. And if he had, *Adam* was created with so just an Idea of the infinite Distance between him and the Supreme Being, that he could never have been tempted to pretend to an Equality with him.

But the *rebellious Angels* had all those Disadvantages on their Side; for, to believe them guilty, we must necessarily suppose them created subject to Passions (which in some measure is contrary to the Nature of a spiritual Being, whose Faculties being not wrapt up in Senses susceptible of Impressions from material Objects, should not be subject to Changements or Vicissitudes, but always continue in the same Subordination among them, and the Harmony they were first created with.) Those Passions must have conquered their superior Faculties at that very same Instant (which Instant, in a spiritual Intelligence, runs so swift, that it cannot be defined nor described) of their Revolt, since none of the antient Fathers are agreed on the Duration of the Felicity of the fallen *Angels*, and most of them are of Opinion that there was but a short Interval betwixt their Creation and their Fall, and consequently had not the least Moment allowed them to reflect on their Folly, or to repent; nay, if we must believe the Holy Writ, it was not decreed in the unscrutable Councils of the *Holy Trinity*, they should repent, since the Place for their Punishment was prepared before, or at the very Time of their Fall; if before, the Punishment was foreseen at one and the same Instant with their Fault (and if we may be permitted to speak as a Philosopher, not as a Christian) were both of an indispensible Necessity, since God's Prescience is as irrevocable, as are his Decrees; or rather, both are but one and the same thing; if after, they must likewise have been punish'd, since the divine Creator has never form'd or created any thing in vain; and that Place of Torment is specially specified in the Scripture, as design'd by him for the Punishment of the *fallen Angels.* Therefore lest we should lose ourselves in this Labyrinth, whose intricate and difficult Parts the divine Providence has judged proper to hide from us, we must content ourselves with seeing it afar off, and silence all our rational Faculties, when they attempt to discover what's above their limited Penetration.

What

What we can ſay more upon this Subject, is, that thoſe unfortunate Beings, created firſt in ſo much Splendor and Glory, that their Chief or Leader was called LUCIFER, *Light-bearer*, have been repreſented to us, ſince their Fall, under ſo many frightful Figures and Shapes, that we muſt torture our Imagination, to perſuade our Reaſon, that all that's ſaid of their priſtine Grandeur and Glory, or of their preſent unfortunate State, is not a Fiction, invented with no other Deſign than to frighten a weak Mind; ſome even have the Impiety to doubt of their Exiſtence, and cannot imagine that it is agreeable to GOD's Equity, Juſtice, Mercy and Compaſſion (the greateſt of all his Attributes) to puniſh a firſt and tranſitory Fault, with an Eternity of Torments.

The Truth is, that all that's ſaid of the different Shapes and Figures of the *Rebellious Angels*, vulgarly called *Devils*, is nothing elſe but a mere Allegory; and all that's painted of them, the pure Imagination of a Painter; the *Evil Spirits*, being ſpiritual Subſtances, exiſting by themſelves, as well as the bleſſed ones, have no Shapes, no Horns, no Tail, nor none of thoſe other Implements they are repreſented with. The Scripture itſelf, (St. *John* excepted) when it mentions the *Devil*, don't ſpeak as if it had ever been ſeen, but only heard.

'Tis true, that thoſe Sorts of Repreſentations make a ſtronger Impreſſion on ſome Minds, than all the moſt pathetick Diſcourſes of the greateſt Orators; and that ſome Chriſtians would hardly believe that there was a Fight in Heaven, whoſe uninterrupted Peace, they conſider as an eſſential conſtitutive Quality thereof, if they were not to ſee the Dragon under St. *Michael*'s Feet.

Some Authors are pleaſed to tell us, that the *Devil* himſelf has been ſometimes very much provoked to ſee himſelf repreſented under thoſe hideous Figures; and above all, at a *Painter* in *Flanders*, who having painted the *Archangel St. Michael*, for an *Altar-Piece*, in a Manner far exceeding all that had ever been done before him; in the Repreſentation of the *Devil*, whom he had placed, as uſual, under the Archangel's Feet, but ſo much Monſter-like, that the *Devil* himſelf was frighted at it, and ſo enraged, that to be revenged for the Affront, he took the Reſolution to ſpoil, for the future, all the Painter's Works, of any kind whatever; which he executed ſo punctually, that he was never more ſurprized than to find every Time he came into his *Laboratory*, that his Works had been touched by ſome *evil Hand*.

But however, the *Devil*, who is not perhaps always ſo ill-natur'd, as imagined, and perhaps has ſome good Intervals; tired of his Revenge, and ſeeing that the Painter's Ruin muſt be unavoidable, if he was to continue to plague him in that Manner, took the Reſolution to pay him a Viſit, and expoſtulate the Matter with him; accordingly, having dreſſed himſelf in the beſt Manner he could (*i. e.* very magnificently, for the *Devil* muſt have a very ſumptuous Wardrobe) he entered one Day the Painter's Laboratory, while he was at work. The *Painter* (who being a great Maſter of his Art, and as ſuch, uſed to be viſited by Perſons of the firſt Rank, Strangers and others) received his new Gueſt with his uſual good Manners and Civility, reached him a Chair, and they both began a Converſation on the Excellence of Painting, (on which Subject *Lucifer* ſpoke very pertinently) admiring all the while, the inimitable Strokes of his *Hoſt*; which gave him an Opportunity to complain of the many Accidents happened lately to his Paintings. His Gueſt, after having condoled with him of the Atrocity of the Injury, aſked him if he did not know ſomebody malicious and ſpiteful enough to be the Author of it? To which the Painter anſwered, that he had taken all the Meaſures neceſſary to diſcover him, but yet to no Purpoſe.

At laſt, the *Devil* was pleaſed to diſcover himſelf, and declare that he had done all the Miſchief, induced to it by the hideous Figure he had made him make, under St. *Michael*'s Feet, at ſuch a Place? What could engage you, ſaid he, to paint me in ſuch black Colours? Look upon me, am I ſo frightful, as repreſented by you? The Painter, who viewing him then from Head to Foot, ſaw no Deformity in him; but on the contrary, that he was really a fine Gentleman to look at, acknowledged his Miſtake, and proteſted he was ready to make all the Attonement and Reparation, he could reaſonably wiſh for, or expect from him, provided he would for the future ſtand his Friend, or at leaſt, not treat him as an Enemy. The *Devil*, who ſcorned to be rivalled in Generoſity, aſked no other Reparation, than that he the *Painter* would, as ſoon as poſſible, put a golden Crown, upon that hideous Figure of his, which had occaſioned all the Miſchief, and which on theſe eaſy Conditions would ceaſe. The Painter promiſed he would, and the next Day accompliſhed his Promiſe, and ever ſince, the *Devil* and he kept a very friendly Correſpondence.

The *Ethiopians* paint the *Devil* white, in Contradiction to our Manner of painting him black; and the *Americans* (if we believe all that's written of that Country) worſhip him but through Fear, for as far as I can find, no Nation has a very true and ſincere Love for the *Devil*. Though their *Devil* is not to be taken in the Senſe of the Scripture; ſince thoſe People have only an Idea of two collateral independent *Beings*, one whereof is good, and the other evil; and they place the Earth under the Direction of the evil Being; which our Authors, with ſome Impropriety, call the *Devil*.

Some are extravagant enough to believe the *Devil* under Men's Commands, which when communicated to him at ſuch and ſuch Places, and in ſuch and ſuch Manner, he punctually obeys, as the Conjurers, Pithoneſſes, Fortune-tellers, *&c.* which is a Folly in thoſe that believe it, deſerving *Bethlehem*, and a Piece of conſummate Knavery, in the Impoſtors who countenance them in it, puniſhable with the Gallows.

Frier Bacon, Dr. *Fauſtus*, &c. if we believe the Romances of thoſe Days, were very familiar with the *Devil*, and uſed to be frequently and friendly viſited by him.——People were of Opinion, that one might be inſtructed how to raiſe that honourable Gentleman, in Order for a Conference with him, in two Books which I never had the Curioſity to read, one called *Agrippa*, and the other the *Little Albert*; though I have heard of a *Frenchman*, who having met with one of thoſe Books, in the Library of the *Franciſcan* Fryars, at St. *Brieu* in *Britanny*, in *France*, had in Effect, made Uſe of it to raiſe the Devil, who obeying his Commands, and appearing to him; the over curious *Frenchman* inquired in particular after the Welfare of ſome Perſons, by whom he had been ill uſed, while they were living, and whom therefore he ſuppoſed to be in Hell; and having imprudently, if not impudently pretended, and divulged afterwards, that the *Devil* had really aſſured him that thoſe Perſons (ſome of them of a very noble Family) were there, the Relations of thoſe deceaſed Perſons had the *Hiſtorian* ſecured, in a Place very proper for a Conference with the *Devil*, from whence he could not be releaſed, till after he had made a gentle Cavalcade through the Town, with an *Alert valet de Chambre* at his Heels, who being over diligent, bruſhed his Buff oftner than he could wiſh.

Having alledged all the Reaſons for and againſt the Exiſtence of the rebellious *Angels*, we muſt inquire at preſent if the Exiſtence of the bleſſed ones, is agreeable to the Chriſtian Belief; or rather if we are obliged, as Chriſtians, to believe the Exiſtence of *Angels*.

All the Fathers anſwer in the Affirmative, becauſe *Angels* are mentioned throughout the Old and New *Teſtament*. God placed *Cherubims* at the Eaſt of the Garden of *Eden*, *Gen.* ii. 24. *Abraham* entertained *three Angels* near his Tent, *Gen.* xviii. 8. The *Angel Gabriel* was ſent to the Virgin *Mary*, *Luke* i. 26. An

Angel informed the Shepherds who were keeping their Flocks near *Bethlehem*, of the Birth of our Saviour, *Luke* ii. 9. besides an infinite Number of other Testimonies of the *Angels* Existence; and so obvious, that no Body acquainted with the Scriptures can call it in Question, or deny the Existence of a spiritual Intelligence, so well supported by that divine Authority, which is the Foundation of all Religion; and by which alone we are to be directed in our Belief: The Facts are so well circumstanced, the Proofs are so plain, and so free from all Ambiguities or Amphibology, that no Body can deny it, without being an Heretick of the first Class.

'Tis true, that the Existence of *Angels*, is not to be demonstrated by Strength of Reasoning; but only by the most essential Articles of our Belief; such as the *Trinity*, the Incarnation, the Resurrection of the Dead, *&c.* which are much more above our Apprehension than this; and nevertheless, we are obliged to believe every one of them. For those, we must form our Faith entirely on a simple Revelation; and for this, we have that Revelation supported with Facts, confirmed by a written Tradition; though that very same written Tradition, has left us in the Dark, as to the Time when *Angels* were created, since *Moses* contents himself with telling us, that in the Beginning God created the Heaven and the Earth, *Gen.* i. 1. without taking the least Notice of *Angels*, which are not mentioned, till the latter End of the third Chapter of the same Book. Could the Legislator of the *Jews* have supposed the Formation of that vast and miraculous Piece of *Mechanism*, Heaven, (whose single Motions have so long puzzled the most subtle Philosophers) of so little Consequence, as not to deserve his Attention or ours? Or is it because he knew nothing of it himself? For if he did, he had done a very great Service to his Descendants, in informing them, how, and by what Kind of created Beings it was peopled at first; and in particular, of all the Incidents of that great Fight, between *Michael* and the *Dragon*.

Thomas Aquinas, prim. part. quæst b. 1. *art.* 3. Supposes it very probable, that *Angels* were created at the same Time with the corporal World. Though 'tis said in *Job* xxxii. 7. that the *Angels* praised God, while he was creating the World, which supposes *Angels* to be pre-existent to the World.

The same *Thomas Aquinas*, in the same Part, *Quæst. b.* 2. *art.* 1, 2, 3, 4, 5, 8. pretends, that *Angels* were not created *in termino, i. e.* in a State of Glory, or of a *supernatural Beatitude*, but in a State of Grace, and of a natural Beatitude; in which being free from all Necessity, either *intrinsick* or *extrinsick*; or to speak in more intelligible Terms, being not necessitated in their Acts, by either interior or exterior Impulsion, they could, with the Succours or Assistance of a supernatural Grace, deserve a supernatural *Beatitude*, or Felicity.

Hence St. *Augustine, lib.* 12. *de civitat. Dei, c.* 9. thus speaks of the Free-will of *Angels*, *He*, God, *has created them*, (the *Angels*) *with a Good-will, i. e.* with a chaste Love, *whereby they could adhere to him, giving them Grace*, to assist them therein, *at the same Time he formed their Nature. Qui eos cum bonâ voluntate, id est cum amore casto, quo illi adhærerent creavit, simul eis & condens naturam, & largiens gratiam.*

They could with a single Act of *Charity, i. e.* of *Love of God*, obtain a *supernatural Beatitude*, as a Man could by a single Act of the same Love, acquire the same supernatural Beatitude, if his spiritual Intelligence, was free from a corporal one.

When *Angels* had once obtained that Beatitude, it remained no longer in their Power to sin; but their Will was fixed in a supreme and eternal Goodness, in the same Manner the Souls of the Blessed, lose by the Fruition of an eternal Happiness, the Power of doing ill.

Therefore, as by a single Act of Charity, the blessed *Angels* could obtain the Favour of being confirmed in the Possession of an everlasting Good; likewise the rebellious *Angels*, by a single Act of Pride and Ambition, deserved an eternal Damnation. Which Argument resolves all the Difficulties, heretofore started by me, with Regard to the Condition of *Angels*, at the first Instant of their Creation, that though of an immortal Substance, they were not created (no more than we Mortals) for the immediate Fruition of an eternal Felicity. The Difference between Man and them was, that their Beatitude depended on a single Act of a divine Love, of which they had the excellent Object present before them, in whom they could discern, from the first Instant of their Creation, all that could excite that divine Love within them; while the same Beatitude was promised to Man, only as a Recompence for a long Series of repeated Acts of the same Love, to which he was no otherwise incited, than by the Idea of a Supreme Being, and the Sentiments of Gratitude, infused into him; at the same Time his earthly Structure was informed with a rational Soul; and then he had other Objects to divide that Love, which meeting with no such Opposition in *Angels*, was wholly centered in the divine Object.

It might be asked in this Place; if that truly seraphick Love, was equally perfect in all the blessed *Angels*; and if the Difference of their Hierarchies does not proceed from its different Degrees of Perfection; or rather, if that Division of *Angels* into Hierarchies, is real, or imaginary only? My Sentiment is, that as the Felicity of the celestial Mansions, consists entirely in the Love of God; and that we are informed that there are several Orders of *Angels*, some nearer the Throne, and others at a greater Distance; that Difference must be understood of the different Degrees of Love, and of nothing else; though that sacred Love is in all and every one of them, adequate to their Faculty: So that though a *Seraphim* is more inflamed than a *Cherubim*, with that divinely consuming Fire, nevertheless a *Cherubim*, as a *Cherubim*, loves as much as a *Seraphim*; and so of the rest of the Hierarchies.

As to the second Part of the Question, it seems very probable, that each Hierarchy is a different Species of *Angels*; though *Thomas Aquinas, prim. part. quæst.* 50. *art.* 4. is of Opinion, that there are as many Species of *Angels* as there are *Angels*; because, says he, *Angels* being spiritual Substances, free from all Sort of Matter, they have not in them a Principle of *Individuation*, whereby they could be multiplied in Number, under the same Species; which Sentiment of *Thomas Aquinas*, is not agreeable, in every particular, to the Notion we must have conceived of a spiritual Substance, from a Number of rational Souls, which while they exist are single, and only distinguished by Number, though they are all of the same Species: Likewise a Number of *Angels* having been formed on the same Idea, by *God*, may be distinguished by Numbers.

Another Thing, concerning *Angels*, which is much controverted in the Schools, and among the different Sects of Christians, though admitted by the *Roman Catholicks*, and several other Denominations, is, if it be really true, that every one of us has his Guardian Angel?

St. *Hierom* is of that Opinion, founded on this Passage of the Scripture, *Matt.* viii. 10. *Take Heed that ye despise not one of these little ones; for I say unto you, that in Heaven their Angels do always behold the Face of my Father which is in Heaven.* Which Passage is sufficient to refute all the fanatical Objections of those pretended Christians, who accuse of Superstition, all those who adhere to it. For my Part, I believe that those who reject this Article as superstitious, must reject this Passage of the *Evangelist*; for there's none couched in clearer and more express Terms. I would ask them who are those *Angels* mentioned by Christ himself, to be the *Angels* of little Children? and what is their Office? not to pray for them, I hope? for such Opinion would smell of Superstition and Popery indeed; to hear their Prayers,

and grant their Requests, another Error worse than the first? No; it must be then, for nothing less but to defend and protect them against all the Assaults of the common Enemy of Mankind.

Instructed, by their continual Contemplation of the divine Essence, in whom they see all Things created, and uncreated, that all that's in Heaven and on Earth, was formed by that *Supreme Being*, (who makes their whole Felicity) to evidence the Immensity of his divine Perfections, and advance his Glory, and that MAN in particular (whom he had distinguished from all the rest of the Creatures, by forming him to his Image and Resemblance, and whose Nature was exalted even so far above theirs, as to be united by an incomprehensible *Hipostasis*, with the Divine) instructed, says I, that Man, was his chief Care, and that all other sublunary Things were created to be subservient to Man's Preservation, whose Understanding, ever since his Fall had been weakned, his Imagination vitiated, and his Will depraved and corrupted, and therefore must deviate from the right Way, if not strengthened, or directed by some superior Assistance, they, the *Angels*, (still more powerfully excited to it by that pure, uncorrupted, unalterable, and divinely inflaming Love, the Principle of all their Actions) take that Care upon them, assisted therein by the Irradiation of that Grace, without which, *nihil sumus*, *nihil possumus*, we are nothing, and can do nothing, towards the Advancement of our eternal Felicity.

How pleased are those our holy Guides in the Way to Salvation, when they see that, sensible to the divine Inspirations, we enter that narrow and intricate Road with Pleasure and Alacrity, and follow it without deviating to the Right or to the Left; and when we meet with very difficult Paths or stumbling Blocks, how ready they are to lend us a helping Hand, or rather to act in Concert with the GRACE, towards our Preservation; what Pleasure, what Satisfaction for them, when we once again recover our former right Road, and how sorrowful, when we have entirely forsaken it? I say sorrowful, since it is the Opinion of the *Fathers*, that those spiritual Intelligences are sensible, in their Manner of Sorrow and Pleasure, at *Christ's Passion*, *Angeli pacis*, *amarè flebant*, the *Angels* of Peace wept bitterly.

Are then, the *Angels* present every where with us? Spiritual Substances, like *Angels*, cannot be said properly to be in a Place; since that belongs only to corporal or extended Substances; but however, to resolve this Difficulty, the *Theologians* have distinguished two Manners of Being in a Place, *viz. Circumscriptivè*, and *Definitivè*.

To be in a Place, *Circumscriptivè*, is when each Part of the Part contained in that Place, answers to every Part of the Place, or is environed with the *Superficies* of the Body 'tis contained in, like a human Body, whose Head is in one Part of the Place, and the Feet in another; and this Manner of existing or of being in a Place, belongs to a *corporal*, not to a spiritual Substance.

To be in a Place *Definitivè*, is likewise to be Present in a certain definite Place, but not so as to be *circumscript*, surrounded or environed with that Place; and in this Manner the spiritual Substances are said to be in a Place; like the *Angel Gabriel*, who was present in the Chamber of the *Virgin Mary*, when he saluted her as Mother of our divine Saviour, though he was not environed with the *Air* of that Chamber.

Angels move in the same Manner they are present in a Place, that is to say, that by their Thought or Imagination, they can be present at several Places at once; in that Manner our Imagination is present where we are, and at the remotest Parts of the World at once; and would be perhaps carried in a Moment, in its own proper Substance, to those Places, if the Body was not an Obstacle to it.

When *Angels* change Places, they have no need to pass through an intermediate one; the same as our Thought, when carried from *London* to *Paris*, has no Need to pass through *Picardy* or *Flanders*. Since that Imagination which is in *London*, the very next Moment can be in *Paris*. Though these Motions are not made by the proper Substance of the Mind, because it is then united to the Body: But was our Mind once separated or freed from our Body, like an *Angel*, it would move as easily as it thinks, and would not appear to be any where else, but where it thinks; so that if our Mind was then to think of *London*, *Paris*, *Rome*, and other Places, it could be said to be present at *Rome*, *London*, *Paris*, &c. Not that our *Soul* would be present in those Places, in the same Manner I am here setting in my Chair; but only as a spiritual Substance, by its Faculty of Thinking; since our Spirit or Understanding don't seem to exist otherwise than by that same Faculty of thinking, *Cogito ergo sum*.

As for the *Angels* Knowledge, the *Roman Catholick* Theologians are of Opinion that *Angels* have received from *God*, a natural Knowledge of Things, both visible and invisible, which was given them as soon as they began to see God with their spiritual Eyes, *Intuitivement*, or Face to Face; for, they see in GOD as in an *intelligible Light*, all that *God* is pleas'd to reveal to them; therefore, conclude these *Roman Catholick* Theologians, they know our Wants, and hear the Prayers, which through their Mediation we address to *God*. They are not Strangers, say they again, to our good Deeds and Actions, as the *Archangel Raphael* was pleased to assure *Toby* in these Words, *Tob.* xii. vers. 12. *Quando orabas, cum Lachrymis, et sepeliebas Mortuos, et derelinquebas Prandium tuum, et Mortuos abscondebas per Diem, in Domo tuâ, et Nocte sepeliebas eos, ego obtuli Orationem tuam Domino.*—— When thou wast wont to pray with Tears, and to bury the Dead; to leave thy Meals, and hide in the Day-time, the Dead in thy House; that thou mightest bury them at Night, I have offer'd thy Prayer to the Lord: But this Passage being taken from the *Apocrypha*, and the Invocation of Angels condemned as superstitious in the Protestant Church, I must not approve of it.

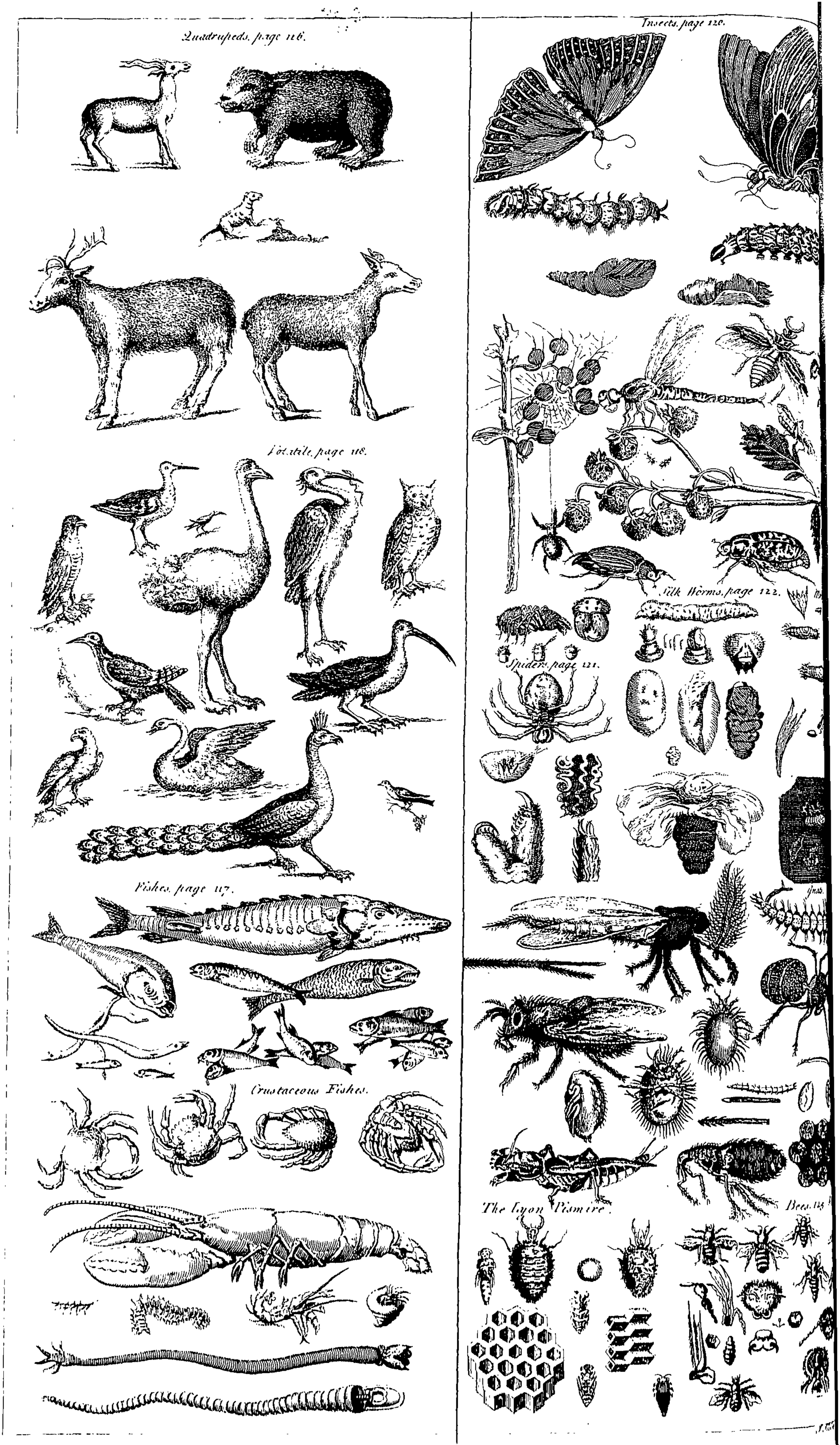
Thomas Aquinas believes, that notwithstanding the *Angels* great Knowledge, some of our most secret Thoughts are entirely hidden from them, and known to *God* only, who is alone the Scrutator of our Hearts.

As for the evil Spirits, or fallen Angels, they know a great deal less than the blessed ones; neither can they penetrate or discover our most inward Thoughts, unless they be directed to them; nor even then but by meer Conjectures, *i. e.* from our Works or Motions, and by a Sort of Reasoning peculiar to them; for the *Angels* have a Manner of Reasoning quite different from us, never drawing their Conclusions from the Premisses, as it appears from the Tempter of Mankind, when he approaches *Jesus Christ*, *Mat.* iv. To endeavour to discover by his Answers if he was really the *Son of God*.

The *Angels* Language, or Dialect, is nothing but the Direction of their Thought between them; the same as if the ALMIGHTY had established a Method among us, that by Means of some Signs or Sounds our Thought should be manifested. Therefore it is very probable, that an *Angel* can by his *sole Intention*, or Will, communicate his Thought to another *Angel*, or even to *Men*.

The Existence of *Angels* is not only admitted by almost all Christian Societies, or Sects, but likewise by the *Pagan* Philosophers, and Poets, as is shewn by St. *Cyprian* in his Treatise of the Vanity of Idols; from the Testimonies of *Plato*, *Socrates*, *Trismegistus*, *&c.*

In the *Alcoran* we find frequent Mention of *Angels*. ——The *Mussulmans* believe them of different Orders, or Degrees, and destined for different Employments, both in Heaven, and on Earth. They attribute exceeding great Power to the Angel *Gabriel*; from whom


Quadrupeds. page 116.
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Fishes. page 117.
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whom the Impostor *Mahomet* pretended to have received the *Alcoran*, and to have frequent *Teste a Teste* with him, *&c.*—— The *Angel Asrael* they suppose appointed to take the Souls of such as die; and another *Angel* named *Estaphiel*, stands with a Trumpet ready in his Mouth, to proclaim the Day of Judgment.

ANIMALS.

ANIMAL, is defined by *Des Cartes*, and his *Partisans*, an extraordinary and admirable Mechanism of different Parts, skilfully adapted to each other, whose Motions are owing to the just Symmetry of their various Springs, (without any Respect to a rational or sensitive Soul,) and by Dr. *Boerhaave*, an organical Body, consisting of Vessels and Juices, taking its Nourishment by a Part called Mouth, which conveys it into another, called Intestines, into which it has Roots implanted, whereby it draws in its Nourishment after the Manner of Plants.

According to this Definition an *Animal* is distinguished from a *Fossil*, in that it is an organical Body, and has a Power to direct itself, as to its Nourishment, whereas a Fossil is directed to it by an accidental Motion; and from a Vegetable, that it has Roots within itself, and a Vegetable without; which Difference is only in Point of Position, since the attractive Faculty (according to this Author) must be the same in both.

My Opinion is, that this Definition is contrary to all the new Discoveries made in *Anatomy*, to which *Boerhaave* cannot be reasonably supposed to have been a Stranger; and the Reason alledged by *Chambers*, or those who have furnished him with those Reasons to illustrate this Definition, "That the Intestines in an "Animal, are in Reality no more than is Earth, or "the Body it adheres to; into which it sends forth "its Roots, that is, the lacteal Vessels, which thence "draw the Matter of its Life and Increase;" These Reasons seem to me frivolous, if not quite ridiculous; since the Earth has a radical, potential, and actual, nutritive Faculty, whereas the Intestines have no other than an active one for the Separation of the Aliments, and the Direction of the nutritive Juices. The Earth has in itself all the different Salts necessary, not only for the Nourishment of the Vegetable, but likewise for its Production, and the Intestines, the only Power of operating upon those Salts brought to them with the Aliments. The Earth is fertile of itself, and is not exhausted by that Nutrition, and Increase, the Vegetables receive from it; whereas the Intestines are but a barren Soil, equally indebted for their Nourishment to the Aliments, conveyed to them by the Mouth, as the other Parts, to which they are sent by their Ministry. The Vegetables act immediately with the Earth in their Vegetation, while the Intestines, without the Intervention of a second and third Organ, would soon become not only unactive, but also entirely uncapacitated for Action. Therefore the Intestines could be compared with a greater Appearance of Reason to the *Master Root* of a Vegetable, to which the Aliments serve instead of Earth, as well for its Nourishment, as for that of all its other Branches; since all the Vessels which terminate to it, have no greater attractive Faculty than those of the Vegetables, which by the different Position of their Pores, act as perfectly in the Preparation of the Nutriment they receive from the Earth, and the Destination of the Juices, as those of our organical Body, in that of the Nourishment, they receive from the Aliments, convey'd by the Mouth into the Stomach.

This other Reason alledged by *Boerhaave*'s Partisans, that an *Animal* is better defined by its Mouth than by any of its organical Parts, is a Piece of a consummate Ignorance, unless they agree that the organical Body of an Animal is nothing more than a meer Machine; since, otherwise, the Definition of an *Animal* must be taken (according to the uncontroverted Maxims of both the antient and modern Philosophy) from their essential Constitutive, not from their integral or integrant Parts. An *Animal* has never been defined, as Mr. *Chambers* ignorantly supposes, an organical Body, composed of a Heart, Brain, *&c.* but a rational, or irrational Being, a Definition, which contains the two Conditions requisite for a regular Definition, *viz.* the *Gender*, and the *Difference*; *Animal* being the *Gender*, with Respect to all *Animals* in general, and the Rationality, or Irrationality, the *Difference*.

Besides the Mouth of an *Animal* is nothing else but a meer Machine, which has no natural or organical Motion of itself, and would prove as useless as any of the integrant Parts, if not set to work, like them, by a natural Impulsion of a sensitive Faculty, which cannot be said of the Heart, which is independant, from that Moment all the Parts subservient to it, have been disposed in that just Order and Symmetry, necessary for its Motion, which never come to a Period but with the first Motor itself.

In this Sense, contrary to the *Boerhaavians* Sentiments, a *Fœtus*, when once animated, though it don't feed by the Mouth, is an *Animal*; even that single Circumstance, of the Inutility of its Mouth, is capable to refute their extravagant Opinion, since it is impossible to draw the Definition of a Being, from that, without which that Being can exist; and it is not only evident, but incontestible, that a *Fœtus* Existence and Subsistance can be demonstrated, without the Use of its Mouth, which while in the Womb, and even sometimes after the Birth, is of no other Service to it, than that of a Statue, which cannot be said of the Sensation, which can be supposed *Coeval* to its Existence, from the evident and repeated Acts of that Faculty, at the Birth. Neither can it be objected in Confirmation of this extravagant Opinion, that the Existence of the *Fœtus* precedes its sensitive Faculty, since that *Fœtus* cannot be supposed to exist as a *Fœtus*, 'til it begins to make Use of its organical Parts, which Use is subsequent to its sensitive Faculty, which is the *Primum Mobile* of the whole Machine, and without which the Mouth, Heart, and all other Parts must remain useless.

Boerhaave's Opinion is new, 'tis true, but all Opinions which are contrary to the generally received Maxims of a natural Philosophy are absurd.

The loco-Motion is not neither a Difference so essential between *Animals* and Vegetables, as to draw the Definition of an *Animal* from it, since there are *Animals*; for Instance, *Oysters*, *Muffles*, *Cockles*, &c. which adhere to the Rocks faster than the Plants do to their Subject; though at the same Time those *Animals* have a sensitive Faculty, which is apparent at their opening or shutting themselves, when the Sea ebbs or flows, and by the Resistance they make against our Endeavours to conquer them; those are accounted real *Animals*, though we cannot discover in *Muffles*, a Mouth, a Stomach, or any other Parts proper for the Reception, Digestion, or Preparation of the Aliments.—— The Naturalists who have discovered a Hole in the *Muffles*, which they call its Mouth, though it be an immoveable Part, fastened to one of the Shells, and which consequently cannot seek for Food, but the Food must come to seek it; that such Hole be real, is past all Controversy, but all the Consequences drawn from that Discovery are meer Suppositions or Conjectures.

Animals are divided by Philosophers (for I'll speak here

here as a Philosopher) into rational, or irrational; and these last subdivided into terrestrial, aquatic, volatile, amphibious Insects, &c.

There is but one Species of reasonable *Animals*, and that's *Man*, whom I define an organical Body, informed and directed in all its Motions, by a spiritual, immortal, impassible, undefinite, and unalterable Substance, called Soul; which the *Epicureans* falsly took to be a subtle Air, composed of their *Atoms*, or primitive *Corpuscles*; the *Stoicks* a Flame or Portion of Heavenly Light; and the *Cartesians*, a thinking Essence, from which they deduce its Immateriality and Immortality, as well as our Existence, on this general Maxim, *Cogito ergo sum.*

Philosophers are not all agreed as to the Manner wherein the Soul resides in the Body. Some will have it *tota in toto*, and *tota in quâlibet Parte*, *i. e.* diffused throughout all the Parts of the organical Body, which it influences alike, without any particular Part, being appropriated to its chief Residence; others will have it fixed in its Center, like the *Sun*, from whence it influences all the inferior Parts, like that Planet does all the sublunary Things.

Des Cartes is pleased to place that Center in the *Pineal Glands* of the Brain, where all the Nerves terminate, and from whence, through their Ministry, the *Animal Spirits* are conveyed to all the other Parts; which Sentiment, is in my Opinion, entirely contrary to the Essence, as well as to the Existence of a spiritual Being, which is that of having no *Ubiquity*.

Mess. *Rohault*, *Du Hamel*, *Purchot*, &c. are of *Des Cartes*'s Opinon, that the Soul resides in the *Pineal Gland*, which *Borri*, a *Milanese* Physician, in a Letter to *Bartholine*, *De Ortu Cerebri*, and *Usu Medico*, seems to explain in very near the same Manner, by supposing, in the Brain, a certain, very subtil, fragrant Liquor, which circulates through the Nerves, and which is the principal Seat or Residence of the reasonable Soul, adding that the Subtility and Fineness of the Soul depends on the Temperature of this Liquor, rather than on the Structure of the Brain, to which it is usually ascribed.

This Liquor can be nothing else than the nervous Juice or *Animal Spirits*, formed (in Mr. *Rohault*'s Opinion) of the most subtile Particles of the Blood carried to the Brain, by the *Aorta Ascendens*, where, by a new Agitation, being entirely freed of their yet less subtile Particles, and reduced into a yet greater Subtility, or Volatility, are at last irradiated by the spiritual Substance, residing in the Pineal Gland, and from thence circulated through the Nerves to all the Parts of the organical Body; which Spirits being lost or exhausted in their Course, are continually supplied by other new ones flowing from the same Source.

Some of our Mystick Divines have found the Secret (upon what founded I know not) to distinguish the Soul into two principal Parts, *viz.* the superior and inferior; the superior, which, say they, comprehend the Understanding and the Will; and the inferior, which comprehends Imagination and Sensation.——But how can they divide a spiritual Substance, which is essentially indivisible? How can they even conceive it such? To what purpose such Distinction? Would they have the superior Part know nothing of what passes in the inferior, and so reciprocally? Can they pretend that the Imagination is susceptible of any Ideas which don't reach the Understanding; or that our Understanding can form a Judgment of Things which have not first struck our Imagination? Or can we be sensible of any Thing without the Concomitance of those two Faculties? They give for a Proof of their Distinction, the Example of *Christ* in his Sufferings, whom they suppose to have been happy in the superior Part of his *divine Soul*, while he suffered in the lower Part; so that thereby, his Sufferings which, by an infinite and unlimited Prescience, he had foreseen at the very same Instant he foresaw *Adam*'s Fall, and the indispensible Necessity of a Satisfaction adequate to the Offence, had not been an Act of his Divine Will, but only of his Imagination and sensitive Faculty. But *Christ* complain'd in his Agony of the Bitterness of his Cup; and that Complaint could not be an Act of his Imagination only, or a *motus primo primus*, since that Complaint is accompanied with this Act of his Will, *If it be possible make* that *Cup pass from me*, and with this other, *thy Will be done*; which all three were the Act of his *Divine Soul*, as hypostatically united to the human Nature; he speaks on this Occasion like a Man, because he was to suffer like a Man; but his human Acts don't disturb, in the least, that eternal Happiness he enjoy'd like a *God*; to think otherwise is to suppose *Christ* subject to those Imperfections and Weaknesses incompatible with his *Hypostasis*, and which is an Error condemned in *Molinos*, who, by dividing the *Soul* into two different Parts, persuaded his Partisans, (called afterwards *Quietists*) that the superior Part of the Soul could keep itself untainted and undefiled, while the inferior was plunged in Luxury, provided that superior Part could retain to itself a Consciousness of its Innocency.

M. *de Fenelon*, Archbishop of *Cambray*, in his *Maximes des Saints*, had asserted that Opinion of *Molinos*, for which he was censured at *Rome*, and which himself condemned afterwards.

Tho' the *Soul* is indivisible, it has nevertheless several Faculties, the principal whereof are the *Understanding* and the *Will*.

The UNDERSTANDING, according to the *Peripateticks*, is a Faculty of a reasonable Soul, conversant about intelligible Things, considered as intelligible, which they divide into active and passive *Understanding*.

Active Understanding is, in their Opinion, that Faculty, whereby the *Soul*, from the Presence of Phantasms or Appearances, frames to itself *Species* and *Images* of intelligible Things.

Passive Understanding, is that which receiving the Phantasms form'd by the Active Understanding, breaks forth into an actual Knowledge, or rather reduces into Practice the Perceptions of the Active Understanding.

The *Cartesians* define the *Understanding*, that Faculty wherewith the Mind conversing with itself, evidently knows what is true in any Thing not exceeding its Capacity.

Nihil est in intellectu quod prius non fuerit in sensu, Nothing is in the *Understanding*, which has not been first the Object of our Senses, is the favourite Axiom of our modern Philosophers; who thereby attribute two Offices to the *Understanding*, *viz.* Perception and Judgment, whereas the *Cartesians* know but one, *viz.* Perception.

WILL, *Voluntas*, is usually defined a Faculty of the Mind, whereby it embraces or rejects any Thing represented to it, as Good or Evil, by the Judgment.

It is also often taken for the *Mind* itself, considered as embracing or refusing; under the Supposition, that as the *Understanding* is nothing else but the *Soul* consider'd as *Perceiving*; so the *Will* is nothing else but the *Soul* consider'd as *Willing*.

Father *Malbranche* believes the *Will* to be to the *Soul*, what Motion is to the Body; and argues, that as the Author of Nature is the universal Cause of all the Motions in Matter, so he is of all the Inclinations of the Mind; and that as all Motions are direct, unless their Course be diverted and changed by some foreign Cause; so all Inclinations are right, and could have no other End but the Enjoyment of Truth and Goodness, were there not some foreign Cause to determine the natural Impression to evil Ends.

By this Definition Father *Malbranche* seems to confine the *Will* within very narrow Limits, and would almost insinuate, that the *Mind* has no Power of itself, or at least but a very weak one, to order the Consideration of any Idea, or the forbearing to

consider it, since, in that *meditating Philosopher*'s Opinion, it is directed in its *Volition*, or by a natural and interior Cause, or by an external and foreign one, which Direction, in that Sense, could be supposed rather a Kind of Necessity than a simple Direction; which we will examine more strictly in our Treatise of *Metaphysick*, under the Letter M; and we shall be thereby more capable to judge if Father *Malbranche*'s *Metaphysical Meditations* smell of *Jansenism* or not.

Mr. *Locke* defines the *Will*, a Faculty which the Soul has of beginning or forbearing, continuing or ending several Actions of the Mind, and Motions of the Body, barely by a Thought or Preference of the Mind, ordering, or as it were, commanding the doing, or not doing, such a particular Action.

In this Mr. *Locke* differs widely from Father *Malbranche*, since he attributes to the *Will* almost an absolute Power of determining itself in its Volition, without the Concurrence of familiar or foreign Causes, otherwise than by their being the occasional Causes of our Perceptions by the *Understanding*.

Memory, *Imagination*, *Liberty* and *Sensation*, are also Faculties of the *Soul*.

MEMORY is a Faculty whereby the *Mind* retains, or recollects the simple Ideas or Images of Things we have seen, imagined, understood, *&c.*

Dr. *Hook* in an *Essay towards a mechanical Account of Memory*, supposes it to consist in a Stock of Ideas or Images, form'd occasionally by the Mind, out of the fine Parts of the Brain, and disposed or laid by in Order.

Des Cartes is of Opinion, that the *Animal Spirits*, exciting a Motion in the most delicate Fibres of the Brain, leave a Kind of Traces, which occasion our Remembrance; hence it happens that passing several Times over the same Things, the Spirits becoming accustom'd to the same Passages, leave them open, and so make way without any Force or Labour; and in this consists the Ease with which we recollect such Ideas.

Father *Malbranche*'s "presupposing that all our "different Perceptions are owing to Changes happening in the Fibres of the principal Parts of the "Brain, wherein the *Soul* more immediately resides; "pretends that the Nature of Memory is obvious; "for as the Leaves of a Tree that have been folded "for some time in a certain Manner, preserve a Facility or Disposition to be folded again in the same "Manner; so the Fibres of the Brain having once "received certain Impressions by the Course of the "*Animal Spirits*, and by the Action of Objects, "preserve, for some time, a Facility to receive the "same Disposition. Now, says he, it is in this Facility that the Memory consists; for we think of "the same Things when the Brain receives the same "Dispositions.

"Further, as the *Animal Spirits* act sometimes "more briskly, and sometimes more languidly on "the Substance of the Brain; and as sensible "Objects make deeper and more lasting Impressions "than the Imagination alone; it is easy on this "Scheme to conceive, why we do not remember "all Things alike: Why a Thing, for Instance, "seen twice, is represented more vividly to the "*Mind*, than another seen but once: Why Things "that have been seen, are usually remembered "more distinctly, than those that have been only "imagined, *&c.*

"Old Men are defective in Memory, and cannot "learn any Thing without much Difficulty, because "they want *Animal Spirits* to make new Traces, and "because the Fibres of the Brain are become too "hard to receive, or too moist to retain such Impressions. For the same Reason, those who learn "with the greatest Ease, forget the soonest; in regard when the Fibres are soft and flexible, Objects "make a slight Impression, which the continual "Course of *Animal Spirits* easily wears off; on "the contrary, the Fibres of those who learn slowly, being less flexible, and less subject to be shaken' "the Traces are more deeply engraven and last the "longer."

These two *Hypotheses* of *Des Cartes* and *Malbranche* appear to me defective in several Particulars.——That of *Des Cartes*, that our *Memory* is the Effect of the Motion excited in the Fibres of the Brain, by the Circulation of the *Animal Spirits*, don't answer to all the different *Phænomena* of the *Memory*; since the Dilatation and Impression, made in those Fibres by the Spirits after the first *Perception*, which he supposes the first Principle of the *Memory*, should presuppose also those Fibres susceptible of an Irradiation, or from the *Soul* itself, or from those same Spirits which circulate through them; if from the *Soul*, why not immediately, since the being placed nearer its principal Seat, they can receive its Influences rather sooner than the *Animal Spirits*, whose Origin is from somewhere else, which are only as itinerant in the Brain, and calculated only for to animate the inferior Parts; and if by the *Animal Spirits*, how, and in what Manner? Is it because they irradiate the Fibres by their Contact, or have those Fibres any Pores appropriated for the Reception of those Spirits? If by their simple Contact or *Effluvia*, as when Iron is touched by the Magnet, what need have those Spirits of their perpetual Rotation to refresh the Memory, and renew the Ideas which had lain dormant, since the same can be effected by our Imagination, directing those *Effluvia* anew; and if it is done by those *Spirits* being lodged in the Pores of the Fibres, how can the Dilatation be of any Service to them in their Return, since they have not changed Place?

There is, in my Opinion, a Sort of Contradiction in *Malbranche*'s *Hypothesis*, if *Memory* is the Effect of Traces left in the Fibres of the Brain by the *Animal Spirits*, and old Men are defective in *Memory*, for want of *Animal Spirits* to make new Traces, *Memory* must have another Origin, from whence those *Spirits* must borrow the Faculty of making those new Traces; for if the first Traces made by the first *Spirits* are obliterated, the Impression made on those *Spirits* was not *Memory* itself, else by the Obliteration of those Traces the *Memory* must be lost. But perhaps those same first Spirits come back to renew those Traces, which cannot be *Malbranche*'s Opinion, since he pretends that old Men want *Animal Spirits* to make new Traces. Besides, how can we answer, or rather is it not contrary to the general Sentiment of *Anatomists*, that *Spirits* exhausted, or perhaps lost or evaporated in their Circulation, could preserve Strength enough, or that the first Impregnation should be of such Efficacy, as to render them capable of making new Traces of the same Objects, which could make a second, third, fourth, *&c.* Representation of them as vivid as the first.

I am rather of Opinion (and this is my own *Hypothesis*) that there are *Animal Spirits* of different Kinds, according to their different Destination, and differently irradiated; some for a single Perception of Things, some for the Imagination, some for Sensation, *Memory*, *&c.* that the Irradiation is more or less strong, as the Order, Arrangement, or Situation of their Pores is more or less disposed to receive it. That those assigned to *Memory*, being of an oblique Figure, and their Particles concatenated together in the Form of a *Ret*, when stricken by the first Impression at the Appearance of an Object, and thereby put in Motion, or direct themselves to receive in their Interstice all the Impressions which the Understanding forms of that Object, to which Direction they are kept fix'd by the Atmosphere which subsists between them and the Imagination, proceeding from the continual *Effluvia* flowing from each other, and which last till dissipated by the Perception of a new Object, they are forced to direct themselves otherwise.

By this *Hypothesis* all the different *Phænomena* of *Memory* may be easily accounted for; since in this Case the *Memory* is like a Needle directed by the Magner,

 and

and the *Imagination* its Magnet or Pole; when the *Imagination* lets flow the *Effluvia* which have any Analogy with those of one Side of the *Memory*, the *Memory* is directed on that Side, and the Representation of the Object, which that Side was directed for, is renewed.—By these Means there can be no Confusion in the Representation of Objects, since each Object has its proper Side in the *Memory* assigned to it; nor can those Spirits be exhausted by their Rotation, since besides being always kept by their Magnet in their proper Situation, they are also continually strengthned by new Irradiations from the *Soul*, till the *Soul* itself being unbecillitated in its Functions, by Age or other Accidents, and its Irradiations becoming less frequent, the *Memory* is thereby weaken'd, as well as all the other Faculties.

Seneca says of himself, that by the mere Effort of his natural *Memory*, he was able to repeat two thousand Words upon once hearing them, each in its Order; though they had no Dependance or Connection on each other. After which he mentions a Friend of his, *Portius Latro*, who retain'd in his *Memory* all the Declamations he had ever spoke, and never had his *Memory* fail him, even in a single Word.—He also mentions *Cynæas*, an Ambassador to the *Romans* from King *Pyrrhus*, who in one Day had so well learn'd the Names of his Spectators, that the next he saluted the whole Senate, and all the Populace assembled, each by his Name. *Pliny* says (though *Pliny* is a great Liar, and his Testimony in any thing whatever not much to be depended upon) that *Cyrus* knew every Soldier in his Army by Name; and *L. Scipio* all the People of *Rome*. *Carneades*, when required, would repeat any Volume found in the Libraries, as readily as if he were reading.—Dr. *Wallis* tells us, that without the Assistance of Pen and Ink, or any thing equivalent, he was able, in the Dark, by mere Force of *Memory* to perform arithmetical Operations to forty Places; particularly that in *February* 167½, at the Request of a Foreigner (by Night in Bed) he proposed to himself a Number of fifty-three Places, and found its Square Root to twenty-seven Places; and without ever writing down the Number, dictated it from its *Memory*, at his next Visit, twenty Days afterwards.

Myself have been blessed with so happy a Memory, that at sixteen Years old, I could recite Word for Word a Sermon of a whole Hour preaching from once hearing it, and have done the same of the two Orations of *Cicero*, for and against *Dejotarus*, for once reading them, though my Memory has often failed me in Poetry, for which I have not the least Taste, but never so in Prose, let it be what it will; which confirms me in the Opinion, that *Memory* is very much under the Direction of our Understanding.

IMAGINATION is a Faculty of the *Soul*, by which it conceives or forms Ideas of Things by Means of Impressions made on the *Animal Spirits*, assigned to that Faculty.

Willis places the *Imagination* in the *Corpus Callosum*; *Fernelius* in the *Pia Mater*; *Des Cartes* in the Pineal Gland, which he makes the chief Residence of the *Soul*; and *Malbranche* in that Part of the Brain where the Nerves terminate, pretending that whenever there is any Alteration in that Part to change the Order of its Fibres, there also happens a new Perception in the *Soul*, and she finds something new, either by way of Sensation or *Imagination*.——So that the Faculty of *Imagining* or *Imagination*, only consists in the Power which the *Soul* has of forming Images of Objects, by producing a Change in the Fibres of that Part of the Brain, which may be called the principal Part, because it corresponds to all the Parts of our Body, and is the Place where the *Soul* immediately resides.——It matters not which that Part is, it suffices that there is some such Part, and consequently in that Philosopher's Opinion, we are to be as uncertain of the Place and Situation of the Fibres assign'd to that Faculty, *Imagination*, as to that where the *Soul* makes its chief Residence, which in my Sentiment, is very problematick.

But as the *Imagination* has a Power to form to itself Images of Objects, which have no real Existence, it is better said, by the Velocity or Quickness of the *Animal Spirits* assigned to that Faculty, which when they flow with more Impetuosity, and in greater Abundance, from the Place they are formed in, and the quicker they are in their Action, the more our *Soul* is affected with the Object imagined. The less those Spirits are agitated, and from their Slowness proceeds the Slowness of the *Imagination*. Though the Images of the Objects thus received are not so soon defaced in our *Soul*, as those of a quicker *Imagination*, which are obliged to give Place to the various Objects, which continually succeed each other.

SENSATION is the Act of perceiving external Objects by means of the Organs of Sense.

If we be pleased to admit of this *Axiom* of a modern Philosophy, That *nihil est intellectu, quod prius non fuerit in sensu*, we'll soon conceive the Manner how Sensation is effected; since we'll suppose all the Organs to consist of little Filaments or Nerves, which having their Origin in the Middle of the Brain, are diffused thence throughout all the Members which have any Sense, and terminate in the exterior Parts of the Body; that when we are awake, one End of these Nerves cannot be agitated or shaken without shaking the other; because they are always a little stretched, as 'tis evident in the Chords of a Violin, which when stretched, one End thereof cannot be touched, without the other End being sensible of the same Motion, or rather the whole Chord is seized in an Instant by a certain Continuity with that Motion.

The Nerves may be agitated two Ways, either at the End out of the Brain, or at that in the Brain.—If they be agitated from without by the Action of Objects, and their Agitation be not communicated as far as the Brain, as frequently happens in Sleep, when the Nerves are in a State of Relaxation, the *Soul* does not then receive any new Sensation.——But if the Nerves happen to be agitated in the Brain by the Flux of the *Animal Spirits*, or any other Cause, the *Soul* perceives something, though the Parts of those Nerves that are out of the Brain, diffused through the several Parts of the Body remain at perfect Rest. As likewise is frequently the Case in Sleep, when we fancy we see Objects which have not been communicated to the *Soul* by Means of the Organs of our Senses.

We also know by Experience, that we may sometimes feel Pain in Parts of the Body that have been entirely cut off, by Reason of the Continuity which subsists throughout the whole Body of the Organ from one End to the other, and the perpetual Agitation of the *Animal Spirits*, which by the perfect Analogy between those that remain in the Brain, and those left in the Part extirpated, continues the Sensation, as long as the Atmosphere, form'd by the *Effluvia* flowing from both continues, which is as long as the *Soul*, always attentive to the Preservation of all the Parts of the Body, finds that it is in vain to attempt the supplying the Part extirpated with new Spirits, towards continuing to render it sensible.

We must observe here, that there is a vast Difference between the Sensation which causes Pain, and that which procures some Pleasure or Titillation; Pain proceeds from a preternatural Separation or Extension of the Fibres of the Organs, which produces the same Effect at their Origin in the Brain; or from some Interruption in the regular Motion of the *Animal Spirits* diffused throughout those Organs, which consequently causes a Suffocation, or a Superabundance at the Place of their Formation; but while those Fibres continue in their natural State, and the *Animal Spirits* by a gentle Stream glide insensibly through, without the least Interruption from foreign or heterogeneous Bodies, the *Soul* being thereby

informed of the good State of Health of those Parts, is susceptible of that Titillation, which causes Pleasure.—— Not that I would thereby insinuate that the Soul has a particular Residence in the Brain, but in my Opinion its Irradiations are stronger in that Part, than in any other of the organical Body; since it remains uncontroverted, that in the Brain, and no where else, are formed the *Animal Spirits*, employed by the *Soul* in all the different Operations of its Faculties; that *Sensatio fit in Cerebro*, Sensation is effected in the Brain, *i.e.* when the Body suffers in any of its Parts, it is not those Parts affected which suffers, but that Part in the Brain where the Nerves of that Part have their *Origination*; the *Soul* is in the Brain, what the *Sun* is under the *Equinoctial Line*, where it darts its Rays with greater Strength than at any other Part of the World; not that the *Equinoctial* is appointed for the *Sun*'s chief Residence, exclusively of all the other Parts of the Globe, but because its Beams strike there, in less oblique, and more perpendicular Lines; likewise the Irradiations of the *Soul* are more powerful in the *Brain* than in any other Part of the organical Body; not that the famous *Pineal Glands* of *Des Cartes*, or the *Corpora Striata*, or the Ventricles of the *Brain*, are appointed for its chief Residence, but because the most subtil Particles of the *Animal*'s Substance, and the more proper for its Operations are there separated; whereas in all the other organical Parts, the *Heart* not excepted, those *Particles* are wrapp'd in so many heterogeneous Corpuscles, that the strongest and most powerful Irradiation of the *Soul* could but render their Motions languid, and thereby expose the rational Faculties to be often interrupted in their Operations.

From the first *Perception* of the Objects, from the Strength of our *Imagination*, which forms to itself *Ideas* of those Objects, and from the just Œconomy of our *Understanding*, which directs those *Ideas* proceeds the reducing them into Practice, so as to form a Judgment of them, which is effected by another Faculty of the *Soul*, in which all the Operations of the other Faculties come to centre themselves, which Faculty we call REASON.

Chauvin has defined Reason, an innate Notion, or *Idea*, further diffused, and arising from a continued Attention.

Mr. *Lock* observes, that Reason comprehends two distinct Faculties of the Mind, *viz. Sagacity*, whereby it finds intermediate *Ideas*, and *Illation*; whereby it so orders and disposes of them, as to discover what Connection there is in each Link of the Chain, whereby the Extremes are held together, and thereby as it were, draws into View the Truth sought for. *Illation*, or Inference, consists in nothing but the Perception of the Connection there is between the *Ideas*, in each Step of the Deduction, whereby the Mind comes to see, either the certain Agreement, or Disagreement of any two *Ideas*; as in *Demonstration*, in which it arrives at Knowledge; or their probable Connection, in which it gives or with-holds its Assent; as in *Opinion*.

This Reasoning of Mr. *Lock* is rather too *Metaphysical* for this Place, and far above a common Apprehension; therefore, I'll rather choose to say that *Reason* is the *Master-Faculty*, (if I may use that Expression) which gives the finishing Stroke to all the other Operations, in order to make them a perfect, and accomplished Work. That it elucidates all the other Faculties, whose Operations (without the Intervention of *Reason*) would always be entirely hidden from us. That by both its attractive and repulsive Faculties, it draws to itself all the *Animal Spirits*, directed by the other Faculties of the *Soul*, in their different Operations; and by a third, peculiar to itself, it orders those same *Spirits*, so as to be capable to expel those which have been falsly, or imperfectly directed, and retain the others which can help its Sagacity in its Determinations and Consequences.—— From those noble Operations results that excellent Quality which exalts the *Soul* above all other created Beings, and that essential Difference which distinguishes *Man* from all other *Animals*.

RATIONALITY; besides a reasonable *Soul*, which raises *Man* above all other created Beings, he has a sensitive one, in common with the other *Animals*, which both have a vegetative one in common with the *Plants*, not that those *Souls* are essentially and substantially divided from each other, so as the one to be capable of subsisting without the other, for they are indivisible in the same Subject; but because that very same *Soul*, which is capable of Rationality in *Man*, is also capable of Sensation and Vegetation, though the sensitive Soul in the Brutes is not *rational*, nor the Vegetative in the Plants *sensitive*.

IRRATIONAL ANIMAL is, also, an organical Body, animated with a *Soul*, which has its Origin, or Result as well from the just Symmetry of its *Organs*, as from the Formation and the uninterrupted Course of the *Animal Spirits*, but without *special Irradiation*.— In that want of Irradiation they essentially differ from *Man*; and in their sensitive Faculty from the *Vegetables*.

The *Cartesians*, allowing nothing in *Brutes*, but what's material, strip them of all the Properties and Faculties of the human *Soul*; they deny absolutely their being subject to any of the Passions which affect the human *Soul*, as Pain, Pleasure, Love, Hate, *&c.* That if all the Motions of *Brutes* plainly demonstrate an Intelligence, if all their Actions plainly evidence an Understanding, as Fear, Caution, Love for their Young, admirable Sagacity, both for their own Preservation, and that of their Species, that Intelligence does not reside in them, and is as distinct from the Beasts as that which ranged the Wheels of the Watch is distinct from the Watch itself; and if they act in such Manner as shews Understanding, it is because GOD having made them to preserve them, has formed their Bodies, so as to avoid whatever might hurt them mechanically.—— That all those Functions, which some imagine the Effect of a sensitive *Soul*, or of the Configuration of the Matter, subtilized, framed, ranged, and moved in a certain Order, has no other Cause but the just Symmetry of the Parts, as disposed by the divine Architect.—— That the apparent Disorders happening in some Parts of that excellent Mechanism, and attributed to a sensitive Faculty, are only the Effects of the accidental Irregularity of its Motions, or the adventitious and violent Pulsation of some heterogeneous Bodies.—— That if those different Motions were in Reality the Operations of a sensitive *Soul*; they see no Reason why the Vegetables should be denied that *Soul*, as regular in their Motions as the *Animals*, the Radicle of a Seed turning downwards, and the Stem upwards, whatever Situation the Seed is sown in; the young Plant knitting from Space to Space to strengthen it, putting forth its Prickles, *&c.*

The *Peripateticks* are of a contrary Sentiment, and invest the *Brutes* with the greatest Part of the Properties and Faculties of the *Soul*; pretending that Beasts are capable of Sensation, and Passion; that they may feel and perceive by Means of the *Animal Spirits*, which is a Matter subtilized, framed, moved, and ranged in a certain Manner, as to render them capable of exercising those Faculties.

I see no Difference between this *Soul*, attributed to the *Brutes* by the *Peripateticks*, and what we call *Instinct*, which is a natural Disposition or Sagacity, wherewith they are endued; by Virtue whereof they are enabled to provide for themselves, know what is good for them, and are determined to preserve and propagate their Species.

Brutes, besides their sensitive and vegetative *Soul*, consist also, like *Men*, of solid and firm Parts, as Flesh, Bones, Membranes, *&c.* of Fluids, as Blood, Juices, *&c.* and of Fat, which may be reckoned an intermediate Kind.

The solid Parts are mere Earth, bound together by some oily Humour, and accordingly are reducible by Fire into such Earth again.

Thus

Thus a Bone being perfectly purged of all its Moisture by Fire, becomes a perfect Earth, which the least Force will crumble into Dust; but immerging the same Bone in Water or Oil, it becomes firm again, and more so in Oil than Water, as is plainly seen in *Cupels*, made of calcined Bones, and which will sustain the greatest Degree of Fire.

The *fluid Parts* of *Animals*, are the cruder, as they are less distant from the Lacteals, and absorbent Vessels.——Thus Chyle is little else but a vegetable Juice; but in its farther Progress, gradually lays aside its vegetable Quality, till in its Progress through the different Vessels, wherein it receives its different Preparations, in Order for its greater Perfection, it becomes at last an *Animal* Juice, from whence all other Humours proceed, and are separated.

Animal Substances contain neither acid nor fixed Salts, contrary to the Substances of the Vegetables, from which both acid and fixed Salt can be extracted. Though some *Artists* pretend to have extracted by Lixiviation, a small Quantity of fixed Salt, out of the *Caput Mortuum*, left in the Alembick, after the Distillation of the *Viper*.

ANIMALS are ordinarily divided into *terrestrial*, *aquatick*, *volatile*, *amphibious* Insects, *&c.*

Terrestrial Animals, are either *Quadrupedes* or *Reptiles*.

QUADRUPEDES are divided by Mr. *Ray*, into those which are *hoofed*, *ungulata*, and clawed, or *digitate*, *unguiculata*.

Hoofed QUADRUPEDES, are either whole-hoofed, *Solidipeda*, as the Horse, Ass, the *Onager* or wild Ass; the Mule, and the *Zebra* of *Africa*, or the fine *striped Indian* or *African* Ass, almost like a Mule in Form and Stature; or *cloven footed*, and these again subdivided into,

Ruminant, that is such as chew the Cud; and these either have hollow and perpetual Horns, as the Bull, Sheep and Goat-kind; or deciduous Horns, as the Hart and Deer-kind, which usually shed their Horns annually.

Of the Bull-kind are the common *Bos* or Bullock, of which the Male is *Taurus*, Bull; the Female, *Vacca*, Cow; the *German Urus*, *Aurocks*; the *Bison*; the *Bonasus*; the *Bubulus* or *Buffalo*, &c.

Of the *Sheep-kind*, the Arabian *Ovis Laticauda*, such as are seen in the Isle of *Formosa*, and at *Madagascar* in the *East Indies*, whose Tail is sometimes of forty or fifty Pounds Weight; the *Ovis Strepsiceros Cretica Bellonii*, the *Ovis Africana*, with short Hairs instead of Wool; the *Ovis Guineensis* or *Angolensis* of *Marcgrave*, besides the common Sort.

Of the *Goat-kind*, the *Ibex* or German *Steinbock*, found in the Tops of the *Alps*; the *Rupi Capra*, French *Chamois*, or German *Goms*; the *Gazella Africana* or Antelope; the *Gazella Indica*; the *Capra Silvestris Africana Grimmii*; the *Capra Mambrina*; the *Buselaphus* or *Moschelaphus Caii*, in *Gesner*; the *Tragelaphus Caii*, in *Gesner*, &c.

Of the *Hart* or Deer-kind, the *Cervus* or red Deer; *Alce* or the Elk; the *Cervus Palmatus* or Fallow Deer; *Rangifer* or Rain Deer; the *Caprea Groenlandica*, &c.

Of the *Cloven-footed*, into two Parts only, and which does not chew the Cud, there's none but a Hog and Swine-kind: Under this Head, besides the common Kind, are reckoned the wild Boar, *Sanglier*; the *Porcus Guineensis Marcgravii*; the *Porcus Indicus*, called *Barbiroulsa*; the *Trajaca*, or *Aper Mexicanus Moschiferus*, of Dr. *Tyson*, called by *Marcgrave*, *Trajaca Conigoara*, and by *Acosta* and some others, *Zaino*.

There are some *Quadrupeds*, whose Hoof is cloven into four Divisions; and these seem to be not *ruminant*; as the *Rhinoceros*, the *Hippopotamus*; the *Tapijerete* of *Brasil*; the *Capa bara* of *Brasil*, and the Animal *Moschiferum*.

Of the *clawed* or *digitated Quadrupeds*, there are first, a Sort whose Claws are not divided or separated, but adhering to one another, covered with one common Skin, but with obtuse Nails, sticking out round the Margin of the Foot; as the *Elephant*, which is anomulous, and not clearly referable to this Kind, or to that of *cloven-footed Quadrupeds*.

The *Camel* has only two Claws, has no Horns, though they have four Stomachs, and ruminate like those of the horned Ruminant-kind, and are nevertheless, a second Species of the *Digitated-kind*.——There are two Sorts of *Camels* or *Dromedaries*, one having but one Bunch on the Back, and the other two.——The *Peruvian Glame*, the *Pacos*, the *Ovis Indica*, or *Peruviana Vulgo*; all belong to this Kind.

All the *Animals* whose Foot is divided into many Claws, with broad Nails on them, as the *Ape* and Monkey-kind, is a third Species of the Ungulated.—Of these, some have no Tails, and are called *Simiæ*, or Apes: Others have Tails, and are called Monkeys; and such as have either long or short Tails, if they are of a larger Size, are called Baboons. There are great Number or Varieties of this Species of *Quadrupeds*, as the *Homo Silvestris* of Dr. *Tyson*; the *Guarita* of *Brasil*, *Marcgravii*, the *Cagui*, the *Cay*, the *Caitaia*, of the same Country, *&c.*

Those which have many Claws covered at the End, with crooked and sharp-pointed like the Talons of Hawks, and not with broad flat Nails, like Monkeys or Apes, are a fourth Species of the *Ungulated-kind*.——Of these there are two Sorts, a greater, which either have a short, round Head, as the Cat-kind; or a lesser Sort, having a long, slender Body, with very short legs, as the Weasel, or Vermin-kind.——The Hare-kind is a Species of *Quadrupeds*, which have only two large remarkable Teeth in each Jaw, and live upon Herbs.

The *Lion*, the *Tiger*, the *Pardus*, the *Panther*, the *Leopard*, the *Lynx*, the *Cat-a-mountain*, the Common *Cat*, and the *Bear*, are *Quadrupeds*, of the Cat-kind.

Besides the common *Dog*, of which Kind are the *Mastiff*, the *Greyhound*, the *Irish Greyhound*, the *Spaniel* for Land or Water, the *Tumbler*, the *Lap-dog*, the *Shock*, the *House-Dog*, &c. &c. The *Wolf*, and the *Jackall*, are also of the *Dog-kind*; as well as the *Fox*; the *Animal Zibetium*, corruptly called *Civet Cat*, the *Badger*, Grey or Pate, the *Otter*, the *Sea Calf* or *Seal*, the *Morse* or *Sea Horse*, the *Sea Cow*, &c.

The common *Weasel*, in *Yorkshire* called *Foumart* or *Fitcher*, the *Quel*, or *Quirpele*, ; the *Mustela Ermin* or *Stoat*, if white; the *Ferret*, the *Pole Cat*, the *Marten* or *Martlet*, the *Sable*, &c. are of the *Vermin-kind* of *Quadrupeds*.

The common *Hare*, the *Rabit* or *Coney*, the *Porcupine*, the *Castor*, *Fiber*, or the *Beaver*, the *Squirrel*, the *Virginian*, *Zeylandic*, *Barbary*, and *American Flying Squirrel*, the common *Rat* and *Mouse*, the *Water Rat*, the *Musk Rat*, the *Dormouse* or *Sleeper*, the *Guinea Pig*, &c. are *Quadrupeds* of the *Hare kind*.

There are six Sorts of anamolous *Quadrupeds*, or of *Quadrupeds* that deviate from the common Form of *Animals* of the same Kind.

1. *Animals* with their Feet divided into many Claws and Toes, have a longish Snout, and Teeth; as the *Hedg-hog*, the *Mole*, the *Warp*, or *Mole-warp*, *Shrew*, *Hardyshrew*, *Shrew-mouse*, &c.

2. Those with their Feet divided, also, into many Claws and Toes, have a longish Snout, but no Teeth; as the great *Ant-bear*, the lesser *Ant-bear* of *Marcgrave*, the *Tamandua-guacu* of *Brasil*, &c.

3. The *Bat-kind*, or *Flitter-mice*, of which there are several Sizes and different Forms, and which are *Anamalous flying Quadrupeds*, with a shorter Snout, and their Feet divided.

4. The *Sloath* or *Sluggard* is an anomalous *Animal*, which has but three Claws on each Foot.

5. The *Frog* or *Frosh*, the *Small Tree* or *Green Frog*, the *Toad*, the *Tortoise* of Land or Water, are *viviparous* and *sanguinous Quadrupeds*, breathing with Lungs but have but one Ventricle in the Heart.

6. The *Crocodile*, the common *Eft*, *Swift* or *Newt*; the

the *Green Lizard*, the *Neopolitan Tarantula*, the *Swift* or *Spotted Lizard*, the *Water Eft*, and the *Cameleon* or *Camilion*, are *oviparous Quadrupeds*, with a long Tail, ſtretched out Horizontally.

REPTILES (from the Latin *Repo*, I creep) are another Species of *terreſtrial Animals*, and a Kind of *Animals*, which inſtead of Feet reſt on one Part of the Body, while they advance forwards with the reſt, as *Vipers*, *Snakes*, *Earth Worms*, &c.

The creeping of *Serpents* is effected by Part of the Body, being applied on rough Ground, and the Reſt ejaculated and ſhot from it; which being ſet on the Ground in its Turn, bring the other after it.—— The Spine of the Back, variouſly wreathed, has the ſame Effect in leaping as the Joints of the Feet in other *Animals*; they making their Leaps by means of Muſcles that extend the *Plicæ* or Folds.

Mr. *Derham* ſays, that the Body of the Earth-worm (whoſe Creeping is ſomewhat different from that of the *Serpent*) is only one continued ſpiral Muſcle, the orbicular Fibres whereof by being contracted, render each Ring narrower, and longer than before; by which Means it is enabled to force its Paſſage into the Earth.

The AQUATIC *Animals* are all thoſe that live in Water, as Fiſhes of all Kind.

FISHES are diſtinguiſhed into Salt Water Fiſh, *Piſces Marini*, as the Whale, Herring, Mackarel, Sole, Skate, Turbot, *&c. &c.* and freſh-water Fiſh, *Piſces Fluviatiles*, as the Pike, Trout, Carp, Tench, *&c.* to which may be added, Salmons, Shad-fiſh, which abide indifferently in freſh Water or Salt.

M. *Willoughby* diſtinguiſhes Fiſhes into *Cetaceous*, *Cartilaginous* and *Spinous*.

The CETACEOUS (from the Latin *Cetus*, Whale,) have Lungs, and breathe like Quadrupeds, copulate like them, conceive and bring forth their Young alive, which they afterwards ſuckle with their Milk, as the *Whale*, the *Dolphin*, *Phocæna*, the *Porpus*, &c.

N. B. The Horn, uſually called *Unicorn's-Horn*, is the Tooth of an *Acetous Fiſh*, in the *Icy Sea*, called *Narval*.

The cartilaginous Sorts (thus called for their having their Bones of a cartilaginous Subſtance) are produced from large Eggs, like Birds, which are alſo excluded the Womb, like thoſe of Birds; and theſe are divided into long Cartilaginous and plain Cartilaginous.

The long Cartilaginous, of which we have Abundance on our Coaſts, are the *white Shark*, the *blue Shark*, *Canis Galeus Rondeletii*, called a *Tape* in *Cornwall*; the *Prickled Dog*, or *Hound-Fiſh*, the *ſmooth* or *unprickled Hound-Fiſh*; the *rough Hound*, called in *Cornwal*, the *Bounce*; the leſſer *Hound-Fiſh*, or *Morgay*, &c.

The *plain Cartilaginous*, which alſo viſit our Coaſts, are the *Skate* or *Flare*, the *Thorn-back*, the *white Horſe*; the *Angel*, or *Monk-Fiſh*, the *Toad-Fiſh*, or *Sea-Devil*, &c.

SPINOUS FISHES (from their having *Spinæ* up and down in their Fleſh to ſtrengthen it) are alſo *Oviparous*, but their Eggs are ſmaller; and theſe are alſo divided into long *Spinous* and plain *Spinous*.

The *plain Spinous*, of which we have Abundance, are the *Eel-Kind*, viz. the *Lamprey*, or *Lamprey-Eel*; the *Lampern*; the *common Eel*; the *Conger*, or *Sea-Eel*; the *Sand-Eel*, or *Launce*; the *Butter-Fiſh*; the *Sea-Loach*, or *Whiſtle-Fiſh*; the *Eel-Pout*, or *Turbot*; the *Wolf-Fiſh*, or *Sea-Wolf*; the *Sea-Lark*, called in *Cornwal Mulgranock* and *Bulkard*; the crested *Sea-Lark*; the *Bull's-Head*, or *Miller's-Thumb*; the *Dutch Pot's-Hog*; the *Corniſh* Boys calls it *Father Laſher*.

The *plain Spinous* are the *Turbot* or *Brett*; the *Lug-Aleſe*; the *Plaiſe*, the *Flounder*, *Fluke*, or *Butt*, the *holy Butt*; the *Sole*, &c.

There are three different Sorts of the *none-ſpinous Kind* of Fiſhes; ſome with only one ſoft and prickly Fin on their Back; ſome with two, and others with three.

Thoſe with only one *Fin* on their Back, are the *Herring*, the *Pilchard*, the *Anchovy*, the *Shad*, the *Sprat* or *Sparling*, which is nothing elſe but the *Fœtus* of a *Herring*; the *Garniſh*, or *Horn-Fiſh*, the *Sturgeon*, the *Pike*, or *Pikrel*, the *Carp*, the *Bream* or *Bruma*, the *Tench*, the *Rudd*, *Oerve*, or *Nexfling*, the *Chubb* or *Chevin*, the *Barbel*, the *Dace* or *Dare*, the *Roach*, *Bleak* or *Bley*, the *Gudgeon*, the *Loch*, the *Pink*, or *Minnow*, &c.

Thoſe with two Fins on their *Back*, are the *Hake*, the *Ling*, the *Tunny*, or *Spaniſh Mackrel*, the *Mackrel*; the *Gragling* or *Umber*, the *Guinniad*, the *Shelly*, the *Salmon*, the *Samlet* or *Branlin*, the *Gray*, the *Salmon-Trout*, the *Scurf* or *Bull-Trout*, the *Red Chart* or *Welch Torgoch*, the *Guilt*, or *guilt Charr*, the *Smelt*, the *Rock-Fiſh*, or *Sea-Gudgeon*, the *Lump*, or *Sea-Owl*, &c.

Thoſe with three unprickly ſoft Fins on their Back, are the *Cod-Fiſh*, or *Caling*, the *Whiting Pollack*, the *Coal-Fiſh*, or *Rawling Pollack*, the *Bib*, or *Blinds*, the *Haddock*, the *Whiting*, &c.

There are Fiſhes called of the *aculate Kind*, with only one *Fin* on their Back, whoſe *Radii* are ſome prickly and ſome ſoft; ſuch are the *Guilt-Head*, or *Guilt-Poll*, the *Bream*, the *Old Wife*, or *Wrap*, the *Ruff*, the common *Prickle-Back*, or *Sharpling*, or *Banſtickle*, the leſſer *Prickle-Back*, &c.

Others with two *Fins* on their Back, whoſe *Radii* are all *Prickly*, as the *Mullet*, the *Grey Gurnard*, the *Tub-Fiſh*, the *Red Garnard*, or *Rotchet*, the *Piper*, the *Sur-Mullet*, the *Spider*, the *Scad*, the *Perch*, the *Dory*, or *Doree*, &c.

Willoughby has alſo divided Fiſhes into ſuch as breathe with *Lungs*, and ſuch as breathe with *Gills*; and again ſubdivided ſuch as breathe with Gills into *Viviparous* and *Oviparous*.

He divides the *Viviparous* that breathe with Gills into long and broad Fiſhes, the *long* are the *Sharks*, and *Dog-Fiſh*; and the *broad*, the *Paſtinaca*, *Raja*, &c.

He divides alſo the *oviparous Kind*, that breathe with *Gills*, into *Flat Fiſhes*, and into thoſe that ſwim with their Back upright, or at Right Angles to the *Horizon*.

The *oviparous flat Fiſhes* are either *Quadrati*, or Square, as the *Rhombi* and *Paſſeres*, or *Longiuſculi*, as the *Soleæ*, or *Soles*.

Thoſe that ſwim with their Backs erect, are either long and ſmooth, and without Scales, as the Eel Kind; or ſhorter and leſs ſmooth, and theſe have either but one Pair of Fins at their Gills, which are called *Orbs* and *Congeneres*, or elſe another Pair of Fins alſo on their Bellies.

There are alſo *Cruſtaceous* and *Teſtaceous Fiſhes*;

The CRUSTACEOUS are thoſe covered with Shells of ſeveral Pieces, or Scales, as thoſe of *Crabs*, *Lobſters*, *Craw-Fiſhes*, *Shrimps*, &c.

N. B. Dr. *Woodward* obſerves in his natural Hiſtory, that of all the Shells and *Nautili* found in Beds of all different Matters, dug out of the Earth, there are ſcarce any of the *Cruſtaceous* Kind; the Reaſon he gives for it is, that theſe being much lighter than the Reſt, muſt have floated on the Surface at the Time of the Deluge, when all the *Stratæ* were formed, and there have corrupted and periſhed.

The TESTACEOUS are thoſe covered with a ſtrong, thick Shell, as *Tortoiſes*, *Oiſters*, *Pearl-Fiſh*, &c.

AMPHIBIOUS (from the *Greek*, αμφι, *utrumque*, bothways, and βιος, *Vita*, Life) are a Sort of Animals, which live both on Land and in the Water; *i. e.* which breathe the Air, but paſs Part of their Time in the Water, as affording them their chief Food.—— Such are the *Frog*, *Caſtor*, *Otter*, *Tortoiſe*, *Sea-Calf*, *Crocodile*, &c.

Moſt of the *amphibious* Kind, the *Caſtor* and *Otter* excepted,

excepted, have particular Provisions in their Structure, to fit them for so various a Way of Living, particularly in the Heart, Lungs, *Foramen Ovale*, &c.

N. B. The Term *Amphibious* is sometimes, also, extended to Men who have the Faculty of living a long Time under Water.

We have divers Instances of such amphibious Men; the most remarkable is of a *Sicilian*, named the *Fish Colas*. *Kircher* relates, that from a long Habitude from his Youth, he had so accustomed himself to live in Water, that his Nature seemed to be quite altered, so that he lived rather after the Manner of a Fish, that a Man.

Our Neighbours the *Dutch*, are sometimes called in Irony, *amphibious* Creatures, for they seem to live, rather under, than above Water; their *Digues*, being the sole Obstacle that hinders the Appearance from being changed into a Reality.

VOLATILS are two footed *Animals*, covered with Feathers, and furnished with Wings, whereby they can sustain themselves in the Air, and fly from Place to Place.

They are divided into terrestrial, and aquatick *Volatils*.

Terrestrial Volatils, are subdivided into those which have *crooked Beaks*, and *Talons*; and those whose *Beaks* and *Claws* are *Streighter*.

Of those with *crooked Beaks* and *Talons*, some are *carnivorus* and *rapacious*, called *Birds of Prey*; others *frugivorous*, called by the general Name of *Parrots*.

Of *Birds of Prey*, some prey in the Day-time, called *Diurnal*; others in the Night, called *Nocturnal Birds*.

Diurnal Birds, are either of a greater, or a lesser Size.——The greater are either of a more bold, and generous Nature, as the *Eagle-kind*; or of a more cowardly and sluggish, as the Vulture, and *Cuntor*.

The EAGLE is the strongest, largest and swiftest of all the *Volatils* that live by Prey.——It has a long Beak, hooked almost from the Root, yellow scaly Legs, thick, crooked Talons; and a short Tail. Its Plumage is Chesnut coloured, brown, ruddy and white. Its Beak black at the Tip; and in the Middle, blue, though in some Yellow.——The *Eagle* is distinguished from the *Hawk* by its Bigness, and from the *Vulture*, by the Crookedness of its Beak.

Its Aery or Nest is usually on the highest Rocks, sometimes on the Tops of old Trees. It feeds its Young, till such Time as they are able to fly; and then drives them out of the Nest.——Its Food is Birds, Hares, Lambs, Kids, and Fawns; nay, Sir *Robert Sibbald* assures us, Children too, when it can catch them.

Ray mentions an *Eagle*'s Nest, found near the River *Derwent* in 1668, which consisted of large strong Sticks, one End whereof was laid on the Crag of a Rock, and the other on two Beech Trees; it was two Yards Square; in it were found one *Eglet*, with the Carcase of one Lamb, one Hare, and three *Grigalli*. ——The *Eagle* frequently watches the Fishing *Hawk*, and as soon as it perceives it to have struck a Fish, takes Wing, pursues the Bird till it lets fall its Prey, and often catches it, before it reaches the Earth or Water.

It lives very long, and as Naturalists assure us, rarely dies but of Hunger, the upper Part of its upper Beak growing long with Age, that it closes up the lower, and so disables it from opening, and taking in Food: But this seems to be a popular Error.

Its *Sight* is quick, strong, and piercing to a Proverb——Father *Angelus* the Jesuit, in his *Opticks*, is pleased to assure us, that the Reason why the *Eagle*, whose optick Nerves are not stronger than those of other *Animals*, can face the *Sun*, in its greatest Glory, is, that it has two Sets of Eye-lids, the one thick and close, and the other thinner and finer, which last it draws over the Eye, when it looks at any luminous Body, and thus breaks the Force of its Rays.

The *Falconers* have trained up *Eagles* to the Game; but they only succeed in mountainous Countries. On Plains they cannot keep any Time on the Wing, and when they stoop or light, are weak, so that the *Saker* beats them.

Aristotle and *Pliny* reckons up six Kinds of *Eagles*, to which they give Names corresponding to the Difference of their Plumage; as the EAGLE ROYAL, called by *Aristotle* γυησιος and ασιριας from the ruddy, golden Colour of its Feathers, which are likewise spotted, as it were, with Stars. The *black Eagle*, the smallest and most vigorous of all.——The *white Tail Eagle*.——The *Middle-sized Eagle*, with a large Tail, living in Morasses.——The *Sea-Eagle*, and the *bearded Eagle*, a Kind of *Ossifraga*.

The lesser *Diurnal Birds of Prey*, are either of a generous and docible, or cowardly, sluggish, and untractable Nature.

The generous and docible are the *Hawk-kind*, which are wont to be reclaimed, and managed for Fowling. ——The *Falconers* distinguish these into *Long-winged*, as the *Falcon*, *Lanner*, *Sacre*, *Gerfalcon*, *Kestril*, &c. whose Wings reach almost as far as the End of their Train; and *Short-winged*, as the *Gose-hawk* and *Sparhawk*, whose Wings when closed, fall much short of the End of their Train.

The *cowardly* and *sluggish*, are neglected by our Falconers, and so live at large.——Of these also there is a greater Sort, as the *Buzzard-kind*, the *Ringtail* and *Kite*; and a lesser, as the *Butcher-kind* or *Shrike*, about the Bigness of a *Blackbird*.

The nocturnal *Birds of Prey*, with *crooked Beaks*, and *Talons*, are the *Owl-kind*, and these are either horned or eared, as the *Eagle-owl*, *Horn-owl*, &c. or without Horns or Ears, as the *brown Owl*, *white Owl*, *grey Owl*, *Howlet*, *Fern-owl* or *Goat-sucker*, &c.

There are three Sizes of the *Land Birds*, or *terrestrial Volatils*, with crooked Beaks and Talons, the greatest of which are called *Maccaws*, and *Cockatoons*; the *Middle sized*, and most common *Parrots* and *Poppinjaws*; and the least Sort, *Parakeets*: Those all make Use of their Beak in climbing, and move the upper Jaw.

There are also three Sorts of *Land Birds*, which have their *Bills* and *Claws* more streight; the greatest thereof are such as by Reason of the Bulk of their Bodies, and Smallness of their Wings cannot fly at all, such are the *Ostrich*, the *Cassowary*, and the *Dodo*.

The Middle-sized are divided into such as have either large and long, or smaller and shorter Bills.

Of those with large, thick, strong and long Bills, some feed promiscuously on Flesh, Insects and Fruits, as the *Crow-kind*, which are wholly black; and the *Pye-kind*, which are Party-coloured, as the *Magpy*, *Jay*, *Roller*, &c. others feed on Fish only, as the *King's-fisher*; and others on Insects only, as the *Wood-pecker*.

For those which have a smaller and shorter Bill, their Flesh is either white, as the Poultry kind, or blackish, as the *Pigeon*, and *Thrush kind*.

The least Sized-kind of Land Birds, with streight Bills, and Claws, are called small Birds.——These are of two Kinds; *Soft-beaked*, which have slender, streight, and pretty longish Bills, most of them, and feed chiefly upon Insects; and *Hard-beaked*, which have thick and hard Bills, and feed mostly on Seed.

Mr. *Willoughby* observes, that among Birds which have *streight Beaks* and *Claws*, the *Cassowary* (as well as the *Pelican*) is without a Tongue; swallowing, not only Bits of Iron, as the *Ostriches*, but also red-hot Coals; yet not digesting the Iron, but voiding it whole, as the *Ostrich* also does.

AQUATICK VOLATILS or *Water-Fowls*, are distinguished into such as walk in the Waters, and such as swim in them.

Aquaticks which walk in the Water, are all *Cloven-footed*, and generally have long Legs; and those naked, or bare of Feathers, a good Way above the Knee, that

that they may the more conveniently wade in Waters. Of these they reckon two Kinds; a *greater*, and a *lesser*.——To the greater belong the *Crane*, *Jabiru*, &c.—The lesser are either *Piscovorous*, as the *Heron*, *Spoon-bill*, *Stock*, &c. or *Mudsuckers* and *Insectivorous* or Insect-eaters.

Of *insectivorous* Water-foul, some have very long Bills, either crooked, as the *Curlieu* and *Wimbrel*, or streight, as the *Woodcock* and *Godwith*; others Middle-siz'd ones, as the *Sea-pye* and *Red-shank*; others short Bills, as the *Lapwing* and *Plover*.

N. B. That those are reckoned short Bills, which exceed not an Inch and Half; Middle-sized Bills to two Inches and an Half; and long Bills, above two Inches and an Half.

Of *Aquaticks*, which swim in the Water, some are *Fissipedes*, *Cloven-footed*, as the *Moor-hen* and *Coot*, &c. but most are Whole-footed or Web-footed. *Palmipedes*.——Of these, some few have very long Legs, as the *Flammant*, the *Avosette* and *Corrira*; but the Generality are short legged.

Of the *short-legged*, *whole-footed Aquatics*, some have but three Toes on each Foot, as the *Pinguin*, *Razor-Bill*, &c. but generally they have four Toes on each Foot, and these either all connected together by intervening Membranes, as in the *Pelican*, *Soland Goose*, &c. or more usually with the back Toe loose.

This last Kind are either *narrow-billed* or *broad-billed*; those with narrow Bills, have them either blunt and hooked at the Tip, or sharp-pointed and streighter.

Of the former Sort, some are serrate, as in the *Diver-kind*; and some not toothed, as in the *Puffing*.

Of those with sharp-pointed and streighter Bills, some have long Wings, as the *Gall-kind*, and some shorter, as those *diving Birds*, called *Daukers*.

Those with broad Bills may be divided into the *Goose-kind*, which are larger; and the *Duck-kind*, which are smaller; and these latter into *Sea-Ducks*, or River and *Plash-Ducks*.

Most water Fowls have a short Tail; and none of this Kind have their Feet disposed like *Parrots* and *Wood-peckers*, which have two Toes forward, and two backward, whereas none of these have more than one back Toe.

There is also another Kind of *Volatils*, called Birds of *Passage*; such as the *Swallow*, *Quail*, *Stork*, *Crane*, *Fieldfare*, *Woodcock*, *Nightingale*, &c. Those do not appear in our Climates, but at certain Seasons, and then disappear again; but which Way they steer their Course, and whither they go, is what puzzles our *Naturalists*.

Mr. *Willoughby* thinks the *Swallows* fly into *Ægypt* and *Æthiopia*. *Olaus Magnus* says they lurk in Holes, or under Water, which is confirmed by *Etmuller*, who assures us, that he saw a Bushel of them taken out of a frozen Fish-pond, all hanging together Head to Head, Feet to Feet, in one Cluster. *Disp.* 2. c. 10.

Olaus adds, that this is a common Thing in the Northern Countries, and that such Cluster being carried accidentally by some Boys into a Stove, the Swallows, after thawing, began to fly about, but weakly, and for a very little Time.

A farther Confirmation of this Account was given by Dr. *Colas*, a Person very curious in such Things, to the *Royal Society*; speaking of the Way of fishing in northern Parts, by breaking Holes, and drawing their Net under the Ice, he related that he saw sixteen Swallows so drawn out of the Lake of *Samrot*, and about thirty out of the King's great Pond in *Rosineilen*; and that at *Shlebitten*, near a House of the Earl of *Dohna*, he saw two Swallows come out of the Water, that could scarce stand, being very wet and weak, with their Wings hanging on the Ground.—He added, that he had often observed the Swallows to be weak for some Days after their first Appearance.

Mr. *Willoughby*'s Opinion is the most improbable of the two, unless he could plainly demonstrate to me, the Way and Manner that long and distant Transmigration, from *England*, for Instance, into *Egypt*, is effected; why at certain Seasons they should prefer *Egypt* to *England*, *France*, *Spain*, *Italy*, &c. and at another, *England*, *France*, *Spain*, *Italy*, &c. to *Egypt*; if for Warmth or Heat, *Egypt* in all Seasons, is preferable to any of those other Climates; if for the Temperature of the Air, why do they visit, at the same Season, the most northern and most southern Countries, under the same Hemisphere? Or why don't they keep always in *Italy* or *Spain*, where at all Times and in all Seasons, they could enjoy a more serene Sky, and a greater and more equal Temperature of Air, than in *Egypt* or *Ethiopia*. But perhaps they are natural Inhabitants of those Countries, or born Subjects of *Prester John*, or of the *Turk*, and only take a Trip every Year here amongst us, to see how far we improve in our Customs and Manners, which considering the small Distance of Places, is a pretty Pastime enough; only I would be glad to know their Way of travelling, if by *Sea* or *Land*? Though *Lud de Beaufort*, is pleased to tell us, that they fly in Troops, and steer their Course through huge unknown Regions, without the Compass, which they can easily do, being accommodated by the Structure of their Back for long Flights; but he should also add, for our greater Satisfaction, that he has seen them upon their Journey, or received that curious Information from some of their fellow Travellers, else some Body would be apt to question the Truth of his Account.

Olaus's Sentiment, that those Birds lurk in Holes, is more agreeable to Reason, and a *Phenomenon* very easily to be accounted for; since it is likely enough that those, like the Swallows, which seek after warm Climates, should retire in the Winter's Season under Ground, or into Holes, where at that Time the Air being more condensed, is more temperate; we know likewise by Experience, that the *Woodcoks* and other Sort of Winter Birds, can be sheltered in the same Holes, against the scorching Heat of the Summer Season.—But those Circumstances added by *Etmuller* and Dr. *Colas*, that the Swallows in particular, wrap themselves in Ice, against the Rigour of the Winter, is, in my Opinion, as good an Expedient, as to throw one-self into Water to avoid being wet by the Rain; unless they would give for Reason, that by the Ice seizing all the Pores of the Body, their native Warmth is concentred within, which keeps them alive till the Return of a warmer Season.

Mr. *Duerham* observes two Things remarkable in the *Migration of Birds*; the first, that those untaught, unthinking Creatures, should know the proper Times for their Passage, when to come and when to go; and also that some should come when others go.—He supposes that the Temperature of the Air, as to Heat and Cold; and their natural Propensity to breed their Young, are the great Incentives to those Creatures to shift their Habitation; but why should they at all shift their Habitation, and why is not some certain Place to be found in all the terraqueous Globe, affording them convenient Food, and Habitation all the Year round?

The second, that they should know what Way to steer their Course, and whither to go.——What Instinct is it that moves a poor foolish Bird, to venture over vast Tracts of Land and Sea? If it be said that by their high Ascents up into the Air, they can see cross the Seas; yet what should teach or persuade them that that Land is more proper for the Purpose than this? that *Britain*, for Instance, should afford them better Accommodation, than *Egypt*? than the *Canaries*? than *Spain*? or any other the intermediate Countries? *Physico Theol. p.* 349.

These are Mr. *Derham*'s *Queries*, upon the Passage of those Birds into *Egypt*, for he is also one of those who

who would have *Egypt* to be their Place of Refuge; which Doubts he could himself easily resolve, if he would consider, that there is nothing more extraordinary in those Birds disappearing and vanishing from our Sight at certain Times of the Year, than there is in some of our Insects following the same Instinct, though not so much taken Notice of by us. That those Animals being created like the rest, and the just Symmetry of their Organs calculated for their Preservation (no other Object being offered to them but that Preservation for which alone they exist, and live) they in Consequence are directed to all the Means which can contribute towards obtaining that End; which Means are the Air they breathe, their Food, and their Security against the Injuries, and the Inclemency of the Climates they are hatch'd in. That being deny'd the same Art we have of temperating the Extremes of Heat, or Cold, Nature makes them acquainted with all the Places of their native Soil (unknown to us) which can supply that Want, where they retire at the Time appointed by her, and where she provides them with Food necessary for their Subsistence, till invited by the Return of a Season more favourable to them, they appear again in their native Element the Air. This my Opinion is a great deal easier to be accounted for, than their long and tedious Flight into *Egypt*, or *Æthiopia*, or even the Moon, which some of our late overwise Naturalists have also appointed for a Place of Refuge, to these Animals improperly called *Birds of Passage*.

INSECTS, are also a *Species* of terrestrial Animals, but smaller than those heret fore mentioned, commonly supposed to be exsanguinous, and distinguished by certain Incisures, Cuttings, or Indentings in their Bodies.

They are divided by Mr. *Ray* into those that change their Form, and those that do not change their Form.

Insects which do not change their Form, are either with Feet, or without Feet, and of these some cast their Skin, and others do not.

Those without Feet are either Land *Insects*, or *Aquatic-Land-Insects*, are either produced on the Land, or in the Bowels of Animals.—— Those produced on the Land, are either of the larger Size, as the *Dew-worms*, or of a smaller Sort, of which some are green, and others red with yellow Tails, called *Guilt-tails*.

Those found in the Bowels of Animals, particularly in the Intestines of Men, are the *Lumbrici Teretes*; *Lumbrici Lati*, also called *Taniæ*; *Culurbitini*, which some believe to be only the Fragments of *Taniæ*; and *Ascarides*, chiefly found in the *Rectum*.

The *Vermiculi Setiformes*, of the Thickness of a Horse-hair, and the *Breves*, and *Crassiores* or *Botts*, are the two Sorts found in the Intestines of Beasts, the latter being oftner discovered in Horses than in any of the others.

Aquatic Insects, without Feet, not changing their Form, are either of the greater, or of the lesser Sort. — Of those of the greatest Sort, some are *Tiretes*, round and smooth, of which there are three Sorts, the medicinal *Hirundines*, or *Leaches*, the *common black Horse-Leaches*, and the *ash-colour'd Sea-Leaches*: Another Sort of the same Kind, only smaller and flatter, is found sticking to Stones, in the Bottom of little Brooks: All these move by first fixing their Head to the Ground, and then drawing up their Tail towards it, *&c.*

Those of the *lesser Sort*, are also either round, or flat: Of the round Sort, one is black with two small Horns on its Head, found sticking to wet Stones in the watry Tops of Hills; and another red, about a Finger's length, with a *Forceps* at the Tail, found at the Bottom of Fish-ponds, and stagnant Waters. — The flat Sort, called *Flukes*, are very small and thin, and found sometimes in Water, and sometimes in the Branches of the *Porus Bilarius* in Sheep.—These have a different Way of moving or *crawling*, from the greater Sort.

Insects which do not change Form, and have Feet, are either with six, eight, fourteen, or many Feet.

Those with but *six Feet*, are either *Terrestrial* or *Aquatic*. — Of the Terrestrial there are two Sorts, a larger, and a smaller Sort. — Of the larger Sort are, the *yellowish Insect*, found in rotten decaying Oaks; the *black one*, on the Ground, called by *Mouffet Vermivorus*, *Worms-Devourer*; the black one living under Ground with a *Forceps* at the Tail; a *white Sort*, with square black Spots on its Back; the *Farinarium*, bred in Meal, of a whitish Colour.

Of the smaller Sort, some are found about the Bodies of Animals, as the *Cymex*, *Bug*, or *Wall Louse*, of a stinking Smell; *Ricinus*, the *Tick*; *Pediculus*, the common *Louse*; *Pulex*, the *Flea*; *Pediculus ferus*, *seu inguinalis*, the *Crab-Louse*; and others are not found on the Bodies of Animals; as one found in Books, and rotten Wood, which resembles a Louse, both in Figure and Bigness, though a great deal nimbler and swifter; another with a longer Body and a forcipal Tail; the *Black Insect*, found often in the Flowers of *Chelidonium*; a subterraneous Sort, a little whitish; and one that skips like a *Grasshopper*, but is much less.

The *Aquatic* are the *Pediculus marinus grandis*, which adheres to Fishes; and the *Squilla fluviatilis*, with a pyramidal Tail, and two Hairs or Bristles at the End.

Insects not changing Form, and with eight Feet, are either with a Tail, as the *Scorpion*, or without; as first, the *Spider*; of which some spin no Web, have but two Eyes, and very long Legs, as the *Opilio* or *Shepherd*: Others spin a Web, and of these they count three Sorts. 1. the *Aranea Colustrensis abdomine timido subrotundo, & Elato.* 2. the *Spider* with the *Thorax*, or middle Part of its Body, as big as the *Abdomen*. 3. The *Spider* with the long *Abdomen*, found among Reeds, Rushes, Grass, *&c.* Secondly, the *Ricinioeto pedes*, which are some more flat and compressed; as the *Rambling Ticks*, that run over the Bodies of Animals, but do not fasten; and some more round and thick, which do adhere to the Skin. Thirdly, the *Syrones*, or Mites.

There are three Sorts of *Asilli*, or of *Insects*, not changing Form, and with fourteen Feet; as the *Sea-Asellus*, living among the Rocks, which is the longest and largest Sort; the *Asellus Lividus*, which rolls itself up into a Ball, the common *Wood-lice*, *Sows*, or *Chest-Bugs*; and the *Asellus Asininus*, with a forked Tail, not rolling itself up.—— To which may be added the *Asellus Marinus*, rolling itself up; the *Asellus Aquarum dulcium*, with long Legs, and two Bristles on its Tail; *Pulex Aquaticus*, both in fresh and salt Water; and the *Pediculus Aquaticus*, which fastens upon Fish.

The Naturalists have observed two Kinds of *Insects*, not changing Form with four and twenty Feet, the eight fore-Feet lesser, and the sixteen hinder ones larger, and both with long Bodies; the larger Sort is of an obscure Colour, which live among the Rocks by the Sea-side; and the lesser of a Silver Colour found in Houses.

There is also a Kind with thirty Feet, of an oblong Shape, Chesnut Colour, and full flattish Body, usually lying under Logs and Trunks of Trees; it is very agile and swift.

Insects, not changing Form with many Feet, called πολυποδα, are some on Land, and either roundish in Body, with all their Legs rising out of the Middle of their Belly, as the *Julus*; or more flat and compressed, with their Legs not rising as before, from a Point in the Middle of their Body, but growing along on the Side, as the *Scolopandra*.

Swammerdam shews there is no real Transformation in *Insects*, supposed to undergo a Change in their Form, but only an Explication of the Parts of the *Animal*, latent before in Miniature, like the Plant in the Seed, and an Increase of the Parts by proper Degrees.

The *first Species* of Transmutation, or Change, is instan-

instantaneous, *i. e.* there is no sensible Rest or Stop, between the old and the new Form.—— The *Insects* of this Order do not lose their Motion at the Time they shift the *Pellicula*, at least not to Appearance.— This is when the *Vermiculus*, leaving the former Shape of the *Nympha*, with which it appeared in the Egg, and subsisted without Food, now begins to feed, has its Members or Parts visibly increased, or stretched out, and takes the Form of a new *Nympha*, which is not without Motion; and from thence becomes a flying Insect.

There are twelve Sorts of these *Insects*. 1. The *Libellæ*, or *Porlæ*, produced from an Insect of six Feet, which *Musset* takes for the *Pulex Marinus*, through whose crustaceous Skin the *Libella* breaks by a Fissure, which begins between the Eyes, and is continued to the Roots of the Wings, and is there joined to the lateral Fissures. 2. The *Cimices Sylvestres*, whose Characteristick Marks (according to *Willoughby*) are, *first*, a long *Proboscis*, not spiral, but strait; *secondly*, their upper Wings to the Middle are thick and like Leather; thence to the End thin, and Membranous; *thirdly*, there is the Figure of St. *Andrew*'s Cross on their Back. 3. The *Locusta*. 4. The *Gryllii Campestres*. 5. The *Gryllii Domestici*, or *Crickets*. 6. The *Mole-Cricket*. 7. The *Grasshopper*. 8. The *Blatta*. 9. The *Tipulæ Aquaticæ*, which run very swiftly on the Surface of the Water, and have a Sting in their Mouth like the *Cimices* or *Ticks*. 10. The *Scorpius Aquaticus*, with a Sting also in its Mouth. 11. The *Muscæ Aquaticæ*, called by *Aldovrandus*, *Apes Amphibiæ*. 12. The *Emerobius*, or *Ephemera*, or *Diaria* of *Swammerdam*, the *Forficula*, or *Auricularia*.

The second Species of Transmutation includes such *Insects* as undergo a double *Metamorphosis*, or Change of Shape. 1. Into a *Chrysalis*, or something analogous to it. 2. Into a flying *Insect*. These Kinds of *Insects* a-while before they change, lie quite still, without Feeding or changing Place; and in Respect of their Wings are, *first*, *Vaginipennia*, as *Scarabæi*, Beetles. *Secondly*, Ανελύτρα, whose Wings are open, and expanded; and the Wings of these are either farinaceous, as the *Papiliones*, &c. or Membranous, as the *Apes*, *Muscæ*, &c. and these are either with two, or with four Wings.

The *Scarabæi* may be divided; 1. With Respect to their Horns into the *Nasicornis*, *Bucerota*, and *Cervus Volans*, or *Taurus*. 2. In Respect of their *Antennæ*, which are of many Kinds; whereof the most eminent are those called *Capricorni*. 3. With Regard to their Motion, as the *Saltatrices* Dancers. 4. With Regard to their Colour, as the *Cantharides*, *Spanish* Flies.

To the *Beetle*-Kind may also be referred the *Cicindela*, or *Glow worm*, the *Staphylinus*, the *Proscarabæus*, or *Oil Beetle*, so called, from its emitting from its Joints a Kind of Oil, on its being pressed or squeezed. The *Anelytra*, with farinaceous, or mealy Wings, are called *Papiliones*, Butterflies; and these are either diurnal or nocturnal.

The Specific Distinction of the diurnal *Butterflies*, or *Papiliones* is, that they always settle with their Wings erect, are produced from an *Angulous Aurelia*, and have their *Antennæ* studded; of these there are above fifty Sorts observed in *England*.

The *Nocturnal Butterflies*, though very numerous, may nevertheless be divided into,

1. The *Geometrigenæ*, (thus called, from the Manner of its walking with its Back curled up like the Handle of a Cup) which come from an *Erucæ*, and has eight or ten Feet. 2. Such as come from *Erucæ* with fourteen Feet; of this Kind which is very numerous, there has been distinguished the *Phalæna Fasciata*, whose Wings are in Patches, or *Area*'s of different Colours; *Phalæna Lineata*, whose Wings are marked with one or more Points; and these, except all the others, are distinguished into greater, lesser, and of a middle Size between both.—— One of the larger Kind may be distinguished also, by their inner Wings; and a third by their long Tails, and narrow sharp Wings; which by some are called *Phalænæ Prædatrices*.

The *Anelytra* with membranous Wings are *Bees*, *Flies*, *Wasps*, *Bonbylii*, *Crabrones*, &c. and to this Kind the *Culex Vulgaris*, or *Gnat*, according to *Swammerdam*, is referred, as also the *Formica*, or *Ant*.

Willoughby refers also to this Kind, such Water *Insects* as are covered with a *Theca*. These are either, *first*, an immoveable *Theca*, or Case, which is fixed to the Stones; and this Case is either of a round Figure, or one more compressed and flat. *Secondly*, A moveable portable *Theca*, and these are commonly called *Phryganæa*; and their *Theca* is either, 1. Strait, and that either composed of Straws, and little *Festucæ*, lying parallel one to another; of which there are two Kinds; a greater where the *Festucæ* are two Inches long; and a lesser, which are very common, and are called *Straw-Worms*; or else the *Festucæ* lie transversly, and are shorter, having sometimes Pieces of Shells, or Stones, intermixed with them; others whose Cases are strait also have no *Festucæ*, but always either Sand, or Gravel; of these some have the *Theca* round, and are called *Cod-Baits*; others are flat, and compressed. 2. Crooked, or horned, which run tapering; of these Mr. *Ray* reckons four Kinds; a greater and less black Sort, and a greater and less ash-coloured one. These all produce Flies with large Wings like *Butterflies*.

The *third Species* of Transmutation, is a simple Change from a *Vermiculus* to a *flying Insect*; but with a sensible Rest or Stop between one Form and the other. This Exchange is described by *Swammerdam* in the following Manner.

'The Vermicle excluded from the Egg (says he) 'gets Nourishment by little and little from without, 'and under that first Skin or Covering, has its Mem- 'bers increased by Degrees; not stripping it or put- 'ting it off, as other *Vermiculi* do, when they change 'into *Nymphæ*, but assuming the Figure of a *Nympha* 'in it. For a Time it is quite motionless, 'till the 'superfluous Moisture is evaporated, and then, in a 'few Days recovers its Motion again, and casting off 'this Skin, which is, as it were, double, it becomes 'a Fly.'—Of this Kind are our *Flesh-Flies*, and all the *Nymphæ Vermiformes*, the *Vespæ Ichneumones*, &c.

The modern Naturalists agree with the modern *Anatomists*, that *omnia ex Ovo*, or every Thing comes from its Egg, and that *Insects* are propagated that Way as well as all the other *Animals*, contrary to the Opinion of the antient *Naturalists*, who thought them bred of Corruption.

The Doctrine of equivocal Generation, as well as the Chimerical Transformation of *Caterpillars* into the *Butterfly*, and other the like *Metamorphoses* are sufficiently refuted by *Malpighi*, *Swammerdam* and *Redy*; who have shewn that all the Members of the *Butterfly* were enclosed under the Skin or *Nympha* of the *Caterpillar*, as the Parts of a Plant are in the Seed.

Insects, take particular Care to deposite their Eggs or Seed, in such Places where they may have a sufficient Incubation, and where the Young when hatched, may have the Benefit of proper Food, 'till they become able to shift for themselves.—— Those whose Food is in the Water, lay their *Eggs* in the Water; those to whom Flesh is a proper Food, in the Flesh; and those to whom the Fruits or Leaves of Vegetables are Food, are accordingly deposited, some in this Fruit, some in that Tree, and some in that Plant, and some in another, but constantly the same Kind in the same Tree, *&c.*—— As for others that require a more constant and greater Degree of Warmth, they are provided by the Parent *Animal*, with some Place in or about the Body of other *Animals*; some in the Feathers of Birds, some in the Hair of Beasts, some in the Scales of Fishes, some in the Nose, some in the Flesh, nay some in the Bowels, and in most Recesses of Men and other Creatures.—— And as for others, to whom none of those Methods are proper, they make them Nests by Perforation in the Earth, in

Wood, in Combs, and the like; carrying in and ſealing up Proviſions that ſerve both for the Production of their Young, and for their Food when produced, as the *Formica* or *Ant*.

This *Inſect*, by its conſtant Care and aſſiduous Labour, to provide for its Preſervation, and that of its Progeny, is, in my Opinion, more than ſufficient to convince the *Carteſians* of the Extravagancy of the Syſtem they have formed on the *Animal*'s Motions; for what artificial Mechaniſm, let the Symetry of its Parts be ever ſo regular, could be directed by the Juſtneſs and Regularity of the Motions of its *Springs*, to diſtinguiſh the Seaſons of the Year, and to follow in that ſingle Circumſtance, all the Steps of the moſt careful and greateſt Œconomiſts, of the rational Kind, to erect Buildings in the moſt proper Situation, with different Apartments, ſome for the Winter, and ſome for the Summer Seaſons, with Granaries and Store-places for Proviſions of all Kinds? What could, but ſomething above the Apprehenſion of the moſt expert *Mechanick*, inform the Ant, of the proper Seaſons to fill up thoſe Granaries; and of the moſt fertile Fields where to go a maroding for that Purpoſe? What Piece of Mechaniſm could teach them when to ſally out, and when to keep within their Retrenchments? how to foreſee a Storm, or a Shower of Rain, and to avoid it, as threatning their Life and entire Deſtruction? Could a *Carteſian* attempt to convince me, at leaſt with ſome Appearance of Reaſon, that any Thing elſe, but a *ſenſible Soul*, ſuſceptible of Hunger, Cold, Fatigues and Pain, could direct the *Ant* in all thoſe Motions? could aſſign to every one of them its particular Employment? could ſend ſome to fetch Water, others Pebbles, Gravel, Sand or Earth, for building their Habitation, and others to provide Food for the whole Common-wealth; thoſe to lend a helping Hand to ſome of them who are overburthened; and theſe, as *Conſervators of Health*, to carry out of the common Manſion, all the politick Members rendred uſeleſs by Death, or ſome other Accident? What *Maſter-ſpring* in their whole *Mechaniſm*, could direct them (when, by ſome unexpected Misfortune, their Edifices are demoliſhed, all their Stores ſcattered, and the whole Society diſperſed, or put to Flight) how to make a Difference between their Eggs, and their other Goods, and provide for the Security of them firſt? Are we ourſelves more regular, in our ſenſitive Faculties, and more intent on our Preſervation, and on that of our Species? Not that I would inſinuate by this, that thoſe *little Inſects*, have ſomething ſupernatural within them, which directs them in all theſe Motions; but I really believe that they have a ſenſitive Faculty, which in us is always in Action and Watch on our Preſervation, even while our Rationality ſleeps.

It is obſerved, that there is a Kind of Gluten in *Flies*, *Butter-flies*, &c. by which the Female faſtens her Eggs to the bearing Buds of Trees, *&c.* ſo that the Rain cannot waſh them off.——Theſe Eggs will not be hurt by the greateſt Froſt.

Audrey de le generation des vers dans le Corps de l'homme, takes Notice that the Antients were miſtaken in denying that *Inſects* did breathe, becauſe of their wanting Lungs; ſince modern Obſervations convince us, that *Inſects* have a greater Number of Lungs than other *Animals*.

The Antients thought, alſo, that *Inſects* had no Blood, becauſe many of them had no red Liquor like our Blood; but it is not the Colour but the Uſe of the Liquor that is to be regarded.

They believed alſo, that *Inſects* had no Hearts; whereas our Microſcopes do now diſcover, that when *Inſects* have ſeveral Lungs, they have alſo ſeveral Hearts; and in particular it is found that *Silk-worms* have a continued Chain of Hearts, from the *Thorax* almoſt to the very Extremity of the Tail.

The SILK-WORM is an Inſect, not more remarkable for the precious Matter it furniſhes for divers Stuffs, than for the many Forms it aſſumes, before, and after its being invelloped in the rich Cod, or Ball it weaves itſelf. From a ſmall Egg, about the Size of a Pin's Head, which is its firſt State, it becomes a pretty big Worm or Maggot, of a whitiſh Colour, inclining to yellow.——In this State it feeds on Mulberry-leaves, till being come to Maturity, it winds itſelf up into a ſilken Bag or Caſe, about the Size and Shape of a Pigeon's Egg; and becomes metamorphoſed into an *Aurelia:* In this State it remains without any Sign of Life or Motion; though it caſts a Life, by which it prepares itſelf for a new Life, and then dies, which Egg wants no other Incubation, than the Warmth of the Summer-weather, or of ſome other gradual Heat.

As ſoon as the *Silk-worm* is arrived at the Size and Strength, neceſſary for beginning its Cod, he makes his Web; for thus they call that ſlight Tiſſue, which is the Beginning and Ground of that admirable Work. ——This is his firſt Day's Employment. On the ſecond, he forms his *Folliculus* or Ball, and covers himſelf almoſt over with Silk. The third Day he is quite hid; and the following Days employs himſelf in thickening and ſtrengthening his Ball, always working from one ſingle End, which he never breaks by his own Fault, and which is ſo fine and ſo long, that thoſe who have examined it attentively, think they ſpeak within Compaſs, when they affirm that each Ball contains Silk enough to reach the Length of ſix *Engliſh* Miles.

In ten Days Time the Ball is in its Perfection; and is now to be taken down from the Branches of the Mulberry-tree, where the Worms have hung it.—— But this Point requires a deal of Attention; for there are ſome Worms more lazy than others; and it is very dangerous waiting till they make themſelves a Paſſage, which uſually happens about the fifteenth Day of the Month.

In 1710, Mr. *Bon*, a *Frenchman*, publiſhed a Diſſertation on a Secret, found in *France*, of procuring and preparing Silk of the Webs of *Spiders*.

Mr. *Bon* reduces the *Silk-ſpiders* to two Kinds, thoſe with long Legs, and thoſe with ſhort, which laſt are thoſe which furniſh the raw Silk.

The Author pretends that the *Silk-ſpider* makes a Silk every whit as beautiful, gloſſy, and ſtrong as the *Silk-worm*, that it ſpins it out of the *Anus*, around which are five *Papillæ*, or ſmall Nipples, and behind theſe two others; all muſculous, and furniſhed with Sphincters.——Theſe Nipples ſerve as ſo many Wire-drawing Irons, to form and mould a viſcous Liquor, which when dried in the Air, after being drawn through them, makes the Silk.

Mr. *Reaumur* obſerves, that each of theſe Nipples conſiſt of a Number of leſſer, and inſenſible ones; which one may be convinced of, by preſſing a Spider's Belly between the Fingers, to oblige the Liquor to flow into the Nipples; for by this Means, applying the Finger againſt the *Anus*, ſeveral diſtinct Threads will be drawn out through the ſeveral Perforations of the Nipples.——The Threads are too fine to be told with any Certainty; but Mr. *Reaumur* reckons each larger Nipple may ſend forth ſix or ſeven.

Hence we ſee how the *Spiders* make their Threads bigger or ſmaller: For as before they begin to ſpin they always apply more or fewer of theſe ſix Nipples, againſt the Body whence the Web is began; or as they apply each more or leſs ſtrongly, ſo as more or fewer of the minuter Nipples come to take; the Thread thus ſpun, will be a Compound of more, or fewer of the ſingle Threads.—Indeed as the Threads come from the *Anus*, all joined together, they appear to be ſingle; but Mr. *Bon* has diſtinguiſhed one of the ſingle ones to conſiſt of fifteen or twenty diſtinct Threads.

The Threads are of two Kinds; the firſt is weak, and only ſerves for that Kind of Web wherewith they catch Flies.——The ſecond is much ſtronger, and ſerves to wrap up their Eggs in; which by this Means are ſheltered from the Cold, as well as from Inſects, which might otherwiſe gnaw and ſpoil them.

——These Threads they wind very loosely round the Eggs, resembling the Balls, or Bags of *Silk-worms*, that have been prepared and loosened for the Distaff.

The Spider-bags are of a grey Colour when new; but turn blackish when long exposed to the Air: Indeed one might find other Spider bags of other Colours, and which afford a better Silk, but their Scarcity would render the Experiment difficult; for which Reason we confine ourselves (says M. *Bon*) to the Bags of the most common *Spiders*, which are the short-legged Kind.—These always find out some Place secure from the Wind and Rain, to make their Bags; as hollow Trees, the Corner of Windows, or Vaults, or under the Eaves of Houses.

By collecting a Quantity of these Bags, a new Silk is made, not inferior to the common Silk. It takes all Kinds of Dyes, and may be made into all Kinds of Stuffs.—Mr. *Bon* had Stockings and Gloves made of it, which he presented to the *Academy*; and others to the *Royal Society*.

For the Manner of preparing the Bags to get the Silk, *It is thus: After having gathered twelve or thirteen* Ounces of these Bags, Mr. *Bon* had them all beaten for some Time, with the Hand and a Stick, to get out all the Dust; he then washed them in luke-warm Water, till they left the Water very clean; after this he laid them to steep in a large Vessel, with Soap, and Saltpetre, and Gum-arabick.—The whole was left to boil over a gentle Fire for three Hours; the Bags were next washed in warm Water, to get out the Soap; and after all, laid to dry some Days to fit them for carding; which was performed by the common *Silk-Carders*, but with *Cards* much finer than ordinary.—By this Means he had a *Silk* of a very particular Ash-colour, which was easily Spun; and the Thread spun from it, both stronger and finer than that of common Silk; which shews that all Sorts of Works may be made of it: Nor is there any Reason to fear, but it will stand any Trial of the Loom, after having passed that of the Stocking-weavers.

The only Difficulty now is in procuring a sufficient Quantity of *Spider-bags* to make any considerable Work of it; which Mr. *Bon* observes would be no Difficulty at all, had we but the Art of breeding them, as they do *Silk-worms*. For they multiply much more; every *Spider* laying 6 or 700 Eggs, whereas Silk-worms do not lay above 100; yet are these last so tender, *&c.* that one Half dye without making any Bags, or are hindered by some little Accident, from making their Bags; whereas the *Spiders* hatch of themselves, without any Care, in the Months of *August* and *September*, in fifteen or sixteen Days after they are laid; the old *Spiders* that lay them, dying soon after. The young ones thus bred, live ten or twelve Months without eating, and continue in their Bags without growing, till the hot Weather putting their viscid Juices in Motion, forces them to come forth, spin, and run about to seek Food.—Were therefore a Way found of breeding young *Spiders* in Rooms, they would, doubtless, furnish a much greater Quantity of Bags than *Silk-worms* do; for of 7 or 800 young *Spiders*, which Mr. *Bon* kept, scarce one died in a Year; whereas of 100 *Silk-worms*, not forty lived to make their Bags.

Mr. *Bon* having ordered all the short-legged *Spiders* that could be found in the Months of *August* and *September*, to be brought to him, shut them up in Paper Coffins and Pots; covering the Pots with Paper, which he prick'd full of Pin-holes, as well as the Coffins, to give them Air.—He fed them with Flies, and found some Time afterward, the greatest Part of them had made their Bags.—The same excellent Person found that *Spiders* Bags, with Regard to their Weight, afford much more Silk, than those of the *Silk-worms*; as a Proof hereof, he observes that thirteen Ounces, yield near four Ounces of clear Silk, two Ounces whereof will make a Pair of Stockings; whereas Stockings of common Silk weigh seven or eight Ounces.

Nor is there any Venom in the *Silk*, or even in the *Spiders*, as many have imagined. Mr. *Bon* has been bit by them several Times, without any Manner of Harm; and as for the Silk, it is used with very good Success, to stop bleeding and cure Wounds; the natural Gluten thereof acting as a Kind of Balsam. —It likewise yields by Distillation, several specifick Medicines, particularly a great Quantity of Spirit, and volatile Salt, which being prepared after the same Manner, as that drawn from the Bags of *Silk-worms*, in making the *Guttæ Anglicanæ*, or *English* Drops, so famous over all *Europe*; may serve to make Drops of greater Efficacy, which Mr. *Bon* calls *Drops of Montpellier*, to be used in *Lethargick Affections*.

Mr. *Reaumur* being appointed by the *Royal Academy*, to make a further Enquiry into this new *Silk-Worm*, has raised several Objections and Difficulties against it; which are found in the Memoirs of the Academy, for the Year 1710. The Sum of what he has urged, amounts to this.—The natural Fierceness of the *Spider*, renders them unfit to be bred, and kept together; 4 or 5000 of them being distributed into Cells, 50 in some, 100 or 200 in others; the big ones kill and eat the less, so that in a short Time, there were scarce left one or two in each Cell: And to this Inclination of mutually eating one another, Mr. *Reaumur* ascribes the Scarcity of *Spiders*, considering the vast Number of Eggs they lay.

But this is not all; he even affirms that the *Spider*'s Bag is inferior to that of the *Silk-worm*, both in Lustre and Strength; and that it produces less Matter to be manufactured. The Thread of the *Spider-web*, only bears a Weight of two Grains, without breaking; that of the Bag bears thirty-six; the latter therefore, in all Probability, is eighteen Times thicker than the former; yet it is weaker than that of the *Silk-worm*, which bears a Weight of two Drams and a Half. So that five Threads of the *Spider*'s Bag, must be put together, to equal one Thread of the *Silk-worm*'s Bag.

Now it is impossible these should be so justly applied over one another, as not to leave little vacant Places between them, whence the Light will not be reflected; and of Consequence, a Thread thus compounded, must fall short of the Lustre of a solid Thread. Add to this, that the *Spider*'s Thread cannot be wound off, as that of the *Silk-worm* may, but must of Necessity be carded; by which Means being torn in Pieces, its Evenness, which contributes much to its Lustre, is destroyed.—In Effect, this Want of Lustre was taken Notice of by Mr. *De la Hire*, when the Stockings were presented to the *Academy*.

Again; *Spiders* furnish much less Silk than the *Worms*: The largest Bags of these latter weigh four Grains; the smaller, three Grains; so that 2304 Worms produce a Pound of Silk. The *Spider*'s Bags do not weigh above one Grain; yet when cleared of their Dust and Filth, lose two Thirds of their Weight; the Work of twelve *Spiders*, therefore, only equal that of one *Silk-worm*; and a Pound of Silk will require, at least 27648 *Spiders*. But as the Bags are wholly the Work of the Females, who spin them to deposit their Eggs in, there must be kept 55296 *Spiders* to yield a Pound of *Silk*. Yet this will only hold of the best Spiders; those large ones ordinarily seen in Gardens, *&c.* scarce yielding a twelfth Part of the Silk of the others. 280 of these, he shews, would not do more than one *Silk-worm*; and 663552 of them would scarce yield a Pound.

Spiders, are so useful to the civil Society, that they not only procure Matters for our Raiment, but also contribute towards our Pleasure and Diversion; those found in some Parts of *Italy*, and by the *Naturalists*, called *Tarantula*'s, from the City of *Tarentum*, in *Apulia*, where they are chiefly found; being better Dancing-Masters, than ever *France* itself has produced.

The TARANTULA is about the Size of an Acorn, and

and has eight Feet, and as many Eyes; its Colour various, but it is still hairy: From its Mouth arises two Horns, or Trunks, made a little crooked, with Tips exceedingly sharp, through which it conveys its Poison.—— M. *Geoffroy* observes, that these Horns are in continual Motion, especially when the *Animal* is seeking for Food; whence he conjectures they may be a Kind of moveable Nostrils.

The *Tarantula* is found in several other Places of *Italy*, and even in the Isle of *Corsica*; but those of *Apulia* alone are dangerous; even these when removed thence, are said to become Harmless; even in *Apulia*, none but those found on the Plains are much to be feared; the Air being hotter there than in the Mountains.—— M. *Geoffroy* adds it as an Opinion of some, that the *Tarantula* is never venomous but in the coupling Season; and *Baglivi*, that it is never so but in the Heat of Summer, particularly in the Dog-Days, when becoming enraged it flies on all that pass by.

The Bite occasions a Pain, which at first appears much like that felt on the Stinging of a *Bee*, or an *Ant*: In a few Hours the Patient feels a Numbness, and the Part affected becomes marked with a little livid Circle, which soon after rises into a very painful Tumor; a little longer, and he falls into a profound Sadness, breathes with much Difficulty, his Pulse grows feeble, his Sense fails, at length he loses all Sense and Motion, and dies unless relieved.—— But these Symptoms come somewhat differently, according to the Nature of the *Tarantula*, and the Disposition of the Patient. An Aversion for black and blue; and on the contrary, an Affection for white, red, and green, are other unaccountable Symptoms of this Disease.

All the Assistance Medicine has been able to discover by Reasoning, consists in some chyrurgical Applications on the Wound, in Cordials and Sudorificks; but these are of little Efficacy: A Thing that avails infinitely more, is what Reason could never have thought of, *Musick*.—As soon as the Patient has lost his Sense and Motion, a Musician tries several Tunes, on an Instrument; which, considering 'tis in *Italy*, the Physician's Fees, nor the Apothecary's Bill, cannot be very exorbitant, and when he has hit on that, the Tune and Modulation whereof agree to the Patient, he is immediately seen to make a feint Motion: His Fingers first begin to move in Cadence, then his Arms, then his Legs, by degrees his whole Body; at length he rises on his Feet, and begins to dance; his Strength and Activity still increasing.—Some will continue to dance for six Hours without Intermission.

After this the Patient is put to Bed; and when he is judged sufficiently recruited from his first Dance, he is called to a second Tune of the same.—For my Part I am apt to believe, that our crafty Ladies of Pleasure, who would pretend to hide their Debauchery, under a frivolous Pretext of an extream Passion for that polite and gentle Exercise the Dance; and on that Account are seen at all the publick Feasts, and Balls in the City, and afterwards go to recruit themselves from their Fatigues, in the Arms of a young Spark, have been bit by the *Tarantula*, or something else as venemous.

But we must not leave our Patient, who having continued this Exercise for several Days, six or seven at most; finds himself exceedingly fatigued, and unable to dance any longer (contrary to our Dancing Ladies, who the more they dance, the more they desire to dance) which is the Sign of his being cured; for as long as the Poison acts on him, he would dance, if one pleased, without any Discontinuation, till he dies of the mere Loss of Strength.—Perceiving himself weary, he begins to come to himself; and awakes as out of a profound Sleep, without any Remembrance of what has passed in his Paroxysm, not even of his Dance.—Sometimes thus recovering from his first Access, he is quite cured; if he be not, he finds a melancholy Gloom hanging on him; he shuns the Sight of Men, and seeks Water; and if he be not carefully look'd to, throws himself into some River.—If he do not die, the Fit returns at that Time twelvemonth, and he is driven to Dancing again.—Some have had these Returns regularly for twenty or thirty Years.—Every *Tarantatus*, or Person bit by the *Tarantula*, has his particular and specifick Tune, but in general, they are all very brisk, sprightly Tunes, that work the Cure.

We are indebted for this Account of the *Tarantula* to M. *Geoffroy*, who, at his Return from *Italy* in 1702, gave it to the Royal Academy of Sciences at *Paris*; and was pleased, likewise, to give us along with it a Theory of the Effects of the *Tarantula*'s *Bite*, whose poisonous Juice, M. *Geoffroy* conceives, may give the Nerves a Degree of Tension, greater than is natural to them, or than is proportionable to their Functions: And hence arises a Privation of Knowledge and Motion.—But at the same Time this Tension, equal to that of some Strings of an Instrument, puts the Nerves in *unison* to certain Tones, and obliges them to shake, after being agitated by the Undulations and Vibrations of the Air proper to those Tones.—And hence this wonderful Cure by Musick: The Nerves thus restored to their Motion, call back the Spirits thither, which before had abandoned them. —It may be added with some Probability, and on the same Principles, that the Patient's Aversion for some Colours arises hence, that the Tension of his Nerves, even out of the Paroxysm, being still different from what it is in the natural State, the Vibrations those Colours occasion in the Fibres of the Brain, are contrary to their Disposition, and occasion a kind of Dissonance, which is Pain.

Dr. *Mead* is of Opinion, that the Malignity of the Poison of the *Tarantula* seems to consist in its great Force and Energy, whereby it immediately raises an extraordinary Fermentation in the whole arterial Fluid; by which its Texture and Crasis is considerably altered: The Consequence of which Alteration, when the Ebullition is over, must necessarily be a Change in the Cohesion of its Parts, by which the Globules, which did before with equal Force press each other, have now a very different and irregular *Nisus*, or Action; so that some of them do so firmly cohere together, as to compose *Moleculæ*, or small Clusters.—— Upon this Account, as there is now a greater Number of Globules, contained in the same Space, than before; and the Impulse of many of these, when united together, differing according to the Conditions of their Cohesion, as to Magnitude, Figure, *&c.* The *Impetus* with which this Fluid is drove towards the Parts, will not only be at some Strokes greater than ordinary, but the Pressure upon the Blood-Vessels must be very unequal and irregular; and this will be particularly felt in those which are more easily distended, as those of the Brain, *&c.*

Upon this the nervous Fluid must necessarily be put into various undulatory Motions, some of which will be like those, which different Objects acting upon the Organs or Passions of the Mind do naturally excite in it; whereupon such Actions must follow in the Body, as are usually the Consequences of the several Species of Sadness, Joy, Despair, or the like Determinations of Thought.—— This in some Degree is a Coagulation of the Blood, which will the more certainly happen, (when attended with uncommon Heat, as is the Case in those Countries where these Creatures abound) produce such Effects as these; because the Spirits separated from the Blood thus inflamed, and compounded of hard, fixed, and dry Particles, must unavoidably share in this Alteration; that is, whereas their Fluids consist of two Parts, one more active and volatile, the other more viscid and glutinous, which is a Kind of Vehicle to the former; their active Parts will bear too great a Proportion to the viscid; consequently they must have more than ordinary Volatility and Force, and will therefore, upon the least Occasion imaginable, be irregularly determined to every Part. —— Whereupon will follow Tremblings, Anger, or Fear upon a light Cause; extreme Pleasure at what is

 trivial,

trivial, as particular Colours, or the like; and on the other Hand Sadness at what is not agreeable to the Sight.

The Effects of Musick on Persons touched with this Poison are brought in Confirmation of this Opinion.

As for my Part, I am rather of Opinion, that the animal Juices being obstructed in their Circulation through the Nerves, by the Poison of the *Tarantula*, and that Poison in Process of Time, reaching as far as the first Origination of the Nerves in the Brain, and thereby rendering not only the sensitive Faculty languid, but imbecillitating likewise by its Fumes and Vapours, the Imagination and Understanding, which all continue in that Lethargy 'till the Atmosphere, wherewith the Body is environed, being agitated by the repeated Strokes of Instruments, communicate its Motion to the Nerves, by the Compression thereof, the Circulation of the animal Juices being accelerated, in the repeated and violent Efforts, they are forced to make to conquer those Obstacles which obstructed their Passage; they throw the whole Machine into those Convulsions, which we mistake for Dances, and which continue 'till the whole Passage through the Nerves, from their Origination in the Brain to their Insertion in the Extremities, be free from Obstructions.—— As to the Difference of Colours, it is reasonable enough to suppose, that the more they are *Desgregative*, the more they are capable to awake our Imagination from that Lethargy, the cold Fumes of the Poison it was wrapp'd in had occasioned.

Before we conclude this curious Digression, it will not be improper to take Notice, *en Passant*, of the COCHINEAL *Worm*, which is an Insect ingendered in a Fruit resembling a Pear, the Shrub which bears it is five or six Foot high. A-top of the Fruit grows a red Flower, which, when mature, falls off the Fruit; and that Opening discovers a Cleft two or three Inches in Diameter. The Fruit then appears full of little red *Insects*, having Wings of a surprising Smallness, and which would continue and die, and rot there if not taken out.

The *Indians* therefore spreading a Cloth under the Tree, shake it with Poles, 'till the *Insects* are forced to quit their Lodging and fly about the Tree, which they cannot do long, but tumble down dead in the Cloth; where they are left 'till they be entirely dry: When the *Insect* flies it is red, when it is fallen, black, and when dry, white, though it afterwards changes Colour.

The Moderns have proceeded much farther in the Knowledge of *Insects* than the Antients, as having the Advantages of the *Microscope*, which distinguishes their minute Parts, whereof they have published Draughts and Descriptions.

Audry observes, that it is wrong to call *Insects* imperfect Animals, since they want no Parts either necessary or convenient for their Use, and to render them compleat in their Kind.

Nay, some of the *Insects* are rather more perfect than the greatest Part of the other *Animals*, as it plainly appears by what I have already observed of the *Ants*, and by what I am agoing to say of the Government of the *Bees*, who, in their perfect Union, the Beauty and just Œconomy of their Government, their Respect for their Prince, and the Subordination subsisting among them, seem to rival the best established Commonwealth.——Perfect Strangers to all private Views or Interest, they all study nothing else but the publick Good, and the Welfare of the whole Society; Pride, Ambition, Avarice, Indolence and Idleness, are entirely banished from among them.—— They all work in common, and all in common reap the Fruits of their Industry and daily Labour, which they divide among them, some keeping within the Precinct of their Walls or Hives, to lay up the Stores, which the others designed for the Quest, bring to the common Stock.—— These lay down the Foundations of new Mansions, and those adorn them when built with that precious and rich Furniture, which the Maroders, who take the Fields have gathered from the Purple of the Violets, the Scarlet of Roses, and other inimitable and beautiful Shades, which the inimitable Artist, *Nature*, has painted on the Flowers, wherewith our Fields are enamelled during the most favourable Seasons of the Year.—— Some are placed at the Gates of the Metropolis, or as advanced Guards, to give the Alarm at the Approaches of their common Enemy, the *Wasp*, and hinder him from insulting their Walls; or, as Astronomers, to observe the Changes of the Heavens, and foretel the Approaches of Rain and Tempests, or to ease those who return Home overburthened with their Booty; who all set out in the Morning on their different Occupations, leaving the Care of the *Hive* to those who are past Labour, and return as well to have the Pleasure to take a Meal in Common, as to rest themselves from their Fatigues; to which they are called by those left within, sounding the Retreat, at which they all retire within their Walls, with such unanimous Consent, and quick Obedience, that it is impossible to find, after the Time fixed for that Retreat, any Strollers upon the Road.—— At Night they are all wrapp'd up in so profound a Sleep, that there is not the least Noise, or Disturbance heard in their little Garrisons.

They seldom venture far from their *Hives* in rainy Weather, or when conscious of the Approaches of a Tempest; at which Time they build Bridges, or make Use of some Pebbles, as of small Vessels, on which they venture themselves, to provide Water for the whole Republic.—— There are neither Temples nor Altars erected to *Venus* by the *Bees*, and the Cult of that luxurious Deity is entirely banished from among them, as contrary to the good Order of their Government, which admits of no Pleasure which could enervate their Strength, and introduce among them Luxury and Indolence.—— Therefore their Progeny is propagated from the Quintessence they gather from the sweetest Flowers, not by Copulation or mutual Embraces.—— They are possessed of no other Love than the innate one, they have for the Flowers which supply them with what's necessary, to perfect that *Ambrosy* and *Nectar*, which is the sole Object of their Ambition and Glory, and for which they spare not Trouble nor Labour, often expiring under their Burden.

Though the Life of the *Bee* is but of a short Duration, and seldom exceeding seven Years, they nevertheless have very numerous Families, and have the Pleasure to have been blessed before they die with a long Posterity, which they have the Satisfaction to leave behind them in a flourishing Condition, seldom departing before they have seen several Generations.

No Nation has ever been, or will ever be more dutiful to a Sovereign than the *Bees* are to theirs; for they have really a King, who is absolute Master, not of their Destiny only, but also of all their Faculties, whom they obey, without the least Reluctancy, in all he is pleased to command them.—— He is the Guardian of their Work; they admire none but him, and all tremble at his single Aspect.—— They are all his *Guards de Corps*; and often carry him upon their Shoulders, seldom being ambitious of any other Glory, but that of losing their Lives in his Sight, and in his Defence; for the *Bees* do not live always in the same profound Peace, as there are several Nations of them, each governed by his own King; there often arise Disputes, Jarrs, and Differences between them, which sometimes are not to be otherwise terminated but upon the Field of Battle, and then the King, who never intrusts a General with the Command of his Army, but always heads them in Person, has the Satisfaction to see his Soldiers endeavour to outvie each other in Courage, Valour, and Intrepidity; for as soon as the Onset is given, they all gather round him, as if they would make him a Rampart of their Bodies, and fight with that Discipline and Order, which would be admired among Men; the Conqueror keeping the Field of Battle, after he has defeated his Enemy, in Sign of his Victory, and both Parties taking Care of their

Dead, Wounded, *&c.*——Such good Order, ſuch juſt Œconomy among the *Bees*, as well as among the *Ants*, which the Naturaliſts admire the moſt, becauſe far above their Apprehenſion, is ſufficient to refute the Sentiment of thoſe, who ſuppoſe Inſects to be imperfect *Animals*, and who are leſs excuſable, than ſuch as believe;

Eſſe apibus partem divinæ mentis, & hauſtus
Æthereos ——— Virg. Georg.

St. *Auguſtine* relates, that a great many ſcrupulous Perſons in his Time, extended that Prohibition of the Law, *thou ſhalt not kill*, to all *Animals*; they grounded their Opinion on ſome Paſſages of Scripture, wherein God ſpeaks of *Animals* as if they had ſome Principle of Reaſon; declaring that he will require the Blood of Men at the Hands of Beaſts, *Gen.* ix. adding in the ſame Place, that he makes a Covenant not only with Man, but with every living Creature. Tho', in my Sentiment, thoſe Perſons who were pleaſed to quote the *Geneſis* to authoriſe their Scruple, could have found in *Deuteronomy* a great Number of Paſſages capable to eaſe their Conſcience on that Point, ſince there, as well as in *Leviticus*, *God*, far from forbidding the killing of *Animals*, orders, on the contrary, they ſhould be killed for Sacrifices, and for common Food; but thoſe over-ſcrupulous Perſons, had perhaps never read farther than *Geneſis*.

ANTEDILUVIANS.

ANTEDILUVIANS are thoſe Generations from *Adam* to *Noah*'s Flood; and *Seth*, *Enoch*, *&c.* were the *Antediluvian* Patriarchs.

We know nothing of the *Antediluvians* but what we learn from the *Geneſis*, where *Moſes* ſeems to enter into very great Particulars, as to the Formation of the World, the Creation of Man, Beaſts, *&c.* and to give us an exact Chronology of *Adam*'s Poſterity down to *Noah*, and his Poſterity; whom he brings into the Ark, and where ends the *Antediluvian* Age; tho' the firſt grand *Epocha* of our Chronologiſts, which they call the Age of the Law of Nature, is continued to *Moſes*, with whom the Age of the *Jewiſh* Law begins, and is continued to *Chriſt*'s Birth, excluſively, where the Chriſtian *Epocha*, or the Age of Grace begins.

The firſt Age according to the *Jews* conſiſted of 2447 Years; according to *Scaliger* of 2452; and according to *Uſher*, of 2513.——The ſecond Age according to the *Jews* conſiſted of 1312 Years; according to *Scaliger*, of 1508; and according to *Uſher* of 1491 —— of the third Age there have been elapſed 1740, tho' this too is controverted by Chronologers.

Patavius will have our Saviour to have been born four Years before the vulgar *Epocha*; on which footing the current Year ſhould be 1745; according to *Capella* 1746; according to *Baronius* and *Scaliger* 1743.

The *Romans* called the *Antediluvian Age*, the obſcure and uncertain Age, and they were not much miſtaken; for what they knew of it, they muſt have learned as we do, from the Books of *Moſes*, who leave us a great many Doubts, eſpecially as to the Age of the antient Patriarchs, which has been the Occaſion of very conſiderable Miſtakes in the *Chronology*, among all People and Nations.

Moſes, 'tis true, could know nothing of it himſelf, but by Revelation or Tradition; if by Revelation, his Relations ſhould be more perfect, ſince the ſupreme Wiſdom muſt have dictated them, unleſs we'll chuſe to ſay, that the great Revolutions which have happened ſince among the *Jews*, and their frequent Captivities, are the Reaſon why thoſe Relations have not been tranſmitted to us ſo perfect, as they were written at firſt; beſides thoſe Errors or Miſtakes may proceed from the different Copies of the Original, or from the Copies of thoſe Copies, after the Original was loſt; or at leaſt from the Tranſlations made of it into ſeveral Languages, different from the *Hebrew*, which had ſuffered many Changes and Variations among the different Nations where the *Jews* were carried Captives. If by Tradition, he muſt have learned what he knew of the *Antediluvians*, from his Parents in *Egypt*, who themſelves might have forgotten, amidſt the vexatious Oppreſſions of the *Egyptians*, many Particulars very eſſential to that Hiſtory, or intermixed with the Fables and Romances of thoſe ſuperſtitious People, ſince *Moſes* himſelf is not pleaſed to tell us, in ſpeaking of *Noah*, that that Preſerver of the human Race, had ſaved the Records of thoſe Times from the general Inundation; neither can we reaſonably ſuppoſe, that there were any other Records, in thoſe Days, but a meer Tradition from Father to Son.

Thoſe who have the Impiety to ſuſpect the Truth of ſome of *Moſes*'s Books, particularly the *Geneſis*, Part whereof, if not the Whole, they conſider as a Romance, reject that Diſtinction between *Antediluvians* and *Poſtdiluvians* as chymerical, and deny abſolutely the Reality of that general Flood or Inundation mentioned by *Moſes*; pretending that it is an Injury offered to the divine Juſtice to believe, that to puniſh the Iniquity of a Handful of People, who had provoked his Wrath, he could have determined himſelf, to deface one of the moſt perfect Pieces of his divine Workmanſhip, which he had but ſo lately form'd of nothing, while he had in his Power, Thunder, Sword, Fire, Plague, Famine, and many other ways to puniſh the Guilty, without throwing Nature into the ſtrongeſt Convulſions, and threatning the whole Globe with its entire Diſſolution, or making it return into its former *Chaos*.——That according to *Moſes* himſelf, thoſe ſuppoſed Waters increaſed but by Degrees, and conſequently thoſe, who while *Noah* was building the Ark, neglected his ſalutary Admonitions, and laught at his ſuppoſed needleſs Care, ſeeing the Beginning of the Accompliſhment of this Prophecy, had Time to repent, and by their Repentance appeaſe an irritated God (who has never been inflexible) and thereby ſtop the Progreſs of an Inundation. That ſuch Repentance was not impoſſible, ſince Orthodoxy teaches at all Times, and in all Ages, that the Almighty himſelf, never refuſes to aſſiſt powerfully therein.

But however, if it was ever ſo true, that thoſe Criminals had filled up the Meaſure of their Iniquities, that they were grown blind and obdurate, ſo as to be abandoned to their reprobate Senſe, what had the reſt of the Creatures done, to be involved in the ſame Calamity? Could they have offended when they did not know how to offend? Were they leſs innocent than thoſe ſuppoſed to be ſaved in the Ark with *Noah* and his Family? If the Earth was to be purged of the Iniquities of its Inhabitants, why was not that Purgation confined to that ſmall Corner of it which was then inhabited? What had *Europe*, *Africa*, and the remoteſt Part of *America* to do with what was tranſacted in a very little Spot of Ground in *Aſia*? Were then thoſe Sins complained of ſo contagious as to have infected both Hemiſpheres; or rather is not the Ridicule of aſſerting, that Inundation univerſal, a ſufficient Reaſon to ſuſpect the Truth of it, in every Circumſtance? And to make one believe that pretended fatal *Epocha* chimerical? Or that there has been no general Flood ever ſince the Separation of the Waters at the Beginning?

Thus

Thus speak those *Antediluvians* against the *Antediluvian* Opinion.

They would seem inclinable enough to admit of a partial Deluge or Flood, that is to say, that the first Inhabitants of the Earth being placed at the Confluent of two great Rivers, the *Euphrates* and *Tigris*, those Rivers may have overflowed their Banks all on a sudden, and surprised the neighbouring Inhabitants, not yet accustomed to those Sorts of Visits, and drowned Part of them; and if really designed as a Punishment, those who were the more guilty; that some of the Animals, particularly the heaviest and the most slothful, and consequently not so apprehensive of the Danger, or so ready to take to flight to avoid it, might have been involved in the same Calamity, as well as some of the Volatils, which being deprived of Food, by the Earth being overflowed, might have perished of Hunger, particularly those who by the too great Weakness of their Wings to support their Bodies, were not proper for a long Tract; as for the others who had those Advantages above the rest, no doubt but they took care of their own Preservation, by flying to those Parts of the Earth, which their natural Instinct could shew them free from the Inundation. That *Noah*, represented as a just Man, might have been inspired to precaution himself against the imminent Danger, and built the Ark for that purpose; but that they cannot imagine he was so long in building it; because we are not certain yet, what was the Year of those Times, if it consisted of twelve Months like ours; if those Months were of thirty or thirty-one Days; those Days of four and twenty-hours, those Hours of sixty Minutes, *&c.* or if those Years mentioned by *Moses* were not rather our Months, or our Weeks. *Celsus*, long ago, had the criminal Presumption to laugh even at the Dimensions of the Ark, as given by *Moses*, of 300 Cubits in length, 50 in breadth, and 30 in height, which compared with the great Number of Things it was to contain seem'd to him too scanty; and therefore he calls *Noah*'s Ark an absurd Ark, κιβωτον αλλοκοτον——*Origen* and St. *Augustin* attempting to justify *Moses*'s Dimensions, pretend that by the Cubits here spoken of, are to be understood the *Egyptian* geometrical Cubits, each of those Cubits being equal, according to them, to six vulgar Cubits or nine Foot.——To this an *Antediluvian* answers, that there was not such a Thing as a geometrical Cubit, either among *Egyptians* or *Jews*.——Others account for it by asserting, the Stature of Mankind in the first Ages to have been much greater than in our Days; and consequently the Cubit, which is taken from a Part of the human Body, proportionably larger.——Then, say they, the other *Animals* must have been larger in proportion, and consequently the same Difficulty still remains, since it is no matter how long was that Cubit, if the natural Dimensions of the Animals, which were to occupy its Vacancy, were proportioned to it.——They also turn into Ridicule, a Difference made by some between the sacred and civil Cubit, since they pretend, that there was no sacred Cubit before the Erection of the Tabernacle.

The geometrical Demonstrations of *Burco* and *Kircher*, (though admitting the Cubit to be but a Foot and a half) prove far better the Ark to have been sufficient for all the Animals supposed to be lodged therein.

Snellius computes the Ark to have been half an Acre in Area; and Dr. *Arbuthnot*, to have been 81060 Tons.——Father *L'Amy* pretends, that it was 110 Foot longer than the Church of our Lady at *Paris*, and 64 Foot narrower.

The Ark is divided by *Moses* into three Stories, each ten Cubits, or fifteen Foot high; to which *Josephus*, *Philo*, and other Commentators add a fourth, which they place under the rest, as the Hold of the Vessel to contain the Ballast, and receive the Filth and *Fæces* of so many Animals.

Drexelius divides those Stories into three hundred Apartments; Father *Fournier* into three hundred and thirty-three; and the anonimous Author of the Questions on *Genesis* into four hundred.—*Pelletier* only into seventy-two, *viz.* 36 for the Birds, and as many for the Beasts; his Reason is, that if we suppose a greater Number as 333, or 400, each of the eight Persons in the Ark must have had 37, 41, or 50 Stalls to attend and cleanse daily, which he thinks impossible; tho' this Difficulty, or rather supposed Inconveniency, appears to me but a very frivolous one, since it was not at all impossible, to have contrived some way whereby Part of that Filth could have been carried off by Water, without any further Trouble to *Noah* and his Family; especially as to the feathered Kind, the greatest Part whereof, are naturally inclined to avoid fouling their Nest.

All these Difficulties are started by those who favour *Moses*'s Relations of the Animals brought into the Ark by *Noah*, and who suppose them incredible, if they were not to render the Ark fit for the Reception of so large a Family, or by making the Ark of a greater Extent than that described by *Moses*, or by reducing the Number of Animals contained therein. As for *Noah* taking a Couple of each Kind of Animals along with him in the Ark, it might be attributed rather to his Care for the Preservation and Subsistance of his Family, than to any Design in him, to preserve the different Species of Animals; that not knowing perhaps, the Earth to be of a farther Extent than that he was acquainted with: He thought that without such Precaution, if the Waters were to continue long upon the Face of the Earth, or if they were ever to retire into their former Bed, he and his Family must have perished for Want, had he not taken with him the Male and the Female, to propagate each Species of Animals, sufficiently for its Use; that what would be left of those Animals, if ever the Waters were to retire, would suffice, perhaps to replace those lost in the Inundation.

If these Suppositions be false, they are not, however, void of Sense and Reason; for in Fact, we want all the Assistance of an explicite Faith, to believe that there has been a general Inundation, at least such as is mentioned by *Moses*, and supported by the Authority of both the *Jewish* and *Christian* Religion. It has been always the Custom of Historians to exaggerate some extraordinary Events, which acquire a new Gloss through every Hand they pass, before they are transmitted to us. That Inundation having been the first of the Kind, when related to *Moses*, with all the Exaggerations of the Relators, might have appeared as a Prodigy to him, who had never heard of any thing like it before; and *Moses* himself, who was glad of all the Opportunities he could make Use of, to keep the stiff-necked People under his Conduct, in Awe, or by the Hope of some Rewards, or through Fear of some severe Punishment, might have exaggerated that History himself, with no other Design than to intimidate the *Jews* by the Apprehension of being treated with the same Severity, in Case they were to rebel against God, or those he appointed his Vice-gerents among them. For which *Moses* could not have been blamed, since those Things which we called *Pious Frauds*, have always proved of some Utility in all Religions, and under all Sorts of Government, though I have not the Presumption to say that *Moses*'s Relation of the Flood, is of that Kind.

Men of any Religion, at all Times and in all Ages, have always represented those *Phænomena*, and extraordinary Events, as a Scourge in the Hands of the Almighty, to punish the Sins of Mankind; so that if the Sea was to overflow or break its Digues in *Holland*, and drown the whole Country, as such a Thing might very well happen without a Miracle, our Posterity, two or three hundred Years hence, could easily be persuaded, that such an Accident happened to punish the Sins of the *Dutch*; or believe, perhaps, that all *Holland* had been overflowed, when the

the Inundation had been confined to one Province, or perhaps to Part of it.

Besides, where could such a Quantity of Water have been found, to overflow the whole Earth to such a Heighth, so as to rise fifteen Cubits above the Top of the highest Mountains; since according to Dr. *Burnet*'s Computation, in his *Telluris Theoria Sacra*, the Sacred Theory of the Earth, no less than eight Oceans were required to produce such *Phænomena*. Therefore, supposing the Sea quite drained dry, and all the Clouds of the Atmosphere resolved into Rain, there should have been wanted much the greatest Part of the Water for a *Deluge*.

To get clear of this Embarras, many of our best Naturalists, as *Burnet* himself, *Steno*, *Woodward*, *Sheuchzer*, &c. adopt *Des Cartes*'s System of the Formation of the Earth. That Philosopher considers the primitive World, as having been round and equal, without Mountains, or Vales; and accounts for its Formation on mechanical Principles, by supposing it, at first, in the Condition of a thick turbid Fluid, replete with diverse heterogeneous Matters, which subsiding by slow Degrees, formed themselves into different concentrick *Strata*, or Beds by the Laws of Gravity: And thus at length left a dry solid Earth.

Dr. *Burnet* improves on this Theory: He supposes the primitive Earth to have been no more than an orbicular Crust, investing the Face of the *Abyss* or Deep, which grew chinky, clave, burst, and fell down into the Water, and so drowned its Inhabitants.

The same *Theorist* adds, that by this Catastrophe, the Globe of the Earth was not only shook, and broke in a thousand Places, but the Violence of the Shock it then underwent, shifted its Situation; so that the Earth, which before was placed under the *Zodiack*, became thenceforth oblique to the same; whence arose the Difference of Seasons, which the *Antediluvian* Earth was not exposed to.

But I cannot see how this pretty and diverting System of the Earth, can be consistent with *Moses*'s Relation of the Deluge, who mentions Mountains as the Standard of the Height of the Waters; had it not been more agreeable to Reason, and to the System the best *Cosmographers* have formed since of the Earth, to have denied quite, the Truth of an universal *Deluge* or Flood; then for to assert it, deny Part of *Moses*'s History, and to have Recourse besides, to that ridiculous Supposition of Dr. *Burnet*, that the Earth was no more than an orbicular Crust, investing the *Abyss*? For how can this also consist with this, that the Earth was founded on its own Stability? And for what Design should the Creator have made the Earth of so brittle a Consistence, and established it on so tottering and dangerous a Foundation? Was it done on purpose to drown its first Inhabitants with more Facility, and take Occasion from thence to form a new Earth? Or is that same Crust thus sunk into the Deep, the Earth we inhabit at present? *i. e.* that Crust, bursting and breaking into Pieces, those Pieces by their Fall, acquired new and different Positions, and formed our *Plains*, *Mountains*, *Valleys*, &c. but how could that Fall make the Earth change Place, and produce that Variety and Difference in the Seasons, which the *Antediluvians* had not been sensible of? Was that *Abyss*, into which it fell, rugged, uneven, or obliquely situated? How could that be, since that Crust investing the *Abyss*, must have been parallel to it, and consequently both in the same Position; but if on the contrary, the Earth by its Shocks, shifted its Situation, there must have been a *Vacuum* to receive it; but why was not that *Vacuum* mentioned by *Moses*, who, when speaking of the Creation, mentions only the *Terraqueous Globe*? Perhaps the Earth then changed its Position with the Waters; and then it must have been contrary to the Laws prescribed by the Creator.

Other Authors supposing a sufficient Fund of Water in the *Abyss* or Sea, are only concerned for an Expedient to bring it forth: Accordingly, some have Recourse to a Shifting of the Earth's *Centre*, which drawing after it the Water out of its Channel, overwhelmed the several Parts of the Earth successively.

For the *Elucidation* of this difficult Point, Mr. *Whiston*, in his *New Theory of the Earth*, has an *Hypothesis* entirely new.——He shews, from several remarkable Co-incidents, that a *Comet* descending in the Plan of the Ecliptick, towards its *Perihelion*, passed just before the Earth, on the first Day of the *Deluge*; the Consequences whereof would be, first, that this *Comet*, when it came below the Moon, would raise a prodigious, vast, and strong Tide, both in the small Seas, which according this *Hypothesis*, were in the *Antediluvian* Earth, (for he allows no great Ocean there as in ours) and also in the *Abyss*, which was under the upper Crust of the Earth, (for this is also a crusty Philosopher) this Tide would rise, and increase all the Time of the Approach of the *Comet* towards the Earth; and would be at its greatest Height, when the *Comet* was at its least Distance from it; by the Force of which Tide, and also by the Attraction of the *Comet*, he judges that the *Abyss* must put on an eliptick Figure, whose Surface being considerably larger than the former Spherical one; the outward Crust of the Earth, incumbent on the *Abyss*, must accommodate itself to that Figure, which it could not do while it held solid and conjoined together. He concludes therefore that it must of Necessity be extended, and at last broke by the Violence of the said Tides and Attraction; out of which the included Water issuing, was a great Means of the Deluge.

He shews again, the same *Comet* in its Descent towards the Sun, passed so close by the Body of the Earth, as to involve it in its Atmosphere and Tail for a considerable Time; and of consequence left a vast Quantity of its Vapours, both expanded and condensed on its Surface, a great Part of which being afterwards rarified by the solar Heat, would be drawn up again into the Atmosphere, and afterwards return again in violent Rains: And this he takes to be what *Moses intimates* by *the Windows of Heaven being opened*; and particularly by the *forty Days Rain*. For as to the following Rain, which with this made the whole Time of raining 150 Days, Mr. *Whiston* attributes it to the Earth coming a second Time within the Atmosphere of the *Comet*, as the *Comet* was on its Return from the Sun. Lastly, to remove this vast Orb of Waters again, he supposes a mighty Wind to have arose, which dried up some, and forced the rest into the *Abyss* again, through the Clefts by which it came up; only a good Quantity remained in the *Alveus* of the great Ocean, now first made, and in *lesser Seas*, *Lakes*, &c.

This *Hypothesis* supposes the Possibility of a *Comet* being brought nearer our *Vortex*, than the greatest Part of Philosophers and Astronomers can imagine, even so near as to come below the *Moon*; while *Des Cartes* and others suppose, that it cannot come nearer our *Vortex* than its Superficies, near the Circle of *Saturn*, at which Time it is apparent to us; which is so great a Distance, that it could make no sensible Compression on the *Terraqueous Globe*; which immense Distance can be proved, from a *Comet* appearing always without a *Paralax*, *i. e.* the Semi-diameter of the Earth, where the Diversity of the Aspect is desired, has no visible Magnitude, in respect of the Distance of the *Comet*; when on the contrary, the Moon has a very sensible *Paralax*, and is consequently the Planet nearer our *Vortex*, which Planet had better served Mr. *Whiston*'s Purpose on this Occasion; for it was easier for him to approach the *Moon* still nearer our *Vortex*, than to bring a *Comet* for so great a Distance, on purpose to produce the different *Phænomena* of the Deluge; besides, I am of Opinion, the Interposition of the upper Crust of the Earth, would have been a very great Obstacle to its Attraction, since the Planets have little or no Power, but on what they have an immediate Influence; as for the answering to what

Moses

Moses speaks of the Fountains of the great Deep being broke open; I don't see how it can, or what Need we have of it to understand *Moses*'s Meaning, which was certainly, that a considerable Body of Waters, assembled from the Beginning, in a Place assigned to them, by a sudden Irruption, had overflowed the Earth, and drowned its Inhabitants; which must infallibly be what he meant, since he knew very well that there was no Ocean, great or small, where that strange *Phænomenon* began; neither do I believe that he had the least Notion of thrusting a frightful Deep or *Abyss* betwixt the crustaceous Surface of the Earth, and its most solid Part; besides, to operate that Prodigy, in the Manner proposed by Mr. *Whiston*, the *Comet* must have been always at an equal Distance on our *Vortex*, for if it had followed its natural Motion, which must be the same with that of the other Planets, it had produced on the Waters of the supposed *Abyss*, the same Effect as the *Moon* on the Ocean, a reciprocal *Æstus*, or a *Flux* or *Reflux*; and therefore there had been always a Part of the crustaceous Earth dry, while the other was covered with Water, till a high Tide had broken at last the whole Crust.

That chimerical Atmosphere of the Planet, in which Mr. *Whiston*, would have had the Earth involved for a considerable Time, leaving a vast Quantity of its Vapours expanded and condensed on the *Terraqueous* Surface, on Purpose to be rarefied, and afterwards resolved into violent Rains, is well enough imagined, though those Vapours left by the *Comet*'s Atmosphere, must have been left in the inferior Region of the Air; but how could a *Comet*, which is always at a greater Distance from us than any of the Planets, since as we have said already, it has no *Paralax*, and may be seen in the same Place, and near the same Stars, from *Rome*, *Constantinople*, *Paris*, &c. leave in our inferior Region condensated Vapours, to be resolved into Rain, is what Mr. *Whiston* should have also explained or demonstrated; tho' in another Sense, that vast Distance of the *Comet* could support Mr. *Whiston*'s Hypothesis, since if it be true, that the higher is the Distance the Rain comes from, the larger are the Drops of Rain, Mr. *Whiston*'s Rain proceeding from the Rarefaction of the Vapours left by the *Comet*'s Atmosphere, the Drops of that Rain associating themselves with the Vapours of the other Planets they met with in their Way, each of them must have contained, by a very reasonable Computation, at least 100 Tons of Water; therefore it is not incredible that such Rain, continuing for 150 Days, without Intermission, might have alone caused a *Deluge*.

As for this other Part of Mr. *Whiston*'s Hypothesis, that the *Comet* involved for a considerable Time, the Body of the Earth in its Atmosphere and Tail; we agree that it could have involved the Body of the Earth in its Atmosphere, if it could have passed close enough the Body of the Earth; but we reject that vulgar Opinion of *Comets* having Tails, since that supposed Tail is nothing else but the Reflection of the Light from the Atmosphere which environs the Globe of the *Comet*, and from thence conveyed to our Sight; and consequently uncapable to produce any extraordinary *Phænomenon*.

Mr. *Whiston*, who at first proposed this his Opinion, as an *Hypothesis* only, has found since, that there was really such a *Comet* so near the Earth at the Time of the *Deluge*, the same which appeared again in 1688, though, mean while, the greatest Philosophers and Astronomers, cannot pretend to be certain of the Number of Years elapsed since the Deluge, which would be absolutely necessary to confirm and strengthen the Certitude of Mr. *Whiston*'s Calculation, of the Appearance of the same *Comet* at the Time of the *Deluge*, which appeared again in 1688.

Dr. *Woodward* proves the Reality of an universal Deluge, by the *Exuvia* or Remains of Fishes, as their Teeth, Bones, Shells, *&c.* both marine and fluviatile, found in the Bodies, even in the most solid *Strata*, as those of Marbles, Flints, Stones, *&c.* first, that these marine Bodies, and other Spoils of fresh Water Fishes, were borne forth of the Sea, by the universal Deluge; and on the Return of the Water back again, were left behind at Land; as we see after a vast high Tide, or some Inundation, Fishes left dead on the Shore, or in the Places where the Inundation has happened.——Secondly, that while the Flood covered the Globe, all the solid Matters, as Stones, Metals, Minerals, and Fossils were totally dissolved, and the Cohesion of their Corpuscles destroyed; and that these Corpuscles, with those of the less solid Bodies, as Earth, Flesh of Animals and Vegetables, were sustained promiscuously in the Water, and made one common Mass. Thirdly, that all the Mass thus sustained, was at length precipitated to the Bottom; and that according to the Laws of Gravity, the heaviest settling first, and the rest in Order; and that the Matters thus subsiding, constituted the several *Strata* of Stone, Earth, Coal, *&c.* Fourthly, that these *Strata* were originally all parallel, even, and regular, and rendered the Surface of the Earth perfectly spherical; and that the whole Mass of Water lay upon them, and constituted a fluid Sphere encompassing the Globe.——Fifthly, that after some time, by the Force of an Agent seated within the Earth, these *Strata* were broken on all Sides the Globe, and their Situation varied; being elevated in some Places, and depressed in others; whence Mountains, Valleys, Grotto's, *&c.* with the Channel of the Sea, its Lands, *&c.*—in one Word the whole Terraqueous Globe was put by this Disruption and Dislocation of the *Strata*, into the Condition we now behold it in.——Sixthly, that upon the Disruption of the *Strata*, and the Depression of some, and Elevation of other Parts, which happened towards the End of the Deluge, the Mass of Water fell back again into the depressed, and lowest Part of the Earth, into Lakes, and other Cavities, and the Channel of the Ocean; and through the Fissures whereby this communicates with the *Abyss*, which it filled till it came to an *Equilibrium* with the Ocean.

We have no need to have recourse to an universal Deluge, for the Origin of these orderly *Strata*, or Layers of the Earth, mentioned by Dr. *Woodward*, if we believe with *Des Cartes*, the primitive Fluidity of the Earth; to which the different *Phænomena* mentioned by Dr. *Woodward*, might be attributed; besides the *Fossils* being found in the Womb of the Earth, and the further we proceed towards their Origin, we always discover more or less Waters, those Waters being seldom without some of the marine, or fluviatil Kind of Animals, it is very possible that those Animals may be brought into the Composition of the *Fossil*, whose first Substance is always soft, and in some Manner fluid; which do not acquire a harder Consistence, till after having been penetrated by a saline and sulphurous Liquor, and increasing in Bulk, they approach nearer the Surface of the Earth; there are even Stones which keep their former Softness, till they are digged up, and exposed to the Air, where having sacated all their Humidity, they acquire their proper Hardness.

The Formation of Flints, Marbles, Stones, *&c.* *per Congeriem*, or *Juxta-position*, may also contribute towards our finding Remains of Fishes in their *Strata*, since those Remains might have been left in the Place of their Conformation, by some particular Inundation, drying of Marshes, *&c. &c. i. e.* dissolved with the Particles of the Earth they were left in, by the Spirit or Humour *Lapidifick*, and incorporated into the Substance of the Stone; all this could be done easily, without having Recourse for it to such extraordinary Event, as the Universal Deluge.

That those Fossils are generated by the *Juxto-position* of their Particles, and regenerated by the same *Juxta-position*, is evident from those Marble Quarries in *Italy*, which when emptied and filled up again, with Earth and the Fragments of the Marble, which had been digged up hence, are found to contain one

or two Centuries afterwards, as much Marble as before; and who knows but amidst those *Exuviæ*, Fishes Bones, Branches of Trees, Leaves, *&c.* could not be found.

Mr. *De la Prime* solves the *Phænomena* attributed to the Deluge, in a Manner quite different from these heretofore mentioned. He supposes the *Antediluvian* World had an external Sea, as well as Land, with Mountains, Rivers, *&c.* and the *Deluge* was effected by breaking the subterraneous Caverns and Pillars thereof, with dreadful Earthquakes, and causing the same to be for the most Part, if not wholly absorbed and swallowed up, and covered by the Sea that we now have. Lastly, this Earth of ours arose out of the Bottom of the *Antediluvian* Sea; and in its Room just as many Islands are swallowed down, and others thrust up in their Stead.

This System is more agreeable to the Maxims of a natural Philosophy, and embarassed with less Difficulties, or rather all the Difficulties of the others are enucleated in a clear and concise Method. It is no longer a Wonder that Shells and Shell-fish, and the Bones of Fishes and Quadrupeds, with Fruits, *&c.* should be found in Beds and Quarries, in Mountains and Valleys, and the very Bowels of the Earth: For here they breed in the *Antediluvian* Sea; thither they were elevated, with the Hills and Mountains, in the Time of the *Deluge*; there they fell into and were absorbed and buried in Chasms and Holes, and Clefts, that would certainly happen in the Extrusion of the Earth. But however, I'll rather believe the *universal Deluge*, on the simple Relation of *Moses*, than on the different Reasonings of the Naturalists, since the one is as intricate as the other, is attended with as many Difficulties, and wants as much Faith.

Dr. *Woodward* would not contradict *Moses*, as to the Reality of a *Deluge*, but at the same Time, contrary to *Moses*'s Description, he would have at that Time, the Surface of the Earth perfectly spherical, and consequently denies tacitly this Passage, *Gen.* vii. 20. *Fifteen Cubits upwards did the Waters prevail, and the Mountains were covered.*

Mr. *Whiston* also agrees, that there was an universal Deluge, but he would have it caused by a Comet being brought on the Superficies of our *Vortex*, and the violent Rains to proceed from the Vapours of the Atmosphere of that *Comet*, being resolved into it by the Heat of the Sun; though *Moses* meant by the Windows of Heaven being open, the Irruption of those Waters he had placed above the Firmament, *Gen.* i. 7. *And God made a Firmament, and divided the Waters which were under the Firmament, from the Waters which were above the Firmament.* Which Waters have never been found there since, by any Astronomer whatever.

Therefore I would agree in every Particular with *Moses*, or reject entirely *Moses*'s Relation, as *hyperbolical*; which cannot be done without denying the Truth of the sacred Text. Though if I was to consult my Reason alone, which in Matter of Faith, is seldom to be done, I could not persuade my self that the *Deluge* was universal, and that from that particular one, which happened for the Punishment of a few Criminals, none but *Noah*'s Family was saved, or that so small a Family could have increased afterwards to such a Degree, as to have been capable to people the whole Earth: Which seems to imply a very great Contradiction, even when we consult the sacred Text itself. For though there were but sixteen Generations between them and *Abram* or *Abraham*, and the first of each Generation lived a great many hundred Years after he had begat his first Son, so long, perhaps, as to see the seventh or eighth Generation, and therefore *Shem* could have informed his *Children*, *Grand-children*, *Great Grand-children*, &c. of what had happened in his younger Days (as he must have done with respect to the *Deluge*) and in particular of his two other Brothers, what was become of them with their Family, in what Part of the World they were settled, *&c.* And nevertheless *Abraham* and his Family, which was but the sixteenth Generation from *Shem*, when they went into *Canaan*, and from *Canaan* into *Egypt*, don't seem so much as to have the least Notion of those People, from whence they came, who was their first Parent or Founder; though according to the Text, they should have all sprung from the same Source, and not so long since, neither, as to be quite out of theirs or of *Adam*'s Mind. How could we then depend on the Relations of those Times, for *Noah*'s Descendants having overspread the whole Earth, since so near the Time of their Separation, their own Descendants don't seem to have known it themselves; and the Nations who inhabited those Parts so near the Place of their Separation, are considered by *Abraham* and his Family, as a quite different Sort of People, entire Strangers to them? The *Egyptians* were a formidable People, their Monarchy very well established, and pretended to reckon a considerable Succession of their Kings, when *Abram* came among them with his Family, which did seem then like a new Race, newly began the World; though *Abraham* was descended in a direct Line from *Shem*, one of *Noah*'s favourite Sons, to whose Posterity a particular Blessing seemed to have been annexed.

But however, if the *Egyptians*, *Canaanites*, and the other Nations, which inhabited those Parts of the Earth, were the Descendants of *Noah*'s other two Sons, *Ham* and *Japheth*; which of their Descendants were sent to people the rest of the Earth? Which of them into *Europe*, into *Africa*, or *America*: This last Part having been known, but some thousands of Years since? which Way could have they been transported into those great Isles of the eastern and western Seas, which, when first discovered, were found overstock'd with Men, since the Art of Navigation was entirely unknown to them? Unless we chuse to say, that at the Time of the Deluge, some of *Adam*'s Descendants had fled, to avoid the general Inundation, to the fartherst Extremities of the Earth, and dividing themselves by Tribes, or Families, each of those Families had fixed itself in that Part of the World, which they found suited them best; and in that case there would be still upon Earth some *Antediluvian* Nations; which being but a Supposition may be rejected as contrary to the sacred Text.

The History both sacred and prophane, makes mention of divers other Deluges: That which happened in *Greece* in the Time of *Deucalion* is famous. This *Deluge* only overflowed *Thessaly*; its Date is fixed to the Year before *Christ* 1529, being the third Year before the *Israelites* coming out of *Egypt*, according to the Computation of *Patavius*, *Rat. Temp. p.* I. *l.* 2. *c.* 7. the antient Poets fancied also, that Deluge universal, and the Earth wholly deprived of its Inhabitants, *Deucalion* excepted, which they have repeopled by *Deucalion*'s throwing Stones over his Shoulders, which Stones were metamorphosed into Men.

The *Deluge* of *Ogyges*, happened near 300 Years before that of *Deucalion*, 1020 Years before the first *Olympiad*, and 1796 before *Christ*, according to the same Author, *Rat. Temp. p.* I. *l.* 1. *c.* 4. *p.* II. *l.* 2. *c.* 5. This only ravaged *Attica*.

These two *Deluges* are frequently mentioned in antient *Greek* Authors, under the Denomination of *Catalchysmus Prior*, and *Posterior*.

Of the like Kind were those Inundations in the *Netherlands*, which in 1277, overwhelmed and covered with Sea, all that Part now called the Gulph *Dollart* in the *United Netherlands*, and in 1421, all that Part between *Brabant* and *Holland*.

ANTICHRIST.

ANTICHRIST, from the *Greek* ἀντί, *contra*, against, and Χρίστος, *Christ*, taken in a general Sense denotes an Adversary of *Christ*, who denies that the *Messiah* is come, as the *Jews*; and all the Religions opposite to Christianity, as *Infidels*, *Turks*, *&c.* but however the Name of *Antichrist* is more particularly adapted to an Impostor, or Tyrant, who is to appear on Earth towards the End of the World, and even seduce, if possible, the People elect.

St. *John* in his *Apocalypse* speaks of the *Antichrist*, as of a great Beast, with seven Heads and ten Horns, to whom the Dragon gives his Power, and is *to continue forty and two Months upon Earth*, Rev. xiii. 5. the Marks he is to be known by, according to the said Evangelist, are, that he'll speak Blasphemy against God, his Name, his Tabernacle, and them that dwell in Heaven; that he'll make War with the Saints and overcome them. That all that dwell upon Earth shall worship him, whose Names are not written in the Book of Life of the Lamb slain from the Foundation of the World, *&c.*

The *Roman* Catholick Authors when they speak of *Antichrist*, represent him as a Son of Perdition, born from an Incest or Sacrilege; for some of them pretend that he is to be the Offspring of the sacrilegious Amours of a *Monk* and of a *Nun*; that he'll be train'd up in all Sorts of Vices, Crimes and Iniquities; that by his Craft and Hypocrisy, he'll find the Secret to gain an infinite Number of Proselytes, by whom he'll be worshipped, and over whom he'll usurp a tyrannical Power and Authority. That with their Assistance, he'll endeavour to extend his Domination with Fire and Sword. That the most zealous of his Partisans will be the *Jews*, whom he'll gain to his Party, under the captious Promise of restoring them to their pristine Splendor and Glory, by reinstating them in the Possession of those fertile Provinces, from which they had been so long banish'd. That Morality, Piety and Religion are to retreat before him, and that Christianity will be once again put to a Fire of Probation. That the Sanctuary is to be then once more polluted, and the Altars of the living *God* dy'd with the Blood of his Sacrificators; that Innocence, Equity, Probity, and Justice, will be sacrificed to his Ambition, and that some *Elias*'s will be then once more heard to complain, that they are the only ones left in *Israel*, who have not bowed their Knees to *Baal*. That Sacrilege, Rapine, Murder, Incest, Rapes, will then cover the Face of the Earth, and be left unpunished; and that the most formidable Powers of the Earth will support the Usurpation of the new Tyrant.

A great many of the Fathers have supposed in their Times, especially when they considered the Depravation of the Manners of the greatest Part of the Christians, that the Reign of *Antichrist*, was near at Hand, such Supposition was not without some Foundation, at the Time when the Impostor *Mahomet* began to preach his monstrous Doctrine, which he promoted in the same Manner that *Antichrist* is to do his. The *Antichrist* is to promise his Proselytes, a Felicity wholly wrapt up in Sensuality and Luxury, so did *Mahomet*. He is to operate by the Force of a magick Art, a great many Wonders and Prodigies to surprize the credulous Ignorance of his Followers, so did *Mahomet*; he is to pretend to the Gift of Miracles, and Prophecy, which was the most efficacious Method *Mahomet* employed to gain the Admiration and servile Respect of his Partisans.

The sole Difference between the *Antichrist* and *Mahomet* is, that *Antichrist*'s Reign, is to last but three Years, according to the Fathers Opinion, and that of *Mahomet* has lasted already several Centuries, in a too flourishing State.

Some of the Protestant Writers have apply'd to the *Roman* Church, and to the *Pope*, in particular, who is the Head of it, the several Marks and Signatures of the *Antichrist*, enumerated here. Mr. *Jurieu*, a *French* Minister Refugee in *Holland*, went even so far as to fix the Duration of the Reign of this *Antichrist*, which was to be but short, after which the *French* Refugees were to return into their own Country, and re-enter into Possession, as well of the free Exercise of their Religion, as of the Estates they had abandoned for it; but it happened unfortunately for them, that Mr. *Jurieu* had been mistaken in his Ephemerides; since the Time fixed by him for that happy *Epocha*, has been elapsed long since, without any such Revolution; Mr. *Jurieu* himself, who, according to his Calculation, was to see those Days of the Lord, being dead without it; leaving the *French* behind him to mourn so great a Disappointment.

One of his Brethren, *Armand du Bourdieu*, another *French* Minister, Refugee here in *London*, used also to represent the *Pope* as the *Antichrist*, and the late King of *France*, *Lewis* XIV. as his Lieutenant, to whom he apply'd (not always I must confess thro' a very great Principle of a Christian Charity) all these Passages of the *Apocalypse*, ix. 11, 12, 15, 16, 17. that he was another Beast who spoke like a Dragon.—That he caused as many as would not worship the Image of the Beast to be killed.—That he caused all, both small and great, rich and poor, free and bond, to receive a Mark in their Right-hand, or in their Forehead. And that no Man might buy and sell, save he that had the Mark, or the Name of the Beast, or the Number of his Name. Thereby intimating, that those of his Brethren, whom he consider'd as the Faithful of the *Apocalypse*, who would not worship, or receive the Marks of the Beast (the *Pope*) were to be killed by the other Beast, the King of *France*.

But if his Zeal, which his very Audience has often considered as a Fanatic one, was agreeable to a Christian Meekness, Patience, and Charity, or to that of the Faithful, who, in the latter Days, are to encounter with the *Antichrist*; if the Pulpit design'd for the Predication of the Gospel, is to be turned into a *Rostrum*, to excite Nations to Revenge, Animosity and Rebellion, is what the most sensible, and the most Christian-like Part of the *French* Refugees are better Judges of. All that I can say to it, is, that the Prophecies of those two modern Prophets, are contradictory of what has been foretold of the *Antichrist*, since the *Antichrist* is only to appear towards the latter End of the World, and his Reign is to last no longer than three Years, and the Pope has appeared, even at their own way of reckoning ever since *Constantine the Great*, and his Reign lasted ever since without Interruption, *i. e.* longer than that of those who were sent to put an End to it; as well as to that of his pretended Lieutenant *Lewis* XIV. who reigned longer than any other Prince before him. That there is still this other great Difference between the Reign of the *Pope* and that of the *Antichrist*, and between the Faithful of his Time, and the supposed ones persecuted by the *Pope*; that the Reign of the *Pope* has preceded those persecuted by him, and those of the latter Days are to precede the Reign of *Antichrist*.

Tho' it must be said to the Honour of the *French* Refugees of our Days, that they have quite renounced that Fanatick Zeal of their Ancestors; that we hear no more their Churches echo with Invectives against Sovereigns and crown'd Heads, whom they are convinced at present to be God's Vicegerent upon Earth; and have learned from the Apostles to obey and respect them. That the Zeal of their present Pastors

is truly apoſtolical, and ſuch as becomes the Miniſters of *Chriſt*, who have no other Care or Attention than how to modelize the Manners of the Flock committed to their Care, by the good Shepherd himſelf, on the truly chriſtian Charity, and Simplicity of the primitive Chriſtians, and to inſpire them with a juſt Gratitude for a Prince, under whoſe Protection they live happier than they could expect to be in any other Part of the World, and for a generous, noble, liberal and compaſſionate Nation, who has received their Anceſtors with open Arms, and provided profuſely all that could make them forget, that they were Fugitives; in a Word, to *Jurieu*, *Du Bourdieu*, and other Fanatick Zealots, have ſucceeded thoſe truly apoſtolick Men, *Mainard*, *Aufrere*, *Barnouens*, *Le Blanc*, *Pourdellon*, *&c.* capable themſelves to oppoſe by their exemplary Life, and Piety, the Progreſs of the real *Antichriſt*, who, they know very well, has not appeared yet. For though I condemn, with the reſt of the Chriſtian World, the too great Magnificence and Splendor of the Court of *Rome*, who in that very Particular, has much deviated from the Primitive Simplicity of the Chriſtian Church, I cannot believe it a Mark of the *Antichriſt*, ſince the Tribe of *Levi*, under what Denomination ſoever, has always been accuſed of Ambition and Pride; and it is inferred from thence, that all other Clergy would appear with as much Pomp, if they could, ſince every one does it in his Manner, and as far as the Reſtraint put to it by prudent, diſcreet and wiſe Nations will permit; which, however, have not yet reformed enough the *Levitic* Pride, ſince they ſhould have made it one of the diſtinguiſhing Marks of the *Antichriſt*, for a Prieſt to ambition any Thing elſe beſides the Kingdom of Heaven, or to take upon themſelves any other Care than the Conduct and Inſtruction of their Flock.

It is true that the *Pope*, in Spite of the *Apocalypſe*, and of all the Fathers of the Church, was declared *Antichriſt* at an Aſſembly of *French* Proteſtants at *Gap* in *Provence*, in 1603: but it is as falſe what ſome Authors pretend, that *Henry* IV. then King of *France*, was mortified to be thus declared an Imp of the *Antichriſt*, for if he took any Notice of it, it was only in his jocoſe Humour, and in Deriſion, for *Henry* was a very good and a very great Prince, one of the beſt who ever aſcended the *French* Throne, but he was not bigotted enough to any Religion to be ſenſible to the groſſeſt Affront offered to it; beſides I ſcarcely believe he minded much the Deciſions of ſuch Aſſembly; which he had too much Wiſdom to conſider as an Œcumenical Council, eſpecially ſince the Conference of *Fontainebleau*. *Clement* VIII. himſelf, then Pope, and conſequently the ſuppoſed *Antichriſt*, far from being ſtung to the Life, as pretended, expected no better Treatment from that Aſſembly.

My Opinion is, that the Want of Charity on all Sides, (not the *Holy Ghoſt*) inſpir'd all the Aſſemblies, held in thoſe Days, *Pro* and *Con*, in Matters of Religion; and that if our Anceſtors had been as wiſe, and as moderate as we are on that Subject, if they had really followed the Advice of *Chriſt*, and contented themſelves to pray in Private, when their Princes would not allow them to do it in Publick, there had never been ſo much Chriſtian Blood ſpilt, and the Pope had never been ſtigmatized for an *Antichriſt*; but too much Animoſity on both Sides, has cauſed all thoſe Diſputes, Altercations and Diviſions in the Church, and prepared Matter of Laughing to the Enemies of Chriſtianity; for in ſuch Caſe all other Chriſtians as well as the Pope are *Antichriſts*, eſpecially when they draw their Swords to propagate a Religion, which our *Divine Saviour* intended ſhould be done, by the Meekneſs, Patience, and Reſignation of its Profeſſors. I hate as much to hear Chriſtians, or thoſe who call themſelves ſuch, rave againſt the *Pope*, and reproach him with being the *Antichriſt*, as I do to ſee him at *Rome* environed with his Guards, and worſhipped as a *Pagan* Divinity.

The Emperor *Caligula*, was alſo an *Antichriſt*, at leaſt in *Grotius*'s Opinion, in which he was as much miſtaken, as the *French Proteſtants*, ſince his *Antichriſt* don't quadrate, neither with the common Opinion, that *Antichriſt* is not to appear but towards the latter End of the World; *Julian the Apoſtate*, called by ſome of the Fathers *Primogenitus Diaboli*, the firſt-born of the Devil, muſt have been alſo an *Antichriſt*; and I am ſurpriſed that *Cromwell* has not been ſtigmatized with it, conſidering that ſome charitably inclined Chriſtians could have found in him ſome of the Marks of the *Antichriſt*, as thoſe of uſurping a Regal Power, making Proſelites *Vi & Armis*.

Father *Malvenda*, a *Spaniſh* Jeſuit, has publiſhed a learned Work, *de Antichriſto*, in thirteen Books.—— In the firſt he relates all the Opinions of the Fathers, with regard to *Antichriſt*. In the ſecond he ſpeaks of the Time when he ſhall appear, which muſt be very near at Hand, ſince he pretends that it will be, when Religion, Virtue, Piety, Probity, Integrity, Juſtice, Sincerity, and true Friendſhip, will be entirely baniſhed the Earth, to make Room for Atheiſm, Impiety, Perfidy, Avarice, Corruption, Luxury, Injuſtice, Murther, Revenge, Animoſity, Venality, Simony, and all the other Vices, which are to accompany *Antichriſt* at his firſt Appearance in the World, and to compoſe his Retinue. In the third he diſcourſes of his Origin and Nation, and ſhews that he is to be a *Jew* of the Tribe of *Dan*: This he founds on the Authority of the Fathers; on that Paſſage in *Geneſis* 49. Dan *ſhall be a Serpent by the Way*. On that of *Jeremy* viii. 16. where 'tis ſaid, *the Armies of* Dan *ſhall devour the Earth*; and on the *Apocalypſe*, chap. vii. where St. *John*, enumerating the Tribes of *Iſrael*, makes no Mention of that of *Dan*. In the fourth and fifth Book he treats of the Signs of *Antichriſt*. In the ſixth of his Reign and Wars. In the Seventh of his Vices. In the Eighth of his Doctrine and Miracles. In the Ninth of his Perſecutions: And in the Reſt of the coming of *Enoch* and *Elias*, the Converſion of the *Jews*, the Reign of *Jeſus Chriſt*, and the Death of *Antichriſt*, after having reigned three Years and a half.

In Effect, *Enoch* and *Elias* having been raviſhed from the Earth, while its Face was almoſt covered with the Iniquities of its Inhabitants, one under the Law of Nature, and the other under that of *Moſes*, without having been Subjects to the common Fate of Mankind, Death, have made the Chriſtian Fathers (who have wrote of *Antichriſt*) ſuppoſe that theſe two juſt Men were kept by the Almighty in ſome Place hidden from us, on Purpoſe to appear at the latter Days, to oppoſe and fight *Antichriſt*, whom they would conquer at laſt; though they are divided in their Opinion, if *Enoch* and *Elias* are to ſurvive *Antichriſt*, or die before him. The moſt common Opinion being that they will ſurvive him.

The *Franciſcan* Friars join their Patriarch or Founder, St. *Francis*, to theſe two holy Champions, under the Suppoſition that ſome holy Perſonage ſhould alſo appear in the Field, in the Defence of the Law of Grace, and that there was all the Reaſon imaginable to believe that *God* had preſerved St. *Francis* upright, and entire as he is in his Tomb, rather as if in an Extaſy than dead, for that Purpoſe; and that all three, after the Death of *Antichriſt*, would in Concert eſtabliſh the Reign of *Chriſt* upon Earth.

This Reign of *Chriſt*, which is to ſucceed that of *Antichriſt*, and which in ſome Fathers Opinion, is to be of 1000 Years Duration, for want of its being very well underſtood, has alſo cauſed ſome Diviſion in the Church, and in all Probability has been the Occaſion of an Error, which began in the Primitive Church, that *Jeſus Chriſt* was to come again, and reign on Earth for the Space of a thouſand Years; during which Time the Faithful were to enjoy all Manner of temporal Bleſſings, and at the Expiration of that Time the Day of Judgment was to take Place.

This Opinion, attributed to St. *Papias*, as the Author thereof, was followed, ſays Mr. *Laurroy*, by the

greatest Men among the Primitive Fathers; as *Irenæus*, *Justin Martyr*, *Tertullian*, &c. and was held for near three Centuries, e'er it was charged as erroneous. *Dionysius* of *Alexandria* and St. *Jerom* oppos'd it very strongly, as contrary to the Scripture, which makes no Mention of that imaginary Reign, but on the contrary, speaks no otherwise of the second *Avenement* of *Christ*, but as he is to come then, only *to judge both the Quick and the Dead*; it being repugnant to his divine Nature, he should communicate with Mortals, otherwise than as a glorified Body.

The Opposition of those Fathers, and the *Anathema's* of the Church, smothered for a considerable Time the Error of the *Millenaries*, which was reviv'd afterwards with more Warmth than before, though under another Form: For these new *Millenaries*, supposing that the first Opinion was defectuous, in that it was not consistent with the glorified Body of *Christ*, should dwell so long among Mortals; the uncorruptible with the corruptible, they pretended that the Reign mentioned in the *Apocalypse*, was not to begin, but after the general Resurrection, when *Christ* should reign 1000 Years upon Earth with the Just, at the Expiration whereof he would carry them along with him into Heaven.

John XXII. Pope, is suspected to have been of that Opinion, made Use of by the Enemies of the Church of *Rome*, as of an Argument, against the Infallibility of that Church; to which the Partisans of that Church answer, that on that Occasion, *John* XXII. thought, and spoke like a private Person, and could be then subject to err, but not as a *Pope*, since there was no Bull promulgated in Defence of his Opinion on that Subject.

In 1707, there was a strong Rumour in *France*, that the *Antichrist* had appeared in some of the Southern Provinces of that Kingdom; nay, that false Rumour prevailed so far, that some Impostors affirmed they had seen him, and gave such a frightful Description of his Person, that all the devout old Women were affrighted out of their Wits; but however, that Imposture had some good Effect, for the most zealous *Preachers* took Occasion from thence to exhort People to Repentance; and when the most piously disposed of the *French* were ready to encounter with *Antichrist*, he disappeared, and, as I suppose, has never been heard of since.

ANTIQUITIES.

ANTIQUITIES, in the Sense they are taken in this Place, are all antient Temples, Obelisks, Pyramids, Columns, Amphitheatres, Mausoleums, or Tombs, Ruins, Statues, Sculptures, Paintings, Inscriptions, Hieroglyphicks, Manuscripts, Medals, Urns, and Mummies; and in general all curious Pieces, that may afford any Light into Antiquity.

Temple, *Templum*, from the old Latin, *Templare*, to contemplate, is a public Edifice, erected in Honour of some Deity, either true or false, and wherein the People meet to pay religious Worship to the same.

Clemens Alexandrinus, and *Eusebius* refer the Origin of Temples to the Sepulchres built for the Dead. ——*Herodotus* and *Strabo* will have the *Egyptians* to have been the first who built Temples to their Gods, which were nothing else but Figures or Representations of Quadrupeds, Fishes, Reptils, or Insects. They have at the *Post-House*, at *Lions* in *France*, built in the Wall, on the Left Hand in entring the Gate, the Figure of a Snake, in Stone, with some Hieroglyphicks, which they pretend to have been an *Egyptian* Divinity.——*Apollonius* ascribes the first Temple erected in *Greece* to *Deucalion*.——But at present there remains not the least Vestiges of those antient Edifices.

The *Romans* out-did all Nations in the Point of Temples; for they not only built Temples to their *Gods*, (of which they had a long Train) to their *Virtues*, to their Diseases, *&c.* but also to their Emperors, and that in their Life-Time.——*Horace* compliments *Augustus* hereupon, and sets him above *Hercules*, and all the Heroes of Fables; in that those were only admitted into Temples after their Death, whereas *Augustus* had his Temples and Altars while living.

Presenti tibi maturos largimur Honores;
Jurandasque tuum per Nomen, ponimus Aras.
Epist. ad August.

There was so great a Number of those Sorts of Temples, and of several other Kinds at *Rome*, that there are yet many of them to be seen in and without that Metropolis of the World; some entire, some half-ruinated, and others with only their first Foundations, or Vestiges.

Among the Rest there is none so celebrated, so compleat, and so perfect as the *Pantheon*, at present called our Lady of the *Rotunda*, since it appears almost in its original State, with Respect to the Edifice, but stripp'd of all its Statues, and other Decorations. Some are of Opinion that it was erected by *Marcus Agrippa*, about the 14th Year of Christ; but others are apt to believe that the Body of the Temple was built in the Time of the Republick, and that *Agrippa* added only the Portico to it.

This Temple was called the *Pantheon*, either because, after *Jupiter*, it was dedicated to all the Gods; or, as others are of Opinion, because it is circular, or bears the Figure of the World.——The Heighth of it from the Floor to the Opening at the Top (from whence it receives all its Light) is the Diameter of its Breadth from one Wall to another.

Amongst the most celebrated Things, which we read were in this Temple, were the Ivory Statue of *Minerva*, by *Phidias*, and that of *Venus*, which had the one half of that Pearl for an Ear-ring, whereof *Cleopatra* dissolved the other half, and drank it at Supper to exceed the Liberality of *Anthony*. This half only of that Pearl was valued, as is reported, at 250,000 Ducats.

This whole Temple both without and within was of the *Corinthian* Order.——It has a most beautiful Portico in Front, on the Frieze whereof is this Inscription:

M. Agrippa. L. F. *Cæs.* III. *fecit.*

Under it, that is, in the Fascias of the Architrave, is the following Inscription in smaller Letters, which shews that the Emperors, *Septimius Severus*, and *Marcus Aurelius* repaired this Temple consumed with Age.

Imp. Cæs. Septimius. Severus. Pius. Pertinax.
Arabicus. Particus. Pontiff. Max. Trib. Pot.
XI *Cos.* III. P. P. *Procos.* & Imp. Cæs. *Marcus.*
Aurelius. Antonius. Pius. *Felix.* Aug. Trib.
Pot. V. *Cos. Procos. Pantheum Vetustate.*
Cum. omni. Cultu. restituerunt.

In the Thickness of the Wall, within the Temple, there are seven Chapels with the Niches, wherein there must have been Statues of Course; and a Tabernacle between one Chapel and another; so that there are in all eight Tabernacles. Some are of Opinion that Pope *Boniface*, who first consecrated this

Temple to divine Service, added that in the Middle, over-against the Entrance, in Order to have one particular Altar larger than all the Rest, and that because the Arch of that Chapel breaks into some of the Columns of the second Order; but by its agreeing perfectly well with the Rest of the Work, and having all its Members excellently finished; others believe, that it was made at the same Time with the Rest of the Temple.

Near the Trophies of *Marius* is seen a Fabrick, also of a circular Figure like the Pantheon, which some take for a *Basilica*, which, together with a noble *Portico*, *Augustus* caused to be erected in Commemoration of *Caius* and *Lucius*, his Grand-Children, from whence 'tis supposed that it is at present vulgarly called *La Galluce*; but others are of Opinion that it was a Temple, because it has none of those Parts which are absolutely necessary in *Basilicas*.

It is all Brick-work, which must have been incrusted, no doubt, with Marble, but is now all taken away. The middle Nave, which is perfectly circular, is divided into ten Parts, and in each of them there is a Chapel inchased in the Thickness of the Wall, except in that where the Entrance is, the two Naves on the Sides must have been curiously embellished, because they contain such a Number of Niches; and in all Probability there were Columns and other Decorations in them.

The Parts of this Structure supporting one another, it must be prodigiously strong; since though so very antient, it is still standing.

Near the *Senatorian* Bridge, at present St. *Mary*'s, is seen an antient Temple, almost whole and perfect, which some suppose to have been that of *Fortuna virilis*, or *Manly Fortune*, whereof this Miracle is upon Record, that being in a Flame with every Thing in it, the gilded wooden Statue, which was erected there by *Servius Tullius*, was the only valuable Part that was not damaged.

The Decorations of the Door of the Temple are very curious, and have an excellent Proportion. This whole Temple is built of *Peperino*, covered with *Stuc*.

Near this Temple there is another round one, called at present St. *Stephens*. Historians tell us that it was built by *Numa Pompilius*, and dedicated to the Goddess *Vesta*. He would have it circular like the Globe of the World, whereby Mankind subsists, and whereof the said *Vesta* was the Goddess.—— This Temple is of a *Corinthian* Order.

Besides these antient Temples, which are yet to be seen standing, there are also at *Rome* several Ruins of others; such as those of the Temple of *Peace*, near the Church of *Sancta Maria Nova*, in the sacred Way.

Historians tell us that it is in the self-same Place, where the *Curia* of *Romulus* and *Hostilius* was at first, and afterwards the House of *Melius*, the *Basilica Portia*, the House of *Cæsar* with its *Portico*; which *Augustus* demolished, appearing a Building, in his Opinion, too great and magnificent; but he erected another there, which he called after the Name of his Wife, *Livia Drusilla*.

The Emperor *Claudius* began this Temple, and *Vespasian* finished it, after he returned victorious from *Judea*, depositing all the Vessels and Decorations of the Temple of *Jerusalem* therein, which he carried in Triumph. The Temple was, as we are informed, the greatest, the most magnificent, and the richest of the whole City: And doubtless its Remains, even ruined as they are, represent so much Grandeur, that we may easily form an *Idea* of what it was when whole and entire.— The Walls of this Temple were adorned with Statues and Pictures, and every Part of it was extremely beautiful.—— It was burnt in the Time of the Emperor *Commodus*.

Near the *Torre de Conti* may still be seen, the Ruins of the Temple which had been erected by *Augustus* to *Mars* the *Avenger*, pursuant to a Vow he had made, when he and *Mark Anthony*, to be revenged of the treacherous Murder of *Julius Cæsar*, fought the Battle of *Philippi*, against *Brutus* and *Cassius*, and conquered them.

By the Remains of this Temple we may plainly discern, that it was a most beautiful and stupendous Fabrick, and much the more marvellous by the Splendor reflected upon it from the *Forum* just before it; into which, we are told, those who returned Victors, and triumphant into the City, carry'd the Trophies of their Enemies, and other Marks of their Victory.

In the finest Part of it *Augustus* placed two very exquisite Pieces of Painting, one a Battle Piece, and the other a Triumph. As also two others drawn by *Apelles*; one representing *Castor* and *Pollux*, the Goddess *Victory* and *Alexander*; and the other, another Battle Piece.——There were two Portico's, where *Augustus* dedicated the Statues of all such who had returned triumphant to *Rome*.

Near this Temple are the Traces of that of *Nerva*, in the Front of the Architecture whereof, the few Letters following may still be seen, tho' very imperfect, and defaced by Time.

IMPERATOR NERVA. CÆSAR AVGVSTVS. PONT. MAX. TRIB. POT. II. IMPERATOR II. PROCOS.

In a Square before this *Temple* was erected the Statue of *Nerva* on Horse-back. The Decorations of the Square were so many, and so admirable, that it caused the Admiration of the Spectator.——When the Emperor *Constant* came to *Rome*, the rare Structure of this Edifice surprised him in the most agreeable Manner; and then, turning to his Architect, said, that he would have a Horse like that made at *Constantinople*, to eternize his own Memory; to which the Architect answer'd, That a Stable like that, pointing to the Square, should be made first, to receive the Horse.

Between the *Capitol* and Mount *Palatin*, near the *Roman Forum*, are three Columns of the *Corinthian* Order, which, some say, were Part of the Temple of *Vulcan*; and according to others of the Temple of *Romulus*; and others, that these Columns, together with those below the *Capitol*, were part of the Bridge made by *Caligula*'s Directions, for passing from the Mount to the *Capitol*.

At the Foot of the *Capitol* are some Traces of a Temple, consecrated to *Jupiter the Thunderer*, by *Augustus*, for his Deliverance from an imminent Danger in the *Cantabrian* War, when in an Expedition, he made by Night, his Litter was pierced through with an Arrow; by which Accident a Slave, that was just before him, was killed, and he preserved unhurt.

Also at the Foot of the *Capitol*, not far from the Arch of *Septimius* (where the *Roman Forum* began) may be seen the Columns of the Portico of a Temple, which was erected by *Furius Camillus*, and according to some dedicated to *Concord*. The publick Affairs were frequently here debated, and we may reasonably conclude, that this Temple was dedicated to that Service; since the Priests would not permit the Senate to convene about State Affairs, except only in the consecrated Temples, and such only were consecrated as were erected by the Directions of the *Augurs*; for which Reason, and on Account of their debating in such Places on Government Affairs, this sort of Temples were also called *Curiæ*.

Among many Statues with which this Temple was embellished, some Historians mention that of *Latona*, holding *Apollo* and *Diana*, her Children, in her Arms; as also the Statue of *Æsculapius* and his Daughter *Hygicia*, or Health; those of *Mars*, *Minerva*, *Ceres*, *Mercury*, and that of *Victory*, placed in the Front of the Portico, and Thunder-struck in the Consulship of *Marcus Marcellus*, and *Marcus Valerius*.——By what may be collected from the following Inscription, which still remains on the Frize; this Temple was destroyed by Fire, and afterwards re-

edify'd

edify'd by the Direction of the Senate and People of *Rome*.—The Words are these,

S. P. Q. R. INCENDIO CONSVMPTVM RESTITVIT.

i. e. *the Senate and People of* Rome *rebuilt this Temple consumed by Fire.*

Over-against the Temple of *Mars* the *Avenger*, in a Place called *in Pintano*, behind *Marforio*, stood formerly a Temple, the Foundations whereof were discovered, as some Workmen were digging in order to build a House, and which by the Dolphins carved on the *Cymasium* of its Cornice, and since in some Places between the Dolphins, there are Tridents, we suppose was consecrated to *Neptune*.

The Temples, which the *Romans* had erected to their false Divinities, were not confined to *Rome* alone, there was a great Number of them throughout *Italy*, and all the Provinces of the Empire.

At *Tevoli* about sixteen Miles from *Rome*, at the Fall of the River *Anien*, now called *Teverone*, is seen a Temple of the *Corinthian* Order, which was erected to *Vesta*, though the Inhabitants of the Place pretend, that it was the Habitation of the *Tiburtin Sibyl*.

There is the Portico of a Temple at *Naples*, below the Square of the Palace and the Vicary, erected to *Castor* and *Pollux*, by *Tiberius Julius Tarsus*, and by *Pelago Augustus*, as appears by its Inscription in the following *Greek* Characters.

ΤΙΒΕΡΙΟΣ ΙΟΥΛΙΟΣ ΤΑΡΣΟΣ ΚΟΥΡΟΙΣ ΚΑΙ ΤΗΠΟΛΕΙ
ΤΟΝ ΝΑΟΝ ΚΑΙ ΤΑ ΕΝ ΝΑΩ.
ΠΕΛΑΓΩΝ ΣΕΒΑΣΤΟΥ ΑΠΕΛΕΥΘΕΡΟΣ ΚΑΙ ΕΠΙΤΡΟΠΟΣ
ΣΙΝΤΕΛΕΣΑΣ ΕΚ ΤΩΝΙΔΤΩΝ ΚΑΙ ΘΙΡΟΣΕΝ.

The Signification whereof is, that *Tiberius Julius Tarsus*, began to erect this Temple and all the Things thereto belonging, in Honour of the Sons of *Jupiter (Castor* and *Pollux)* and to the City, and that *Pelago* perfected it at his own Expence, and consecrated it.—In the Front is a Sacrifice carved in *Basso Relievo*, by a most excellent Artist.——The whole Portico is of the *Corinthian* Order.

Some are of Opinion, that there were two Temples in this Place, the one circular, and the other square; but there remains no Foot-steps of the former, and the latter, in the Opinion of the best Architects, is modern.

At *Pola*, a City of *Histry*, there are two Temples on the same Side of a Square, of equal Dimensions, with the same Decorations, and distant from each other fifty-eight Feet four Inches.——On the Frize of the Front is the following Inscription;

ROMÆ ET AVGVSTO CÆSARIS INVICT.
D. PAT. PATRIÆ.

Among many other curious Remains of Antiquity, they have at *Nismes* in *Languedoc*, the native Country of the Emperor *Antoninus Pius*, a Temple, which the Inhabitants call, *La Maison quarée*, or the square House, because built in a quadrangular Form.

They have another which they suppose to have been the Temple of *Vesta*, which cannot be, since it must be observed that all the Temples dedicated to *Vesta* were made circular, after the Form of the Earth, whereof she was reputed to be the Goddess, and because the Passages on three Sides of this Temple were inclosed with Walls, wherein were the Doors to the Sides of the Cell, and the Door of the Nave itself in the Front, so that it could receive no Manner of Light from any Quarter; now, as no Reason can be assigned why dark, and gloomy Temples should be consecrated to *Vesta*, *Antiquaries* believe it a Temple of some infernal *Deities*.

Several Persons who are not the best *Connoisseurs* in *Antiquities*, and even the *Romans* themselves, mistake often *Temples* for publick *Basilicas*, or publick Places, built by the Antients for the Administration of Justice, or for the Transaction of Affairs of the greatest Importance, (that built at *Rome*, by *Paulus Emilius*, between the Temples of *Saturn* and *Faustina*, on which he expended 1500 Talents, was the most sumptuous, and the most magnificent that ever has been built of the Kind) or for private ones, which were the dwelling Places of Persons of the highest Rank and Distinction among the *Romans*; it must be observed here, in Order to be capable of making a judicious Difference between both; that the antient publick *Basilicas*, of which there are not the least Traces or Remains to be seen at *Rome*, or any where else, as well as the private ones, had no Capitols, as the Temples had, and had *Porticos* in the Inside, and the Temples without. Therefore our Churches are more like the antient *Basilicas*, than like the antient *Temples*, since they have their *Portico*'s within; because, perhaps, the primitive Christians being used to meet, for Fear of the *Gentiles*, in the *Basilicas* of private Persons, found afterwards that this Form was very convenient for a Church, because the Altar could be placed instead of the Tribunal, to great Advantage; and that the Choir could stand round the Altar in good Order, while the remaining Part might hold the People.

All Temples built since the Ruin of the *Roman* Empire, are not considered as Pieces of *Antiquity*, even the most antient Christian Temples, are by all Architects represented as modern Buildings.

In *Antiquity* we meet with many People who would not build any Temples to their Gods, for fear of confining them to too narrow Bounds. They performed their Sacrifices in all Places indifferently, from a Persuasion that the whole World was a Temple of God, and that he requires no other.——This was the Doctrine of the *Magi*, followed by the *Persians*, the *Scythians*, the *Numidians*, and many other Nations mentioned by *Herodotus*, *lib.* 1. *Strabo*, *lib.* 15. and *Cicero*, in his second Oration against *Verres*.

The *Persians*, who worshipped the *Sun*, believed it would wrong his Power, to inclose him in the Walls of a Temple, who had the whole World for his Habitation: And hence, when *Xerxes* ravaged *Greece*, the *Magi* exhorted him to destroy all the Temples he met with.

The *Sicyonians* would build no *Temples* to their Goddess *Coronis*; nor the *Athenians* for the like Reason erect any Statue to *Clemency*, who they say was to live in the Hearts of Men, not within Stone-Walls.

The *Bithynians* had no *Temples*, but the Mountains to worship on, nor the antient *Germans* any other but the Woods.

Even some Philosophers have blamed the Use of Building of *Temples*, particularly *Diogenes*, *Zeno*, and his followers the *Stoicks*.——But it may be said, that if God have no Need of *Temples*, Men have Need of Places to meet in for the publick Offices of Religion; accordingly *Temples* may be traced back even into the remotest *Antiquity*, as we had done it.

I do not know if I may venture to place under this Article of *Temples*, a famed Pile or Monument of huge Stones on *Salisbury* Plain, six Miles distant from that City (which consists of the Remains of four Ranks of rough Stones, ranged one within another, some of them, especially in the outermost and third Rank, twenty Feet high, and seven broad; sustaining others laid a-cross their Heads and fastened by Mortises, so that the whole must have antiently hung together) since *Antiquaries* are divided as to the Origin, Use, Structure, *&c.* of this wonderful Fabrick.

Some of them take it to have been an antient Temple of the *Druids*; others, of the *Romans*, dedicated to *Cœlus*; in which they are confirmed by its having been opened a-top.——Others reading the Name *Stone-Hengist*, maintain it to have been a Monument erected in Memory of *Hengist*, the first General of the *Saxons* in *England*.——Others will have it a funeral

neral Monument, raised to that brave *Romano-Briton*, *Aurelius Ambrosius*; to which Opinion, some Circumstances of his Actions, the still remaining *Latin* Name of the Place, *Mons Ambrosii*, and that very antient *Welsh* Proverb, *Mal gwaith Emrys*, like the Work of *Ambrose*, give some Countenance; though Dr. *Langwish* thinks it might easily be made probable, at least, that it was a Temple dedicated to the *Sun* and *Moon*.

Y. *Straken*, *Stone-Henge*, a Temple restored to the British *Druids*.

Inigo Jones has given a fine Scheme of the Work, and strives hard to persuade the World that it was *Roman*; but Dr. *Langwish*, who took his Measures on the Spot, assures us, he could by no Means reconcile them with that Scheme.

The AMPHITHEATRES, from the *Greek*, αμφι, about; and θεατρον, *Theatre*, are another Kind of antient publick Edifices, of which there are still some standing at *Rome*, *Pola*, *Nismes*, *Douay*, &c.

The *Amphitheatres* were a spacious Building of an oval Figure, having its *Area* or *Arena*, encompassed with Rows of Seats, rising gradually one above another; with Portico's both within and without Side.

The *Amphitheatres* were appointed for the exhibiting of Spectacles or Shews to the People: As the Combats of *Gladiators*, and those of wild Beasts; and as the *Theatres* of the Antients were built in Form of a Semi-circle, only exceeding by one fourth Part of the Diameter; the *Amphitheatres* were nothing else but a double *Theatre*, or two *Theatres* joined together; so that the longest Diameter of the *Amphitheatre*, was to the shortest, as $1\frac{1}{2}$ to 1.

The *Amphitheatre* at *Pola*, an antient Republick of *Istria*, is very intire, consists of two Orders of *Tuscan* Pillars, one over the other.——The lower has Pedestals, which is extraordinary; this Order having scarce ever more than Bases to support them.

The *Amphitheatre* of *Titus* is computed to have been capable of holding 85000 Spectators.

That of *Verona*, is one of the best preserved; for though most of the best Stones of the Outside are picked out, yet the great Vault, on which the Rows of the Seats are laid, is entire: The Rows also, (which are forty-four in Number) are entire. Every Row is a Foot and a Half high, and as much in Breadth; so that a Man sits conveniently in them; and allowing for a Seat a Foot and a Half, the whole will hold 23000 Persons.

The most entire of all those, now standing, is that of *Doüay*, a small Town, upon the Confines of the Provinces of *Anjou*, and *Poitou*, in *France*; it don't want so much as a Stone, and could contain, by Supputation, 25000 Spectators.

There is also, a very magnificent *Amphitheatre* at *Nismes*, in *Languedoc*; and some Remains of *Amphitheatres* at *Arles*, *Bourdeaux*, &c.

We have not the least Traces of them remaining in *England*; though our natural Inclination for the Spectacles represented on the *Amphitheatres*, persuade me, that in the Times of the *Romans*, a great many Edifices of that Kind had been erected here among us; and if our Ancestors have not been so careful of those Monuments of *Antiquities*, as other Nations, it can be attributed to nothing else, but to their *Seraphick* Zeal, and great Fervour for the Christian Religion, when it was first preached among them, which could not allow them to see standing in a Land, stiled at that Time the *Nursery of Saints*, any Thing which could call to their Mind, that they had been guilty of worshipping false Divinities. Christianity having found the Secret to reform in them, that savage and barbarous Humour, which made them delight in Blood, and in the Slaughter of their fellow Creatures and Countrymen; a brutal Diversion, so absolutely contrary to the Principles, not only of a true Religion, but likewise of Humanity itself; and if those cruel and barbarous Pastimes have been since revived amongst us, 'tis a Sign that we have as much deviated from the Piety of our Ancestors, as from their noble Compassion and Humanity. I consider those who flock to *Figg*'s or *Stokes*'s *Amphitheatre*, to *Pagans* disguised under the Mask of Christianity, and would flock with the same Zeal to the *Bacchanalia*, or other heathenish Feasts, if such superstitious Cult was to meet with the same Toleration.

We are grosly mistaken, if we believe that our taking Pleasure in those Sorts of Spectacles, is a Sign of our natural Bravery and Intrepidity, since a true Valour is always accompany'd with Humanity, and sets too high a Price on human Blood, to be pleased to see it trifled with.

Not that I question the Bravery of the *English* Nation, since it would be the greatest Piece of Injustice I could be guilty of, and for which I should be condemned by all other Nations; but I would have that brave and precious *English* Blood preserved for a better Occasion, and never have it spilt but in the Defence of one's Country.

Even in this we surpass the antient *Romans* in Cruelty, since their Gladiators were nothing else but Slaves, who fought of Necessity; or Captives appointed to fight with each other, and do their best to save their own Life, by killing their Adversary.

Junius Brutus, who expelled the *Tarquins*, is said to have been the first who honoured the Funeral of his Father with these inhuman Diversions.——They were at first perform'd near the Sepulchre of the Deceased, or about the Funeral-pile (they being first instituted instead of the Sacrifices of Captives, or Prisoners of War, offer'd at first to the Manes of the great Men who had died in an Engagement) but were afterwards removed to the *Circus* and Amphitheatres, and became ordinary Amusements.

The Emperor *Claudius* restrained them to certain Occasions; but he soon afterwards annulled what he had decreed, and private Persons began to exhibit them, at Pleasure, as usual; and some carry'd the brutal Satisfaction so far, as to have them at their ordinary Feasts; and not Slaves only, but other Persons would hire themselves to that infamous Office.

The Master of the Gladiators made them first swear that they would fight to death; and if they failed therein, they were put to death, either by Fire, Swords, Clubs, Whips, or the like.

It was a Crime for the Wretches to complain when they were wounded, or to ask for Death, or seek to avoid it when overcome; but it was usual for the Emperor, or the People, to grant them Life, when they gave no Signs of Fear, but waited the fatal Stroke with Courage and Intrepidity. *Augustus* decreed that it should always be granted them.

From Slaves and freed Men, the wanton Sport spread to People of Rank and Condition; and *Nero* is related to have brought upwards of four hundred Senators, and six hundred *Roman* Knights upon the *Arena*; tho' *Lipsius* takes both these Numbers to be falsified, and not without Reason, reduces them to forty Senators and sixty Knights; yet *Domitian*, that other Monster of Cruelty, refined upon *Nero*, exhibiting Combats of Women in the Night time.

The Combats of *Gladiators* were first forbidden in the East by *Constantine the Great*, who, by an Order to the *Præfectus Prætorii*, dated at *Berytus* in *Phœnicia*, the 1st of *October*, 325, and still extant, condemn'd the Criminals employ'd therein to the Mines.

The Practice was not entirely abolished in the West before *Theodoric*, King of the *Ostrogoths*; though the Emperor *Honorius* had first forbidden them at *Rome*, on Occasion that St. *Thelemachus*, at the Time of one of these Spectacles, for endeavouring to dissuade the *Gladiators* from continuing the Sport, had been stoned to Death by the Rabble; but that Prohibition does not seem to have been executed 'till the Year 500, when it was entirely abolished by the said *Theodoric*.

Programma's, or Bills, were distributed among the People, some Time before the Day of Battle, by the Persons who gave the Shews, containing the Names of the *Gladiators*, and the Marks whereby they were to be distinguished, for each had his several Badge, which

which was most commonly a Peacock's Feather, as appears from the Scholiast of *Juvenal*, on the 158th Verse of the third Satyr.——They also gave Notice what Time the Shews would last, and how many Couples of *Gladiators* there were; and it even appears from the 52d Verse of the seventh Satyr of the second Book of *Horace*, that they sometimes made Representations of these Things in Painting; as is practised among us by those who have any Thing to shew at Fairs.

The Day being come, they began the Entertainment by bringing two Kinds of Weapons; the first were Staves, or wooden Foils, called *Rudes*; and the second effective Weapons, as Swords, Poniards, *&c.* ——The first were called *Arma lusoria*, Arms for Diversion; the second *Decretoria*, as being given by Decree, or Sentence of the *Prætor*; or of him at whose Expence the Spectacle was exhibited.——They began to fence or skirmish with the first, which was to be the Prelude to the Battle; from these when well warm'd, they advanced to the second with which they fought naked.——The first Part of the Engagement was called *ventilare*, *præludere*, to prelude; and the second *dimicare ad certum*, or *versis armis pugnare*; and some Authors think, with much Probability, that it is to these two Kinds of Combats, that St. *Paul* alludes in the Passage 1 *Cor.* ix. 26, 27. 'I fight not as one that beateth the Air; but I keep 'under my Body, and bring it under Subjection.'

If the Vanquish'd surrender'd his Arms, it was not in the Victor's Power to grant him Life; it was the People during the Time of the Republick, and the Prince or People during the Time of the Empire that were alone impowered to grant the Boon.

The Reward of the Conqueror was a Branch of Palm-tree, and a Sum of Money; sometimes they gave him his *Congé*, or dismissed him; by putting one of the wooden Foils or *Rudes* in his Hand; and sometimes they even gave him his Freedom.

The Sign or Indication whereby the Spectators shewed that they had granted the Favour, was, to fall the Thumb, or clench it between the other Fingers; and when they would have the Combat finish'd, and the Vanquish'd slain, they raised the Thumb, and directed it towards the Combatants; which we learn from *Juvenal*, *Sat.* iii. 36.

The *Gladiators* challenged or defied each other by shewing the Little-finger; and by extending this, or some other during the Combat, they own'd themselves vanquish'd and begg'd Mercy from the People.

There were divers Kinds of *Gladiators*, distinguish'd by their Weapons, Manner of Fighting, *&c.* as the *Catervati*, who fought in Troops or Companies, Number against Number.——*Cubicularii*, who fought in private Houses during Feasts.——The *Dimachæ*, who fought arm'd with two Poniards or Swords, or with Sword and Dagger.——The *Essedarii*, who fought in Carrs; called also in an Inscription, lately discover'd at *Lyons*, *Assedarii*.—The *Fiscales* or *Cæsariani*, who belonged to the Emperor's Company, and who being more robust and dexterous than the rest, were frequently called for; and therefore named *Postulatitii*.——The other Kinds were, the *Hoplomachi*, *Meridiani*, *Mirmillones*, *Ordinarii Provocatores*, *Retiarii*, *Rudiarii*, *Secutores*, *Spectatores* and *Thraces*.

There was another Kind of Building, in Antiquity, for the exhibiting Shews to the People, called *Circus*, from the *Latin*, *Circuitu*, or from *Circe*, to whom *Tertullian* attributes the Invention.

The *Roman Circus* was a large oblong Edifice, arch'd at one end, encompassed with Portico's, and furnished with Rows of Seats, placed ascending over each other.——In the Middle was a Kind of Footbank or Eminence, with Obelisks, Statues, and Posts at each End. This served them for their Courses of their *Bigæ* and *Quadrigæ*—*Bigæ* were Chariots drawn by two Horses a-breast; *Trigæ*, by three; *Quadrigæ*, by four, *&c.*

There were no less than ten *Circus's* at *Rome*; the largest was that built by the elder *Tarquin*, called *Circus Maximus*, between the *Avantine* and *Palatine* Mount. *Pliny* says it was enlarged by *Julius Cæsar*, so as to take in no less than three *Stadia* in length, and one in width.

The most magnificent *Circus's* were those of *Augustus* and *Nero*.——There are still some Remains of the *Circus's*, both at *Rome*, at *Nismes*, and other Places; but as they used to encompass a too large Spot of Ground, and were not built for so long a Duration, Time has defaced them.

The *Games* of the *Circus*, which some call CIRCENSEAN GAMES, were Combats celebrated in the *Circus*, in Honour of *Consus* the God of Councils, and thence also called *Consualia*.—They were also called *Roman Games*, either on Account of their Antiquity, as being coeval with the *Roman* People, or because established by the *Romans*.

These Games were instituted by *Evander*, and re-established by *Romulus*; the Pomp or Procession, called *Pompa Circensis*, was only a Part of the Games, making the Prelude thereof, and consisting of a simple Cavalcade of Chariots.——Till the Time of the elder *Tarquin*, they were held in an Island of the *Tiber*; and were called *Roman Games*: After that Prince had built the *Circus*, they took their Name therefrom, as being constantly held there.

There were six Kinds of Exercises in the *Circus*; the first Wrestling, Fighting with Swords, Staves, and Pikes; the second was Racing; the third *Saltatio* Dancing; the fourth Disciquoits, Arrows, and *Cestus*, and which were on foot; the fifth was Horse-coursing; the sixth Courses of Chariots, whether with two Horses or with four; each bearing the Names of the Colours they wore.——At first there was only White and Red; then Green was added and blue. *Domitian* added two more Colours, but they did not hold.——It was *Œnomaus* who first invented this Method of distinguishing the Quadrils by Colours. The Green was for those who represented the Earth; the Blue for the Sea, *&c.*

The great Games, called *Ludi Magni*, were held in Honour of the God *Neptune*, who was the *Romans Consus*, and not of the *Sun*, as some have imagined.

Other antient Edifices were the *Agora's* or Squares of the *Greeks*, and the *Forums* of the *Romans*.—The *Roman Forums* differ'd from the *Grecian Agora's*, and were of a square Form, surrounded with spacious and double Porticoes and thick Columns.—These Porticoes or Piazza's were as broad as the Columns were long; so that by their being double, the Place for walking was as spacious as twice the Length of a Column, which made it very commodious.——Over the first Columns, were others a fourth Part less than the first; these had under them a *Corridor* of such Height as was most convenient, because these upper Porticoes were appointed likewise for walking and discoursing, and for Persons to stand commodiously therein, to be Spectators of any Shews that might be exhibited in the Square, either out of Pleasure or Devotion.——All these Porticoes must of Course have been embellish'd with Niches and Statues, since the *Greeks* used to be highly delighted with such Sort of Ornaments.——Near to these Squares were the *Basilica*, the Senate-house, the Prisons, *&c.*

But the *Roman Forums*, or Squares, were somewhat longer than they were broad; so that dividing the Length into three Parts, two made the Breadth; because the *Gladiators* exerting their Skill publickly in these Places, this Form was more commodious for their Purpose than a perfect Square; for which Reason likewise the Intercolumnation of the Porticoes, that went round the Square, was made of two Diameters and Quarter of a Column, or even of two Diameters, that the Sight of the People might not be intercepted by the Thickness of the Columns.——The Porticoes were as broad as the Columns were high,

 and

and under them were the Bankers and Goldſmiths Shops.——The upper Columns were a fourth Part leſs than the under ones, becauſe all Pieces below ſhould be ſtronger than thoſe above, conſidering the Weight they bear.——In the Part fronting the warmeſt Region of Heaven were the *Baſilicas*.——On that Side which fronted the North, ſtood the Senate-houſe, a Square and a half in Length. This *Curia*, or Senate houſe, was the Place where the Senate aſſembled to conſult about State Affairs.

Of theſe *Forums* there were ſeveral at *Rome*; at firſt only three, *viz. Romanum*, *Julianum*, and *Auguſtum*; but that Number was afterwards increaſed to ſix, by the Addition of the *Tranſitorium*, called alſo *Palladium*; the *Trajanum* and *Salluſtii Forum*.——The firſt and moſt eminent of theſe was the *Forum Romanum*, called alſo *Forum Vetus*, old Square; and abſolutely *Forum*, or the *Forum*.——In this was an Apartment called the *Roſtra*, where the Lawyers pleaded; the Officers harangued; Funeral Orations delivered, *&c.* ——This *Roſtra* was adorned with the Beaks of Ships taken from the People of *Antium*, in a naval Engagement, whence the Name.

The Antients were alſo very curious in building *Columns*. Of which there were various Kinds, *viz.* Hiſtorical, Chronological, Funeral, Inſtructive, Itinerary, Lactary, Legal, Limitrophous or Boundary, Manubiary, Memorial, Menian, Milliary, Military, Statuary, Symbolical, Triumphal and Zoophorick.

The *Hiſtorical Columns* were thoſe whoſe Shafts were adorned with a *Baſſo Relievo*, running in a ſpiral Line its whole Length; and containing the Hiſtory of ſome great Perſonage. Of theſe Kind are the *Trajan* and *Antonine Columns* to be ſeen ſtill at *Rome*.

That of *Trajan* is of the *Tuſcan* Order, though ſomewhat irregular; its Height is eight Diameters, and its Pedeſtal *Corinthian*; it was built in the *Forum Romanum*, or *Roman* Square.——Its Baſe conſiſts of twelve Stones of an enormous Size, and it is raiſed on a Socle, or Foot of eight Steps. Within-ſide is a Stair caſe illuminated with forty-four Windows. It is 140 Foot high, which is 35 Foot ſhort of the *Antonine* Column; but the Workmanſhip of the former is much more valued. It is adorn'd from top to bottom with *Baſſo Relievo's*, repreſenting the great Actions of that Emperor (one of the beſt who ever fought under the *Roman* Eagles) againſt the *Dacæ*. ——Several learned Men have explain'd the Bas Reliefs of the *Trajan Columns*, and among others *Ciaconius* and *Fabretti*.——The late King of *France*, *Lewis* XIV. had Models of all thoſe Bas Reliefs taken off in Plaiſter of Paris.

The *Antonine Column* has 199 Steps, with 56 Windows; and each of theſe is divided by Tambours of white Marble.

At *Athens* there were *Chronological Columns*, whereon were inſcribed the whole Hiſtory of *Greece*, digeſted into *Olympiads*, thoſe Sorts of Columns being erected for no other Uſe, than to bear ſome hiſtorical Inſcription, digeſted according to the Order of Time; as by *Luſtres*, *Olympiads*, *Faſti*, *Epochas*, *Annals*, *&c.*

The *Funeral Columns* had ſometimes their Shafts overſpread with Tears or Flames, which are Symbols of Grief, and of Immortality; and were erected to ſupport an *Urn*, wherein were incloſed the Aſhes of ſome deceaſed Hero.

We do not learn from Hiſtorians that there were ever more than two *Inſtructive Columns*, one, which *Joſephus*, lib. i. cap. 3. pretends to have been erected by the Sons of *Adam*, whereon were engraven the Principles of Arts and Sciences; and another ſuppoſed by *Baudelot* to have been raiſed by the Son of *Piſiſtratus*, containing the Rules and Precepts of Agriculture.

Feſtus informs us, that at *Rome*, in the Herb-market, now the Place *Montanara*, was erected a Column called *Lactary*, which had a Cavity in its Pedeſtal, wherein young Children, abandon'd by their Parents, out of Poverty or Inhumanity, were expoſed to be brought up at the publick Expence.

None but the *Lacedemonians* have ever erected *Legal Columns*, whereon were engraven the fundamental Laws of their State; and thoſe Columns were always erected in publick Places, for the better Inſtruction of the People.

Alexander, according to *Pliny*, erected a *Limitrophous* or *Boundary Column* at the Extremities of the *Indies* to ſhew the Limits of his Conqueſts; and the *Romans* afterwards follow'd his Example.

The *Romans* were very induſtrious in erecting *Manubiary Columns*, built in Imitation of Trees, and adorn'd with Trophies, whereon they hung the Spoils of the Enemies.

Suetonius and *Aſcanius* refer to a certain *Menias* the Origin of the *Menian Column*, who having ſold his Houſe to *Cato* and *Flaccus*, Conſuls, to be converted into a publick Edifice, reſerved to himſelf the Right of raiſing a Column without ſide, to bear a Balcony, whence he might ſee the Shews.

Auguſtus had a Column of white Marble (the ſame with that which is now ſeen on the Baluſtrade of the *Perron* of the Capitol at *Rome*) erected in the Middle of the *Roman Forum*, which was called *Milliary*, and from whence, as a Centre, the Diſtances of the ſeveral Cities, *&c.* of the Empire, were reckoned by other *Milliary Columns*, diſpoſed at equal Diſtances on all the grand Roads. This Column was called *Milliarium Aureum*, as having been gilt, at leaſt the Ball, by Order of *Auguſtus*.——Its Proportion is maſſive, being a ſhort Cylinder, the Symbol of the Globe of the Earth.——It was reſtored by the Emperors *Veſpaſian* and *Adrian*; as appears by the Inſcriptions.

The *Romans* had two Sorts of *Military Columns*, one whereon was engraven a Liſt of the Forces of the *Roman* Army, ranged by Legions in their proper Order; with Deſign to preſerve the Memory of the Number of Soldiers, and of the Order obſerved in any military Expedition.—— And another called *Columna Bellica*, ſtanding before the Temple of *Janus*, (whoſe Gates were always open in time of War, and ſhut in time of Peace) at the Foot whereof the Conſul declared War, by throwing a Javelin towards the Enemy's Country.

The Columns adorn'd with the Beaks or Prows of Ships and Galleys, with Anchors and Graplers, erected either in Memory of a naval Victory, as the *Tuſcan Column* in the Capitol, or in Honour of ſome Admiral, were called *Roſtral Columns*.

There was dug up in the Temple of Peace, I have heretofore mentioned, a flatted Column of the *Corinthian Order*, whoſe Shaft is a ſingle Block of white Marble, 49 Foot and a half high, and five Foot eight Inches Diameter; which *Paul* V. Pope, had erected on a Pedeſtal, before the Church of St. *Maria Major*, at *Rome*, to ſupport a Statue, of gilt Braſs, of the *Virgin Mary*, from whence 'tis called a Statuary Column, as all other Columns which ſupport a Statue.

The *Caryatides* and *Termini* were alſo a Sort of Statuary Columns.——The *Caryatides* were, and are ſtill, a Kind of Order of Columns or Pilaſters, under the Figures of Women, dreſſed in long Robes, ſerving to ſupport Entablatures.——*Vitruvius* pretends, that the Origin of *Caryatides* is owing to the *Greeks* having taken the City of *Caria*, led away their Women Captives; and to perpetuate their Servitude, repreſented them in their Buildings, as charged with Burdens, ſuch as thoſe ſupported by Columns.

Termes, or *Termini*, (from the *Roman* God *Terminus*, the *Protector* of Land-Marks) was a Statue made without Hands or Feet (that he might not change his Place) planted at the Bounds of Lands to ſeparate them.——The two famous Statues of *Paſquin* and *Marforio* at *Rome*, might be ranked among theſe Sorts of Statues, ſince otherwiſe, I do not know where elſe to place thoſe two great Satyriſts, who for ſeveral Centuries have, by their witty *Repartees*, diverted all *Europe*.

Paſquin

Pasquin is a mutilated Statue at *Rome*, in a Corner of the Palace *Ursini*.—— It takes its Name from a Cobler of that City, called *Pasquin*, famous for his Sneers and Gibes; and whose Shop was the Resort of a Number of idle People, who diverted themselves with bantering Folks as they passed by.—— After *Pasquin*'s Death, as they were digging up the Pavement before his Shop, they found a Statue of an antient *Gladiator*, well cut, but maimed, and half-spoiled. This they set up in the Place where it was found, at the Corner of the deceas'd Master *Pasquin*'s Shop; and by Consent, called it by the Name of the Defunct.—— From that Time all Satires and Lampoons are ascribed to this Figure, are put in its Mouth, or pasted against it; as if they came from *Pasquin Redivivus*.—— *Pasquin* usually addresses himself to *Marforio*, another Statue in *Rome*; or *Marforio* to *Pasquin*, whom they made reply.—— The Answers are usually very short, poignant, and unlucky: When *Marforio* is attacked, *Pasquin* comes to his Assistance; and *Pasquin* is assisted by *Marforio* in his Turn, *i. e.* the People make the Statues speak just what they please.—— The Dialogues between these two Statues are called *Pasquinades*.

We have no visible *Pasquins* here in *England*, but we have some invisible ones, who act their Part, to the full as well, as ever did the *Roman Pasquin*, and their *Pasquinades* are often seasoned with more *Attic* Salt.

There was another Kind of *Statuary Columns*, called *Zoophoric*, whereon was placed a Figure of some Animal, as that at *Sienna*, which bears the Wolf which suckled *Romulus* and *Remus*; and one of the two Columns (though not a Piece of Antiquity) whereon is the Lion of St. *Mark*, and the Arms of the Republick.

The *Symbolical Columns* represented some particular Country, by the Attributes proper thereto, as the *Corvinian Column*, on which was a Crow, erected to *Valerius Maximus*, surnamed *Corvinus*, in Memory of his defeating a Giant in the Army of the *Gauls*, by the Assistance of a Crow.—— And the modern one, of the *French* Order, set with *Flowers de Luce*, on the Frontispiece of the Jesuits Church at *Rouen*, in *Normandy*.

The *Triumphal Columns* were erected by the Antients, in Honour of a Hero; the Joints of the Stones, or Courses whereof, were covered with as many Crowns as he had made different military Expeditions.— Each Crown had its particular Name; as *Vallaris*, which was beset with Spikes, in Memory of having forced a Pallisade. *Muralis*, adorned with little Turrets, or Battlements (which Sort of Crowns have Place at present in our *Blazon*) for having mounted an Assault. *Navalis*, of Prows and Beaks of Vessels, for having overcome at Sea. *Obsidionalis*, or *Graminalis* of Grass; for having raised a Siege. *Ovans*, of *Myrtle*, which expressed an Ovation or little Triumph; and *Triumphalis*, of Laurel, for a grand Triumph.— *Procopius* tells us of a *Column* of this Kind erected in the Place, called *Augusteum*, before the Imperial Palace at *Constantinople*, supporting an Equestrian Statue of the Emperor *Justinian*.

Obelisks and Pyramids were also raised by the Antients, as an Ornament in some publick Places, and frequently charged with Inscriptions and Hieroglyphics.

The Pyramids, from πυρ, was a solid massive Edifice, which from a square, triangular, or other Base, rose, diminishing to a Point or *Vortex*.—— They were sometimes erected to preserve the Memory of singular Events; and sometimes to transmit to Posterity the Glory and Magnificence of Princes; but as they are the Symbols of Immortality, they were more commonly used, as funeral Monuments; as that of *Cestius* at *Rome*, and those other celebrated ones of *Egypt*, as famous for the Hugeness of their Size, as for their Antiquity.

The Obelisks, from οβελος, a Spite, Broach, or Spindle, were, and are still, triangular Pyramids, very slender and high.— The Difference between *Obelisks* and *Pyramids*, according to some, consists in this, that the latter have large Bases, and the former very small ones, though *Cardan* makes the Difference to consist in this, that *Obelisks* are to be all of a Piece, or to consist of a single Stone, and *Pyramids* of several.

F. Kircher reckons up 14 *Obelisks*, celebrated above the Rest; *viz.* that of *Alexandria*, that of the *Barberins*, those of *Constantinople*, of the *Mons Esquilinus*, of the *Campus Flaminius* of *Florence*, of *Heliopolis*, of *Ludovisio*, of St. *Mahut*, of the *Medici*, of the *Vatican*, of *Marcus Cœlius*, and that of *Pamphilia*.— The first *Obelisk* we know of, was that raised by *Rameses*, King of *Egypt*, in the Time of the *Trojan* War. It was 40 Cubits high, and according to *Herodotus*, employed 20,000 Men in the Building.— *Phicus*, another King of *Egypt*, raised one of 45 Cubits; and *Ptolomy Philadelphus* another of 88 Cubits, in Memory of *Arsinoe*.— These three *Obelisks* are of *Porphyry*, and still standing.— *Augustus* erected an *Obelisk* at *Rome*, in the *Campus Martius*, which served to mark the Hours on an horizontal Dial, drawn on the Pavement.

This Kind of Monument, which is very antient, was first made Use of, we are told, to transmit to Posterity the principal Precepts of Philosophy, which were engraven in hieroglyphical Characters hereon.— In after Times they were used to immortalise the Actions of Heroes, and the Memory of Persons beloved.

The *antient Statues* are divided by *Antiquaries* into *Greek* and *Roman Statues*, and these again subdivided into *Divine*, *Heroes*, and *Augusti*.

The *Greek Statues* were naked Figures; being in this Manner they represented their *Deities*, *Athletæ*, of the Olympic Games, and Heroes; the Reason of this Nudity was, that those who exercised Wrestling, wherein the *Grecian* Youth placed their chief Glory, always performed naked.—— The *Greeks* succeeded in their Statues beyond the *Romans*; both the Workmanship, and the Fancy of the *Roman* Statues were inferior to the *Grecian*; indeed we have very few remaining that have escaped the Injuries of Time.

The *Roman Statues* differed in this from the *Grecians*, that they were cloathed; those of the Emperors with long Gowns over their Armour, and hence were called *Statuæ Paludatæ*; those of Captains and Cavaliers, with Coats of Arms, *Thoracatæ*; those of Soldiers with Cuirasses, *Loricatæ*; those of Senators and Augurs, *Trabeatæ*; those of Magistrates with long Robes, *Togatæ*; those of the People with a plain *Tunica*, *Tunicatæ*; and, lastly, those of Women with long Trains, *Stolatæ*.— Their other Division of Statues is that I have already mentioned into *Divine*, which were those consecrated to the *Gods*, as *Jupiter*, *Mars*, *Apollo*, &c. *Heroes*, which were those of the *Demi-Gods*; as *Hercules*, &c. and *Augusti*, which were those of the Emperors; as those two of *Cæsar* and *Augustus*, under the Portico of the Capitol.

The other Kinds of Edifices which the Antients used to adorn or embellish their Cities or Towns with were Triumphal Arches, Baths and Bridges.

The Triumphal Arches were Gates or Passages into a City, built of Stone or Marble, Sculpture, Inscriptions, *&c.* serving not only to adorn a Triumph, at the Return from a victorious Expedition, but also to preserve the Memory of the Triumph to Posterity.— The most celebrated Triumphal Arches now remaining of Antiquity are that of *Titus*, of *Septimus Severus*, and of *Constantine* at *Rome*.— One of the Gates of *Orange* (the chief City of that Principality belonging antiently to the illustrious House of *Nassau*, but at present in the King of *France*'s Possession) is a Triumphal Arch of *Caius Marius*.—— The Gate, *Peyro*, at *Montpelier*, is also a Triumphal Arch; and the Gates of St. *Denis*, St. *Martin*, and St. *Antoine* at *Paris*, though modern Pieces, deserve that Name.

Baths were large and pompous Buildings, which made

made Part of the antient *Gymnasia*, and which, tho' erected for the Sake of bathing, were frequented more for the Sake of Pleasure, than Health.

The most magnificent *Baths* were those of *Titus*, *Paulus Æmilius*, and *Diocleſian*, of which there are some Ruins still remaining.——It is said that at *Rome* there were 856 public *Baths*. *Fabricius* adds, that the excessive Luxury of the *Romans* appeared in nothing more visible than in their *Baths*. *Seneca* complains that the *Baths* of *Plebeians* were filled from silver Pumps; and that the freed-Men trod on Gems. *Macrobius* tells us of one *Sergius Oratus*, a Voluptuary, who had pendant *Baths* hanging in the Air.

Since I have hinted here at *Gymnasium*, I am obliged to inform the Reader, that it was a publick Edifice of the Antients, erected for performing Exercises of the Body, where People were taught, and regularly disciplined therein.

The *Romans* borrowed the *Gymnasia* from the *Athenians*, and the *Athenians* from the *Lacedæmonians*; since *Solon*, in *Lucian*'s *Anacharsis*, and *Cicero de Orat. l.* 2. are both of Opinion, that the *Greeks* were the first that had *Gymnasia*.

There were three principal *Gymnasia* at *Athens*; the *Academy*, where *Plato* taught; the *Lyceum*, noted for *Aristotle*'s Lectures; and the *Cynosarges*, allotted for the Populace.

Mr. *Burette*, after *Vitruvius*, asserts, that the *Gymnasia* consisted of twelve Members or Apartments, *viz.* 1 The exterior Portico's, where the Philosophers, Physicians, Mathematicians, Rhetoricians, and other Virtuoso's read publick Lectures, disputed, and recited their Performances. 2. The *Ephebeum*, where the Youth assembled very early, to learn their Exercises in private, without any Spectators. 3. The *Coryccum*, *Apoditerion*, or *Gymnasterion*, a Kind of Wardrobe where they stript, either to bathe or exercise. 4. The *Elæothesium*, *Alipterion*, or *Unctuarium*, appointed for the Unctions which either preceded or followed the Use of the Bath, Wrestling, *Pancrasia*, &c. 5. The *Conisterium*, or *Conistra*, in which they covered themselves with Sand or Dust, to dry up the Oil or Sweat. 6. The *Palæstra*, properly so called, where they practised Wrestling, the Pugilate, *Pancrasia*, and divers other Exercises. 7. The *Sphæristerium* or Tennis Court, reserved for Exercises wherein they used the Balls. 8. Large unpaved Alleys, which comprehended the Space between the Portico's and the Walls, wherewith the Edifice was surrounded. 9. The *Xisti*, which were Portico's for the Wrestlers in Winter or bad Weather. 10. Other *Xisti*'s or open Alleys, allotted for Summer and fine Weather; some of which were quite open, and others planted with Trees. 11. The *Baths*, consisting of several different Apartments. 12. The *Stadium*, a large Place of a semicircular Form, covered with Sand, and surrounded with Seats for the Spectators.

There were several Officers for the Administration of the *Gymnasia*. 1. A Director and Superintendant of the whole, called *Gymnasiarcha*. 2. The *Xistarcha*, who presided in the *Xistus* or *Stadium*. 3. The *Gymnasta* or Master of the Exercises, who understood their different Effects, and could accommodate them to the different Complexions of the *Athletæ*. 4. The *Pedotriba*, whose Business was mechanically to teach the Exercises, without understanding their Theory or Use.——Under these four Officers were a Number of Subalterns, whose Names distinguish their different Functions.

The Exercises learned under those different Masters, were either for Defence, Health, or Diversion.——Those for Defence were called Military, as the Exercise of the Javelin, Gladiators, Wrestling, Boxing, Running, Leaping, throwing the *Discus*, drawing the Bow, *&c.* in all which Exercises, there were Prizes proposed for the Conqueror, thereby to animate Youths, to Combats of divers Kinds, that they might be capable, when Occasion required, to repel the Insults of their Neighbours.—Those for Health, were Walking, Vociferation, Shouting, Holding one's Breath, *&c.* Though this Kind of Exercise is not Co-eval with the rest; since it is *Plato*'s Sentiment, that they were first introduced into the *Gymnasium*, by one *Herodicus*, prior a little to *Hippocrates*, and not before Luxury and Idleness had reduced Men to the absolute Necessity of applying to Physicians, who discovered then, that nothing contributed more to the Preservation and Re-establishment of Health, as Exercises proportioned to the different Complexions, Ages and Sexes; and being convinced by Experience, of their Usefulness, they applied themselves to it.——*Hippocrates* was the first who treated of the Utility of it, in his Book of *Regimen*; but as he, nor the other Physicians, did not adopt all the Exercises of the Gymnastick Art into their Practice, they left the most violent and laborious, to the Masters of the military and athletick Exercises.

The Exercises for Diversion were Dancing; all the Exercises with *Pilæ* or Balls; mounting the Horse; riding in Chaise, Litter, or other wheeled Vehicle; rocking in Beds or Cradles; and sometimes swinging; swimming, *&c.*

The Hope of being proclaimed and crowned Conquerors in the publick Games, which they thought was the highest Honour a Mortal could arrive at, had rendred the *Grecian* Youths over diligent in those Kinds of Exercises, and caused such Emulation among them, that what was originally only Amusement, became at length a Matter of such Importance, as to interest famous Cities, and entire Nations in the Practice.—Nay, in Process of Time, all *Greece* went so far as to imagine, that even *Gods* and *Demi-Gods* were not insensible, of what Men were so captivated withal; and in Consequence hereof to introduce the greatest Part of these Exercises in their religious Ceremonies, the Worship of their Gods, and the funeral Honours done the *Manes* of the Dead.

We have no earlier Monument now extant, of the *Grecian Gymnasticks*, (which is the Name they gave to these Exercises) than the Description of them in the 23d Book of the *Iliad* of *Homer*, where he describes the Games celebrated at the Funeral of *Patroclus*, which was at the Time of the *Trojan War*, and whereby we learn that they had Chariot-races, Foot-races, Boxing, Wrestling, Gladiators, throwing the *Discus*, drawing the Bow, hurling the Javelin, *&c.* Though Mr. *Burette* in his History of *Gymnasticks*, inserted in the *Memoirs of the Royal Academy of Inscriptions*, believes that this Art is co-eval with the World; for which he has no other Proofs, but a reasonable Supposition.

We have not the least Trace remaining of *Grecian Gymnasia*, which the *Romans* improved and advanced to the utmost Pitch of Magnificence; but the Declension of the Empire having involved the Arts in its Ruin, the *Gymnasia* were deserted, and those sumptuous Edifices entirely ruinated; so that all that's seen of them at present, are only the Places where they were erected.

The BRIDGES, the next Piece of *Antiquity* which falls under our Consideration, are commonly defined an Edifice, either of Stone or Timber, consisting of one or more Arches, erected over a River, Canal, or the like, for the Conveniency of crossing or passing over from one Side to the other.

Abundance of *Bridges* were erected by the Antients in several Places, but particularly in *Italy*, and on the *Tyber*; whereof some are this Day entire, and others have some small Remains only left to preserve their Memory.——Those which are, at present, entire on the *Tyber*, are that of the Castle St. *Angelo*, called antiently the *Elian Bridge*, from the Emperor *Elius Adrianus*, who erected in this Place his own Monument.——The *Fabrician Bridge*, erected by *Fabricius*, now called the Four-headed Bridge, or *Ponto quatro capi*, from the four Heads of *Janus*, or four *Termini*, placed on the left Hand of this Bridge, whereby the Island of *Tyber* is joined to the City.—The *Cestian Bridge*, now called St. *Bartholomew*'s Bridge, which from the other Side of the Island, passes

passes to *Transtyberim*, or over the *Tyber*.—The *Bridge* called *Senatorio* from the Senators, and *Palatino*, from the adjacent Hill, made of Rustick Work, and now called St. *Mary's Bridge*.

But the *Bridges*, whereof the antient Remains are only to be seen in the *Tyber*, are the *Sublician Bridge*, called likewise the *Lepidan Bridge*, from *Emilius Lepidus*, who made it of Stone, though it was first made of Wood, and was built near *Ripa*.——The *Triumphal Bridge*, whose Pilasters are still to be seen over against the Church of the *Holy Ghost*.——The *Janiculan Bridge*, so named from its being adjacent to Mount *Janiculus*; which because Pope *Sixtus* IV. repaired it, is now called *Ponte Sisto*.——And the *Milvian Bridge*, now called *Ponte Molle*, in the *Flaminian* Way, not two Miles distant from *Rome*, and retaining only the Foundations of its antient Form. It is reported to have been erected in the Time of *Sylla*, by *Marcus Scaurus* the Censor.

There are likewise the Remains of a *Bridge*, to be seen, erected by *Augustus*, of Rustick Work, upon the *Vera*, a most rapid River near *Narmi*; and another of the same Work upon the *Metaurus*, at *Calgi*, in *Umbria*, with particular Counter Work at each End of it upon the Banks; which makes it exceeding strong, and supports the Road.——But among all the celebrated *Bridges*, that is recorded as a Miracle, which *Caligula* built from *Puteoli* to *Baiæ*, in the Midst of the Sea, almost three Miles in Length; and on which 'tis said, he expended the whole Revenue of the Empire.

There was a *Bridge* built over the *Danube* in *Transilvania*, which was extraordinary great, and deserving Admiration, on which were inscribed these Words. PROVIDENTIA AUGUSTI VERE PONTIFICIS, VIRTUS ROMANA QUIS NON DOMET? SUBJUGOR ECCE RAPIDUS DANUBIUS, *i. e.* Can any Thing be above the *Roman* Strength, assisted with *Augustus*, truly Pontiffs, special Care; after it has stopt the Rapidity of the *Danube?*——This *Bridge* was afterwards broke down and demolished by *Adrian*, to prevent the *Barbarians* from coming over to plunder the *Roman* Provinces; and its Pilasters are still to be seen in the Middle of the River.

But none of the antient *Bridges* appear more beautiful, and more worthy of Observation, than that erected by *Augustus Cæsar*, at *Ariminum*, a City of the *Flaminian* Tribe. It is divided into five Arches, the three middlemost whereof are equal, consisting of 25 Feet in Breadth; and the two next the Banks are less, consisting only of twenty Feet. All these Arches consist of a Semicircle, and the Depth of their *Archivolte* is a tenth Part of the Light, or Void of the greater, and an eighth Part of the Light of the lesser ones. The Pilasters as to their Thickness, are a little more that the Half of the Light of the greater Arches. The Angle of the Spurs which cut the Water, is a right Angle, (this the Antients followed in building all their *Bridges*, as being stronger than the acute Angle; and for that Reason, the acute Angle is less exposed to be thrown down and destroyed by Trees, or any other Matter, which rolls down with the Stream) on the Sides of the *Bridge*, there are some Niches, wherein there must formerly have been some Statues directly over the Pilasters. Over these Niches there is a Cornice, the Length of the whole *Bridge*, which, although it is plain, adds nevertheless a most agreeable Decoration to the Work.

Over the *Bacchiglione*, and the *Rerone*, two Rivers which run through *Vicenza*, (the *Bezone* losing its Name at its Entrance into the *Bacchiglione*, without the City) are two ancient *Bridges* built. The Pilasters and one Arch of that built over *Bacchiglione*, are still entire, and to be seen near the Church of St *Mary of the Angels*; the rest is all modern Work.

The other over the *Rerone*, and which is called by the common People, *il Ponte belle Beccarie*, or the *Butcher's Bridge*, because it is adjacent to the greatest Shambles of the City, is still entire, and varies but little from that on the *Bacchiglione*, being divided into three Arches, and the middlemost larger than either of the other two.——Both the one and the other of these *Bridges* are composed of *Costozd* Stone, which is a soft Stone, and is sawed like Wood.

The Antients, especially the *Romans*, were not so extravagant in building Places for their Interment, as they were, in all their other Edifices; tho' besides the usual *Sepulchres* for the Interment of the whole Body, or of the Ashes of the Body burnt, they had a particular Kind, called *Cenotaphia*, which were empty *Sepulchres*, made in Honour of some Person, who perhaps had no Burial at all; from a superstitious Opinion, that the Souls of those who wanted Burial, wandered a hundred Years, e're they were admitted to pass into the *Elysian Fields*.

Among the *Romans*, none but the Emperors, Vestals, and Persons signalized by great Actions, were allowed to have *Sepulchres* in the Cities; the rest were all in the Country, near the high Roads; whence those common Words, *Siste, & abi, viator*, which are still retained in the Inscriptions of our Monuments in Churches, *&c.* tho' the Occasion be no more.

Strabo informs us, *Georg. l.* 14. that at *Anchiale*, was antiently seen the Tomb of *Sardanapalus*, with this Inscription in Verse; *Sardanapalus built* Anchiale *and* Tarsus *in one Day; go Passenger, eat, drink, and be merry; the rest is nothing.*

The only remaining Pieces of Antiquity we have of that Kind, are the CATACOMBS, which are a vast Assemblage of subterraneous *Sepulchres* about *Rome*, chiefly at about three Miles from that City in the *Via Appia*, supposed by Mr. *Monro*, in the *Philosophical Transactions*, to have been originally the common Sepulchres of the first *Romans*; and dug in Consequence of these two Opinions, that Shades hate the Light; and that they love to hover about the Places where the Bodies are laid. But most of the *Roman* Catholicks suppose them to be the Sepulchres of the Martyrs, and visit them accordingly out of Devotion, and Relicks thence taken, are dispersed throughout the Catholick Countries after they have been baptized by the Pope, *i. e.* That those Relicks being brought to him, he calls them by the Name of what Saint he pleases.

Each *Catacomb* is three Foot broad, and eight or ten high; running in Form of an Alley or Gallery, and communicating with others; in many Places they extend within a League of *Rome*.——There is no Masonry or Vaulting therein, but each supports its self: The two Sides, which we may look on as the *Parietes*, or Walls, were the Places where the Dead were deposited; which were laid lengthwise, three or four Rows over one another, in the same *Catacomb*, parallel to the Alley.——They were commonly closed with large thick Tyles, and sometimes Pieces of Marble, cemented in a Manner inimitable by the Moderns.——Sometimes, though very rarely, the Name of the Deceased is found on the Tyle: Frequently a Palm is seen, painted or engraven, or the Cypher Xp. which is commonly read, *pro Christo, i. e.* dead for Christ, or for the Christian Religion.

Some Protestant Authors are of Opinion, that the *Catacombs* are heathen *Sepulchres*, and the same with the *Puticuli*, mentioned by *Festus Pompeius*; maintaining, that whereas it was the Practice of the antient *Romans* to burn their Dead, the Custom was, to avoid Expence, to throw the Bodies of their Slaves to rot in the Holes of the Ground: And that the *Roman* Christians observing, at length, the great Veneration paid to Relicks, resolved to have a Stock of their own: Entring therefore the *Catacombs*, they added what Cyphers and Inscriptions they pleased, and then shut them up again, to be opened on a favourable Occasion. Those in the Secret, add they, dying or removing, the Contrivance was forgot, till Chance opened them at last; but this Opinion seems to me very ridiculous and improbable. For what could have induced the Christians of those Days, whom every Body will allow to have been truly pious and religious, to have Recourse to that ridiculous Expedient, since it

was

was thereby deceiving themselves, with a premeditated Design; for if they wanted Relicks at any Rate, as pretended here, had it not been more agreeable to their Sense and Reason, to have taken the Stones or the Earth of the Street of *Rome*, which had been so often dy'd with the Blood of the Martyrs, which could have kept their Piety in Suspense, if such Stones or Earth had been irrigated with such precious Blood, or not, and therefore excuse their Zeal, than go to the *Catacomb* with the Design to deceive themselves and others? Is it possible that they could have been induced by any Motive whatever, to consider, as Relicks of Martyrs, what they were almost sure were Part of the Skeleton of a vile Slave, or of some infamous Profligate, punished for his Crimes? Those are injurious Reflections, which have not so much as the Appearance of Reason or Common Sense, and which are condemned as such, by the most sensible Part of Protestant Writers.

Antiently, the Word *Catacomb* was only understood of the Tombs of St. *Peter* and St. *Paul*; and M. *Chatelain* observes, that among the more knowing of the People of *Rome*, the Word *Catacomb* is never applied to the subterraneous Burying-places heretofore mentioned, but only to a Chapel in St. *Sebastian*, one of the seven stational Churches; where the antient *Roman* Calendars say, the Body of St. *Peter* was deposited, under the Consulate of *Tuscus* and *Bascus*, in 258.

It is true, that we cannot say that all those monstrous Heaps or Pyramids of Bones, seen in the *Catacombs*, are all Relicks of Christian Martyrs, since a vast Number of Slaves and Criminals, might have been buried in the same Places; but we cannot say neither, that the greatest Part of them are not the Remains of Christians, who, in those Days of cruel Persecution, sealed their Faith with their Blood: And that the zealous Christians who survived them, did not take all the Care they could, to have them distinguished from the despicable Remains of those who had suffered for their Crimes.

The greatest Pieces of *Antiquity* we have of this Kind still in Being, are the famous *Pyramids*, erected for *Sepulchres* of the *Egyptian* Kings and Queens, which Time, the Seasons, and the different Revolutions which have happened in so long a Course of Centuries, have till now left untouched.

This Manner of erecting stately Monuments for the Dead, was invented by *Artemisia*, who first had a most sumptuous one erected to *Mausoleus* her Husband, King of *Caria*; from whence Monuments of the same Kind, have also been called, since, *Mausoleums*.

The Christians have rivaled, if not excelled *Artemisia*, in the Architecture, and magnificent Decorations of their Tombs; in the Structure whereof, they have employed, besides the Hands of the most skillful Artists, the most precious and costly Materials Nature could supply them with, for that Purpose; as Marble, Porphyry, *&c.* so that very often, Persons who have not began to make their first Appearance in the World, but after they have been out of it, and having done nothing to eternise their Memory; their Descendants, by an extravagant Principle of a ridiculous Vanity, are forced to have Recourse to the insipid Pen of a beggarly Poet, and to the Chizel of a Sculptor, to supply the Want of Merit in a deceased Parent; and a vast Number of worthless Wretches had never been known to have lived, if they had not been to dye. I laugh when I see the despicable Remains of an *Avare*, covered with a sumptuous Pile of Marble, who, while living, could scarcely afford himself enough Cloathing to defend that same *Skeleton* against the Injuries of the Seasons, and could not rest in Peace, if he could know in the Silence of his Tomb, that he is buried under the Ruins of his Idols.

England surpasses all other Nations in Edifices of that Kind; but if our Magnificence on that Occasions, proceeds rather from a Principle of Vanity, than of Gratitude, is what I will not pretend to determine; I am only sorry to think, that our Posterity will be surprised to find so many despicable Ashes mixed with the sacred ones of our Kings, and with those of the *Cavendish*'s, *Stanhope*'s, *Godolphins*'s, *Cragg*'s, *Newton*'s, *&c. &c.* and condemn, perhaps, our depraved Taste, for having put that Jilt *Fortune*, in Com-promise, with so much Merit and Virtue.

Almost all the publick Edifices of the Antients, were adorned with Inscriptions, which have always very much tickled the Curiosity of *Antiquaries*.——*Sanchoniathon*, *Gideon*'s Contemporary, drew most of the Memoirs, whereof his History is composed, from Inscriptions, which he found in Temples, and on Columns, both among the *Heathens* and the *Hebrews*.

It appears, indeed, that the Antients engraved upon Pillars, the Principles of Sciences, as well as the History of the World.——Those mentioned by *Herodotus*, shew, that this was the first Way of instructing People, and transmitting Histories and Sciences to Posterity.——This is confirmed by *Plato*, in his *Hippias*, wherein he says, that *Pisistratus* engraved on Stone Pillars, Precepts useful for Husbandmen.——*Pliny* assures us, that the first publick Monuments were made of Plates of Lead; and the Treaties of Confederacy, concluded between the *Romans* and the *Jews*, were written upon Plates of Brass; that, says he, the *Jews* might have something to put them in Mind of the Peace and Confederacy concluded with the *Romans*.—The *Greeks*, and the *Romans* were great Admirers of Inscriptions, and extremely fond of being mentioned in them; and hence it is that we find so many, in those Countries of antient Learning, that large Volumes have been composed of them; as the Collection of *Greter*, &c.

The *Egyptian* Inscriptions were all in *Hieroglyphicks*, which were Symbols, or mystick Figures used among them, to cover or conceal the Secrets of their Theology.—*Hermes Trismegistus*, is commonly esteemed the Inventor of those Symbols, which according to *Clemens Alexandrinus*, are a Kind of real Characters, which do not only denote, but in some measure express the Things—Thus a Lion is the Hieroglyphick of Strength and Fortitude; a Bullock of Agriculture; a Horse of Liberty; a *Sphinx* of Subtilty, *&c.*—The religious Rites of the *Egyptians*, are mostly involved in such Figures of Animals, to be seen still on the Pyramids of *Eygpt*, and on the Mummies brought from thence.

The *Sepulchres* or *Tombs* have always had a Sort of *Inscription*, different from the rest, called EPITAPH, which is an Inscription engraven or cut on a *Tomb*, to mark out the Time of a Person's Decease, his Name, Family, and usually some Elogy of his Virtues, or good Qualities.

The Style of *Epitaphs*, especially those composed in *Latin*, is singular. *Cicero* has prescribed the Rules of it; *Accedat oportet oratio varia, vehemens, plena Spiritus, omnium sententiarum gravitate, omnium verborum ponderibus est utendum.* The Discourse must be diversified with Incidents, strong and full of Spirit; all the Thoughts must be noble and grave; and all the Expressions weighty.—An *Epitaph* is commonly neither Prose nor Verse; but a *Medium* between both.

At *Sparta*, *Epitaphs* were only allowed to People who died in Battle.——*Boxhornius* has made a Collection of *Epitaphs*, not very ample, but exceedingly well chosen. Father *L'Abbé* has likewise given a Collection of the like Kind in *French*, entitled *Tresor des Epitaphes*.——*Camden* and *Weever* have done something in the same Way in our *English Epitaphs*. An *Epitaph* is said to be yet wanting to the Duke of *Marlborough*'s Monument, though a Premium of 500 *l.* was offered by his Dowager, to him that should compose one worthy of the Hero deceas'd; and I can scarcely imagine that among so many ingenious Persons *England* affords, none has attempted to deserve

deserve the Premium; but I suppose that her Grace has answered them, as *Christ* did the other *Apostles*, when they inquired about the Fate of *John*, *Sed sic eum volo manere donec veniam, quid ad vos?* If I want him to stay as he is 'till I come, what's that to you? But however her Grace will give me Leave, I hope, to insert here the Plan for one of my own Invention.

Mortuus, sub hoc Marmore, frustra quereretur Johannes, Marlborough Dux, S. R. I. Princeps, Serenissimæ, et Potentissimæ Annæ, Magn. Brit. Fran. & Hibern. Reginæ, a Secretis, invictiss. Britan. Exercituum Dux Generalis, &c. &c. nam dum a Morte, quam sæpissimè in Campis Blenheim, Ramillies, &c. &c. fugaverit, Pallida, & Tremente insequeretur, a Divis ad Cœlum raptus, illam iterum Decepsit, atque Devixit.

It would be in vain to search here under this Marble the Remains of John *Duke of* Marlborough, *Prince of the Holy Roman Empire, Privy-Counsellor to the most Serene and most Potent Princess,* Anne, *of* Great-Britain, France *and* Ireland, *Queen; Generalissimo of the always victorious* British *Armies,* &c. &c. *for while Death (which he had so often put to flight in the Fields of* Blenheim, Ramilies, *&c. &c.) Pale and Trembling with Fear was following him, he once more deceived and conquered her, the Immortals having ravished him from her, and carried him into Heaven.*

The HIGH-WAYS, or *Roads*, of the antient *Romans*, are also Pieces of Antiquity worthy our Notice; and though almost spoilt by Time, yet some of them preserve still in some Places the Memory of their former Beauty and Convenience; and among them the *Flaminian* and *Apian* Ways are the most famous.

The *Flaminian Way* was made by the Consul *Flaminius* after his Conquest over the *Ligurians*; (or *Genoese*) it took its Beginning from the Gate *Flomentana*, (now called *Porta del Populo.*) and passing through *Tuscany* and *Umbria*, led to *Ariminum*; from whence it was afterwards continued by *Marcus Lepidus*, his Collegue, to *Bononia* (now *Bologna*,) and winding round the Marshes, near the Foot of the *Alps*, ended at *Aquileia*.

The *Appian Way* owed its Name to *Appius Claudius*, who made it with great Labour, and Expence; whence, on Account of its great Magnificence and Art, it was called the *Queen of Roads*.——— This Way began from the *Coliseo* (or *Pompey*'s Amphitheatre,) and leading through the *Porta-Capena* (a Gate of *Rome* so called) it extended as far as *Brundusium*.--- It was carried no farther than *Capua* by *Appius*; and who was the Author of it beyond, is uncertain, tho' by some it is imagined to be *Cæsar*, because *Plutarch* says, that the Care of this Way was committed to *Cæsar*, and he laid out a large Sum of Money upon it.--- It was last of all repaired by the Emperor *Trajan*, who, by draining of Marshes, levelling of Mountains, filling up of Vallies, and making Bridges where it was requisite, made it both expeditious and agreeable to Passengers.

The *Aurelian Way* is also very famous; so called from *Aurelius*, a Citizen of *Rome*, who made it.--- It took its Beginning from the *Aurelian* Gate, now called the Gate of St. *Pancrace*, and extending itself along the Maritime Places of *Tuscany*, ended at *Pisa*.

The *Numentan*, the *Prenestin*, and the *Labican* Ways, were all equally celebrated.--- The first began from the Gate *Viminalis*, now called the Gate of St. *Agnes*, and extended to the City of *Numentum*.--- The second, at the Gate *Esquila*, now called that of St. *Laurence*.---The third, from the Gate *Nevia* (which is now the *Porta Maggiore*, the great Gate,) and both led to the City of *Prebest*, now called *Pellestrino*, and to the celebrated City of *Labicana*.

There were several other Ways, such as the *Via Salaria*, the *Collatina*, the *Latina*, and others, which Authors have mentioned, and made famous; every one of which took its Name, either from the Man who made it, or from the Gate where it began, or from the Place where it ended; but the *Portuensian Way*, which reached from *Rome* to *Ostia*, surpassed them all, no Doubt, for Beauty and Conveniency; because as *Alberti* affirms it, it was divided into two Ways; between each of which there was a Course of Stones, a Foot higher than the Rest of the Way, and which served for a Division; so that People went one Way, and returned the other, whereby they avoided all Hindrances, or Jostling of each other; and it was indeed a very commodious Invention, considering the vast Concourse of People that flocked then to *Rome* from all Parts of the World.

The Antients made two Kinds of those Roads, which they called *Military Roads*; that is, one was paved with Stones, and the other covered all over with Gravel and Sand.——The Ways of the former Kind were divided into three Spaces, as far as by some Remains of them we are able to conjecture.——On the Middlemost, which was higher than the other two, and which rose a little in the Middle, that no Water might rest upon it, but run off immediately, went the People who travelled on Foot.——It was paved with irregular Stones; that is such as had unequal Sides and Angles.—The other two Spaces on each Side of this were made a little lower, and covered with Sand and fine Gravel, being appropriated for the Passage of Horses and other Cattle.——Each of these Spaces were but half as large as that in the Middle, from which they were divided by a Range of Stones, pitched Edge-ways; and there were other Stones, somewhat higher, at certain Distances, on which they got up when they mounted on Horseback, the Antients not having had the Use of Stirrops.---Besides the Stones for this Purpose there were others, a considerable deal higher, set an equal Distance, on which were engraven the Miles of the whole Journey: These were set up, and the Ways measured by *Cneius Gracchus*.

The *Military Ways* after the second Manner; that is, those made of Sand and Gravel, were raised by the Antients a little in the Middle; for which Reason no Water being able to rest upon them, and consisting of Matter, very apt to become dry in a short Time, they were always even and smooth, without either Dust or Dirt.--- Of this Sort there is one to be seen in *Friuli*, which leads into *Hungary*, which by the Inhabitants is called the *Posthumous Way*. There is another of them in the Country of *Padua*, which beginning from the said City, at the Place called *Argere*, passes through the Midst of *Cicogna*, the *Villa* of the two Brothers, the Count *Edward*, and *Theodore de Thieni*, and lead to those *Alps* which divide *Italy* from *Germany*.

The Antients had also magnificent *Villas*, or Country-houses, of which there is none extant, at present, though they pretend to shew some Ruins of that magnificent one of *Cicero* at *Tusculano*.—The antient *Romans* took particular Care to have the principal Front of their Country Buildings turned to the South, which Front had a Gallery, from which there was a Passage into the Kitchen, which received its Light above the Places adjacent; the Chimney being always in the Middle.——The Stalls for the Oxen were on the Left-hand, the Manger whereof was turned to the East.——The Bagnios were likewise on the same Side, and at an equal Distance from the Kitchen, and from the Gallery on Account of the Room they required.——The Oil-presses, and other Places for the Oil, answered the Places of the Bagnios, and were turned to the East, South, and West, on the Right-hand.——The Cellars were backwards, far from all Noise, and open to the North, that they might not be exposed to the Sun.——The Granaries were above, and received the same Light the same Way as the Cellars did.—On the right and left Sides of the Court were Stalls for the Oxen, for the Horses, Conveniencies for the Sheep, and other Animals.—Hay-lofts

lofts and Barns to put the Straw in, and Bake-houfes were as far from the Fire as conveniently could be. —The Mafter's Apartments were backwards, with the principal Front oppofite to the Farmer's Houfe; fo that the Halls were always in the back Part of thefe Country Buildings.

I had almoft forgot to mention *Aqueducts*, among Pieces of *Antiquities*, which is a Conftruction of Stone or Timber, built on an uneven Ground, to preferve the Level of Water, and convey it by a Canal from one Place to another; and in which the *Romans* were very magnificent.—They had fome *Aqueducts* that extended an hundred Miles.—*Frontinus*, a Man of confular Dignity, and who had the Direction of the *Aqueducts* under the Emperor *Nerva*, tells us of nine that emptied themfelves through 13594 Pipes of an Inch Diameter.—*Vigenere* has obferved, that in the Space of four and twenty Hours, *Rome* received from thefe *Aqueducts*, no lefs than 500,000 Hogfheads of Water.—There is ftill an *Aqueduct* of a *Roman* Fabrick, which brings the Water from *Arcueille* to *Paris*.—The *Aqueduct* built by *Lewis* XIV. King of *France*, near *Maintenon*, for carrying the River *Bure* to *Verfailles*, is perhaps the greateft in the World.—It is 7000 Fathoms long, and its Elevation 2560 Fathoms; containing 242 Arcades.

The Pieces of Antiquity we have left to examine, as *Bufts*, or *Buftos*, *Medals*, *Medallions*, *Manufcripts*, *&c.* are more properly called *Antiques*.

Busts or *Buftos* denote the Figure or Pourtrait of a Perfon in *Relievo*, fhewing only the Head, Shoulders, and Stomach; the Arms being lopped off, ordinarily placed on a Pedeftal or Confole.

The *Buft* is the fame with what the *Latins* called *Herma*, from *Hermes*, *Mercury*; the Image of that God being frequently reprefented in this Manner among the *Athenians*.

The *Antique Buftos*, were commonly made with the Head of Marble, and the Shoulders and Stomach of Porphyry, or Bronze.—Of them there are none to be feen, except in *France* among the King's Collection of *Antiquities*; at *Rome* and *Florence*, among thofe of the Pope, and of the Grand Duke; though fome of the moft curious of our *Antiquaries*, pretend to be poffeffed of thofe rare Pieces of *Antiquities*, as well as of,

Medals, which are fmall Figures or Pieces of Metal, in the Form of a Coin, deftined to preferve to Pofterity the Pourtrait of fome great Men, or the Memory of fome glorious Action.

Medals have two Parts or Sides, the one called the Face or Head, and the other the Reverfe of the *Medal*. Each Side has three Parts, *viz.* the *Area*, or Field; the Rim or Border; and the *Exergum* or *Exergue*, which is a Word, Motto, or the like beneath the Ground whereon the Figures are reprefented, though oftner placed in the Reverfe of the *Medal*. —What we find in the *Exergum* is fometimes no more than fome initial Letters, whofe Meaning we are unacquainted withal; though fometimes too they contain *Epochas*, or Word, that may be accounted an Infcription.—The *Type* or *Device* of the *Medal* is the Figure reprefented; and the *Legend* is the Writing, efpecially that around the *Medal*; tho' in the *Greek Medals* the Infcription is frequently in the *Area*.—The *Legend* ferves to explain the *Figures* or *Devices*.

Legends on *Medals*, are either in *Latin* or *Greek*; and their ordinary Subjects, the Virtues of Princes, the Honours they have received, Confecrations, fignal Events, publick Monuments, Deities, publick Vows, Privileges, *&c.* The *Greek* Characters, confifting of Majufcule, or capital Letters, appear uniform on all *Medals*; no Change or Alteration being found in confronting the feveral Characters; though it is certain there was in the ordinary Ufe and Pronunciation.——All we obferve on *Medals*, is fometimes a Mixture of *Greek* and *Latin* Characters.—— The Character was preferved in all its Beauty till the Time of *Gallienus*.

From the Time of *Conftantine*, and for the Space of 500 Years, the *Latin* Tongue was alone ufed in the *Legend* of *Medals*, even in thofe ftruck at *Conftantinople*.—*Michael* begun the firft, whofe *Legend* was in *Greek*; and from his Time the Language, as well as the Characters, began to alter for the worfe.

Every *Medal* has two *Legends*, that on the Front, and that on the Reverfe. That on the Front for the generality, ferves only to diftinguifh the Perfon, by his Name, Titles, Offices, *&c.* and that on the Reverfe is intended to exprefs his noble and virtuous Sentiments, his good Deeds, and the Advantages the Publick has reaped by him. This however does not hold univerfally; for fometimes we find the Titles fhared between both Sides, and fometimes alfo the *Legend*.

In the *Medals* of Cities and Provinces, as the *Type* or *Head* is ufually the *Genius* of the Place, or at leaft fome *Deity* adored there; the *Legend* is the Name of the City, Province, or Deity, or of both together; and the Reverfe fome Symbol of the City, Province, *&c.* frequently without a *Legend*; fometimes with that of one of its Magiftrates.

It feems as if the Antients had intended their *Medals* fhould ferve both as Images, and as Emblems; the one for the common People, and the other for Perfons of Tafte and Parts: The Images to reprefent the Faces of Princes; and Emblems to reprefent their Virtues and great Actions; fo that the *Legend* is to be confider'd as the Soul of the *Medal*, and the Figure as the Body.

Mr. *Patin* and F. *Joubert* imagine, that the antient *Medals* were ufed for Money, and that they had all (even without excepting the *Medallions*) a fixed regular Price in Payments. But thofe of a contrary Opinion maintain, that we have no real Money of the Antients; and that the *Medals*, we now have, never had any Courfe as Coins; though we may reafonably keep a Medium between both, and very well fuppofe, that fome of thofe antient *Medals* we have, were real Money, and fome not; but how to diftinguifh the one from the others, is a very difficult Matter; fince we find none number'd by our *Antiquaries* among the *Roman* Coins, and all that Mr. *Patin* alledges in Defence of his Opinion, is but mere Suppofition.

Antient *Medals*, properly called *Antiques*, are divided into thofe of the higher and lower Antiquity; and thofe again fubdivided into *Greek* and *Roman Medals*.

The *Greek Medals* are fuch as have either the Heads of *Greek* Emperors, or *Greek Legends*.—Thefe are the moft antient and the moft beautiful; fince the *Greeks* ftruck *Medals* in all the three Metals with fuch exquifite Art, as the *Romans* could never come up to; the *Greek Medals* having a Defign, Accuracy, Energy, and a Delicacy, that expreffes even the Mufcles and Veins, and it muft be owned goes infinitely beyond any thing of the *Romans*.

Medals of the higher Antiquity of both Nations, confift of fuch as were ftruck before the End of the third Century; and thofe of the lower, of fuch as were ftruck between the third and ninth Century.

The *Roman Medals* are diftinguifhed by confular and imperial.

The *Confular Medals* are certainly the moft antient Medals of the *Romans*, fince they were ftruck before the Emperors had ufurped the fovereign Authority, and when the Republick was govern'd by Confuls; and yet thofe of Copper and Silver do not go beyond the 484th Year of *Rome*; nor thofe of Gold beyond the Year 546. If any are produced of an older Date, they are fpurious.

Of the *Confular Medals* Father *Joubert* reckons about 50 or 60 of Gold; 250 of Copper; and near

1000 of Silver.--- *Urſinus* and M. *Patin* have diſpoſed them genealogically, according to the Order of the *Roman* Families, and computes 1037 *Conſular Medals*, which relate to one hundred ſeventy-eight *Roman* Families.--- The *Medals*, whoſe Edges are cut, or notched like Teeth, which is a Sign of their Purity and Antiquity, are common among the *Conſular*; but we have none later than *Auguſtus*. There are ſeveral of them, however, among thoſe of the Kings of *Syria*.

Among the *Imperial Medals* we diſtinguiſh between the upper and the lower Empire.--- The upper Empire commenced under *Julius Cæſar*, and ended about the Year of *Chriſt* 260.--- The lower Empire comprehends near 1200 Years, *viz.* 'till the taking of *Conſtantinople*, by *Mahomet* I. Emperor of the *Turks*.--- It is the Cuſtom however to account all the *Imperial Medals*, 'till the Time of the *Palæologi*, among the *Antique*, and yet we have no *Imperial Medals* of any conſiderable Beauty, later than the Time of *Heraclius*, who died in 641.

After the Time of *Phocas* and *Heraclius*, *Italy* became a Prey to the Barbarians; ſo that the Monuments we have remaining of thoſe two Emperors finiſh the Set or Series of *Imperial Medals*.--- To theſe are added the *Medals* of the lower Empire and the *Greek* Emperors; whereof a Series may be made as low as our Time, taking in the Modern ones.--- Mr. *Patin* has made an ample Collection of the *Imperial Medals* 'till the Time of *Heraclius*.

The *Gothic Medals* make Part of the *Imperial* ones: They are ſo called, as having been ſtruck in the Times of the *Goths*, and in the Declenſion of the Empire; and ſavouring of the Ignorance and Barbarity of the Age.

Medals have been ſtruck in three ſeveral Kinds of Metal, which make three ſeveral Sets or Series in the Cabinet of the Curious, we mean as to the Arangement of the ſeveral *Medals*.--- The Gold Series, for Example, of *Imperial*, amounts to about 1000, or 1200; that of Silver may amount to 3000; and that of Copper, in all of three Sizes, great, middle, and ſmall, to 6 or 7000.——Of theſe the Series of middle Copper is the moſt compleat and eaſily formed, as it may be brought down to the Fall of the Empire in the Weſt, and the Time of the *Palæologi* in the Eaſt.

The Series of *Medals* are uſually form'd from the Side called the Head.——In the firſt Claſs is diſpoſed the Series of Kings.——In the ſecond, that of the *Greek* and *Latin* Cities.——In the third, the *Roman* Conſular Families.——In the fourth, the Imperial. ——In the fifth, the Deities; to which may be added a ſixth Series, conſiſting of *Medals* of illuſtrious Perſons.

It is not either the Metal or the Size which makes a *Medal* valuable; but the Scarcity of the Head, or of the Reverſe, or the *Legend*.——Some *Medals* are common in Gold which, yet, are very rare in Copper; and others very rare in Silver, which in Copper and Gold are very common.——The Reverſe is ſometimes common, where the Head is ſingular; and ſome Heads are common whoſe Reverſe is very ſcarce.

There are alſo *Medals* very ſcarce in ſome Sets, and yet very common in others.——For Inſtance, there is no *Antonia* in the Sets of large Copper, and the middle Copper is forced to ſupply its Place.——The *Otho*'s are very rare in all the Copper Sets, and yet common in the Silver ones.—*Otho*'s of the large Copper are held at an immenſe Price; I had one, which I could have ſold for five hundred Pounds to the late Duke of *Devonſhire*, if his Grace could have been convinced that it was genuine; but as there were but five of them ſtruck, and the Dye broke at the fifth; and *Otho* ſurvived that Accident but a few Days, the Duke was pleaſed to tell me, that he ſuſpected mine to be a ſpurious one, becauſe he knew of four already depoſited in the Cabinets of ſome Princes of *Europe*; particularly of the King of *France*, the Pope, the Grand Duke, *&c.* and that he could not believe mine to be the fifth, for no other Reaſon, than becauſe thoſe *Otho*'s were ſo ſcarce; though thoſe on the Middle Copper are ſold at forty or fifty Piſtoles; and the *Gordian Affrick*, near as high.— Singular *Medals* are invaluable.

We commonly underſtand by ſingular *Medals*, ſuch as are not found in the Cabinets of the Curious, and are only met with by Chance, as my *Otho*, heretofore mentioned; but in a ſtricter Senſe are ſuch whereof there is not above one of a Kind extant.— When a *Medal* exceeds the Value of ten or twelve Piſtoles, it is worth what the Owner pleaſes.——The *Peſcennius Niger* and *Pertinax* are very rare in all Metals.—The *Didius Julianus* is hardly found any where, but in large Copper.—*Carteron* a *Dutchman*, and ſome others, have made Mills on purpoſe to ſtrike *Medals* that never were, as thoſe of *Cicero*, *Virgil*, *Priam*, *&c.*

There are no true *Hebrew Medals*; thoſe we ſee of the Heads of *Moſes* and *Jeſus Chriſt*, are ſpurious and modern.—We have a few Shekels of Copper and Silver, with *Hebrew* or *Samaritan Legends*; but none of Gold; tho' there is Mention made of one in the King of *Denmark*'s Cabinet.—Father *Souciet* has a Diſſertation on the *Hebrew Medals*, commonly called *Samaritan Medals*, where he diſtinguiſhes accurately between the genuine and ſpurious, and ſhews that they are true *Hebrew* Coins ſtruck by the *Jews*, but on the Model of the Antients, and that they were current before the *Babyloniſh* Captivity.

Theſe *Samaritan Medals* have been infinitely canvaſſed by the Criticks, both *Jew* and *Chriſtian*; particularly Rabbi *Alaſcher*, Rabbi *Bartenora*, Rabbi *Azarias*, Rabbi *Moſes*; Father *Kircher*, *Vellalpandus*, *Waſerus*, *Couzingius*, *Hottinger*, Father *Morin*, *Walton*, *Hardouin*, *Spanheim*.—It is from the Characters, not from being ſtruck by the *Samaritans*, that they are called *Samaritan Medals*, and none are genuine *Samaritan*, of which Father *Souciet* diſtinguiſh four Kinds.

The firſt bears expreſly the Name of *Simon*, and the Subject for which they were ſtruck, *viz.* the Deliverance of *Jeruſalem*.—The ſecond Kind have not the Name of *Simon*, but only the Deliverance of *Sion* or *Jeruſalem*.—The third Kind have neither *Simon*, nor the Deliverance of *Sion*; but only the *Epocha*'s, firſt Year, ſecond Year, *&c.*——The fourth Claſs have neither any Inſcriptions, nor any thing whence one may judge of the Time when they were ſtruck.

The three firſt Kinds were certainly ſtruck after the Return from the *Babyloniſh* Captivity, and in the Time of *Simon Maccabeus*, after *Jeruſalem* had been freed from the Yoke of the *Greeks*. But tho' ſtruck after the Captivity, Father *Souciet* obſerves, their Character, ſhews itſelf to be that of the antient *Hebrew*, which was uſed before the Captivity, and the Uſe whereof was loſt by the People, during their Sojourn in *Babylon* and *Chaldea*; but reſtored after their Return on the ſame footing as before. He adds, that the Legends are pure *Hebrew*, ſuch as was ſpoke before the Captivity; that the Character therefore is the true antient *Hebrew* Character; that it was the Cuſtom to write each Language in its proper Character; that if they had departed from this Rule, they had doubtleſs uſed the new Character they had brought with them from *Babylon*; that there could be no other Reaſon, but that on ſettling all Things on the ſame Foundation they were on before the Deſtruction of *Jeruſalem*, that could have induced them to uſe this Character of their Coins. And laſtly, that theſe *Medals* were not ſtruck by the *Samaritans*, but by the *Jews* and in *Jeruſalem*.

Father *Souciet* is very full on all theſe Points, and to the Proofs drawn from *Medals*, adds two others foreign thereto; the firſt drawn from the Reſemblance of the *Greek* Letters, introduced by *Cadmus* the *Phœnician*, with the *Hebrew* Character; which was the ſame with that of the *Phœnicians*, as the Language of thoſe People was the ſame with that of the

Hebrews.—The ſecond drawn from ſeveral various Readings in the Scriptures, which cannot be well accounted for otherwiſe, than by ſuppoſing that the Books wrote before the Captivity, were in the ſame Character with thoſe *Medals*, and which ſhew, that it is the Conformity which certain Letters have in that Character, that has deceived the Copiſt.

From the whole, he concludes, that this Character of the *Medal* is the true antient *Hebrew* Character; and that to judge of the various Readings of the *Hebrew* Text, and the Differences of the antient *Greek* and *Latin* Tranſlations, either from themſelves, or from the *Hebrew* Text, Recourſe muſt be had to this Character.

The *Medals* which are defaced or not entire, are called *mutilated Medals.*—And thoſe wherein we find the Letters *Reſt*, which ſhew that they have been reſtored by the Emperors, *Redintegrated Medals.*

Spurious Medals are either dipt or plated.——The dipt ones are ſtruck of pure Copper, and afterwards ſilver'd (a Contrivance the Curious have frequent Recourſe to, in order to compleat their Sets.)——The plated or cover'd *Medals*, are thoſe which have only a thin Silver Leaf over the Copper, but which are ſtruck ſo artfully, that the Cheat does not appear without cutting them: Theſe are the leaſt ſuſpected.

There are alſo modern *Medals*, which are ſuch as have been ſtruck in *Europe*, ſince the Uſurpation of the *Goths* has been extinct; and Sculpture and Engraving have begun to reflouriſh.—The firſt was of *John Huſs*, in 1415; if any pretend to be more antient they are ſpurious.——In *France* there were none ſtruck with the King's Effigy before the Reign of *Charles* VII.

Theſe *Medals* have alſo their Series; that of the Popes commences only, according to Proteſtant *Antiquaries*, from *Martin* V. in 1430; from which Time we have, as they pretend, a Series of Papal *Medals*, tolerably compleat, to the Number of 5 or 600. One might likewiſe have a Series of Emperor's from *Charlemaigne*, provided one took in the current Coins; but in Practice they commonly commence from *Frederick* II. in 1463. The Series of the Kings of *France* is the moſt numerous and moſt conſiderable of all the modern Kings.

The Study of modern *Medals* is ſo much the more uſeful, as they afford more Light than the antient; and mark the Time and Conſequences of Events more preciſely; whereas the Legends or Inſcriptions of antient *Medals* are very ſhort and ſimple, and generally without any Date. Add to this, that the antient *Medals* are extremely liable to be counterfeited, by reaſon of the exceſſive Price they bear; but in the modern there is not near the Danger of being impoſed upon.

Mr. *Vaillant* has collected all the *Medals* ſtruck by the *Roman* Colonies; Father *Hardouin* thoſe of the *Greek* and *Latin* Cities; Father *Noris* thoſe of *Syria.* Mr. *Morel* has undertaken an univerſal Hiſtory of Medals, and promiſed Cuts of 25000. He ranges them under four Claſſes; the firſt contains the *Medals* of Kings, Cities, and People, which have neither the Name or Image of the *Roman* Emperors: The ſecond contains the Conſular *Medals*: The third the Imperial *Medals*; and the fourth the *Hebrew*, *Punick*, *Parthian*, *French*, *Spaniſh*, *Gothick* and *Arabick.* He begins with the Imperial and brings them down as low as *Heraclius*: He places the *Latin* in order before the *Greek.* *Ad. Occo*, a *German* Phyſician, and Count *Mezzabarba*, have endeavour'd to range the *Medals* in a chronological Order; but that is impracticable, for in many of the Imperial *Medals* there is no Mark, either of the Conſulate, or of the Year of the Reign; and ſince *Gallienus*, there are few of the Imperial *Medals* that bear the leaſt Trace of Chronology.

The moſt noted *Medaliſts*, or Authors on *Medals*, are *Antonius*, *Auguſtinus*, *Wolf. Lazius*, *Fill. Urſinus* a learn'd Antiquary, *Æneaſvicus*, *Hubert Goltrius* a famous Engraver, *Oiſelius*, *Sequin*, *Occo*, *Triſtan*, *Sermond*, *Vaillant*, *Patin*, *Noris*, *Spanheim*, *Hardouin*, *Morel*, *Joubert*, *Mezzabarba*, *Beger*, *&c.* We have had alſo, lately, in *England*, Perſons of the firſt Rank who were very good Medaliſts; as the late Duke of *Devonſhire*, Sir *Andrew Fountaine*, Dr. *Sloan*, *&c.* as alſo Mr. *Cox* and Mr. *Goſſet.*

As for *Medallions* they are nothing elſe but *Medals* of an extraordinary Size, which Princes uſe to preſent as a Token of Honour or Eſteem, for which Reaſon the *Romans* called them *Miſſilia.*

Medallions are diſtinguiſh'd from *Medals* by the Volume, that is, by the Thickneſs and Compaſs; as well as by the Largeneſs and *Relievo* of the Head.—They were never current Coins, as *Medals* probably were; they were ſtruck purely to ſerve as publick Monuments, or to make Preſents of.—There cannot be any Set made of them, even though the Metals and Sizes ſhould be join'd promiſcuouſly; the beſt Cabinets do not contain above four or five hundred; though Mr. *Morel* promiſes us Figures of above a thouſand.

Authors vary about the Time when they firſt began to be ſtruck; ſome *Antiquaries* will have it under the Empire of *Theodoſius*: But this muſt be a Miſtake; for there were ſome ſtruck even in the Time of the upper Empire; witneſs a *Nero*, a *Trajan*, and an *Alexander Severus*, ſtill extant.——*Medallions* of Gold are very rare, as alſo thoſe of a large Copper.

Medals and *Medallions* are almoſt coin'd in the ſame manner with the Money; with only this Difference, that Money having but a ſmall *Relievo*, receives its Impreſſion at a ſingle Stroke of the Engine; whereof for *Medals* or *Medallions*, the Height of their *Relievo* makes it neceſſary that the Stroke be repeated ſeveral Times; to this end the Piece is taken out from between the Dyes, heated, and return'd again; which Proceſs in *Medallions*, and large *Medals*, is ſometimes repeated fifteen or twenty Times, ere the full Impreſſion be given; Care being taken every Time the Planchet is remov'd to take off the ſuperfluous Metal, ſtretch'd beyond the Circumference with a File.—Add to this, that *Medallions* and *Medals* of high *Relievo*, by reaſon of the Difficulty of ſtamping them in the Balancier, or Preſs, are uſually firſt caſt or moulded in Sand, like other Work of that Kind, and are only put in the Preſs to perfect them; by reaſon the Sand does not leave them clean, ſmooth, and accurate enough.—*Medals* therefore receive their Form and Impreſſion by Degrees; Money at once.

The Rule whereby they judge the *Medal* to be ſufficiently ſtamp'd is, when feeling it with the Hand, it is found firm, and not to be ſhaken, as filling the Dye equally every where.

Antient MANUSCRIPTS, are alſo Pieces of *Antiquity* very much eſteem'd by *Antiquaries*, and other curious, the great Number of rare and uncommon ones rendering always a Library valuable.

There are antient *Manuſcripts*, which like *Medals* of the firſt Claſs, have no Price, ſuch as all Originals of any Conſequence, either Hiſtory, Sacred or Prophane, Divinity, eſpecially the Books of the New Teſtament; thoſe of the Old given for ſuch, being nothing elſe but ſimple Copies, though even ſome of thoſe Copies are very valuable; the antient Fathers of the Church as St. *Athanaſius*, *Origen*, *Juſtin the Martyr*, St. *Baſil*, St. *Jerome*, St. *Auguſtin*, St. *Cyprian*, St. *Ambroſe*, &c. The Hiſtory of both the *Greek* and *Roman* Empire. That of the different Monarchies which have riſen from the Ruins of thoſe two Empires, *&c. &c.* but among thoſe Originals and ſcarce Copies, there are ſo many ſpurious ones, tho' ſo well counterfeited, that the beſt Antiquary is often deceived in them. There are even ſome Manuſcripts written, ſince the Invention of Printing, which are impoſed upon us, as having preceded that ingenious and uſeful Art.

It is not very eaſy to diſtinguiſh an antient *Manuſcript* from a counterfeited one, eſpecially thoſe in the

oriental

oriental Language, whose Originals being all lost, by the different Revolutions happening in those Countries where they were first written; and those Languages, as they are spoken at present, very different from what they were at first, we cannot compare them with the Copies, and therefore are obliged to trust to those Copies, often but too imperfect, as if they were Originals.

I know very well that all *Originals* in those Languages have not undergone the same Fate; especially as to the Books of the new Testament, and the Works of some of the antient Fathers of the *Grecian* Church, of which there are still some few Originals extant, which have been saved from the Ruin of the Eastern Empire; and even those are but in a very small Number, and to be seen but in the most celebrated Libraries, as those of the *Vatican*, of the King of *France*, of the *Grand Duke*, the *Bodleian* and *Cottonian* Libraries, &c.

The best *Manuscript* Bibles are those copied by the *Jews* of *Spain*. Those copied by the *Jews* of *Germany* are less exact but more common.—— The two Kinds are easily distinguished from each other; the former being in beautiful Characters like the *Hebrew Bibles* of *Bomberg*, *Stephens*, and *Plantin*; the other in Characters like those of *Munster* and *Gryphius*.—— *F. Simon* observes, that the oldest *Manuscript Hebrew Bibles* are not above 6 or 700 Years old; nor does *Rabbi Menaham*, who quotes a vast Number of them, pretend any of them exceed 600 Years.

There are several different *Manuscripts* of the Bible in all the oriental Languages, *viz. Hebrew*, *Samaritan*, *Chaldee*, *Syriac*, *Arabic*, *Æthiopic*, *Cophtic*, (of which there's one in the King of *France*'s Library) and *Greek*.

The great Difference found between the different *Manuscript* Copies of the antient Fathers, and the Faults and Imperfections they are crowded with, proceed sometimes from the Ignorance, sometimes from the Unfaithfulness, and sometimes from the Partiality of the Coppists; which the better to understand, we must know, that most of those Copies were written by Monks, who often for want of very well understanding the true Sense of those Fathers, whose Works they were employed to copy or transcribe, or perhaps divided in their Sentiments, as to religious Matters, each of them gave to the Original what Sense they thought most favourable to the Sect they were most inclined to; and as the oriental Church has been always infected with Heresy and Schism, and its Peace disturbed by an infinite Number of different Sects, it is not at all surprising, if a great many of the antient *Manuscripts* of the Fathers, we have among us, have often made us suspect the Authors of Heterodoxy, and have even been often the Occasion of our religious Divisions.

I do not believe it necessary to take any great Notice here of *Mummies*, which are also considered as Pieces of Antiquities, since we have but very few, perhaps none at all, genuine ones; and as ever since our Antiquaries have dealt that Way, we have no less than twenty *Ptolomies*, besides as many *Cleopatra's* brought over to us, besides those left under the *Egyptian* Pyramids, and reserved, as I suppose, to divert our Posterity, as these have diverted us, though at the same Time they have very much puzzled our Antiquaries in the Explanation of the *Hieroglyphicks*, those *Mummies* are poudered with.—— I remember very well that the last *Cleopatra* I saw (for I have seen already five or six for my Share) one of those learned Gentlemen was poring over the Hieroglyphicks, the Royal Mummy was adorned with, which were not very few, by which his pretending he understood very well that it was really *Cleopatra*, he convinced me that he knew nothing of the Matter, and that he was as ignorant in Hieroglyphicks, as he was unacquainted with *Cleopatra*'s Face, while living.

There are still to be seen in some Cabinets some *Cornelian Antiquities*; either in *Relievo*, or indented, which are the finest Pieces of antique Engravings we have left, but there are very few genuine, and a vast Number of spurious ones to be met with every where, especially in *Italy*, where they drive a Sort of Trade of them, as well as of spurious Medals.

In the late King's Reign an *Italian* Gentleman, with whom I had been acquainted at *Bologna*, had brought some over with him in *Regalo*, as he was pleased to term it; for some *English* Gentlemen he had known while on their Travels in *Italy*; he landed at *Dover*, where being addressed to a noted Banker, who was to pay him some Money, the Banker asked him if he had brought any Thing along with him liable to pay Duty? My Friend answered he had nothing but his Cloaths, and a few *Antique Cornelians*, which he shewed him, and told him farther, he designed them as Presents for some Friends he had in *London*; the Banker told him that they were contraband Goods, and that he did run the Risk, if they were found upon him, to have them confiscated; but if he pleased, he the Banker, would purchase them, and thereby prevent any Accident of that Kind; my Friend answered, that they were not to be sold, and that he could not imagine that the Officers of the Customs could ever suspect he had such Things, or offer to search him upon the Road, when they had not done it at his Landing. Therefore he and the Banker parted, seemingly very great Friends; but my Friend was no sooner arrived at *Canterbury*, but he was visited at his Inn by the Officers, in all Appearance, on the Intelligence of the over-officious Banker, and had his *Cornelians* taken from him, which he valued at 250 *l.*—— At his Arrival in *London* he applied to General *Wade*, to whom he was recommended: The General, who is one of the most polite, most complaisant, most obliging, and most generous Gentleman of the Age, promised him to assist him all he could in the Recovery of his *Antiques*, and in Fact applied, for that Pupose, to the King himself. His Majesty, who naturally abhorred Perfidy and Treachery, and was always very ready to do good, told General *Wade* that he would have Restitution made of those Effects; but when that Order was notified to the Custom-house, Part of the *Antiques* were missing, and there was so many Fees to pay for what was left of them, that my Friend thought proper to abandon the Prey; and his Friends were obliged to be contented with his generous and liberal Intention.

This Narration, will be thought, perhaps, foreign to my Subject, though, in my Opinion, it will prove of some Utility to Travellers, by cautioning them against those Sorts of Antiquaries, who are always ready to purchase *Antiques*, as well as other Things, at a very moderate Rate; and I would have them avoid by all means trusting too much to the Probity of *Dover* Bankers, who are *Mistagogi* of a new Stamp, since instead of shewing to Strangers the *Antiquities* of the Place, they on the contrary shew to those of the Place, how to find *Antiquities* among Strangers.

ANTHROPOPHAGY.

ANTRHOPOPHAGY, from ανθρωπος, Man, and φαγειν, *Edere*, to Eat, is the ſavage and barbarous Cuſtom of eating human Fleſh, which ſome Authors believe to have began ſoon after the *Deluge*; and attribute it to the Giants, occaſioned perhaps, by the Deſcription the antient Poets give us of the Ferocity of their Manners, and of their monſtrous Size, which might have made thoſe Authors ſuppoſe that they had a very voracious Stomach; and that the *Deluge* having laid the Earth waſte and deſolate; the Giants, through Scarcity of other Proviſions, were obliged to eat human Fleſh; though *Nimrod*, who was the firſt of that Species of Men, is not reproached with it in the Sacred Hiſtory, and is called by *Moſes*, Gen. x. 9. *a mighty Hunter before the Lord*; for it is not to be ſuppoſed that he choſe his Sport among Men, elſe, as there were then but very few, he had ſoon extirpated, a ſecond Time, the human Race from the Face of the Earth.

Anthropophagy has always been rather the Vice of the Age, than of any Nation or Country; and *Homer* by repreſenting the *Cyclops*, the *Leſtrigons*, and *Scylla*, as *Anthropophagi*, or Men-eaters, does it only to condemn the Manner of the Times preceding his own, and not to upbraid any Nation in particular, with that barbarous Cuſtom. Though in moſt Nations, before the Arts and Sciences had been introduced among them, to curb their natural Ferocity, and ſoften their Manners, were addicted to that barbarous Cuſtom. Tho' the moſt ſenſible Part among them, which we'll ſuppoſe the moſt conſiderable, Men of an Underſtanding ſuperior to the reſt, and who conſulted their Reaſon, rather than their ſenſual Appetites, could find within themſelves, a certain innate Averſion to a Cuſtom ſo contrary to Humanity and Compaſſion, and to that natural Inclination every Individual has of propagating his Species. They could even have been directed in that by the Examples of other Animals, who ſeldom devour thoſe of their own Species.

Orpheus is ſaid to have been the firſt who drew Men from that ſavage Cuſtom, which gave Riſe to the Fable of his taming Lions and Tygers.

Sylveſtres homines, ſacer, interpreſque Deorum
Cædibus, & VICTA FÆDO *deterruit Orpheus:*
Dictus ab hoc lenire Tigres, rapidoſque Leones.
HORACE.

Mr. *Petit*, a famous *French* Surgeon, has diſputed the Queſtion, whether or no *Anthropophagy* was contrary to Nature, though the Controverſy is not of a very great Conſequence to Mankind, nor the Queſtion very difficult to be reſolved. Nature, conſidered in itſelf, and abſtracted from all its differential Qualities, is a careful and tender Mother, which contributes all in her Power towards the Preſervation and Propagation of its Productions, and ſeeks the Deſtruction of none; never better pleaſed than while the rational, ſenſitive, and vegetable World are in a flouriſhing State, and that juſt Œconomy and Subordination eſtabliſhed from the Beginning, between every Individual for the Preſervation of the whole, ſubſiſts always in the ſame good Order. But if we can reaſonably ſuppoſe, that we might ſee Nature in another Proſpect, as in ſome Meaſure partial in its Operations, and more intent on the Preſervation of a certain favourite Kind; we'll ſoon underſtand that the favourite Kind muſt be the human Race, without whoſe Concurrence, Nature itſelf would ſoon be in a languiſhing State, ſince its natural potential Fertility, the Temperature of the beſt Climates, and the Influences of the moſt auſpicious Planets, would remain unactive; or rather their united Efforts prove ineffectual, if not helped, in their different Operations by Men's Induſtry: 'Tis that Induſtry alone, which excites the natural Fertility of Nature's Womb, by procuring an Ingreſs into it, to the prolifick Beams of that radiant Planet, whoſe Approaches change her deepeſt Mourning, into the inexpreſſible Joys of a bridal Day. How could it be then a Queſtion, whether or no the Deſtruction of ſo kind a Friend, and ſo potent an Ally, is againſt Nature or no? But without having Recourſe to thoſe Metaphyſical Conſiderations, let us but conſult ourſelves, and liſten to the Dictates of that ſame Nature within us, and we'll ſoon find by our natural Appetite nauſeating againſt ſuch barbarous Cuſtom, that *Anthropophagy* is againſt Nature; and that thoſe who have followed it muſt have ſilenced its Dictates, and proved inſenſible to its Motions.

Some extraordinary Circumſtances, when Famine, Hunger, and the Preſervation of a conſiderable Body of Men, ſeem to have tolerated that Cuſtom, prove nothing in Defence of *Anthropophagy*, or that it is not unnatural to devour our fellow-Creatures; even the moſt obdurate, eſpecially thoſe who had not renounced all Sentiments of Humanity, have compaſſionated the unhappy Fate of thoſe reduced to that cruel Neceſſity; which has been ſometimes the deplorable Fate of People at Sea, who have been forced to decimate themſelves, and eat ſome of their Companions to ſave the reſt; but then, without that cruel Expedient, the whole Crew was in imminent Danger, and there was no other Remedy left for their Preſervation, but that; and then with what a Flood of Tears and Number of Sighs, Nature uſed to ſeaſon thoſe unſavory Viands! Though were we to ſilence Nature, ſteal the cruel Banquet from our Sight, and conſult only our ſenſual Appetites, human Fleſh being fed more deliciouſly than others, is alſo more palatable and ſucculent; but I hope that our ſenſual Appetite is not to be accounted as a Nature in us.

During long Sieges, the Beſieged being reduced to the laſt Extremity for want of Proviſions, have thro' Obſtinacy, and rather than ſurrender to an implacable Enemy, have had Recourſe to that cruel Expedient. On thoſe Occaſions, Mothers themſelves have devoured their own Children; as it happened while *Jeruſalem* was beſieged by *Titus*, which being related to *Titus* himſelf, at that Time the moſt human and the moſt compaſſionate of Mankind; he was ſo ſhock'd at it, that he called to the Gods tutelary of the *Roman* Empire to witneſs, that he was guiltleſs of that Piece of Barbarity; in Fact, the *Jews* were the only ones to be blamed on that Occaſion, ſince they knew they muſt ſurrender at laſt, and could not do it to a more merciful and generous Foe than was *Titus*.

Thus ſome Chriſtian Countries have alſo been reduced, on ſuch Occaſions, to the ſame Neceſſity; but as ſuch Practice is contrary to the Principles of the Chriſtian Religion, which tolerates nothing but what's agreeable to the ſtricteſt Rules of Humanity, and that we have no authentick Memoirs to ſupport thoſe Accounts, we'll look upon them as Apocryphal.

'Tis true, that Chriſtianity was accuſed in its Infancy, by the Pagans, of being guilty of *Anthropophagy*; of celebrating *Thyeſtea Epula*, and allowing *Œdipodei concubitus*.——They affirmed that in the Myſteries of their Religion, the Chriſtians killed a Child, and feaſted on his Fleſh; but this proceeded from the imperfect Notion they had of thoſe Myſteries, particularly that of the *Euchariſt* and Communion, wherein the Chriſtians confeſſed they received the Fleſh and Blood of their divine Saviour *Jeſus Chriſt*; and as the Pagans were ignorant in what Manner that great and incomprehenſible Myſtery was effected, they took Occaſion from their Ignorance to calumniate

calumniate the *Christians*, as if they had been really *Anthropophagi*.

Anthropophagy is banished at present from among all civilized Nations, and confined to some Parts of *Africa* and *America*, among barbarous and despicable Nations, who have nothing of *Man* but the single Appearance, and who feast on the Flesh of their Enemies, taken Prisoners in War. 'Tis said that the *Hottentots* at the *Cape of good Hope*, are of that Kind; and I have been informed by a *Roman* Catholick Missionary, that the *Tapicourous*, a savage Nation on the Coast of *Brazil*, were *Anthropophagi*, before he came among them, where he was twenty Years before he could conquer in them that savage and barbarous Appetite; that even some of those he had converted to Christianity, were often guilty of that Practice, and were never better pleased, than when they could steal from him to their inhuman Banquet. That they were even so much used to it, that when first they abstained from it, it caused a Sort of Revolution in the Humours of their Body, so as to cause a Sort of Sickness among them, which ceased when once their Stomach was accustomed to other Food.

Livy tells us, that *Hannibal* made his Soldiers eat human Flesh, to render them more fierce and daring in Battle.—And *Pliny* mentions *Scythians*, and *Sauromatans*; *Solinus*, *Ethiopians*; and *Juvenal*, *Egyptians*; who accustomed themselves to this horrible Repast, *Plin. Hist. Nat. l.* 4. *c.* 12. *l.* 6. *c.* 17. 30. *lib.* 7. *c.* 2. *Solin. Polyh. c.* 33. which cannot be believed of so great a Man as *Hannibal*; especially on the single Report of *Livy*, who is not a very faithful and impartial Historian, no more than *Pliny*.

APOTHECARIES.

APOTHECARY, from Αποθηκη, *Shop*, is a Person whose Profession is to execute the Physician's Prescriptions, in the Preparation and Composition of Medicines or Remedies, which are to be administred to the Patient.

I say, to execute the Physician's Prescriptions, contrary to the common Practice of a vast Number of *Apothecaries*, who when they are once instated in a Shop, (adorn'd with Boxes, Vials, and Gallipots, most of them empty, and with the least Tincture of *Pharmacy*, often but with a very confused one, and almost always without the least Notion of Physick) have the Impudence to act as *Physicians*; and with a Temerity which the Legislature of all Nations has at all Times, and in all Ages condemn'd as pernicious to the Commonwealth, administer of their own Head, and without proper Advice, pretended Remedies, more capable to destroy the Constitution of a Patient, and accelerate his Death, than to restore him to his pristine State of Health.

It is not always the Merit of the *Apothecary*, but rather that of his Shop, which gives him the Vogue; an experienced and learn'd one, if settled in a Corner, or in an indifferent Manner, is disregarded, if not entirely despised, while an Ass, who has Money enough to purchase, *une boutique bien Achalandée*, or a well accustom'd Shop (as they call it) so as to be ready to pop into it, at the Demise or Retirement from Business of an eminent one, comes presently into a flourishing Practice, and with his *Quid pro Quo's*, or *Ripopees*, kills as many Patients, in a few Months, as his judicious and experienced Predecessor had saved in several Years of regular Practice, tho' it is very rare to hear that he is charged with those Murders; why? because his Shop has been for several Years before, a Shop of very great Business, and very noted, therefore the Merit is in the Shop, not in the Person that keeps it.

The Irregularity of the *Apothecaries* in their Practice has rendered them in several Countries the Scoff of Mankind; in several Provinces of *France*, they are excluded, by their Profession, from all the Places or Posts of Honour in the Towns or Cities where they are settled, none of them can be chosen Mayor, or *Echevin*, who is a Sort of Alderman, and are not rank'd among the Burgesses; they are no where so well respected as they are here, and perhaps there is no Place where they deserve it less. Though I don't speak here of all the *Apothecaries* in general, since I am conscious to myself, that it is a very honourable Profession, and very advantageous to the Commonwealth, when practised according to the Regulations made for that Purpose.

A good *Apothecary* who does not attempt to soar above his Sphere, is as much to be valued and respected as a Physician, and they both act always in concert for the Preservation of their Patient and his Recovery.——On the Skill of the *Apothecary* in the Preparation of the Remedies, depends in part the Success of the Physician, and a vast Number of Patients die, not thro' want of Judgment, Knowledge or Experience in the Physician, but because the ignorant *Apothecary* did not, or would not understand how to execute his Prescriptions.

If I mention here that an *Apothecary* will not sometimes understand the Prescriptions of a Physician, 'tis because there are some of them, who pretending to a greater Knowledge and Experience than the Physician himself, have the Vanity to lay aside his Prescriptions and prescribe themselves.——If the Remedy has the desired Effect, then the *Apothecary* discovers himself, and gains the Reputation due to the Physician; if the Remedy miscarry, the *Apothecary* stands hid behind the Curtain, and the Physician bears the Brunt, and answers for the ill Success. Through such unfair Dealing, the *Apothecary* often finds the Secret to supplant the Physician in a Family which he had served faithfully, and that Family is exposed to all the Dangers which may be occasioned by the Ignorance and Blunders of the *Apothecary*.——That Family is not exposed here alone, for, infatuated with the pretended Skill of its *Apothecary*, it recommends him to another Family; that Family to another, and thus till the *Apothecary*, like *Michael Morin*, or the *Mock Doctor*, is made Physician almost in spite of himself.

There is another Allurement in this which contributes much towards establishing the Reputation of an *Apothecary*, which is the View of saving a Physician's Fees, which in *England* are certainly very exorbitant, and which render the *Apothecary* more necessary than if those Fees were more moderate.——A Patient considers, that if he has a Physician and an *Apothecary* he must pay both; that if he has the Physician alone, that won't do, for tho' he writes his Prescriptions, and could very well execute them, he will not, or must not, unless he chuses to be consider'd as a Quack, or exposed to lose his Credit among the *Apothecaries*; when, on the contrary, if they have a good *Apothecary*, they have both a Physician and an *Apothecary*, and are only obliged to pay one; without considering the great Inconveniencies they are exposed to by their false Reasoning. 1. That trusting their Lives into the Hands of a Person, who having no other Education, but what he has acquired in a Shop among Pots and Boxes, and no other Learning but what he has pilfered from some Authors, among whom it was impossible he could make a just Difference between the good and bad, it is equally impossible he should know their different Constitutions, the

the Causes, and the different Symptoms of their Maladies, when and how to apply the Remedy, which must be the Effect of a serious Application, and a long Study, and which we cannot acquire but by the frequent and repeated Lessons of profound and learn'd Masters in that divine Science, on which depend the Safety and Preservation of every individual Subject of the Republick.——I make the same Difference between a Physician and an *Apothecary*, that is between a skilful Painter, and the Person who mixes his Colours; as it would be a Presumption deserving Punishment in that Person to attempt to touch his Master's Work, it is equally the same in an *Apothecary* who presumes to invade a Physician's Province.

What! for Example, cannot we trust to a good and experienced *Apothecary*, who, for several Years, has executed all the Prescriptions of the most famous Physicians of the Age, and has always accompany'd them in the most difficult and dangerous Cases? While he has all those Prescriptions filed in his Shop, and knew for what Distempers they were written? If he won't trust wholly to his Judgment, can't he have Recourse to those Prescriptions, and execute them in the same manner he has so often done already, while he was an Eye-witness of the good Effect they have produced? No; for we know by Experience, that the same Prescription which has had a good Effect once, has often produced a contrary one, though administer'd to the same Person, and for the same Malady.—Our Constitution is exposed to the same Changes and Variations the Age and the Seasons are subject to; such and such Constitutions are not the same this Year they were the Year before; they have been more affected by the Seasons, which also have not been the same; their Diet has been different, and consequently has alter'd the Quality of the Humours, their Consistence, Quantity, *&c.* and therefore are to be treated in a different Manner (as we'll explain it more at large in the Treatise of Physick) though perhaps for the same Distemper; how can then those old Prescriptions, if ever so good, be of any Utility to the *Apothecary?* And how can he answer to *God* and Men, for administring them at Random? Are our Lives of so little Consequence as to be trifled with? Are the Members of a Commonwealth to be cut off with Impunity? Unless it be the gangrened ones, and then the Body politick has other Executioners appointed for that Office.

If an *Apothecary* is called to a Patient by a Principle of Parsimony, to save Money, People are also mistaken in that; for if seemingly, an *Apothecary*, because forbidden, takes no Fees, he nevertheless finds the Secret to have them paid in the Procrastination of the Cure, and in the vast Number of Bolus's, Juleps, Pills, Electuaries, Apozems, *&c.* he loads his Patient with, when perhaps an able Physician, had cured him in half the Time, and with half the Remedies. Therefore if a Patient would take the Pains to make an exact Calculation of what it has cost him, when attended by his *Apothecary* alone, and when by both a Physician and an *Apothecary*, he'll find that the first has been a great deal more chargeable to him than the last.

Not but that I know very well that it is often very expensive to have both, especially when the *Physician* is one of those who are in Fee with the *Apothecary*, who to retain him for future Services, or to shew his Gratitude for past Favours, prescribes ten Times more Physick than the Patient has really Occasion for; for in Fact very few *Apothecaries* like a Physician who prescribes but a little Physick; else how could they live in such Splendor, as some of them do, if Physicians were to presume to recover their Patients with two or three simple Prescriptions? It would be a Crime of Leze-Faculty, as *Moliere* calls it.——If a conscientious Physician offers to leave a Patient's Chamber, without putting Pen to Paper; the *Apothecary* commonly informs the Patient, by Way of Friendship, that whenever his Physician does not prescribe, he need not give him any Fee. A Patient who loves his Money is apt enough to take such an Hint; and if the Doctor is not a Man of very dull Apprehension, he takes Care not to commit the same Fault a second Time.——Happy would it be for the miserable Patients here in Town, if the Load of unnecessary Physick which they swallow down, though it does them no Good, did them no Harm, it would be no great Matter if their Pockets alone smarted for their Folly; but alas! this is not the Case; their Lives, or at least their Constitutions often pay for it. A Physician, to keep in with the *Apothecary*, is often obliged to silence his Conscience, and forget the surest Rules of his Art. And sometimes so far (let it be said to the Scandal, not of the Profession, but of the Practice,) as to destroy by a second Remedy the good Effect the first had produced, to keep himself and his *Apothecary* longer in Pay, whereby the Patient is often reduced to such Extremity, that both *Physician* and *Apothecary* found themselves at last out of their Latitude, and the poor Patient is very well off, if after a tedious Rotation of Remedies, and Counter-Remedies, he is so happy as to escape Scot-Free.——So that our Constitutions are, properly speaking, a Stage where those *Charlatans* play their Farces to pick our Pockets.

There is another Artifice used by Physicians, especially young ones, who want Practice, to ingratiate themselves with *Apothecaries*, which is that of entring into Copartnership with them.——A young Physician, just come from the University, and who has some Money, by going to lodge at an *Apothecary*'s, or in his Neighbourhood, and by presenting a gold Watch, a Tankard, or some other trifling Matter to the Lady, may depend on being called to the next Patient, capable to give a handsome Fee, or worthy of a copious *Recipe*.——Such Argument is more persuasive than the most authentick *Diploma*'s obtained of the best Faculty in *Europe*.

Guy Patin, a *French* Physician, exclaims loudly against such Mal-Practices among the *Apothecaries* at *Paris*, whom he calls in his *Lettres Choisies*, *des Cuisiniers Arabesques*, who to be even with him, would have had him prosecuted for Atheism; and went so far as to attempt to surprise the King's Piety against him.——They gained the Clergy on their Side, who censur'd *Patin*'s Letters as obscene, prophane, and what not; but however *Patin* proved at last too strong for the murthering Fraternity, for he persuaded the Physicians of *Paris* to employ as few *Apothecaries* as they could, and to prescribe such Remedies (which he knew very well, would have a better Effect than all the *Ripopees* of an Apothecary's Shop) by Valets, Chambermaids, and other Servants.—They had also a Book printed, which is still extant, called *Le Medecin Charitable*, which contained a great Number of Prescriptions, for the best and most simple Preparations, with the lowest Price fixed to it.—The Bookseller appointed to sell this Book, sold also those Preparations; all Syrups were sold for two *Sous* an Ounce, and the Rest of the Medicines at the same moderate Rate; and for a still greater Humiliation of the *Apothecaries*, they obtained an Arret of the Council, which subjected all the *Apothecary Shops* of *Paris*, to the Inspection of the Physicians. That Arret was registered in Parliament, and for a very considerable Time put in Execution by the Physicians, with the greatest Exactness and Severity, visiting and rummaging every six Months all the Gally-pots and Boxes in the *Apothecaries-Shops* of *Paris*, destroying, throwing in the Street, *&c.* all the stale Compositions and other poisonous Medicines, which they thought not fit to be administred to a Patient; but in Process of Time those Arrets, like our Acts of Parliament, grow old, and are very little minded. The Physicians of *Paris* visit still, perhaps once a Year, the *Apothecaries* Shops, but it is only for form Sake; as in the same Manner the Quest-Men visit here our Shops for Weight and Measure; for the *Apothecaries*, who know

know the Day fixed for the Physician's Visit, take Care to have nothing in their Shops but what can bear Inspection, just as some of our Shopkeepers have two Sets of Weights, false ones for the whole Year, and good ones against the Quest comes, which is a scandalous Practice in the Quest-men, not to surprise them unawares, since they should consider how much the poorest Sort of People suffers by such illicit Way of trading.——Let this Advice be given *en Passant*.

As for the *Apothecaries* Shops of *Paris*, we are obliged to confess that they are not at present so much pestered, or rather infected with poisonous Compositions, as they were, perhaps, in *Patin*'s Time.—— As they have better and more correct *Pharmacopœia's* or *Dispensaries*, such as that of *Charas*, *L'Emery*, *&c.* than they had then; they are not obliged to old gallenical Preparations of *Ripopees*, whose Preparations were very expensive, and which were spoiled in a few Months.——Another Advantage which the *Parisian Apothecaries* have, is, that most of them are Persons of liberal Education, and therefore capable, with the Assistance of their Practice, to acquire a greater Knowledge than those deprived of that Advantage, notwithstanding which, they seldom attempt any difficult Cases without the Advice of a Physician, neither could they do it if they would, for the *French* are very much infatuated with the Merit of their Physicians, very few of them, particularly those of any Note, being very willing to die without the Faculty's Leave.

Perhaps it may be objected, that a Physician's Fee, is not so exorbitant in *France* as it is in *England*, which is the Cause that Physicians are oftener called to Patients. 'Tis true, that, those the most in Vogue excepted, all other Physicians content themselves almost always with what the Patient is pleased to give them, and they all visit the Poor *gratis*; a Physician there would soon lose his Reputation, if it was known that he has refused to visit a Patient, because he had no Fee to give him, which is not the Case here in *England*, for I really believe that the Supineness and Self-Interest of our Physicians is the Cause that our *Apothecaries* are so much in Vogue, and resorted to.— For to speak impartially, and without Prejudice, the Difference between our Physicians and our *Apothecaries* is, that our *Apothecaries* have a great deal more Charity and Compassion than the Physician.—— A Physician would be ashamed to have his Coach stopped at the Door of a poor Man, while the *Apothecaries* seldom refuse to go there a Foot, and not only give all the Advice they are capable of *gratis* to the poor Patient, but supply him likewise with Remedies from their Shops, which are commonly very good; some of them are even so kind, that when the Case is difficult, they apply to the Physician they are most intimate with for his Advice, who dare not refuse them, though he would the poor Patient; for which our *Apothecaries* are very much to be commended and valued; for if the Patient die, through their Want of Knowledge, it is not their Fault, (since they have done all that could be reasonably expected from them,) but of the Physician, who had the Barbarity to refuse his Advice.——I know that some Physicians pretend to give their Advice *gratis* to the Poor, but it is only to those who are able to wait on them; as for the others who are forced to keep their Bed, and consequently want it most, they must go without.

If the few Abuses, which have been introduced among our *Apothecaries*, were reformed, they would be a Body of Men still more valuable, and more serviceable to the Commonwealth than they are.—— Such Reformation would be easily accomplished, if they would take the following Method.

1. To establish an Order among them, That each *Apothecary* should take but a certain Number of Apprentices at once, which should never exceed two for those of the most in vogue.——That those Apprentices should understand *Latin*, at least.——That they should not spend half their Time in going of Errands, or in the Drudgery of the House; but apply themselves wholly to the Study and Practice of their Art, in which they can never be too perfect.——That when their Time of Apprenticeship is expired, they should undergo a severe *Examen* by the Censors of the College of Physicians, before they could set up for themselves.——And that those who then should be found deficient, should be obliged to serve as Journeyman (for which they should be allowed a competent Maintenance from the *Apothecary* they serve) till they have gained a due Qualification.

2. That all Dispensaries, established under Pretence of selling Medicines cheaper than an Apothecary can afford to sell them, should be entirely suppressed; in Consequence whereof the Price of those Medicines should be fixed by the College of Physicians; for it is equally unjust, that the Publick should be imposed upon, as it is that the *Apothecaries* should be deprived of an honest and competent Livelyhood, agreeable to their Profession, which is a very honourable one among us.

3. That all the Petty Shops of Quacks, and ignorant Retailers of poisonous *Nostrums*, so prejudicial to the Common-wealth, should be entirely suppressed, and the Delinquents punished with the utmost Severity; whereby we should soon see a very great Reform in that formidable Army of *Apothecaries*, so loudly and so justly complained of; for it is a Scandal to the Profession to see ignorant Puppies turn *Apothecaries*, because they do not know what else to do.—— For my Part, I know a whole Regiment of them, who if they were sent on our foreign Expeditions would do more Execution, by their pretended Skill among our Enemies, than even our brave and invincible *Vernon* himself; for two or three of them introduced into a *Spanish* Garrison, would soon find the Secret of sending three Parts of it over the *Acheron*.

4. To have always their Shops stocked with the best Medicines, to be very careful in the Choice of their Drugs, never buying them for their Cheapness, but because they are good.——Those Drugs consist in *Gums*, *Resins*, *Wood*, *Roots*, *Barks*, *Fruits*, *Simples*, *Balsams*, &c.——The *Gums* are, Gum Amine, Arabic, Gutta, Adraganth, Ammoniac, Opoponax, Asta Fœtida, Bdellium, Balm, Benzoin, Camphor, Copal, Elemy, Frankincense, Euphorbium, Galbanum, Lacca, Manna, Myrrh, Olibanum, Sagapenum, Sanguis Draconis, Sarcocolla, Stacte, Storax, Tarcamahaca, *&c.*——The *Resins* are, Turpentine, Mastick, Rosin, Scamony, Jalap, Turbith, *&c.*—*Balsams*, are those of *Gilead*, of *Peru*, of *Tolu*, of *Copaiba*, of liquid Amber, of *Mecca*, and the Carpathian Balsam.——The *Woods* are, Guaiac, Aloes, Sassafras, Nephereticum, Santal, Sarsaparilla, Aspalathum, Eagle-wood, *&c.*——The *Roots* are, Rhubarb, Rhapontic, Ipecacuanha, Jalap, Zedoary, Galangal, Cassumenar, Gentian, Tarmeric, Liquorice, Madder, *&c.*——The *Barks* are, the Quinquina, or Jesuit's Bark, Macer, Chacarilla, *&c.*——*Fruits* are, Jujubs, Dates, Tamarins, Mirabolans, *&c.*——The *Flowers* and Simples, they can be provided with from the Botanick Gardens, and Herborist-Shops.

The Proprieties, Virtues, and Choice of these Drugs, will make Part of our *Pharmacopœia*, under the Letter *P*.

They must have, also, some Quantity of Electuaries, Syrups, Conserves, Tablets or Lozenges, Trochea, stilled Waters, *&c.*

The *Electuaries* are either soft or solid.——The soft Electuaries are, the Treacle, Mithridate or Orvietan, the Confection of Hamech, that of Alkermes, the Catholicon, Diaprunum, Diaphœnicum, Galen, Hiera Picra, *&c.*——The Solid Electuaries, are, among others, those of Carthamum, Rose-juice, Violet-juice, *&c.* which are also called Conserves. Mr. *L'Emery* reckons about 120 Sorts of Electuaries, some of which are to be renewed, at least twice a Year.

The Composition, Qualities, Doses, *&c.* of those Electuaries,

Electuaries we refer alſo to our *Pharmacopœia*, under the Letter *P*.

The *Syrups* are of Violets, of Roſes, of Poppies, of Elder, of Wormwood, of Capilli veneris, or Maiden-hairs, of Lemons, (and theſe muſt be renewed every Year) Emetic *Syrups*, Lienteric, and Antinephretic *Syrups*; Chologogue, Phelgmagogue *Syrups*, &c.

Conſerves comprehend all Kind of *Confects* both dry and liquid; whether of Flowers, Fruits, Seeds, Roots, Barks, Leaves, prepared with Sugar.—The moſt uſual are thoſe of Betony, Violets, Mallows, Roſes, Roſemary, Kinorodon, *&c.*

Tablets or *Lozenges*, are thoſe of Juice of Liquorice, of Althæa, or the Roots *Iridis Florentinæ*, &c.

Troches are thoſe of *Coloquintida*, or *Alhandal*, of Agarick, Liquorice, Nutmeg, Amber, Rhubarb, Capers, Myrrh, Roſes, Camphor, Squillæ, Vipers, *&c.*

The diſtilled Waters are thoſe of Angelica, Aniſeed, Baum, Carraway, Coriander, Cumin, Dittany, Fennel, Hyſſop, Marjorum, Mint, Roſes, Roſemary, Saffron, Sage, Scurvy-graſs, Thyme, Cinnamon, Citron, Juniper, Lime, Orange, Peach, *&c.*——Which Preparations, are all to be treated in our *Pharmacopœia.*

A good *Apothecary*, who is jealous of his Character or Reputation, ſhould never truſt to others for the Preparation of his Medicines; but rather than buy them of Chymiſts or other Artiſts, endeavour to contrive in his own Houſe, a Laboratory for that Purpoſe, like the honeſt *Joſeph Clutton*, an experienced and ſkilful *Apothecary*, in *Holborn*, who prepares himſelf all his Medicines, and on whoſe Integrity, a Phyſician can entirely repoſe himſelf, for the Execution of his Preſcriptions; that Gentleman has certainly all the good Qualities requiſite in an *Apothecary*, for he is a very great Maſter of his Art, has a great deal of Judgment and Experience, is very charitable and compaſſionate, and wealthy.

Some Perſons will laugh, perhaps, at this Qualification, though to be wealthy is certainly a very neceſſary one in an *Apothecary*; ſince it is impoſſible a poor *Apothecary* ſhould defray all the Expences he muſt be at, if he will have his Shop ſtock'd with all that's good.——There is this Difference between a *Phyſician* and an *Apothecary*, that a *Phyſician* may be poor and very learned, when on the contrary, an *Apothecary* cannot be poor and a good *Apothecary*.——A poor one may, it's true, underſtand his Profeſſion very well, but of what Service is that Underſtanding to us, if he has nothing to exerciſe it upon? He knows very well how to make good Medicines, yes; but he has nothing to make them with.——We muſt not deſpiſe Poverty, elſe what would become of us Authors! But we are not obliged to impair our Health, and endanger our Lives to promote it.——Therefore I would never encourage an *Apothecary* to ſet up Shop, till he be in a Condition to do it as it ſhould be.——*London* is overſtocked with thoſe *Apothecary-ſhops*, whoſe whole Furniture, don't contain enough good Drugs to make up a Phyſician's Preſcription. Their whole Stock conſiſts, in ſome bad Mithridate, for Boluſes; and a ſmall Quantity of ſimple Waters, and Syrups, for *Juleps*; with which they deceive the unwary Rabble, by giving thoſe Poiſonous Medicines, ſome hard Names, they do not underſtand; and for which they often pay as much as if they were good; and let even the Price be ever ſo ſmall, they are always too dearly bought.——I laugh, when paſſing before *Rock*'s Shop, I ſee it crowded with People, whom I ſuppoſe to be tired of their Health, ſince they are ſo ready to deſtroy their Conſtitution, with his Poiſonous *Noſtrums*.——If ſuch Shops were once ſuppreſſed, and Coblers ſent to their Stalls, or Porters to their Knot again, the honeſt, induſtrious, and ſkilful *Apothecary* would have more Buſineſs, and not be ſo much tempted to invade the Phyſician's Province.

The Prince of *Conti*, Grandfather to the preſent Prince of that Name, once upon the Road from *Dijon* to *Paris*, attended but with very few Servants, found himſelf indiſpoſed at a ſmall Village, and aſking if there was ſome of the Faculty in the Neighbourhood he could ſend for, his Highneſs was anſwered, that they had in the very Place an *Apothecary* and *Surgeon*, rendered famous throughout the whole Country, for the vaſt Number of Cures he had performed, of which the *Orator* was going to make a long Detale, had not the Prince interrupted him, by ordering the famous Doctor to be fetched to him.——As it was pretty dark when he came, and his Highneſs in Bed, he could not ſo well take Notice of the *Phiz* of his *Æſculapius*, who adminiſtred him ſome Remedies, which really did him a great deal of Good; for which the Prince, who was liberal even to Exceſs, ordered him fifty *Lewis D'or*, which was a Sort of Fortune for the Doctor, deſiring to ſee him again the next Day, and that he ſhould have the Honour to dine with him.——At Table, the Prince took a narrower View of his *Medecin*, and thought he had ſome Knowledge of that Face, but when and where he had ſeen it, was what he could not call to Mind; therefore he aſked *Æſculapius*, if he had not ſeen him ſomewhere elſe; to which he modeſtly anſwered, that he had ſeen often his *Highneſs*, and that if he would give him leave to wait till after Dinner, when the Company would withdraw, he would take the Liberty to inform him where. The Prince granted his Requeſt.—Accordingly, after Dinner, he informed his *Highneſs*, that he had been his Servant, and being aſked in what Capacity, he anſwered, in that of Groom of his Stables. The Prince could not help ſmiling at the Odneſs of the Adventure, and aſked farther, to whom he was indebted for ſo extraordinardary a *Metamorphoſis*, as was that of being changed from a *Palfernier*, or Groom, into an *Eminent Doctor*, and how he could have the Impudence to trifle with the Lives of the King's Subjects? He anſwered, that he was indebted to no Body, but to himſelf for his happy Change; that he had taken his Degrees in his Highneſs's Stables. That he had been very ſucceſsful in taking Care of his Horſes, and adminiſtring them Remedies, when they were diſordered, and thought he could be as ſucceſsful in the Cure of Men's Maladies, under the Suppoſition, that there could be no other Difference but in the Doſes of the Remedies in which he had heretofore very well ſucceeded; and then bending his Knees, deſired the Prince for God's Sake, he would not divulge this Secret, which no Body in the Place was acquainted with; for if it was once divulged, he ſhould loſe his Credit, and conſequently a handſome Livelihood.——The Prince promiſed he would not; but if he ever heard that any Body died under his Hands, he would have him hanged.

We have a great many of thoſe *Apothecaries* in *England* who have learned their Profeſſion in worſe Places than Stables; and have often deſerv'd that ſevere Puniſhment the Groom of the Prince *de Conti* was threaten'd with by him, for the frequent Murders they commit, tho' they eſcape with Impunity, thro' the too great Indulgence of the Legiſlature; 'tis ſurpriſing we are ſo well armed againſt every Thing which could injure or endanger the publick Good, and we ſuffer patiently every ignorant Fellow to rob us of our Lives; which with our Liberty are the deareſt and moſt precious Things we enjoy in this World. This may be attributed to the Indolence of Phyſicians, in neglecting to uſe the Power they have by their Charter, to ſearch the *Apothecaries* Shops in and about *London*, to ſee if their Drugs be wholſome, and their Compoſitions according to the Form preſcribed by the College in their *Diſpenſatory*.

Bartholin complains of the too great Number of *Apothecaries* in *Denmark*; tho' there are but two allow'd in all *Copenhagen*, and one in each conſiderable

derable Town.—What would he have ſaid of *London*, where there are upwards of 1300; and half of them with no other Talent, but Ignorance and want of Experience, ſupported with a great deal of Impudence and Affectation.

To his Majeſty belong two *Apothecaries*; Salary to the firſt is 320*l.* the ſecond 275*l.* to the Houſhold belong alſo two.——The Princes and Princeſſes have alſo their *Apothecaries*, which is a new Addition of Merit in the Perſon preferred to it.

APPARITIONS.

APPARITION is a ſuppoſed extraordinary or phantaſtical Appearance of ſome created Being, which cannot be rendered viſible, but by a Miracle of the Creator.

Of theſe there ſhould be two Kinds, one of ſpiritual Exiſtences, which have always ſubſiſted as ſuch, and independently of a corporal one, from the firſt Inſtant of their Creation, ſuch as Angels, Devils, *&c.* and the other of ſpiritual Subſtances alſo; but which, for a certain Time, have been intimately united with a corporal one, from which, by the ordinary Courſe of Nature, they have been ſeparated at laſt.

Apparitions of the firſt Kind, remain uncontroverted, eſpecially among *Jews* and *Chriſtians*, both authoriſed therein, by ſeveral Paſſages of the *Old* and *New Teſtament*; whereby we are informed, that God himſelf, and the Angels have at ſeveral Times, and in different Shapes and Forms, appeared to *Moſes*, and to all the antient Patriarchs; in the *New Teſtament*, *Mary* is viſited by an Angel; *Chriſt* is comforted by one, during his Agony in the Garden; he is tempted in the Deſart by an Evil Spirit, *&c.*

Apparitions of the ſecond Kind, are alſo frequently mentioned in the ſame Holy Writ. The Prophet *Samuel* appeared to *Saul*; *Chriſt* himſelf appeared to his Diſciples, ſeveral Times after his Reſurrection, in the ſame Nature, his Divine Eſſence had been hypoſtatically united with, while converſing with Men upon Earth; and in the ſame Body, ſince he bid *Thomas* to put his Hand in the Place of the Nails which had fixed him upon the Croſs.——At *Chriſt*'s Death the Monuments or Tombs were opened, and ſeveral of the Bodies, which had been buried therein, aroſe, and appeared to ſeveral in the City of *Jeruſalem*.

Theſe *Apparitions* of both Kinds, ſeem to have been of an indiſpenſible Neceſſity, in the different Epocha's aſſigned to them by the Holy Writ. Thoſe to *Adam* in the Garden, (if really God had appeared to him under any Form or Shape) or if he only let him hear a Voice, which is the moſt probable; and which, nevertheleſs, may be reckoned a Sort of *Apparition*, were neceſſary to inſtruct *Adam* in his Duty, or to reproach him with his Crime, after he had ſinned.——*Moſes* is poſitive that a *Cherubim*, with a flaming Sword, was placed at the Gate, after *Adam*'s Expulſion, to guard the Entrance of the Garden.—That *Abram*, or *Abraham*, received Angels under a human Figure, is clearly related in the *Geneſis*; whereby we are informed that thoſe Angels were ſent to foretel the Birth of *Iſaac*.—*Moſes* aſſures us, that he ſaw a burning Buſh, and heard a Voice from it, which ſerved to ſtrengthen his Faith, and prepare him for his Miſſion into *Ægypt*.——*Jacob* ſaw the myſterious Ladder, and wreſtled with an Angel, which ſeem'd neceſſary to confirm to him that Right of Primogeniture, which had been transferred to him by a ſuppoſed *Superchery* of *Rebecca*.——God appeared to *Moſes* amidſt the Thunders and Lightnings of the Mount *Sinai*.——*Samuel* appeared to *Saul*, to forewarn him of his approaching Overthrow and Death.

This laſt *Apparition*, ſeems to be of another Kind from thoſe heretofore mentioned; and has much puzzled the Interpreters of the *Holy Bible*; in Effect, this Hiſtory is almoſt above the Apprehenſion of a Chriſtian Mind, that the *Pythoneſs*, could by her *Enchantments*, have brought forth *Samuel*, a holy Prophet, who while living, had been the ſacred Repoſitory of God's moſt profound and unſcrutable Secrets; who had been the faithful Interpreter of his Intentions, and irrevocable Oracles; to whom he had committed the Conduct of his People for ſo conſiderable a Time, and who had ſo faithfully diſcharged that great Truſt. A holy Man, who when full of good Deeds and Years, had peaceably ſlept in the Lord, and whoſe predeſtinated Soul waited with the reſt of the Elect, the Reſurrection of the firſt among the Mortals, to accompany him in *Heaven*; how is it poſſible that Enchantments, whoſe Practice had been forbidden by the Law of *Moſes*, as contradictory of the irrevocable Decrees of Divine Providence, and concerted only by the Devil, for the Deception of weak and ſuperſtitious Minds, could have been of any Effect on this Occaſion? Can it be imagined that a Soul, which was then under God's particular Care and Protection, could have been under the Directions of a Magick Art, and forced to obey the Infernal Commands of a Witch? Or can it be ſuppoſed that the Omnipotent, who by his wholly irreſiſtible Power, could have procured the *Apparition* of *Samuel*, would have had Recourſe to illicite, or rather criminal Enchantments for it? Therefore nothing elſe but a ſacred Authority could perſuade us of the Truth of that *Apparition*, which under the Light of the Goſpel would be conſidered by a truly Chriſtian Mind, as an Impoſture.

The Different *Apparitions* of *Chriſt* after his Reſurrection, were indiſpenſibly neceſſary, for to confirm his Apoſtles in their tottering Faith, as well as thoſe which happened at his Death in *Jeruſalem*, for to witneſs his approaching Reſurrection; but we have heard of no other *Apparition* ſince, which could be ſupported by ſuch Authority.

If we believe the Chriſtian Hiſtories, eſpecially thoſe which have the Sanction of the Church of *Rome*, there are very few holy *Perſonages* of that Church, eſpecially thoſe who for their exemplary Life, extraordinary Piety, Virtue, Abſtinence, *&c.* have deſerved a Place in the Calendar, as Saints, who have not been favoured, while living, with ſome *Apparitions* from the Hoſts of Heaven; but more particularly, ever ſince the Inſtitution of religious Orders.——If we believe the *Bernardin* Monks, and the *Dominican* Fryars, St. *Bernard* and St. *Thomas*, were frequently viſited while living, by the Virgin *Mary*.——St. *Francis* the Patriarch of the *Franciſcans*, received the *Stigmates*, or Marks of the Wounds of *Chriſt* in his Crucifixion, from a *Cruciſix*, which appeared to him upon Mount *Alverni*.——But thoſe *Apparitions*, to a Proteſtant Mind, appear fictitious and Chymerical; neither are they Articles of Faith among the *Roman Catholicks*; they know very well, that nothing is above the omnipotent Power of God, who can, when he pleaſes, diſtinguiſh his Elect from the reſt of Mankind, by ſome extraordinary and particular Marks of his Favour; but they know alſo, that all that's related to them of thoſe *Apparitions*, are not Articles of Faith; and that there is no greater Crime in queſtioning the Truth thereof, than in that of believing it.——Thoſe Sorts of Hiſtories are often invented to engage the vulgar and the ignorant to the Practice of Piety and Virtue; ſince thoſe holy Romances, and the Hope of receiving, perhaps, the ſame Favours, if they follow the ſame Courſe of Life, make a deeper Impreſſion on their weak Minds, than the moſt eloquent

and pathetick Discourse of the best Orator. Therefore I don't see that there is any Crime to entertain them with those plausible Stories of divine *Apparitions*, which serve to promote a religious Life. The most strict among the Protestants, approve of a Romance, interspersed with frequent Incidents, and judicious Reflections, conducive to Morality and Virtue; why not those Histories of *Apparitions* which are filled with nothing else? For though I don't think myself obliged to believe any Kind of *Apparitions*, but those authorised by the *New Testament*, and which I must believe as a Christian, (and really I believe no other) however, I don't think it a Crime to suppose some others real or fictitious, for the Purposes heretofore mentioned.

Besides, it is almost impossible, that the History of those pretended *Apparitions*, should have a vitiated Origin, or a criminal End. Nay, I will even go further, and suppose, that the Historians have been mistaken themselves, and wrote upon Memoirs which they thought Authentick, and perhaps received their Information from the Person himself, who pretended to have been favoured with those holy *Apparitions*, who also could be excused from Imposture or Falshood; since it is very possible, that in the extatick Raptures of his Devotions, while his Imagination, and all the other Faculties of his Soul, were seized with an excessive Desire of possessing the divine Object beloved, he might have mistaken, then, an Extasy or imaginary Presence of the Object, for a real one; and to this alone I attribute almost all other *Apparitions* which have happened at different Times, and in different Ages, from the Beginning.

Some are of Opinion, that *the Apparitions*, or Visions of the antient Prophets, were nothing else but Dreams of this Kind; that God has never been otherwise visible to them, or manifested himself to them, but during their Extasy, and in this Manner; that his divine Voice, so often mentioned in the Scripture, to have been heard by them, was nothing else, but a special secret Inspiration, very little different from the Motions of an efficacious Grace; that to be more attentive to those secret Inspirations or Motions, they separated themselves from the rest of Mankind, and retired into Desarts and Solitudes, where, far from the Embarras and Tumult of the World, they applied themselves wholly to the Contemplations of the divine Attributes; which Contemplation silenced all their Passions, and made them almost forget their Mortality, thereby to render them the more capable to listen with a serious Attention, to the sacred Dictates of the divine Sapience; that thus in a Manner separated from themselves, and in a perfect Extasy of all the Faculties of their Soul, they really thought they possessed what they desired to possess, and to have seen what they wished to see. That the Ideas which they had formed, during those Raptures, had so entirely seized their imaginative Faculty, that when returned to their natural State or Condition, they could not persuade themselves that they had been in a Dream.

Such were, say they, all the *Apparitions* or Visions, *Moses* mentioned he was favoured with in the Desart.——In that Manner, and no otherwise he received the Decalogue upon *Mount Sinai*, was directed in the Conduct and political Government of the *Israelites*, in the Ceremonies of the Tabernacle, and in the Rewards and Punishments.——Thus was *Elias* sent to *Ahab*'s Court, and advised to fly from it.——In that Manner *Samuel* was directed at one Time to anoint *Saul* King over *Israel*, and at another, *David*. ——And thus the Holy Ghost is said to be the Author, and to have dictated the holy Writs; for, continue they, if it is expressed otherwise in the Scripture, and said positively, that *God* spoke or appeared, it is for no other Reason, than to render the Style more pathetick, and more familiar to us, which otherwise had been too metaphysical, and above the common Apprehension of human Understanding; since it is a great deal easier to conceive, that God appeared to the antient Patriarchs and Prophets, under a human Shape; and thus *habited*, spoke to them, than to say between his divine Essence, and their spiritual Faculties, there was a certain Communication of Thoughts, which is incomprehensible; and they conclude at last, by saying, that this Communication was no otherwise sensible, than that between him and the Blessed in Heaven; who, though they are said to see God Face to Face, to sing his Praises, and to converse with them, see him nevertheless, no otherwise than as a spiritual Substance can see, that is to say, in a Contemplation of his divine Essence, more perfect than they were capable of, while their Soul was enslaved in a mortal Body, and disturbed or agitated by the continual Conflict of their several Passions.

Mankind, who have a natural Penchant to Evil, and are never better pleased, than when they can contribute towards disturbing their temporal Tranquillity, have invented, since, another Sort of *Apparitions*, such as those of *Evil Spirits* and *Spectres*. Their vitiated Imagination goes often into Hell, to bring from thence the apostate Angels, under different Shapes, and always the most hideous; and therefore the most capable to terrify their fellow Creatures. ——They also penetrate into the Obscurity of the Tomb, and by disturbing the Silence of those sacred Repositories of the last Rags of our Mortality, and raking those Ashes, (which the divine Creator had designed should rest peaceably, till by a new Miracle of his Omnipotence, he would be pleased to modilize that same Clay, once animated by him, into a new Form) they have the sacrilegious Presumption to anticipate his irrevocable Decrees, and to form *Phantoms* of what's never to appear but once more, and in Reality.

'Tis true, that the vulgar Error of this Kind of *Apparitions*, has prevailed among all Ages, and among all Nations; that the *Romans* themselves, at that Time the most learned and most judicious People in the Universe, have been infatuated with that ridiculous Notion; that among the vast Number of ridiculous Stories of that Kind, related by their Authors, is that of the Sepulchres at *Rome*, having opened their ponderous Jaws, and vomited the Dead confined therein, who appeared publickly in the Streets, a few Days before the Assassination of *Julius Cæsar* in the *Senate*; and this other of the same *Julius Cæsar* appearing to *Brutus* a few Days before the Battle of *Philippi*, are two of the most flagrant. ——The *Greeks*, their Predecessors in Learning and Strength of Judgment, had also been susceptible of the same ridiculous Notions; and their Poets have painted in the most hideous Colours, the Ghost of *Laius* King of *Thebes* haunting *Œdipus*, from almost the first unhappy Day of his incestuous Marriage, to that of his unhappy Catastrophe.—The *Jews* were perhaps the sole Nation which has appear'd the least guilty of it.

It may be objected that this Error does not proceed from so poisonous and infected a Source as might be imagin'd; that it was perhaps first invented with no other Design than to confirm the Vulgar in the Immortality of the Soul, which otherwise must have been above their Apprehension; that it was easier to convince them by such plausible, tho' fictitious Demonstration (since they are seldom inclinable to believe any Thing else but what falls under their Senses) than by metaphysical Reasoning on the Essence and Subsistence of the Soul; that the supposed Relations made by those who could be suppos'd to have experienced it, of Virtue being rewarded, and Vice punish'd in another World, were more persuasive to induce them to practise the one, and avoid the others, than all the Exhortations from the Pulpit, or from other Places appointed for such Exhortations. That the Fear of seeing the Devil under such hideous Shapes as he is represented in his *Apparitions*, could deter the Vulgar from having any Communication with him; and the Inquietude a departed Soul was

suppos'd to be in, if guilty of some capital Offence, at the Time of his Departure, obliges his Descendants to reform their Manners, and follow a Course of Life quite opposite to his.—That at least these are the Reasons, which in all Probability have engaged the Christian Church to tolerate the vulgar Error of *Apparitions*.

These Reasons, I must confess, could in fact palliate, or disguise that Error, if such Error was indispensible for the publick Good; and if we had no other Inducements to Virtue, than the mercenary Hope of a Reward, and the dreadful Apprehension of the most severe Punishment. But the sacred Style in Praise of Virtue, is attended with such Unction, and with such particular Grace from above, that it is vain and ridiculous to suppose, that a fictitious Expedient could accomplish what, thro' our Obstinacy and criminal Resistance, it could not conquer. As for the Immortality of the Soul, it is so clearly stated in all the sacred Books, and so well confirm'd by *Christ*'s Resurrection from the Dead, that we must have renounced all Principles of Religion to deny it; which if we do, it is not a Romance which can rectify our Faith on that Article; therefore it is surprising to me that the monstrous Doctrine of *Apparitions*, is not even tolerated (as a necessary Evil which has so deeply corrupted, or vitiated our Minds, as not to be easily extirpated) but even countenanced by the christian Clergy.

For I'll take the Liberty to ask, if the Doctrine of Apparitions, Visions, Spectres, Phantoms, *&c.* is not repugnant to a Christian Belief? Which to prove (and at the same Time do it with some Order) I'll begin with infernal *Apparitions*.——But before we proceed to those Proofs, we must have Recourse to some general Observations absolutely necessary to give us an Insight into the whole.

1. That the Devil, which in those *Apparitions* we are pleased to represent as a sort of Monster, half Man and half Beast, with Horns, a Tail, cloven Feet, *&c.* has a spiritual Substance, and uncorporeal Subsistence, *i. e.* that he essentially and substantially exists without the Concomitance of a corporal Form, and abstracted from the Matter.

2. That his spiritual Existence, answers all the Purposes he is design'd for, ever since his Fall. Which are of his being sensible of his Punishment, of being permitted to be the Tempter of Mankind, and appointed Minister of God's Justice; and which can all be done, without his being obliged to borrow a visible Form; for 1st, as his Torments were prepared for the Punishment of a spiritual Substance, he suffers in his spiritual Substance, and no otherwise. 2dly, His Temptations being only to affect the Mind, which is equally susceptible of visible and invisible Impressions, a hideous Appearance, capable alone of keeping it in Awe, would captivate the Liberty, and frustrate the Design of the Divine Providence, which permits we should be tempted, that thereby the Grace he is pleased to assist us with, at those critical Moments, acting in concert with us, might gain a greater Victory on the Efforts of our common Enemy.

3. That *God* gives to the Devil but a negative Power over us, *i. e.* that he suffers we should be tempted by him, but does not command we should be tempted, and never suffers we should be tempted above our Strength,—*qui non patietur vos tentari supra id quod potestis.*

4. That the same Supreme Being has reserved to himself the entire Disposal of our Soul, leaving us only the momentaneous Use of its Faculties.

5. That could the Devil assume a visible Form or Shape, he could not do it without God's special Order, and to serve some particular End of the Divine Providence, but what could be those Ends which could not be answer'd by the Devil's spiritual Existence, is what no true and reasonable Christian can imagine.

Therefore we must draw from the foregoing Premisses, this necessary Conclusion, that as the Devil's Apparitions would prove vain, and without any Meaning or Design they are not to be supposed; that being not absolute Masters of our Souls, we cannot sell them, or dispose of them to the Devil, on any Consideration whatever. That by the infernal Secrets of the Magick Art, by Enchantments, or Fascinations, we might perhaps deceive ourselves or others, but never have that Power to force the Devil to assume a visible Form, which visible Form has never had other Existence, but in the depraved Imagination of some *Antousiats*, Fanaticks, and Visionaries. Since the Scripture itself, when it mentions *Christ* being tempted by the Devil, or the Devil being expelled by him from the *Energumeni*, mentions it always as a Spirit, without Form or Shape.

Another Error almost as bad as this, is to suppose the Apparitions of deceased Persons: Which has prevailed so far, as to gain Credit even among Persons of Piety, Sense and Learning; who are infatuated with it to such a Degree, as, in their Opinion, it would be a Sort of Impiety to revoke it in doubt. Therefore let us consider seriously, and without Prejudice, if it is agreeable to the Principles of their Religion; as for our Reason, it has little or nothing to do with it.

But to proceed likewise with some Order in this *Examen*, we must consider Christianity in the different Manner it is practised by its Professors; or rather divide the Christians into two Classes, *viz.* into those who admit of a third Place, between Heaven and Hell, and those who deny such Place.

If we consider seriously the Principles of those who admit of a third Place, I mean, what's called a Purgatory, we shall find that the Doctrine of *Apparitions*, is not quite contrary to those Principles; for if it is true, as they pretend, that the Detension of the departed Souls, in that Place, is but transitory, *i. e.* till they be entirely purged of the small Imperfections they are departed with, and render'd fit to enter the Kingdom of Heaven, (which admits of no Impurity whatever) if it be equally true, that the Prayers, Fasts, Alms, *&c.* of the Living can shorten the Time of their Confinement, or break their Chains, and open the Gate of their Prison, it is agreeable enough to our Reason to suppose, that they being sensible of it, would endeavour, if possible, to put all in use to procure themselves those salutary Means, whereby they are to be delivered of their Captivity, and reunited for ever to their Supreme Being; that God, in whose Peace they are departed, and who wish for their Deliverance, would not refuse them to use those Means, even so far as to approve of their *Apparition* to the Friends they had left behind them, in order to excite their Zeal and Compassion, and engage them to the Practice of those Acts of Piety, on which depend the Deliverance of those imprison'd Souls.

But if on the other Side we adhere to Protestant Principles, which admit of no such Place, (but on the contrary conduct immediately the departed Souls into Heaven, or condemn them to Hell) we'll be obliged to reject the Doctrine of *Apparitions* as chymerical and fictitious; for if, according to one of the chief Articles of our Faith, the Felicity of the Blessed in the celestial Mansions, and the Unhappiness of the damn'd Souls are to be eternal, which Eternity implies no Interruption, otherwise it would be no longer an Eternity; if further the Protestant Doctrine refuses the Blessed the least Knowledge of what passes here upon Earth, what could induce them to quit Heaven to come here among us? The temporal Peace or Tranquillity of a Family or Friends, which perhaps they have left behind them in some Disorder and Confusion? But would not that single Reflection, we suppose them capable of, be an Interruption of their Happiness, which from that Instant would cease being eternal; besides the apparent Contradiction of a Protestant Doctrine, that the Blessed know nothing of what passes here among us.

Another Objection against the *Apparitions*, which is yet stronger than any of those abovemention'd, and

even taken from our Manner of reasoning on *Apparitions*, is, that we make those Souls alledge for Reason of their Appearance, that they could not have rested if they had not appear'd to such, and such Purposes; but is it not an Impiety to suppose, that there could be some Inquietude to be met with in Heaven; is not that a monstrous Contradiction, that the Peace of the celestial *Jerusalem*, is eternal and unalterable, as it must be to compleat a perfect Happiness, contrary to our Faith, and to the Notion which *Christ* himself has given us, while conversing upon Earth of the Kingdom of his Father?

But however I'll suppose, for a Moment, these *Apparitions* of the blessed Souls to be true, and contrary to the Protestant Principles, that the Blessed in Heaven know our Jars, Disputes, Inquietudes, *&c.* and are disturb'd at it, which cannot be done, without assuming some Form or other. Therefore what sort of Body do they form at that Time? Their own? that cannot be, since it would be a Resurrection of that Body, which would render *Christ* guilty of Falshood; who has assured us, that there would be no other Resurrection than the general one. Perhaps it is an ethereal Body? But let it be what it will, it must be some corporal Substance, else it could not be visible to us, walk, speak, *&c.* as *Apparitions* are pretended to do; if it is a Body different from the former Body, then that Soul has inform'd two Bodies; therefore what becomes of that Body when the *Apparition* is over; is it annihilated, and if it is, what Partiality, what Injustice, that a Body which had been dignified once with the Information of a blessed Soul, should enjoy his Happiness but for few Moments, and afterwards return into its former Nothing?

Perhaps it is not the Soul herself, but her good Angel that is sent on her Errands? The same Difficulties continue still, that the Inhabitants of the celestial Mansions are inform'd of what passes here among us, and are disturb'd with the Care of our worldly Affairs, which imply always the same Contradiction; but if even such Thing was possible, it would be ridiculous to suppose that God would disturb the Peace of his Kingdom, for to compose our Jars or Differences, to save a transitory Fortune, or discover hidden Treasure, and not do it to put us in a Way how to gain an eternal Felicity; for we never hear that those *Apparitions* are so kind to inform those they appear to of the Means how to obtain that salutary End.

But according to the very Notion we have of those *Apparitions* we must be obliged to deny, that it is either the Soul herself, or her Angel who appear, since we pretend that our Clergy has a Power to *lay* those *Apparitions*, or to confine them, some in the *Red-Sea*, some under the Threshold of a Door, and others somewhere else, and even to fix the Time they are to lay in those Places; which if it was true our Clergy would usurp a Power over God himself; for since those *Apparitions* do not walk (as we call it) without his special Leave or Order, to be capable of contradicting or opposing that Order effectually, would be an evident Mark of an Authority superior to that of the Almighty, and to fix a spiritual Substance in a Place, would be changing its Subsistence, which God himself cannot do; besides it would be another Judgment on that Soul, which has been judg'd already in *dernier resort*.

For my Part I cannot imagine how the Clergy can countenance such monstrous Notions, which smell so much of Impiety and Paganism; for it is but too plain that they countenance them, because perhaps they flatter his Vanity, which has always been one of his favourite Passions, otherwise we should see some of them, at least, endeavour to undeceive those of the Flock committed to their Care, who are weak enough to believe those *Apparitions*, and persuade them that such Error proceeds from a Pagan Belief, that the departed Souls hover'd, for a certain Term of Years, about the Sepulchre where the Body was deposited, before they could be receiv'd into the *Elysian* Shades; and that nothing but such ridiculous Notions could countenance the vulgar Error of *Apparitions*.

If we suppose that those who appear thus, are only Souls coming from Hell, and not from Heaven; such Supposition is as monstrous and as extravagant as the other; and to the full as contrary to the Principles of Christianity. For as those Souls are never supposed to come but on some just Errand or other, that very Notion of doing Good, or of Justice, is contrary to their Nature, as damned Souls, which if they could form the least Idea thereof, from that very Instant, there would be an Interruption in their Torments. Besides, even in the Pagan's Opinion, it is very easy to go into Hell, but it is impossible to return from it.

Therefore we must renounce the Error of *Apparitions*, or to render it plausible, admit of a third Place with the *Roman* Catholicks, and even then it will be still an Error; for if the departed Souls in *Purgatory* want the Succours of our Prayers, and other Acts of Piety and Devotion, to be released of this dreadful Prison; *God*, who knows their Want, has no need to have Recourse to such extraordinary Means, since he can excite us to Compassion, as effectually through the Efficacy of his Divine Grace, as by the frightful *Apparition* of those afflicted Souls.

Luther laughs at those *Apparitions*, and pretended that the Doctrine of the Purgatory, by which alone such Error could be countenanced, proceeded originally from the Avarice of the Clergy. But the *Roman* Catholicks will answer to that, that *Luther* spoke then through a Principle of Animosity and Inveteracy against a Church, he had but lately deserted, and that he was obliged to excuse his Apostacy under some Pretext or other; that though the greatest Part among them have no Notion of *Apparitions* of any Kind whatever, they don't see however why the Doctrine of a Purgatory should be rejected, which is only calculated for the Encouragement of Piety, Abstinence, Charity, and Devotion; that if even there is no such Place as a Purgatory, it cannot be a Crime to pray, to mortify our Flesh by Fasts and Abstinence, and to give Alms to the Poor; for if there are no Souls to be released from Purgatory by our Prayers, those Prayers cannot be criminal, since Prayers are the most essential Part of a Divine Worship, and thereby if they are of no Service to the departed Souls, they cannot be disadvantageous to us; if there are no Souls to be released by our Fasts and Abstinence, those Fasts and Abstinences serve to keep the Flesh from revolting against the Spirit, according to the Advice of the Apostle St. *Paul*; and if our Charity don't hide the Imperfections of the Souls in Purgatory, they serve to hide our Sins, since *Charitas operit Multitudinem Peccatorum*.

Thus they speak of their Purgatory independently of Apparitions, to which the Protestants answer that those Acts of Piety and Charity may be effected without our having such Chimerical View; but I don't pretend to enter here into a Controversy on that Subject, which would be foreign to my Purpose. I'll proceed on that of Apparitions, which I suppose to be as prejudicial to the civil Society; as injurious to God's Providence.

In Effect, Children are terrified with that ridiculous Notion of Apparitions, often sooner than they are informed that there is a divine Providence, which over-rule all sublunary Things, and without whose positive or negative Concurrence nothing happen here among us Mortals; for were those unquestionable Truths first printed in their Imagination (susceptible then of the strongest Impressions) in the most lively Colours, it would be impossible afterwards to trace in the same Place that chimerical Phantom of Apparitions, which would vanish on the single Apprehension, that the Imagination would call then the other Faculties of the Soul, *viz.* Understanding and Reason to its Succours.—— A young Mind thus prepared would, at the sole Attempt of poisoning him, with

with the Error of *Apparitions*, would argue with himself in this Manner.——I have learned as soon as I had been capable of the least Apprehension, or of understanding any Thing, that nothing happens here upon Earth, but by the Order, Direction, or Leave of a Supreme Being; I have also learned farther, that the same Supreme Being never permits or does any Thing in vain; that all the *Phænomena*, Incidents, Events, *&c.* of this World are decreed by him, for some necessary End, all conducive towards his Glory, or our common Felicity, temporal or eternal: But what End could those *Apparitions* they attempt to terrify me with, be calculated for? To manifest his Power? Can it be manifested in a greater Manner than it has been in the Formation of this World, which I am told was created by him from nothing; and by the just Symmetry which subsists between every Part that grand Machine is composed with, which I am told likewise is an Effect of his supreme Wisdom? For our Instructions? If so, why so many Volumes dictated, as pretended, by the Divine Sapience himself, and where, 'tis supposed, we can find all that's necessary for our Instruction? To rectify some Mistake? But a Power unlimited, like his, must have several Expedients to rectify those Mistakes, without having Recourse to those preternatural ones, capable to revolt Nature itself. To terrify us? No; that's incompatible with his immense Goodness and Compassion; therefore that Doctrine of *Apparition*, being, in all Appearance, the Produce of the vitiated Imagination of some Visionaries and Enthusiasts, whereby they endeavour to deprave mine also, if possible, I must reject it as such.

Too happy, if our Parents would take Care to caution us thus against such ridiculous Infatuation, for then we would not find such Numbers of Christians, who having been entertained, in their Infancy, by some old Nurse or other with these dreadful Stories of Apparitions, who, when arrived at the Age of Discretion, recount the same Stories to others, as if they believe them true, with a more explicite Faith, than the chief Articles of the Christian Religion.

Another Inconvenience which attends the Recital of those Romances to Children is, that it terrifies them to Death, and damps their Courage ever after.——'Tis true, that they listen to it with a great deal of Attention, and seemingly with as much Pleasure, but the History is no sooner over, than they believe to have the Apparition at their Heels. I myself have seen some Examples of that Kind, especially while at the University, where an old Professor (otherwise very learned, but whom I really suppose to have been infatuated with that Notion of *Apparitions*) used to assemble at Night, just before Bed-time, all the younger Scholars he could, round him, to entertain them with Stories of *Apparitions*, and when the Bell rung for Bed, the Stair-Case was too narrow for them; for they crouded to get the sooner at the Top, that if it had been possible they would have been all foremost, and none behind; even sometimes some of them were afraid to lay alone; especially when the Ghost had appeared in a more frightful Shape than ordinary.

I remember once in particular, that while the *Ghost-Monger*, was very busy in bringing before his Audience, an *Apparition* of a monstrous Size and Figure, and the Audience very attentive to the Sight, the Place where they were having a Door to the Garden, some malicious Fellow or other had tied a leaden Weight to a Cord, which from one Pair of Stairs Window he let fall by Intervals against the Door. At the first Bounce, which was not a very small one, the Weight being pretty heavy, the Orator stopp'd, seeing the Countenance of his Congregation changed; but being recovered from that first Fright, after having concluded that it was nothing but the Wind, or something like it, he continued his Narration 'till another Bounce, louder than the first, threw again the Congregation, into a new and greater Disorder, and such, that they began to think of sending the most bold and couragious among them to see who, and what it was; but while they were deliberating, every one of them, without excepting the Historian, having Modesty enough to decline the Preference, another dreadful Bounce ended the Dispute; for then, the Congregation and the Orator, among the Rest, broke into such Confusion, as if the whole other World had been let loose after them, and as if every one of them had had half a Score Ghosts at his Heels; nay the Deceit prevailed so far, that though the true *Apparition* discovered the Jest, some of the Audience would not be persuaded but that it was really a Ghost, supported therein by the Opinion of the *Ghost Monger* himself; who has perhaps made since, and told at another Place a dreadful Story of that Jest, which however produced some good Effect, for afterwards they did not use to meet so often, and never since in that Place where the Noise was heard, which some of the Auditors averr'd to have been accompanied with Groans and Sighs, even to my Face, who must have known the Truth, since I was the real Ghost.

Our Ancestors were still more addicted to that Folly than we are, and to have attempted to turn the *Apparitions* into Ridicule, or prove them impossible, had been in the Opinion of some of them a Sort of Heresy; what surprises me most, is, that whole Bodies of learned Men have believed them true; and it is but lately that the Parliaments of *France* have rejected them as fictitious and chymerical, that of *Normandy* excepted, which, as pretended, still continues to take Cognizance of them, founded, as it is said, on the following Story.

That a younger Brother, of a noble Family in that Province, inspired with the Desire of visiting Foreign Parts, having left his native Country, when yet very young, and absented himself, for very near thirty Years, tired at last, of his Rambles, returned when the least expected, more freighted with the long Relations of his Voyages, than with Money; bringing along with him a faithful Servant, who had accompanied him in all his Adventures, perilous and others.—The greatest Misfortune he met with at his Arrival was, that he found no nearest Relation living but an eldest Brother, who had more Wealth than Tenderness, Compassion, and good Nature, to whom our Traveller being obliged to apply for a Maintenance, found by first feeling his Pulse, on that Account, that it did beat but very low in his Favour; for he was reproached then with his Extravagancies; and with having spent his *Legitime*, in his Rambles.——The eldest Brother added to this first Compliment another, which though a little less Turk-like, did not however, promise a greater Relief to our penurious *Prodigal*; *i. e.* that he the said elder Brother had a large Family to provide for, and that he could not in Honour or Conscience rob them, to supply his Wants; but however not to leave him quite destitute, he had a handsome House in the Country very well furnished, and which could not be inhabited, because haunted by Spirits; that if he thought he could have Courage and Resolution enough to live in it, he would give it him with all its Appurtenances, as Gardens, *&c.* except the Estate, belonging to it, on which he should have only the Liberty of hunting.

Our Traveller, who then considered Hunger or Famine, as a still greater Devil, then the Devil himself or his Emissaries, accepted the Gift, with a great deal of Joy and Pleasure; and soon after departed with his faithful Servant for his new Habitation.

At his Arrival he found, as his Brother had represented it, a very commodious House, and with very handsome Apartments.——When they had taken a View of the whole, their next Care was to provide a Supper, which after some Turns in the adjacent Fields, they found at the But-end of their Gun.——After Supper, our new Guest expecting a Visit from the other World, as his Brother had promised him, ordered his Servant to make up a good Fire, to light two Candles, to retire to Bed and leave him alone.——The Servant had not long obeyed those Orders, before our intrepid *Don Quixot* heard something stir-

ring at the further End of the Room, towards which, turning his Head, he saw coming forwards a tall Gentleman, of a very gracious Aspect, and dressed in Scarlet; at whose Appearance, our Knight Errand got up to reach him a Chair, which he placed on the other Side of the Table, opposite to him; for he did not know, had he placed him nearer, how the Air of the other World had agreed with his Constitution.——While the Visit lasted, there was between them two a certain mute Conversation, which had perhaps diverted those who had seen it, without being engaged in it; all passed in dumb Signs between them; for though our Traveller was, in all likelihood, Master of several Languages, I must however, suppose him a perfect Stranger to that spoken in the other World, to learn which, I cannot think he had ever any great Inclination.

The Time the Ghost designed in his Company being expired (not at the Crowing of the Cock, or at the Approaches of the Morning Dew, for my Memoirs mention neither of those two Circumstances, which always hasten the Departure of a Ghost; for on the contrary, they seem to hint, that the Evening was not yet very far spent; and as for the Cock crowing, I do not believe that there was yet a Cock or Hen in the House) the Ghost got up (for it was certainly one, as you'll see by the Sequel) and laying hold of a Candle, made a Sign to our *Don Quixot* to follow him; the Knight, who was too polite to affront his Guest, by a Refusal, and too intrepid, likewise, to shew the least Mark of Fear or Terror, accepted the Invitation, and taking the other Candle, followed the Ghost, who returned the same Way he came.——At the first Passage or Door, our valorous Champion was offered the Precedency, *i. e.* to pass first, but as he was a *Norman*, and not a *Spaniard*, and was resolved to do the Honours of his House, to the End, declined the Compliment, not through Fear of some unlucky Knock or Kick from the Ghost, in Case he had gone before him, but only because it was not the *Custom of Normandy*, and that's enough.——They went both in the same Manner, the one complimenting, and the other returning the Compliment, till they arrived at a small square Room under Ground, where the Ghost stopt, and putting down his Candle in the Middle, (for we must observe that the Room was unfurnished) pointed to the Place where the Candle was fixed, and vanished.——If our *Don Quixot* was pleased to be rid of his Guest or not, is a Circumstance which our Memoirs are deficient in, but as it is not a very essential one, we'll wave it, and content ourselves as they do, with the simple Narration of the Fact; which is continued thus:

As soon as the Ghost was departed, our Knight who had traced in his Memory a faithful geographical Chart of the Places he had passed thro' in his Travels with the Ghost, return'd back the same Way to his Apartment, and awaking his Servant, order'd him to go look for Pickaxes and Shovels, for they must go to work all the rest of the Night, (the Necessity he was reduced to, and the Pointing making him suppose that he had discover'd some Treasure, for he might have learn'd in his Rambles, that there are some of those Ghosts of a very liberal Disposition) and to work they went, and according to his Expectation, he found an immense Treasure in the very same Place the Ghost had pointed; and well it happen'd then that he had to encounter with a valorous Knight, for if it had been with a Parson, who by his Exorcism, had laid him perhaps in the *Red Sea*, or for want of Room there (for that Sea must have been even then pretty full of Ghosts, considering the vast Number which had been laid there) amidst the Ice of *Greenland*, that Treasure would perhaps have still been entombed in the Bowels of the Earth.

But I don't perceive that these Reflections hinder us from seeing our *Crœsus* elevated, or rather blinded with the too great Eclat of his immense Wealth posting to his Brother to inform him of it; the Brother laid Claim to it as found upon his Territory, the Discoverer was not willing to relinquish it, on any Consideration whatever. From thence ensued a Law Suit, which was carry'd before the Parliament of *Normandy*, and decided in Favour of the Discoverer; on Consideration that his Brother having given him the Place, and all that belong'd to it, he could lay no Claim to what was found in it. Besides his having exposed himself to very imminent Dangers for it; adding likewise, that in all Appearance, the Ghost had design'd the Treasure for him, who could have had the Courage to face him.

This History is recounted as a Fact, and alledg'd for a Reason, why the Parliament of *Normandy* do not condemn the Opinion of *Apparitions*; but it might be a Fact, without its pleading in Favour of *Apparitions*, since Necessity, which is the Mother of Invention, could have engaged our penurious Gentleman to ferret all the Corners of that antient House, and in that curious Research, it is very possible, he might have discover'd that Treasure; which for fear of his Brother laying Claim to it, making use of his ridiculous Notion of that House being haunted, he pretended to have found in that extraordinary Manner; and it is also as possible, that the Parliament of *Normandy* had guessed the Truth, but that knowing his Want, and the Inhumanity of his Brother, they pretended to believe his History of the *Apparition*.

It is related in the Life of St. *Athanasius*, Patriarch of *Alexandria*, that his being accused by the *Arians* of having poison'd one of his Deacons, and having no other Way left to refute that atrocious Calumny and prove himself innocent than by Miracle, he went, accompany'd with a very great Concourse of People, to the Sepulchre, where that Deacon had been bury'd, and calling to him with a loud Voice, desired him to appear to clear his Innocence; the Deacon obey'd his Prelate, rose from his Tomb, and proclaim'd *Athanasius* innocent of the Crime alledged against him.——The Author adds farther, that *Athanasius*, in Gratitude for so signal a Service, ask'd the Deacon, if he would have him pray that he should remain alive; to which the Deacon answer'd, that being secure of his Salvation, he would by no means return into the World, where he should be exposed once more to the same Temptations which renders it uncertain.

This History is the more Apocryphal, because it supposes, that St. *Athanasius* had no other Means left to prove himself innocent; which is false, since the Physicians, and all the Friends of that Deacon, had brought undeniable Proofs, that he died of a natural Death; and if even it had been otherwise, the Emperor himself being an *Arian*, as well as at that Time, the greatest Part of *Alexandria*, would not have been convinced by that Miracle of St. *Athanasius*, whom they accused likewise of being a Sorcerer, and a Magician.

Father *Maimbourg* in his History of the *Croizades*, relates, that while the Christians were besieging *Ptolemais*, one *Engelram*, a *French* Nobleman, who had accompany'd the Count *de St. Paul* in that War, and had been killed before that Place in a Sally of the Enemy, appear'd to the Count one Evening, while he was undressing himself to go to bed; the Count, says the Historian, was startled at so unexpected a Visit, but however, as he was a Person of a great deal of Virtue, Piety and Courage, he was soon recovered from his first Surprise, and addressed the Ghost in these Words; *What*, said he, *is it you my dear* Engelram *whom I saw but three Days ago killed by my Side under the Walls of* Ptolemais? *Yes*, answer'd he, *I am that* Egelram, *whom you saw fall in that Action, but not dead, since those who fight under Christ's Standard, for the Glory of his Name, and the Advancement of his Religion, never die;—but however*, added he, *I am come to tell ye, that to-morrow before this Time you will be with me:* And then vanished.

vanished. The Count was not in the least daunted at the News; and was the more inclined to believe it true, since he was perfectly awake when *Engelram* appear'd to him, and he knew, that the next Day they were to give a general Assault to the Town, in which according to *Engelram*'s Words, the Count was killed with a Stone from a Machine.

Father *Maimbourg* don't give us this Relation for a Fact; for he only says, that he has found it in the Memoirs upon which he has wrote his History of the *Croizades*; and that he leaves it to our Discretion to believe it, or not. Therefore, to take his Advice, I'll say for my Part, that I don't believe one Word of it, and that I look on this *Apparition*, as on all others of the same kind, as a Fiction invented in those Days, with no other Design, than to inspire the Christian Nations with Zeal for the Conquest of the Holy Land, since those who died in so glorious a Cause, were thus eternally rewarded.

In the Memoirs of the Count *de Rochefort*, we meet also with an *Apparition*, but very different from the last mention'd. The Count is pleased to tell us, (and all that he says is not Gospel) that three Friends, of whom, if I am not mistaken, he was one, had promised each other, that the first of them that should die, would come to inform the two others of what passes in the other World.—That soon after one of them was killed in a Duel, who mindful of his Promise, came one Night, if it was to *Rochefort* himself, or to another, is what I am not positive of, but however he came, and opening the Curtains of the Bed, where his Friend laid then, and asleep, he awakened him, and appearing all in Flames, which we must think was a very bad Sign, told him, that nothing was more true, than what was said here among us of the other World, that therefore he would have him mend his Life and repent.

If the Count himself, saw this *Apparition*, he very little minded afterwards, the salutary Advice, the Ghost his Friend gave him then, for we do not see, even by the Account himself gives us of his Life, which has always been a pretty licentious one, that he took any Care to reform it; therefore we may very well rank this Story among many others of his own Growth, which in all their Incidents and Circumstances are altogether as plausible; such as that his Father marry'd a second Wife who had been branded with the *Fleur-de-Lis*; of his Emission at Church, and his Mistress having taken notice of it to him, from the *ne polluantur Corpora*, of the Hymn, for *Complies*, &c.

This *Apparition* is certainly the most absurd of any we have mentioned yet; first it had been a criminal Presumption in those Gentlemen to make such a Promise, which they must have known it was not in their Power to perform; since after Death we cannot form any other Acts of our Free-will than those of an eternal Love of God, if we are saved; which Love so entirely possesses all that Faculty, that it would be impossible for it to form any other Act; and if we are damned, as *Rochefort* gives us to understand his Friend was, we learn from the Parable of *Dives*, that *God* will not permit a Soul to return from Hell to inform the Living of what passes there; and really this is the first *Apparition*, I have ever heard of, which has brought us News from the other World; tho' the Ghost in *Hamlet* gives us some Hint of the Purgatory, but in a Manner as if he was afraid to say too much.

There is to be read in the antient *Breviaries* for the Use of the *Carthusian* Monks, in the Office of St. *Bruno*, Patriarch of that Religious Order, the History of a dreadful *Apparition*; they tell us there, that a Prebend of our Lady at *Paris*, or some where else, who had been Companion in Debauchery with St. *Bruno*, before his Conversion, being dead; while the Priests were celebrating the dead Prebend's Obsequies in the Church, and he laying on the *Cataphalca*, when they came to the first Lesson of the third Nocturn, at these Words of *Job*, *Responde mihi quantas habeo iniquitates*, &c. How many are mine Iniquities and Sins, &c. *Job* xiii. v. 23. the deceased Prebend rose from the *Cataphalca*, and said; to the just Judgment of God I have appear'd, have been judged and condemn'd; *Justo Dei judicio apparui, juditatus fui, et damnatus*; and then laid down again; that St. *Bruno* who was there present, as assisting to his Friend's Funeral, was struck with such Terror, that from that Moment he vow'd to forsake the World; and soon after retired to *Grenoble*, where he laid the first Foundation of his Order. If the *Carthusians* have discovered since this to be nothing else but a mere Romance, they have expung'd it from their Breviary, and defaced all the Pictures in their Houses, where that frightful Scene was represented.

In all Appearance, the sudden Change of St. *Bruno*, who from the greatest Profligate, became in a very short Time, an Example of Piety, Virtue, and Abstinence, was the Occasion of this Romance, for in those Days nothing extraordinary could happen without a Miracle.

In my last Journey to *Rome*, I met at *Lodi*, at an Inn, which is on the Left-hand upon the Road, going to *Modena*, a *French* Gentleman, who entertain'd me with the Relation of an *Apparition* which he pretended had happened at that very same Inn. ——He told me, that one of his Countrymen, a Gentleman of *Chalons* on the *Soane*, used often to take a Trip into *Italy*, and always to lodge, when at *Lodi*, at this Inn, whereby he had contracted a very intimate Acquaintance with an honest good natured old Man who kept it. That in his last Journey, he was surprised at his alighting at the Inn to see new Faces, and miss his old Landlord; that he could not help appearing uneasy at it, which being taken Notice of by the new Landlord, he told him, that the old Landlord was dead, but that he would find no other Difference in the Place, but on the contrary meet with still better Entertainment, if possible, and civiler Usage than while his old Landlord was living. All this could not hinder our Traveller from expressing his Sorrow for the Loss of his Landlord; but as it was too late to move his Quarters, he comply'd with the new Landlord's Request, and lodged there that Night, with the Design to continue his Journey the next Morning, for while his old Landlord was living, he used always to tarry some Days with him.

He supped that Night, as I imagine, but with very little Appetite, and went to Bed soon, and left some Fire in the Chimney, which makes me suppose it was in Winter, (though I saw no other Chimney there than that of the Kitchen, the Travellers if they want to warm themselves being obliged to set round a Kettle full of a Sort of small Coal Dust, which they stir now and then to give more Heat) but perhaps the House has been alter'd or rebuilt since the *Appation*.

While he was in his first Sleep, he was awakened by some Body opening the Curtains of his Bed, and who was it but his old Landlord. *Landlord*, said he in a Surprise, *how came you here? I have been told you was dead. Yes*, said he, *I am dead, and those who keep the House at present have murdered me, and buried me in the Garden in such a Place; therefore if you have a Mind to do me a last Piece of Service, as you have been always very kind to me, you'll have the Murderers punish'd*; (if the Traveller was surprised to find that Animosity and Revenge continued even beyond the Grave, and that even departed Souls were sensible of it, is what's not come to my Knowledge) but however, he promised his Landlord, (whose Conversation and Presence were not perhaps so agreeable then, as they had been formerly) rather more than he asked, and, in particular, an ample Satisfaction for the Wrong done him. And accordingly, the next Morning he went to the Magistrate of *Lodi*, to inform him of what had passed the Night before between him and his old Landlord; upon which the Magistrate ordered that the Murderers should be seized,

ſeized, and the Garden digged up in the Place indicated by the Landlord, where in fact they found his mangled Body, which the Traveller had buried in a very decent Manner, after which he prepared for his Return into his own Country, laying aſide all Thoughts of travelling any farther. The Night before his Departure, when he thought his Landlord muſt by that Time have been at reſt, ſince he was bury'd, and his Murderers executed; he was very much ſurpriſed to ſee him again enter his Chamber. By our Traveller's Countenance, which was not then very pleaſing, the Landlord could have eaſily judged that his ſecond Viſit was not ſo acceptable as the firſt; and in fact the Gentleman received him in a very rough Manner, and aſked him, what he wanted more? Nothing, ſaid he, but to thank you for what you have done for me. He who thought ſuch a Piece of Complaiſance and Civility very unſeaſonable, and could never have imagined thoſe Punctilio's were in Faſhion in the other World, told his Landlord, that he might very well have ſaved himſelf the Trouble of ſo long a Journey, as muſt be that of coming from one World into another, on ſo trivial an Account, and that he had thought it a far greater Mark of his Gratitude, if he had left him at reſt.

The *Landlord*, who was not one of thoſe inſolent ones, who but too often think themſelves as great as their Gueſts, and perhaps greater; but on the contrary, was a very modeſt Soul, as I have obſerved already, had perhaps excuſed himſelf, had he not feared that the Excuſe had perhaps appeared worſe than the Offence, therefore he thought it better to withdraw, but as he was near the Door (for in his *Apparitions* he behaved with far more Circumſpection and Prudence, than any other *Soul* had done before him, and perhaps ſince, for inſtead of vaniſhing or diſappearing at once, which is enough to frighten a Perſon out of his Wits, he always came in and went out at the Door) the Traveller called him back; Landlord, Landlord! ſaid he, ſince you are ſo grateful, I have alſo a Favour to beg of you, which is, that you'll be ſo good to give me Notice of my Death, three Days before it happens (for we muſt obſerve here, that the Number Three, is always the favourite one, in all Relations of this Nature) The Landlord promiſed, that if he was permitted to do it he would; which Promiſe was much more modeſt and polite, than that of thoſe three Fellows mentioned by *Rochefort*, who had not half the good Manners of our Landlord, though in all Appearance educated at the Court of *France*, but I ſuppoſe them to have been ſome of thoſe *Petit Maitres*, who thought they could be as impertinent in another World as they are in this.

After this Promiſe, the Landlord departed for his Place, and our Traveller the next Morning for his Country. Where, for Fear of a Relapſe ſome Time or other, into his old Fits of Rambling, he tied himſelf ſo faſt to a rich Widow, that afterwards he had not the leaſt Inclination to go farther than the Length of his Chain.——In her Arms he had ſoon forgot *Italy*, his old Landlord, and the Promiſe he had exacted from him; till one Morning early, at a Country Seat, where he was with his Family to paſs the Summer Seaſon, he heard, while in Bed with his Lady, ſomebody knocking at one of the Garden Gates, which opened into an adjacent Wood; he thought then, it was ſome Gentleman he had invited that Day to a hunting Match, and therefore called one of his Servants, to go and ſee who was there.—The Servant went, but ſaw Nobody, which made the Maſter believe that he had dreamed it.—But his Servant had no ſooner left the Room, but he heard another Knock, which convinced him then, that he was not miſtaken, and ordered his Servant back again to the Place, from whence he returned as wiſe as before; and while the Maſter and Servant were diſputing the Matter, the one inſiſting that he had not been to the Place, and the other proteſting he had, the Maſter heard a third Knock, (always the favourite Number Three) which made him go himſelf to the Place, where to his very great Surpriſe, he found his old Landlord, whom he knew again, though many Years had elapſed ſince he had ſeen him laſt. Landlord! ſaid he, with a very great Conſternation, (for he gueſſed preſently what was his Errand) yes Sir, reply'd the old Landlord, I am come to accompliſh my Promiſe, and to tell you, that you have but three Days to live.——The Gentleman thanked him, and came back to his Lady, who ſeeing him in ſome Confuſion, aſked what could be the Occaſion of it; at firſt he found ſeveral frivolous Excuſes to diſguiſe the Truth, but when he ſaw ſhe inſiſted ſtill, and he could diſguiſe no longer, he at laſt told her the whole Story.——Some Wives, in our Days, had been very well pleaſed at the News, and from that Moment had thought of a Mourning, capable to ſet out the auctionable Piece of houſhold Furniture to the beſt Advantage, would have liked, in a few Hours, ſuch and ſuch for a Huſband, and then provided for the Funeral of this; but in all Appearance, this Lady was of the old Stock, and perhaps had been brought up under the Eyes of a diſcreet Mother, who had taken more Care to inſpire her with Sentiments of Piety, Virtue, and Modeſty, than with thoſe of Vanity, Ambition, Pride, and Coquettry, (the ſole Dowry which the Jilts of this Age bring to their Huſbands) ſince ſhe appeared in an Inſtant overwhelmed with an unfeigned Sorrow and Affliction, and drowned in Tears, endeavouring to perſuade her Huſband, that it was nothing elſe but an Illuſion.—But the Gentleman remembred too well what had paſſed at *Lodi*, between him and his Landlord, whoſe Face he could yet remember perfectly well, for to have taken the Change; therefore he ſent for the Parſon of the Pariſh, whom he acquainted with the Apparition, and mean Time deſired his Aſſiſtance, in preparing him for Death.——The Parſon, who perhaps was not much inclined to believe *Apparitions*, and perhaps had never been called to lay any Souls in the *Red Sea* (though I have never heard that the *French* Prieſts ſend thoſe Souls any where elſe but into Purgatory, where they leave them, without putting themſelves to the Charge of making them travel further) the good Prieſt told him, that he did well to prepare himſelf for Death, ſince every Day of our Life ſhould be a Preparation for it; but that he would not have him do it on the erroneous Pretext of the *Apparition*, which was only the Effect (as he ſuppoſed) of ſome Dreams, which had ſtrongly affected his Imagination. But however, all the Force of his Arguments availed nothing, and the Gentleman perſiſted ſtill in his former Opinion that he had ſeen his Landlord.——The firſt Day paſſed without his feeling the leaſt Symptom of Death; the ſecond the ſame; the third, not ſo much as the leaſt Appearance of any Diſtemper whatever, ſo that at laſt himſelf believing that he had been miſtaken, he ſent, towards the Evening, for a few Friends to come and ſup with him, and partake of the Joy of his Family for his narrow Eſcape.

While they were in the Height of their Mirth, a young Gentleman who courted a Daughter of his Wife, by a firſt Huſband, and to whom he had forbidden the Houſe, not thinking him a fit Match for her, thought this a very proper Time to ſee his Miſtreſs, while the reſt of the Family was employed otherwiſe, and accordingly he was introduced into the Houſe, by ſome *Abigal* or other (we have miſſed obſerving that the young Spark was forbidden the Houſe under no leſs Penalty, than of being thrown thro' the Window, in Caſe he was ever found in it.)—The Supper over, the Company, who knew that their *Hoſt*, after the Fatigues of the three preceding Days, wanted Reſt, ſeparated ſoon, and the *Hoſt*, tranſported to think that his Landlord had been miſtaken in the Calculation of his *Ephemerides*, was willing to ſee his Gueſts, as far as the Door, and taking a Candle to conduct them, inſtead of following the ordi-

nary Paſſage, went through another Apartment, which was that where his Daughter in Law was with her Gallant, who ſeeing him coming to him unexpected, and thinking then that he was come with no good Deſign for him, thought that to prevent an evil one, he muſt be before-hand with him, and therefore to favour his Eſcape, drew his Sword, run him through the Body and killed him on the Spot, in which unhappy Cataſtrophe, the Landlord's Prophecy was accompliſhed.

This Romance is well enough contrived to frighten Children, and to lull others aſleep, which was the Effect it had upon me, for I nodded ſeveral Times while my Friend was recounting it; and the ſingle Narration is ſufficient, without any Comment to ſhew the Ridicule of it.

I have known here, a certain intriguing Lady (eſteemed a *Lucretia* by her Writings, but a perfect *Meſſalina* in her Conduct) who pretended to have ſeen ſeveral *Apparitions*. She boarded once at a Houſe in *Weſtminſter*, and perſuaded the Miſtreſs of the Houſe, who had been the Widow of a Painter, but had married again an *Iriſhman*; that ſhe ſaw every Morning her late Huſband, walking at ſuch an Hour, in the very ſame Dreſs the poor old Fool had told her ſeveral Times, he uſed to be in at thoſe Hours, while living. It muſt be obſerved that at the ſame Hour, the young Huſband uſed to tranſport himſelf from his Bed to that of our Viſionary, and for fear of being catched in *flagrant Delict*, by the old jealous Wife, they had contrived this *Apparition*, to hinder her from getting up too ſoon, ſo that while covered over Head and Ears, ſhe was in the greateſt Agony for Fear of a Viſit from her deceaſed Huſband, our pretended *Lucretia*, and her Spark were ſpending theirs in mutual Embraces.

The ſame *Lucretia* related to me the Story of an *Apparition*, which I take to be of her own Invention, for her Ladyſhip had a very fertile Brain; and therefore take it to be as true as the *Weſtminſter* one.—An *Engliſh* Country Gentleman, ſaid ſhe, married a Wife who had a very handſome Siſter, whom he found the Secret to debauch, and got her with Child, which ſhe concealed as well as ſhe could till ſhe was very near her Time, when her Brother-in-Law, her Gallant, under the Pretext of hiding her Shame, propoſed to her the coming to *London* to lay in, which ſhe readily accepted.——While ſhe was on the Road accompanied with her *Deceiver*, ſhe fell in Labour, at which he carried her out of the Road into a Wood, where he left her in the moſt deplorable Condition, and returned to his own Houſe.——Soon after this horrid Piece of Villainy and Barbarity, his Wife died without Iſſue.—Seeing himſelf thus left alone, and feeling within very ſtrong Remorſes for his paſt Crimes, he reſigned his Eſtate to his next Heir, and taking along with him a conſiderable Sum of Money, under pretence of going to travel abroad, he came to *London*, where he thought he was not known, having ſpent the greateſt Part of his Life in the Country.

At his Arrival in Town, his firſt Care was to ſeek a Lodging in a very populous Place, thinking that it was the ſureſt Expedient to paſs unobſerved.——He ſoon found what he wanted, agreeing with a Shopkeeper for a ſecond Apartment in his Houſe, for which he offered to pay a very extraordinary Price, on Condition that his Name ſhould be concealed; that no Body ſhould ſee him; and that they ſhould take Care to ſend him one Meal a Day, at ſuch an Hour, and no more.——Which was promiſed, and afterwards punctually enough executed.——He had two Rooms, a Bed-chamber and another, into which when the Servant came up to make the Bed, or on ſome other Occaſion, he uſed to retire.

This Gentleman had a Cuſtom which very few Landladies or Landlords like much in a Lodger, not for Fear of any Accident happening to him, but of diſobliging the Furniture, and which was that of reading in Bed; accordingly the firſt Night he laid in his new Lodging, he had placed his Candle upon a Chair at his Bed-ſide, and was reading very attentively, a Book (which I ſuppoſe, conſidering his melancholly Circumſtances, and the Reſolution he had taken to lead an anachoretical Life, to have been *Sherlock* upon Death, the Practice of Piety, or ſome other ſuch holy Volume) when he ſaw a Woman entering the Room with a Child in her Arms, and who, when near the Bed, took up the Candle and ſet down in the Chair, holding the while the Candle in her Hand, and looking very wiſhfully, at our *Anachoret*, who knew preſently his *quondam* Miſtreſs; and had been very glad, then, ſhe had known the firm Reſolution he had lately formed, of receiving no Viſit at all; expecting every Moment to have his Crime painted in the darkeſt Colours; in which however he found himſelf miſtaken, for inſtead of thoſe bitter Reproaches, a Woman thus injured could have been expected to have abounded with (ſince none of the Sex ſpare them, even for the leaſt Appearance of an Injury) he found himſelf all on a ſudden aſſailed with a violent Box on the Ear, apply'd ſo effectually as to make the Blood guſh out at his Noſe; which makes me believe, that this *Apparition* was of an extraordinary Kind, and that ſhe had really Fleſh and Bones, elſe ſhe could not have apply'd ſo well *activa paſſivis*; though ſhe had the Complaiſance afterwards to wipe off the Blood ſhe had ſpilt with her Handkerchief, and ſhewing it to her penitent Murderer, told him (for contrary alſo to the Cuſtom of all other *Apparitions*, this ſpoke firſt, or rather ſpoke alone, ſince the Gallant who had alſo perhaps vowed *ſilentium perpetuum*, a perpetual Silence, like the *Cartuſian Monks*, did not ſo much as attempt to ſpeak one Word) that the next Time he ſhould ſee that Handkerchief again, his End would be near at Hand; giving him thereby to underſtand, that this would not be her laſt Viſit; and in Fact ſhe viſited him every Night afterwards, but without Blows, contenting herſelf to ſet near his Fire, to undreſs and dreſs her Child, without ſpeaking a Word, which the Hermit was ſo well uſed to, at laſt, that he expected every Night her Viſit at ſuch an Hour, as he would have done that of a particular Friend.

I aſked *Lucretia* how ſhe came to the Knowledge of this, ſhe ſaid, that a Gentleman having taken the firſt Floor in the ſame Houſe, and hearing ſome Body over him, walking up and down, and having never ſeen any Lodger in the Houſe, beſides himſelf, aſked once his Landlady, who could be that inviſible Rambler? The Landlady, who like the Reſt of her Sex, was glad to find a Perſon ſo kind as to help her to keep her Secret, told the whole Story, deſiring, at the ſame Time, her Lodger, according to Cuſtom, to divulge it to no Body elſe, for if he did, ſhe ſhould be ruined, ſince the Hermit was a very great Help towards maintaining her Family; who, if he was to hear it was known that he was there, would that Inſtant quit her Houſe.——The Gentleman promiſed he would not; though he was not ſo good as his Word, for he watched the Opportunity one Evening when the Maid was going to make the Hermit's Bed, to creep up Stairs after her, and forcing into the Bed-Chamber, obliged the Hermit, by his Importunities, to open that where he had retired; and after ſome Excuſes, entered into a Converſation with him upon his extraordinary Manner of Living——The Hermit diſcovering by his Gueſt's Diſcourſe, that he had a great deal of Honour, and Probity, made no Scruple to diſcover to him all the various Incidents of his Life, and the black one in particular.——Which *Lucretia* pretended ſhe had learned from the Gentleman himſelf, aſſuring me at the ſame Time, that the Hermit was yet living, but had moved his Quarters; though I would be curious to know if he has ſeen ſince the ominous Handkerchief, for it is ten Years ſince ſhe told me the Story, and as ſhe has herſelf paid ſince the common Tribute to Nature, I deſpair receiving any further Intelligence on that Head.

The ſame virtuous Lady had made a Sort of Com-

pact with a poor young Man she had debauched, for she was then too stale and too ugly to be debauched, or rather she had been debauched sooner than she was naturally fit for it, that the first of the two that should die, should come to inform the other of what passes in the other World. The young Man died first, to which she had very much contributed, by obliging him oftner, than he really could, to hornify her Husband; but if he was glad to be rid of her at any Rate, or afraid, if he was to come back, to be trapanned once more into his former transitory Hell; I did not hear that he had endeavoured to perform his Promise.

The monstrous Incoherences this Relation is interspersed with, shew plainly the Ridicule of this *Apparition*; for it is against all Sort of Reason, to suppose that the pretended Hermit, would have disclosed a Secret of that Consequence, at the first Sight of a Person he knew nothing of, and could have reasonably suspected to have been sent on Purpose to trapan him; could even all his Entreaties have persuaded him to open his Door, which it was in his Power to have kept shut? No; and if by some unforeseen Accident he had been discovered, could he not have instantly changed his Lodgings, as he is represented to have done afterwards? Besides what means that Ceremony of dressing or undressing a Child? Are Children nursed in the other World? If it was to put him in Mind of his Crime, that Precaution was needless; since he is pretended to have retired there with the formed Design of making a Sort of Attonement for that Crime, and for no other; which must make us think that all those *Apparitions* are nothing else but the Fictions of some shattered Brain, like our modern *Lucretia*.

An unfortunate Gentleman of my Acquaintance had a Year ago an *Apparition*, which had some Incidents like this above-mentioned,—— Betwixt ten and eleven at Night, he heard a dreadful Thundering at his Door, which he answered by one *who's there*, pronounced in the Tone of a Man, who thinks himself Master on his own Dunghil; his who's there was reposted by a Cry of Murther; at which the Gentleman believing that it was some Friends (though the Voices did not sound as if they had been human Voices) who were pursued *Vi & Armis*, and were running to him for Refuge, hastened to open his Door, when to his Surprise, he was assailed with a Volley of Blows, which deprived him at once of all his Senses, except that of Feeling; the first Thought he was capable of was, that Hell was let loose upon him, and therefore bethought of a Conjuration, but every Time he opened his Mouth, to articulate it, it was immediately stopp'd with an iron close Fist, often pushed down half Way his Throat, as if willing to reach his Soul; which made him conclude at last that it was *Lucifer* himself, or at least some of his Emissaries, confirmed, therein, by the poisonous Smell they had infected the Room with, though he could not very well distinguish if it was of Brimstone, or something else; 'till at last, with much Difficulty, opening his Eyes, overswelled with the Blows, two amphibious Monsters, half Devil, and half Woman, appeared to him, which he took then for the two Harpies, *Aello* and *Ocypete*; for in Fact they had Faces like Women, and something like Wings on their Shoulders; their Hands were certainly hooked like the Talons of Birds of Prey, and in all Likelihood their Feet also; their Voice was without doubt the Voice of Harpies, for one could distinguish nothing but a shrill Sound, with now and then the polite Expression of *Dog*, *Son of a B——ch*, &c. enough to confound a human Understanding.—— He has told me since, that he could have wish'd them once more confin'd in the *Ægean* and *Sicilian* Sea, and that he cursed heartily the *Boreades* for having expelled them from thence; unless they could have invested him, at that Instant, with the same Power, to expel them from his Apartment, where they staid 'till after twelve, alarming the whole Neighbourhood.—— Some of his kind Neighbours taking them for two *Apparitions* of evil Spirits, or of some damned Souls, were for sending for a Parson to lay them in the *Red Sea*; and others believing them *not quite ready for the Place*, would have them laid in one of the Compters, but my Friend considering that our Prisons are already an Emblem of Hell, perfect enough without Addition, chose rather to bear the Brunt, than to expose our poor Prisoners to new Torments.

The *French* had imagined, in antient Times, that against the Death of their King, there happened always a very grand *Apparition* in the Forest of *Fontainebleau*, which, the Form it appeared in, with Horses, Dogs, French-Horns, Huntsmen, *&c.* made them call that *Apparition* the GRAND VENEUR, the King's great Huntsman; but if the *Grand Veneur* is so superannuated, as to have been uncapable for a very considerable Time to have taken the Fields, or if he has lost his hunting Equipage, we hear at present nothing of him; sure some ill-natured Priest has not metamorphosed the *Grand Veneur* into a Fisherman, and sent him a fishing into the *Red Sea?*

They had also a Notion very much like this in *Brandenbourg*, where they pretended that a few Days before the Death of an Elector, his Predecessor used to appear in some Gallery of the Castle; but lately, if the *Apparitions* are at Variance with us, or if they have found so much Employment, or Occupation in the other World that they do not mind this, they don't visit us so often as they used to do our Ancestors. Perhaps they are more afraid of our Clergy, than they were then, and well they may, for I know one here about *London*, who, when enlivened with some Cups of *Diapente*, or Punch, which is his favourite Liquor, could speak to them *Greek* in *Latin*, which the Learned know is enough to affright any *Apparition* out of his Wits; since it had at first that Effect on the Congregation he is appointed Vicar to; but they are at present so well used to it, that, even, in the greatest Agitations of the Spirit, they mind him no more than when he is sober, which is but seldom.

ARCHITECTURE.

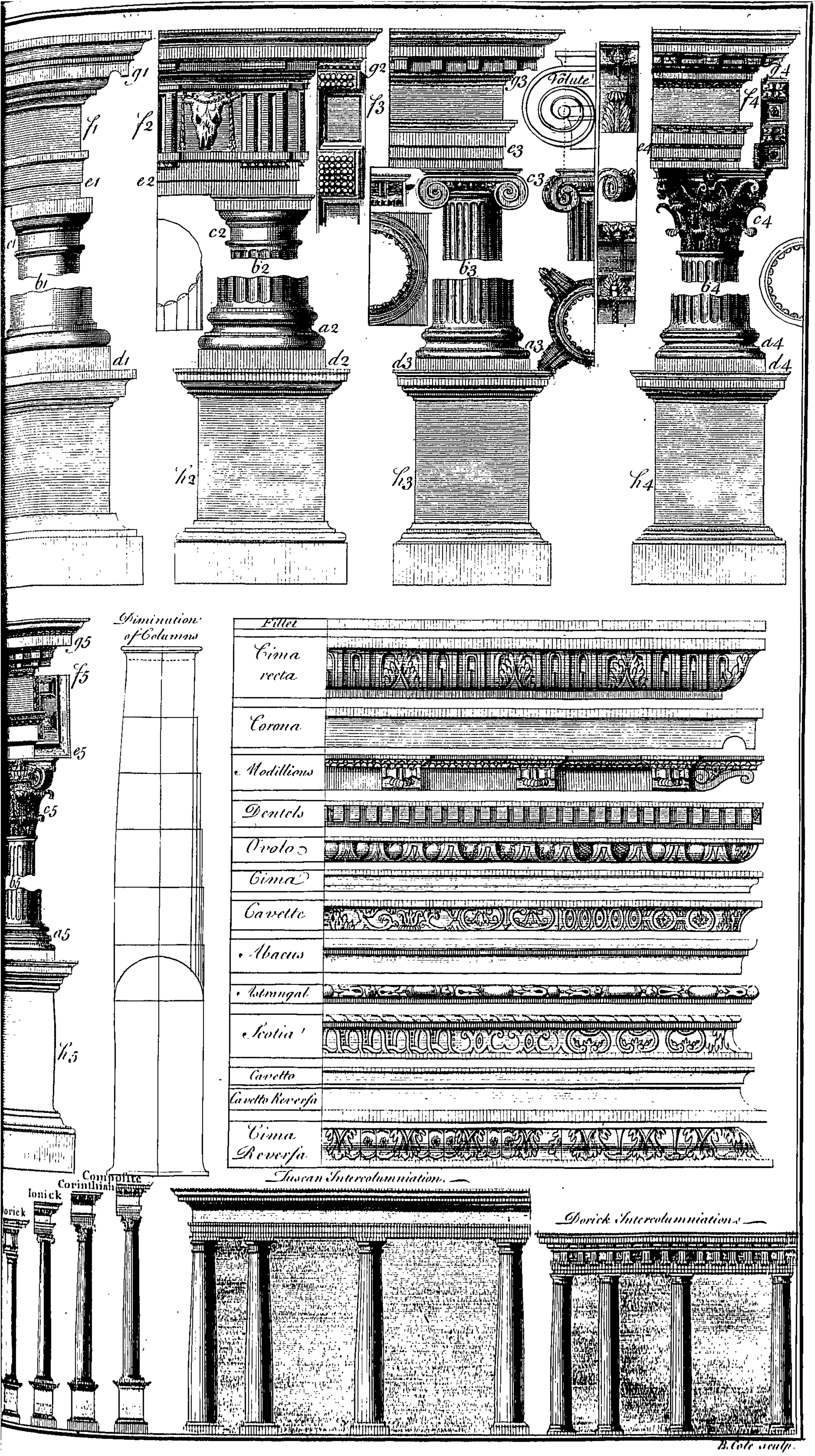
ARCHITECTURE is the Art of erecting Edifices, either for Habitation or Strength. With Respect to its Objects, 'tis divided into three Branches, *Civil*, *Military* and *Naval*.

CIVIL ARCHITECTURE, is the Art of contriving and executing commodious Buildings for the Uses of civil Life, as Houses, Temples, Theatres, Halls, Bridges, Colleges, Portico's, Columns, Obelisks, Pyramids, *&c.* which Art is to be exemplified, and elucidated in our Treatise of Building under the Letter *B*.

MILITARY ARCHITECTURE, is the Art of Fortifications, *i. e.* of erecting Citadels, of forming Poligons, with Horn-works, Half-moons, Counterscarps, Bastions, Cavaliers, Glacis, *&c.* of which at large in our Treatise of Fortifications under the Letter F.

NAVAL ARCHITECTURE, is the Art of Shipbuilding, which *Naval Architecture* is to be treated of under the Letter N.

In this Place we'll treat only of *Architecture* in general, considered either with Regard to its several Periods or States, (and so divided into *Antique*, *Antient*,


Volute
Diminution of Columns
Fillet
Cima recta
Corona
Modillions
Dentels
Ovolo
Cima
Cavetto
Abacus
Astragal
Scotia
Cavetto
Cavetto Reversa
Cima Reversa
Tuscan Intercolumniation.
Doric Intercolumniation.
Composite
Corinthian
Ionick
Dorick
B. Cole sculp.

tient, *Gothick*, *Modern*, &c. *Architecture*,) or to the five Orders or Manners of Building, *Tuscan*, *Dorick*, *Ionic*, *Corinthian*, and *Composite*.

Antique, differs no otherwise from *Antient Architecture*, but as a *Genus* from its Species; —— *Antique* is applied to such Pieces of Building, as were made at the Time when the Arts were in their greatest Perfection, amongst the antient *Greeks* and *Romans*, *viz.* from the Age of *Alexander* the *Great*, to the Time of the Emperor *Phocas*, about the Year of Christ 600, when *Italy* became over-run by the *Goths* and *Vandals*. —— All Edifices erected from that *Epocha* to the Restauration of *Architecture* to its pristine Splendor, are called antient Edifices, because the Art was not then in its utmost Purity.

The Difference between antique and antient Buildings appears particularly in the joining of the Stones together, in which the antique Architects were so very curious and exact, that it is very difficult to discern the Joints in a great many Places, and which contributed much to the Beauty, Strength and Solidity of the Building.

This, in my Opinion, could not be done, without having those Sides of the Stones squared and wrought first, which were to be laid one above another, leaving the other Side rough, after which they were made use of in the Building; so that the Angles or Edges of the Stones not being so sharp, they could move them up and down better, 'till they joined well, and were in no more Danger of breaking, than if all the Sides had been squared; for the Angles being then too thin, are apter to break.

In this Manner they made all their Stone Buildings rough and rustick, as it were; and when these were compleated, they continued to polish those Sides of the Stones that were exposed to View. —— It must be acknowledged, that as the Roses between the Modilion or other Decorations of the Cornice, could not be commodiously worked after the Stones were fixed, they made them while they lay on the Ground. —— This is evident by many antient Buildings, in which several Stones are found that were left unwrought and unpolished. The Arch near the old Castle in *Verona*, and all the other Arches, and antient Edifices in that Place, were made after the same Manner: This we easily discover by the Marks of the Tools, which shew in what Manner the Stones were wrought.

The Columns of *Trajan* and *Antoninus* at *Rome*, were thus wrought; for it would have been impossible, otherwise, to have fixed the Stones, so as that the Joints should meet so close together, cross the Heads, and other Parts of the Figures. —— The same may be said of those triumphal Arches that are found there, for when they had any large Edifice to erect, as the Amphitheatre of *Verona*, that of *Pola*, and the like, to save Time and Charge, they only wrought the Imposts of the Arches, the Capitals and Cornices, leaving the rest Rustick, regarding only the Beauty of the whole Fabrick. —— But in Temples and other magnificent Edifices, that require great Delicacy, they spared no Labour in working them, but glazed and polished them, even to the very Flutes of the Columns, with the utmost Accuracy and Application.

GOTHICK ARCHITECTURE, is that which deviates from the Proportions, Characters, *&c.* of the *Antique*.

The *Gothick Architecture* is frequently very heavy, solid, and massive; and sometimes, on the contrary, exceedingly light, delicate and rich. —— The Abundance of little whimsical, impertinent Ornaments, are its most usual Character.

Authors distinguish two Kinds of *Gothick Architecture*; the one antient, the other modern. —— The antient is that which the *Goths* brought with them from the North, in the fifth Century: The Edifices built in this Manner were exceedingly massive, heavy and coarse.

Those of the *modern Gothick* run into the other Extreme, being light, delicate, and rich to a fault; Witness *Westminster Abbey*, the Cathedral of *Litchfield*, the *Cross of Coventry*, &c.

The last Kind continued long in use, especially in *Italy*, *viz.* from the thirteenth Century to the Restauration of the Antique Building in the sixteenth. All the antient Cathedrals are in this Kind.

The Inventors of the *Gothick Architecture* thought, no doubt, they had far surpassed the *Greek Architects*: A *Greek* Building, as I have observed already, has not a single Ornament but what adds a Beauty to the whole. The Parts necessary to sustain or shelter it, as the Columns, Cornices, *&c.* derive all their Beauty from their Proportions; every Thing is simple, measured and restrained to the Use it is intended for. —No daring out-of-the-way Strokes.—Nothing quaint to impose on the Eye; the Proportions are so just, that nothing appears very grand of itself, tho' the whole be grand. —— On the contrary, in the *Gothick Architecture*, we see huge Vaults raised on slender Pillars, which one would expect every Minute to tumble down, though they will stand for many Ages, every thing is crammed with Windows, Roses, Crosses, Figures, *&c.*

MODERN ARCHITECTURE is that which partakes partly of the *Antique*, retaining somewhat of its Delicacy and Solidity, and partly of the *Gothick*, whence it borrows Members and Ornaments, without Proportion or Judgment; tho' we have learn'd, for several Years past, to lay aside the extravagant Abuses and ridiculous Inventions introduced among us, from a depraved Taste for *Gothick Architecture*; whence we may justly believe, that this Art has been lately so far improved, as to be carried in time to that Pitch of Perfection, which in all Arts is principally sought after. —— The *Italians* seem to have made the most considerable Advances towards it, and built a vast Number of sumptuous Edifices, which rival the *Roman* Grandeur and Magnificence.

Before I give an exact Description of the five different Orders of *Architecture*, which all publick and private Edifices must be composed of, it will not be improper to observe here, that the Columns, in each of the five Orders, are to be made so as the Diameter of the upper Part of the Column, may be less than at the Base, and have a little Swelling in the Middle.

In the Diminution of the Columns, we must take Care that the longer they are, the less they must diminish, because the Height, by Reason of the Distance, has the Effect of Diminution.

Vitruvius, l. iii. c. 2. gives us Directions to that purpose; for he says, that if the Column be fifteen Feet high, the Diameter at the Bottom must be divided into six Parts and a Half, and five and a Half must be the Thickness at Top; if from fifteen to twenty Feet, the Diameter at the Bottom must be divided into seven Parts, and six and a Half will be the Diameter at Top.—The same Observation must be made in those that are from twenty to thirty Feet high, where the Diameter, at the Bottom, must be divided into eight Parts, seven of which will be the Diameter at Top; and thus such Columns as are of a greater Height, will diminish in the Manner abovementioned.

As to the Swelling which is to be in the Middle of the Column, this excellent Author has left us in the Dark; but *Palladio* has supply'd his Defect, and left us a Method for the Profil of such Swelling.—He divides the Fust of the Column into three equal Parts, and leaves the lower Part exactly perpendicular; to the Extremity whereof he applies a thin Rule of the exact Length, or sometimes a little longer than the Column, and bends that Part of the Rule which comes forwards, till the Point thereof touches the Point of Diminution of the upper Part of the Column, under the *Collarino*; then he marks as that Curve directs; thus he has the Column swelling a little in the Middle, and projecting forward, which strikes the Eye very agreeably.

The Diameter must always be taken at the lowest Par:

Part of the Column, and the Intercolumnations, which are the Distances between the Columns, are to be one Diameter and a Half, or of two Diameters, of two and a Quarter, of three, and sometimes more of the Column, tho' the Antients never exceeded three, except in the *Tuscan Order*, where the Architraves being of Timber, they made the Intercolumnations very large. But then they never made them less than a Diameter and a Half, which Distance they particularly observed when the Columns were very lofty.——But they principally approved of those Intercolumnations, which were of two Diameters and a Quarter, and esteemed them as most elegant and beautiful.

The Beauty and Elegance of the Columns are very much heightened by the Proportion and Harmony between them and the Intercolumnations; for if small Columns are made with large Distances, or Intercolumnations, the too great Quantity of Air in the void Spaces will very much lessen their Thickness, and consequently diminish their Beauty; and if, on the contrary, there are but small Intercolumnations, between large Columns, the too little Vacuity will make them appear heavy, thick, and disagreeable. Therefore, if the Distance be more than three Diameters, the Thickness of the Column must be a seventh Part of its Height, as I shall observe hereafter in the *Tuscan Order*.——But if the Distances are three Diameters, then the Length of the Column must be seven Diameters and a half, or eight, as they are in the *Dorick Order*.——If two and a quarter, the Columns must be nine Diameters and a half in Length, as in the *Corinthian*.——And if a Diameter and a half only, the Length of the Columns must be then ten, as in the *Composite*.

In the Front of any Edifice the Columns must be of an even Number, that there may be an Opening in the Middle, larger than the other Distances and Intercolumnations, for the Doors and Entries; that is to say, for single Pillars and Columns.——But if Galleries are to be made with Pilasters, they must be disposed so that the Thickness of Pilasters or Piers be not less than the third of the Void from Pier to Pier, and to those in the Angles two Thirds, which will make the Angle in the Building more solid and substantial.——When these Piers are to support a cumbrous Load, as in large Structures, then they must have half the Thickness of the Vacancy, or otherwise two Thirds in publick Edifices; but in private ones they must be as thick, at least, as the third Part of the Opening, but no thicker than two Thirds, and ought to be square.——But to save Charges, and make it more commodious, and the Passage more open, they need not be so thick in Flank as in Front; and for its Embellishment, half Columns or Pilasters may be placed in the Middle, to support the Cornices over the Arches of the Gallery, whose Thickness must be in Proportion to their Height, according to each Order, as I shall demonstrate in the Course of this Treatise.

For the Division and Mensuration of the above-mentioned Orders, we'll make use of the same Measure or *Module*, which *Vitruvius* used to divide the *Dorick Order* with, which *Module* is taken from the Diameter of the Column, and which may be used in all the *Orders*.

This *Module* is the Diameter of the Column at Bottom, and is divided into sixty Minutes, except in the *Dorick*, in which the *Module* is half the Diameter of the Column, and is divided into thirty Minutes, this being more commodious in the Divisions of that Order.——One may therefore divide the *Module* into more or less Parts, according to the Quality of the Edifice, and use the Designs of the Proportions and Profils suitable to each Order.

These general Rules would suffice to Persons, who have some Tincture of *Architecture*, and I could now proceed to the Demonstration of the five Orders, if my Work was calculated for them only; but as I have promised it should serve for a general Instruction, and hope it will be read equally by those who have not the least Notion of the Arts and Sciences I am to treat of, as by Masters or Proficients in those Arts and Sciences, I must give in this Place a clear Explanation of these Terms, Columns, Intercolumnation, Diameter of a Column, and of a Module.

A COLUMN in *Architecture*, is a round Pillar made to support or adorn a Building.

The entire *Column* in each Order is composed of three principal Parts, the *Base*, the *Shaft*, and the *Capital*.

(A) The BASE of a *Column* is that Part between the Shaft and the Pedestal, if there be any Pedestal; or if there be none, between the Shaft and the Plinth, or Socle.

The *Base* is supposed to be the Foot of the *Column*, or as some will have it, it is that to a *Column* which a Shoe is to a Man.

The *Base* is different in the different *Orders*, as we shall see, when we come to treat of those *Orders*.

(B) The SHAFT of a *Column* is the Body thereof; thus called from its Streightness; tho' most commonly called the *Fust*.

(C) The CAPITAL is the uppermost Part of a *Column*, serving as the Head or Crowning thereof, placed immediately over the *Shaft* or *Fust*, and under the *Entablature*.——The *Capital* is a principal and essential Part of a *Column*, is made different in the different *Orders*, and is that which chiefly distinguishes the *Orders* themselves.

Each of these Parts is again subdivided into a great Number of lesser, called *Members* or *Mouldings*, some whereof are essential, and found in all *Columns*; others are only accidental, and found in particular *Orders*.

MEMBERS or MOULDINGS are Jettings or Projectures beyond the naked Part of a *Column*, of a Wall, Wainscot, *&c.* the Assemblage whereof forms Cornices, Door-Cases, and other Decorations of *Architecture*.

Some *Mouldings* are square, others round, some strait, others carved, *&c.*——Some are plain, others carved, or adorn'd with Sculpture, either hollowed, or in *relievo*.

Some *Mouldings*, again, are crowned with a *Fillet*, others are without, as the *Doucine*, *Talon*, *Ovolo*, *Torus*, *Plinth*, *Scotia*, *Astragal*, *Gula*, *Corona*, and *Cavetto*.

FILLET, in *Architecture*, is a little square Member or Ornament, used in divers Places, and on divers Occasions; but generally as a Sort of *Corona*, over a greater Moulding; and on Occasion, serves to separate the *Flutings* of *Columns*.

The *Fillet* is the same with what the *Italians* call *Lista*, or *Listella*; and the *French*, *Bande*, *Bandelette*, and *Reglet*; though the *Reglet*, according to *Daviler*, differs from the *Fillet*, in that it projects equally like a Ruler.

The DOUCINE is a *Moulding* on the highest Part of the Cornice, in form of a Wave half Convex and half Concave.——The *Doucine* is the same with a *Cymatium* or *Gula*.

Vitruvius does not confine *Cymatium* to the Cornice, but uses it indifferently for any similar Moulding, wherever he meets with it; in which he differs from the most accurate among the Moderns.

Felibien makes two Kinds of *Cymatiums*; the one right, and the other inverted; in the first, that Part which projects the furthest is concave; and is otherwise called *Gula recta*, and *Doucine*.——In the other, that Part that projects farthest is convex, called *Gula inversa* or *Talon*.

Our *Architects* do not use to give the Name *Cymatium* to these Mouldings, except when found on the Tops of Cornices; but the Workmen apply the Name indifferently, wherever they find them.——*Palladio* distinguishes the *Cymatium* of the Cornice, by the Name *Intavolata*.

TALON (a *French* Word which literally signifies *Heel*) is a *Moulding* concave at the Bottom, and convex

vex at the Top; having an Effect just opposite to the *Doucine*.——When the concave Part is a-top, it is called an *inverted Talon*.

The *Talon* is usually called by our *English* Workmen *Ogee*, or *O. G.* and by Authors an *upright*, or *inverted Cymatium*.—— The Figure of the *Ogee* bears some Resemblance to that of an S.

The OVOLO is a round *Moulding*, whose Profile or Sweep in the *Ionick* and *Composite* Capitals, is usually a Quadrant of a Circle; whence it is also popularly called the *Quarter Round*.——It is usually enrich'd with Sculptures among the Antients in form of Chesnut Shells; whence *Vitruvius*, and other of the Antients, call it *Echinus*, Chesnut-shell.——Among us it is usually cut with the Representation of Eggs, and Anchors, or Arrows-heads, placed alternately; whence its *Italian* Name *Ovolo*, *Latin Ovum*, and *French Oeuf*, q. d. *Egg*.

(D) PLINTH is a flat square Member in form of a Brick; sometimes also called the *Slipper*.——The *Plinth* is used at the Foot or Foundation of *Columns*; being that flat square Table under the *Mouldings* of the *Base* and *Pedestal*, at the Bottom of the whole *Order*; seeming to have been originally intended to keep the Bottom of the primitive wooden Pillars from Rotting.——The *Plinth* is also called *Orle* or *Orlo*.—*Vitruvius* also calls the *Tuscan Abacus*, *Plinth*, from its resembling a square Brick.

The TORUS, or TORE, is a large round *Moulding* used in the Bases of *Columns*.——The *Tore* is also called *Gros Baton*, and *Tondin*.—It is the Bigness that distinguishes the *Tore* from the *Astragal*.——The Bases of the *Tuscan* and *Dorick Order* have but one *Tore*, which is between the *Plinth* and the *Listel*.—In the *Attick Base* there are two; the upper, which is the smaller; and an under, or bigger.

SCOTIA is a Semicircular Cavity or Channel between the *Tores*, in the Bases of *Columns*.——It is a concave dark *Moulding*; whence its Name, *viz.* from σκότος, Obscurity, Darkness.——The *Scotia* has an Effect just opposite to that of the *Quarter-round*.——Our Workmen frequently call it the *Casement*.——It is also called *Trochilus*, partly from its Form.—In the *Ionick* and *Corinthian* Base, there are two *Scotia's*, the upper whereof is the smaller.——According to *Felibien*, the *Cavetto* is a fourth Part of the *Scotia*.

The ASTRAGAL, in *Architecture*, is a little round Member, in form of a Ring, or Bracelet; serving as an Ornament at the Tops and Bottoms of *Columns*.——The *Astragal* is sometimes also used to separate the *Fasciæ* of the *Architrave*; in which Case it is carved Chaplet-wise, with Beads and Berries.——It is also used both above and below the *Listel*, adjoyning immediately to the Square or Dye of the *Pedestal*.

The GULA, GUEULE, or GOLA, in *Architecture*, is a Wave Member, whose Contours resemble the Letter S.——This Member is of two Kinds, *Recta* and *Inversa*.——The first and principal has its Cavity above, and convexity below. This always makes the Top of the *Corona* of the Cornice, jetting over the Drip of the Cornice like a Wave ready to fall.——It is called *Gula Recta*, by the *French*, *Doucine*.—The second is just the Reverse of the former, its Cavity being at the Bottom; so that it appears inverted, with Regard to the former.——This is used in the Architrave, and sometimes in the Cornice, along with the former, only separated by a Reglet.

Some derive the Word from the Resemblance these Members bear to the *Gula*, or Throat of a Man: Others from the Herald's Terms, *Gules*; as supposing the *Moulding* form'd from the antient Manner of wearing their Garments, which consisted of Slips of Swaths, alternately Fur and Stuff of various Colours; the Intervals between which were called *Gules*, or *Guales*.

The CORONA, *Crown*, or *Crowning*, is a large, flat, massive Member of the Cornice; so called because it crowns not only the Cornice, but the Entablature, and the whole Order.——The *French* call it *Larmier*, our Workmen the *Drip*, as serving by its great Projecture, to screen the rest of the Building from the Rain.——Some *Latin* Authors call it *Supercilium*; and, as it should seem, by Mistake *Stillicidium*.——Certain *French* Authors call it *Mouchette*; and certain *Latin* ones *Mentum*, Chin; from its keeping the Weather from the Parts underneath, as the Chin does the Sweat, *&c.* out of the Neck.

Some call it absolutely the *Cornice*, as being the principal Member thereof.——*Vitruvius* frequently uses the Word *Corona* for the whole *Cornice*.—The *Corona* is itself crown'd or finish'd with a *Reglet* or *Fillet*.—There are sometimes two *Corona's* in a *Cornice*, as in the *Corinthian* of the *Rotunda*.

The CAVETTO is a hollow Member or Moulding, containing a Quadrant of a Circle, and having an Effect just contrary to that of a *Quarter-round*: It is used as an Ornament in *Cornices*.—Mr. *Felibien* observes, that the Workmen confound the *Cavetto* with a *Scotia*, but to ill purpose; the *Cavetto* being, in effect, only half a *Scotia*; yet he himself is chargeable with the same Oversight.—When in its natural Situation, the Workmen frequently call it *Gula* or *Gucula*; and when inverted *Gorge*; which *Gorge*, is a Sort of concave Moulding, concave in the upper Part, and convex at Bottom, more properly called *Gula* and *Cymatium*.

The ABACUS is the uppermost Member of a *Capital* of a *Column*, serving as a Kind of Crowning, both to the Capital, and the whole *Column*.

Vitruvius, and others after him, who give the History of the Orders tell us, the *Abacus* was originally intended to represent a square Tile laid over an *Urn*, or over a Basket. An *Athenian* Woman happening to place a Basket thus covered, over the Root of an *Acanthus*; that Plant shooting up the following Spring, encompassed the Basket all around, till meeting with the Tile, it curled back into a Kind of Scrolls. An ingenious Sculptor passing by, took the Hint, and immediately executed a Capital on this Plan; representing the Brick by the *Abacus*, the Leaves by the *Volutes*, and the Basket by the *Vasa*, or Body of the *Capital*. Such was the Rise of the first regular Order.

There is some Difference in the Form of an *Abacus* in different *Orders*. In the *Tuscan*, *Dorick*, and antient *Ionick*, it is a flat square Member, well enough representing its original Tile, whence the *French* call it *Tailloir*, Trencher. In the richer *Orders* it loses its native Form; its four Sides or Faces being arched or cut inwards, with some Ornament, as a Rose or other Flower, or Fish's Tail, in the Middle of each Arch. But some *Architects* take other Liberties in the *Abacus*, both in Respect of its Name, Place and Office. Thus in the *Tuscan Order*, where it is the larger, and more massive, as taking up one third of the Height of the whole *Capital*, it is sometimes called the Dye of the *Capital*. In the *Dorick*, it is not always the uppermost Member of the *Capital*; a *Cymatium* being frequently placed over it. In the *Ionick*, some make it a perfect *Ogee*, and crown it with a *Fillet*.

The Proportion of the *Abacus*, as prescribed by *Vitruvius* (4. 1) is short, is diagonal (from Corner to Corner) being twice its Height, a Rule which the Moderns makes no Difficulty of dispensing withal.

VOLUTE is a Kind of spiral Scroll, used in the *Ionick* and *Composite Capitals*, whereof it makes the principal Characteristick and Ornament. Some call it the *Ram's Horn*, from its Figure, which bears a near Resemblance thereto. Most *Architects* suppose that the Antients intended the *Volute* to represent the Bark or Rind of a Tree, laid under the *Abacus*, and twisted thus at each Extreme where it is at Liberty; others will have it a Sort of Pillow or Bolster, laid between the *Abacus* and *Echinus*, to prevent the latter being broke by the Weight of the former, and the *Entablature* over it, and accordingly call it

Pulvinus. Others after *Vitruvius*, will have it to represent the Curls or Tresses of a Woman's Hair. The Number of *Volutes* in the *Ionick Order*, is four; in the *Composite*, Eight. There are also eight angular *Volutes* in the *Corinthian* Capital, accompanied with eight other small ones, called *Helices*.

The ACHANTUS is only an Ornament in the *Corinthian* and *Composite Orders*; being the Representation of the Leaves of an *Achantus* Plant, in *English*, *Bear's-foot*, in the Capital thereof.

Over the *Capital* is the ENTABLATURE; comprehending the *Architrave*, *Freeze*, and *Cornice*. The *Entablature* is also called the *Trabeation*; and by *Vitruvius* and *Vignola*, *Ornament*: It is different in the different Orders: Indeed it consists of the three grand Parts or Divisions above-mentioned in all; but those Parts consist of a greater or less Number of particular Members or Sub-divisions, as the Orders are more or less rich.—*Vignola* makes the *Entablature* a quarter of the Height of the whole Column, in all the Orders. In the *Tuscan* and *Dorick*, the *Architrave*, *Freeze*, and *Cornice*, are all of the same Height. In the *Ionick*, *Corinthian*, and *Composite*, the whole *Entablature* being fifteen Parts; five of them are allowed for the *Architrave*, four for the *Freeze*, and six for the *Cornice*.

(E) The ARCHITRAVE is that Part of a *Column* which lies immideately upon the *Capital*.——The *Greeks* call it *Epistyle*.—The *Architrave* is the lowest Member of the *Entablature*.—The *Architrave* is supposed to represent the principal Beam in Timber Buildings; whence the Name which is formed of the *Greek*, αρχω, Chief, and the *Latin*, *Trabs*, Beam. —The *Architrave* is different, in different Orders.—In the *Tuscan*, it only consists of a plain Face, crowned with a *Fillet*; and is half a *Module* in Height.—In the *Dorick* and *Composite*, it has two Faces, or *Fascia*; and three in the *Ionick* and *Composite*; in which last Order, it is $\frac{10}{12}$ of a *Module* high.——*Architects* however, take a deal of Latitude in this Part; some using more Members than others; and many of them having two or three Forms of *Architraves*.——*Architrave* is sometimes also called the *Reason-piece* or *Master-beam*, in Timber Buildings, as Portico's, Cloisters, &c.—In Chimneys it is called the *Mantle-piece*; and over the Jaumbs of Doors or Lintels of Windows, *Hyperthyron*.

(F) The FREEZE or FRIZE, is that Part of the Entablature of *Columns*, between the *Architrave* and *Cornice*; and is properly a large flat Face or Member, separating the Architrave from the *Cornice*.—The Antients called it *Zophoros*, ζωφορος, by Reason it was usually enriched with Figures of Animals; and our Denomination *Freeze*, has a like Origin, being formed of the *Latin*, *Phrygio*, an Embroiderer, because it is commonly adorned with Sculptures in *Basso Relievo*, imitating Embroidery.

The *Freeze* is supposed to be intended to represent the Heads of the transverse Beams, that sustain the Roof or Covering.——In the *Tuscan* Order it is quite plain. In the *Dorick*, enriched with *Tryglyphs*. In the *Ionick*, it is sometimes made arched or swelling, in which Case it is called by VITRUVIUS, *pulvinatus*, *q. d.* bollstered. In the *Corinthian* and *Composite*, it is frequently joined to the *Architrave* by a little Sweep; and sometime to the *Cornice*. And in these richer Orders, it is usually adorned with Sculptures, Figures, Compartments, Histories, Foliages, Festoons, &c.

As to the Height of the *Freeze* it is, in general, much the same with that of the *Architrave*.——The *Tuscan Freeze*, *Vitruvius* makes 30 Minutes; *Vignola* 35; *Palladio*, who makes it swelling, gives it but 20; and *Scamozzi* 42. The *Doric*, in *Vitruvius* and *Vignola*, is 30 or 40 Minutes; in *Palladio*, &c. 45. The *Ionick*, *Vitruvius* makes flat, adorned with *Achantus*, Leaves, Lions, &c. and makes it 30 Minutes high: *Vignola*, who also makes it flat, gives it 45 Minutes; and *Palladio*, who makes it convex or swelling, 27 Minutes; and *Scamozzi*, 28. The *Corinthian*, *Vitruvius* enriches with Achantus Leaves, human Figures, &c. and makes its Height 37 Minutes; *Vignola*, 45; *Palladio*, 28; and *Scamozzi*, $35\frac{3}{4}$. *Lastly*, The *Composite*, which in *Vitruvius* is set with Cartoozes, and carved between them, is $34\frac{1}{2}$ Minutes; *Vignola*, who makes it like *Vitruvius*, only gives it 45 Minutes; *Palladio*, who makes it swelling, only 30; and *Scamozzi*, 32.

From the Variety of the Enrichments of the *Freeze*, they become variously demominated, as,

Convex or *pulvinated* FREEZES, are those whose *Profil* is a Curve, the best Proportion whereof is when drawn on the Base of an equilateral Triangle.—In some, the Swelling is only a Top, as in a Console. In others at Bottom, as in a Ballister.

Flourished Freezes, are those enriched with Rinds of imaginary Foliages; as the *Corinthian Freeze* of the Frontispiece of *Nero*; or with natural Leaves, either in Clusters or Garlands; or continued, as in the *Ionick* of the Gallery of *Apollo* in the *Louvre*.

Historical *Freezes* are those adorned with *Basso Relievo*'s representing Histories, Sacrifices, &c. as that of the Arch of *Titus* at *Rome*.—*Marine Freezes*, are those representing Sea-horses, Tritons, and other Attributes of the Sea; or Shells, Baths, Grotto's, &c. —*Rustick Freezes*, are those whose Courses are rusticated or imbossed; as the *Tuscan Freeze* of *Palladio*. —Symbolical *Freezes* are those adorned with the Attributes of Religion; as the *Corinthian* of the Temple, behind the Capitol at *Rome*, whereon are represented the Instruments and Apparatus of Sacrifice.

The uppermost Member of the Entablature of a *Column*, or that which crowns and finishes the *Order*, is called CORNICHE (g) or CORNICE, from the *Latin*, *Coronis*, a Crowning. The *Cornice* is the third grand Division of the Trabeation, commencing from the *Freeze*, and ending with the *Cymatium*.

The *Cornice* is different in the different Orders: In the *Tuscan Order*, it is most plain.—*Vignola* makes it consist of an *Ovum*, or Quarter-round; an Astragal, a Fillet, a Larmier, and a Talon. In the *Dorick*, he uses Capitals to the *Tryglyphs* of the *Freeze*, with their Bandelettes, a *Talon*, Mutules or Dentils, a Larmier, with its Guttæ underneath, a Talon, Fillet, Cavetto, and Reglet. In the *Ionick*, the Members are in most Respects the same, as in the *Dorick*, except that they are frequently enriched with Carving, and there are always Dentils. In the *Composite*, there are Dentils; its Mouldings are carved, and there are Channels under the Soffit. The *Corinthian Cornice* is the richest; and is distinguished by having both Modillions and Dentils; contrary to the Opinion of *Vitruvius*, who looks on those two Onaments as incompatible; and of Mr. *Le Clerc*, who regards the Dentils, as peculiar to the *Ionick*.

For the *Heights* and Projectures of the Cornices in the several Orders, *Goldman* makes the Height of the *Tuscan* $1\frac{1}{3}$, its Projecture $2\frac{2}{3}$ Modules: The Height of the *Dorick* $1\frac{1}{4}$, its Projecture $2\frac{2}{3}$; Height of the *Ionick* $1\frac{3}{5}$, its Projecture $2\frac{2}{3}$; Height of the *Composite* $1\frac{1}{5}$, Projecture $2\frac{11}{30}$; Height of the *Corinthian* $1\frac{2}{5}$, Projecture $2\frac{11}{30}$.

There are different Sorts of *Cornices*; viz. *Architrave Cornice*, which is that immediately contiguous to the *Architrave*, the Freeze being retrenched. *Mutilated Cornices*, whose Projecture is omitted, or else interrupted, Right to the *Larmier*, or reduced into a Plat-band with a *Cimatium*. *Cantaliver Cornice*, a Term used by the Workmen for a *Cornice* that has *Cantalivers* underneath it. *Modillion Cornice*, a *Cornice* with *Modillions* under it. *Coving Cornice*, a *Cornice* which has a great Casement or Hollow in it; ordinarily lathed, and plastered upon Compass, Sprokets, or Brackets. *Cornice* is also used in general, for any little Projecture, either of Masonry or Joinery, even where there are no *Columns*. Thus we say the *Cornice* of a Chimney, a Beaufet, &c.

Cornice, is also applied to the Crowning of *Pedestals*. This *Cornice* is different in the different Orders: In the *Tuscan*, according to Mr. *Perrault*, it has a Platband which serves as a *Corona*, and a *Cavetto*,

vetto, with its Fillet. In the *Dorick*, it has a *Cavetto* with a Fillet, which bears a Drip, crowned with a Square. In the *Ionick*, a *Cavetto* with its Fillet above, and a Drip or pendent Square, crowned with an *Ogee* and its *Fillet*. In the *Corinthian*, an *Ogee* with its Fillet, a *Cymatium* under the *Corona*, which it hollows to make a Drip, a *Corona*, and an *Ogee* with its Fillet. *Lastly*, In the *Composite*, a Fillet with a Sweep over the Dye, and *Astragal*, *Cyma* with its *Fillet*, *Corona*, and *Ogee* with its Fillet.

We have so often mentioned FASCIA's or FASCIÆ, that it is not improper to observe here, that *Facia*, in *Architecture*, is a broad List, Fillet, or Band; particularly used in *Architraves* and *Pedestals*.

The *Architrave* consists of three *Fasciæ* or Bands; thus called by *Vitruvius*, as resembling Swaths, called in *Latin*, *Fasciæ*.—— That Author admits no *Fasciæ* in the *Tuscan Order*, and *Dorick Architrave*, *i. e.* he makes all plain, without any Division, or cantoning into Parts or *Fasciæ*; but the modern *Architects* take Liberty to differ from him herein. In Brick Buildings, the Juttings out of the Bricks, beyond the Windows in the several Stories, except the highest, are called *Fascia's* or *Fasciæ*.——These are sometimes plain and sometimes moulded; but the Moulding is only a *Cyma Reversa*, or an O. G. at the Bottom, with two plain Courses of Bricks over it, then an *Astragal*, and lastly a *Boultine*; which *Boultine*, or *Boltel*, is the Workmens Term for a convex moulding, whose Periphery is just $\frac{1}{4}$ of a Circle; placed next below the *Plinth*, in the *Tuscan* and *Dorick* CAPITAL.

Thus we have carried the *Column*, to its uppermost Extremity, and crowned the whole Order; but we have left it without a Pedestal, which is the lowest Part of an Order of *Columns*; being that which sustains the *Column*, and serves it as a Foot, or Stand.

(H) The PEDESTAL (from the *Latin*, *Pes*, *pedis*, Foot, and στυλος, Column) consists of three principal Parts; *viz.* a square Trunk or Dye, which makes the Body; a *Cornice* the Head; and a Base the Foot of the *Pedestal*.—The *Pedestal* is properly an Appendage to a *Column*, not an essential Part thereof; though Mr. *Le Clerc* thinks it is essential to a compleat Order.

The Proportions and Ornaments of the *Pedestal* are different in the different Orders: *Vignola*, indeed, and most of the Moderns, makes the *Pedestal*, and its Ornaments in all the Orders, one Third of the Height of the *Column*, including the *Base* and *Capital*: But some deviate from this Rule. Mr. *Perrault* makes the Proportions of the three constituent Parts of *Pedestals*, the same in all the Orders, *viz.* the Base one Fourth of the *Pedestal*; the *Cornice*, an eighth Part; and the Socle or *Plinth* of the Base two Thirds of the Base itself. The Height of the Dye is what remains of the whole Heights of the *Pedestal*.

(h 1) *Tuscan* PEDESTAL, is the simplest, and the lowest. *Palladio* and *Scamozzi*, make it three Modules high; *Vignola* 5. Its Member, in *Vignola*, is only a *Plinth* for a Base, the *Dye* and a *Talon* crowned, for a *Cornice*. It has rarely any Base. *Dorick Pedestal*, (h 2) *Palladio* makes four Modules, five Minutes high; *Vignola* five Modules four Minutes. In the Antique, we not only do not meet with any *Pedestals*; but even not with any Base in the *Dorick Order*. The Members in *Vignola*'s *Dorick Pedestal*, are the same with those in the *Tuscan*, with the Addition of a Mouchette in its Cornice. (h 3) *Ionick* PEDESTAL in *Vignola* and *Serlio*, is six Modules high; in *Scamozzi*, five; in the Temple of *Fortuna virilis*, it is seven Modules, twelve Minutes. Its Members and Ornaments are mostly the same with those of the *Dorick*, only a little richer. The *Pedestal* now usually followed, is that of *Vitruvius*; though we do not find it in any Work of the Antique. Some in lieu hereof use the *Attick Base*, in Imitation of the Antient.

The *Corinthian* PEDESTAL (h 4) is the richest and most delicate. In *Vignola*, it is seven Modules high; in *Palladio*, five Modules one Minute; in *Serlio*, six Modules, fifteen Minutes; in the *Coliseum*, four Modules, two Minutes. Its Members, in *Vignola*, are as follows: In the Base, are a Plinth for a Socle, over that a Tore carved; then a Reglet, Gula inverted and inriched, and an Astragal. In the Dye are a Reglet, with a *Conge* over it, and near the Cornice a Reglet with a *Conge* underneath. In the Cornice is an Astragal, a Freeze, Fillet, Astragal, Gorge, Talon, and a Fillet.

In *Vignola* the *Composite* PEDESTAL is of the same Height with the *Corinthian*, *viz.* seven Modules; in *Scamozzi*, six Modules, two Minutes; in *Palladio*, six Modules, seven Minutes; in the Gold-smiths Arch, seven Modules, eight Minutes. Its Members, in *Vignola*, are the same with those of the *Corinthian*; with this Difference, that whereas these are most of them enriched with Crownings in the *Corinthian*, they are all plain in the *Composite*. Nor must it be omitted, that there is a Difference in the Profiles of the Base and Cornice in the two Orders. *Daviler* observes, that the Generality of *Architects* use Tables or Pannels, either in *Relievo*, or Creux, in the Dyes of *Pedestals*; without any Regard to the Character of the Order. He observes farther, that those in *Relievo*, only fit the *Tuscan* and *Dorick*; the three others must be indented; which, he adds, is a Thing the Antients never practised, as being contrary to the Rules of Solidity and Strength.

There are besides, square, double, and continued *Pedestals*. *Square Pedestal*, is that whose Height and Width are equal. As that of the Arch of the *Lion's* at *Verona*, of the *Corinthian Order*; and such, some Followers of *Vitruvius*, as *Serlio*, *Philander*, &c. have given to the *Tuscan Order*. *Double Pedestal*, is that which supports two Columns, and is more in Width than Height. *Continued Pedestal*, is that which supports a Row of Columns, without any Break or Interruption; such is that which sustains the fluted *Ionick* Columns of the *Tuilleries*, on the Side of the Garden.

The DYE, is the Trunk of the *Pedestal*, or that Part between the *Base* and the *Cornice*; being so called, because it is frequently made in the Form of a *Cube*.

The *Architects* regulate the Proportions of *Columns*, and the Symmetry or Distribution of the whole Building, with a certain Measure called MODULE, and usually chuse the Diameter or Semi-diameter of the Bottom of the *Column* for their *Module*; and this they subdivide into Parts or Minutes, a Minute denoting the sixtieth, sometimes only the thirtieth Part or Division of a *Module*.

Vignola divides his *Module*, which is a Semi-diameter, into twelve Parts, in the *Tuscan* and *Dorick*; and into eighteen for the other Orders. The *Module* of *Palladio*, *Scamozzi*, *M. Cambray*, *Des Godetz*, *Le Clerc*, &c. which is also the Semi-diameter, is divided into thirty Parts or Minutes, in all the Orders.

There are two Ways of determining the Measures or Proportions of Buildings; the first by a fixed standard Measure, which is usually the Diameter of the lower Part of the Column, called a *Module*, subdivided into 60 Parts called *Minutes*.—— In the second there are no Minutes, nor any certain and stated Division of the *Module*; but it is divided occasionally into as many Parts as are judged necessary.—— Thus the Height of the *Attick Base*, which is half the *Module*, is divided, either into three, to have the Height of the *Plinth*; or into four, for that of the greater *Torus*; or into six for that of the lesser.—— Both these Manners have been practised by the antient as well as the modern Architects; but the second, which was that chiefly used among the Antients, is in Mr. *Perault*'s Opinion preferable to all others.

As *Vitruvius*, in the *Dorick* Order, has lessened his *Module*, which in the other Orders, is the Diameter of the lower Part of the Column; and has reduced that *Module* to a mean one, which is a *Semi-Diameter*: *M. Pe-*

M. Perault reduces the *Module* to a third Part for the ſame Reaſon, *viz.* to determine the ſeveral Meaſures without a Fraction.—— For in the *Dorick Order*, beſides that the Height of the Baſe, as in the other Orders, is determined by one of theſe mean *Modules*; the ſame *Modules* give, likewiſe, the Heights of the Capital, Architrave, Triglyphs, and Metopes.—— But our little *Module* taken from the third of the Diameter of the lower Part of the *Column*, has Uſes much more extenſive; for by this the Heights of *Pedeſtals*, of Columns, and Entablatures, in all the Orders, are determined without a Fraction.—— As then the great *Module* or Diameter of the Column has 60 Minutes; and the mean *Module*, or half the Diameter 30 Minutes; our little *Module* has 20.

There are a few Ornaments which we had almoſt forgot mentioning, as the *Trigliphs*, and *Metopes*, both repeated, only in the *Dorick Freeze*; the *Triglyphs* at equal Intervals.— Each *Triglyph* conſiſts of two entire Gutters or Channels, cut to a right Angle, called *Glyphes*, and ſeparated by three Interſtices, called by *Vitruvius Femora*, from each other, as well as from two other half Channels, which are at the Sides.

The ordinary Proportion of *Triglyphs*, is to be a *Module* broad, and one and a half high.— But this Proportion Mr. *Le Clerc* obſerves, ſometimes occaſions ill-proportioned Intercolumnations in Portico's; for which Reaſon he chuſes to accommodate the Proportion of his *Triglyphs*, to that of the Intercolumns.

The Intervals between the *Triglyphs* are called *Metopes*, which the Antients uſed to adorn with carved Works or Paintings, repreſenting the Heads of Oxen, Veſſels, Baſons, and other Utenſils of the heathen Sacrifices.

As there is found ſome Difficulty in diſpoſing the *Triglyphs* and *Metopes* in that juſt Symmetry which the *Dorick Order* requires; ſome Architects make it a Rule never to uſe this Order but in Temples.— *Semi-Metope*, is a Space ſomewhat leſs than half a *Metope*, in the Corner of a *Dorick Freeze*.

The *Triglyphs* make the moſt diſtinguiſhing Character of the *Dorick Order*.—Some imagine them originally intended for the Conveyance of the *Guttæ* that are underneath them: Others fancy they bear ſome Reſemblance to a Lyre, and thence conjecture the Ornament to have been originally invented for ſome Temple dedicated to *Apollo*.

Having thus conſidered all the different Members and Ornaments which enter into the Compoſition of a *Column*; we'll proceed to the Demonſtration of the five different Orders of *Architecture*, viz. *Tuſcan*, *Dorick*, *Ionick*, *Corinthian*, and *Compoſite*.

The TUSCAN Order is the firſt, ſimpleſt, and moſt maſſive of the five Orders.——'Tis called by *Vitruvius*, the *Ruſtick Order*, and therefore, in M. *Cambray*'s Opinion, it ought never to be uſed, but in Country Houſes and Palaces; though M. *Le Clerc* believes, That in the Manner *Vitruvius*, *Palladio*, and ſome others, have ordered it, it does not deſerve to be uſed at all; but that in *Vignola*'s Manner of Compoſition, 'tis a Beauty, even in its Simplicity, and as ſuch, ſhould find Place, not only in private Edifices, but likewiſe in Publick ones, as in the *Piazza's* of Squares and Markets; in the Magazines and Granaries of Cities, and even in the Offices and lower Apartments in Palaces.

Palladio gives us theſe Inſtructions for the *Tuſcan Order*; that the *Column* (b 1) together with its Baſe, (a 1) and Capital (c 1) muſt be ſeven *Modules* in Length, and its Diminution a fourth Part of its Bigneſs.—— That if a Work is to be compoſed of this plain Order, the Intercolumnations ſhould be very wide, becauſe the Architraves are made of Timber, which, therefore, will be very commodious for Country Buildings, on Account for the eaſy Paſſage for Carts and other Country Conveniencies.

The ſame Author obſerves that the *Pedeſtals*, (h 1) which are under this *Order*, muſt be very plain and ſimple, and the Height of a *Module*; and that of the Baſe of the Column, half its Diameter.— That this Height muſt be divided into two proportional Parts, one whereof is to go to the *Plinth*, which is round; and the other ſubdivided into four Parts, one whereof is appropriated to the *Liſtella* or Fillet, which is ſometimes made a little leſs.— That in this Order only the *Liſtella* makes a Part of the *Baſe*; and a Part of the Column in all the others; the other three Parts being appropriated to the *Torus*.— That this Baſe ought always to project a ſixth Part of the Diameter of the Column.—That the Height of the Capital is half the Diameter of the lower Part of the Column, and is divided into three proportional Parts; the firſt applied to the *Abacus*, which, from its Form is generally called *Dado*, or a *Dye*; the ſecond to the *Ovolo*; and the third ſubdivided into ſeven Parts, the *Liſtella* under the *Ovolo*, being one of them, and the other remaining ſix are applied to the *Collorino*, or Neck of the Column.— The *Aſtragal* (ſays he) is twice the Height of that of the *Liſtella*, under the *Ovolo*; and its Centre is made on the Line, which falls perpendicular from the *Liſtella*, the Projecture of the *Cincture*, which is as thick as the *Liſtella*, falls directly upon it. The Projecture of this *Capital* correſponds with the Shaft of the Column below: Its Architrave (e 1) is compoſed of Timber, the Height whereof muſt be equal to its Breadth, and its Breadth muſt never be greater than the Shaft of the Column at Top.—The Joiſts, which are inſtead of the *Guttæ* or *Drip*, project a fourth Part of the Length of the Column.—— The Profils on the Side of the Plan of the Baſe and Capital are the Impoſt of the Arches.

But, continues he, if the Architraves are compoſed of Stones, you muſt obſerve what I have already mentioned, with Reſpect to the Intercolumnations; and which is the ſame myſelf have mentioned at the Beginning of this Treatiſe, where I ſpeak of Intercolumnations.

Mauclerc will have the Height of the *Tuſcan Column*, divided into nine Parts; two whereof are for the *Stilobate*, or *Pedeſtal*; and thoſe two ſubdivided into ſix Parts; one to be applied to the inferior Cimatium, one to the ſuperior, and the four remaining to deſcribe a Square, intercuted by two Diameters or diagonal Lines.— In that Square he would have a Circle made, and another Square in that Circle, which inward Square will be the Swelling of the lower Part of the Column, and the outward one the Breadth of the Plinth of the Baſe.—He will have the Swelling at Top to be the middle Square, which is to be divided into eight Parts, two whereof will be the Diminution of the Column.— The Projecture of the Cimatium of the Plinth he divided into ſix Parts, one to project out, in which he places the Square. He alſo divides the Baſe of the Column into two Parts, one whereof to be the Plinth, and the other to be ſubdivided into four, one for the Tailloir over the Liſtel, and one of the remaining three to be divided into two, one whereof for the Reglet, or Fillet, under the Cornice, which is to project out Square-like. Thereby, ſays he, the whole Projecture will be the ſeventh Part of the Breadth of the Pedeſtal.

In his Opinion, the upper *Cimatium*, otherwiſe called the Cornice of the Pedeſtal, is to be divided into four Parts; one to be applied to the Liſtel, or Talcar, two to the Plinth, and the Fourth to the Aſtragal, or Fillet; ſo that the Aſtragal might be twice larger than the Fillet.—The Baſe of the Column is to be divided into two Parts; one for the Plinth, (D 1) and the other ſubdivided into three; two whereof to be applied to the *Torus*, and the third to the Fillet; ſo that its whole Projecture is the Interval from the exterior Square to the interior. The Projecture of the Fillet muſt be a Square from the Column, and the Reſt is given to the *Torus*. The Height of the Fuſt of the Column muſt be ſix Parts of its Breadth, with its *Cymatium* and Capital. The Height of the Capital muſt be half the Breadth of the lower Part of the Shaft or Fuſt of the Column, and is to be divided into three Parts, one thereof to be given

given to the *Abacus*, the second to the *Tore*, and the third to the *Freeze*. The Tore being divided into four Parts; one is given to the Fillet, and the Rest makes up the *Torus*. The *Freeze* (f 1) is divided into two, one for the Breadth of the Astragal, and this to be sub-divided into three, one for the *Fillet*, and the two others for the Astragal.——The eighth Part of the Breadth of the Fust of the Column below, will be the Projecture of the *Capital*. ——He gives the following Directions for the Diminution of the Column.

The Length of the Column between its two *Cymatiums*, is to be divided into six Parts, two thereof for the lower Part of the Column, and make a Third of its Height. Having made the Division from the Bottom to the Top, transversal Lines are to be drawn on each Side, and the Compass applied from one End to the other of the Line of the third Part; the Compass placed on the Side, the Circle is to be divided from one of the Sides of its Semicircle to that Part, where the Line falls perpendicularly for the higher Scope of the Column, to the six Parts of the *Inography* on the Pedestal, where they cut the *Semiround* on the left, into four Parts.—Likewise, from each Part must be drawn a Line upwards, beginning outwards, and proceeding to the sixth Part of the *Fust*; from the second and third of these Lines thus conducted, must be drawn those for the Diminution of the Column.——But to render the Diminution more just, and agreeable to the Eye, he advises, that instead of dividing the Circle into four Parts, it is better to divide that same Space, together with the Column, into 5, 6, 7, or 8, since the great Number of Divisions renders always the Diminution more agreeable and perfect.

Vitruvius, *lib.* 3. *c.* 12. gives other Instructions for the Diminution of these Columns, and will have the lower Diameter of a *Tuscan* one, in which is 16 Feet in Height from the *Base* to the *Capital*, divided into six Parts, allowing five for the Top. Those from 15 to 20 Feet, their lower Diameter is to be divided into six Parts and a Half, five and a Half for the Top.——From 20 to 30, the Diameter is divided into seven Parts and a Half, six and a Half whereof are to be given to the Top.——But from 40 to 50, the Diameter must be divided into eight Parts, allowing seven to the Top, from whence will issue a handsome *Diminution*.

The same Author divides the *Architrave*, which he makes half the Breadth of the lower Part of the Column, into six Parts, one he gives to what he calls the superior Cornice, and subdivides that also into three, one for the Fillet, and the two others for the left Talon; but the other five remaining Parts of the *Architrave*, he subdivides into nine, five whereof he gives to the superior *Fascia*, and the four remaining to the inferior, the whole with its Projecture.—He also makes the Height of the Freeze half the Breadth of the lower Part of the Column.——Over the Freeze he places the Cornice, of an equal Altitude with the Freeze, whose Projecture on the left Side, is equal to its Height; and is to be divided into four Parts, one for the *Talon*, subdivided into three, one thereof for the *Fascia*, and the two others for the *Talon*; but of the three Parts remaining of the Cornice, one he gives to the *Echine*, and to the Fillet, and this he subdivides into four, one for the Fillet, and three for the *Echine*, and the two Parts remaining of the first three, are for the Projecture, which is equal to the Height.

Others divide the Height given for this whole Order, into ten several Parts, take two for that of the *Pedestal*, and divide the remaining eight Parts into five, one whereof for the Altitude of the *Entablature*, and the other four for the Length of the Column, the *Base*, and the *Capital* included; so that the Entablature is by that Means, made one fourth of the Length of the Column.

Having divided the Entablature into seven Parts, they apply two to the *Architrave*, two to the *Freeze*, and two to the *Cornice*; making of four of these Parts, the Diameter of the Column.

They divide the Altitude of the *Pedestal* (h 1) into six Parts; two for the *Base* and *Plinth*; three for the Altitude of the *Dye*; and one for that of the *Cap*.

In Order to find out the Breadth of the *Dye*, the Diameter of the Column is divided into five Parts, and seven such Parts is the Breadth, and is likewise, the Projecture of the Base of the Column.

The *Base* of the *Pedestal* is found by the Division of the two Parts allotted for the *Base* and *Plinth*, into three, allowing one to the *Base* and two to the *Plinth*.——The Projecture of the *Cap* and *Base* of the *Pedestal* is equal to the Altitude of the said Base.

In Order to diminish the Shafts of the Column, they will have its Diameter taken with Compasses, and find it six Times contained between the *Base* and the *Capital*; at two of which from the *Base*, they make a Semi-circle; then let fall a Perpendicular from the Diameter at Top, and cut the Semi-circle at four; after that divide the Part of the Semi-circle, so cut off into four Parts (because four Parts of the *Shaft* remain above) and raise Perpendiculars from the said Points, to the correspondent Division, which will form a regular Curve for the Swelling.

The Altitude of the *Base* of the Column, is half a Diameter, and is divided into two, allowing one to the *Plinth*, the other Part is divided into four, giving one to the *Fillet*, and three to the *Torus*.—The whole Projection is one Fifth of the Diameter of the Column, and the Fillet projects equal to its Altitude.

For the several and respective Members of the *Pedestal*, *Base*, *Plinth*, and *Cap*, they divide the Base into three, allowing one to the *Fillet* and three to the *Hollow*.

They divide the Altitude of the *Cap* into four, allowing one to the *Ogee*, two to the *Corona*, and one to the *Band* at Top. For the Projections, they make them both equal to the Altitude of the *Base*, and both being divided into three Parts, they conceive, by Inspection, the Projecture of the several Members.

Having shewn the whole Altitude of the *Entablature* to be one Diameter, and three Fourths, and set off the principal Height of the *Architrave*, *Freeze*, and *Cornice*; as for the particular Members, they divide the *Architrave* into six Parts, allowing two to the first *Fascia*, three to the second, and one to the Band at Top.——They make the Projection equal to the Altitude of the first Band, and give one Third to the second *Fascia*.

They divide the Altitude of the *Cornice* into nine Parts (*i. e.* each principal Third into three) allowing one and a Half to the *Hollow*, Half to the *Fillet*, one and a Half to the *Ovolo*, two to the *Corona*, Half to a *Fillet*, two to the *Scima recta*, and one to the upper *Fillet*.—They make again the Projection equal to its Altitude, aand to contain the same Divisions, pretending the several Divisions to be obvious by the Inspection of the Scales only.

They make the *Capital* half a Diameter in Height, and divide it into three Parts, allowing one to the Freeze of the *Capital*, another to the *Ovolo* and *Fillet*, which is one Fourth, and the other Part to the *Abacus*.——Thereby the Projection is one Eighth of the Diameter, which gives likewise, the Diameter of the Column at Top.——The Fillet is equal to the Height.

The *Astragal*, or *Collerino*, is one Third of the said Freeze of the Capital in Height, and the Fillet the Height thereof, and is equal to the Height in its Projection.

In the *Tuscan Cornice*, (g 1) as well as in all others, they preserve the principal Divisions, both with Respect to the Height and Projection, and introduce them again, with no other Intent but to corroborate the

the Rules, and to ſhew the Method of forming the ſeveral and reſpective Mouldings, and which they ſuppoſe diſcernable by Inſpection.

Of all the Orders the *Tuſcan* is the moſt eaſily executed, as having neither *Triglyphs*, nor *Dentils*, nor *Modillions* to cramp its Inter-columns.——On this Account, the Columns of this Order may be ranged in any of the five Manners of *Vitruvius*, *viz.* the Pycnoſtyle, Syſtyle, Euſtyle, Diaſtyle, or Araeoſtyle.

The *Tuſcan Order* takes its Name from an antient People of *Lydia*, who coming out of *Aſia* to people *Tuſcany*, firſt executed it in ſome Temples which they built in their new Plantations.

The DORICK is the ſecond of the five Orders, being that between the *Tuſcan* and *Ionick*.——'Tis the moſt natural and the beſt proportioned of all the Orders; all its Parts being founded on the natural Poſition of ſolid Bodies.——At its firſt Invention it was more ſimple than at preſent; and when in Proceſs of Time they came to adorn and enrich it more, the Appellation *Dorick* was reſtrained to its richer Manner, and the primitive ſimple Manner, they called by a new Name, *Tuſcan Order*.

Sometime after its Invention they reduced it to the Proportion, Strength, and Beauty of the Body of a Man. Hence, as the Foot of a Man was judged the ſixth Part of its Height, they made the *Dorick* Column, including the *Capital*, ſix Diameters high, *i. e.* ſix Times as high as thick.——Afterwards they added another Diameter to the Height, and made it ſeven Diameters; with which Augmentation, it might be ſaid to be near the Proportion of a Man: The human Foot, at leaſt in our Days, not being a ſixth, but nearly a ſeventh Part of the Body.

The Characters of the *Dorick Order*, as now managed, are the Height of its Column, which is eight Diameters; its Freeze, which is enriched with *Triglyphs*, *Drops*, and *Metopes*; its *Capital*, which is without *Volutes*, and its admitting of *Cymatiums*.

Vitruvius complains of the *Dorick*, as very troubleſome and perplexing, on Account of the *Triglyphs* and *Metopes*, ſo as ſcarce to be capable of being uſed, except in the *Pycnoſtyle*, by putting a *Triglyph* between two Columns; or in the *Araeoſtyle*, by putting three *Triglyphs* between each two Columns.

The Moderns, on Account of its Solidity, uſe it in large, ſtrong Buildings; as in the Gates of Cities and Citadels, the Outſides of Churches, and other maſſy Work, where Delicacy of Ornament would be unſuitable.

Vignola adjuſts the Proportions of the *Dorick* ORDER, Thus: The whole Height of the Order, without *Pedeſtal*, he divides into twenty Parts or Modules; one of which he allows the *Baſe*, fourteen to the Shaft or Fuſt, one to the *Capital*, and four to the *Entablature*.

Palladio will have the *Module* of this *Order* be but half the Diameter of the Column, divided into thirty Minutes, whereof in the other Orders, he makes it the whole Diameter, divided into ſixty.

The ſame Author will have the *Dorick Column*, if inſular without Pires, to be eight Diameters in Length, or ſeven and a Half at leaſt; and ſeventeen *Modules*, and a Third (including the *Baſe* and *Capital*) when joined to Pires.

He obſerves, that when a *Pedeſtal* (h 2) is to be joined to this *Order* (which he ſays was not the Cuſtom of the Antients) the *Dado* or *Dye*, muſt be ſquare, from whence the Meaſure of its Decorations muſt be taken; therefore he divides it firſt, into three proportional Parts, allowing two for the *Baſe* and its *Plinth*, and the third for the *Cymatium*, whereto the *Plinth* of the *Baſe* of the Column muſt be joined.

He ſuppoſes no peculiar *Baſe* (a 2) to this Order, which is the Reaſon he gives for theſe Columns being found without Baſes in ſeveral Buildings, as the Theatre of *Marcellus* at *Rome*; the Temple *de la Pieta*, adjacent to it, the Theatre of *Vicenza*, &c. but pretends the *Attick Baſe* to be a great Ornament to it.—He then proceeds to give us the exact Meaſures thereof.——He will have its Height half the Diameter of the Column, and divided into three proportional Parts; one for the *Plinth*, and the other two ſubdivided into four proportional Parts; one for the upper *Torus*, the other three ſubdivided again, into two proportional Parts; one whereof is the lower *Torus*, and the other the *Cavetto*, with its *Liſtella*'s.——He alſo gives theſe their particular Meaſure, and divides them into ſix Parts; the firſt for the upper *Liſtella*, the ſecond for the lower, and the four others for the *Cavetto*.——He makes the whole Projecture, the ſixth Part of the Diameter of the Column, and the *Cincture* half the upper *Torus*.——In Caſe he divides it from the *Baſe*, he makes its Projecture a Third of that of the *Baſe*; but in Caſe the *Baſe* and Part of the Column make one perfect Piece, he'll have then its *Cincture* ſmall.

The Capital, (c 2) ſays he, muſt be half the Diameter of the Column, and divided into three Parts, the firſt whereof ſubdivided into five Parts, of which three are for the *Abacus*, and the other two for the *Cymatium*; which being ſubdivided into three Parts, the firſt goes to the *Liſtella*, and the two laſt to the *Cymatium*.—— The ſecond principal Part he ſubdivides into three proportional Parts; one for the Annulets or Squares, which are all proportional; the other two for the *Ovolo*, the Projecture whereof he makes two thirds of its Height; allowing the third principal Part for the *Collorino*, ſo that the entire Projecture muſt be the fifth Part of the Diameter of the Column.

He makes the Height of the *Aſtragal* proportional to the three *Liſtella's*, and to project to the lower Part of the Shaft of the Column; and the *Cincture* half the Height of the *Aſtragal*, and its Projecture direct with its Center.—— The *Architrave* (e 2) raiſed upon the Capital, and whoſe Height muſt be half the Diameter of the Column, (b 2) he divides into ſeven Parts, one for the *Tenia* or *Fillet*, whoſe Projecture is proportional to its Height, and afterwards ſubdivides the whole into ſix Parts, one for the *Guttæ*, of which there muſt be ſix, and the *Liſtel* under the *Tenia*, which he makes a third Part of the *Guttæ*.——The Remainder from the *Tenia* downwards, he ſubdivides into ſeven Parts; three of them for the firſt *Faſcia*, and the other four for the ſecond.—— He makes the *Freeze* (f 2) a *Module* and a half high, the Breadth of the *Triglyph* a *Module*, and its *Capital* the ſixth Part. The *Triglyph* he divides into ſix Parts; two whereof are for the two Channels in the Middle, one for the two half Channels at the Ends, and three for the Spaces between the ſaid Channels.—— He'll have the *Metope*, which is the Space between the *Triglyphs*, a perfect Square.—— He'll have alſo the *Cornice* (g 2) a *Module*, and a ſixth in Height, and divided into five Parts and a half, two for the *Cavetto* and *Ovolo*, (the *Cavetto* to be leſs than the *Ovolo*, and exactly as much as its *Liſtella*) the other three and a half for the *Corona*, and both the *Cimas*, the *Recta* and the *Reverſa*.

He makes the Projecture of the *Corona*, two Thirds of a *Module*, and in the Face thereof, which looks downwards, and projects along the *Triglyphs*, places ſix *Guttæ* in Length, and three in Breadth, with their *Liſtella's*, and ſome *Roſes* over the *Metope*.——The *Guttæ* are round in the Form of Bells, and anſwer to thoſe under the *Tenia*.—— The Body of the *Cymatium* is one Eighth larger than the *Corona*, and is divided into eight Parts, two for the *Plinth*, and ſix for the *Cymatium*, the Projecture whereof is ſeven and a half: So that the Altitude of the *Architrave*, the *Freeze* and *Cornice*, are a fourth Part of the Height of the Column.

Moſt of the *Architects* divide the Altitude given for this whole Order, firſt into ten Parts, allowing two to the *Pedeſtal*, and dividing the remaining eight Parts into five; then give four to the Length of the Column, including the *Baſe* and *Capital*, and reſerve the other one for the Entablature, which they divide into four Parts, two whereof they make the Diameter of

of the Column: Thus the Column will be eight Diameters high, and the *Entablature* one fourth of the Length of the Column.—— Having divided the Architrave into four, they give one to the Architrave, one and a half to the *Freeze*, and one and a half to the *Cornice*.—— They make the *Architrave* to project one Sixth of its Height, and the Cornice a Diameter of the Column; that is to say, four such Parts as it is three in Height.—— The Height of the *Pedestal* they divide into seven Parts, allowing two to the *Base* and *Plinth*, four to the *Dado*, or *Dye*, and one to the *Cap*.

They diminish the Column one Sixth of the Diameter, from one Third of the Length of the Shaft or Fust; and say, that if the Diameter at Bottom be divided into five, the *Base* of the Column will project, on each Side, one of these Parts, which will give the Breadth of the *Dado* of the *Pedestal*, and by that means make it a Square.—— They make the *Base* of the *Pedestal* one Third of the two Parts for the *Base* and *Plinth*, and its Projection equal to the Height, and the *Cap* to project four Fifths of the Height.

They make the Height of the Base of the Column half the Diameter, and the Projection to give the Breadth of the *Pedestal*, which is a Diameter, and two Fifths.

For the particular Members of the *Pedestal* they divide the Height of the *Base* into six, giving three to the *Torus*, one to the *Fillet*, and two to the *Hollow*, pretending that the Projection being the same Parts, each Member is easy to set off by Inspection.—— They divide the *Cap* into five Parts, giving one to the Hollow, half a Part to the Fillet, one and a half to the *Ovolo*, one and a half to the *Corona*, and half a Part to the *Fillet* at Top; therefore the Projection must have four of these Parts.

The Height of the *Base* of the Column they divide into three Parts, one for the *Plinth*, the Half of another for the upper *Torus*, and the Half of the Remainder for the lower *Torus*; then the remaining three Fourths are divided into six, one for each *Fillet*, and four for the *Scotia*.—— They make the whole Projection one Fifth of the Diameter, and dividing it into three, they give one to the upper Fillet, which is Part of the Column, and is double the Height of the others, and another to the upper *Torus*.

They make a *Dorick* fluted Column (b 2) with twenty in Number, fluted to an Edge, some making their Form or Depth by the Center, being in the Middle of a Square; others by the Joint of an equilateral Triangle.

Having made the whole Height of the *Entablature* two Diameters, they divide it into four, one for the *Architrave*, one and a half for the *Freeze*, and one and a half for the *Cornice*.—— As for the particular Members they divide the *Architrave* into six; two for the first Face, three for the second, and one for the Band at Top. They allow one of these Parts to the *Guttæ* or Bells, and a Third thereof to their *Fillet*; as well as to the Projection.—— They adorn the *Freeze* with *Triglyphs*, which are half a Diameter in Breadth, one whereof they place in the Middle of the Column, and make the *Metope*, or Place between, equal to the Height of the said *Freeze*.—— They, afterwards, divide the *Triglyphs* into twelve Parts, allowing one to each half Channel, two to each whole Channel, and two to each of the Space between the Channels.—— They make the Projection of the *Triglyph* one and a half of these Parts.

They divide the Height of the *Cornice* into three, and divide again the lower Part into three; one gives the Cap of the *Triglyph*, one the *Hollow* and *Fillet*, (which is one Fourth) and the other the *Ovolo*.—The other two Parts they divide into seven, allowing two to the *Mutule*, and *Cap*, two to the *Corona*, one to the *Scima Reversa* and *Fillet*, and two to the *Scima Recta* and *Fillet*, and discover the smaller Divisions by Inspection.

As to the *Projections* the whole being four such Parts as the three in Height, they divide again the first of them into three, allowing one to the Cap of the *Triglyph*, another to the *Cavetto*, and the other to the *Ovolo*.—— The outer Part they subdivide likewise into seven, which regulate the *Scima* and *Corona*.

The Height of the *Capital* they divide into three, one gives the *Freeze* of the *Capital*, another the *Fillets* and *Ovolo*, and the third the *Abacus Scima Reversa* and *Fillet*; but to be more particular, the middle Part is divided into three, allowing one to the Fillets, which are three, and equal, or (as on the other Side) one to a *Fillet*, and two to an *Astragal*; the upper third Part they divide into five, allowing three to the *Abacus*, and two to the *Scima Reversa* and *Fillet*, which is one third.—— They make the Projection equal to the Height of the *Freeze*, and Fillets together, and from its being divided into four, expect the Rest to be seen at once.

To regulate the *Intercolumnations* in the *Dorick Order*, it must be done according to the Number of *Triglyphs* intended between, allowing for one *Triglyph* between, one Diameter and a half; for two *Triglyphs* two and three Fourths, and for three *Triglyphs* four Diameters.

As for the Invention of the *Dorick Order*, the Tradition is, that *Dorus* King of *Achaia*, having first built a Temple of this Order at *Argos*, which he dedicated to *Juno*, occasioned it to be called *Dorick*; though others derive its Name, we know not how, from its being invented or used by the *Dorians*.

The Ionic Column (b 3) is the third in Order, and is distinguished from the *Composite*, in that it has none of the Leaves of the *Acbantus* in its *Capital*; and from the *Tuscan*, *Dorick* and *Corinthian*, by the *Volutes* or Rams-horns, which adorn its *Capital*, and from the *Tuscan* too by the Channels, or Flutings in its *Shaft*.

This *Column* is a Medium between the massive and delicate Orders, the simple and the rich.—— Its Height is eighteen *Modules*, or nine Diameters of the Column taken at the Bottom. When it was first invented its Height was but sixteen *Modules*; but the Antients, to render it still more beautiful than the *Dorick*, augmented its Height by adding a *Base* to it, which was unknown in the *Dorick*.

M. *Le Clerc* makes its *Entablature* four *Modules* and ten Minutes, and its *Pedestal* (h 3) six entire *Modules*; so that the whole *Order* makes twenty-eight *Modules* ten Minutes.

Palladio will have this Column with its *Capital* (c 3) and *Base* (a 3) nine *Modules* high, (making the *Module* a Diameter of the Column below).— Its *Architrave*, (e 3) *Freeze*, (f 3) and *Cornice*, (g 3) are a fifth Part of the Height of the Column, and the Intercolumnations two Diameters and a Quarter, which he believes the most commodious, and the most fit to strike the Eye agreeably.

In the *Arches* where the *Ionick Columns* are to have *Pedestals*, he makes their Height equal to half the Breadth of the Opening of the Arch, and divides it into seven Parts and a half, two for the *Base*, one for the *Cymatium*, and the other four and a half for the *Dado*.—— He makes the *Base* of the *Ionick Order* half a *Module* thick, and divides it into three Parts, one for the *Plinth*, the Projecture whereof is the fourth, and an eighth Part of the *Module*, dividing the other two into seven Parts, three whereof he gives to the *Torus*, subdividing the other four into two Parts, one for the upper *Cavetto*, and the other for the lower *Cavetto*, which ought to have the greatest Projecture.—— He has the *Astragals*, the eighth of the *Cavetto*, the *Cincture* of the Column the third Part of the *Torus* of the *Base*, provided the Cincture be not joined to the Base of the Column, for in that Case he makes it smaller, making its Projecture half of that above-mentioned.

To make the *Capital*, he divides the Diameter at the *Base* of the Column into eighteen Parts, and nineteen of such Parts make the Length and Breadth of the *Abacus*, one Half whereof is the Height of the *Capital*, with its *Volutes*, whence its Height must be nine

nine Parts and a Half; one and a Half whereof is for the *Abacus* with its *Cymatium*, and the other eight for the *Volutes*, which he makes after this Manner:

He takes one of the nineteen Parts from the End of the *Cymatium*, inward, and from the Point made, he lets down a Plum-line to divide the *Volute* in the Middle.——Where the Point falls upon this Line, which separates the four Parts and a Half above, from the three and a Half below, the Centre of the *Volute* is made, whose Diameter is one of the eight Parts; and from the aforesaid Point he draws a Line, which as it cuts the *Catheto* at right Angles, divides the *Volute* into four Parts.——Then he makes a Square in the Eye of the *Volute*, about the same Bigness as the Semi-diameter of the same Eye; and drawing diagonal Lines, he marks the Points upon them, where the fixed Foot of the Compass must stand to make the *Volute*; which Points or Centers are thirteen in Number, the Eye inclusive.——He places the *Astragal* of the Column in a direct Line with the Eye of the *Volute*.——He makes the Thickness of the *Volutes*, in the Middle, in Proportion to the Projecture of the *Ovolo*, which must project beyond the *Abacus*, just as much as the Eye of the *Volute*.——The Channel of the *Volute* is even with the *Shaft* of the Column.—The *Astragal* of the Column goes under the *Volute*, and is always seen.

Palladio usually makes *Capitals* in the Angles of Colonnades or Portico's of the *Ionick Order*, with *Volutes*, not only in the Front, but also in that Part which would have been the Flank, in Case the *Capital* was to be made as generally it is; by which Means they have the Front on two Sides, and are called by him *Angular Capitals*.

The same Author makes the *Architrave*, *Freeze*, and *Cornice*, a fifth Part of the Altitude of the *Column*, and divides it into twelve Parts; some whereof are for the *Architrave*, three for the *Freeze*, and five for the *Cornice*.——The *Architrave* he subdivides into five Parts, one for the *Cymatium*, and the Remainder is again subdivided into twelve Parts; three whereof are for the first *Fascia* and its *Astragal*, four for the second, and five for the third.——He divides the *Cornice* into seven Parts and three-fourths, two for the *Cavetto* and the *Ovolo*, two for the *Modillion*, and three and three-fourths for the *Corona* and the *Cymatium*. The Projecture or jetting out of the whole Cornice, he renders proportional to its Altitude.

Others divide whatever Height be given for the whole Order, into ten Parts, and allowing two to the *Pedestal*, divide the remaining eight into six, giving one to the *Entablature*, and five to the Length of the Column, inclusive of the *Capital* and *Base*.——The said Length being divided into nine Parts, they find it to be the Diameter of the Column, which, like most of the other *Architects*, they make use of to regulate some of the smallest Members.

The Height of the *Entablature* they divide into six, allowing two to the *Architrave*, one and a half to the *Freeze*, and two and a half to the *Cornice*, making the Projecture of the *Architrave* one-fourth of its Height, and that of the *Cornice* equal to its Height.——They divide the Height of the *Pedestal* into seven Parts, allowing two to the *Base* and *Plinth*, four to the *Dado*, and one to the *Cap*.

They diminish the Column one Sixth of the Diameter, from one Third of the Length of the *Shaft*, in the same Manner as the last Order, and the Base of the Column projects the same, which gives them likewise the Breadth of the *Dado* of the *Pedestal*.——They make the Base of the *Pedestal*, one Third of the two Parts given for the *Base* and *Plinth*, and the Projection thereof equal to the Height, and the *Cap* to project three Fourths of its Height.

They make the Height of the *Base* of the Column half the Diameter, and the Projection one-fifth Part of the whole Diameter, which gives the Breadth of the *Pedestal*; for the principal Members thereof they divide the Height of the *Base* into four Parts, allowing half a Part to the *Fillet*, two to the *Cymate*, one half Part to the *Fillet*, and one to the Hollow.——The Projection being equal to the Height, and divided into the same Number of Parts, the Members, say they, appear by Inspection.—They likewise divide the *Cap* into four Parts, allowing one to the *Hollow* and *Fillet*, which is one-fourth, another to the *Ovolo*, another to the *Corona*, and one to the *Ogee* and *Fillet*, which is one Third.—They make the whole Projection three of the four Parts of the Height, and dividing each Third into three, they set off as to appear by Inspection.

The *Base* of the Column they divide into three Parts, one for the *Plinth*, and the other two as they are divided in the *Dorick Order*.——They make the *Bead* above the upper *Torus*, Part of the Column, and double the Height of the *Fillets*; and the *Fillet* above the said *Bead* equal to the others, and the Projection the same as in the *Dorick*.

They make twenty-four Flutes in the fluted Columns of the *Ionick*, each of a Semicircle in Depth, and the *List* or *Fillet*, between each one Third of the said Flutes.

The whole Height of the *Ionick Capital*, (c 3) which they conceive to be more difficult than the former, is made half a Diameter, which being first divided into three Parts, the upper Part is for the *Abacus*, which is divided again into three, one for the upper Part, half a Part for the *Fillet*, and one and a half for the lower Part. From the Middle of the said *Abacus* downwards, 'tis divided into eight Parts, allowing two and an half from the Bottom of the *Volute* to the *Fillet*, half a Part to the *Fillet*, one to the *Astragal*, and two to the *Ovolo*.

The whole Height of the *Entablature*, they divide into six Parts (as before mention'd) allowing two to the *Architrave*, one and an half to the *Freeze*, and two and an half to the *Cornice*; as for the particular Members, the *Architrave* (e 3) being divided into two Parts, each is subdivided into eight, in all sixteen, allowing three to the first Face, four to the second, five to the third, one to the *Bead*, two to the *Ogee*, and one to the *Fillet*.——They make the Projection one Fourth of the Height, and the upper Face one Third thereof.—They form the *Freeze* (f 3) by making a Triangle on the middle Part of three in its Height, whose opposite Angle is the Center for the Curve or Swelling.

They divide the Height of the *Cornice* (g 3) into eight Parts, allowing one to the *Hollow* and *Fillet*, (which is one Fourth) another to the *Ovolo*, and two more to the *Modillion* and *Cap* (which is half a Part) the upper four Parts they subdivide into five, giving two to the *Corona*, one to the *Scima Reversa* and *Fillet* (which is one Fourth) one and an half to the *Scima Recta*, and half a Part to the *Fillet*.—They make the whole Projection equal to the Height, and divide it into nine Parts (each being one Twelfth of the Diameter) and as to the several Members, they refer to a due Inspection.

The Ionick Order owes its Origin to *Ionia*, a Province of *Asia*, and it is said the Temple of *Diana* at *Ephesus*, the most celebrated Edifice of all Antiquity was of this Order.—The *Ionick* has an Advantage above any of the rest; and it consists in this, that the fore and hind Parts of its Capital are different from its Sides. But this is attended with an Inconvenience, when the Ordonnance is to turn from the Front of the Building to the Sides, to obviate which, the *Capital* may be made angular, as is done in the Temple of *Fortunà Virilis*.

Scamozzi, and some other modern *Architects*, have introduced the upper Part of the *Composite Capital* in lieu of the *Ionick*, imitating that of the Temple of *Concord*, whose four Sides are alike; to render it more beautiful, the *Volute* may be made a little oval and inclining.

At present the *Ionick Order* is properly used in Churches and religious Houses, in Courts of Justice and

and other Places of supposed Tranquillity, and Devotion.

The CORINTHIAN ORDER, the fourth, or as *Scamozzi* and M. *Le Clerc* make it, the fifth, and last of the Orders of *Architecture*, is the noblest, richest, and most delicate of them all.

The *Corinthian* has several Characters whereby 'tis distinguish'd from the rest.——Its *Capital* (c 4) is adorned with two Rows of Leaves, between which rise little Stalks, or Caulicoles, whereof the *Volutes* are form'd, which support the *Abacus*, and are sixteen in number.—It has no *Ovolo*, nor even *Abacus*, properly speaking; for the Member that goes by that Name is quite different from the *Abacus* in the other *Orders*; being cut with a Sweep, in the Middle, on which is carved a Rose, or other Ornament.

Vitruvius observes, that the *Corinthian* Order has no particular Ordonnance for its *Cornice*, or any of the other Ornaments of its Entablature; nor does he give it any other Proportions than those of the *Ionick Order*; so that if it appears higher than the *Ionick*, it is purely owing to the Excess of the Height of its *Capital*.—He also makes the rest of the *Entablature* the same; and the *Attick Base* he uses indifferently for the one and the other.

But we have several Examples now remaining of Antiquity, which contradict *Vitruvius*'s Opinion; the most beautiful whereof have a particular *Base* (a 4) and the whole Order twenty *Modules* in Height: whereas the *Ionick* has but eighteen.—Again, its *Capital* is higher than that of *Vitruvius* by one-third of a *Module*; and its *Entablature*, which has *Modillions*, and sometimes *Dentils* together with *Modillions*, is very different from the *Ionick Entablature*.

Most of the modern *Architects* set aside *Vitruvius*'s *Corinthian* Ordonnance, and follow that of the antient Building; selecting from them according to their several Tastes: So that modern *Corinthian* is a Kind of *Composite*; differing from any of the antient Buildings, and much more from *Vitruvius*'s Rules.

Vignola, and M. *le Clerc* make the *Corinthian* Orders twenty Modules high: Yet *Serlio* makes it only eighteen; and Mr. *Perrault* eighteen and two-thirds, retrenching something from the nineteen of *Vitruvius*. ——The Height of the Shaft, M. *Perrault* makes less than that of the *Ionic*, by reason of the Excess of its *Capital*.

Palladio makes the *Corinthian* Columns nine *Modules* and an half in Height, including both their *Base* and *Capital* (and in Case they are to be fluted) with twenty-four *Flutes* or Hollows, whose Depth is in Proportion to half their Breadth.——The Plan, or Interval between two *Flutes*, he makes one Third Part of the Breadth of those *Flutes*. The *Architrave*, (e 4) *Freeze*, (f 4) and *Cornice*, (g 4) are a fifth Part of the Height of the Column.——He will have the Altitude of the *Pedestal* one fourth Part of the Height of the Column, and divides it into eight Parts; one for the *Cymatium*, two for the *Base*, (a 4) and the other five for the *Dye*.——when he has divided the *Base* into three Parts; two of them go to the *Plinth*, (D 4) and one to the *Mouldings*. Like *Vitruvius* he sets the *Attic Base* under this Order, but different from that which is placed under the *Doric*, the Projecture thereof being one fifth Part of the Diameter of the Column.

He makes the Height of the *Corinthian Capital*, the Diameter of the Column below, and a Sixth which he allows to the *Abacus*, the Residue he divides into three proportional Parts; the First is for the first Row of Leaves, the Second for the middle Row, and the Third he subdivides into two Parts; the Caulicoles, or Stalks, together with their Leaves, which are, as it were, supported by them, and out of which they grow, he makes of the Part which is nearest the *Abacus*: The Stalk thereof, or *Pust*, from whence they spring, he will have thick, and to decrease gradually in their Foldings, like Plants which are thicker at the Bottom than at the End of their Branches.——He makes the *Campana*, or Bell, which is the Stalk of the Column under the Leaves; perpendicular to the Bottom of the *Flutes* of the Column.

In order to give the *Abacus* a proper Projecture; he forms a perfect Square, the Side whereof is a *Module* and a Half; in which Square he draws diagonal Lines, the Point of the Intersection thereof, is in the Center, on which he places the Foot of the Compass, and makes a *Module* towards each Angle; drawing Lines which cut the said Diagonals at Right Angles, where these Points meet, so as to touch the Sides of the Square; and these are his Limits of the Projecture, whose Length gives the Breadth of the Horns of the *Abacus*. To make its Curvature, or Diminution, he draws a circular Line from one Horn to the other, and makes the Point; whereby an equilateral Triangle is made, the Base whereof is the Diminution.

Afterwards he draws a Right Line from the Ends of the before-mentioned Horns to the End of the *Astragal* of the Column; which he makes so as to be touched by the Tips or Ends of the Leaves; and this he gives for their Projecture.—He makes the *Rose* a fourth Part as broad as the Diameter of the Column at the Foot.—Having made the *Architrave*, *Freeze*, and *Cornice*, a fifth Part of the Altitude of the Column; he divides the whole into twelve Parts, as in the *Ionic*, but varies in this, that he divides the Cornice of the *Corinthian* into eight Parts and a Half, giving the First to the *Cima Reversa*, the Second to the *Dentils*, the Third to the *Ovolo*, and the Fourth and Fifth to the *Modillions*, and the other three and a half to the *Corona* and the *Cymatium*.—The Projecture of the Cornice is in Proportion to its Height.—He has the Pannels of the *Roses* between the *Modillions*, square, and the *Modillions*, half as broad as the Plan of the said *Roses*.

The Height given for the *Corinthian Order*, is also often divided into ten Parts, giving two to the *Pedestal*, (h 4) and dividing the other eight Parts into six, five for the Length of the Column, with the *Base* and *Capital*, and the other for the Height of the *Entablature*.——They afterwards divide the Length of the Column into nineteen Parts, and make two of them the Diameter of the said Column; from whence they form several of the minuter Parts.

They divide the Height of the *Entablature* into six Parts, giving two to the *Architrave*, one and a half to the *Freeze*, and two and a half to the *Cornice*; making the Projection of the *Architrave* one Fourth of its Height, and that of the *Cornice* equal to its Height.

The Height of the *Pedestal* is divided into seven Parts, two for the *Base* and *Plinth*, four for the *Dado*, and one for the *Cap*.

They diminish the Column in the same Manner as in the last Order, and by taking the Height of the *Pedestal*, they give the Projection of the *Base* of the Column, and the Breadth of the *Dye* of the *Pedestal*. They make the *Base* of the *Pedestal* of one Third of the two Parts allotted for the *Base* and *Plinth*, and the Projection thereof equal to the Height; and the *Cap* three Fourths of the Height.

They make the Height of the Base of the Column, half a Diameter, and find its Projection by taking half the Height of the *Pedestal*, which, also, is the Breadth of the *Dye*.

For the particular Members of the *Pedestal*, they divide the Height of the *Base* into three Parts, giving one to the *Torus* and *Fillet*, which is one Fourth, another to the *Cymase*, and the third to the *Ogee* and *Fillet*, which is one Fourth also.——The whole Projection they make equal to the Height, and dividing it into five Parts, give two to the *Ogee*, two to the *Cymase*, and the other to the *Torus*.—The *Cap* is divided into four Parts, half a Part for the *Hollow*, one Fourth to the *Fillet*, one to the *Cymase*, one Fourth to the *Fillet*, one entire Part to the *Corona*, and one to the *Ogee* and *Fillet*, which is one Third Part thereof.——They make the whole Projection

three Parts of those four in Height, which dividing into four, they set off by Inspection.

They divide the Height of the *Base* of the Column into three, one for the *Plinth*, subdividing the upper two into five, giving one and a half to the lower *Torus*, one to the upper *Torus*, one to the *Scotia*, and the other one and a half to the *Fillets* and *Beads*, viz. half a Part to each *Bead*, and one Fourth to each *Fillet*, the Bead above the upper *Torus* (being Part of the Column) is as large as the *Fillet* and *Bead* together, and its *Fillet* the Half thereof.

To find the Height of the *Corinthian Capital*, they divide the Diameter of the Column into six Parts, and make one whole Diameter and one of these Parts the Height.——Those six Parts they allow for the *Abacus*, which dividing into two, they give one to the Hollow, and the other to the *Ovolo* and *Fillet*.——To each Height of Leaves they give two of the six Parts, the remaining Diameter is divided into, and make the Heads of those Leaves to turn down half a Part.——They divide again the under one, of the upper two Parts into two, the Heads of the Leaves turning down one Part, and the upper one into three, giving one to the *Fillet*, and two to the small *Volutes*; the large *Volutes* having the entire Part.——The *Rose* they made as high as the *Abacus* and the *Fillet* together.

They make no other Difference between the Projections of this Order, and those of the foregoing one, but by observing in the Circumference of the Column, that there are eight Leaves in each Height, and that each Leaf has four Plants carved with Olive, Parsley, *&c.* according to Fancy; limiting the Projection of their Heads, by a right Line drawn from the Projecture of the *Abacus* to the *Collerino*, or *Astragal* of the Column.

Having divided the whole Heighth of the *Entablature*, into six, they give two to the *Architrave*, one and a Half to the *Freeze*, and one and a Half to the *Cornice*; and to make up the particular Members, they halve each of the two principal Parts the *Architrave* is divided into, and then divide the lower Part into three, giving two to the lower Face, and half a Part to the *Bead*; dividing also a second Part of the four into three, allowing one to the *Ogee*; also dividing the upper fourth Part into three, giving half a Part to the *Bead*, one and a Half to the *Ogee*, and one to the upper *Fillet*, making the Projection one of those Fourths in Height, of which they give Half to the middle Face.

For the *Cornice*, they divide its Height into eight Parts, one for the *Ogee* and *Fillet*, another for the *Dentils*, another for the *Ovolo* and *Fillet*, and the other is divided into six, one Fourth whereof they give to the *Fillet* under the *Modillions*, one and one Fourth to the *Modillion*, half a Part to the *Ogee* and *Fillet*, one and a Half to the *Corona*, half a Part to the *Ogee*, one Fourth to the *Fillet*, one and one Fourth to the *Scima Recta*, and half a Part to the *Fillet*, making the whole Projecture equal to the Height, and dividing it into the same Number of Parts.

Callimachus, a *Corinthian* Sculptor, is thought by most of the modern Writers to have been the Inventor of this *Order* of *Architecture*, and that passing by the Tomb of a young Lady, over which her Nurse had placed a Basket with some of her Play-things, and covered it up from the Weather with a Tile; the whole having been placed on a Root of *Acbantus*; as it sprung up, the Branches encompassed the Basket, and bending down A-top under the Corner of the Tile, formed a Kind of *Volutes*; hence *Callimachus* took his Hint: The Basket he imitated in the *Vase* of his Column; the Leaves in the *Volutes*, and the Tile in the *Abacus* of his Order.——*Villalpandus* treats this Story of *Callimachus*, as a Fable; and will have the *Corinthian Capital* to have taken its Origin from an Order in *Solomon*'s Temple, the Leaves whereof were those of the Palm Tree.

The COMPOSITE (so called from its *Capital* (c 5) being composed out of those of the other Orders) is the last of the five Orders of *Architecture*.——It borrows a Quarter-round from the *Tuscan*, and *Dorick*; a double Row of Leaves from the *Corinthian*, and *Volutes* from the *Ionick*.—Its *Cornice* has simple *Modillions* or *Dentils*.

Scamozzi, and M. *Le Clerc*, place this Order between the *Ionick* and *Corinthian*, out of a View to its Delicacy and Richness, which they esteem inferior to the *Corinthian*, and therefore make no Scruple to use it under the *Corinthian*, tho' most Authors rank it after the *Corinthian*.

The Proportions of this *Order* are not fixed by *Vitruvius*; he only marks its general Character, by observing that its *Capital* is composed of several Parts taken from the *Dorick*, *Ionick*, and *Corinthian*: He does not seem to regard it as a particular Order; nor does he vary it at all from the *Corinthian*, except in its *Capital*.——In Effect it was *Serlio* who first added the *Composite Order* to the four of *Vitruvius*, forming it from the Remains of the Temple of *Bacchus*, the Arches of *Titus*, *Septimus*, and the Goldsmiths: Till then this *Order* was esteemed a Species of the *Corinthian*, only differing in its *Capital*.

This *Order* being thus left undetermined by the Antients, the Moderns have a Sort of Right to differ about its Proportions, *&c.* *Scamozzi*, and after him Mr. *Le Clerc*, makes its Column (b 5) 19 *Modules* and a Half, which is less by half a *Module*, than that of the *Corinthian*; as in Effect the Order is less delicate than the *Corinthian*.——*Vignola* makes it 20, which is the same with that of its *Corinthian*; but *Serlio*, who first formed it into an *Order*, by giving it a proper *Entablature* and *Base*, (a 5) and after him M. *Perrault*, raise it still higher than the *Corinthian*.——This last does not think different Ornaments and Characters sufficient to constitute a different Order, unless it have a different Height too; agreeably to his Rule of augmenting the Height of the several Columns by a Series of two *Modules* in each; he makes the *Composite* twenty *Modules*, and the *Corinthian* eighteen; which it seems is a Medium between the Porch of *Titus*, and the Temple of *Bacchus*.

Palladio makes the Columns of the *Composite* ten *Modules* long; and the Intercolumnation in the Designs of Colonades, one Diameter and a Half.——He makes this Order slenderer than the *Corinthian*, and its *Pedestal* (c 5) one Third of the Altitude of the Column, and which he divides into eight Parts and a Half, the first for the *Cymatium*, and five and a Half remaining for the *Dado*.——He subdivides the *Base* of the *Pedestal*, into three Parts, two he allows for the *Plinth*, and one for the *Torus*, with its *Cymatium*.——He makes indifferently the *Base* of this Column, *Attick*, or a Compound of the *Attick* and *Ionick*.

He gives to the *Composite Capital* (c 5) the same Measures with the *Corinthian*, but varies from it in the *Volutes*, the *Ovolo* and *Astragal*, which he cuts into Beads; which Members he borrows from the *Ionick*, and which he makes thus.—He divides the Capital from the *Abacus* downwards into three Parts; the first he allows to the first Row of Leaves, the second to the middle Row, and the third to the *Volutes*, which takes up so much of the *Abacus*, that it seems to go out of the *Ovolo*, near the Flower which is placed in the Middle of the Curvature of the *Abacus*, and is as thick in Front as the Breadth of its *Horns*, or little more.——The Thickness of the *Ovolo* he makes three Fifths of the *Abacus*, and its lower Part to begin parallel to the Eye of the *Volute*; giving to its Projecture, three Fourths of its Altitude.—He makes the *Astragal* one third Part of the Altitude of the *Ovolo*, and its Projecture a little more than half its Thickness, and to wind about the *Capital* under the *Volute*, so as to be always visible.—To the *Listella* which is under the *Astragal*, and forms the *Plinth* of the *Bell* of the *Capital*, he gives half the *Astragal*, making the Body of the *Bell* perpendicular to the Bottom of the Flutes of the Column.

A great Number of modern *Architects* divide the Height

Height given for this Order into ten Parts, two thereof for the *Pedestal*, and dividing the eight remaining Parts into six, one for the Height of the *Entablature*, and five for the Length of the Column, with *Base* and *Capital*.—That Length they divide into ten Parts, which is no more than halving each of the five Parts, and that is the Diameter of the Column below. So will the *Pedestal* (h 5) be three Diameters, the Column ten, and the *Entablature* two in Height.——Having divided the *Entablature* into six, they give two to the *Architrave* (E 5) one and a Half to the *Freeze* (F 5) and two and a Half to the Cornice, (g 5) making the Projection of the *Architrave* two Sevenths of its Height, and that of the *Cornice* equal to its Height.—The Height of the *Pedestal* being divided into seven Parts, they give two to the *Base* and *Plinth*, four to the *Dye*, and one to the *Cap*.

They diminish the Column as in the last Order, and dividing the Diameter at Bottom, into five, they make the *Base* of the Column project on each Side, one of these Parts, which gives the Breadth of the Dye of the *Pedestal*.—To the *Base* of the *Pedestal* they give one Third of the two Parts for the *Base* and *Plinth*, and make the Projection thereof equal to the Height, and that of the *Cap*, four Fifths of the Height.

They make the Height of the *Base* of the Column, half a Diameter, and its Projection one Fifth of the whole Diameter.—For the particular Members of the *Pedestal*, they divide the Height of the *Base* into four Parts, one for the *Torus*, one Third of a Part for the *Fillet*, one and two Thirds for the *Cymatium*, and the other Part, which is one Third, to the *Astragal* and *Fillet*; the whole Projection being equal to the Height.—The Height of the *Cap* they divide into five Parts, one for the *Astragal* and *Fillet*, which is one Third, two more to the *Cymatium* and *Fillet*, which is half a Part, one to the *Corona*, and one to the *Ogee* and *Fillet*, which is one Third; making the whole Projection four of the said Parts.

The Height of the *Base* of the Column being divided into six, they give one and three Fourths to the *Plinth*, one to the lower *Torus*, one Fourth to the *Fillet*, half a Part to the *Scotia*, one to the *Astragal* and *Fillet* (which are subdivided into six, each *Fillet* having one, and each *Astragal* two) then give half a Part to the other *Scotia*, one Fourth to the *Fillet*, and the remaining three Fourths to the upper *Torus*; as to the *Fillet* above, which is Part of the Column, it is half a Part, or double the Bigness of the under one.

They make the Height of the *Composite Capital* a Diameter and one Sixth, which they divide into seven, giving two to each Height of *Leaves*, the *Head* thereof turning down half a Part; two Thirds of a Part to the Space between the *Leaves* and *Fillet*, one Third to the *Astragal* and *Fillet*, (which is one Third of that) two Thirds more to the *Ovolo*, one Third to the Space between the *Ovolo* and *Abacus*, half a Part to the *Hollow*, and half a Part to the *Ovolo* and *Fillet*, which is one Third thereof.—They make no other Difference between the Projection of this, and that of the *Corinthian*, but in the *Volutes*, which they make after the same Manner of the *Ionick*; making besides, this *Capital* equal in Height to the *Architrave* and *Freeze* taken together.

For to form the *Entablature*, they divide its Height into six Parts, two for the *Architrave*, one and a Half for the *Freeze*, and two and a Half for the *Cornice*.—For the particular Members, the *Architrave* is divided into seven Parts, giving two to the first *Fascia*, half a Part to the *Ogee*, two and a Half to the second *Fascia*; dividing again the upper two Parts into five, half a Part for the *Bead*, one and a Half for the *Ovolo*, two for the *Hollow*, and one for the *Fillet*; making the Projection two of those seven Parts in Height.

They observe no other Order in the *Freeze*, than that followed in the *Ionick*; but they divide the Height of the *Cornice*, into two and a Half principal Parts, subdividing each of them into four, and the Half into two, which makes ten in the whole; giving one Fourth to the *Fillet*, one Fourth to the *Bead*, and one to the *Ogee*, one more to the first *Fascia* of the *Modillions*, half a Part to the *Ogee*, one and one Fourth to the second *Fascia*, one Fourth to the *Fillet*, half a Part to the *Ovolo*, two to the *Corona*, one to the *Scima reversa* and *Fillet*, which is one Fourth, and one and a Half to the *Scima recta*, and half a Part to the *Fillet*; making its whole Projection equal to its Height.

The *Composite* is also called the *Roman* and *Italick Order*, as having been invented by the *Romans*, conformably to the rest, which are denominated from the People among whom they had their Rise.—Mr. *Perrault*, in his *Vitruvius*, distinguishes between *Composite* and composed Order.——The latter, he says, denotes any Composition whose Parts and Ornaments are extraordinary and unusual; but have withal somewhat of Beauty; both on Account of their Novelty, and in Respect of the Manner or *Genius* of the *Architect*; so that a composed Order is an arbitrary humorous Composition, whether regular or irregular. ——The same Author adds, that the *Corinthian Order* is the first *Composite Order*, as being composed of the *Dorick* and *Ionick*, which is the Observation of *Vitruvius* himself, *Lib.* 4. *c.* 1.

Before I conclude this Treatise of *Architecture*, it will not be improper to take Notice here, of the several general Rules given by *Palladio*, in order to avoid several Errors which were first introduced by the *Barbarians*, and which are still in Practice among us.

1. He would have us admit of nothing in the several Orders repugnant to that Symmetry, which Nature observes in all her Works; and whereas, for Instance, Trees are bigger at the Trunks and near the Roots than at the Top, consequently he would have it laid down as an infallible Rule, that Columns should be thicker at Bottom than at Top.

2. He rejects all Columns without *Bases*, since *Bases* with their *Torus*'s and *Cavetto*'s represent so naturally the Swellings occasioned by the Weight they sustain, therefore condemns those who deviating from whatever is good, just and beautiful in *Architecture*, instead of Pilasters or Columns, which are to sustain any Weight, place Cartouches, which he calls *Scrolls*, and supposes should strike the Eyes of Judges very disagreeably; and are so far, says he, from being satisfactory and pleasant to those, who are not, that they give them only an imperfect Idea of *Architecture*, and only put Builders to an unnecessary Expence; for which Reason he would have none of those Cartouches come out of the Cornice.

3. He condemns all *Frontispieces* of Gates, Windows, and Galleries, divided, and open in the Middle, since those *Frontispieces* were first made to defend these Parts of the Edifice from Rain, *&c.* Necessity having instructed the antient *Architects* to cover them, and to give them the Shape of a Roof.——Therefore he thinks that nothing can be more ridiculous than to open that Part which was invented for no other purpose than to shelter the Inhabitants, and such as go into it from Rain, Snow, Hail, and other Injuries of the Weather. And, says he, tho' Variety and Novelty pleases all Mankind, yet they are not to be introduced in direct Opposition to the Rules of Art, and the Dictates of Reason; and it must be acknowledged, that the Antients never departed from any general and necessary Precepts of Art in their various Inventions.

4. He forbids the making the Projecture of the *Cornice*, and other Decorations very large, because when they exceed reasonable and due Proportion, especially in a close Place, they make it still closer, and more disagreeable to the Eye, and frighten those who stand under them, who imagine they are every Moment to fall on their Heads.

5. He will have the *Cornice* made in a due Proportion to the Columns, for if great Cornices are put over

over little Columns, or little Cornices upon great Columns, the whole muſt needs be diſagreeable to the Eye.

5. He adviſes us to avoid the ſuppoſing the Columns to be compoſed of various Pieces, and jointed together by certain *Annulets*, and Garlands round them, which appear to keep them cloſe together; becauſe the more ſolid and whole the Columns ſeem to the Eye, the better they anſwer the End, for which they were raiſed, which is to make the whole Building more ſtrong and ſecure.

6. And he forewarns us againſt making ſome *Members* in the *Cornice* unequal to the Reſt, beſides ſeveral other Abuſes, which he ſuppoſes an able Architect can caution himſelf againſt.

There are other Sorts of *Architecture*, as *Architecture in Perſpective*, which is a Sort of Building, wherein the Members are of different Meaſures and Modules, and diminiſh in Proportion to their Diſtance, to make the Work appear larger, and longer, to the View, than really it is. Such is the celebrated Pontifical Stair-Caſe of the *Vatican*, built under Pope *Alexander* VII. by *Cavalier Bonino*.

COUNTERFEIT ARCHITECTURE, which is that which has its Projectures painted, either in black or white, or coloured after the Manner of Marble, as is ſeen practiſed in Frontiſpieces and Palaces in *Italy*, and in the Pavilions of *Marly*.—— This Painting is done in *Freſco* upon plaiſter'd Walls, and in Oil on Walls of Stone.—— Under the Name of *Counterfeit Architecture*, which we, otherwiſe, call *Scene-Work*, is likewiſe comprehended, that painted on ſlight Boards, or Planks, of Wood, whereon the Columns, Pilaſters, and other Parts of Building ſeem to ſtand out, with a *Relievo*; the whole being coloured in Imitation of various Marbles, Metals, *&c.* and ſerving in the Decorations of Theatres, Triumphal Arches, Publick Entries, Funeral Pomps, *&c.*—— Such is the *Catafaleo*, uſed for a Decoration of *Architecture*, Sculpture, and Painting; raiſed on a Timber Scaffold to ſhew a Coffin or Tomb in a funeral Solemnity.

Architecture is ſcarce inferior to any of the Arts in Point of Antiquity.—— Nature and Antiquity taught the firſt Inhabitants of the Earth to build themſelves Huts, Tents, and Cottages; from which, in Courſe of Time, they gradually advanced to more regular and ſtately Habitations, with Variety of Ornaments. *Moſes* was not ſo kind to inform us what Kind of Habitations had the *Antediluvians*; if they had any fixed ones, or if they only dwelt in Tents, as the *Tartars* do; moving from Place to Place, as the Circumſtances of the Times, the Climates, and the Seaſons required it; if ſo, the *Ubiquarians* can very well trace their Origin as far as thoſe dark Times, which we know nothing of but by Suppoſition, and meer Conjectures, and challenge the Free-Maſons for Antiquity; if not, and they had really fixed Habitations, Meſſ. the *Ubiquarians*, muſt give the Precedency to the Free-Maſons; though after a more mature Conſideration, we are all nothing elſe but *Ubiquarians*, ſince we cannot flatter ourſelves with having a permanent Manſion here on Earth; a Tempeſt, an Earthquake, the Fire, and an infinite Number of other unforeſeen Accidents, can ruin and deſtroy from its Foundation, the ſtrongeſt and beſt built Edifice; and the Craft of a Lawyer, diſlodge us from our Houſes, and render us *Ubiquarians*; therefore that honourable Society has in Fact a far greater Number of *Members*, than thoſe that meet in their ſeveral *Conventions*, among whom they may reckon ſeveral Kings and other Princes, and even at preſent they are honoured with the Fellowſhip of *Staniſlaus*, King of *Poland*, of *Ragotſki*, Prince of *Tranſilvania*, and of the Duke of *H*———*n G*———*p*, an Honour which the *Free-Maſons* can ſcarcely boaſt of.

Vitruvius contends for the Origin of *Architecture*, being almoſt as antient as human Society, and that the Rigour of the Seaſons firſt led Men to make little Cabins to retire into; at firſt Half under Ground, and the Half above covered with Stubble; at length, growing more expert, they planted Trunks of Trees at end, laying others a-croſs, to ſuſtain the Covering.

But, however, as I don't ſuppoſe thoſe firſt Architects to have been very curious in the Symmetry of their Edifices, or obſerved any regular Order, I'll rather believe, with ſome of the antient Writers, that *Architecture* firſt began to be reduced to any tolerable Order among the *Tyrians*; that *Villalpandus* aſſerts that *Solomon* was the firſt who brought it under thoſe Rules, which he had received from God himſelf (whence he ſuppoſes *Architecture* of divine Invention) and that the *Tyrians*, employed by that Prince, had learned that Art from him, and carried it afterward into their Country. To what a Pitch of Magnificence and Grandeur the *Tyrians* carried it ere it came to the *Greeks*, may be learned from *Iſaiah* xxiii. 8 yet in the common Account *Architecture* ſhould be almoſt wholly of *Grecian* Original: Three of the regular Orders, or Manners of Building, are denominated from them, *viz. Corinthian*, *Dorick*, and *Ionick*, and ſcarce a Part, a ſingle Member or Moulding but comes to us with a *Greek* Name.

Be that as it will, it is certain the *Romans*, from whom we derive it, borrowed what they had entirely from the *Greeks*; nor ſeem, 'till then, to have had any other Notion of the Grandeur and Beauty of Buildings, beſides what ariſes from their Magnitude, Strength, *&c.* Thus far they were unacquainted with any Order but the *Tuſcan*. Under *Auguſtus* *Architecture* arrived at its Glory: *Tiberius* neglected it as well as the other polite Arts. *Nero*, amongſt a Heap of horrible Vices, ſtill retained an uncommon Paſſion for Buildings, but Luxury and Diſſoluteneſs had a greater Share in it than true Magnificence. *Apollodorus* excelled in *Architecture* under the Emperor *Trajan*, by which he merited the Favour of that Prince, and it was he who rais'd the famous *Trajan*'s Column, ſubſiſting to this Day. After this, *Architecture* began to dwindle, and though the Care and Magnificence of *Alexander Severus* ſupported it for ſome Time, yet it fell with the *Weſtern* Empire, and ſunk into a Corruption, from whence it was not recovered for the Space of twelve Centuries.

The Ravages of the *Viſigoths* in the fifth Century deſtroyed all the moſt beautiful Monuments of Antiquity; and *Architecture* thence forwards became ſo coarſe and artleſs, that their profeſſed Architects underſtood nothing at all of their Deſign, wherein its whole Beauty conſiſts: Hence a new Manner of Building took its Riſe, called the *Gothick*.

Charlemagne did his utmoſt to reſtore *Architecture*; and the *French* applied themſelves to it with Succeſs, under the Encouragement of *H. Capet*, the firſt of the Line of the *Capetians*, from whom the preſent King of *France* is lineally deſcended. His Son *Robert* ſucceeded him in this Deſign, 'till by Degrees the modern *Architecture* was run into as great an Exceſs of Delicacy, as the *Gothick* had before done into Maſſiveneſs. To this may be added the *Arabeſk*, *Moriſh*, or *Moriſk Architecture*, which were moſt of a Piece with the *Gothick*, only brought in from the South by the *Moors* and *Saracens*, as the former was from the North by the *Goths* and *Vandals*.

The Architects of the thirteenth, fourteenth and fifteenth Century, who had ſome Knowledge of Sculpture, ſeem to make Perfection conſiſt altogether in the Delicacy and Multitude of Ornaments, which they beſtowed on their Buildings, with a World of Care and Sollicitude, though frequently without any Conduct or Taſte.

In the two laſt Centuries, the Architects of *Italy* and *France* were wholly bent upon retrieving the primitive Simplicity and Beauty of antient *Architecture*, in which they did not fail of Succeſs; in-ſo-much that our Churches, Palaces, *&c.* are now wholly built after the *Antique*.

The moſt celebrated *Architects* are *Vitruvius*, *Palladio*,

ladio, *Scamozzi*, *Serlio*, *Vignola*, *Barbaro*, *Cataneo*, *Alberti*, *Viola*, *Inigo Jones*, *Mansard*, *Bullant*, and *De Lorme*.

We have no *Greek* Authors extant on *Architecture*. The first who wrote of it was *Agatharus* the *Athenian*, who was seconded by *Democritus* and *Theophrastus*. Among the *Latins Fussitius*, *Terentius Varro*, *Publius Septimius*, *Rufus*, and *Epaphroditus* wrote *De Re Architectonica*. But of all the Antients *Vitruvius* is the only entire Author; though *Vegetius* relates that there were 700 Architects at *Rome* in his Time. He lived under *Augustus*, and composed a compleat System of *Architecture* in ten Books, which he dedicated to that Prince. There are two Things censured by the Moderns in this excellent Work, *viz.* Want of Method, and Obscurity. The Mixture of *Latin* and *Greek* in *Vitruvius* is such, that *Leon Baptist Alberti* has observed he wrote *Latin* to the *Greeks*, and *Greek* to the *Latins*: He adds that the Work contains Abundance of Things superfluous and foreign to the Purpose. For this Reason M. *Perrault* has extracted all the Rules out of *Vitruvius*'s prolix Work, methodised, and published them in a little Abridgment. Several Authors have also endeavoured to explain the Text of *Vitruvius*, particularly *Philander*, *Barbaro*, and *Salmasius*, in Notes added to their several Editions; *Rivius* and *Perrault* in the Notes to their *German* and *French* Versions; and *Baldus* in his *Lexicon Vitruvianum*, enlarged by *De Laet*. The same M. *Perrault*, has also composed an excellent *Treatise of the five Orders*, which may be esteemed a Supplement to *Vitruvius*, who left the Doctrine of the five Orders defective.

The Authors upon *Architecture* since *Vitruvius* are, *Leon Baptista Alberti*, who in 1512 published ten Books of the Art of Building in *Latin*, designed to outvie *Vitruvius*; in which however he has not succeeded; his Work has Abundance of good Things, but is deficient in the Doctrine of the Orders. *Seb. Serlio*, who wrote seven Books of *Architecture*, five of which, concerning the five *Orders*, were made publick in 1602; throughout all which, he religiously keeps to *Vitruvius*'s Rules: The seventh was since published in 1675; but the sixth, concerning private Buildings, has not yet appeared. And *Palladio*, who wrote four Books of *Architecture*, containing the fundamental Rules of the Art, with various Instances of all the Kinds of Works, published in *Italian* in 1575: The two first Books are rendered into *High Dutch*, and enlarged with Annotations by *Boeckler*; and the four published in *English* in 1735, embellished with a large Variety of Chimney-Pieces, collected from the Works of *Inigo Jones* and others. *Phil. De Lorme*, who published nine Books of *Architecture* in *French*. *J. Barozzi De Vignola*, who in 1631 made Publick his Rules of the five Orders in *Italian*, since translated with large Additions by *Daviler*, under the Title of *Cours D'Architecture*, *&c.* and since also into *High Dutch* with Notes.

To these are to be added *Vincent Scamozzi*, his Idea of universal *Architecture*, published in 1615 in *Italian*; *Car. Phil. Dieussart*, in his *Theatre of Civil Architecture*, published in *High Dutch* in 1697; wherein he not only delivers the Rules of *Architecture*, but explains and compares the five Orders, as laid down by *Palladio*, *Vignola*, *Scamozzi*, &c. which same Design was also executed in *French* by *R. Freart De Cambray*, in a *Parallel of the antient Architecture with the modern*, published in *French* in 1650, and since translated into *English*, with Additions by Mr. *Evelyn*. *Fr. Blondel*, Director of the Royal Academy of Painting, *&c.* in 1698, gave a *Course of Architecture* in *French*, being a Collection from all the celebrated Writers upon the Subject of the *Orders*, &c. *Nic. Goldman* in a Treatise *De Stylometris*, published in *Latin* and *High Dutch*, in the Year 1661, has done good Service by reducing the Rules and Orders of *Architecture* to a further Degree of Perfection, and shewing how they may be easily delineated, by means of certain Instruments invented by him.

Lastly, the *Elements of Architecture* are very ingeniously laid down by Sir *H. Wotton*. The same are reduced by *Starmius* and *Wolfius*, to certain Rules and Demonstrations; and thus is *Architecture* brought into the Form of a Mathematical Art; by the first, in his *Mathesis Juvenil*, and the second in his *Elementa Matheseos*, *Tom.* 2. *An.* 1715.

We have not forgot, but forbore to avoid a certain Confusion, mentioning, among the five Orders of *Architecture*, some other Orders, which no Author has judged proper to intermix with those principal ones, as the *Rustick*, *Attick*, *Persian*, *Caryatick*, *Gothick*, *French*, and *Spanish* Orders.

The RUSTICK ORDER, is that adorned with *Rustick* Quoins, Bossages, *&c.*

ATTICK ORDER, is a little Order of low Pilasters, with an *Architrave Cornice* for its *Entablature*, as that of the Castle of *Versailles*, over the *Ionick*, on the Side of the Garden. M. *Blondel* calls the little Pilasters of *Atticks* and *Mezzanines* false *Orders*.

PERSIAN ORDER, is that which has Figures of *Persian* Slaves instead of Columns to support the *Entablature*. This Order was first practised among the *Athenians*, on Occasion of a Victory their General *Pausanias* obtained over the *Persians*; as a Trophy of this Victory, the Figures of Men dressed in the *Persian* Mode, with their Hands bound before them, and other Characters of Slavery, were charged with the Weight of *Dorick* Entablatures; and made to do the Office of *Dorick* Columns.——Though M. *Le Clerc* observes that *Persian* Columns are not always made with the Marks of Slavery; but are frequently used as Symbols of Virtues, Vices; of Joy, Strength, Valour, *&c.* as when made in the Figures of *Hercules*, to represent Strength, of *Mars*, *Mercury*, *Faunus*, *Satyrs*, &c.

The CARYATICK ORDER, is that, whose Entablature is supported with Figures of Women, instead of Columns.——*Vitruvius* observes, that the *Greeks* having taken the City *Carya*, led away their Women Captives; and to perpetuate their Servitude, represented them in their Buildings, as charged with Burdens, such as those supported by Columns.—— The *Caryatides*, says M. *Le Clerc*, are not now represented as among the Antients, *viz.* as Symbols of Slavery, with Hands tied before and behind; those Characters being supposed Injurious to the fair Sex. Among us they are represented as Images of Justice, Prudence, Temperance, *&c.*——Their Legs are always to be close to each other, and even a-cross; their Arms laid Flat to the Body, or to the Head, or at least as little spread as possible; that, as they do the Office of Columns, they may have, as near as possible, the Figure thereof. Sometimes their Arms are cut off for greater Delicacy; as in the Hall of the *Swiss* Guards in the *Louvre*; but M. *Le Clerc* does not approve of such Mutilations.

When insulated they should never have any great Weight to support; and their *Entablature* and *Pedestal* are ordinarily to be *Ionick*.——When they join to a Wall, *&c.* it is adviseable to put a *Console* over them, which may appear to support the Weight of their *Entablature*; otherwise as they represent Women, they do not seem so proper to sustain great Loads. ——When they are made in Form of Angels, the same Author would have them support the *Entablature*, which in that Case, is to be *Corinthian*, with their Hands.—The Antients made the *Caryatides* frequently to support Baskets, or *Corbels* of Flowers; and these they call *Canephoræ*, or *Cistiferæ*; which *Canephoræ*, are in Allusion to the *Canephoræ* of the Antients, which were two Virgins of *Athens*, kept in *Minerva*'s Temple in the *Acropolis*, who at the Feast of the *Panathenæa*, carried Baskets on their Heads, with something secret or mysterious therein, delivered to them by the Priestess.——— The Baskets were usually crowned with Flowers, Myrtles, *&c.*—The *Canephoræ*, in these Ceremonies, always marched first, the Philosopher or Priest next, and the Choir of Musick followed.

FRENCH ORDER, is a new contrived *Order*, wherein the Capital consists of Attributes agreeing to that warlike Nation; as Cocks Heads, *Flower-de-Luces*, &c.—Its Proportions are *Corinthian*; such is that of M. *Le-Brun*, in the grand Gallery of *Versailles*; and that of M. *Le Clerc*. This last gives us a second *Tuscan Order*, and a *Spanish Order*, besides his *French Order*.——The *Tuscan* he ranks between the first *Tuscan* and *Dorick*.—Its Height he makes 23 Semi-diameters, 22 Minutes.—The *Column* to have 15, the *Pedestal* 5, and the *Entablature* 3, and 22 Minutes; and he proposes its *Freeze* to be adorned with Turtles, which are the Arms of *Tuscany*.

The SPANISH ORDER he places between the *Corinthian*, and *Composite*.—The whole *Order* he makes 30 Semi-diameters, 28 Minutes, whereof the *Column* has 9, and 25 Minutes, the *Pedestal* 16, and 18 Minutes, and the *Entablature* 4, and 15 Minutes.——The Horns of the *Abacus* he sustains with little *Volutes*; the Middle, in lieu of a Rose, has a Lion's Snout: That Animal being the Symbol of *Spain*, and expressing the Strength, Gravity and Prudence of that Nation.

ARIANISM.

ARIANISM is an antient Heresy in the Church, broached in the Beginning of the fourth Century, by *Arius*, Presbyter of *Alexandria*; whence his Disciples and Partisans have been called *Arians*.

Arius was born in *Africa*, in that Part of *Lybia* which confines with *Egypt*. *Arius* had a great deal of Pride and Ambition hidden under a bright Genius, vast Knowledge, and profound Understanding, which recommended him to *Peter*, Patriarch of *Alexandria*, who ordained him *Deacon*; and finding afterwards, that *Arius*'s Merit was not supported with that Piety, Virtue, and Orthodoxy he expected to find in him, but that on the contrary, soon after his Ordination, he had declared himself a Partisan of *Meletius*, the Schismatick Bishop of *Lycopolis* in *Thebaida*, he was excommunicated as a *Relapse* by the Patriarch, who being obliged soon after to seal his Faith with his Blood; *Arius* by his Artifices having found the Secret to ingratiate himself with *Achillas*, *Peter*'s Successor in the See of *Alexandria*; this new Patriarch not only received him into his Communion, but likewise raised him to the first Dignities of the Church, next to Episcopacy; for he not only ordained *Arius* Presbyter, but gave him also the Government of one of the principal Churches of *Alexandria*, (of one of those called *Laura*'s) and according to *Theodoret l.* 1. *c.* 2. made him Professor of Divinity, or *Theologal* of the Cathedral Church.

The great Reputation *Arius* acquired in these two eminent Posts or Employments, flattered his extreme Vanity with the Hope of being chose to succeed *Achillas*; but was frustrated in his Expectation by *Alexander*, a Person of an extraordinary Merit, whose rare Virtues, exemplary Life, and the signal Services he had done to the *Eastern* Church, had gained the Suffrages of the Christians of *Alexandria*, being raised to the patriarchal Chair, at *Achillas*'s Demise, who had held it but a short Time.

The new Patriarch's principal Care after his Elevation, was to gain *Arius*'s Friendship, by giving him at all Times and in all Occasions, repeated Marks of his Esteem, but all to no Purpose; for *Arius*, from the first Moment of his disappointed Ambition, had formed the Design of being revenged on the Patriarch, for the Injustice, he pretended, the People of *Alexandria* had done to his Merit, by preferring *Alexander* to him, in the *Patriarchate*. And as he found it was impossible to censure the Life of his Patriarch, which was irreproachable, he hoped to ruin his Credit, by rendering him suspected of Heresy, and was almost sure of Success, knowing himself to be a very subtle Logician, and consequently capable to puzzle, in disputing, the Christians of those Times, not at all acquainted with the Subtilties of the *Platonician* or *Aristotelian* Schools.

An Occasion soon offered itself, which favoured *Arius*'s ambitious and criminal Design; for the Church enjoying at that Time a profound Tranquillity, and the Patriarch *Alexander* being determined to apply himself wholly to the Instruction and Conduct of that Portion of Christ's Flock committed to his paternal Care, used to instruct his Clergy in publick Conferences, where he expounded with a great deal of Penetration, Knowledge and Sagacity, the principal Articles of the Doctrine of the Church.—Therefore having one Day assembled all the Priests of *Alexandria*, he began to talk in a very sublime Manner, on one of the most profound and most incomprehensible of our Mysteries, shewing the indivisible Unity which subsisted in the Trinity, who were three distinct Persons, though all three had but the same Essence.——'Twas then, says *Theodoret*, *l.* 1. *c.* 2. that *Arius* thought he could never have a better Opportunity to attack his Patriarch with Advantage. For as the Heresy of *Sabellius* was abhorred and detested by the whole oriental Church, who sixty Years before had had the sacrilegious Presumption to advance, that there was but one Person in God, under three different Names, and with three different Operations; *Arius* stood up in the Middle of the Assembly, and with a great deal of Warmth and seeming Zeal, pretended that the Patriarch had advanced *Sabellius*'s Dogma, only disguised under another Expression; and that it was impossible to maintain such Unity of Essence, without confounding the Persons together; that the Son could not have been begotten without having the Father for his first Principle, whence he concluded with philosophical Reasonings, that that Principle must have been before him; and therefore the Son could not have such Unity of Substance with the Father.——The whole Assembly was surprised at *Arius*'s Presumption, which however, sowed the first Seeds of Division among them; for as *Arius* was esteemed a Person of a profound Erudition, very well versed in the Scriptures, that he appeared as if he would only oppose the Errors of *Sabellius*, and that he spoke then very pertinently, and with much Subtilty on the Subject, at that very Time, some of the Assembly espoused his Party; though the greatest Number stood by their Patriarch, and maintained his Doctrine, as one of the most essential Points of the Christian Religion.

Alexander, who observed that the Spirits on both Sides, had been over-heated by the Disputes, thought that the best and easier Expedient, was to endeavour to procure a Reconciliation among them, by all the Means his easy and truly christian Temper could dictate him; therefore, without having Recourse to those violent Expedients he could have employ'd to force them to submit themselves to his Authority; he had Priests selected out of both Parties to propose and defend their respective Opinion, where says *Sozomen lib.* 1. *c.* 14. he would set, with the Chiefs of his Clergy, as Judge, to decide, by a solemn Judgment, their Differences; he went even so far, the better to convince both Parties, that he acted without Prejudice or Partiality, as to appear indifferent as to the two Opinions, praising sometimes the one, and sometimes the other, according to the different Turns the Dispute took; but he soon perceived that too great a Complaisance, especially in religious Matters,

weakens

weakens as much the Party of the Truth, as it renders the adverse Party strong and audacious; for *Arius* abandoning himself, to the Violence and Impetuosity of the Desire he had to conquer his Opponents, endeavoured to support his first Blasphemy, with so scandalous and detestable Propositions, that to have heard him much longer, had been, in some Measure, to have rendered oneself his Accomplice.

Sozomen, *Theodoret*, and St. *Athanasius*, say, that *Arius* in that Conference, to maintain that the Son is not of the same Substance with the Father, went so far as to advance, that, properly speaking, the Father was sole God, sole Eternal, sole Wise, sole Good, sole Omnipotent of himself, and sole Immutable; that he was God from all Eternity, and Father only since he had begotten his Son, or his exterior Word, who did not proceed from his Substance; that by his Wisdom and interior Word he had formed and created him from nothing, before the other Things created; that the Father was before the Son, when the Son had no Existence yet; having created him to form all the other Creatures by him, which he surpassed in Excellency; so that he was really the *Son of God*, and God himself by Participation, superior to all the Angels and Men, but of a Nature inferior to that of his Father, which of itself was capable of *Mutation*, and of passing *from Good to Evil*, and from Virtue to Vice, if the Father had not freed him of that Changement, by having foreseen from all Eternity, that he would be constant in doing good.

This is, says *Athanasius* and *Sozomen*, what *Arius* maintained in this Conference or Disputation of *Alexandria*, and the whole Foundation of *Arianism*; in which his Disciples have often changed several Things, as the several Conjunctures and Circumstances of Time obliged them to it.

Alexander, surprized at these fatal Consequences he had not foreseen, put an End to the Controversy, by pronouncing in favour of those who had defended the *Divinity* and *Eternity* of the Son of God; forbidding *Arius* to preach, or divulge his false Dogma, which tended towards the entire Ruin, of the first and best established Principles of the Christian Religion.——*Arius*, who saw that in a short Time he would be capable to form to himself a strong Party, which the Patriarch could scarce be able to oppose, thought proper to dissemble his Resentments, and have more Time to prepare all his Machines against his Enemies, as he did.——He began by those who had declared openly for him in the Conference, whom he easily confirmed in his Party, by representing to them the Dishonour and Shame of recanting when once one has espoused an Opinion.——Of the other three chief Priests who governed the Parishes of *Alexandria*, and who had already began to preach other Errors, he gained two, *Carponas* and *Sarmatas*; who finding that they had neither Credit nor Partisans enough, to make themselves Chiefs of a Party, acknowledged *Arius* for theirs.——As for the Third, call'd *Colluthus*, by *Epiphanius*, *Hæres.* 69. he made an Heresy apart, which not being supported with all the Spirit, and Artifices, capable to form an *Heresiarch*, was soon extinct.

Socrates, *l.* 4. *c.* 3. informs us, that *Arius* found himself soon strengthened, by near twenty Ecclesiasticks, of those who had the Reputation of being the greatest Wits, and the most learned; and of two famous Bishops, *Secundus* of *Ptolemaides* in the *Pentapole*, and of *Theonas* of *Marmaric* in *Lybia*; on which he began to think, he could act more openly, and employ all the Talents he had received from Nature, to gain Proselytes; for he had in fact the Advantages necessary to captivate the Minds and Hearts of his Auditors; he was tall of Stature, very well shaped, and of so grave and serious an Aspect, that one could have been easily persuaded, that he was a Person of an extraordinary Virtue and Piety, and of a very austere Life; to which may be added, his modest and decent Dress, his easy Access, accompanied with all the Affability and good Manners, which he employed with a great deal of Dexterity, to persuade those whom he wanted to engage in his Party.

Such as I have represented him, and believing himself strong enough, says *Theodoret*, *l.* 1. *c.* 2. to act with more Liberty, he began to preach his Doctrine in his own Church; where it was easily received by those, who used to hear him as an Oracle. He explained it in private Conferences, and in his Conversations, and used to go from House to House, to debauch, if possible, the Chiefs of the City, and especially those of the fair Sex, who were the most esteemed and respected for their Piety and Virtue; over whom he had soon gained a very great Ascendant, by his devout and insinuating Air.—At last, he made, by his Intrigues, so great a Progress, that if we believe *Epiphanius*, he found the Secret to seduce, among the rest, very near seven hundred Virgins, and devout Maids, of those who had consecrated themselves to God, in *Alexandria*, who all put themselves under his Conduct, and adhered so obstinately to his Errors, that they afterwards persisted in them, notwithstanding all the Efforts, and other efficacious Means employed to undeceive them.

That could not be done, says *Theodoret*, without an *Ecclat*, which awaken'd at last the Patriarch as from a profound Sleep, he had abandoned himself to, thro' an Excess of his natural Goodness, and the Artifices and affected Submissions, of him who only wanted to deceive him.——*Alexander* then sent for *Arius*, and having charitably reprimanded him, and reproached him, in soft Terms, with his Disobedience, and the Scandal he caused in the Church by his Blasphemies, against the sacred Person of *Jesus Christ*, he commanded him to retract: But *Arius*, puffed up with his new Conquests, (believing himself strong enough, not only to stand on the defensive, but even to attack if he could find an Opportunity of doing it to Advantage) answered impudently, and with Arrogancy, That what he had advanced was nothing but the pure and orthodox Truth; and if one of the two was obliged to a Recantation, it was he the Patriarch, who had infected his Flock with the Heresy of *Sabellius*.

Alexander finding that his Lenitives, instead of curing the Wound, served on the contrary to render it more desperate, was forced at last to have Recourse to more violent Remedies.—He convocated in *Alexandria* a Council of a hundred Bishops of the Provinces of *Egypt*, and of *Lybia*; wherein the Case having been impartially and exactly discussed; the impious Doctrine of *Arius* was condemned; and as he refused always with the same Obstinacy to abjure his Errors, he was solemnly degraded, excommunicated, and expelled with his Followers, both from the Church and the City.

The Council being thus ended, *Alexander* judged proper to inform the other Bishops, who had not been present, of the Condemnation of *Arius*; which he did by a circular Letter, which for the Description he made therein, of the Origin and Progress of *Arianism*, which has so great a Report, to the other Heresies which have been broached since in the Christian Church, I will insert here Word for Word as related by *Socrates*.

Note, That the Reader must not mistake this *Socrates* for the Philosopher *Socrates*, since this was a Christian, born under the Empire of *Theodosius*, and who has wrote the History of the Church of those Times.

A Letter of Alexander *Bishop of* Alexandria.

To our dearly-beloved and worthy Colleagues in the Ministry of the Catholick Church, Alexander, *Greeting in the Lord.*

'WHereas the Catholick Church makes up
' but one Body; and we are ordered in the
' sacred Scripture, to preserve it with Care, Peace,
' and Unanimity among us; it is just we should in-
' form one another reciprocally, of what happens in
' our

our respective Dioceses, so that if one of the Members be in Affliction, or in Prosperity, the others may condole, or rejoice with him. Perverse Men, and Enemies of our Lord, have risen lately in our Diocese, teaching how to separate one-self by Schism, which is a Disposition against the Arrival of the *Antichrist*. I thought at first to have been capable to bury that Disorder in Oblivion, and that having smothered it in the Persons of those *Apostates*, it would spread no further, to the Abuse of the too great Credulity of the Simple and Ignorant. But since *Eusebius*, who, to usurp the See of *Nicomedy*, has deserted that of *Beryte*, has took those Apostates under his Protection, and has wrote every where in their Favour, I must break the Silence, to inform you of this new Error, and to precaution you against all that *Eusebius* could write to you on that Subject. ——On this Occasion, he renews his antient Malignity and Spite, which seemed to have been defaced by Time; and though he seemingly writes in favour of those Apostates, he nevertheless consults his own Interest.——However, these are the Names of those who have separated themselves from the Church; *Arius*, *Achillas*, *Aithales*, *Carpones*, another *Arius*, *Sarmates*, *Eurouis*, *Lucius*, *Julien*, *Menas*, *Helladius*, *Gaius*, and likewise *Secundus* and *Theonas*, who formerly were called Bishops.

They advance with the greatest Temerity, but without being authorised therein by the Scripture, that God has not been always *Father*, but there has been a Time when he was not so. That the Word of God has not always been, but was created from nothing; God who is, having created him who was not, from what was not; since the Son is the Creature and the Work of his Father, who is not like unto his Father as to his Substance, nor the true Word of God, nor his true Wisdom, he being but one of his Works, and one of his Creatures; and that it is an Abuse to call him *Word* and *Wisdom*, since he has been created by the Word, and by the Wisdom which are in God, and by which all his other Works have been formed. Hence it follows, that his Nature is subject to Changement, like all the other reasonable Creatures. That the Father is invisible and ineffable to the Son, for the Son does not know him perfectly, nor can see him.——That the Son does not know his own proper Substance, has only been made for us, and as an Instrument of his Father for our Creation, for if *God* had never form'd the Design of our Creation, the Son had never been.—— Some having asked them, if the Word of God could change as the Devil has changed, they have not been ashamed to answer, that he certainly could; for he is of a Nature subject to Changement, since he can be begotten and created.——We having assembled with very near a hundred Bishops, as well from *Egypt* as from *Lybia*, have pronounced *Anathema* against *Arius*, who is the first Promoter of those Errors, and against all his Partizans. But *Eusebius* has received them, endeavouring to mix Impiety with Piety, and Falshood with Truth; but he shall not conquer, since the Truth is always Conqueror, and there can be no Society between Light and Darkness, Christ and the Devil.—Who has ever heard the like! or who could hear it without being surprised with Astonishment, and without stopping his Ears for fear they should be defiled with so much Filth? Where's the Person who hearing St. *John* say, *in the Beginning was the Word*, will not condemn those who pretend, that there has been a Time when he was not? Or who is he, who hearing these Words of the Evangelist, the *only Son*, and *by him all Things have been made*; will not be provoked with Indignation against those who affirm that the *Son* is but a Creature? For if he was but a Creature, how could he be one of those which have been made by him? How could he be the *only begotten Son*, if he was ranked among the Creatures? Since the *Father* says, *my Heart has produced a good Word*; and again, *I have begotten thee in my Bosom before the Morning Light*. How could he be of a Substance different from that of his *Father*, since he is his most perfect Image, the Splendor of his Glory, and says himself, *he that sees me, sees my Father?* If the *Son* is the *Reason* and the *Wisdom* of the *Father*, how can it be possible, that there has been a Time when he was not? It is as if they were to say, that there has been a Time, when *God* was without Reason and without Wisdom. How could he be subject to Changement, when he says of himself, *I am in my Father, and my Father is in me*; and again, *my Father and I are but one*; having said before by his Prophet, *seeing that I am, and I do not change*; for though these Words could be understood of the *Father*, they are nevertheless better apply'd to the *Son*, since he has not been changed in becoming a Man, and as St. *Paul* says, *he is the same to Day he was Yesterday, and will be the same for evermore*. But what could persuade them to advance that he has been made for us, since the Apostle assures, that *all Things* have been made for him and by him. The sacrilegious Presumption they have to advance, that the *Father* is not known perfectly by the *Son*, ought to surprise no body; for since they have declared War against *Christ*, they despise the Word, by which 'tis said, *as my Father knew me, I knew my Father*. So if the *Father* knows but imperfectly his *Son*, the *Son* can know but imperfectly his *Father*. If such a Thing cannot be said without Crime and Blasphemy, and if really the *Father* knows perfectly the *Son*, who is his Word; it is clear that the *Son* knows perfectly his *Father*. We convince them often by these Testimonies of the Holy Scriptures; but they change their Language as often as the *Camelion* changes Colours, and verify perfectly these Words, *That when the impious Man is arrived at the Height of his Crimes, he despises every Thing*. There have been Hereticks before them, whose Extravagance was extreme, but in denying the Divinity of the *Word*, they have justified those Heresies, because they have approached nearer the Impiety of the *Antichrist*. For this Reason, and no other, they have been expelled the Church, and stricken with *Anathema*. 'Tis true, that we are very sensible of their Loss, and it is with the greatest Sorrow we see them reject the Doctrine of the Church, which they had formerly professed. Moreover we are the less surprised at it, that we know the same Misfortune happened to *Hymeneus*, to *Philetus*, and to *Judas*, who after having been the Disciples of the Saviour, forsook and betray'd him; besides, we had been foretold their Apostacy, since the Lord had told us, *Matt. c.* xxiv. *Take heed that no Body seduce you, for many will come in my Name, saying, I am the Christ, and they'll seduce many; do not follow them*. And St. *Paul*, who had been instructed in the School of the Son of God, says, 1 *Epist. Tim. c.* iv. *In Times to come some will forsake the Faith, by following the Spirit of Error, and the Doctrines of the Devil*. The Lord has himself left us this Precept, and having given this Advice by the Mouth of his Apostle, we have had Reason to pronounce *Anathema* against these Men, of whose Impieties we have been Witness, and to declare them cut off from the Body of the Catholick Church. We inform you of it, our dearest Brothers, and the beloved Companions of our Ministry, lest were they to run to you, you should receive them; or lest you should mind *Eusebius*'s Letters; for we all who profess to be Christians, are obliged to avoid, as God's Enemies and Corrupters of Souls, those who speak or entertain any Sentiment against Christ; we must not so much as salute them, for Fear we should become Accomplices of their Crimes. We greet all those who are with you; those with us greet you.'

This Letter being sent by *Alexander* to all the Cities, served only to increase the Disorder, and excite the

the Dispute among the Bishops. Some approved it by their Signature, and others rejected it. *Eusebius* whom it affected, opposed it more strenuously than any other: He was then in great Credit, because the Emperor lived at *Nicomedia*, of which *Eusebius* was Bishop, and which was the Cause of several Bishops adhering to his Sentiments. He used to write continually, sometimes to *Alexander*, to desire him to renounce all Sorts of Dispute, and to receive *Arius* into his Communion; and sometimes to the other Bishops, to deter them from joining with *Alexander*; which at last filled the Church with Disorder and Confusion; for not only the Bishops were seen to dispute among themselves, with an extraordinary Warmth, but the People were also divided, and would declare for one or the other Party. The Affair was carried to such Extremity, says *Socrates*, that our Religion became at last a Subject of Raillery, and of Pastime for the Pagans on their Theatres.

But however, if *Arius* had been in some Manner disconcerted by the Decision of the *Synod* of *Alexandria*, he was not at all discouraged; that City being at that Time one of the greatest, and best peopled of all the *East*, he could easily be hidden there, and cabal by himself and his Partisans, in a Manner the more dangerous, because, not being publick, it could not be so easily opposed. In Effect, he made more Proselytes, by those secret and hidden Intrigues, than he had done yet by his Conferences and Sermons. Some presuming they had Capacity enough, to judge of the Merit of the Cause, pretended that *Arius* was in the right; and others adhered to him, according to Custom, only by a pure Love of Novelty, which has always a great many Charms for the Vulgar. Some embraced his Doctrine, purely because it had been condemned by the Patriarch; and some by a Principle of Compassion for those learned Men, (as they used to say) and those Ecclesiasticks of an extraordinary Merit, unjustly persecuted, because it was not the Pleasure of their Adversaries they should be more learned and wise than they were themselves. It even happened that *Meletius* and his Partisans, to strengthen themselves against *Alexander*, whom they hated, though they did not follow the Doctrine of *Arius*, nevertheless favoured him, and declared for him; so that in a short Time he found himself strong enough, as to hope a compleat Victory over his Enemy the Patriarch. But as he foresaw it was impossible for him to succeed so well in his Design as he could wish, without engaging a Number of Bishops in his Defence, especially those who had some Credit at Court, he sent the most learned of his Disciples to the neighbouring Bishops, to whom he wrote Letters, full of Artifices and Submissions, exposing to them his pernicious Doctrine in general Terms, which he stiled the Truth contrary to the Dogma of *Sabellius*. He added (says *Euseb. de Constant. l. 2. c. 60*) That if they were to find it Orthodox, he humbly desired them to grant him their Assistance and Protection, against the Violences of *Alexander*; if not, that he was ready to learn from them what they would be pleased to teach him, concerning a Mystery of such Importance. Through these artificial Means, he surprized at first the too great Credulity of several Bishops, who could not see the Venom hidden under the flattering Protestations of a Man, famous and persecuted; who, says *Sozomen*, threw himself, as it were, into their Arms; but he could never have made Choice of a greater and more powerful Protector, than of *Eusebius* of *Nicomedia*, who had found the Secret to insinuate himself into the Confidence of *Constantia*, the Emperor *Constantine*'s Sister, and Wife to *Licinius*. That Princess having been gained by the Dexterity and Complaisance of *Eusebius*, had took Care of his Fortune, and to introduce him at Court. This ambitious Bishop, pleased with so favourable an Occasion of making himself the Chief of a formidable Party, who he hoped would follow blindly his Interests, made no Scruple of granting his Protection to *Arius*; who by his Letters, had earnestly implored it. Therefore he sent him Word to stand firm and unchangeable in his Sentiments, that he might depend upon finding Persons that would protect and support him in so glorious an Enterprize, and that he was going to write in his Favour to the Bishops of *Palestine*, especially to *Eusebius* of *Cæsarea*, one of his most particular and intimate Friends.

Moreover *Alexander* having been informed of the Disorder caused by *Arius*'s Cabals in *Alexandria*, *Egypt*, *Thebaides*, and *Lybia*, had him followed so close, that he was forced at last, to fly with some of his Disciples into *Palestine*, where he had fixed the *Rendezvous*.——He was no sooner arrived, but as well by himself as by his Partisans, whom (says *Sozom. l. 1. c. 14.* and *Theod. l. 1. c. 5.*) he sent every where, he implored the Protection of the Bishops, particularly of those whom *Eusebius* of *Nicomedia* had disposed to receive him: He acted so well, that in a short Time he gained to his Party, *Eusebius* of *Cæsarea*, *Patrophilius* of *Scythopolis*, *Paulinus* of *Tyre*, and many others who had been persuaded to it, as much by the Favour of *Eusebius* of *Nicomedia*, as by the Artifices and Flatteries of *Arius*; who soon after requested them, that they would be pleased to grant him Leave to make Assemblies, where he might publickly teach his new Doctrine.

Those who acted in concert with him, procured a Convocation of as many Bishops as they could assemble; and granted him, in a Sort of Synod, together with their Communion, the Permission he had asked for; ordering him, however, by an Artifice concerted between them, he should neglect nothing to make his Peace with his Bishop, and thereby engage him to receive him into Favour, and restore him to his Functions. On which *Arius* informing his Protector of the Success of his Negotiation, had the Impudence to assure him, that all the Eastern Bishops, maintained his Doctrine, for which *Alexander* had also pronounced against them the same *Anathema*.

Epiphanius and *Theodoret*, say, that he went further; for having settled his Party in *Palestine*, where he preached publickly his Errors; he went to Court on Purpose to take Measures with *Eusebius*, and to act in concert in so favourable a Beginning.——*Eusebius* introduced him to *Constantia* his Protectress (*Constantine*'s Sister, and Widow of the Emperor *Licinius*) as a Person of an extraordinary Merit.——*Arius* had no great Difficulty to gain that Princess, already disposed by *Eusebius*, to receive the Venom of his Impiety; and he acted so well his Part, under the Disguise of Hypocrisy and Adulation, that *Constantia* undertook his Defence; so that as the Serpent, to deceive *Adam*, seduced *Eve* first, so likewise this *Heresiarch*, who, according to St. *Epiphanius*, *Hæres. 69.* had the Subtilty of a Serpent, the easier to deceive the World, began by corrupting the Faith of the Sister of his Prince and Master. Thus we have seen in all Ages, that as the first Falshood was introduced into the World by a Woman, it has been perpetuated in the Heresies, which are the Sequel thereof, by the Protection granted to it by some Women (Princesses not excepted) who having not Capacity enough to discover the Error, had more than a sufficient Obstinacy and Presumption to maintain it.

Having so happily began, *Eusebius* and *Arius* concluded that they should oblige the Bishops of their Party to throw off the Mask, and declare publickly in their Favour, but with such Circumspection, as could justify their Conduct near *Constantine*, and shew their Enemies in the wrong.——They then judg'd proper, that all those Bishops should write civilly to the Patriarch *Alexander*, in *Arius*'s Favour; desiring he should be re-established, since they believed his Doctrine sound and orthodox; they even were of Opinion, that *Arius* and his Disciples should write at the same Time, which they did; but the Patriarch, who knew perfectly well that all those affected Submissions

missions of *Arius* and his Partisans, were nothing else but mere Artifices to deceive him; wrote several circular Letters to all the Bishops of *Phœnicia*, *Palestine*, *Syria*, and *Asia*, wherein he exposes the Errors and Impieties of *Arius*, complaining in particular of *Eusebius* of *Nicomedia*, whom he charges with several Crimes; and of the Bishops who had declared themselves Protectors of this rebellious Priest. He wrote also to Pope *Silvester*, to inform him of what he had done against *Arius*.

Those Letters sent every where, produced various Effects, according to the different Disposition of the Persons who received them. *Eusebius*'s Partisans persisting in their former Project, desired *Alexander* to receive those Ecclesiasticks into his Communion, and to renounce a Dispute which was of no Utility to the Church.——Some wrote in general and ambiguous Terms, that they might be always in a Condition to declare themselves on the stronger Side; others without determining any Thing as to *Arius*, said that they had neither received nor rejected him.—Others excused themselves for having admitted him into their Communion, in that they were not perfectly instructed of all that had happened in his Case.

But the greatest Number was on *Alexander*'s Side; for several Bishops of all the Provinces of *Africa*, and *Asia*, having received his Letters, rejected *Arius* as an Heretick, and an Excommunicate; and in Answer to the Patriarch, sent him their Confession of Faith agreeable to his, and signed with their own Hands.

The Emperor *Constantine* having conceived a very sensible Displeasure at this Contestation, which prepared Matter of Laughter for the Infidels, and hindered them from embracing the Christian Religion, thought of smothering it in its Infancy; but as he had been misinformed by *Eusebius*, for whom he had a particular Esteem, and who had represented to him the Articles in Dispute, as meer Trifles, not at all essential to the Christian Faith, laying all the Fault on the Patriarch of *Alexandria*; the Emperor wrote to *Alexander* and to *Arius*, blaming them both, and much more the Patriarch than *Arius*, commanding them to make Peace, without contesting any longer on a Subject, which was the Cause of so much Trouble in the Church.——The Emperor sent this Letter (says *Socrat. l.* 1. *c.* 14. *Theodoret*, *l.* 1. *c.* 6. and *Sozom. l.* 1. *c.* 15) by *Osius* Bishop of *Cordua* in *Spain*, who was then at the Emperor's Court, and for whom he had a singular Veneration. *Osius* had rendered himself famous for his rare Virtue, extraordinary Capacity, and for having gloriously confessed the Name of *Jesus Christ* amidst the Torments, during the Persecution of *Diocletian*.

Constantine soon perceived that he had been imposed upon by *Eusebius*, first in the Letter he received from the Patriarch of *Alexandria*, wherein he assures the Emperor, that the Point in Agitation was not of so trifling a Consequence, as represented to him by *Arius* and his Partisans, since it was one of the most essential of the Christian Religion, even that which distinguishes the *Christians* from the *Jews*, *i. e.* the Divinity of *Christ*; from whom his imperial Majesty had received so many signal Favours and Victories; and secondly by *Osius*, who being returned to *Constantine*, gave him to understand, that nothing less than a superior Authority and the strongest Remedy, could cure those Evils, and terminate the Differences on a Subject of that Consequence; therefore *Constantine* having carefully examined the Affair, and taken the Advice of the most eminent Prelates, then near his Person, formed the Resolution to have a Convocation of all the Bishops, which could represent the universal Church, to whose Authority both Parties should be obliged to submit.——He did it with the Content of the Pope *Silvester*, who declared *Osius* of *Cordua*, *Vito* and *Vincentius*, Presbyters of the *Roman* Church, his Legates, to represent him in the future Council.

That grand Affair being resolved upon, *Constantine* chose *Nice* in *Bythinia* for the Place of that celebrated Assembly; and himself wrote to all the Bishops, to engage them to repair to *Nice* as soon as possible, ordering the Governors of their respective Provinces to defray their Expences upon the Road, taking himself the same Care, while the Council lasted.

What rendered that Assembly the most august and most venerable of all those which were seen in the following Ages, is, that there appeared there the greatest Men, and most famous Bishops of the whole Christian Church; Christian Heroes, who having confessed *Jesus Christ* amidst the Torments of the most cruel Persecution, were come to maintain his Divinity in the Council.——There were seen among the rest, the venerable *Potamius* of *Heraclea* in *Egypt*, who had lost one Eye, during the Persecution of *Maximinus*; *Paphnutius*, one of the first Disciples of St. *Anthony*, and afterwards Bishop of the superior *Thebaides*, who during the same Persecution had been condemned to the Mines, having been first deprived of his right Eye, and one of his Legs. *Paul* of *Neocesarea*, whose Hands had been burnt with red-hot Irons; besides many others, who carried yet on their Bodies the glorious Marks of the Victories they had gained, under the Persecution, over the Enemies of the Christian Name; making in all 318, from all the Churches of *Europe*, *Africa*, and *Asia*.

Eusebius of *Nicomedia* came also there, accompanied with his Partisans, who were but few, in Comparison of the vast Number of orthodox Bishops; for many of those who had adhered to him before the Council, had been afraid to follow him to so august an Assembly; of these the principal were *Eusebius* of *Cæsarea*, *Maris* of *Calcedonia*, and *Theognis* of *Nicæa*, who, with him, had denied *Christ* during the Persecution.

Mean while the Emperor came from *Nicomedia* to *Nice*, to honour the Council with his Presence, and to give the necessary Orders; he received all the Bishops with an Affability which was natural to him, and by the extraordinary Respect he shewed them, engaged all his Court to follow his Example. He took Care of their Subsistence, and that they should be lodged commodiously; even ordering that, to give a greater Authority to the Council, all the Assemblies should be held in the imperial Palace; which he would have magnificently furnished for that Purpose; that thereby he might have the Glory and Pleasure of consecrating to *Jesus Christ*, the Majesty of his Empire.——One Thing happened at that Time, which manifested the Greatness of his Soul, the Strength of his Genius, and his Zeal for Religion, which was, that some Bishops having taken this Occasion to present Memorials full of Complaints and Accusations against their Brethren; the Emperor obliged the Accusers to appear before him on a certain Day he had fixed, said he, to do them Justice. Accordingly they all appeared that Day before *Constantine*, who (says *Rufin. l.* 1. *c.* 2.) having their Libels in his Hand, spoke to them in this Manner, 'You must 'have a Day fixed, and a Judge to determine your Dif-'ferences. That Day will be the Day of the univer-'sal Judgment, and your Judge *Christ*; as for me 'who am but a Man, it don't belong to me to judge 'those he has established in his Place as Gods, to 'judge us in the most important Affairs, which are 'those of Religion. I know it to be your Duty to 'behave in such a Manner, as by the Integrity of a 'Life agreeable to your Condition, you may be al-'ways ready to appear at that Tribunal; but I know 'also, that I must have such Respect for your sacred 'Character, that if even I was to see any of you 'commit a Crime, I should think myself obliged 'to *cover you with my Purple*, to hinder you from 'being exposed to the Insults of those who could see 'it. Believe me, follow the Example of God, who 'is so ready to forgive us our Offences, and having 'all but one Soul and one Mind, be united together, 'by a perfect and sincere Reconciliation, to treat 'seriously

'seriously this grand Affair of the Faith, for which 'you are here assembled.'—— At the Conclusion of this Discourse he called God to witness, says *Theodoret* and *Sozomen*, that he had not read a single Word of their Libels, which he had all thrown into the Fire in their Presence, desiring they would all meet the Day fixed for the Opening of the Council.

There was no resisting that Order, which was received by the Bishops, as if spoken by God himself; and those who had made those Complaints, seeing it would be not only in vain, but even dangerous to repeat them, joined with the Rest to begin the Council at the Day fixed, which was the 19th of *June*, 325.— Seats had been prepared for that Purpose, on the Right and Left of the great Hall, which was in the Middle of the Palace, for the three hundred and eighteen Bishops, and for the Theologians of either Side, who should be called to offer their Reasons.—— Every one of the Fathers took his Place according to the Rank of his Church.—— The Legates of Pope *Silvester*, who first subscribed to the Council, took also the first Places, together with the Patriarch of *Alexandria*, on the Left Hand (which in all the sacred and ecclesiastical Ceremonies was the most honourable,) opposite to it on the Right, was placed the Patriarch of *Antioch*, with that of *Jerusalem* next, and all the other Bishops in Order on both Sides.—— A magnificent Throne had been erected in the Middle of the Hall, on which was placed the Book of the Gospel, as representing *Christ* himself.

Things being thus disposed, the Fathers entered the Council, and held their Sittings regularly every Day, beginning by the Examen of the most important Affair, which was that of *Arius*.—— They began, according to Custom, by reading his Doctrine, which he had delivered in Writing, in the Form of a Profession of Faith; but when the Council heard that the Son of God had not been from all Eternity; that he was a *Creature, form'd of nothing*; the three hundred Bishops could not help shewing by exterior Signs, how much they abhorred and detested such Blasphemies; but however, to observe the Formalities requisite on such Occasions, and act according to the Rules of a just Judgment, they ordered *Arius* should be heard in his Defence, who accordingly was heard often in the Council, and had all the Liberty allowed him, as well to justify himself, as to answer all that was objected against his Doctrine, especially by *Athanasius*, Deacon of *Alexandria*, whom his Patriarch had brought to the Council, on Purpose to oppose him to *Arius*, as the most learned of all those he had himself instructed in the Doctrine of the Church.—— *Athanasius* discharged the Trust reposed in him, with so much Judgment, Learning and Eloquence, that he filled the whole Council with Admiration, and the *Arians* with Confusion, for which they could never forgive him afterwards.

We learn from *Rufinus*, *Sozomen*, and *Nicephore*, that when the Controversy among the *Theologians* was over, the Fathers used to examine, by themselves, all that had been produced or advanced on either Side, and make an exact Discussion of all the Passages of the Scripture, which those *Theologians* had offered to support their respective Sentiment.

The *Arians*, who saw, by the unanimous Disposition of the Fathers to oppose their Doctrine, that they ran the Risk of being condemned by the Council, if they could not disguise their Sentiments under some Expressions which they could afterwards interpret in their Favour, and which at the same Time might be agreeable to the Orthodox; offered at last, to confess that the *Word is God, and of God*.——But as the Fathers perceived that, even in that, there was some Artifice, since the same Expressions could be extended even to Men, they desired the *Arians* should add to it, that he was *the Wisdom*, and *perfect Image of his Father subsisting within him, and always immutable in every Thing*; the *Arians* consented also to this, expecting to find, even in these Expressions, some Evasions, which could favour their Doctrine, for, said they then among themselves, *the same Thing may be said of Man, who is also called in the Scripture the Image of the Glory of God*.——Therefore, the Fathers, seeing that there was no trusting to the Sincerity of the *Arians*, nor no depending on their Promises, consulted among themselves how to find some Expressions, which could express clearly the Sense of the Council, without being subject to Equivocation: The Letters of *Eusebius* of *Nicomedia*, furnished them with what they wanted, for remembring then they had read in those Letters these Words; *if we say that the Son of God is uncreated, by that we confess he is* CONSUBSTANTIAL *to his Father*; they understood, thereby, that those Hereticks hated nothing more than that Word ομοουσιον, *Consubstantial*, which in Fact destroyed entirely all their Errors, in exposing clearly this Truth contained in the Scripture, that the Son is not only a Likeness of his Father, but is of the same Substance with him, and consequently eternal, uncreated, not made, but begotten; as wise, as good, and as potent as his Father; therefore to bring the *Arians* to the Orthodox Belief, and to cut off at one Blow the Heads of that *Hydra*, ARIANISM, it was proposed to them to sign the *Consubstantiality* of the Word. But when they saw themselves so closely pursued, as to admit of no Evasion or Equivocation, they threw off the Mask, and protested they would not do it; which was enough to convince the *Orthodox*, that the *Arians* never designed to act with Candour and Sincerity; therefore from that Time the Fathers took the Resolution never to abandon that Expression ομοουσιον, *Consubstantial*, which henceforward should be a Mark of Distinction between the *Orthodox* and the *Arians*; so that, as there was no Proceeding further in the Council, each Party persisting in his Resolution, the Fathers were obliged to inform *Constantine*, that there was nothing left to do, but to fix a Day for the Decision of that grand Affair by a solemn Judgment, which the Emperor had declared he would honour with his Presence.

The Day being come, says *Eusebius*, *l.* 3. *c.* 10. The three hundred and eighteen Bishops came soon in the Morning to take their Places in the Hall; and waiting in Silence the Arrival of the Emperor, for whom a Chair of State had been prepared at the upper End of the Hall, in the Middle, between the two Ranks of Bishops; so that those who were on the left Side of the Hall, says *Sozomen*, *c.* 18. had the Right of the Emperor, and those on the Right, his Left.— At the Sound of the Trumpets, which announced his Arrival, all the Fathers rose from their Seats to receive him, with all the Respect due to the Master of the World, which they shewed by a Sort of religious Veneration, when they saw him in the Pomp of a Majesty, which represented more perfectly than ever that of God himself.

That Prince was the finest Man in the whole World, his Height above the common, and extraordinarily well-shaped; he had a very agreeable Face, and though then above 50, he was of a very good Constitution, had a very fine Complexion, says *Nicephore*, *l.* 8. *c.* 16. and 55. a very great Sweetness in his Features, fine Eyes, full of Vivacity, and a certain Air of a virile Beauty, which joined to that of a Hero, claimed the Admiration, and almost the Adoration of the whole World.—— He was dressed that Day in Purple, like a *Roman* Emperor, his Head, instead of Laurels, which he had quitted ever since he became a Christian, to have nothing which could smell of Paganism, was adorned with a Sort of Diadem, enriched with Jewels.

In that State he crossed all the Chambers and Halls of his Apartments, and when he came near that of the Council, he ordered his Guards to retire, and entered the Place, with only the Officers of his Houshold, who accompanied him, and who were all Christians.——'Twas then he appeared to the whole Council as an Angel sent from Heaven; for in Fact, there had not been seen yet the human Greatness,

Greatness, and the Christian Humility so judiciously allied on so great a Prince, as on that Occasion; passing through the Middle of the Hall between the Bishops, who all saluted him with a great Deal of Respect; he went to place himself on his Seat, from whence he saluted all the Fathers with an Air of Goodness which ravished the whole Assembly.—— He had ordered his Seat should be lower than theirs, to shew the Honour he did to the Church represented by so holy an Assembly; but he would also have it of Gold, and placed at the upper End, to render to its Dignity what was due to it.—— He would not seat himself before the Bishops had obliged him to it, which shewed the Deference he had for the spiritual Powers; but to act at the same Time, as a Master, he seated himself first, all the Bishops standing, 'till he had ordered them to sit likewise.

As soon as the whole Assembly was sat, the Patriarch of *Antioch*, *Eustathius*, began the Ceremony, says *Theodoret*, *l.* 1. *c.* 7. by a short and strong Harangue on the Subject of so august an Assembly.—— 'He returned Thanks to God for having given them a Prince, to whom he had also given the Empire of the World, to establish therein the true Religion, which he maintained with his Arms, his Laws, and his Examples; that in exterminating the Tyrants, he had also destroyed a Tyranny much more cruel than theirs, that is to say, that of the Devil; that his Temples were ruinated, his Altars thrown down, and his Sacrifices abolished.—— That Light had succeeded to Darkness, Truth to Falshood, and the Worship of the true God to Impiety, which had triumphed during so many Centuries; that, at last, instead of Creatures and Devils, who had so long usurped the Divine Honours, *the Father*, *the Son*, *and the Holy Ghost*, THREE PERSONS IN ONE GOD, was then adored throughout the whole World.—— That such Thing was in Fact the *Master-piece* of his Power and Piety, which God would have perfected by his Hand; but that the same great Architect, expected also, from him, he should not suffer *Heresy* to destroy so precious a Work.—— That to attack the great Mystery of the Trinity, and divest *Christ* of his Divinity, was endeavouring to ruin the Foundations of the Christian Religion.—— That the Devil, who is the Author of Idolatry, seeing it ruined by the Arms and Piety of *Constantine*, was attempting to re establish it in another Manner among the Christians, by the Malice and the Errors of *Arius*. For if he had persuaded the Idolaters to adore a Creature, like God, he would make Use of that Heretick, to oblige the Christians to place among the Creatures the God whom they adored.—— Therefore it was of *Constantine*'s Glory and Piety to destroy the Work of the Devil, in preserving that of God, and to deliver the Church from an Enemy, who made a more dangerous War against it, by his Impiety, than all the Tyrants by the Fury of their Persecutions had ever done.'

The Patriarch having ended his Discourse; the Emperor, keeping his Seat, and with a becoming Majesty, which commanded the Attention of the whole Assembly, spoke in the following Terms, transmitted to us by *Eusebius*, *Sozomen*, *Theodoret*, *l.* 1. *c.* 7. and *Nicephore*, *l.* 8. *c.* 16.

'If I am the most obliged of all Mankind to return Thanks to the great God of Heaven and Earth for so many Favours and Benefits I have received from his munificent Hand, I must confess that it is on this Occasion, I am more particularly obliged to acquit myself of that Duty; since in seeing you all assembled in this sacred Council, I receive the greatest Good I have ever desired, to deliver us from the greatest Evil. We have vanquished the Tyrants who had declared War against the true Religion, which we have made so gloriously triumph over all those merciless Enemies, by so many Victories which we are indebted for to the omnipotent Saviour of the World, who has made us conquer, while fighting under his Standards.—— I thought nothing remained to do after that Triumph, but to reap, in a perfect Tranquillity, the Fruits of those happy Successes, by making flourish throughout this Empire the Worship of the true God, who is the Author of all these Benefits.—— This was what I was preparing myself for, when I heard, with Sorrow, that we had yet to fight a still greater Enemy than all the Tyrants, I mean that unhappy Division, which the Devil, to be revenged of the Loss of his Altars, and of his Sacrifices, has spread amongst you on the most essential Points of Religion.— This is, (and you know it by a fatal Experience) the most terrible of all the Persecutions the Church could suffer. Since the Rage of those we have vanquished, could attack but the Body, which they rendered still more glorious, by the Marks of the Constancy of the Soul, which we have the Satisfaction to admire yet in those illustrious Confessors of *Christ* we see in this Assembly.—— But the Rage of Division spreading itself in the Minds, and penetrating the Hearts, spirits up the one against the other, troubles the Peace, and destroys the Faith, by rendering it uncertain, fills all with Trouble and Confusion, and exposes our Religion to the Blasphemies of our Adversaries, who make Use of our Divisions to turn us into Ridicule.—— I thought nothing could cure those Evils but the whole Church, *acting under Authority*, in this holy Assembly. I have contributed all in my Power towards its Convocation; and now that I see it so numerous, and so full of so many great Men, I feel within my Soul a Joy which is inexpressible; for I do not at all question, but as you are here all re-united in one and the same Body, you are also to re-unite in one and the same Spirit, to restore to the Church its former Peace and Tranquillity.—— Act then, Ministers of the Living God; act together, and in Concert, to appease the Disorder, in deciding by the Oracles of the sacred Books, what must be our Belief on the Points in Dispute. You have yet the Liberty to declare freely your Sentiments on that Subject; but they must be all re-united at last, in one and the same Sentiment, which will end the Controversy.— I command you to do it, as your Emperor and Master, and desire it, as one, who has the Honour, like you, to be the Servant of the same Lord, and of the same Master, we all serve, and we all worship.— If you do it you'll render to God a very agreeable Service; and I must say it, you will oblige your Emperor, who expects that from you as a Favour which I'll never forget.'

Eusebius, and his Partisans, seeing very well that there was no Resource left for them, if in *Constantine*'s Presence, they could not gain something by the Dispute, made their last Efforts, to defend their Doctrine, or to elude a definitive Judgment by the Difficulties they would start up. The Orthodox, on the contrary, stood firm in the Defence of the Truth, and, strengthened by the Presence of a Prince, who had so much Zeal and Piety, opposed with a still greater Zeal, than they had done yet, the great Truths of the Scripture, and the antient Belief of the Church, from the Time of the Apostles 'till then, to the false Subtilties of the Hereticks; so that their Minds being over-heated on each Side, the Contestation was carried further than it had ever been on the like Occasion.

Constantine, who was willing to re-unite their Spirits by fair and easy Means, heard them on both Sides with an admirable Patience, praising these, moderating the Heat and Passion of those, speaking familiarly to all in *Greek*, and forgetting nothing of what an excellent Moderator could do, to end the Dispute as happily as this was ended in the Council.

In Effect, as soon as by the Emperor's Order the Suffrages were asked for, more than three hundred Bishops having with an unanimous Consent declared for the Truth, which they had always defended with so much Constancy in the Dispute; the *Son of God* (to *Constantine*'s

Constantine's great Satisfaction,) was declared CONSUBSTANTIAL to his Father, and perfectly equal to him in all his divine Perfections, according to the Formule of Faith made by *Osius*, one of the *Presidents* of the Council, with the Condemnation of *Arius*'s Doctrine, reduced to some Propositions which were anathematised, together with those, who should have the Temerity to maintain them.

Eusebius of *Nicomedia*, and sixteen Bishops of his Partisans, willing to make a last Effort, opposed the Decree, and rejected with Scorn the Word *Consubstantial*; but *Constantine*, says *Sozomen*, *c.* 20. declared immediately, that he would have what had been decreed, inviolably observed, and those who should refuse to submit to it, sent into Exile, as impious Men, who had the sacrilegious Temerity to oppose the Decrees of God himself. This was the Cause that some of those who were not willing to incur the Emperor's Indignation, or to lose their Bishopricks, chose rather to yield to the Torrent, and to sign what was desired of them. But among the rest *Eusebius* of *Cæsarea*, who having hesitated at first what he should do, and had even protested he would not do it, finding, after a serious Reflection, that it was better to keep his Metropolitan Church, and the Favour of the Emperor, than that of *Eusebius* of *Nicomedia*, whose Party he had espoused for no other Reason, than to be capable, through his Means to advance himself at Court.—— Therefore the Day following he came to the Council, and signed publickly, and without Restriction, the CONSUBSTANTIALITY of the *Word*, and the Condemnation of *Arius*; though in his Letter to his Church, he wrote a few Days after, says *Athanasius*, *De. Decr. contr. Ar.* he used so much Disguise and Artifice, in explaining the Term *Consubstantial*, that it plainly appears, that to save his Honour, he would have it understood, that he had not changed, but always understood it in the Sense he gave it then.

Moreover the Bishop of *Nicomedia* surprised to see himself deserted by the greatest Part of his Creatures, began to consult with the few left near him, how to find some Means to divert the Tempest, without being obliged to subscribe to the Formule, which was offered to them; and they judged that there was but one Expedient left, which was to present another Formule, conceived in Terms less odious, which the Council could receive for the Sake of Peace, and which themselves could interpret afterwards in their Manner, and in the hidden Sense they kept within themselves.—Having then composed that Formule, they presented it to the Council, as if it had contained the same Doctrine, which had been just established, and differed only in some certain Expressions, which were not capable to hinder the Union among them. But after it had been read, without having found in it the Term *Consubstantial*, nor the Condemnation of *Arius*, who had been anathematised, because he persisted in his Heresy, then the whole Assembly, says *Theodoret*, *l.* 1. *c.* 7. cried with one Voice, that the Formule was nothing else but a pure Illusion, which under ambiguous Terms disguised the Error to hinder its just Condemnation; and which provoked so much the Indignation of the Council, that the Formule was tore in Presence of the Bishops, who had presented it, who were called then publickly Rebels to God, and Traitors to Religion. That Action surprised so much *Eusebius*'s few Partisans, that *Menophantes* of *Ephesus*, *Patrophilus* of *Scythopolis*, *Narcissus* of *Neronias*, and *Maris* of *Calcedonia*, who were the most considerable among his Friends, forsook him, and went to sign the Formule of the Council; so that none remained with *Eusebius* but *Theognis* of *Nicea*, *Theonas* of *Marmarick*, and *Secundus* of *Ptolemaides*.

Notwithstanding all this, *Eusebius* could not be persuaded yet to submit, so unwilling is the Chief of a Party, especially in Matters of Religion, to lose the Credit and Authority he has acquired over his Partisans.—— For that End he found out a Subtilty, which he judged very proper to protect him against the Thunder, which he feared from the Council, by his Deposition, and from *Constantine*, by being sent into Exile.—— There were two Parts in the Formule drawn by *Osius*; one was the Profession of Faith we make every Day in the Symbole of *Nice*, wherein the Term *Consubstantial* is implied; the other was the Condemnation of certain Propositions, extracted from the Discourses and the Books of *Arius*. The first contained only the Right, in the simple Exposition of the Catholick Truth; and the second contained the Right and the Fact joined together, in the Condemnation of *Arius*'s Doctrine.—*Eusebius*, after having carefully examined that Formule, concluded that, to puzzle the Fathers, he had nothing else to do, than to make a Distinction between the Right and the Fact, and thereby save *Arius*'s Doctrine.—— He represented then, to the Council, in the most respective Terms, says *Sozom. l.* 1. *c.* 20. 'That he submitted to all its Decisions which related to the Faith, 'and consented to subscribe to it, even admitting 'the Term *Consubstantial*, in its true Signification, 'and consequently maintained no Error; but as for 'the Condemnation of *Arius*, he could not subscribe 'to it; not that he would reject all the Points of 'Faith which had been decided, but because he did 'not believe the Person accused guilty of the Errors 'attributed to him; on the contrary, he was entirely 'persuaded, as well by his Letters, and by the several Conferences he had had with him, that he had 'quite other Sentiments than those for which he was 'condemned.'—— It is difficult to imagine a greater Boldness, and less supported with Sense and Judgment, than was that of this Bishop on this Occasion, since the Fathers had the Writings of *Arius*, which had been read and examined in the Council; himself had often been heard in the Dispute, and permitted to explain his Sentiments; and his Protector had nevertheless the Impudence to maintain, that the Sense of that Heresiarch had not been very well understood, which was a Fact he could by no means call in Question.—Therefore the Council, justly provoked at his unjust Proceeding, and seeing him remain inflexible, and to refuse obstinately to subscribe to the Condemnation of *Arius*, the four Bishops were at last condemned as Hereticks, and deposed, the Council being persuaded that *Constantine* would confirm their Judgment.

They were not frustrated in their Expectation, for the Emperor condemned *Arius*, and the four Bishops, who had refused to subscribe to his Condemnation, to Exile.—— That just Severity of *Constantine*, even against the Person who was supposed to have so much Credit at Court, by the Favour of the Empress *Constantia*, struck the Rebels with Fear, conquered their Pride, and obliged them to do, at least outwardly, all that was desired of them.—— For *Arius* first, and his two principal Disciples, *Euzoius* and *Achillas*, affecting to be entirely undeceived, desired the Fathers with all the Submission imaginable, that they would admit them into their Presence, since they were ready to submit to every Thing without Exception. Accordingly the Council, imitating the Goodness of him they represented, received their Request, and they were admitted into the Assembly, where having given satisfactory Answers to every Thing that was asked of them, and abjured their Heresy, they were re-established in the Exercise of their Ministry, but on Condition they should not re-enter *Alexandria*, where they had caused so much Disorder.—— The two *African* Bishops, *Theonas* of *Marmarick*, and *Secundus* of *Ptolemaides*, the two first, who had been seduced by *Arius*, whom they had followed blindly since, followed also his Example on this Occasion, and were likewise received into Favour.

Eusebius of *Nicomedia*, seeing himself thus deserted by every Body, even by the very Person who had been the Cause of all the Disorder, began to think that if he persisted in his Sentiments, he should certainly lose his fine Bishoprick, and have the Decree of the Emperor executed against him; with his faithful Companion *Theognis* of *Nicea*, the only one of his

his Partisans determined to follow his Fortune, presented a Request to the Council, desiring the same Favour which had been granted to *Arius*, since they were determined to submit their Judgment to that of the holy Council, and to do whatever should be asked them.——The Fathers, who wished for nothing more than to see the Re-union of all the Members of the Council, received those two Bishops with open Arms, who by a sincere Repentance seemed to return to their Duty. This Step taken by *Eusebius*, and the pressing Sollicitations of the few Friends he had at Court, engaged the Emperor to forgive him, therefore he was once more re-established by the Council, and retaken into the Favour of his Prince; so that the Heresy of *Arius* was at last condemned by an unanimous Consent of 318 Bishops, who all subscribed to that Condemnation, and to the Formule of Faith, which established the *Consubstantiality* of the Word: Though *Socrates* assures us, that *Arius*, *Eusebius*, and *Theognis* persisting in their Obstinacy, were sent into Exile by the Emperor; and that it was after they were arrived at the Place of their Banishment, that they presented their Retractation.——The same Historian speaks in very advantageous Terms, of the Reconciliation to the Council of *Eusebius*, Bishop of *Cæsarea*, who as we have observed already, having made Difficulty at first, to receive the Formule of Faith, consented at last to sign it with the rest of the Fathers; and sent it thus signed, says *Socrates*, to his Diocesans, with an Explication of the Term *Consubstantial*, for Fear the Difficulty he had made to sign it at first, should make them question the Purity of his Faith. This is the Manner he wrote to them on that Subject; as related by the same *Socrates*, *l.* 1. *c.* 8.

'You must have learned already, dearly beloved, 'what has been decreed in the sacred Council of '*Nice*, concerning the Faith; since Fame anticipates 'always the most exact and most particular Relations. But for fear it should have related Things 'otherwise than they have happened, I have judged 'it proper to send you the Formule of Faith, such 'as I have proposed it, and with it the Additions 'made to it by the Fathers, before it was published. '—— This is ours, such as it has been read in Presence of the Emperor, and approved by the Council; such as we have received it from the Bishops 'our Predecessors; such as we have learned it from 'our Infancy, when we received the Baptism; such 'as it is contained in the holy Scripture; such at 'last, as we have taught it, as well in the Order of 'Priesthood, as in the episcopal Dignity, and such 'as we all profess, at present.

'We believe in one God, Father Almighty, who 'has created all Things visible and invisible, and in 'one only Lord Jesus Christ, *Word of God*, God of 'God, Light of Light, Life of Life, only Son, 'first formed of all the Creatures, begotten by God 'the Father, before the Times, by whom all Things 'have been made, who has took Flesh for our Salvation, and has conversed among Men, who has 'suffered and risen the third Day; who ascended to 'his Father, and who is to come again full of Glory 'to judge the Living and the Dead. We believe 'also in the Holy Ghost. We believe the Existence 'and Subsistance of each of them, that the Father 'is truly Father, the Son truly Son, and the Holy 'Ghost truly Holy Ghost, as our Lord declared it, 'when he sent his Apostles to preach the Gospel, 'saying, *Matth. c.* 28. *Go and teach all People, baptizing them in the Name of the Father, and of the Son, and of the Holy Ghost.* We protest that we 'believe that Faith, that we have always believed 'it, and that we'll believe it to the latter End of 'our Days; condemning the Impiety of all Heresies. We also protest in the Presence of the 'omnipotent God, and of our Lord Jesus Christ, 'that we have retained sincerely all these Things 'ever since we have been capable to know ourselves, 'and are ready to shew by unconteslible Proof, and 'to convince you that we have always been of that 'Belief, and always preached it. When we proposed 'this Formule of our Faith, no Body found Fault 'with it. Our Emperor, God's beloved, approved 'it first, and exhorted the others to sign it, in adding only to it the Term CONSUBSTANTIAL, 'himself explained that Term, saying that he did 'not understand it of the Proprieties of the Body, and that he did not believe he subsisted of the 'Father by Division or by Section; because an incorporeal and intellectual Nature cannot have a corporeal Property, and that must be understood in a 'spiritual and divine Manner. Thus it was explained by that wise and religious Prince. The Bishops 'taking Occasion of that Term of CONSUBSTANTIAL, drew up the following Formule.'

SYMBOLE.

'We believe in one God, Father Almighty, who 'has created all Things visible and invisible; and 'in one only Lord Jesus Christ, God, only Son, 'begotten by the Father, that is to say, of the Substance of the Father, God of God, Light of Light, 'true God of true God, who has not been made, 'but begotten; who has but one same Substance 'with the Father, CONSUBSTANTIAL to the Father, and by whom all Things which are in Heaven and on Earth have been made; who is descended from Heaven for us miserable Men, and for 'our Salvation, who was incarnated, became a Man 'and has suffered, who rose the third Day, has ascended into Heaven; from whence he is to come 'to judge the Living and the Dead. We believe 'also in the Holy Ghost. As to those who say that 'there has been a Time when he was not, and that 'he was not before he was begotten, that he has 'been made of what was not before; that he is of 'another Nature and of another Substance than the 'Father, that he is created and subject to Changement; the holy Catholick and apostolick Church 'pronounce *Anathema* against them.

'When they had dictated this Formule of Faith, 'we thought it our Duty to examine what they had 'said, that the Son was of the Substance of the Father, 'and CONSUBSTANTIAL to the Father. Several 'Questions and Answers were made to discover the 'true Sense of those Terms. They confessed that 'the Sense was, that the Son is of the Father, but 'not as one of his Parts. We believe it just to receive that Sense, because it is a wholesome Doctrine 'to say that the Son is of the Father, but not as a 'Part of his Substance. We receive that Idea, and 'we do not so much as reject the Term CONSUBSTANTIAL, for the Good of the Peace, and for 'fear, *in doing it*, we should deviate from the Truth. 'We have approved for the same Reason, *begotten*, 'and not *made*; because they say that the Term '*made*, is a Term common to all the Creatures 'made by the *Son*, to whom he is not *semblable*, being of a superior Nature; that he has his Substance 'from the Father, according to the Scripture, by a 'secret Generation which no Spirit can comprehend, 'nor no Discourse express. That Manner thereof 'the Son is CONSUBSTANTIAL to the Father, having been examined, it was agreed that it was different from that of Bodies; because it is not by Division of Substance, nor by a Changement of the 'Nature and the Virtue of the Father. That when 'it is said that the Son is *Consubstantial* to the Father, 'nothing is thereby understood, but that the Son of 'God has no Likeness with the Creatures who have 'been made by him; but that he has a perfect Likeness with his Father, by whom he was begotten; 'that he is of the Father, not of another Hypostasis, 'nor of another Substance. That Doctrine having 'been explained thus, we believe we ought to approve it, because we have found that antient 'Bishops and learned Writers have made Use of 'the Term CONSUBSTANTIAL, to explain the

'Divinity of the Father, and of the Son. This is 'what I had to say to you, relating to the Faith 'which has been proposed in the Council of *Nice*, 'and to which we have all consented, not without 'Consideration and Deliberation; but after we have 'examined in the Presence of the most religious Em-'peror, the Sense that I have inserted here, and ap-'proved it for the Reasons above-mentioned. We 'have also consented, without Difficulty, to the *A-'nathema* which has been pronounced after the For-'mule of Faith, because it forbids to make Use of fo-'reign Terms, and different from those expressed in 'the Scripture, it being certain that from those fo-'reign Terms proceed all the Differences and Trou-'bles in the Church. The Scripture dictated by the 'Holy Ghost, having then never made Use of these 'Terms of *what is not*, it has been a Time when *he 'was not*, and the like quoted in the same Place; 'we have not thought it reasonable to use them or 'to teach them. We have the more willingly sub-'mitted to the Decrees of the Council in this Parti-'cular, in that we never used to employ those Terms. 'We believe it our Duty, dearly beloved Brothers, 'to inform you of all these Things, that you may 'judge with how much Prudence and Deliberation 'we have suspended or given our Consent, and to 'let you know how much we have had Reason to 'resist, almost to the End, while we were shocked 'at certain Terms which had been reduced into 'Writing; but at last, we have received without Con-'testation, what, after a mature Examination, we 'have found agreeable to the Faith we have always 'professed.'——This Letter, says *Socrates*, was sent by *Eusebius* to *Cæsarea* of *Palestine*.

The same Historian gives us also an Extract of another Letter written by the Emperor *Constantine* himself, to the Church of *Alexandria*, on the same Subject, which, to confound the *Arians* of these present Times, I'll insert here as I have translated it, as well as that of *Eusebius* of *Cæsarea*, Word for Word, from an Original in *Socrates*'s History.

Constantine *August, to the Catholick Church of* Alexandria.

'BEloved Brothers, Greeting. We are indebted 'to the Divine Providence, for having de-'livered us from Error, and re-united us in the 'same Faith. The Devil will have no longer any 'Power against us, since all the Machines he had 'raised for our Destruction are entirely ruinated. 'The Truth has appeased our Differences and Tu-'mults, its Strength has conquered the Malignity of 'our Inveteracies, Disputes and Jars. We all believe 'and worship the same God; to obtain this salutary 'End I have assembled, by his Succours, a great 'Number of Bishops at *Nice*, with whom I, who 'make but one amongst you, and consider as an 'Honour to serve the same God with you, have ex-'amined the Truth. We have seriously and impar-'tially examined all that could be the Subject of 'Disputes and Controversies. I pray God to forgive 'to some, the Impudence and Enormity of the Blas-'phemies they have vomited against the Honour of 'our Saviour, against the Hope of our Salvation, 'against the Authority of the Holy Scripture, and 'against the Truth of our Faith, more than 300 'Bishops all reputable for the Eminence of their 'Learning, and for their Moderation, having all 'agreed to the Truth of our Faith, which according 'to the holy Scripture, can be but one; none but '*Arius*, deceived by the Craft of the Devil, has 'spread the Error amongst us, and afterwards among 'others. Let us receive the Doctrine we have re-'ceived from God Almighty. Let us return to our 'Brothers, from whose Society that wicked Mi-'nister of the Devil had separated us. Let us 'make Haste to be re-united to our Body and to our 'Members. The Prudence, the Religion, and the 'Holiness you profess, oblige you to have Recourse 'to the Grace of God, after you have discovered 'the Errors of him who is certainly the Enemy of 'Truth. The Doctrine the 300 Bishops have agreed 'upon cannot be but the Doctrine of God; and 'we are obliged to believe that they have all been 'inspired by the Holy Ghost, who has discovered 'to them his Will. Let none of you doubt, let 'none differ. Re-enter all quickly the Road of 'Truth, so that when I shall come to you, I may 'return Thanks to God, that he hath re-united you 'all in the Truth of Faith, by the sacred Tie of a 'Christian Charity. God preserve you, dear Bro-'thers.'

This is what the Emperor wrote to the People of *Alexandria*, continues *Socrates*, to assure them that the Decisions of the Council had not been made without Reflection, but after a very serious and impartial Examen; that nothing had been dissembled or omitted; and that every Thing had been proposed which could have contributed towards discovering the Truth; so that there remained no Subject of Controversy or Dispute: And to say all in a few Words, he called the Sentiments of the Bishops assembled at *Nice*, the Sentiments and the Will of God, and that he did not question but their Union was procured by the Holy Ghost.

Socrates recites another Letter of the Emperor, against *Arius*, and his Partisans in the following Terms.

Constantine *Conqueror, most Great, August, to the Bishops, and to the People.*

'ARIUS having followed the Example of the 'Impious and of the Wicked, deserves to be 'covered in Infamy with them. As *Porphyrius* an 'Enemy of the true Piety has composed Books a-'gainst the Christian Religion, which have rendered 'his Name odious to all honest People, and those 'Books have been suppressed; we have judged pro-'per that *Arius*, and his Partisans should be called, 'henceforwards, *Porphyrians*, that they might be 'stigmatized with the Name of him they have imi-'tated in his Impiety. That if some of *Arius*'s 'Books should be found, we condemn them to the 'Flames, to hinder their being transmitted to Po-'sterity; and whosoever shall be found to have hid-'den some of *Arius*'s Books, instead of burning 'them, shall be punished with Death. I pray God 'preserve you.'

Every Thing having been thus happily terminated at *Nice*, the Council which had begun the 19th of *June*, according to *Euseb. l. 3. de vit. Const. c.* 14. was concluded the 25th of *August*, of the same Year 325, and after the Bishops had been splendidly entertained for several Days successively, after the Conclusion of the Council, by *Constantine*, who loaded them with Presents, they all prepared to return to their respective Dioceses; carrying along with them, all over the Earth, the Trophies of *Jesus Christ*, and the Glory of *Constantine*.

The Patriarch *Alexander* was no sooner arrived at *Alexandria*, Conqueror of the *Arians*, but he applied himself wholly to keep them in their Duty, and to make them observe with the greatest Exactness the Decrees of the Council; placing the Schismatick to the lower Rank, as the Council had ordered it; and as *Arianism* had began by a Priest who governed then one of the Churches of *Alexandria*, he would not suffer since that a Priest should preach there; and notwithstanding his great Age, and the vast Number of Inhabitants, he reserved to himself the Power of Preaching, which according to *Sozomen, l. 7. c.* 19. was practised by his Successors for a considerable Time afterwards.

Moreover *Alexander* did not enjoy long the Fruits of his Victories, for he died full of Years, and of good

good and truely christian Deeds, five Months after his Return, and was succeeded in the Patriarchate by one *Theonas*, elected by the schismatick Faction. But he lived but three Months after his Election, which had always been considered as void, by the People of *Alexandria*; and as soon as *Athanasius*, whom his Patriarch had sent to Court, about the Affairs of his Church, was returned, the Synod of all the Orthodox Bishops of *Egypt*, *Lybia*, *Thebaides*, and of *Pentapolis*, chose him, to the incredible Joy of all the People, who came from all Parts to ask, as they did, that *Athanasius* should be placed on the Throne of St. *Mark*.

The Heterodoxes irritated at that Election, and perceiving that *Athanasius* acted with a still greater Zeal than his Predecessor had done, rebelled openly against him, and caused more Trouble in *Egypt*, than had done the Authors of their Schism. *Eusebius* of *Nicomedia* in particular, who had concerted *Athanasius*'s Ruin, strengthened by the Party of the *Meletians*, whom he had found the Secret, by his Intrigues, to engage into the common Cause, against the Patriarch of *Alexandria*, began to execute what he had projected against him.——Persuaded that the surest Expedient to succeed in his Enterprise, was to prejudice the Emperor against *Athanasius*, which could not be done otherwise, than persuading him that *Athanasius* disturbed, by his Violences and Oppressions, the Peace and Tranquillity *Constantine* had procured to the Church in the Council of *Nice*; made use for that Purpose, of some Schismatick Bishops he had sent for from *Egypt*, who being introduced to *Constantine* by *Eusebius*'s Friends at his Court, threw themselves at his Feet, 'imploring his Protection, says *Sozomen*, *l.* 2. *c.* 21. 'against a young Man, who was upheld by *Alexander*, 'his Protector, who had even designed him for his 'Successor, against the Laws and the Liberties of the 'Church, had seated himself, by Surprise, and the 'Faction of some Bishops, who had elected him 'clandestinely, upon the episcopal Throne of *Alexandria*. That they had suffered his Intrusion rather 'than disturb the Peace, if the Intruder, abusing of 'an Authority he had stolen, had not exercised 'throughout all *Egypt* a Tyranny very little different 'from the Fury of the Persecutions of *Licinius* and '*Maximinus*; that under the specious Pretext of having 'the Laws of the Council observed, he made the 'Christians suffer Torments, which the *Pagans* them'selves had spared them; that therefore they desired 'his Majesty, whom they considered as their Master 'by his Power, and as their Father by his Goodness, 'to employ the one to deliver them of so much Mi'sery, and to make Use of the other to maintain 'them in their Right, and in their Order, and to 'make them enjoy the Peace he had lately given to 'the Church.'

The Emperor answered, says *Eusebius*, *l.* 5. *c.* 22. That 'he wished for nothing more than for the Peace 'of the Church, as it had been established in 'the Council of *Nice*; that he was glad to see them 'ready to submit to it. That he would write into '*Egypt*, to be informed of the Truth of those Things 'alledged by them, and take Care that the Peace should 'be religiously observed, according to the Decisions 'of the Council.

Mean while *Eusebius*, who was willing to re-establish *Arius* on *Athanasius*'s Ruin, dispatched a Man, whom he instructed how to behave, with Letters to the Patriarch, in which he desired him, in a civil Manner, to re-establish *Arius* in *Alexandria*, himself having been Witness of his Submission, and the Obedience he had rendered to the Council; that it was enough to fulfil the Decree, he had been a Year without returning thither, and that the only Means to make a good Reunion, was to take off that Distinction which henceforward would be too odious and might cause new Troubles.

The Envoy, who found *Athanasius* not at all disposed to give a favourable Answer to *Eusebius*'s Letter, following the Instructions of his Master, (who all the while had foreseen the Refusal,) threatened the Patriarch, and told him in private, that he was lost, if he refused to oblige Persons, who, being secretly supported by all who were the most in Favour at Court, had in their Hands an infallible Means to accelerate his Ruin. The Patriarch answered with great Calmness, that he would satisfy his Conscience, and answer the Person who had sent him.

In Effect, we see in *Athanasius*'s *Apologetick*, that he wrote to *Eusebius*, that as the Hereticks and Penitent Schismaticks ought to be reconciled, the Chief of the Party, and the Authors of Heresy, condemned publickly by the Church, were not to be trusted. That for his Part he was fully determined never to receive them in *Alexandria*.—— And as he heard the Calumnies of his Accusers near the Emperor, he wrote to him, that *John* and all the others who went every Day to Court to complain of him, were Schismaticks, who had been sacrilegiously ordained against the Decrees of the sacred Council; that they were joined in Interests with the *Arians*, and had even embraced their Errors; and that the one and the other renewed the antient Disorders throughout all *Egypt*, committing a thousand Outrages against the Orthodox, whom they endeavoured to ruin at Court by their Calumnies.

The Emperor, whose Intentions were just, hearing Things so contrary on both Sides, did not know what Resolution to take, nor even what to believe of it, when the crafty *Eusebius*, who perceived his Embarras, told him that the surest Means to compose all those Differences in *Egypt*, without being obliged to examine what had been objected on either Side, was to receive those who desired the Peace of the Church, and to be received into the same Communion, particularly *Arius*, wished for in *Alexandria* by all honest Men, and whom *Athanasius*, who did not love him, and was glad to find the Occasion of being revenged of a learned Man suspected to him, would always persecute as an Enemy, contrary to the Peace and Tranquillity of the Church, since he could object nothing against *Arius*, who ever since the Conclusion of the Council had shewed all Submission and Obedience to it.

Constantine, who loved passionately the Peace of the Church, which he considered as his Work, and was already irritated to see it disturbed by these new Disorders, to the Prejudice of his Authority, was easily prejudiced against *Athanasius*, and thought that so unhappy a Change could not have happened in *Alexandria*, without his having occasioned it by his too great Severity. Therefore laying hold of the Expedient offered by *Eusebius*, he sent two Gentlemen of his Houshold, *Synclytius* and *Gaudentius*, to the Patriarch, to whom they delivered the Emperor's Letters, in which, after having reproached him with his Severity, which was the Cause of so much Trouble, he ordered him to receive into the Church all those who should present themselves, and particularly *Arius*, who had given so many sufficient Proofs of the Purity of his Faith. That if he refused to do it, he would soon send Persons, who would oblige him to quit a Place he seemed to be unworthy of, and transport him to another, where it would not be in his Power to offend any Body.

Athanasius, who discovered in the Emperor's Letters the Artifices of *Eusebius*, answered *Constantine*, with a Liberty truly sacerdotal, and with an extreme Respect as to his Master; and made him so well understand, that *Arius* was nothing else but a perfidious Man, who made a Jest of the Church by persevering in his Heresy, under the Favour of a false Signature, and that to introduce him into *Alexandria* was introducing *Arianism*, that at last he dissuaded him, or at least hindered him from pursuing an Affair, which would have been attended with fatal Consequences.

Eusebius, disappointed in this, raised several other Batteries against St. *Athanasius*, even so far as to accuse him of the greatest of all Crimes, which was that of having attempted to suborn with Money one *Philu-*

Philumenes, to undertake something against the Emperor, but *Athanasius*, whom that Prince had sent for, on the first Accusations, being arrived at *Nicomedia*, shewed so plainly the Falshood of so horrible an Accusation, that the Prince, persuaded of his Innocence, by his Answers, and of his Capacity by the Conferences he had with him, sent him back to his Church with Praises, protesting that if he had called him it was only to hear him, not to judge him, since that Judgment belonged to the Church.

This Storm having been thus happily dissipated, and the Calumniators *Eusebius* of *Nicomedia*, *Theognis* of *Nice*, *Arius*, and his Disciple *Euzoius* sent into Exile, *Athanasius* could not have suspected that any Thing else could have raised the Courage of his Enemies, so as to pursue him again near *Constantine*, who himself had so gloriously witnessed his Innocence; but as he had to encounter with Hereticks, who are never disconcerted by the Discovery of their Falshoods, but on the contrary, support them with new ones, which puzzle the Minds, and make one doubt if he has not been himself deceived when he thought to have discovered the first; *Eusebius* made use of the Favour of his Protectress, *Constantia*, to have himself recalled from his Banishment, which was no sooner done, but he renewed his Attacks against *Athanasius*, and as he had accused him already of all the Crimes his Malice, Spite, and Revenge could suggest against him, Murder excepted; thinking that nothing else was capable to ruin him without Resource, he employed, in that Design, one *Arsenius*, Bishop of the *Hypselites*, who had hid himself for some great Crime he had committed, and whom they pretended had been killed by *Athanasius*, his declared Enemy, who had also cut off one of *Arsenius*'s Hands, to make use of it in his Malefices.

This Accusation having been brought to *Constantine* by *Eusebius*'s Emissaries, that Prince ordered that that Affair, which he thought, was of the greatest Consequence, should be carefully inquired into, and intrusted his Nephew *Dalmatius* with it, who was then at *Antioch*, ordering him to do Justice without Remission, if any Body was found guilty of so great a Crime; but as a Bishop was to be judged, he joined two Bishops in the Commission, *viz.* *Eusebius* and *Theognis*; who had took Care to affect a great deal of Moderation in that Affair, as if they had not been Parties concerned.

Dalmatius, to execute the Orders of the Emperor, cited *Athanasius* before him to answer for the Crime laid to his Charge. He little minded at first this Accusation, trusting to his Innocence; but when he saw that he was pressed hard, and that *Constantine* had taken that Affair at Heart; he had *Arsenius* so well inquired after, says *Socrates* and *Sozomen*, that he was found hidden in a little Monastery of *Thebaides*, where the Superior, who was of *Eusebius*'s Faction, and had already made *Arsenius* escape, was seized together with a Monk, who had conducted *Arsenius* through the *Nile*. These having been examined by the Governor of *Alexandria*, confessed all the Treachery. It even happened that those sent in Pursuit of *Arsenius* were so happy as to meet with him at *Tyre*, where having been convicted, and confessed, at last, before the Bishop *Paul*, that he was the true *Arsenius*, he was secured. After which the Patriarch sent his Deacon *Macarius* to *Constantine*, to inform him of all that had passed, and carry to him those convincing Proofs of the Calumny of his Adversaries. The Emperor was so sensibly affected with it, that having immediately revoked *Dalmatius*'s Commission, he wrote to *Athanasius* in the most obliging Terms, ordering him to have his Letters read publickly to the People of *Alexandria*, to undeceive them, protesting that, if even those Calumniators were guilty of the same Malice, he would have them punished with all the Severity of the Law.

But *Constantine*, who was easily surprised by a false Appearance of Piety and Religion, and had not in those Affairs all the Resolution he shewed in others, having the Complaisance to listen to the false Insinuations of some hypocrite Bishops *Eusebius* had placed near him, he was soon persuaded by them, that there might have been some Artifice in *Athanasius*'s Proceedings, and that for the Good of the Church, a Point of that Consequence should be cleared by infallible Means.—— That Advice given by Bishops, for whose Character, and seeming Virtue, *Constantine* had a singular Veneration, made a strong Impression on his Mind; therefore he ordered that that Affair should be revived and discussed in an Assembly of Bishops, who should be answerable for it to God; and fixed at that Time *Cesarea* of *Palestine* for the Place of that Assembly; but reflecting afterwards, says *Eusebius*, *l. 4. De Vit. Constant.* that *Cesarea* might be suspect to *Athanasius*, because of *Eusebius*, who was Bishop thereof, he appointed *Tyre* the Metropolis of *Phænicia*.

The Intentions of the Emperor on that Occasion were just, though they had very fatal Consequences, through the Perfidy of those Hypocrites, who deceived him, and who instead of a Synod, made of it a *Conciliabule*, against all the Formalities of the Church. For, first, none were called to that Assembly but those whom *Eusebius* had named to *Constantine*, and who were all *Arians*, or *Meletians*, and all in *Eusebius*'s Interest.— These were the two *Eusebius's*, *Theognis* of *Nice*, *Maris* of *Calcedonia*, *Theodorus* of *Laodicea*, *Patrophylus* of *Scythopolis*, *Ursasius* and *Valens*, Bishops, one of *Singidonum*, and the other of *Mursia* in *Pannonia*, and others, to the Number of Sixty.— They had also obtained of *Constantine*, the Count *Denis*, to keep Order, as it were, and to prevent the Trouble and Confusion those Sorts of Assemblies used to be accompanied with; but in Fact to render himself Master of every Thing, and to make Use of his Authority, or rather of his Violence, to do whatever he pleased.—— In Fact the Count entered the Council, as he would have done a Field of Battle, accompanied with Officers and Soldiers, who rendered themselves Masters of all the Doors, and ranged themselves round the Seats, as ready to execute at the first Notice, the Orders which should be given them. *Denis* commanded, imposed Silence, threatened, disposed of every Thing, and was in Fact the President of the Assembly, according to *Eusebius*'s Desire; so that there was never an Assembly more contrary and more opposite to the sacred Council of *Nice*, where the Emperor himself would enter without being followed by his Guards, and where, far from presiding, he chose a Seat lower than those of the Bishops.

Athanasius, who had been cited to appear at that Council, refused at first to do it, and to acknowledge as lawful an Assembly, composed of his most inveterate Enemies, who had plotted his Ruin; but the Emperor already irritated against him, for his having refused also to go to *Cesarea*, and was pre-occupied of that false Opinion, that it was impossible to procure the Peace of the Church, but through those Means; had him told, that if he would not obey willingly, he would force him to it; so that not to irritate more that great Prince, who perhaps would have thought him guilty, if he had persisted longer in his Refusal, and to hinder his Enemies from accusing him of Rebellion and Contumacy, as they had done, when he refused to go to *Cesarea*, he came to *Tyre*, accompanied with forty-seven of the most celebrated and most holy Bishops of all *Egypt*, who came to defend their Patriarch. Among them were those two glorious Confessors of *Jesus Christ*, *Paphnutius* and *Potamon*, whose glorious Wounds they had received in the Defence of the Faith of *Jesus Christ*, reproached the *Eusebians* with their Cowardice, and their Apostacy in sacrificing to Idols to avoid the Torments of the Persecution.

When the Patriarch entered the Council, no Body took Notice of him, and instead of the first Place, he was to take as Bishop of the first See of the oriental Church, he was not so much as suffered to set down, but was commanded to stand up in the Presence of his Accusers,

Accusers, to hear and answer to the Crimes exhibited against him.——*Epiphanius Hæres.* 68, says, that the holy Bishop of *Heraclea*, *Potamon*, could not bear so great an Indignity, nor refrain his Tears no more than his Zeal, which made him come forth, (and with that generous Liberty, which his Age, his Virtue, and the Advantage he had to carry the Marks of his Confession, gave him,) said to *Eusebius* of *Cesarea*, whom he perceived among the Judges, 'What then, 'Eusebius, I see thee sitting to judge *Athanasius*, and 'that great Man, who is Innocency itself is here 'standing before thee, expecting thy Judgment? 'Couldst thou persuade thyself there could be in the 'whole World a Soul so base, to suffer such Indignity, without resenting it? Tell me, I desire thee, 'if thou hast Presumption enough to answer, tell me, 'if thou wast not in the same Prison with me under 'the Persecution of *Maximinus*, when, through the 'Grace of *Jesus Christ*, having always refused to sacrifice to the Idols, I had my Right Eye pulled out, 'and my left Leg cut off? I cannot walk one Step 'without remembring it, and though I have but one 'Eye, I see nevertheless well enough to observe that 'thou hast two, and that thou art not disfigured by 'any Wounds; is it for having confessed *Jesus Christ* 'that the Tyrant has treated us with so much Barbarity, and spared thee? Tell us by what Artifice thou 'was set at Liberty, while we, loaded with Chains, 'were conducted to the Supplice, and afterwards 'condemned to the Mines? is it because being more 'complaisant than we, thou kneweſt better how to 'please *Maximinus*, by burning Incense before him, 'as well as before his Idols?'——*Eusebius* was so irritated at those Reproaches, that, rising all on a sudden from his Seat, he quitted the Assembly, followed by all his Partisans.

The next Day those unjust Judges having re-entered the Council, *Athanasius* protested he could not acknowledge his Enemies for his Judges; that he was accused by the *Eusebians*, who had long since declared against him for no other Reason, but because he had always opposed the Doctrine of *Arius*, condemned as a Heresy by the Council of *Nice*.——That Protestation caused a great Confusion in the pretended Council, and was look'd upon by *Athanasius*'s Enemies, as a manifest Rebellion against the Emperor, who himself had chose his Judges as Persons of a known Integrity, and altogether irreproachable; and the *Meletians* adding that Crime to so many others they had forged, would have had him condemned by the Judges, who wanted nothing but a Pretext as specious, and as plausible as this to pronounce Sentence against him with some Appearance of Justice; therefore to take off that Advantage, he followed the Advice of the Bishops who accompanied him, and resolved himself to answer, even before that pretended Council, believing as they did, that the Proofs of his Innocency, and the Calumnies of his Adversaries were so manifest, that a Judge, let him be ever so unjust, who could be plainly convinced of it, as they were to be, would not condemn him.

The first Crime he was accused of was also the first Thing which declared him innocent, and convinced his Adversaries of the most horrible Malice.—They had introduced into the Council, says *Theodoret*, *l.* 1. *c.* 30. a common Strumpet, who complained in a lamentable Manner, she had received *Athanasius* in her House on his Passage, with all the Respect due to his Dignity, who had violated all the Laws divine and human, by debauching her in her own House. That when he saw he could not conquer her Constancy by his infamous Sollicitations, he had used Violence, had entered her Chamber in the Night Time, and ravished, by main Force, her Virginity, which she had consecrated to God; to which Accusation the Patriarch was ordered to answer; but as he had received Information under-hand, that such an infamous Woman was to be produced against him, and knew besides, that that Woman had never seen him, he left one of his Deacons to answer, whom the Prostitute took for him, protesting that he was the Person who had ravished her, and demanded Justice for so enormous a Crime. Then *Athanasius* asked the Judges, that since the Imposture had been discovered, the Woman should be seized, to know of her who were the Authors of the Calamny; but these crying in Confusion, that there were a great many more Charges against him, favoured her Escape; and mean while ordered *Athanasius* to answer on the *Homicide* he was accused to have committed on the Person of the Bishop *Arsenius*, presenting him at the same Time with the Hand of a dead Man.——*Athanasius* asked his Accusers, says *Socrates*, *l.* 1. *c.* 29. if they knew *Arsenius*, and several answering that they knew him perfectly well, he had him produced in the Assembly with both his Hands hidden under his Cloak. As soon as he appeared, the Patriarch asked them once again, if that Man was that *Arsenius* whose Hand was cut off, for methinks, says he, that Man has two Hands. All, except those whose knew from whence the Hand came, were very much surprised, for the others thought *Athanasius* would make his Defence in another Manner. The Conviction of this second Imposture, so shameful and so criminal, proved a Subject of Despair for those who had invented it. *Acab*, or *John*, one of the Accusers, escaped in the Crowd.

The *Eusebians*, thus disappointed in their Accusations against *Athanasius*, began to examine that formed against *Macarius* his Deacon, who by his Orders had insulted, as was pretended, a Priest, whom he had falsely accused of not being such. The poor Deacon was produced in the Council loaded with Chains.——*Athanasius*, who had *Macarius*'s Innocence more at Heart than his own, undertook also his Defence with greater Zeal. He accused first *Eusebius* and his Partisans, alledging that none was to be judged by his Enemies; he pretended afterwards, that it was to be proved that *Ischirus*, who was the supposed Person oppressed and maltreated by *Macarius*, had been honoured with the sacerdotal Dignity. Moreover the Judges went through the Examen of that Affair, without the least Regard to *Athanasius*'s Exceptions; but because the Accusers wanted Proofs, the Decision of that Affair was postponed till a farther Information of the Truth, which was to be made in the *Mareotis*, the Place where the Crime was pretended to have been perpetrated.——Seeing that *Theognis*, *Maris*, *Theodorius*, *Macedonius*, *Valens*, and *Ursacius*, the same he had accused, were those appointed to take the Informations, he complained loudly that it was a Deceit and an Illusion, and that it was not just that while *Macarius* was in Chains, the Accuser should go to inform with the Judges; but now having in vain protested against such Injustice in the Presence of the Bishops, and of *Denis*, Governor of the Province, without any Body minding his Protestation, he withdrew secretly.—Those who had been sent into the *Mareotis*, made the Informations conform to the Intentions of the Accusers, and brought them to *Tyre*.

Mean while *Athanasius* went to the Emperor for Refuge, and was condemned by the Council for having withdrawn. The Deposition having been brought from the *Mareotis*, they deposed him, as convicted of the Crimes of Rebellion, Sedition, Violence against the Bishops, Homicide, Sacrilege and Witchcraft.——They afterwards received *Arsenius* into their Communion, whom they had pretended to have been killed.

The Bishops assembled at *Tyre* went to *Jerusalem*, where they were called by the Emperor, for the Celebration of the Dedication of the new Church he had built there, upon the Sepulchre of our Blessed Saviour, and after the Feast, received *Arius* into their Communion, according say they, to the Emperor's Intentions, who had informed them that he was very well convinced of the Sincerity of his Faith, and of that of *Euzoius* his Companion.—They wrote to the Christians of *Alexandria*, that *Envy* having been banished (meaning *Athanasius*) the Church enjoyed then a profound Tranquillity, and that *Arius*, having acknow-

acknowledged the Truth, they had received him into their Communion; they alſo took Care to inform the Emperor of the ſame Facts.—While they were writing this Letter, they received one from *Conſtantine*, by which he called them all to *Conſtantinople*, in order to examine a-new, the Affair of *Athanaſius*, who had implored his Protection.——This is *Conſtantine*'s Letter, as extracted from *Socrates*, *l.* 1. *c.* 34.

Conſtantine *the Conqueror, moſt Great, Auguſt, to the Biſhops aſſembled at* Tyre.

'I Do not know what you have judged in your Council, in a turbulent and diſorderly Manner; but thoſe Troubles and thoſe Tempeſts you have excited through the Deſire of Diſpute and Controverſy, without any Regard to the Will of God, is very prejudicial to the Truth. But the divine Providence will appeaſe one Day thoſe Diſputes, and ſhew with what Sincerity we thirſted after the Truth, and with how much Care we have always avoided being partial in our Judgments. Come to me, to give me an Account of what has been tranſacted amongſt you; you'll learn by what follow the Motives of this Order.——As I was entering this City on Horſe-back, the Biſhop *Athanaſius* with ſome Eccleſiaſticks appeared among the People; I had not known him, if ſome of my Retinue had not told me who he was, and repreſented to me the Injuſtice he had ſuffered. I could not then ſpeak to him, and he aſking for an Audience, I refuſed it, and was very near ordering him to withdraw. He ſtill inſiſted upon it, and declared he aſked for nothing more than that you ſhould be ordered to come to *Conſtantinople*, that he might convince me of the Violences he has ſuffered. His Requeſt appearing to me reaſonable, and conformable to my Manſuetude, I am reſolved you all, who have aſſiſted at the Council of *Tyre*, ſhall come here to ſhew in my Preſence the Equity of the Judgment you have pronounced.—Come then with all Speed, and be perſuaded that I'll uſe all my Endeavours to preſerve the Laws of God, and to hinder them from being violated, and will puniſh its Enemies, who under Pretext of Piety, pronounce Blaſphemies.'

This Letter threw the Biſhops of the Council into ſome Confuſion, ſo that ſeveral of them inſtead of obeying the Emperor's Orders, return'd to their reſpective Churches: But *Euſebius*, *Theognis*, *Maris*, *Patrophilus*, *Urſacius*, and *Valens*, came to *Conſtantinople*, where without mentioning the Crimes laid to *Macarius*'s Charge, they forged another Calumny againſt *Athanaſius*, and made the Emperor believe, that he had threaten'd to ſtop the Corn exported every Year from *Alexandria* to *Conſtantinople*. The Accuſation was ſupported with the Evidence of four Biſhops of thoſe who had accompanied *Athanaſius* to the Council of *Tyre*, but whom the *Euſebians* had found the Secret to debauch from him; the Emperor deceived by the falſe Appearance of the Virtue and Impartiality of thoſe perfidious Friends, ſent *Athanaſius* into Exile at *Treves*, a City of the *Gauls*.—Some Authors are of Opinion, that he baniſh'd him for no other Reaſon, than to procure the Re-union of the Church, and becauſe he refuſed to receive *Arius* into his Communion.

The Emperor, who wanted to know by himſelf, *Arius*'s Sentiments, (who had rendered himſelf ſtill more ſuſpect to *Conſtantine*, ever ſince his Return to *Alexandria*, where he was endeavouring to propagate his Errors to the Scandal of the Orthodox, who had refuſed him the Entrance of their Churches) ſent for him, and aſked him if he conſented to all that had been decreed in the Council of *Nice*. *Arius* anſwered without Heſitation, he did, and ſigned it that very Inſtant. The Emperor ſurprized at it, aſked him to confirm his Signature by Oath, which he did alſo. But *Nicephore*, *l.* 8. *c.* 51. aſſures, that for an Evaſion in this Caſe, *Arius* had hid in his Boſom a Formule he had ſigned, which contained his impious Doctrine, and that on that he ſwore he believed ſincerely and without Exception, what he had ſigned; after which he was ſent to *Alexander*, Biſhop of *Conſtantinople*, to be received into the Communion of the Church.——That Order was given on *Saturday*; therefore *Arius* expected to aſſiſt the next Day at the Aſſembly of the Faithful.

Accordingly the next Day, very ſoon in the Morning (according to *Rufinus*, *l.* 1. *c.* 2. *Sozom.* *l.* 2. *c.* 23. *Socr.* *l.* 1. *c.* 25. *Niceph.* *l.* 8. *c.* 51.) *Euſebius* accompanied with a vaſt Number of his Partiſans, went to take *Arius* in his Chamber, which was in one of the Apartments of the Palace, to conduct him, as in Triumph thro' the City to the Great Church to have him received to the eccleſiaſtical Communion, in Preſence of the People aſſembled to ſee the Ceremony. But he little thought that the Divine Juſtice was ready at Hand to ſtop the Courſe of his Crimes; for as he approached the Place of *Conſtantine*, where that Prince had erected a magnificent Column of Porphiry, he was ſuddenly ſeized with a panick Fear, cauſed by the Image of his Perjury, and which was ſo violent, that finding himſelf forced to eaſe Nature, he went in Haſte to a neighbouring publick Place, where he expired, voiding his Inteſtines with his Excrements. *Euſebius* who had been obliged to ſtop, having waited ſome Time, afraid that *Alexander* ſhould ſeize the Church, ſent ſome of his Attendants to haſten *Arius*; but to his Confuſion, learned the deplorable Condition he had been found in.——The News of ſo fatal an Accident ſoon ſpread all over the World, and *Conſtantine* ſeemed very much pleaſed at it, and returned Thanks to God for having ſo clearly evidenced and confirmed the Council of *Nice*, in which he perſiſted to his Death, which happened ſoon after.

Socrates, *l.* 1. *c.* 26. *Sozomen*, *l.* 1. *c.* 32. *Rufinus*, *l.* 15. *c.* 11. *Euſebius*, *l.* 4. *c.* 53. aſſure us, that *Conſtantine* was in the thirty-ſecond Year of his Empire, and in the ſixty-fifth of his Age, when he found himſelf attacked with a violent Malady, which increaſed every Day; and that after he had uſed in vain the Hot-Bath of *Conſtantinople*, and thoſe of *Helenopolis* in *Bithynia*, he had himſelf carried to *Acherona*, a Palace he had near *Nicomedia*; there as he perceived by his Diſtemper's increaſing, that Death was near, he met it with the ſame Magnanimity, he had ſeen the moſt formidable Powers of the Earth at his Feet; he made his Will, and divided the Empire between his Children, granting ſeveral very conſiderable Privileges to *Rome* and *Conſtantinople*.——He intruſted with that Will, a Prieſt, who had been recommended to him by his Siſter *Conſtantia*, and whom he had diſtinguiſhed ever ſince by ſome ſingular Mark of his Favour; commanding him to deliver it to none but to his Son *Conſtantius*, to whom he had left the Empire of the *Eaſt*, and died a few Days after in the Abſence of all his Sons.

After *Conſtantine*'s Death, *Conſtantius* his Son, to whom he had left the Empire of the *Eaſt*, having been infected with *Arianiſm*, by *Euſebius* of *Nicomedia*, and the Prieſt whom *Conſtantine* had made the Depoſitary of his Will, ſuffered the Orthodox to be perſecuted; and though *Athanaſius* had been ſent back to *Alexandria* by *Conſtantine*, who by the Emperor's Will had been made Maſter of Part of the Weſtern Empire, he liſtened to the Tales and Calumnies forged againſt him by his antient and moſt inveterate Enemies the *Arians*. On thoſe falſe Accuſations *Conſtantius* had been inclinable enough to have baniſhed *Athanaſius* of his own Authority; but as he was afraid of his two Brothers *Conſtantine* and *Conſtans*, whom he knew favoured the Patriarch; to do it with ſome Appearance of Juſtice, he had Recourſe to the intriguing *Euſebius*, who perſuaded the Biſhops his Partiſans to ſend a Deputation to *Rome*, to carry to the Pope, and to the two Emperor's of the *Weſt*, the

new Accusations which had been intended by them against *Athanasius*.——The Patriarch, who was soon informed of this Determination of the *Arians*, assembled a Synod at *Alexandria*, of all the Bishops depending of his Patriarchate; who having consulted together on that Affair, wrote an excellent synodal Letter to the Pope, and to all the Catholick Bishops throughout the whole World, containing a Justification of *Athanasius*'s Conduct, and an exact Refutation of all the old and new Impostures, wherewith the *Arians* had attempted to blacken and distress his Innocence. Saint *Athanasius* himself assures us, in his Letter *ad Solitarios*, that the Affair was soon concluded before *Constantine* and *Constans*, who having discovered by the Answers of the Priests of *Alexandria*, sent by *Eusebius* and his Party, the Weakness and Impudence of the Accusers, had them shamefully banished from their Presence.

The *Eusebians* met with more Credit at *Rome*; for Pope *Julius*, who had succeeded *Marcus* in that See, willing to observe some Formalities in the Decision of that grand Affair, had a Council assembled at *Rome*; where *Athanasius*, and his Adversaries, were cited; *Athanasius* obeyed the Citation, and was received by the Pope, with great Marks of Distinction and Respect. *Baronius ad An.* 340. *n.* 11. says, That it was then he composed his admirable Symbol which he presented to the Pope, as a Confession of Faith. That excellent Piece was deposited in the Archives of the *Roman* Church, together with the Acts of the Council; and as it was found a long while after, and when it was thought quite lost, it was judged proper, in Honour to the Memory of so great a Man, to render it publick, by inserting it in the Liturgy, as the most perfect Expression of the Catholick Faith, against the Impiety and Blasphemies of *Arianism*.

The *Eusebians*, who had no Design to come to *Rome*, after they had amused the Pope, for a whole Year, under some frivolous Pretences and Excuses, assembled to the Number of ninety in a Council, by *Constantius*'s Order, which *Eusebius*, heretofore of *Nicomedia*, then of *Constantinople*, had procured.——The Case of *Athanasius*, though it had been referr'd to the Pope's Decision, was the first Thing agitated in that Council; the chief Point of the Accusation against him, was the same which had been carried to the Pope, and to the two Emperors of the *West*, to which were added, says *Sozomen*, *l.* 3. *c.* 5. the supposed Crimes for which he had been deposed at *Tyre*; and was again deposed anew. ——They proceeded afterward to form a Confession of Faith, which might be received by the whole Christian World; wherein, after they had protested, that far from being *Arians*, they had themselves the most contributed towards *Arius*'s Conversion; They professed, 'one only God, Creator of all Things, 'and his only Son, who has been, with his Father, 'before all Ages, and by whom all Things have 'been made, and who will be King and God for 'evermore.'——But when they began to consider that this Formule, so different from that of *Nice*, would render them suspected, they formed another a few Days after, which by the numerous Praises they gave to the Son of God, was enough to have surprized and deceived the whole Christian World; for they added to that Formule, besides all the Titles of Honour given by the Scripture to the Son of God, That 'they believed him God according to the Gospel, 'which says, *and the Word was God*; that he was 'uncapable of Mutation, the Image of the Divinity, 'of the Essence, and Glory of his Father, without 'any Difference; and at last that they confessed the 'Father, the Son, and the Holy Ghost, three distinct 'Persons, and who are but one in Sentiment and 'Will.'——Afterward they anathematized those who should say, 'That there has been some Moment 'when the *Word* was not yet begotten by the Father, 'or that he is like one of his Creatures.'——This is certainly Orthodox, when very well understood in the Sense of the Scripture; and therefore they repented soon that they had said so much, by confessing that he was the Image of the Substance and of the Divinity with the Father, without any Difference, απαραλλακτον εικονα: Therefore they chose a third Profession of Faith, which was proposed by *Theophranius*, Bishop of *Tyanea*; in which, confessing that the *Word* was the only Son of God, begotten of his Father before the Time, perfect God of a perfect God, they suppressed, as in the First, the Words ομουσιος ομοιουσιος, Essence and Substance.

The *Eusebians* deputed four of their own Party, to carry this Confession of Faith, together with Letters against *Athanasius*, to the Emperor *Constantius*.——While they were thus triumphing over *Athanasius*, the Bishop of *Rome*, *Julius*, who knew nothing of their pretended Council at *Antioch*, had assembled one at *Rome* of more than fifty Bishops, where, the Acts of *Tyre* having been carefully examined, and *Athanasius* heard in his Defence, his Innocence was declared in that Synod, by a canonical Judgment, *Julius* received him into his Communion, and at his Table, and sent him to his Church to oppose all that his Enemies could undertake against his Authority during his Absence.

Eusebius having learned what had been done at *Rome* against him and his Party, dismissed the Pope's Legates, and wrote very insolent Letters to *Julius*; in which, without making the least Mention of what had happened in his Council at *Antioch*, he complained that he undertook to examine an Affair which had been decided already in a Council: He added, on purpose to insult him, that he should have wrote to him in another Manner than he had done, contenting himself with a single Letter for all; that though he was Bishop of a greater City, he was not however greater in Dignity; and that he should not have received into his Communion, those who had been condemned by other Bishops.——Afterwards he persuaded *Constantius*, that his Authority was compromised in that Affair; that it was a Point of his Honour to maintain an Election which had been made in his Presence, (meaning that of *Gregory*, whom they installed Bishop of *Alexandria*, in St. *Athanasius*'s Place,) and that he ought not to suffer so bold an Enterprise of the Bishop of *Rome* in his Empire; but on the contrary give Orders that *Gregory* should be re-established in the See of *Alexandria*; which *Athanasius* himself in his Epistles *ad Solitarios* informs us, was executed, by the Emperor writing to *Philagrius*, Governor of *Egypt*, that he was sending *Gregory* with Troops to take Possession of the See of *Alexandria*, that he must have his Orders published, to establish him, and all those punished who should presume to oppose it; and afterwards sending *Gregory* accompanied with 5000 Men of his best Troops, commanded by a Lieutenant General, and with *Arsacius* one of the chief Eunuchs of his Palace, to see his Orders executed.

That Troop of Banditti was no sooner arrived at *Alexandria*, but they began by attacking with Fire and Sword all the Churches, where they perpetrated all Sorts of Cruelties, Impieties and Sacrileges; in those holy Sanctuaries, all the Orthodox were inhumanly beaten or murdered; the Virgins were violated, and the Altars profaned, either by the *Jews*, who came thither to renew the Rage and Blasphemies of their Ancestors, or by the Gentiles, who sacrificed Birds and Fruits to their Idols; the Bishops themselves who were then at *Alexandria* were not spared, for some of them were cruelly beaten, and others imprisoned. And the glorious Confessor of Christ *Potamon*, the most strenuous Asserter of the Faith of *Nice*, received then by *Gregory*'s Orders, so many Blows upon his Head, that he was left for dead upon the Place, and died a few Days after, receiving then the Crown of Martyrdom, which *Maximinus* had refused him, by contenting himself with only depriving him of one of his Eyes. ——But however *Gregory* and *Philagrius* had not the cruel Satisfaction they expected of seizing *Athanasius*,

nasius, who had the good Fortune to escape their Rage, by hiding himself during that violent Tempest, and afterwards fled to *Rome*, with those of his Priests who were not fallen in the Persecution.——In the Interim, *Eusebius* the greatest of *Athanasius*'s Enemies died.

Pope *Julius*, and *Constans* Emperor of the *West*, the better to remedy all those Disorders caused in the Oriental Church by the *Arians*; with the Consent of *Constantius* Emperor of the *East*, to whom he had wrote on that Subject, assembled a Council of more than three hundred orthodox Bishops at *Sardick*.——On the other side the *Eusebians* to the Number of very near eighty, came also to *Sardick*.——At the Opening of the Council, the Cause of *Athanasius* having been examined, he was declared Innocent, and re-establish'd in his See, to the general Applause of the whole Assembly, who admired his Constancy; and the Accusations and the Proofs produced by the Bishops present, and by the Deputies of several Towns and Churches, against the *Arians*, having been examined likewise; their Chiefs, *Theodorus* of *Heraclea*, *Stephen* of *Antioch*, *Acacius* of *Cæsarea*, *Menophantes* of *Ephesus*, *Acacius* of *Singidunum*, *Valens* of *Mercia*, &c. were excommunicated.—There was nothing done in this Council with relation to the Faith, which was ordered to be kept, such as was contained in the Symbole of *Nice*.——The *Arians* on their Side having deserted the Council of *Sardick*, assembled at *Philippopolis*, where they condemned the Term *Consubstantial*.——These two opposite Councils having been brought to a Conclusion, the Bishops on both Sides retired to their respective Churches.

Constans Emperor of the West, took Care to inform *Constantius* of what had been concluded in the Council of *Sardick*, and desired him to restore *Athanasius* to his See; but perceiving that *Constantius* little minded his Request, he gave him the Choice, either to restore *Athanasius*, or to expect to have him for an Enemy.——This Declaration caused some Inquietude to *Constantius*, therefore he sent for some Bishops to advise with them on the Choice offered by the Emperor his Brother. They answered it was better to grant his Church to *Athanasius*, than to enter into a civil War; so that *Constantius* recalled him, as being forced to it by an indispensible Necessity; but *Athanasius* fearing his Calumniators, and uncertain if he should trust to *Constantius*'s first Letter, he receiv'd, says *Socrates*, a second and a third.

Athanasius having received those Letters at *Aquileia*, where he had retired ever since his Departure from *Sardick*, went to *Rome*, shewed them to *Julius*, and filled the *Roman* Church with Joy, who was in Hope that *Constantius* was on the Point of embracing the orthodox Faith, since he recalled *Athanasius*. *Julius* wrote in his Favour to the Clergy and to the People of *Alexandria*; and he was favourably receiv'd of *Constantius*, whom he found at *Antioch*. But as his Life was to be a continual Fluctuation of Prosperities and Adversities, and he had always in the *Arians*, a formidable Party to encounter with, the Intervals between his Deposition and his Restoration were never very long; they always formed fresh Accusations against him, and always gave false Interpretations to his most righteous Intentions; even at this Time of his Return to his Patriarchate with the Emperor's Consent, he was accused of having usurped on his Passage to *Alexandria*, a despotick Power, by ordaining Priests and Deacons out of his Diocess, contrary to the Canons; with having assembled a Council at *Jerusalem*, with no other Design than to excite Troubles in the Empire, with several other pretended Crimes; which so much irritated *Constantius*, that he ordered he should be put to Death, which Danger *Athanasius* escaped by flying to the Desart, where he hid himself, shifting often his Solitude for Fear of a Discovery.——Some Time after, the Bishops of the occidental Church having assembled at *Milan*, to the Number of very near 300, among whom, there were also some few of the oriental Church, these asked for a Sentence against *Athanasius*, whereby he should be excluded for ever from *Alexandria*, which was opposed by *Paulinus* Bishop of *Treves*, *Denis* Bishop of *Albe*, and *Eusebius* Bishop of *Verceil*, who insisted that such Proposition was made with no other Design than to ruin the Faith, by the Sentence which was proposed to be pronounced against *Athanasius* who was innocent.—The Emperor having been informed of what had passed at *Milan*, banished these three Bishops, and wanted to assemble both Churches in *Italy*, in Order to re-unite them all if possible, in the same Sentiment; but having reflected afterwards on the Difficulty of travelling, he ordered that those who were in *Italy* should assemble at *Rimini*, and the oriental Church at *Nicomedia*. But a frightful Earthquake having happened at *Nicomedia*, while the Bishops were yet upon the Road, the Council was removed to *Seleucia*; but the *Arian* Bishops who were at *Sirmium*, at the Emperor's Court, assembled, says *Sozomen. l.* 4. *c.* 15. the 22d of *May*, 351, to draw up a Formule to be presented to both Councils, and where they were a considerable Time before they could agree together; for they would all have rejected the Term ομοουσιον, *Consubstantial*; and *Basileus* of *Ancyra*, would have had inserted in the Formule, ομοιουσιον, that the Son was *semblable in Substance* to his Father; on the contrary, *Valens* wanted to have both Terms rejected; so that the Dispute being likely to last long, and the Emperor commanding them to agree on that Subject, they were obliged to chuse one among them, *viz.* *Marcus* of *Arethusia*, to draw up a Formule, which the others should be obliged to sign, who accordingly took a Medium betwixt both Opinions, which though not very agreeable to either Party, they were however obliged to accept.—*Marcus*, to please *Valens*, had inserted among other Things in his Formule, that in speaking of God and of his Son, the Term *Substance* should be abolished; because it caused a Scandal in the Church, and the Scripture makes no Mention of it; and to oblige *Basileus*, he confessed that the Son is semblable to his Father in all Things.—This is the ninth Formule of the *Arians*, ever since the Beginning of their Heresy.

We learn from *Epiphanius*, *Hæres.* 73. That when they were all called to sign in Presence of the Emperor, *Valens* after he had made a short Discourse to shew how he consented to that Formule, wrote that he believed the Son semblable to his Father without adding κατα παντα, in all Things; but *Constantius* insisting he should do it, he obeyed seemingly without Reluctancy.

On the other Side, *Basileus* of *Ancyra* was not pleased that the Term *Substance* should be excluded, knowing very well that *Valens* would in Time give his own Sense to the Formule; therefore protested when he signed the Formule, that by these Words, *semblable in all Things*, he understood a perfect Similitude, not only according to the Will, but likewise according to the very Being; which however was not inserted in the Formule, to which this Title was given υπαρξιν κ̀ κατα το ειναι. *Exposition of the Catholick Faith, made in the Presence of the most religious and victorious Emperor* Constantius *eternal, august, under the Consulate of* Eusebius *and* Hypatius, the 11th of the Calends of *June*; which made *Athanasius* laugh at the *Arians*, who by marking the Year and the Day, contrary to the Custom observed in Professions of Faith, shewed plainly the Novelty of their Beliefs, born precisely at that Time; besides that they were not ashamed to give a Man the Title of *Eternal*, which they refused to the Son of God; though they confessed in the Formule, that he was before all Times; but it was to please *Basileus*, who believed him such, and who was at that Time in great Favour near the Emperor.

But however the Formule being accepted by both Parties, at least for a Time, *Valens* took it to carry it to *Rimini*, and *Basil* to *Seleucia*, where the oriental Bishops had assembled, to the Number of 160, according to *Severus*, *l.* 2. or 150, according to *Socrates*,

crates, *l.* 2. *c.* 39. *Leonas*, one of the chief Officers of the Emperor, was ordered to be present at all their Disputes and Deliberations.—The Bishops having assembled the 27th of *September*, *Leonas* ordered that every one of them should propose what he thought proper, the Bishops who were present were of Opinion that no Question should be debated 'till the Arrival of those of their Brethren, who were expected. Those were *Macedonius*, Bishop of *Constantinople*, *Basileus* of *Ancyra*, with some others, who were detained in their Dioceses by the Apprehension of being accused of several Crimes they knew themselves guilty of. But however *Leonidas* insisting they should begin, the Bishops answered, that they would not enter into any Discussions of Matters of Faith, before they had examined the Life and Conduct of those who were accused of Crimes, as *Cyrillus*, Bishop of *Jerusalem*, *Eustatius*, Bishop of *Sebaste* in *Armenia*, and some others. There arose on that Subject a very great Contestation, and the Bishops finding it was impossible they should agree, divided themselves into two Parties. *Acacius*, Bishop of *Cæsarea* in *Palestina*; *Georgius*, Bishop of *Alexandria*; *Uranius*, Bishop of *Tyre*; and *Eudoxius*, Bishop of *Antioch*; followed only by thirty others, were the Chiefs of one; and *Georgius*, Bishop of *Laodicea* in *Syria*; *Sophronius*, Bishop of *Pompeipolis* in *Paphlagonia*; *Eleusius*, Bishop of *Cyzick*, of the other Party, which was certainly the most numerous.

This last Party, which was for examining the Doctrine first, having prevailed, the other thought they should abolish the Faith of *Nice*, and introduce another. The prevailing Party found nothing amiss in the Council of *Nice*, but the Term CONSUBSTANTIAL. The Bishops having disputed with great Warmth, 'till the Evening, *Sylvanus*, Bishop of *Tarse*, raising his Voice, said that there wanted no new Formule of Faith; but that they should retain that formed and agreed upon at *Antioch*; he had no sooner pronounced these Words, but the Partisans of *Acacius* went out of the Assembly.——The Bishops of the other Party read the Formule decreed at *Antioch*, and then parted. The next Day they met in the Church, and having ordered the Doors to be shut, signed the same Formule; Deacons and Readers signed in the Place of the absent Bishops.

Acacius, and those of his Party, finding Fault with the Gates of the Church being shut, declared that a Signature thus made in Secret was to be suspected; though this Bishop had no other Design in that than to have another Formule of Faith he had prepared, received. Nothing else was done that Day.—— The third, *Leonas* ordered that the Bishops of both Parties should assemble. *Macedonius* of *Constantinople*, *Basileus* of *Ancyra*, and some others, who had staid in the Suburbs of *Seleucia*, for Fear of their Enemies, came that Day to the Assembly, which being begun, *Leonas* told them that he had a Request, which had been presented to him by *Acacius*, which he thought proper to have read, to which the whole Assembly consented with Difficulty; but they were all surprized when, instead of a Request, they heard, by the Reading of it, that it was the Formule of the Faith of *Acacius*, in which he rejected ομουσιον, *Consubstantial*, against the Orthodox; ομοιουσιον, *semblable in Substance*, against the *Semi-Arians*; ανομοιον, *dissemblable*, against the *Anomœans*, and confessed that the Son was semblable to his Father, but without adding *in all Things*, as in the Formule of *Sirmium*.——This Formule of *Acacius* was signed by him, and by the thirty-six Bishops, his Partisans, but the rest of the Assembly protested against it, which occasioned a Dispute, which lasted that Day and the next, with a great Deal of Obstinacy on both Sides, at which *Leonas* was so provoked, that he left abruptly the Assembly; and when the next Day he was desired to return to it, he answered that he had been sent by the Emperor to assist at a Council, where the Bishops were to agree amongst themselves; but since they would not do it, that they might go, if they pleased, and chatter and play in the Church without him.—— The Partisans of *Acacius* taking Advantage of this Answer refused also to come to the Council.—— The Bishops of the other Party having assembled, sent for *Acacius* to examine the Affair of *Cyrillus*, Bishop of *Jerusalem*, accused of some Crime or other, and had even been deposed, because having been cited for two Years together, he had always refused to appear. He nevertheless sent a Writing to those who had deposed him, by which he appealed to a greater Council, and the Emperor *Constantius* had approved his Appeal. The Bishops taking this Refusal of the *Acacians* for a Sort of Conviction of the Crimes laid to their Charge, pronounced against them the Sentence of Deposition, and sent to the Emperor to inform him of it; but the *Acacians* arrived before their Deputies at *Constantinople*, where the Emperor was come from *Sirmium*. They soon persuaded him that *Basileus* of *Ancyra*, and those of his Faction had hindered the Peace, which was to be made in the Church on the Formule digested in Concert in his Presence at *Sirmium*. On which the Emperor, with *Acacius*'s Advice, ordered that a Synod should be immediately called, of the neighbouring Bishops, at which were present the ten Deputies of the Council of *Seleucia*. *Acacius* in that Council framed another Formule of Faith, which was the 11th, and in it they rejected not only the *Consubstantial*, and the *Semblable in Substance*, as in the third of *Sirmium*, but likewise the *Hypostasis*, or the Person, mentioning only that the *Son* was *God of God*, semblable to the Father, by whom he was begotten, without adding to it *in all Things*.

While the *Arians* were holding their two Conciliabules of *Seleucia* and *Constantinople*, they celebrated that in *Italy*, composed of more than four hundred Bishops, to whom *Valens* presented the third Formule of *Sirmium*, intimating that it was the Emperor's Will they should accept it such as it was, without disputing any more on our Mysteries, or introducing unknown Terms or new Expressions, which caused all the Trouble and Scandal.—— The Council having examined the Formule, and asked for the Suffrages, *Valens* was answered, says *Athanasius*, *lib. de Synod.* that 'the Fathers had not assembled to learn, a-new, 'what they were to believe, since by the Grace of 'God they professed the true Faith, but only to confound and condemn those who attempted to corrupt it by their Novelties; that they ought then to 'join with them to condemn, by an unanimous Consent, all the Heresies begun by *Arianism*, which 'could not be done otherwise, than by following inviolably the Decisions of the Fathers of *Nice*, who 'had declared in their Symbole all that could be said 'or believed on the Points in question.'—— But *Valens* and his Partisans protested publickly they would never agree to it, for which they were declared Hereticks by the Council and excommunicated. To this Declaration and Excommunication they added *Anathema's* against the Doctrine of *Arius* to a certain Number of Propositions, and afterwards sent ten Deputies to *Constantius* with Letters, by which after they had exposed to him the Reasons of the Sentence they had pronounced, they desired him to give the necessary Orders for their Return, and to observe religiously what the Church had determined, under the Empire of the great *Constantine*, without obliging them any more to quit their Churches, to meet in Councils, which after that of *Nice* were needless.

But these salutary Exhortations had no good Effect on *Constantius*'s Mind, always besieged by the *Arians*, who had a very great Ascendant over him, and used to make him do whatever they pleased. And *Arianism*, instead of being abolished or extinct by the strong and frequent Oppositions it met with from the Orthodox, has perpetuated itself throughout all Ages, even so far as our own Times, where there have been, and are yet found several strenuous Asserters of the impious Doctrine of *Arius*. Therefore, I think it needless

needless to proceed farther in this Historical Account of that Heresy, since what I could say more on that Subject, would be nothing else but a Repetition of the same Dogma's, perhaps disguised under different Forms, and accompanied with Seditions, Persecutions, Ravages, and Disorders, which have always been the constant Companions of all Sorts of Heresies, whose Property is to lacerate Christ's seamless Gown, and to oppress Piety, Virtue, and Orthodoxy.

ARITHMETICK.

ARITHMETICK is the Art of numbering; or that Part of Mathematicks which considers the Powers and Properties of Numbers; and teaches how to compute and calculate truly, and with Expedition and Ease.

Some Authors choose to define *Arithmetick* the Science of *discrete Quantity*; which *discrete Quantity* is that, which is not continued and joined together, such is a Number whose Parts, being distinct Units, cannot be united into one *Continuum*; for in a *Continuum* there are no actual determinate Parts before Division, but they are potentially infinite; wherefore it is usually and truly said that continued Quantity is divisible *in infinitum*.

But as in our Definition we have mentioned *Numbers*, and *Numbers* is the Subject of *Arithmetick*, we must previously to all other Observations on this Subject, consider what is a Number.

NUMBER *in Arithmetick* is a Collection or Assemblage of several Units, or several Things of the same Kind; and an Unit is the *Number* One; or one single individual Part of *discrete Quantity*.

Sir *Isaac Newton* conceives *Numbers* to consist, not in a Multitude of Units, as *Euclid* defines it, but in the Abstract *Ratio*, of a Quantity of any Kind, to another Quantity of the same Kind, which is accounted as Unity, and on this View he divides *Number* into three Kinds, *viz. Integers*, *Fractions*, and *Surds*, which three Kinds are to be considered, each in its proper Place.

The Schoolmen keeping to *Euclid*'s Definition, hold *Number* to consist of Matter and Form: The *Matter* is the Thing numbered; *e.g.* Coin; the *Form*, the Idea whereby comparing the several Pieces, we bring them into one Sum, as *Ten*: So that *Number* depends altogether on the Mind of the Person that numbers; whence changing the Idea at Pleasure, an hundred Men shall only be called one, or it shall be two or four, *&c.*—— Hence, say they, the Form of a *Number* is not any Thing added to the Thing numbered; for the Idea is a mere Mode of the Mind, not any Thing super-added to the Things.—— And hence, though there may be some Efficacy in *Number*, considered with Respect to the Matter, as when we say a triple Rope is not easily broke; yet there is none in Respect to Form: For what Alteration should my Idea make? And hence the Folly of the Philosophy of *Numbers*.

The Characters whereby *Numbers* are ordinarily expressed, are the nine following ones, *viz.* 1, 2, 3, 4, 5, 6, 7, 8, 9, it being the Law of common *Numeration*, that when you are arrived at Ten, you begin again, and repeat as before; only expressing the *Number* of Tens.

Now to express any written *Number*, or assign the proper Value to each Character; divide the proposed *Number* by Comma's into Classes, allowing three Characters in each Class; beginning at the Right Hand.—— Over the Right Hand Figure of the third Class add a small Mark, or transverse Line; over the Right Hand Figure of the fifth Class add two Marks or transverse Lines; over that of the seventh, three, *&c.*—— The *Number* to the Left of the first Comma express by Thousands; that which has over it the first transverse Line, express by *Millions*; that with two, by *Billions*; that with three, by *Trillions*, &c. *Lastly*, the Left Hand Character of each Class express by Hundreds; the middle one by Tens; and the Right Hand one by Units.—— Thus will the *Numeration* be effected; *e. g.* the following *Numbers*, 2‴,125,473″,613,578′,432,597, are thus expressed or read: Two Trillions, one hundred twenty-five Millions of Billions, four hundred seventy-three Billions, six hundred thirteen thousands of Millions, and five hundred seventy-eight Millions, four hundred and thirty-two Thousand, five hundred and ninety-seven.

Arithmetick consists chiefly in the four great Rules or Operations, of *Addition*, *Subtraction*, *Multiplication* and *Division*. It is true, for the facilitating and expediting of Computations, Mercantile, Astronomical, *&c.* divers other useful Rules have been contrived; as the Rules of *Proportion*, of *Alligation*, of *False Position*, *Extraction of Square and Cube Roots*, *Progression*, *Fellowship*, *Interest*, *Barter*, *Rebate*, *Reduction*, *Tare and Tret*, &c. But these are only Applications of the first four Rules; which before I can pretend to demonstrate, I must explain what's meant by *Rule*.

RULE *in Arithmetick*, denotes a certain Operation with Figures to find Sums or *Numbers* unknown; and to facilitate *Computations*, *Mercantile*, *Astronomical*, &c. Each *Rule* has its particular Name, according to the Use for which it is intended. The four first abovementioned serve as the Foundation of the whole Art; and the first and easier is *Addition*.

ADDITION consists in finding the Amount of several *Numbers*, or Quantities, severally added one to another. The *Numbers* thus found are called the *Sum* or Total of divers *Numbers* put together, as 5 and 7 are 12, as also the Sum of 7, 4, and 11 put together, are 22. And this is called *Addition* of simple *Numbers*, which is very easy.

In longer or compounded *Numbers* the Business is performed by writing the given *Numbers* in a Row downward, that like Places or Degrees in Each *Number* may stand in the same Rank; that is Units under Units, Tens under Tens, Hundreds under Hundreds, Thousands under Thousands, *&c.* and singly collecting the Sums of the respective Columns.

To do this we begin at the Bottom of the utmost Row to the Right, and if the Amount of this Column do not exceed 9, we write it down at the Foot of the same Row or Column: If it do exceed 9, the Excess is only to be wrote down, and the rest reserved to be carried to the next Row, and added thereto, as being of the same Kind or Denomination.

Suppose, *e. g.* the Numbers 1357, and 172, were given to be added; write either of them, *v. g.* 172, under the other 1357; so as the *Units* of the one, *viz.* 2, stands under the Units of the other, *viz.* 7, and the other Numbers of the one, under the correspondent one of the other, *viz.* the Place of Tens under Tens, as 7 under 5; and that of Hundreds, *viz.* 1, under the Place of Hundreds of the other, 3. Thus,

```
1357
 172
----
1529
```

Then beginning, say, 2 and 7 makes 9, which write underneath. Also 7 and 5 make 12; the last of which two Numbers, *viz.* 2 is to be written, and the other 1 reserved in your Mind, to be added to the next Row, 1 and 3: then say 1 and 1 makes 2, which

which added to 3 make 5; this write underneath, and there will remain only 1, the first Figure of the upper Row of Numbers, which also must be writ underneath; and thus you have the whole Sum, *viz.* 1529.

So to add the Numbers 4607, 8628, 6845, 3130 into one Sum, the Operations will stand as followeth,

```
 4607
 8628
 6845
 3130
 ----
23210
```

The Figures in the first Row making 20, I set down 0 under the first Row and carry 2 to the next, which makes 11, I set down 1, and carry one to the third Row, which making 22, I set down 2, the Excess, and carry two to the fourth Column; which said 2, and the Figures in the fourth Column making 23, I set all down towards the left Hand of the Figures before subscribed; so the Sum of the four Numbers put together are 23210.

To prove your *Addition* after you have added up your whole Sum, draw a Line with your Pen under the uppermost Number, and when you have so done, add all the other Numbers, except the uppermost; and when you have so done, add the Amount or Sum thereof to the uppermost Sum above the Line; and if the Sum be the same with the Sum first found, your Work is true, otherwise not *e. g.*

```
      56
      --
      23
      91
      74
      45
      67
     ---
     356
     ---
     300
     ---
Proof 356
```

Addition of Numbers of different Denominations, for Instance, of Pounds, Shillings, and Pence, is performed by adding or summing up each Denomination by itself, always beginning with the lowest; and if after the *Addition* there be enough to make one of the next higher Denomination; for Instance, Pence enough to make one or more Shillings, they must be added to the Figures of that Denomination, that is to the Shillings; only reserving the odd remaining Pence to be put down in the Pence Place, and the same Rule is to be observed in Shillings, with Regard to Pounds.——*v. g.* 5 Pence and 9 Pence make 14 Pence; now in 14 there is once 12, or a Shilling, and two remaining Pence; the Pence I set down, and reserve one Shilling to be added to the next Column which consists of Shillings.—Then 1 and 8, and 2 and 5, make 16; the 6 I put down, and carry the 1 to the Column of Tens; 1 and 1 and 1 make three Tens of Shillings, or 30 Shillings; in 30 Shillings there is once 20 Shillings, or a Pound and 10 over; I write 1 in the Column of Tens of Shillings, and carry one to the Column of Pounds, and continue the *Addition* of Pounds according to the former Rules, thus,

l.	*s.*	*d.*
120	15	9
65	12	5
9	8	0
195	16	2

so half of an even Sum will be carried to the Pound; and the odd one (where it so happens) set under the Tens of the Shillings.

Where there are Farthings you must begin with Farthings first: As for Example,

l.	*s.*	*d.*	*f.*
46	13	4	$\frac{1}{2}$
27	17	7	$\frac{1}{4}$
36	2	3	$\frac{3}{4}$
10	6	9	$\frac{1}{2}$
121	00	1	0

In which *Rule*, beginning with Farthings first, I find 8 Farthings, which is two Pence, therefore I set down 0 in the Farthings, and carry the two Pence to the Pence, which with the Number of Pence, as 9, 3, 7, 4, makes 25 Pence, which is two Shillings and one Penny, so setting down the 1 Penny, I carry two to the Shillings; saying 2 that I carry and 6 is 8, and 8 and 2 is 10, and 7 is 17, and 3 is 20; so I set 0 in the Units Place of Shillings, and carry 2 Tens to the Tens Place, which with 2 Tens more makes 4 Tens or two Pounds, which said 2 Pounds I carry to the Pounds Place, saying 2 and 6, and 7 and 6 is 21, so I set down 1, and carry 2 to the last Place of Pounds, which with 1, 3, 2, 4, makes 12, and by setting down 12 in the same Line or Row; so the whole Work is finished, and I find the Sum to be 121 *l.* 00 *s.* 1 *d.* 0 *q.*

To prove the Addition after you have cast up your whole Sum, draw a Line under the uppermost Number or Sum, as before directed in your Addition of simple Numbers.

For an *Addition* of *Aver-dupois-weight*, you must observe that 16 Drams make an Ounce, 16 Ounces a Pound, 28 Pounds make a Quarter of an Hundred-weight, four Quarters make a Hundred-weight (consisting of 112 Pounds) and 20 Hundred is a Tun *Aver-dupois Weight.* For Example.

		20	4	28
	Tuns	*Cwt.*	*qrs.*	*lb.*
	5	16	2	15
	2	10	1	12
	7	14	0	20
	4	9	1	9
	6	5	2	10
	3	7	3	2
Sum	30	3	3	12
	24	7	0	25
Proof	30	3	3	12

For *Troy-weight* observe that 24 Grains make a Penny-weight, 20 Penny-weights an Ounce, and 12 Ounces a Pound *Troy.* For Example,

		12	20	24
	lb.	*Oz.*	*Pwt.*	*Gr.*
	24	9	6	11
	164	10	14	18
	82	7	17	20
	8	8	18	22
Sum	281	00	17	23

For *Apothecaries-weight*, 20 Grains make a Scruple, 3 Scruples one Dram, 8 Drams one Ounce, 12 Ounces one Pound.

		12	8	3	20
	lb.	*Oz*	*Drs.*	*Scru.*	*Gr.*
	4	9	5	1	13
	3	7	2	0	10
	2	4	3	2	8
	5	3	4	1	12
Sum	16	1	0	0	3

In *Cloth-measure*, 4 Nails make one Quarter of a Yard,

Yard, 4 Quarters one Yard, 5 Quarters an Ell *English*, and 3 Quarters an Ell *Flemish*.

	4	4
Yds.	*Quart.*	*Nails.*
27	2	3
14	1	2
96	0	1
75	1	0
23	3	3
237	1	1

	5	4
Ells Eng.	*Quart.*	*Nails*
36	3	2
27	4	0
75	2	3
56	3	1
92	1	0
288	4	2

In *Wine-measure*, two Pints make a Quart, 2 Quarts a Pottle, 2 Pottles 1 Gallon, 42 Gallons a Tierce, or third Part of a Pipe or But, 63 Gallons a Hogshead, 2 Hogsheads a Pipe or But, and two Pipes or Buts make a Tun of Wine, *v. g.*

	2	63	8
Tuns	*Hhds.*	*Gall.*	*Pts.*
45	1	9	7
21	0	7	1
72	0	8	2
53	0	12	5
97	1	6	3
69	0	5	1
16	1	10	4
374	1	59	7

It must be observed in this Place, that in *Wine-measure*, there is reckoned that 8 Gallons are a Firkin of Ale, 9 Gallons a Firkin of Beer, 2 Firkins a Kilderkin, and 2 Kilderkins a Barrel, 18 Gallons and a Half a Runlet.

In *Dry-measure* 2 Pints make a Quart, 2 Quarts a Pottle, 2 Pottles a Gallon, 2 Gallons a Peck, 4 Pecks a Bushel *Land-measure*, 5 Pecks 1 Bushel *Water-Measure*, 8 Bushels 1 Quarter, 4 Quarters 1 Chalder, 5 Quarters 1 Wey.——36 Bushels is a Chaldron of Sea-Coal in *London*. For Example,

	4	8	4
Chald.	*Qrs.*	*Bush.*	*Pecks.*
48	3	5	2
12	1	4	0
91	2	3	1
74	0	6	0
67	1	1	3
52	3	4	2
49	2	1	1
396	3	2	1

For *Long-measure*, 3 Barley-corns make 1 Inch, 12 Inches 1 Foot, 3 Feet 1 Yard, 5 Yards and a Half a Perch or Pole, 40 Perches makes 1 Furlong, 8 Furlongs 1 *English* Mile, 1760 Yards make a Mile, *e. g.*

	3	12	3
Yds.	*Feet*	*Inch.*	*Barl.*
326	2	10	1
127	1	9	0
414	2	7	1
732	0	11	0
256	1	1	2
514	0	10	1
937	2	3	0
3310	0	4	2

In *Land-measure* 40 square Poles or Perches, make a Rood, and 4 Roods make an Acre, *e. g.*

	4	40
Acres.	*Roods.*	*Perch.*
120	2	34
275	3	14
162	1	35
98	2	20
47	3	30
64	1	15
769	2	28

Addition of *Decimals* is performed after the same Manner as that of whole Numbers; as may be seen in the following Example,

```
630.953
  51.0807
305.27
-------
987.3037
```

From *Addition* we'll proceed to SUBTRACTION, which is the second *Rule*, or rather Operation in *Arithmetick*; whereby we deduct a less Number from a greater, to learn the precise Difference.—Or more justly, *Subtraction* is the finding a certain Number from two homogeneous ones given; which with one of the given Numbers, is equal to the other.——The Doctrine of *Subtraction* is reducible to what follows.

TO SUBTRACT a *less Number from a greater.*—— 1. Write the less Number under the greater, in such Manner that homogeneous Figures answer to homogeneous, *i. e.* Units to Units, Tens to Tens, *&c.* as directed above, under *Addition* ——2. Under the two Numbers draw a Line.— 3. *Subtract* several Units from Units, Tens from Tens, Hundreds from Hundreds; beginning at the right Hand, and proceeding to the left; and write the several Remainders in their correspondent Places under the Line.——4. If a greater Figure come to be subtracted from a less; borrow one Unit from the next left Hand Place; this is equivalent to 10, and added to the less Number, the *Subtraction* is to be made from the Sum: Or if a Cypher happen to be in the next left Hand Place, borrow the Unit from the next further Place.

By these Rules, any Number may be substracted out of another greater. For Example.

If it be required from 9800403459
to subtract 4743865263
the Remainder will be found 5056538196

For, beginning with the right Hand Figure, and taking 3 from 9, there remains 6 Units, to be wrote underneath the Line: Going then to the next Place, 6, I find, cannot be taken from 5, wherefore from the Place of Hundreds 4, I borrow 1, which is Equivalent to 10, in the Place of Tens; and from the Sum of 10 and 5, *viz.* 15, subtracting 6, I find 9 Tens remaining to be put down under the Line. Proceeding to the Place of Hundreds, 2, with the 1 borrowed at the last makes 3, which subtracted from 4, leaves 1.——Again 5 in the Place of Thousands, cannot be subtracted from 3; for which Reason taking 1 from 4, in the Place of Hundreds of Thousands, the Cypher is converted into 10 Tens of Thousands, whence one 10 being borrowed and added to the 3, and from the Sum 13 Thousand, 5 Thousand being subtracted, we shall have 8 Thousand to enter under the Line; then subtracting 6 Tens of Thousands from 9, there remains 3.——Coming now to take 8 from 4; from the 8 further on the left, I borrow 1, by means whereof, the two Cyphers will be turned each into 9.——And after the like Manner is the rest of the Subtraction easily performed.

If heterogeneous Numbers be to be ſubtracted from each other; the Units borrowed are not to be equal to ten; but to ſo many as there go of Units of the leſs Kind, to conſtitute an Unit of the greater. For Example,

l.	*s.*	*d.*
45	16	6
27	19	9
17	16	9

For ſince 9 Pence cannot be ſubtracted from 6 Pence; of the 16 Shillings one is converted into 12 Pence, by which Means for 6 we have 18 Pence, whence 9 being ſubtracted there remain 9; in like Manner as 19 Shillings cannot be ſubtracted from the remaining 15; one of the 45 Pounds is converted into 20 Shillings from which, added to the 15, 19 being ſubtracted, the Remainder is 16 Shillings.—Laſtly, 27 Pounds ſubtracted from 44 Pounds, there remain 17.

If a greater Number be required to be ſubtracted from a leſs, it is evident the Thing is impoſſible.—The leſs Number therefore, in that Caſe, is to be ſubtracted from the greater, and the Defect to be noted by the negative Character, *e. g.* If I am required to pay 8 Pounds, and am only Maſter of 3; when the 3 are paid there will ſtill remain 5 behind; which are to be noted.—5.

Subtraction is proved by adding the Remainder to the Subtrahend, or Number to be ſubtracted; for if the Sum be equal to the Number whence the other is to be ſubtracted, the *Subtraction* is juſtly performed. For Example,

156	11	3	$\frac{1}{4}$
21	17	2	$\frac{1}{2}$
134	14	0	$\frac{3}{4}$
156	11	3	$\frac{1}{4}$

A few Examples more, will make this Rule plain.

	l.	*s.*	*d.*	*f.*
Received	100	10	9	$\frac{1}{2}$
Paid	67	14	10	$\frac{3}{4}$
Due	32	15	10	$\frac{3}{4}$
Proof	100	10	9	$\frac{1}{2}$

	l.	*s.*	*d.*	*f.*
Debtor	2101	12	7	$\frac{1}{4}$
Creditor	1097	15	10	$\frac{1}{2}$
Ballance	1003	16	8	$\frac{3}{4}$
Proof	2101	12	7	$\frac{1}{4}$

	l.	*s.*	*d.*	*f.*
Received	309	00	4	$\frac{1}{4}$
Disburſt	217	19	6	$\frac{1}{2}$
Reſt	91	00	9	$\frac{3}{4}$
Proof	309	00	4	$\frac{1}{4}$

If a Sum of Money be lent, and Payment thereof made at divers Times, and you would know what is due; in thoſe Caſes you muſt firſt add up the ſeveral Payments into one Sum, and ſubtract that Sum from the Sum lent, and the Remainder will ſhew what is due; an Example or two will make it eaſy and plain.

	l.	*s.*	*d.*
Received	1240	14	7
Paid at ſeveral Times.	300	10	5
	249	16	9
	450	00	0
	100	10	6
	50	00	8
Paid in all	1150	18	4
Due	0089	16	3
Proof	1240	14	7

	l.	*s.*	*d.*	*f.*
Received from the Bank	5240	17	9	0
Paid unto ſeveral Men *per* Order, *viz.*	1000	12	6	0
	500	00	0	0
	329	10	4	$\frac{1}{2}$
	715	11	6	0
	870	05	0	0
	600	00	0	0
	519	10	7	$\frac{1}{4}$
	450	00	0	0
Paid in all	4985	09	11	$\frac{3}{4}$
Remains	0255	07	09	$\frac{1}{4}$
Proof	5240	17	09	

Queſtions *to exerciſe* Addition *and* Subtraction.

Queſt. 1. Two Perſons *A.* and *B.* have two Sums of Money; *A.* has 3456 *l.* and *B.* 2195 *l.* 17 *s.* 4 *d.* what is the Difference?

	l.	*s.*	*d.*
	3456	0	0
	2195	17	4
Anſwer.	1260	2	8

Queſt. 2. Two Perſons are of different Ages, *A.* and *B.* the Age of *A.* is 65, the Difference of their Ages is 34, what is the Age of *B*?

	65
	34
Anſwer.	31

Queſt. 3. What Number is that which being added to 248 makes the Sum to be 309?

	309
	248
Anſwer.	61

Queſt. 4. A certain Perſon born in the Year 1660, how old is he?

	1741
	1660
Anſwer.	81

Queſt. 5. A Monument built in the Year 1462, how long is that ſince, reckoning to this preſent Year 1741?

	1741
	1462
Anſwer.	279

Queſt.

Queſt. 6. The greateſt of two Numbers 2400, their Difference is 1472, what is the leſſer Number?

	2400
	1472
Anſwer.	928

The third great *Rule* in *Arithmetick* is *Multiplication*, which is the Art of multiplying one Number by another, to find out the Product.—— MULTIPLICATION conſiſts in finding ſome third Number out of two others given; wherein one of the given Numbers is contained, as often as Units is contained in the other. Or *Multiplication* is the finding what will be the Sum of any Number added to itſelf, or repeated as often as there are Units in another.——So that *Multiplication* of Numbers is a compendious Kind of *Addition*. Thus the *Multiplication* of 4 by 5, makes 20, *i. e.* four Times five amounts to twenty.

The firſt Things to be conſidered in *Multiplication* are the *Multiplicand*, the *Multiplier*, and the *Product*.

The *Multiplicand* is the Number given to be multiplied; and is uſually, for Method-Sake, the greateſt of the two given Numbers.

The *Multiplier* is that by which the *Multiplicand* is multiplied, and is uſually the leaſt Number.

The *Product* is the Number ariſing by the *Multiplication*, and it contains the *Multiplicand* as often as the *Multiplier* contains Units.

The *Multiplicand*, or the Number to be multiplied, is to be placed over that whereby it is to be multiplied; and the *Factum* or *Product* under both. An Example or two will make the Proceſs of *Multiplication* eaſy. Suppoſe I would know the Sum 269 multiplied by 8, or 8 Times 269.

Multiplicand	269
Multiplier	8
Product	2152

The Factors, *i. e.* the *Multiplicand* and *Multiplicator* being thus diſpoſed, and a Line drawn underneath, as in the Example, I begin with the *Multiplicator* thus, 8 Times 9 makes 72, ſet down 2, and carry 7 Tens, as in *Addition*; then 8 Times 6 makes 48, and 7 I carried, 55; ſet down 5, and carry 5; *laſtly*, 8 Times 2 makes 16, and with 5 I carried, 21, which I put down: So as coming to number the ſeveral Figures placed in Order, 2, 1, 5, 2, I find the *Product* to be 2152.

Now, ſuppoſing the *Factors* expreſſing Things of different Species, *viz.* the Multiplicand, *Men* or *Yards*, and the Multiplier *Pounds*; the Product will be of the ſame Species with the *Multiplier*; thus the Product of 269 Men, or Yards, multiplied by 8 Pounds or Pence, is 2152 Pounds or Pence; ſo many of theſe going to the 269, at the Rate of 8 a-Piece.

If the *Multiplicator* conſiſts of more than one Figure, the whole *Multiplicand* is to be added to itſelf, firſt, as often as the Right Hand Figure of the *Multiplicator* ſhews, then as often as the next Figure of the *Multiplicator* ſhews, and ſo on. For Example let it be required to multiply 3084 by 36, the Work will ſtand thus:

3084
36
18504
9252
111024

For 6 Times 4 is 24, I write 4 under the Line, and reſerve 2 in Mind for the two Tens; then I ſay 6 Times 8 is 48, unto which if I add 2 kept in Mind, the whole is 50, wherefore ſaying, 6 Times 0 is nothing, but the 5 I carried in Mind is 5, which is likewiſe ſet under the Line in the next Rank; again 6 Times 3 is 18, which I write wholly down, ſo that the particular Product ariſing from the multiplying Figure 6, is 18504. In like Manner proceeding with the multiplying Figure 3, the particular Product ariſing will be 9252. *Laſtly*, Theſe ſeveral Products being placed in due Order, and added together, will give 111024, which is the total Product ariſing from the *Multiplication* of 3084 by 36, as it appears by the Operation here above.

The Product ariſing from each Figure of the *Multiplicator*, multiplied into the whole *Multiplicand*, is to be placed by itſelf in ſuch a Manner, that the firſt or Right Hand Figure thereof may ſtand under that Figure of the *Multiplicator*, from which the ſaid Product ariſes. This Diſpoſition of the Right Hand Figure of each Product, being always of the ſame Denomination with that Figure of the *Multiplicator*, from which it ariſes, for Example.

Multiplicand	421
Multiplicator	23
Particular Product of 421 × 3	1263
Particular Product of 421 × 2	842
The total Product	9683

Thus the Figure 2 in the Product 842 is of the Denomination of Tens, as well as the Figure 2 in the Multiplicator; for 1 × 20 (that is the 2 of 23) = 20, or 2 put in the Place of Tens, or ſecond Place. Hence if either of the Factors have one or more Cyphers on the Right Hand, the *Multiplication* may be performed without regarding the Cyphers, 'till the Product of the other Figures be found; to which they are to be then affixed on the Right: And if the Multiplicators have Cyphers intermixed, they need not to be regarded at all. Inſtances of each follow:

12	358
01|0	6|000
120	2148 000
1|0	24|00
1|0	3|0
100	72 000

8013
5006
48078
4006500
40113078

Thus much of *Multiplication*, where the *Multiplicator* conſiſts wholly of *Integers*, in the Practice whereof it is ſuppoſed, the Learner is apprized of the Product of any of the nine Digits multiplied by one another, eaſily learnt from the common Table, called *Pythagoras* or *Multiplication Table*, which is a Square formed of a hundred leſſer Squares or Cells, containing the Product of ſeveral Digits or ſimple Numbers, multiplied by each other.

As it is abſolutely neceſſary, that thoſe who learn *Arithmetick*, ſhould have the ſeveral *Multiplications*, contained in this Table, by Heart, we have thought fit to ſubjoin it here; with an Example to ſhew the Manner of uſing it.

PYTHAGORAS,

PYTHAGORAS, or *Multiplication Table.*

1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20
3	6	9	12	15	18	21	24	27	30
4	8	12	16	20	24	28	32	36	40
5	10	15	20	25	30	35	40	45	50
6	12	18	24	30	36	42	48	54	60
7	14	21	28	35	42	49	56	63	70
8	16	24	32	40	48	56	64	72	80
9	18	27	36	45	54	63	72	81	90
10	20	30	40	50	60	70	80	90	100

EXAMPLE.

Suppose it were required to know the Product of 6 multiplied by 8, look for 6 in the first horizontal Column, beginning with one; then look for 8 in the first perpendicular Column, beginning likewise with 1; the Square or Cell, wherein the perpendicular Column from 6 meets with the horizontal one from 8, contains the Product required, *viz.* 48. Suppose likewise it were required the Product of 5 multiplied by 7, look for 5 in the first horizontal Column, beginning with 1, then look for 7 in the first perpendicular Column, beginning likewise with 1; the Square wherein the perpendicular Column from 7, meets with the horizontal one from 5 contains the Product required, *viz.* 35.

There are also some Abbreviations in this Art.---- Thus, to multiply a Number by 5, you need only add a Cypher to it, and then halve it.——To multiply by 15 do the same, then add both together the Sum is the Product.

Where the *Multiplicator* is not composed wholly of *Integers*; as it frequently happens in Business, where Pounds are accompanied with Shillings and Pence; Yards with Feet and Inches; the Method of Procedure, if you multiply by a single Digit, is the same as in simple Numbers, only carrying from one Denomination to another, as the Nature of each Species requires. For Example, To multiply 123 *l.* 14 *s.* 9 *d.* 3 *q.* by 5, say 5 × 3 *q* = 15 *q*, that is 3 *d* 3 *q.* write down the 3 *q.* and proceed, saying, 5 × 9 = 45 *d*, That is 3 *s.* 9 *d.* set down the 9 *d.* and proceed in the same Manner through the rest.

If you multiply by two or more Digits, the Methods of Procedure are as follow. Suppose I have bought 37 Ells of Cloth at 13 *l.* 16 *s.* 6 *d. per* Ell, and would know the Amount of the whole. I first multiply 37 Ells by the 13 *l.* in the common Method of *Multiplication* by *Integers*, leaving the two Products without adding them up; then multiply the same 37 Ells by 16 Shillings, leaving, in like Manner the two Products without adding them. *Lastly*, I multiply the same 37 by the 6 *d.* the Product whereof 222 *d.* which divided by 12 gives 18 *s.* 6 *d.* and this added to the Product of the 16 *s.* the Sum will be 610 *s.* 6 *d.* the Amount of 37 Ells, at 16 *s.* and 6 *d.* the Ell. *Lastly*, the 610 *s.* 6 *d.* are reduced into Pounds, by dividing them by 20; upon adding the whole, the Amount of 37 Ells at 13 *l.* 16 *s.* 6. will be found as in the following.

	37 Ells at 13 *l.*	37 Ells at 16 *s.*	37 Ells at 6 *d.*
	111	222	222
	37	37	
	30 10 6	18 6	
Prod.	511 10 6	610 6	

Or thus: Suppose the same Question; reduce the 13 *l.* 16 *s.* into Shillings, the Amount will be 276 *s.* reduce 276 *s.* into Pence, adding 6. the Amount will be 3318 *d.* multiply the 37 Ells by 3318 *d.* the Amount will be 122766 *d.* which divided by 12, and the Quotient 10230 *s.* 6 *d.* reduced into Pounds by cutting off the last Figure on the Right, and taking Half of those on the Left, yields 511 *l.* 10 *s.* 6 *d.* the Price of the 37 Ells, as before.

The Proof of *Multiplication*, as is commonly used, is by casting away the 9's out of the *Multiplicand*, *Multiplicator*, and *Product*; but this Proof being very erroneous, as is evident to all such as know the Rule, I shall therefore, forbear shewing that Method, by Reason the true Proof of *Multiplication*, is by *Division*, and *Division* by *Multiplication*; for as Multiplication increases, so Division decreases; as it will appear by the following Definition of *Division.*

DIVISION, which is the last of the four great Rules in *Arithmetick*, is that whereby we find how often a less Quantity is contained in a greater; and the Overplus; *Division* being nothing else, in Reality, but a compendious Method of *Subtraction*; its Effect being to take a less Number from another greater, as often as possible; that is, as oft as it is contained therein. There are therefore three Numbers concerned in *Division*, viz. 1. The *Dividend.* 2. The *Divisor.* 3. The *Quotient.*

The *Dividend*, is the Number given to be divided into equal Parts. The *Divisor* is the Number, by which the *Dividend* is to be divided; that is, it is the Number that shews into how many equal Parts the *Dividend* must be divided. The *Quotient* is the Number which discovers how often the *Divisor* is contained in the *Dividend*, which is the Number produced by the *Division*; so, if 40 were given to be divided by 8, the Number produced would be 5.

```
Dividend
Divisor 8) 40 (5 Quotient
           40
           ——
            0
```

This Method must be observed in every *Division*; *First*, To ask how many. *Secondly*, Multiply. *Thirdly*, Subtract. For Example: Let it be required to divide 88 by 4, first write down the *Dividend*, and then draw a Parenthesis, and place the *Divisor* on the left Hand thereof, then draw a Line under the *Dividend* Thus,

```
Dividend
Divisor 4) 88 (22 Quotient
           8
           —
           8
           8
           —
           0
```

Thus having placed a *Parenthesis* at each End of the *Dividend*, that on the left Hand for the *Divisor*, and that on the right for the *Quotient*; then if the *Divisor* be a single Figure, subscribe a Point under the first Figure of the *Dividend* towards the left Hand, and ask how often the *Divisor* 4 is contained in the *Dividend* 8; the Answer is 2, wherefore I write 2 in the *Quotient*; then multiplying the *Divisor* 4 by 2, (the Number placed in the *Quotient*) the Product is 8, which I place orderly under the *Dividend* 8; and after a Line is drawn underneath the Product, I subtract it from the *Dividend* 8, and place the Remainder underneath the Line. Then proceed and place another Point under the next Place of the *Dividend*, towards the Right Hand, and bring down the Figure or Cypher standing in that Place to the Remainder; that is, set it next after it, so the whole will be a new Dividual: Thus a Point being placed under the other 8, I write

I write down 8 next after 0, to wit, on the Right Hand of the Remainder 0; so is 8 a new Dividual or Number, whereof the second Question must be asked, and the Work will stand thus:

```
4) 88 (22
   8.
   ——
   08
    8
   ——
    0
   ——
```

A new Dividual being brought down, which is 8, renew the Question, and ask how often 4 is contain'd in 8; the Answer is 2, wherefore I write 2 in the Quotient; then multiplying the Divisor 4 by 2, the Product is 8, which I place under the Dividual 8, and after a Line is drawn, I subtract the Product 8, from the *Dividual* 8, and there being no Remainder, I place 0 under the Line: So the whole Work is finished, the Quotient is found 22. Wherefore I say that if 88 Pounds were to be divided among four Persons, the Share of each will be 22 Pounds.

The Operation is a great deal more difficult, when the Divisor consists of two, three, or several Figures; though it depends on the same Rules; for *Example.*—— Let it be required to divide 896487 by 648, or, which is all one, to divide 896487 into 648 equal Parts.

First a Table must be made, to shew, at first Sight, any Product of the Divisor, it being taken twice, thrice, or any Number of Times under ten, so having written down the Divisor itself 648, and drawn a Line on the Right-hand thereof, I place 1 on the Right-hand of the Line directly against the Divisor; then underneath the Divisor 648, I place the double thereof which is 1296, and place the Figure 2 directly against the said double on the other side of the Line; again by multiplying the Divisor 648 by 3, the Sum is 1944, this triple I place under the double, and place 3 on the other Side of the Line right against the triple; and so proceeding, in like manner, with the quadruple, quintuple, sextuple, *&c*, to the noncuple of the Divisor:

Divisor	648	1
Multiplees of the Divisor	1296	2
	1944	3
	2592	4
	3240	5
	3888	6
	4536	7
	5184	8
	5832	9

Now for a Proof of the said Table, adding the last Number thereof, to wit 5832, which was found to be nine times the Divisor, to the Divisor 648, I find the Sum to be 6480, which is ten times the Divisor, as you may see in the Margent; wherefore I conclude the Table is true, because the last Number thereof is derived from all the superior Numbers.

```
648
 10
——
6480
```

The principal Method of *Division* (which to those who have the Multiplication Table by Heart, is easy enough) is when the Divisor consists of more Places than one, to set out so many Figures on the Left-hand of the *Dividend* for a *Dividual*, and then put a Point under the Figure of the *Dividual*, which stands next to the Right-hand. Then seek how often the first Figure towards the Left-hand of the *Divisor*, is contained in the first Figure towards the Left-hand of the said Dividual, and place the Answer in the *Quotient*. Then multiply the whole *Divisor* by the said Figure so placed in the *Quotient*, and place the *Product* in order under the *Dividend*. Which being done, subtract the said *Product* from the *Dividual*, placing the Remainder under the Line. Then put a Point under the next Figure of the *Dividend*, and annex it to the *Remainder*, so you have a new *Dividual*, in which you are to proceed as shall be directed. For *Example.*

Let it be required to divide 8904 by 42, here the given Number being disposed of, as before directed, will stand thus;

```
42) 8904 (
```

Then because there are two Figures in the *Divisor*, therefore you must take the two first Figures on the Left hand of the *Dividend* for a *Dividual*, which is 89, putting a Point under the 9. Then I ask how often the first Figure 4 is contained in the first Figure 8, the Answer is two times, wherefore I multiply 2 in the *Quotient* by 42, the *Divisor* and the *Product* is 84, which I place directly under 89, and subtract it, and there will remain 5. Then I put a Point under the next Figure, which is 0, and annex it to the *Remainder* 5, and it makes 50 for a new *Dividual*, and the Operation will stand as follows;

```
42) 8904 (21
    84..
    ————
     50
     —
```

Asking afterwards how often I can have 4 in 5, the Answer will be 1, which I place in the *Quotient*, and multiply the *Divisor* 42 by 1 which makes 42, which I place under 50, and subtract it from 50, and there will remain 8, which I place in order under the Line, and thereto annex the next Figure of the *Dividend* which is 4, and then it makes 84 for a new *Dividual*, and then the Operation will stand as follows;

```
42)8904(212
   84..
   ————
    50
    42
    ——
     84
     84
     —
      0
      —
```

For a Conclusion, I ask how often 4 is contained in 8, and the Answer will be 2 times, wherefore I put 2 in the *Quotient*, and thereby multiply the *Divisor* 42 by 2, which makes 84, and by subtracting 84 from 84 the Remainder is nothing, and the Operation is ended; so that if I divide 8904 Pounds amongst 42 Persons, each Person must have 212 Pounds.

Whenever the *Product* of the *Multiplication* by the *Divisor* is greater than the *Dividual* from which it ought to be subtracted, such *Product* must be struck out; and a lesser Figure is to be placed in the *Quotient*, for you cannot subtract a greater Figure from a lesser. For Example, if it be required to divide 4763585 by 587, because the *Divisor* 587, is bigger than the *Dividual* 476, I therefore put my Point to 3, then the *Dividual* becomes 4763, from which taking the *Divisor* 587 out of the *Dividual*, I find it 8 times (for 9 times is too much) so placing 8 in the *Quotient*, and having multiplied the *Divisor* thereby, which is 4696, and subtracting it out of 4763, the Remainder is 67, to which, by putting a Point to 5, then I have 675 for a new *Dividual*, and so proceeding according as before taught, your *Quotient* will be 8115, and so for the Remainder.

Thus 587)4763585(8115
4696...
675
587
888
587
3015
2935
80 the Remainder.

There is another Method of *Division*, preferable to any common Way of dividing, by dashing out of Figures, where the Steps of the *Division* are so confounded, by a promiscuous *Multiplication* and *Division*, that if any Error happens, it can scarce be corrected without beginning the Work a-new; but in this, explained underneath, the particular *Multiplications*, *Subtractions* and *Remainders*, which belong to every Figure of the *Quotient*, are so distinctly and clearly set down, that if an Error happen it may easily be reformed. As for Example.

Let it be required to divide 7910010295 by 59746; the Operation will stand thus:

```
59746)7910010295(132393
      59746.....
      ------
      193541          132393 Quotient mult. by
      179238           59746 Divisor
      ------          ------
       143030         794358
       119492        529572
       ------       926751
        235382     119157
        179238    661965
        ------    ----------
         561449   7909952178
         537714        58117 Remainder added
         ------   ----------
          237355  7910010295 Proof
          179238  ----------
          ------
           58117 Remainder.
```

We must observe that there are to be as many Points in the *Dividend*, as there are Figures in the *Quotient*, as in this Example, you have six Points in the *Dividend* and six Figures in the *Quotient*.

Division is proved by multiplying the *Quotient* by the *Divisor*, or the *Divisor* by the *Quotient*, and adding what remains of the *Division*, if there be any thing. If the Sum be found equal to the *Dividend*, the Operation is just, otherwise there is a Mistake.

These four great Rules, *viz.* *Addition*, *Subtraction*, *Multiplication* and *Division*, are the Foundation of all those other Operations in *Arithmetick*, I am going to demonstrate and elucidate, beginning by REDUCTION, which is the converting of Money, Weights, or Measures, into the same Value in other Denominations; for Instance, Pounds into Shillings and Pence; and Shillings and Pence into Pounds.

REDUCTION is of two Kinds: 1*st*, *Descending*, when a Quantity is to be brought from a higher Denomination to a lower. This is done by considering how many of the less next Denomination are contained in the next greater before, and by that Number multiplying the greater. Thus Pounds are reduced into Shillings by multiplying by 20; Shillings into Pence by multiplying by 12, and Pence into Farthings by multiplying by 4.

2*d*, *Ascending*, when a lower Denomination is to be reduced to an higher. This is done by Division. These two Kinds of *Reduction* will be confirmed by the following Examples.

Example of the Descending Reduction.

If I am asked how many Farthings there are in 564 Pounds, I must first multiply the 564 by 20, the Product whereof will be 11280 Shillings; then proceed to multiply the Shillings by 12, for the Reduction of them into Pence, and the Product will be 135360 Pence, which being multiplied by 4, will produce 541440 Farthings.

```
564
 20
-----
11280   Shillings
   12
-----
22560
11280
------
135360  Pence
     4
------
541440  Farthings
```

Example of the Ascending Reduction.

In order to perfect this Operation, you must divide the least by so many of its Denomination as are contained in the next greater; Thus 24720 Pence divided by 12, and the Quotient by 20, give 103 *l.* If there remains any thing in each Division, it is respectively either odd Pence, or Shillings: Thus 6713 reduced, give 27 *l.* 19 *s.* 5 *d.* Cut off the Last, the rest are the Pounds required.

If I be asked in 541440 Farthings how many Pounds (which is the Reverse of the Example for the *Descending Reduction*) the Operation will stand thus.

```
                12)      2|0)
4)541440(135360(1128|0
  4.....  12....  ------
  ------  ------      564 Pounds answer'd
  14      15
  12      12
  ------  ------
   21      33
   20      24
   ------  ------
    14      96
    12      96
    ------  ------
     24      00
     24      ---
     ---
     00
```

To expedite the Practice, several compendious Ways of *Reduction* have been invented. Thus Yards are turned into Ells, by subtracting a Fifth, and into Ells *Flemish* by adding a Fifth. Ells *Flemish* are reduced into Yards by subtracting a Quarter. Ells *Flemish* reduced to Ells *English* by multiplying by 6, and cutting off the right-hand Figure. Great Pounds of Silk of 24 Ounces, are reduced to Pounds of 16 Ounces, by adding one Half. Pounds of 16 Ounces into Pounds of 24, by subtracting one Third.

Tare *and* Tret *is also another Kind of* Reduction.

Tare is an Abatement or Deduction on the Price of a Commodity, on account of the Weight of Chests, Casks, Bags, Frails, *&c.* The Casks, Chests, or whatever else contains the Commodity, is also called *Gross*.

Tret is an Allowance made, in Commerce, for the Waste, or the Dust, that may be mixed with any Commodity; which is always 4 Pounds in every 104 Pounds.

The *Tare* is very different in different Merchandizes: In some there is none at all allowed. It is a Thing much more regarded in *Holland* than in *England*, or elsewhere. M. *Ricard* treating of the Commerce

merce of *Amsterdam*, observes, that the *Tares* are one of the most considerable Articles a Merchant is to be acquainted withal, if he would trade with Security.

Sometimes the *Tare* is, as it were, regulated by Custom; but generally, to aviod all Dispute, the Buyer and Seller make a particular Agreement about it. We shall here add from the forementioned Author, some Instances of *Tare* allowed at *Amsterdam*.

Spanish Wool is subject to a Kind of double *Tare*; for first they deduct the *Tare* marked on the Bales, and after that 24 Pounds *Tare* for every 175 Pounds Weight, besides the Rebate for prompt Payment. Indeed for the common Wools, the Seller will seldom allow above 14 *per Cent.* for the whole *Tare*; for which Reason the Bargain is to be agreed on before.

Tare of:
- *Roman* Allum is 4 *lb. per* Sack.
- *Irish*, &c. Butter, 20 *per Cent.*
- Crude Borax, 15 *lb. per Cent.*
- Cinnamon, 17 *lb.* the Burthen.
- Capers 33 *lb. per Cent.*
- White Pepper, 40 *lb. per* Barrel.
- Black Pepper, 5 *lb. &c.*

But to reduce *Tare* and *Tret* into Practice with regard to Arithmetick; if I be asked, for Example, in 48 *C.* 3 *qrs.* 14 *lb. Tare* 3 *C.* 3 *qrs.* 17 *lb.* how many Pounds neat; I proceed thus:

C.	*qrs.*	*lb.*	
48	3	14	Gross
3	3	00	*Tare* deducted
45	0	14	
4			
180	Quarters		
28			
1444			
361			
5054	Pounds neat		

```
            C.   qrs.  lb.
112)5054(45   0    14   neat
    448
    ---
     574
     560
     ---
      14
```

Which Pounds neat being divided by 112, gives me 45 *C.* 0 *qrs.* 14 *lb.* neat Weight.

Or this other Question: In 145 *C.* 2 *qrs.* 16 *lb. Tare* 14 *per* Hundred, *Tret* 4 *per* 104, how many Pounds neat: To answer which I proceed in the following Manner:

C.	*qrs.*	*lb.*	
145	2	16	
4			
582	Quarters		
28			
4662			
1165			
16312	*lb.* Subtle		
2039	*lb.* Tare		
14273	Remainder		
627	*lb.* Tret		
13646	*lb.* neat		

C.	*qrs.*	*lb.*	
145	2	16	
14			
580			
145			
2030			
9			allowed for the 2 *qrs.* 16 *lb.*
2039			

```
26)16312(627 lb. Tret
   156··
   ----
     71
     52
     --
     192
     182
     ---
      10
```

I divide the Pounds, by Subtle, by 26, because 4 Pounds is the 26th of 104 the Allowance always given for *Tret*.

```
                C.   qrs.   lb.
112)13646(121    3    10
    112··
    ----
     244
     224
     ---
      206
      112
      ---
       94
```

Or the Pounds neat being divided by 112, makes 121 *C.* 3 *qrs.* 10 *lb.* neat Weight.

And thus of all other Commodities, or Merchandizes, in Proportion.

The Rule of Three Direct, (also called, the *Golden Rule*, and the *Rule of Proportion*) is the next which falls under our Consideration.

The *Rule of Three* teaches how to find a fourth proportional Number, to three others given.

In this Rule we must always observe, in stating the Question, to make our first and third Number be of one Denomination, and the second Figure being the Supposition, must, after the Operation, be found in the same Degree, with the fourth Number sought. We must also make our first and third Numbers both of one kind. Then go unto the second or middle Number, and reduce that into the lowest Value there named; then multiply our second Number under our third, making that Number our *Dividend*, and divide by our first Number, and the *Quotient* of our *Division* answers the Question demanded; and is always of the same Denomination with our second Number, whether Pounds, Shillings, Pence, or Farthings, or any other Name or Kind whatever; which if it shall happen to be of any greater Number, whether of Weight, Measure, or Time, we may reduce them into its lowest Value, by the Rule of *Reduction* before taught.

Quest. If three Degrees of the Equator contain 70 Leagues, how many do 360 Degrees, the Circumference of the Earth, contain?

The Rule is this: Multiply the second Term 70, by the third 360, divide the *Product* 25200 by the first Term 3, the *Quotient* 8400 is the fourth Term required.

The Use of this *Rule* is of vast Extent both in common Life, and the Sciences; but has no Place but where the Proportion of the given Numbers is known. Suppose, for Instance, a large Vessel full of Water to empty it self by a little Apperture; and suppose three Gallons to flow out in a Minute; and it were required to know in what Time 100 Gallons would be thus evacuated: Here indeed are three Terms given and a fourth required, but as it is evident from Experience, that Water flows faster at first than afterwards, the Quantity of flowing Water is not proportional to the Time; and therefore the Question does not come under the *Rule of Three*.

The Things which come under Commerce are proportionable to their Prices; twice as much of any Commodity costing twice as much Money, *&c.* The Price therefore, of any Quantity of a Commodity being given, the Price of any other Quantity of the same, or Quantity of the Commodity answering to any other given him, is found by the *Rule of Three*. For Example, If 3 *lb.* cost 17 *s.* what will 30 *lb.* cost? Since as 3 *lb.* are to 30 *lb.* so is the Value of the former 17 *s.* to the Value of the Latter. The Question stands thus:

lb.	*s.*	*lb.*
3	17	30

```
      17
      --
     210
     30
     --
3) 510 (170 s.
```

8 *l.* 10 *s.*

Again,

Again, if 3 Pounds be bought for 17 *s.* how many will 170 *s.* buy; since as 17 *s.* is to 170 *s.* so are 3 Pounds to the Pounds required: The Number will be found thus:

```
s.          lb.          s.
17 ———— 3 ———— 170
                   3
                 ———
            17) 510 (30 lb.
                 51
                 ———
                  00
```

If the given Terms be heterogeneous, *i. e.* have broken Numbers among them, they do not bear the same Proportion to each other with the Things they express bear. They must therefore be reduced to homogeneous ones, or to the same Denomination, as Pounds into Shillings, *&c.* as I have observed already. For Example; If 3 *lb.* and 4 *oz.* cost 2 *s.* 4 *d.* what will 2 *lb.* cost. The Operation will run thus:

```
lb. Oz.        s.  d.        lb.
 3  4 ———— 2   4 ———— 2
16          12          16
———         ——          ——
53          28          32
                        28
                       ———
                       256
                       64
                      ———
                 52) 896 (17 d. 12/52
                     52
                     ———
                     376
                     364
                     ———
                      12
```

In many Cases of Commerce and Account, we have more compendious Ways of working Questions that come under the *Rule of Three*, than by the *Rule* itself, which by Reason of their expediting Practice, are called PRACTICE, and constitute a particular Rule of themselves; especially where the first Term is 1, or Unity. These Practices are called *Italian Practices* or *Usages*, because first introduced by the Merchants, and Negotiants of *Italy*. The most useful of these Practices are as follow.

1. Since the Use of the *Rule of Three*, is to find a fourth Proportional to three given Numbers, divide the first and second, or the first and third, by some common Number, if that can be done exactly; and work with the *Quotient* in their Stead; as in the following Example.

Price of 3 *lb.* is 9 *s.* what is the Price of 7 *lb?*

```
3) 1    3                    3
                             ———
                  Fecit 21 s.
```

Price of 14 *lb.* is 26 *s.* what is the Price of 7 *lb?*

```
7) 2    2)—                  1
      Fecit 13 s.
```

2. If the first Term be 1, and the second an aliquot Part of a Pound, Shilling, or Penny; divide the third by the aliquot Part; the *Quotient* is the Answer. *Note*, that the *aliquot* Part is such Part of any Number or Quantity, as will exactly measure it, without any Remainder. Or it is a Part, which being taken a certain Number of Times, becomes equal to the whole or Integer. Thus 3 is an aliquot Part of 12, because being taken four Times, it will just measure it.

For Example, if 1 Ell cost 10 *s.* what cost 957 Ells?

Fecit 478 *l.* 10 *s.*

3. If the first or third Number be 1, the other not exceeding large, and the Middle Term a Compound, *i. e.* consists of several Denominations; it may be wrought without *Reduction* thus:

Price of 1 *lb.* is 3 *s.* 8 *d.* ¾, what is the Price of 5 *lb?*

```
s. d.
3  8  3/4
          5
       ———
Fecit 18  7  3/4
```

For four Farthings making a Penny, 5 Times 3 Farthings make 3 *d.* ¾ and 12 Pence making One Shilling, 5 Times 8 Pence make 3 *s.* 4 *d.* which with 3 *d.* from the Place of Farthings, make 3 *s.* 7 *d.* *Lastly*, five Times 3 *s.* make 15 *s.* and with the 3 *s.* from the Place of Pence 18 *s.* the Price required therefore is 18 *s.* 7 *d.* ¾

4. If the middle Term be not an Aliquot, but an aliquant Part, resolve the aliquant Part into its aliquot Parts; divide the middle Term by the several Aliquots, the Sum of the *Quotient* is the Answer. *Note*, Aliquant Part is that which will not measure or divide any Number exactly, but some Remainder will still be left. Or, an aliquant Part, is that which being taken any Number of Times, is always greater or lesser than the whole. Thus 5 is an aliquant Part of 12; for being taken twice it falls short; and when taken three Times it exceeds 12.

For an Instance of this Rule:

```
If 1 Ell costs 15 s.      What costs 124 Ells?
               1/2                 1/2) 62
               1/4                      31
                                        ——
                          Fecit  93 l.
```

5. If the first or second Term be 1; and in the former Case the second or third; in the latter the first, be resolvable into Factors; the Operation may be performed in the Mind without writing down any Figures; as in the following Example:

```
Price of 1 lb. is 24 s.   What is 20 lb.
                4                  4
                                   ——
                6                  80
                                    6
                                   ——
                          Fecit 480 s.   24 l.
```

6. Where one of the given Numbers is 1, we have several compendious Usages to save *Multiplication* and *Division*, e. gr.

If 9 *lb.* costs 20 *s.* What does 1 *lb.*

It is obvious the Sum required is had by adding to the tenth Part of 20 Shillings, *viz.* 2 *s.* the ninth Part of that Tenth, *viz.* 3 *d.* ½ and ⅔ of a Penny; the Answer therefore is 2 *s.* 3 *d.* ½ and ⅔.

Again if 5 *l.* costs 45 *s.* what costs 1 *lb.*

Since 5 is half of 10, the Double of the tenth Part of the given Price, *viz.* 10 *s.* 9 *d.* ½, 9 is the Sum required.

Again if 1 *l.* costs 18 *d.* What will 19 *lb.* cost?

Since 19=20−1; from the given Price doubled and increased by a Cypher, *viz.* 360, subtract the simple 18, the Remainder is 342 *d.* = 28 *s.* 6 *d.* the Sum required.

7. If

7. If two Terms of the ſame Denomination differ by an Unit, we have a peculiar Kind of Compound, which will be clear from the following Examples, *e.g.*

If 5 *lb.* coſts 30 *s.* What will 4 *lb.* coſt?

Since the Price of 4 *lb.* is one fifth Part ſhort of that of 5 *lb.* divide the given Price 30 by 5; the Quotient 6 being ſubtracted from the Dividend, the Remainder, *viz.* 24 *s.* is the Sum required.

Again, if 8 *lb.* coſts 24 *s.* What coſts 9 *lb.*?

Since the Price of 9 *lb.* exceeds that of 8 by one eighth Part; divide the given Price 24 by 8, and add the Quotient 3 to the Dividend; the Sum 27 is the Anſwer.

8. Sometimes one may uſe ſeveral of theſe Compounds or Practices in the ſame Queſtion. *e.gr.*

If 100 *lb.* coſts 30 *s.* 4 *d.* What coſts 50 *lb.*?
50)2.2.

Fecit 15 *s.* 2 *d.*

Again 60 *lb.* coſts 4 *s.* What coſts 2520 *lb.*?

```
  6          42
 --          --
 24           6
  7           7
 --
168 l.
```

The Rule of Three Inverse, is where the natural Order of the Terms is inverted. As if 100 Workmen build a Houſe in 2 Years, in how long a Time will 200 Workmen build the ſame?

This is uſually conſidered by the Writers of *Arithmetick*, and taught in the Schools as a particular *Rule*; being wrought by multiplying the firſt Term 100 by the ſecond 2, and dividing the Product 200 by the third Term 200, the Quotient 1 is the Number required.

But there is no Neceſſity for making a particular *Rule* for the Matter; this coming naturally enough under the former, by only ranging the Terms as the Nature of the Queſtion requires. Thus it is evident, that as the Number of Men 200 is to 100, ſo is the Space 2 Years, wherein 100 build the Houſe, to the Space wherein 200 will build the ſame. For the leſs Time the more Hands are required; the Queſtion then will ſtand thus:

```
100 M. ——— 2 Y. ——— 200 M.
  2
-----
200)200(1 Year.
```

Compound Rule of Three, or *Rule of five Numbers*, is where two *Rules of Three* are required to be wrought, before the Number ſought be found. As if 300 *l.* in 2 Years yield 30 *l.* Intereſt, how much will 1000 *l.* yield in 12 Years?

Here the firſt Thing to be done is to find by the *Rule of Three*, what Intereſt 1000 *l.* will give in 2 Years; and then by the ſame *Rule* what it will give in 12 Years?

This is conſidered by the Writers, *&c.* of *Arithmetick*, as a particular *Rule*, but without any Neceſſity; a double Operation ſolving it better, as in this Example:

```
300 l. —— 1000 l. —— 30 int.
             30
          -------
3|00)300|00(100 int.
```

```
2 Y. ——— 12 ——— 100 l.
                 12
                ----
2)12000(600 int.
```

But in Queſtions of this Kind a ſingle *Rule of Three* may do the Buſineſs: For 300 *l.* give the ſame Intereſt in 2 Years, which twice 300 give in one Year; and 12 Times 1000 *l.* give the ſame Intereſt in one Year, that 1000 give in 12: Omitting therefore the Circumſtances of Time ſay, if twice 300 (that is 600) give 36 *l.* Intereſt (in one Year) what will 12 Times 1000 (that is 12000) give (in one Year)?

```
600 ——— 12000 ——— 36
          36
       -------
       72000
       36000
       -------
6|00)4320|00(720 l. int.
```

The next *Rule*, deſerving our Notice, is that of *Fellowſhip*, which is a Rule of great Uſe in ballancing Accompts amongſt Merchants and Owners of Ships; where a Number of Perſons putting together a general Stock, it is required to give every one his proportional Share of his Loſs or Gain.

The *Rule of Three* ſeveral Times repeated is the *Baſis* of *Fellowſhip*, and fully anſwers all the Queſtions of that Kind; for as all the whole Stock is to the Total thereby gained or loſt; ſo each Man's particular Share is to its proper Share of Loſs or Gain. Wherefore the ſeveral Sums of Money of every Partner are to be gathered into one Sum for the firſt Term; the common Gain or Loſs for the ſecond; and every Man's particular Share for the third; and the *Golden Rule* to be wrought ſo many Times as there are Partners.

There are two Caſes in this *Rule*, the one *without*, the other *with Time*.

Fellowship without Time, is where the Quantity of Stock, contributed by each Perſon, is alone conſidered; without any particular Regard to the Length of Time, that any of their Monies were employed. An Example will make this Proceſs eaſy.

A.B. and *C.* freight a Ship with 212 Ton of Wine; *A.* laying out 1342 *l.* *B.* 1178 *l.* and *C.* 630 *l.* towards the ſame; the whole Cargo is ſold at 32 *l.* *per* Ton; *Query*, what ſhall each Perſon receive?

Find the whole Produce of the Wine by multiplying 212 by 32, which yields 6784. Then adding together the ſeveral Stocks, 1342, 1148, and 630; which make 3150, the Work will ſtand thus:

```
                1342 —— Anſwer —— 2890
3150 : 6784 {   1178 ——————————— 2537
                 630 ——————————— 1356
                ————————————————————
        Proof   3150 ——————————— 6783
```

Barter is next in Order. *Barter* is the exchanging Wares for Wares, or one Commodity for another, for Example:

Two Merchants barter. *A.* has 3 C. 2 Qrs. of Pepper at 13 *d.* ½ *per* lb. *B.* has Ginger at 15 *d.* ½ *per* lb. I would know how much Ginger muſt be delivered for the Pepper. The Proceſs is thus:

1. If 1 lb. of Pepper costs 13 *d.* ½. What will 3 C. 2 Qrs.?

```
13 d. ½                    3 C. 2 Qrs.
 4                          4
 --                         --
 54                         14
 --                         28
                            ---
                            112
                            28
                            ---
          12                392
4)21168(5292(44|3           54
  .... 48..  ---            ---
       --    22|3           1568
       49                   1960
       48                   -----
       --                   21168
        12   Answer 22 l. 3 s.
        12
        --   Pepper.
         0
```

2. If 15 *d.* ¼ buys 1 lb. of Ginger, what will 22 *l.* 3 *s.*

```
 4                                  20
 --                                 --
 61                                 443
                                     12
          L.                        ----
61)21264(348 + 36/61                5316
   183..  Ginger.                      4
   ---                              -----
    296                             21264
    244                             -----
    ---
     524
     488   Answer 348 = 36/61 Pounds of Ginger
     ---        must be delivered for the Pepper.
      36
      --
```

Another EXAMPLE.

A. has 100 Pieces of Silk, which are worth but 3 *l.* a Piece in ready Money, yet he barters them with *B.* at 4 *l. per* Piece, and at that Rate takes their Value of *B.* in Wools at 7 *l.* 10 *s. per* C. which are worth but 6 *l. per* C. in ready Money: The Question will be to know what Quantity of Wool pays for the Silks, and which of the two, *A.* or *B.* is the Gainer, and how much?

To which I answer 53 C. ⅓ of Wools pay for the Silk, and *A.* gains 20 *l.* in Money by the Barter. Demonstrated thus:

```
      l.  s.                  l.          l.
1. If 7   10 ---------- become 6, what will 400
                                  Facit 320

      l.                  l.                l.
2. If 6 ready Money buys 1 of Wool, what will 320
   ready Money?

                Answer. 53 C. ⅓ of Wools.
```

So it is evident that the true Weight of the Wool which *B.* delivered was 320 *l.* for which he received only of *A.* the Worth of 300 *l.* in Silks, and therefore *B.* looses 20 *l.* by the *Barter.*

Rebate, is also a very useful Rule of *Arithmetick. Rebate* is the Payment of so much ready Money, in lieu of a Sum due at any Time to come, which put forth at Interest for any such Time, would become equal to that Sum, so due, at any Time to come. For Example:

A Merchant, who is to receive 1680 *l.* at 9 Months end, desires to have his Money immediately paid him, for which Courtesy he is willing to abate 8 *per Cent. per Ann.* Interest; the Question is to find, how much present Money is equivalent to 1680 *l.* rebating 8 *l. per Cent.* The Rule is thus:

As 1 Year or 12 Months, or 365 Days, is to the Rate of Interest proposed, so is the Time proposed the third Term, to find the fourth Number sought.

```
          Months        l.          Months.
So if 12 ----------- 8 ----------- 9
                                    Facit 6 l.

          l.                l.                l.
Then if 106 Rebate come from 100, what will 1680
                                                100
                                                ----
                l.                              168000
106)168000(1584 + 96/106                        ------
    106...
    ----
     620
     530
     ---                    l.    s.   d.
     900          Answer 1584   18   6 3/4
     848
     ---
      520
      424
      ---                   s.   d.
       96         96/106 Facit 18   6 + 3/4
       --
```

Which said 1584 *l.* 18 *s.* 6 *d* ¾, which is the present Money the Merchant must receive, being deducted from 1680, there remains the Money rebated, *viz.*

```
 l.   s.   d.
95    1    5 3/4

 l.   s.   d.
1680  00   0
1584  18   6 3/4  Subtract
----------------
 95   1    5 1/4  Money rebated.
```

Quest. 2. How much present Money is equivalent to a Rent or Annuity of 100 *l.* a Year to continue five Years, *Rebate* being made at the Rate of 6 *l.* for 100 *l.* for one Year simple Interest.

```
1|106  100  100   facit 94   06   0
2|112  100  100   facit 89   05   6
3|118  100  100   facit 84   08   0
4|124  100  100   facit 80   12   2
5|130  100  100   facit 76   18   1 1/2
                        2
                  ----------------
          very near 425   18   9 1/2
                  ----------------
```

So that by this Question it is manifest there must be computed the present Worth of 100 *l.* due at the first Year's End; also the present Worth of 100 *l.* due at the second Year's End; and in like Manner, the third, fourth, and fifth Years, all which present particular Worth being added together, the Sum will be the Total above propounded, *viz.*

```
          l.   s.   d.
very near 425  18   9 1/2
```

This *Rule* leads us naturally into what is called *Interest.*

Interest, is a Sum of Money reckoned for the Loan and Forbearance of some other Sum, lent for, or due at, a certain Time, according to some certain Rate; in Respect hereof the Sum lent or forborn is called the *Principal*, because it is the Sum that pre-

creates the Intereſt, or from which the Intereſt is reckoned.

Intereſt is either *ſimple* or *Compound.*

SIMPLE INTEREST is that counted from the Principal only. This is eaſily computed by the *Golden Rule*, either *Simple* or *Compound*, thus:

Let that which is the principal Cauſe of the *Intereſt* be put in the firſt Place, that which betokeneth Time in the ſecond Place, and the Remaining in the third. Under this conditional Part place the two other Terms, each under its like, and there will be a Blank to ſupply under one of thoſe above, either under the firſt, ſecond, or third.

l.	Months	*l.*
100	12	6
50	03	

Here the Blank will be under the third Place, multiply the three laſt for a Dividend, and the two firſt for a *Diviſor*, the *Quotient* of theſe gives the ſixth; that is, $6 \times 50 \times 3 = 900$, and $100 \times 12 = 1200$. now 1200)900.0(73=15 *s.* required.

If the Demand had been, in how many Months would 50 *l.* have gained 15 *s.* or if 100 *l.* in twelve Months gains 6 *l.* what ſhall the Principal be that in three Months would gain 15 *s.* In theſe Caſes the Blank would have been under the firſt or ſecond Term; then by another Rule, multiply the firſt, ſecond, and laſt for a Dividend, and the third and fourth for a *Diviſor*; the *Quotient* is the Anſwer.

l.	Months	*l.*
100	12	6
	3	75=15 *s.*

Then by the Rule $100 \times 12 \times .75 = 900.00$ and $6 \times 3 = 18$)900.(50 *l.* required.

This *Rule* ſhews *Simple Intereſt*, and all that belongs to it, with Eaſe, and was thus found: Put P for the Principal, T for the Time, and G. for the Gain in the Conditions, and p t g anſwering, it will be, $P : G :: t : p : \frac{GP}{P}$ and $T : Gp :: t \frac{Gpt}{TP} = g$, which is the firſt Rule; that is, multiply the three laſt for a Dividend, and the two firſt for a Diviſor, and becauſe $\frac{Gpt}{TP} = g$, therefore $Gtp = TPg$, and conſequently $t = \frac{TPg}{Gp}$ and $p = \frac{TPg}{Gt}$, which is the ſecond Rule.

COMPOUND INTEREST, is that which is counted both from the Principal, and the *ſimple Intereſt* forborn, called alſo *Intereſt* upon *Intereſt.*

This Sort of *Intereſt* is commonly worked by *Decimal Arithmetick*; but for the better underſtanding of it I ſhall ſtate a few Queſtions, to be performed by *Vulgar Arithmetick.* For Example:

If 300 *l.* be put out at 6 *l. per Cent. per Ann.* reckoning Intereſt upon Intereſt, what Money muſt I receive then?

l.	*l.*
300 at 6 *per Cent.*	
6	
18|00	

l.	*s.*	*d.*	
300	00	0	Principal
18	00	0	Intereſt
318	00	0	Increaſe the firſt Year.

l.	*s.*	*d.*	*l.*
318	00	0	at 6
		6	
19|08	00	0	
|20			
1|60			
|12			
7|20			
| 4			
0|80			

l.	*s.*	*d.*	
318	00	0	
19	01	7	
337	01	7	Increaſe the 2d Year.

l.	*s.*	*d.*	*l.*
337	1	7	at 6 *per Cent.*
		6	
20|22	9	6	
|20			
4|49			
|12			
5|94			
| 4			
3|76			

l.	*s.*	*d.*	
337	1	7	
20	4	5 $\frac{3}{4}$	
357	6	0 $\frac{3}{4}$	Increaſe Third.

l.	*s.*	*d.*	*l.*
357	6	0 $\frac{3}{4}$	at 6 *per Cent.*
		6	
21|43	16	4 $\frac{1}{2}$	
|20			
8|76			
|12			
9|16			
| 4			
0|66			

l.	*s.*	*d.*	
357	06	0 $\frac{3}{4}$	
21	08	9	
378	14	9 $\frac{3}{4}$	Fourth Year.

So that at the fourth Year's End he muſt receive for Principal and Intereſt 378 *l.* 14 *s.* 9 *d.* $\frac{3}{4}$.

This Way of Operation is more compendious than by the *Rule of Three.*

Firſt ſtate your Queſtion as before. If 100 *l.* gain 6 *l.* what will 300 *l.* your Principal? Multiply firſt your Principal by your Intereſt; that done, cut off the two firſt Figures towards your Right Hand of the Pounds with a Line. Then multiply them by 20, 12, and 4, and all above two Figures towards your Right Hand, carry over the Line to the Left, as you ſee in the above-mentioned Example.

Thus much for *Simple* and *Compound Intereſt* 'till we come to *Decimal Arithmetick.* At preſent we'll proceed to the Exchange of Coins from one Country to another, which is done by Means of Bills of *Exchange*, *i. e.* by giving Money in one City, and receiving a Bill to entitle the Giver to receive the Value in another City; to accompliſh which, it is neceſſary a Merchant ſhould know daily upon the *Exchange*, how the Equality or *Par* of Coins riſes or falls; ſince the Riſing, Falling, or Debaſing of the Coins is ſo ſubject to change, eſpecially in *France* and other Countries. The Queſtions on this Subject may be worked by the *Rule of Three.* For Example:

A Merchant delivered 530 *l. Sterling* in *London*, at 20 *s. per l.* to receive the ſame, by a Bill of *Exchange*, at *Amſterdam*, the Exchange at thirty-three Shillings and fourpence *Flemiſh*, for a Pound *Sterling*, I demand the ſame in *Flemiſh* Money. *Note*, That in the Stating of your Queſtion, your firſt and third Numbers

bers muſt be both of one Kind; if the firſt be *Sterling* Money, the third muſt be *Sterling*; if the firſt be *Flemiſh*, the third muſt be *Flemiſh*. Therefore I aſk if 20 *s.* *Sterling* give 33 *s.* 4 *d.* what will 530 *l.* *Sterling*?

```
   s.          s.  d.          l.
If 20———————33  4———————530
            12                20
            ——                ———
           400               10600
           ——                  400
                             ————
                            4240000
                            ————
              12
20)4240000(212000(1766|6
   40.....  12....  ————————
   ——       ——        883|6  8
   24       92       ————————
   20       84
   ——       ——
   40       80
   40       72
   ——       ——
    0        80
   ——        72
             ——
              80
              72
              ——
               8
               ——
```

Anſwer Flem. 883 *l.* 6 *s.* 8 *d.*

Or thus ſhorter:

```
     l.        s.  d.
3) 530  at     33  4
    33
  ————
   1590
  1590
  ————
  17490
    176    8
  ————————
  1766|6   8
  ————————
   883|6   8
```

I aſk farther at what Rate went the *Exchange* from *London* to *Rotterdam*, when I delivered 700 Pounds *Sterling* in *London*; and received in *Rotterdam* 1010 *l.* *Flemiſh*?

If 700 *l.* *Sterling* make 1010 *l.* *Flemiſh*, what will 20 *s.* *Sterling*?

	l.	*s.*	*d.*
Facit per Rule of Three	1	8	10 $\frac{1}{4}$

l.	*l.*	*s.*	*d.*	
Proof 700	at 01	8	10$\frac{3}{4}$	
1				
$\frac{2}{5}$)700	00	00	00	8 *s* $\frac{2}{5}$ of a *l.* *Sterling*.
8)140	00	00	00	6 *d.* $\frac{1}{8}$ of 4 *s.*
8)140	00	00	00	3 *d.* $\frac{1}{2}$ of 6 *d.*
2) 17	00	00	00	1 *d.* $\frac{1}{12}$ of 3 *d.*
8	15	00	00	$\frac{1}{96}$ of 1 *d.* $\frac{1}{2}$
4	07	06	00	
0	14	07	00	
1011	07	01	00	Small Difference.

From the *Exchange* we'll proceed to *Alligation*, a *Rule* or *Operation*, whereby Queſtions are reſolved, relating to the Mixture of Commodities or Ingredients, together with the Value, Effect, *&c.* thereof in Compoſition.

Alligation is of two Kinds, *Medial* and *Alternate*.

ALLIGATION *Medial*, is when from the ſeveral Quantities and Rates of divers Simples given, we diſcover the mean Rate of a Mixture compounded out of them. The ſeveral Caſes hereof, will come under the following Rules. For Example:

Of 5 Buſhels of Wheat at 2 *s.* 8 *d.* a Buſhel, 9 Buſhels of Rye at 2 *s.* *per* Buſhel, I would know how much the Buſhel ſo mixed would ſtand me in, the one with the other.

To work this Rule, I muſt multiply the Ingredients ſeverally by their own Prices, and divide the Sum of thoſe *Products* by the Sum of the Ingredients, the *Quotient* anſwers the Queſtion.

Therefore repeating again the above-ſaid Example, I demand how much that Miſtling is worth? Thus according to *Rule*.

```
 s.  d.        s.        s.  d.
 2   8         2         13  4
 5             9         18  0 add
 ————          —         ————————
 13  4         18        31  4
                         12
                         ————————
                         376   Dividend
```

5 Buſhels of Wheat
9 Buſhels of Rye
— add
14 Diviſor

Then 376 divide by 14. *Anſwer*, 2 *s.* 2 *d.* $\frac{4}{7}$

```
          12  s.  d.
14) 376 (26| 2   2 + 4/7 or 6/7
    28·  24
    ——   ——
     96   2
     84   —
     ——
     12
```

So that I conclude that a Buſhel of that Miſtling may be afforded for 2 *s.* 2 *d.* $\frac{6}{7}$, or $\frac{1}{3}$ *Farth.* Which is the Reſolution of the Queſtion propoſed.

In *Alligation medial*, the *Proof* of the Work is by comparing the total Value of the ſeveral Simples, with the Value of the whole Mixture; and when thoſe Sums agree, the Operation is perfect; ſo as in this Example.

```
                                          s.  d.
5 Buſhels of Wheat at 2 s. 8 d. is ——— 13  4 }
9 Buſhels of Rye at 2 s.           ——— 18  0 } add
                                          ————
                                          31  4
```

all which amounts unto 31 4

which is likewiſe the Value of 14 Buſhels of Wheat at 2 *s.* 2 *d.* + $\frac{3}{7}$. For by the *Rule of Three*, if 1 Buſhel coſt 2 *s.* 2 *d.* + $\frac{3}{7}$ what will 14 Buſhels? *Anſwer*, 31 *s.* 4 *d.* with the Fraction $\frac{6}{7}$, or $\frac{1}{3}$ *Farth.*

The Nature, Quality, *&c.* of the ſeveral Ingredients of a Mixture being given, to find the Temperament, or Degree of Fineneſs reſulting from the whole. Place the ſeveral Quantities of the Mixture in Rows; againſt which, place the ſeveral Qualities or Fineneſs; then as the Sum of the Quantities is to their Product, ſo is Unity to the Quality or Fineneſs of the Mixture. For Example.

A Goldſmith has 8 *lb* Weight of Silver Bullion of 7 *Oz.* fine, 15 *lb.* of 8 *Oz.* $\frac{1}{2}$ fine, and 13 of 10 *Oz.* fine, and he would melt all together, and know what Fineneſs a Pound weight of that Maſs would come to?

lb. Oz.

lb. Oz.	*lb. Oz.*	*lb. Oz.*
8 of 7	2) 15 of 8 $\frac{1}{2}$	13 of 10
7	8	10
56	120	130
	7 $\frac{1}{2}$	
	127 $\frac{1}{2}$	

add	56		8
	127 $\frac{1}{2}$		15
	130		13
	313 $\frac{1}{2}$		36
	2		2
Dividend	627	Divisor	72

Oz. *Pwt. Gr.*

72) 627 (8 + $\frac{51}{72}$ or $\frac{17}{24}$ makes 14 4

576

51

Answer, the Mass must be 8 *Oz.* 14 *Pwt.* 4 *Gr.*

Given the Total of a Mixture with the whole Value; and the Value of the several Ingredients, to find the several Quantities mixed though unequally. Multiply the Total of the Mixture by the least Value, subtract the Product from the total Value; and the Remainder is the first Dividend. Then take the said least Value from the greatest valued Ingredient, and the Remainder is the first Divisor. The Quotient of this Division shews the Quantity of the highest-priced Ingredient, and the other is the Complement of the whole. And when more Ingredients than two are in the Composition, the Divisors are the several Remains of the least Value, taken from the other: The Dividends are the Remains left upon the Divisions, till none remain there; which will be one short of the Number of Ingredients; and this defective Ingredient is to be supplied as a Complement; and in Division no more must be taken in every Quotient, than that there may remain enough for the other Divisors; and the last to leave nothing remaining.

ALLIGATION *Alternate*, is when the Rates or Qualities of several Simples are given; and the Quantity of each is required necessary to make a Mixture of the given Rate or Quality. *Alligation Alternate*, shews the due Proportion of several Ingredients; and counter-changes the Places of such Excesses or Differences as arise between the mean Price and the Extremes; ascribing that to the greater Extreme, which proceeds from the lesser; and contrarily.

The Rules which obtain in *Alligation Alternate*, are these,

First, You must set down the Numbers of which you will make the *Alligation*, orderly one under the other: And the common Number whereinto you must reduce them, set on the Left-hand. Then note which of the said Numbers are lesser than that common Number, and which of them be greater, and with a Draught of your Pen link two Numbers together; so that the least Number may be still linked with the greatest, and the greatest with the smallest. Then add up all these Differences into one Total, which shall be the first Number in the *Rule of Three*, and the second Number the common Number, then the third must be each Difference done by itself. For Example:

A Vintner has four Sorts of low Wine of four several Prizes; the first at 8 *d. per* Gallon, the second at 10 *d. per* Gallon, the third at 15 *d. per* Gallon, and the fourth at 18 *d. per* Gallon: Now he would mix all these Sorts together, that a Gallon of these (lower, decay'd) Wines may be worth 12 *d.* the Puncheon holding 84 Gallons. Then:

12 { 8 — 6, 10 — 3, 15 — 2, 18 — 4 } 15

Gall.

If 15 —— 84 —— 6

Facit 33 + $\frac{3}{5}$ of the first Sort.

Gall.

If 15 —— 84 —— 3

Facit 16 + $\frac{4}{5}$ of the second Sort.

Gall.

If 15 give —— 84 —— what will 2

Facit 11 + $\frac{1}{5}$ of the third Sort.

Gall.

If 15 give —— 84 —— what will 4

Facit 22 + $\frac{2}{5}$ of the fourth Sort.

which Quantities added up make 84, *viz.*

		Fractions
add	33	3
	16	4
	11	1
	22	2
	2	
for the Proof	84	10 *Facit.*

5) 10 (2 for Fractions.

Further, A Goldsmith has divers Sorts of Gold, *viz.* some of 24 Carracts, others of 22 Carracts, others of 18 Carracts, and others of 16 Carracts fine; is desirous to melt as much of all these four Sorts together, as may make a Mass of Gold to contain 16 Ounces of 21 Carracts fine. Then he proceeds thus:

21 { 24 — 5, 22 — 3, 18 — 1, 16 — 3 } 12

Oz.

If 12 —— 60 —— 5

Facit 25 Ounces of the first.

Oz.

If 12 —— 60 —— 3

Facit 15 Ounces of the second.

Oz.

If 12 —— 60 —— 1

Facit 5 Ounces of the third.

Oz.

If 12 —— 60 —— 3

Facit 15 Ounces of the fourth.

which Quantities so taken and mixed, make up the Mass of 60 Ounces of 21 Carracts fine.

	Oz.	
viz.	25	of the first Sort
	15	of the second Sort
	5	of the third Sort
	15	of the fourth Sort
	60	of 21 Carracts fine.

When we calculate on several false Numbers, taken at random, as if they were true ones; and from the Differences found therein, determine the Number sought; such Rule is called in *Arithmetick* the Rule of *False Position*, which I'll demonstrate in this Place.

POSITION is either *Single* or *Double*. *Single Position* is when there happens in the Propositions some Partition of Numbers into Parts proportional, in which Case the Question may be resolved at one Operation by this Rule. Imagine a Number at Pleasure, and work therewith, according to the Tenor of the Question, as if it was the true Number; and

what Proportion there is between the falſe Concluſion and the *falſe Poſition*, ſuch Proportion the given Number has to the Number ſought. Therefore the Number ſought by Argumentation, ſhall be the firſt Term of the *Rule of Three*; the Number ſuppoſed the ſecond Term; and the given Number the third. For Example:

Three Men build a Ship (which coſt them 2700 *l.*) *viz.* *A*, *B*, and *C*, and they ſo agree that *B* is to pay double what *A* muſt pay, and *C* triple of what *B* pays; I would know how much every Man ought to pay? To reſolve this Queſtion, I ſuppoſe *A* paid 6 *l.* therefore *B* paid 12 *l.* and *C* muſt pay 36 *l.* But by this *Poſition* of 6 *l.* + 12 *l.* + 36 *l.* added, makes but 54 *l.* which by the Intent of the Queſtion ought to have been 2700 *l.* nevertheleſs by thoſe ſuppoſitional Numbers I ſhall diſcover the true Sums which the ſeveral Parties ought to pay; for I ſay, by the *Rule of Three*:

1ſt. As 54 *l.* is to — 6 *l.* — what will 2700 *l.*
6
16200

54) 16200 *l.* (300 *l.* *A* muſt pay
162··
000

2d. As 54 *l.* is to — 12 *l.* — what will 2700 *l.*
12
32400

54) 32400 *l.* (600 *l.* *B* muſt pay
324··
00

3d. As 54 *l.* is to — 36 *l.* — what will 2700 *l.*
36
16200
8100
97200

54) 97200 *l.* (1800 *l.* *C* muſt pay
54···
432
432
00

Proof		*l.*
	A pays	300
	B pays	600
	C pays	1800

Total is 2700 the Sum propounded.

Further, A Gentleman having about him a certain Number of Crowns, ſaid, if a Fourth, a Third, and a Sixth of them were added to what he had about him, they would make 45 Crowns, what were the Number of Crowns he had about him? *Anſwer* 60 Crowns. I ſuppoſe then he had 24 Crowns.

	Crowns
$\frac{1}{4}$ of 24 is	6
$\frac{1}{3}$ of 24 is	8
$\frac{1}{6}$ of 24 is	4
all which make	18

But if 18 come of 24 what will 45 *Crowns*?

24
180
90
18) 1080 (60 *Crowns*
108
0

Proof		*Crowns*
	$\frac{1}{4}$ of 60 is	15
	$\frac{1}{3}$ of 60 is	20
	$\frac{1}{6}$ of 60 is	10

Facit 45 Crowns

Thus far for the *Single Poſition*. The *Double Poſition* is, when there can be no Partition in the Numbers, to make a Proportion. In this Caſe therefore, you muſt make a Suppoſition twice; proceeding therein according to the Tenor of the Queſtion. If neither of the ſuppoſed Numbers ſolve the Propoſition, obſerve the Errors, and whether they be greater or leſſer than the Reſolution requires; and mark the Errors accordingly with the Signs + and –

Multiply contrarywiſe, the one Poſition by the other Error; and if the Errors be both too great, or both too little, ſubtract the one Product from the other, and divide the Difference of the Products by the Difference of the Errors. But if the Errors be unlike, *viz.* one great and the other little, add the Products, and divide the Sum thereof by the Sums of the Errors added to the greater; for the Proportion of the Errors is the ſame with the Proportion of the Exceſſes or Defects of the Numbers ſuppoſed, to the Numbers ſought. A few Examples will demonſtrate this Rule to be plain and eaſy. *Note* that this Character – ſignifies that the leſſer of the two Numbers, betwixt which it is found, ought to be ſubtracted from the greater; and that this + intimates that the Numbers betwixt which it is found, ought to be added together. We muſt obſerve farther, that for the Operation of this Rule, we muſt draw two Lines a-croſs, and Place the Terms of the *Falſe Poſition*, (*viz.* thoſe that have the ſame Denomination) at the uppermoſt End of the Croſs, and each Error under its reſpective Poſition, at the lower End of the ſame Croſs. For Example:

A certain Man being demanded what was the Age of his four Sons? anſwered that his Eldeſt was four Years older than the ſecond; the ſecond four Years older than the third; the third four Years older than the fourth; and the fourth was half the Age of the eldeſt; we demand then what was the Age of each Son?

To anſwer which, ſuppoſe firſt the Age of the eldeſt 16, then by the Queſtion, the ſecond muſt be 12, the third 8, and the Fourth or youngeſt 4: but it ought to have been 8; ſo that it wants 4 of what it ought to be. I therefore make a ſecond Suppoſition, and take 20 for the Age of the eldeſt Son, then the Age of the ſecond will be 16, the Age of the third 12, and the Age of the fourth or youngeſt 8, which ſhould have been half 20, ſo that it wants 2 of what it ought to have been; ſo that in both theſe Suppoſitions there are Defects, and by Conſequence a-like the Scheme follows:

16 20
48
(24 both Defects work accordingly as *per* Rule.
4 2
2

16	20	
2	4	
32	80	
	32 subtract	
	48 Dividend	

4
2
2 Divisor 2) 48 (24 Years of Age the eldest.

Therefore the Age of the eldest is

24 eldest Son
20 second Son
16 third Son
12 youngest Son

Which answers the Question; for 12 the youngest Son is half the Age of the eldest, *viz.* 24.

Farther, let it be required to divide 100 *l.* among three Persons, *viz. A. B. C.* in such a Manner that the Share of *B.* may be the Triple of the Share of *A.* and 4 *l.* over and above; also that the Share of *C.* may be equal to the Sum of the Shares of *A.* and *B.* and 6 *l.* over and above. Thus:

Let the first Position for the Share of *A.* be 12, then *B.* must have 40 *l.* and *C.* 58 *l.* but 12 *l.* 40 *l.* and 58 *l.* is 110 *l.* which is 10 *l.* too much.

l.
12
40
58
110

Then for a second Position I suppose for the Share of *A.* 8 *l.* then *B.* must have 28 *l.* and *C.* 42 *l.* but 8+28+42=78 *l.* but this 78 *l.* is too little by 22; for if I subtract 78 from 100, there will remain 22, which is too little; therefore this Question, by the Suppositions proves one too little by 22, and the other Supposition 10 *l.* too much.

l.
8
28
42
—
78
—

264 + 80
12 8
344
10 *l.* + $\frac{3}{4}$ *lb.* or 10 *l.* 15 *s.*
10 + 22
32

	l.	*s.*	
Proof *A.*	10	15	
B.	36	5	
C.	53	0	
	100	0	Total.

Farther, A Man gives away his Estate in this Manner, to *A.* $\frac{1}{2}$, and he gave back 10 *l.* to *B.* $\frac{1}{3}$, and he gave back 6 *l.* and to *C.* $\frac{1}{4}$, and he gave back 4 *l.* Last of all he had 16 *l.* remaining, what was his Estate?

For Supposition, suppose 60, then

60 $\frac{1}{2}$ 30−10=20
60 $\frac{1}{3}$ 20−06=14
60 $\frac{1}{4}$ 15−04=11
45

45+16=61 therefore is 1 too much.

Second Supposition; again, suppose 120 *l.* then,

120 $\frac{1}{2}$ 60−10=50
120 $\frac{1}{3}$ 40−06=34
120 $\frac{1}{4}$ 30−04=26
110

110+16=126 which is 6 too much

His Estate 848 *l.*

5)240(48 360
20 60 120
240
40 48
40
0 1 6
5

Proof
48 $\frac{1}{2}$ 24−10=14 *A.*
48 $\frac{1}{3}$ 16−06=10 *B.*
48 $\frac{1}{4}$ 12−04=08 *C.*
32+16=48 *l.*

Having thus far proceeded in *Arithmetick*, the next Thing deserving our Attention is the Doctrine of *Fractions*.

FRACTION in *Arithmetick* is a Part or Division of an Unit or Integer, or a Member which stands to an Unit, in the Relation of a Part to its whole.

Fractions are usually divided into *Decimal*, *Sexagesimal*, and *Vulgar*; but we will take no Notice in this Place, but of *Vulgar Fractions* only.

VULGAR FRACTIONS, called also simply *Fractions*, are always expressed by two Numbers, the one wrote over the other with a Line between them.

The lower, called the *Denominator of the Fraction*, denotes the Unit or whole that is divided into Parts; and the Upper, called the *Numerator of the Fraction*, expresses the Parts given in the present Cases. Thus two third Parts of a Line, or other Things are wrote $\frac{2}{3}$; where the *Denominator* 3 shews that the whole Line is supposed to be divided into three equal Parts; and the *Numerator* 2 indicates or assigns two of such Parts.

Again, twenty-nine Sixtieths is wrote $\frac{29}{60}$, where the *Numerator* 29 expresses 29 Parts of an Integer divided into 60; and the *Denominator* 60 gives the Denomination to these Parts, which are called *Sixtieths*.

The real Design of adding the *Denominator*, is to shew what aliquot Part the broken Number has in Common with Unity. In all *Fractions* as the *Numerator* is to the *Denominator*; so is the *Fraction* itself to the whole, whereof it is a *Fraction*. Thus supposing $\frac{3}{4}$ of a Pound equal to 15 *s.* it is evident that 3 : 4 :: 15 : 20, whence it follows, That there may be *infinite Fractions* of the same Value one with another; in as much as there may be infinite Numbers found, which shall have the Ratio of 3 : 4.

Fractions are either *proper* or *improper*. PROPER FRACTION, is that where the *Numerator* is less than the Whole or Integer, as $\frac{25}{40}$. IMPROPER FRACTION, is where the *Denominator* is either equal to or bigger than the *Denominator*; and of Course the *Fraction* equal to or greater than the Whole, or Integer, as $\frac{25}{25}$, or $\frac{25}{26}$, or $\frac{90}{22}$.

Fractions, again, are either *Simple* or *Compound*. SIMPLE FRACTIONS, are such as consist of only one *Numerator*, and one *Denominator*; as $\frac{1}{7}$, or $\frac{14}{35}$, *&c.* COMPOUND FRACTIONS, called also *Fractions of Fractions*, are such as consist of several *Numerators* and *Denominators*, as $\frac{4}{7}$ of $\frac{11}{12}$ of $\frac{5}{9}$ of $\frac{15}{80}$, *&c.*

Of *Fractions* these are equal to each other, whose *Numerators* have the same Ratio to their *Denominators*. Those are greater, whose *Numerators* have a greater Ratio; and those less, which have less: Thus $\frac{1}{2}=\frac{4}{8}=\frac{5}{10}=\frac{25}{50}=\frac{1}{2}$. But $\frac{1}{2}$ is greater than $\frac{2}{6}$; and $\frac{4}{6}$ less than $\frac{10}{8}$. Hence if both the *Numerator* and *Denominator* of a *Fraction*, as $\frac{4}{6}$, be multiplied or divided by the same Number 2; the Fact in the former Case, $\frac{8}{12}$, and the Quotients in the latter $\frac{2}{3}$ will constitute *Fractions*, equal to the first *Fraction* given.

The *Arithmetick* of *Fractions* consists in the *Reduction*, *Addition*, *Subtraction*, and *Multiplication* thereof.

The REDUCTION OF FRACTIONS is to bring Integers into *Fractions*, or contrariwise *Fractions* of divers Denominations into one, or what you'll want or desire.

When three or more *Fractions*, which have unequal *Denominators*, are given to be reduced, we must multiply the *Numerator* of each *Fraction*, and all the *Denominators*, except its own, continually one into another; so are the several Products, arising from such continual Multiplication, a new *Numerator*. And by multiplying all the *Denominators* together continually, the Product is a common *Denominator* to all the new *Numerators*. Thus are reduced *proper Fractions*. For Example:

Reduce $\frac{3}{4}$ $\frac{4}{5}$ into one common *Denominator*. Thus:

$\frac{3}{4}$ $\frac{4}{5}$
$\frac{15}{20}$ $\frac{16}{20}$

for three Times 5 is 15, and 4 Times 4 is 16, new *Numerators*, and 4 Times 5 is 20. So that $\frac{15}{20}$ $\frac{16}{20}$ are common *Denominators*, and equal to $\frac{3}{4}$ and $\frac{4}{5}$.

Likewise reduce $\frac{2}{4}$, $\frac{3}{5}$, $\frac{10}{12}$, $\frac{4}{9}$, $\frac{17}{14}$, into one Denomination, being reduced *per* our Rule are:

Numerator	15120	18144	25200	13440	36720
Denominator	30240	30240	30240	30240	30240

To reduce *Fractions of Fractions*, the Rule is to multiply all the *Numerators* together, and take the Product thereof for a Numerator, and likewise to multiply all the *Denominators* together, and make the Total a new *Denominator*. For Example:

Reduce $\frac{1}{2}$ of $\frac{2}{3}$ of $\frac{3}{4}$ into a *single Fraction*; being reduced it makes $\frac{6}{24}$, and is a *single Fraction*.

$$\frac{6}{\frac{1}{2} \text{ of } \frac{2}{3} \text{ of } \frac{3}{4}}$$
$$24$$

Again reduce $\frac{6}{8}$ of $\frac{4}{5}$ of $\frac{3}{4}$ of $\frac{5}{7}$ of $\frac{2}{6}$, into a single *Fraction*:

Numerator	720	720	720	720
Com. Denominator	6720			

$\frac{720}{6720}$

The *Reduction of improper Fractions* into whole Numbers, is done in dividing the *Numerator* by the *Denominator*, so is the Quotient the whole Number, or mix'd Number sought. For Example:

Reduce $\frac{26}{5}$ into its equivalent mix'd Number, the Number will be 5 *l.* $\frac{1}{5}$ or 5 *l.* 4 *s.* for if 26 be divided by 5, the Quotient is 5 $\frac{1}{5}$.

5)26(5 $\frac{1}{5}$
25
1

Reduce $\frac{17}{4}$ *facit* 2 *l.* $\frac{1}{4}$

4)10(2 $\frac{2}{4}$
8
2

Reduce $\frac{406}{12}$ *facit* 33. $\frac{10}{12}$

12)406(33. $\frac{10}{12}$
36
46
36
10

Also the improper *Fraction* $\frac{52}{4}$ will be reduced into the whole Number 13.

4)52(13
4
12
12
0

To reduce a mix'd Number, as 4 $\frac{11}{12}$ into an *improper Fraction*, of the same Value. Multiply the Integer 4, by 12, the Denominator of the *Fraction*; and to the Product 48 add the Numerator; the Sum 59, set over the former Denominator $\frac{59}{12}$, constitutes the *Fraction* required.

To reduce a *whole Number* into an *improper Fraction*, multiply the given Number by the intended Denominator, and place the Product, for a Numerator over it. For Example:

Reduce 15 into a *Fraction*, whose Denominator shall be 12. *Facit* $\frac{180}{12}$ for 15 multiplied by 12 *Facit* $\frac{180}{12}$.

15
12
180

To find the Value of a Fraction *in the known Parts of its Integer*. Suppose *e. g.* it were required to know what is $\frac{9}{16}$ of a Pound; multiply the Numerator 9 by 20, the Number of known Parts in a Pound, and divide the Product by the Denominator 16, the Quotient gives 11 *s.* Then multiply the Remainder 4 by 12, the Number of known Parts in the next inferior Denomination; and dividing the Product by 16, as before, the Quotient is 3 *d.* So that $\frac{9}{16}$ of a Pound = 11 *s.* 3 *d.*

Thus much for *Reduction of Fractions*. We'll proceed now to *Addition*.

ADDITION *of vulgar Fractions*. 1. If the given *Fractions* have different Denominators, reduce them to the same; then add the Numerators together, and under the Sum write the common Denominator. Thus, for Example.

$\frac{2}{3} + \frac{4}{5} = \frac{10}{15} + \frac{12}{15} = 1\frac{07}{15}$. and $\frac{2}{3} + \frac{1}{6} + \frac{3}{4} + \frac{48}{72} + \frac{12}{72} + \frac{54}{72} = 1\frac{42}{72} = 1\frac{7}{12}$

2. If *Compound Fractions* are given to be added; they must first be reduced to simple ones; and if the *Fractions* be of different Denominations, as $\frac{6}{8}$ of a Pound, and $\frac{2}{3}$ of a Shilling, they must first be reduced to *Fractions* of the same Denomination of Pounds.

3. *To add mixed Numbers:* The Integers are first to be added; then the fractional Parts; and if their Sum be a *proper Fraction*, only annex it to the Sum of Integers. If it be an *improper Fraction*, reduce it to a mixed Number, adding the integral Parts thereof to the Sum of Integers, and the fractional Part after it. Thus, $5\frac{2}{3} + 4\frac{1}{2} = 10\frac{1}{6}$.

For the SUBTRACTION *of Fractions*. The Rule is – when the Numbers given are both single *Fractions*, and have one and the same Denominator, to subtract the lesser Denominator from the greater, and place the Remainder over the common Denominator, so is such new *Fraction* the Difference between the *Fractions* given. For Example:

Subtract $\frac{1}{8}$ from $\frac{7}{8}$, the Difference is $\frac{6}{8}$, or $\frac{1}{2}$.

But when they have unequal Denominators, they must be reduced into Fractions of the same Value, which shall have a common Denominator, and then find the Difference. For Example:

Subtract $\frac{6}{9}$ from $\frac{7}{8}$ rest $\frac{1}{36}$, for $\frac{6}{9}$ and $\frac{7}{8}$, being reduced,

duced, will $\frac{48}{56}$ and $\frac{49}{56}$, so the Difference you see to be $\frac{1}{56}$.

When one of the Numbers given is a whole Number, or a mixt Number, or if either of them are mixed Numbers, reduce such whole or mixt Numbers into an improper *Fraction*, or *Fractions*, and then work as before.

Subtract $7\frac{3}{5}$ from 12, the Remainder is found $4\frac{2}{5}$, for these two Fractions will be found to be $\frac{38}{5}$, and $\frac{60}{5}$, whose Difference is $\frac{22}{5}$ or $4\frac{2}{5}$.

In like Manner 3 *l.* $\frac{2}{3}$, being to be subtracted from 5 *l.* $\frac{3}{4}$, the Remainder will be found $\frac{25}{12}$, or 2 *l.* $\frac{1}{12}$, as by the subsequent Operation.

l.	*l.*
5. $\frac{3}{4}$	3. $\frac{2}{3}$
$\frac{23}{4}$	$\frac{11}{3}$
69	12 Denom.
44	
25 Numerator.	

So there is $\frac{25}{12}$, or 2 *l.* $\frac{1}{12}$, as before.

For 4 multiplied by 3 is 12 for Numerator.

From 12 take $7\frac{3}{5}$ Thus:

$\frac{12}{1}$	$\frac{38}{5}$	12
		5
		60
		38
Rest $\frac{22}{5}$		22

For Answer remains $\frac{22}{5}$, or $4\frac{2}{5}$.

When a whole Number is given to be subtracted from a mixt Number, subtract the said whole Number from the whole Part of the mixt Number; and unto the Remainder annex the fractional Part of the mixt Number given, so is the mixt Number so found the Difference sought. For Example:

Received $\frac{24}{7}$ of a Pound, laid out 7 Pounds, what remains?

24
7 Subtract
17 $\frac{5}{8}$ Remains.

When a *Fraction* is given to be subtracted from an *Integer*, subtract the Numerator from the Denominator, and place that which remains over the Denominator, which new Fraction is the Difference sought. So $\frac{1}{3}$ being subtracted from an *Integer*, or 1, the Remainder is $\frac{2}{3}$.

When a *Fraction* is given to be subtracted from a whole Number greater than 1, subtract the said *Fraction* from one of the Integers given by the last Rule; the remaining *Fractions* being annexed to the Number of Integers lessened by 1, will give the Remainder. Thus $\frac{4}{9}$ being subtracted from 6, the Remainder is $5\frac{5}{9}$.

To subtract a whole Number and a *Fraction* from a whole Number and a *Fraction*, the *Fractions* must be first reduced into one Denomination, then one Numerator subtracted from the other; and the Integers subtracted, as in whole Numbers. For Example:

Received 30 *l.* $\frac{1}{4}$, laid out 10 *l.* $\frac{1}{2}$, first reduce $\frac{1}{4}$ and $\frac{1}{2}$ into one Denomination.

30. $\frac{1}{4}$	$\frac{1}{4}$	$\frac{2}{8}$ or $\frac{1}{4}$
10. $\frac{1}{2}$	$\frac{1}{2}$	
Rest 20. $\frac{1}{4}$		

When *Fractions of Fractions* are to be subtracted, they are to be reduced into single *Fractions*, then subtract as before.

Subtract $\frac{1}{3}$ of $\frac{2}{3}$ from $\frac{3}{4}$ of $\frac{4}{5}$. Being reduced they are $\frac{1}{3}$ and $\frac{3}{5}$

	4	
5	9	Rest $\frac{4}{5}$
$\frac{1}{3}$	$\frac{3}{5}$	
	15	

Those *Fractions* are always accounted the greatest, whose Numerator multiplied by the Denominator of the other *Fraction* makes the greatest Number. Thus $\frac{7}{8}$ is greater than $\frac{3}{5}$; for 7 Times 5 is greater than 8 Times 3.

In *Multiplication of Vulgar Fractions*. 1. If the *Fractions* proposed be both simple, multiply the Numerators one by another for a new Numerator, and the Denominators for a new Denominator. Thus $\frac{3}{4}$ into $\frac{5}{8}$ produces $\frac{15}{32}$.

We must observe in this Place, that as whole Numbers multiplied by whole Numbers increase the Product; so proper *Fractions* multiplied by proper *Fractions* diminish the Product. For as 1 multiplied by 1 makes but 1, so that which is less than 1 being multiplied by $\frac{2}{3}$ of a Pound makes but $\frac{1}{3}$ a Pound $\frac{3}{4}$ by $\frac{2}{3}$ $=\frac{6}{12}$ or $\frac{1}{2}$.

2. If one of them be a mix'd or whole Number, it must be reduced to an improper *Fraction*, and then proceed as in the last Rule. Thus 7. $\frac{1}{2}$ being multiplied by 5. $\frac{3}{5}$, the Product will be found 42.

7. $\frac{1}{2}$ by	5. $\frac{3}{5}$	$\frac{15}{2}$ by	$\frac{28}{5}$
2	5		
15	28	for 28 by	2
2	5	15	5
		1|0)42|0(42	10

Though there may be other Rules for the Multiplication of mixed Numbers, that used by Joiners, Carpenters, and Bricklayers, commonly called *Cross Multiplication*, is at present very much in Use. Thus if it be required to multiply 120 Feet $\frac{1}{4}$ by 48 Feet $\frac{1}{2}$, first multiply the whole Numbers continually; thus 120 by 48, and place the Product orderly one under the other.

Thus the whole Numbers make 5760, then multiply alternately, or Cross-ways, *viz.* take $\frac{1}{4}$ of 48, which is 12, also take $\frac{1}{2}$ of 120, which is 60, orderly to be added to the former. *Lastly*, Add all together, and to the Sum add the Product of the two *Fractions*, as in this Example, the Product of the Multiplication of $\frac{1}{4}$ by $\frac{1}{2}$, which is $\frac{1}{8}$, so the Total Product required will be $5832\frac{1}{8}$, as you see by the Operation in the Margent.

$120\frac{1}{4}$
$48\frac{1}{2}$
960
480
5760
12
60
$\frac{1}{8}$
$5832\frac{1}{8}$

In like Manner multiply 4. $\frac{1}{2}$ by 4. $\frac{1}{2}$ or 4 *s.* 6 *d.* by 4 *s.* 6 *d.*

	s.	*d.*
$4\frac{1}{2}$	4	6 by 4 *s.* 6 *d.*
$4\frac{1}{2}$	4	6
16	16	
2	2	
$2\frac{1}{4}$	$2\frac{1}{4}$	
$20\frac{1}{4}$	20	3

For by multiplying Cross-ways, saying 6 Times 4 is 24 *d.* which is 2 *s.* and so alternately again it is 2 *s.* and the *Fraction* being $\frac{1}{4}$ of a Shilling is 3 *d.* so that 4 *s.* 6 *d.* multiplied by 4 *s.* 6 *d.* is 20 *s.* 3 *d.*

In like Manner multiply 3 Feet 6 Inches by 3 Feet 6 Inches.

Feet
3 $\frac{1}{2}$
3 $\frac{1}{2}$
9
1 $\frac{1}{2}$
1 $\frac{1}{2}$
$\frac{1}{4}$
12 $\frac{1}{4}$

Facit 12 Feet $\frac{1}{4}$

Operation by *Fractions* by the laſt Rule.

l.	*s.*	*d.*		
5	5	5		5 *d.* is $\frac{5}{12}$ of $\frac{1}{20}$ *viz.* + $\frac{5}{240}$.
20				
105			$\frac{105}{20}$	$\frac{5}{240}$
20			105	20
20			240	5
400			4200	100
12			210	
4800	New Den.		25200	
			100	
			253|00	New Num.
			48|00	

48 $\frac{253}{48}$ by $\frac{253}{48}$ 253
48 253
2304 759
1265
506
64009

Anſwer $\frac{64009}{2304}$ equal to 27 *l.* 15 *s.* 7 *d.* $\frac{1}{2}\frac{5}{12}$.

The Proof of this Queſtion by the Rule of Three Direct.

l.	*l.*	*s.*	*d.*	*l.*	*s.*	*d.*
1	5	5	5	5	5	5
20	20			20		
20	105			105		
12	12			12		
240	1265			1265		
				1265		
				6325		
				7590		
				2530		
				1265		
				1600225		

12
240) 1600225 (6667 (55\|5
1440 ... 60
1602 66
1440 60
1622 67
1440 60
1825 7
1680
145

$\frac{145}{240}$ | $\frac{29}{48}$.

27\|15 : 7 : $\frac{29}{48}$ = $\frac{1}{2}$ + $\frac{7}{x}$

For the *Diviſion of Fractions.* 1. If the *Fractions* propoſed be both ſimple, multiply the Denominator of the Diviſor, by the Numerator of the Dividend; the Product is the Numerator of the Quotient. Then multiply the Numerator of the Diviſor by the Denominator of the Dividend, the Product is the Denominator of the Quotient. Thus $\frac{3}{5}$) $\frac{4}{9}$ ($\frac{20}{27}$.

2. If either Dividend, Diviſor, or both, be whole or mixed Numbers, reduce them to improper *Fractions*; and if they be compound *Fractions*, reduce them to ſimple ones; and proceed as in the firſt Rule.

In Diviſion of *Fractions*, obſerve that the Quotient is always greater than the Dividend; becauſe in all Diviſion, as the Diviſor is to the Unity, ſo is the Dividend to the Quotient; as if 3 divide 12, it will be as 3:1::12:4. Now 3 is greater than 1; wherefore 12 muſt be greater than 4: But in Fractions, as $\frac{3}{5}$:1::$\frac{4}{9}$:$\frac{20}{27}$; where $\frac{3}{5}$ is leſs than 1; wherefore $\frac{4}{9}$ muſt alſo be leſs then $\frac{20}{27}$.

To work the Rule of Three in *Vulgar Fractions*, the Denominator of the firſt Number muſt be multiplied by the Numerator of the ſecond; then that Product multiplied by the Numerator of the third Number, and the Product reſerved for a new Numerator. That done, the Numerator of the firſt Number muſt be multiplied by the Denominator of the ſecond; and the Product multiplied by the Denominator of the third, which Product will become a new Denominator. This new *Fraction* ſo fought is the Anſwer to the Queſtion, which ſaid *Fractions*, whether proper, improper, or mixt *Fractions*, may be reduced into its equivalent *Fractions*, as before thought. For Example:

If $\frac{3}{4}$ of a Yard coſt $\frac{5}{6}$ of a Pound what will $\frac{7}{8}$ of a Yard.

$\frac{3}{4}$ —— $\frac{5}{6}$ —— $\frac{7}{8}$
5 3
20 18
7 8
Num. 140 144 Denom. $\frac{140}{144}$ | $\frac{70}{72}$

Anſwer $\frac{140}{144}$ or $\frac{70}{72}$.

Further: If 3 Yards of broad Cloth coſt 2 *l.* $\frac{4}{5}$, what will 14 $\frac{3}{7}$ Yards Coſt.

Yards *l.* *Yards*
$\frac{3}{4}$ —— $\frac{14}{5}$ —— $\frac{101}{7}$ *coſt*

3 101
5 14
15 404 $\frac{105}{144}$ of a Pound, equal
7 101 to 13 *l.* 9 *s.* 9 *d.*
105 1414

Thus proved by reducing your *Fraction* as before thought.

l. *s.* *d.*
105) 1414 (13 9 4
105
364
315
49
20
s.
105) 980 (9
945
35
12
d.
105) 420 (4.
420
0

By

By this Operation 'tis evident, that $\frac{105}{144}$ is equal to 13 *l.* 9 *s.* 4 *d.*

Having thus clearly demonstrated the *Arithmetick* of whole Numbers and broken Numbers, commonly called *Vulgar Fractions*, I proceed to that excellent Invention called *Decimal Arithmetick*, first invented by *Johannes Regiomontanus*, and used by him in his Tables of Signs.

Decimal Fractions, are those whose Denominator is 1, with one or more Cyphers; as 10, 100, 1000, 10,000, *&c.* Thus $\frac{5}{10}$, $\frac{6}{100}$, $\frac{7}{1000}$, *&c.* are *Decimal Fractions.*

In the Writing of *Decimal Fractions*, we usually omit the Denominator, as only consisting of Unity with Cyphers annexed; and in Lieu thereof a Point, or Comma is prefixed to the Numerator. Thus $\frac{5}{10}$ is wrote .5; $\frac{46}{1000}$, 46. so .125 expresses an Hundred twenty-five Parts of any Thing supposed to be divided into 1000 Parts.

As Cyphers on the right Hand of Integers do increase their Value *Decimally*; as 2, 20, 200, *&c.* so when set on the left Hand of *Decimal Fractions*, they decrease the Value *Decimally*; as 5, 05, 005, *&c.* when set on the left Hand of Integers, or on the right Hand of *Decimals*, they signify nothing but only to fill up Places; thus 5000, or 0005, is but five Units.

To reduce *Vulgar Fractions* into *Decimals*, add Cyphers at Pleasure to the Numerator, and divide by the Denominator. Thus $\frac{5}{8}$, being propounded to be reduced to a *Decimal*, will be changed into .625, that is $\frac{5000}{8000}$, for annexing Cyphers unto the Numerator 5, it will be 5000, which being divided by the Denominator 8, the Quotient will be 625, before which, prefixing a Point, it will be .625, that is $\frac{625}{1000}$ the *Decimal* sought; as it appears in the Operation.

```
8) 5000 (625
   48 ..
   ----
    20
    16
   ----
     40
     40
    ----
      0
```

The common Operations in *Decimals*, are perform'd as in the vulgar Rules, Regard being had only to the particular Notation, to distinguish the integral from the fractional Part of a Sum.

In *Addition*, and *Subtraction* of *Decimal Fractions*; the Points being all placed under each other, the Figures are to be added; or subtracted as in common *Arithmetick*: And when the Operation is done, so many Figures of the Sum, or the Remainder are to be noted for *Decimals*, as there are Places of *Decimals* in the greatest given Number, an Example will make this clear.

Addition of *Decimals.*		Subtraction.
.43791		from 67.9
.792	59.271	take 29.8754
.6124	15 040	Rem. 38.0246
.053	3.791	
.10	12.009	from 25.1462
.2	7.5	take 13.07
2.19531	97.062	Rem. 12.0762

For MULTIPLICATION of *Decimals*, the Rule is, so often as two Numbers are given to be multiplied, and are both mixt Numbers, or both *Decimal Fractions*, or one of them a whole Number, and the other a *Decimal* or mixt Number, to write them down exactly one underneath the other, as is done in Multiplication of whole Numbers; and when you have gotten the Product, to see how many Places of Fractions are found both in the Multiplicand and Multiplicator jointly, just so many Places you must cut off from the Product, by a Point, Comma, or Line towards the Right-hand, as there are Places of *Decimals* in both Factors. Thus,

```
Multiply 246.25        .87
      by     35        .9
           ------     ----
           123125     .783
           73875
           -------
           8618.75
```

When the *Multiplication* is finished, if there arise not so many Places in all, as ought to be cut off, (which may often happen when the Product is a *Fraction*) in such Case as many Places as are wanting, so many Cyphers must be prefixed to the Product, on the Left-hand thereof, to compleat the Product. For Example;

```
Multiply .0375 by .05
           .05
          -----
          1875
```

Now here being but four Figures, I prefix two Cyphers to compleat the Product of

```
Multiply .0375 is .001875 Product
      by    .05
              -------
Product is .001875 as by Rule.
```

In DIVISION of *Decimals*, proceed in all Respects as in dividing of Integers; and when the Operation is done, mark as many Places in the Quotient for *Decimals*, as with the Number of *Decimals* in the Divisor, are equal to the *Decimal* Places of the Dividend.

```
.22).8030(3.65          22)8.030(365
     66                     66
     ---                    ---
     143                    143
     132                    132
     ---                    ---
      110                    110
      110                    110
      ---                    ---
        0                      0
      ---                    ---

22).8030(.0365          73.2)8321.9(1.13
    66                       732
    ---                      ----
    143                      1002
    132                       732
    ---                      ----
     110                      2709
     110                      2196
     ---                      ----
       0                       513
     ---                      ----
```

But there are certain Cases in *Division* of *Decimals*, which require some further Management: as first, where the Divisor is a *Decimal Fraction*, and the Dividend an Integer; add or annex as many or rather more Cyphers to the Dividend, than there are Places in the Divisor: Thus,

.365)22.0000(60.2

For there being three Places of *Decimals* in the Divisor, and four in the Dividend, there will be but one in the Quotient.

2. Where the Divisor is a mixt Number, and the Dividend a whole Number, add, at least, as many Cyphers

Cyphers to the Dividend, as there are Places in the Divisor. Thus,

3.65)22.0000(6.02

3. Wherever the Divisor is bigger than the Dividend, annex Cyphers to the latter. Thus,

.365)22.0000(.602

To work the RULE OF THREE in *Decimals*, the Operations are the same as in whole Numbers, only in *Decimals* Respect must be had to the *Decimal* Rules before taught, especially when you come to the Answer in your Quotient, by duly separating the *Decimals* from the Integers. For Example,

If 9*lb.* ¼ of Coffee cost 3 *l.* 15 *s.* how much will 278 *lb.* ½ cost?

Note, When the fractional Parts of the Numbers in this Question are converted into *Decimals*, then they will stand thus,

If 9.25 *lb.* of Coffee cost 3.73*l.* what will 278.5*lb.* of Coffee cost.

```
                278.5
                 3.75
                -----
                13925
               19495
              8355
              -------
              1044375
              -------
9.25)104.4375(112.9   50=1+
     925...           ----
     ----             9.25
     1193
      925
     ----
      2687
      1850
      ----
       8375        Answer 112l. 9s. 1d. +
       8325
       ----
        50
       ----
```

Further, If 9 *C. wt.* of Sugar cost 25 *l.* 7 *s.* what will be the Price of 17 *C. wt.*?

```
C.          l.          C.
9 ---------- 25.35 ---------- 17
                17
              -----
              17745
              2535
              -----
           9)430.95(47.88
             36...
             ----
             70
             63
             ----
              79        Answer 47 l. 17s. 8d.
              72
              ----
               75
               72
               ---
               3
```

Decimals are of a very great use in the Mensuration of Superficies and Solids, which is accomplish'd in the following Manner, *viz.*

There is a Chamber whose Floor is 22 Feet 9 Inches long, and 9 Feet 6 Inches broad, what is the Content in Feet and Inches? Thus *Decimally*,

Length 22.75 Feet and Breadth 9.5 Feet what is the Content?

```
1/1000 | 25/250 | 1/8        22.75
                               9.5
                             -----
                             11375
                            20475
                            -------
                            216.125
```

Answer 216 Feet and ⅛ of an Inch.

Further, How many Yards of Wainscot does that Room require, whose Height is 12 Foot 3 Inches, and Compass 104 Feet 6 Inches?

3 Inches in *Decimals* is .25
6 Inches in *Decimals* is .5

```
Therefore multiply 104.5
                by 12.25
                -------
                   5225
                  2090
                 2090
                1045
                -------
In Feet         1280.125
```

To answer the Question in Yards.

```
Divide by 9)1280125(142.236
            9.....
            ------
            38
            36
            ----
             20
             18
             ----
              21
              18
              ----
               32
               27
               ----
                55
                54
                ----
                 1
```

Answer 142 Yards, 236/1000 Feet; or 142 Yards, 2 Feet, 3 Inches.

To find the Length of the Circumference of a Circle, the Diameter being known. Let there be a Circle whose Diameter is 42, what is the Length of the Circumference?—Multiply always the Diameter by 22, and divide the Product by 7, your Quotient is the Answer. Thus

```
   42
   22
  ----
   84
  84
  -----
7)924(132
  ...
  ---
    0        Answer 132.
  ---
```

The Circumference being given, to find the Diameter as in the former Circle, the Circumference being 132, and the Diameter required.—The Circumference must be multiplied by 7, and the Product divided by 22, and the Quotient is the Diameter. Thus,

Circum-

```
Circumference 132
                7
              ---
        22)924(42 the Diameter required.
           88 .
           ---
            44
            44
            --
             0
            ---
```

The Diameter of a Circle being given to find the *Area*, or Content thereof. Multiply the Diameter by itself; again, multiply by 11, and divide by 14, and your Operation is perfect. Thus,

The Diameter 42 the Content of the Circle required.

```
          Diameter 42
     multiply'd by 42
                   --
                   84
                 168
                 ----
                 1764
multiply'd by     11
                 ----
                 1764
                1764
                -----
Divide by 14)19404(1386 Content required.
             14...
             ---
              54
              42
              ---
              120
              112
              ---
               84
               84
               --
                0
               ---
```

Having thus compleated our *Arithmetick*, either of *Integers* or *Fractions*, both *Vulgar* and *Decimal*, we must proceed to the Extraction of *Square* and *Cube Roots*.

SQUARE ROOT is a Number considered, as the Root of a second Power or *Square Number*; or a Number by whose Multiplication, into itself, a Square Number is generated; which Square Number is the Product of a Number multiplied by itself. Thus 4 the Product of 2 multiplied by 2; or 16 the Product of 4 multiplied by 4, are Square Numbers; therefore the Number 2, being that by whose Multiplication by itself, the Square Number 4 is produced; is in respect hereof called a *Square Root*, or the *Square Root* of 4. Since as Unity is to the *Square Root*, so is the *Root* to the Square Number.

For the Extraction of *Square* and *Cube Roots*, they have the Squares and Cubes of all Digits in Readiness, as exhibited in the following Table.

Roots	1	2	3	4	5	6	7	8	9
Square	1	4	9	16	25	36	49	64	81
Cubick	1	8	27	64	125	216	343	512	729

To extract a *Square Root* out of a given Number. 1. Divide the given Number into Classes of two Figures a Piece; and include each Class between two Dots, commencing with the Place of Units, or the Right-hand Figure; the Root will consist of so many Parts or Figures as you have Classes. By the Way observe, it may happen that for the last Class, on the Left-hand there shall only be one Figure left.

2. Then the Left-hand Class being the Square of the first Figure of the Root sought; look in the Table of Roots for the square Figure answering to that Number: Or if that square Number be not precisely there, to the next lesser Number: This Root write down for the first Figure of the Quotient, and subtract its Square from the Left-hand Class to the Remainder, bring down the next Class toward the Right.

3. Write down the Double of the Quotient-figure, under the Left-hand Figure of the second Class; and seek how oft the Decuple is contained in the Figure over it: The Quotient gives the second Figure of the Root.

4. Write the same Quotient under the Right-hand Figure of the same Class; and subtract the Product of the whole Number underwitten, multiplied by the first Figure of the *Root*, from the Number over it, as in Division.

5. The Operation being repeated according to the third and fourth Steps, that is to say, the Remainder being still divided by the Double of the Root as far as *extracted*, and from the Remainder, the Square of the Figure that last came out, with the Decuple of that aforesaid Divisor augmented thereby, being subtracted; you will have the Root required. For Example:

Note, That by *Decuple* is understood a Term of Relation or Proportion, implying a Thing to be ten Times as much as another.

To *Extract* the Root of 99856, point it after this Manner, 9̇98̇56̇, then seek a Number whose Square shall equal the first Figure 9, *viz.* 3, and write it in the Quotient; then having subtracted from 9, 3 × 3, or 9, there will remain 0; to which set down the Figures as far as the next Point, *viz.* 98 for the following Operation.

```
 . . .
99856(316
9
---
098
 61
----
 3756
 3756
 ----
    0
    -
```

Then taking no Notice of the last Figure 8, say, how many Times is the Double of 3, or 6, contained in the first Figure 9? Answer 1, wherefore having wrote one in the Quotient, subtract the Product of 1 × 61, or 61 from 98, and there will remain 37, to which connect the last Figure 56, and you will have the Number 3756 on which the Work is next to be carried on. Wherefore also neglecting the last Figure of this, *viz* 6, say, how many Times is the double of 31 or 62 contained in 375, (which may be guessed at from the initial Figure 6, and 37, by taking Notice how many Times 6 is contained in 37:) Answer 6; and writing 6 in the Quotient, subtract 6 × 626, or 3756, and there will remain 0; whence it appears that the Business is done, the Root coming out 316.

Otherwise, with the Divisors set down, it will stand thus:

```
 . . .
99856(316
9
---
6) 98
    61
   ----
62) 3756
    3756
    ----
       0 and so in others
       -
```

Again, if you was to extract the Root of 22178791: First having pointed, seek a Number, whose Square (if it cannot be exactly equalled) shall be the next less square, (or nearest) to 22, the Figures to the first Point, and you will find it to be 4, for 5 × 5, or 25, is greater than 22; and 4 × 4, or 16, is less; wherefore 4 will be the first Figure of the Root. This therefore being writ in the Quotient, from 22, take the Square 4 × 4, or 16; and to the Remainder 6, adjoin the next Figures 1 7, and you will have 617; from whose Division, by the Double of 4, you are to obtain the second Figure of the Root, *viz.* neglecting the last Figure 7, say, how many Times 8 is contained in 61? Answer 7; wherefore write 7 in the Quotient, and from 617 take the Product of 7 into 87, or 609, and there will remain 8, to which join the two next Figures 87, and you will have 887; by the Division whereof by the Double of 47, or 94, you are to obtain the third Figure; in order to which, say, how many Times is 94 contained in 88? Answer 0; wherefore write 0 in the Quotient, and adjoin the two last Figures 9 1, and you will have 88791, by whose Division by the Double of 470, 940, you are to obtain the last Figure, *viz.* say, how many Times 940 in 8879? Answer 9; wherefore write 9 in the Quotient, and you will have the Root 4709. But since the Product 9 × 9409, or 84681 subtracted from 88791 leaves 4110, the Number 4709 is not the Root of the Number 22178791 precisely, but a little less.

```
. . . .
22178791 (4709,43637, &c.
16
----
 617
 609
 -----
   88791
   84681
   ------
    411000
    376736
    -------
     3426400
     2825649
     --------
      60075100
      56513196
      --------
       356190400
       282566169
       ---------
        73624231
```

If then it be required to have the Root approach nearer; carry on the Operation in Decimals, by adding to the Remainder two Cyphers in each Operation; thus the Remainder 4110, having but two Cypher added to it, becomes 411000; by the Division whereof, by the Double of 4709, or 9418, you will have the first Decimal Figure 4; then having writ 4 in the Quotient, subtract 4 × 94184, or 376736, from 411000, and there will remain 3426; and so having added two more Cyphers, the Work may be carried on at Pleasure, the Root at Length coming out 4709.43637, &c.

But when the Root is carried on half Way or above, the rest of the Figures may be obtained by Division alone: As in this Example, if you had a Mind to *extract* the Root to nine Figures, after the five former 4709 4 are *extracted*, the four latter may be had, by dividing the Remainder by the Double of 4709.4.

Thus if the Root of 32976, were to be extracted to five Places, in Numbers; after the Figures are pointed, write 1 in the Quotient, as being the Figure whose Square 1 × 1, or 1, is the greatest that is contained in 3, the Figure to the first Point; and having taken the Square of 1 from 3, there will remain 2; then having set the two next Figures, *viz.* 29 to it, (*viz.* to 2,) seek how many Times the Double of 1, *viz.* 2 is contained in 22, and you will find indeed that it is contained more than ten Times; but you are never to take your Divisor 10 Times, no, nor 9 Times in this Case; because the Product of 9 × 29, or 261, is greater than 229, from which it should be taken, or subtracted: Wherefore write only 8, and then having wrote 8 in the Quotient, and subtracted 8 × 28, or 224, there will remain 5, and having set down to this the Figures 76, seek how many Times the Double of 18, or 36, is contained in 57, and you will find 1, and so write 1 in the Quotient; and having subtracted 1 × 361, or 361 from 576, there will remain 215. *Lastly*, To obtain the remaining Figures, divide this Number 215, by the Double of 181, *viz.* 362, and you will have the Figures 59, which being writ in the Quotient, give the *Root* 181,59. Thus:

```
. . .
32976(181,59
---
 1
 ---
2)229
  224
  ---
36)576
   361
   ---
362)215(59, &c.
```

After the same Manner are *Roots* extracted out of Decimal Numbers. Thus the *Root* of 329,76 is 18,159; and the *Root* of 3,2976 is 1,8159; and the *Root* of 0,032976, is 0,18159, and so on. But the *Root* of 3297,6 is 57,4277; and the *Root* of 32,976 is 574247; and thus the *Root* of 9,9856 is 3,16.

Before we proceed to the *Extraction of Cube Roots*, we must understand what's a *Cube* or *Cubic Root*.

A Cube Root, is the Origin of a *Cubic Number*, which *Cubic Number* is a Number arising from the Multiplication of a square Number by its *Root*. Thus if the square Number 4 be multiplied by its *Root* 2, the Factum 8 is a *Cube*, or *Cubic Number*; and the Number 2, with Respect thereto a *Cube Root*. Hence, since, as Unity is to the *Root*, so is the *Root* to the *Square*; and as Unity is to the *Root*, so is the Square to the *Cube*; the *Root* will also be to the Square, as the Square to the *Cube*; that is, Unity, the *Root*, the Square, and the *Cube* are in continual Proportion; and the *Cube Root* is the first of two Numbers that are mean Proportionals between Unity and the *Cube*.

A *Cube Number* is either Simple or Compound. The simple *Cube Numbers*, together with their respective *Roots* are expressed in the Table at the Beginning of Extraction of *Square Roots*.

A Compound Cube Number, is that which being produced by itself, is never less than 1000, so 405224 is a *compound Cube Number*, being produced by thus:

```
  74          5476
  74            74
  ---         -----
  296         21904
 518         38332
 ----        ------
 5476 the Square   405224 Cube Number
```

The *Extraction of the Cubic Root*, and of all other *Roots* may be comprehended under one general Rule, *viz.* every third Figure beginning from Unity, is first to be pointed, if the *Root* to be extracted be a *Cubic one*; or every fifth, if it be a *Quadrato Cubic*, (or of the fifth *Power*,) and then such a Figure is to be writ in the Quotient, whose greatest *Power* (that is, whose *Cube*, if it be a *Cubic Power*, or whose *Quadrato Cube*, if it be the fifth *Power*) shall either be equal to the

the Figure or Figures, before the first Point, or next less under them; and then having subtracted that *Power*, the next Figure will be found by dividing the Remainder augmented by the next Figure of the Resolvend, by the next least *Power* of the Quotient, multiplied by the Index of the *Power* to be extracted, that is, by the triple Square, if the *Root* be a *Cubic* one; or by the Quintuple Biquadrate (that is five Times twice Square) if the *Root* be of the fifth *Power*, &c. And having again subtracted the *Power* of the whole Quotient from the first Resolvend, the third Figure will be found by dividing that Remainder, augmented by the next Figure of the Resolvend, by the next lesser *Power* of the whole Quotient, multiplied by the Index of the *Power* to be extracted.

But to leave nothing unobserved, before we proceed farther on this Subject, we must let our Pupils know what we mean by *Powers*. *Power* in *Arithmetick* is the Produce of a Number, or other Quantity, multiplied into itself. Thus the Produce of the Number 3 multiplied by itself, *viz.* 9 is the second *Power* of 3; the Factum of 9 multiplied by 3, *viz.* 27 is the third *Power*; and the Product of 27 again multiplied by 3, *viz.* 81, is the fourth *Power*, and so on to Infinity. In Respect hereof, the first Number 3 is called the *Root* or first *Power*. The second *Power* is called the *Square*, with Respect to which 3 is the *square Root*, (as is seen in the Table.) The third *Power* 27 is called the *Cube*; with Respect to which the 3 is the *Cube Root*; to be seen likewise in the Table. The fourth *Power* 81 is called the *Biquadrate*, or *Quadrato Quadratum*; with Respect to which 3 is the *Biquadratick Root*.

The Number which shews how often the *Root* is multiplied into itself, to form the *Power*; or how often the *Power* is to be divided by its *Root*, to come at the *Root* is called the *Exponent* of the *Power*: Thus the *Exponent*, or *Index* (for in this Place they are two synonimous Terms) of a *Square Number* is 2, of a *Cube* 3, &c.

Now to proceed on the *Extraction of Cube Roots*. To extract the *Cube Root* of 13312053, the Number is first to be pointed after this Manner, *viz.* 13312053, then you are to write the Figure 2, whose *Cube* is 8 in the first Place of the Quotient, as, that which is the next lesser *Cube* to the Figures 13 (which is not a perfect *Cube Number*) or as far as the first Point; and having subtracted the *Cube*, there will remain 5; which being augmented by the next Figure of the Resolvend 3, and divided by the triple Square of the Quotient 2, by seeking how many Times 3×4, or 12, is contained in 53, it gives 4 for the second Figure of the Quotient. But since the *Cube* of the Quotient 24, *viz.* 13824, would come out too great to be subtracted from the Figures 13312, that precede the second Point, there must only 3 be writ in the Quotient; then the Quotient 23 being in a separate Place multiplied by 23 gives the Square 529, which again multiplied by 23, gives the *Cube* 12167, and this taken from 13312, will leave 1145; which augmented by the next Figure of the Resolvend 0, and divided by the triple Square of the Quotient 23, *viz.* by seeking how many Times 3×529, or 1587, is contained in 11450, it gives 7 for the third Figure of the Quotient. Then the Quotient 237, multiplied by 237, gives the Square 56169, which again multiplied by 237, gives the *Cube* 13312053, and this taken from the Resolvend, leaves 0. Whence it is evident that the *Root* sought is 237, as it appears in the following whole Operation.

```
                    13312053(237
Subtract the Cube   8
                    —
        12) remain. 53(4 or 3
                    ———
Subtract Cube       12167
      1587) remain. 11450(7
                    13312053
Remains                   0
```

So to extract the *Quadrato Cubical Root* of 36430820, it must be pointed over every fifth Figure; and the Figure 3, whose *Quadrato Cube*, or fifth *Power* 243, is the next lesser to 364, *viz.* to the first Point, must be writ in the Quotient. Then the *Quadrato Cube* 243 being subtracted from 364, there remains 121, which augmented by the next Figure of the *Resolvend*, *viz.* 3, and divided by five Times the *Biquadrate* of the Quotient, *viz.* by seeking how many Times 5×81, or 405 is contained in 1213, it gives 2 for the second Figure. That Quotient 32 being thrice multiplied by itself, makes the *Biquadrate* 1048576; and this again multiplied by 32, makes the *Quadrato Cube*, 33554432, which being subtracted from the Resolvend, leaves 2876388. Therefore 32 is the Integer Part of the *Root*, but not the true *Root*; wherefore if you have a Mind to prosecute the Work in Decimals, the Remainder, augmented by a Cypher, must be divided by five Times the aforesaid Biquadrate of the Quotient, by seeking how many Times 5×1048576, or 5242880 is contained in 2876388,0, and there will come out the third Figure, or the first Decimal 5. And so by subtracting the *Quadrato Cube* of the Quotient 32,5 from the Resolvend, and dividing the Remainder by five Times its Biquadrate, the fourth Figure may be obtained; and so on, *in infinitum*. This is the above-mention'd Operation at length:

```
        36430820(32,5
        ————————————
        243
    405)1213(2
        ————
        33554432
5242880)2876388,0(5
```

In some Cases it is convenient only to indicate the Extraction of a Root, especially where it cannot be had exactly. Now the Sign or Character, whereby *Roots* are denoted, is $\sqrt{}$: To which is added the Exponent of the *Power*, if it be above a Square, and even sometimes if it be not. For Example, $\sqrt{}^2$ denotes the *Square Root*. $\sqrt{}^3$ the *Cube Root*, &c.

When a *Biquadratick Root* is to be extracted, you may extract twice the *Square Root*, because $\sqrt{}^4$ is as much as $\sqrt{}^2 \times 2$. And when the *Cubocubic Root* is to be extracted, you may first extract the *Cube Root*, and then the *Square Root* of the *Cube Root*, because the $\sqrt{}^6$ is the same as $\sqrt{}^2 \times 3$; whence some have called these *Roots*, not *Cubocubic* ones, but *Quadrato Cubes*. And the same is to be observed in other *Roots*, whose Indexes are not prime Numbers.

To prove the Extraction of *Roots*. 1. For a *Square Root*: Multiply the *Root* found by itself, and to the Product add the Remainder, if there were any: If the Sum be equal to the Number given, the Operation is just.

2. For a *Cube Root*: Multiply the Root found by itself; and the Product again by the same Root, to the last Product, add the Remainder if there were any. If the Sum come out the Number first given, the Work is just.

Now to reduce this into Practice, especially as to solving some *Arithmetical* and *Geometrical* Questions; I proceed thus.

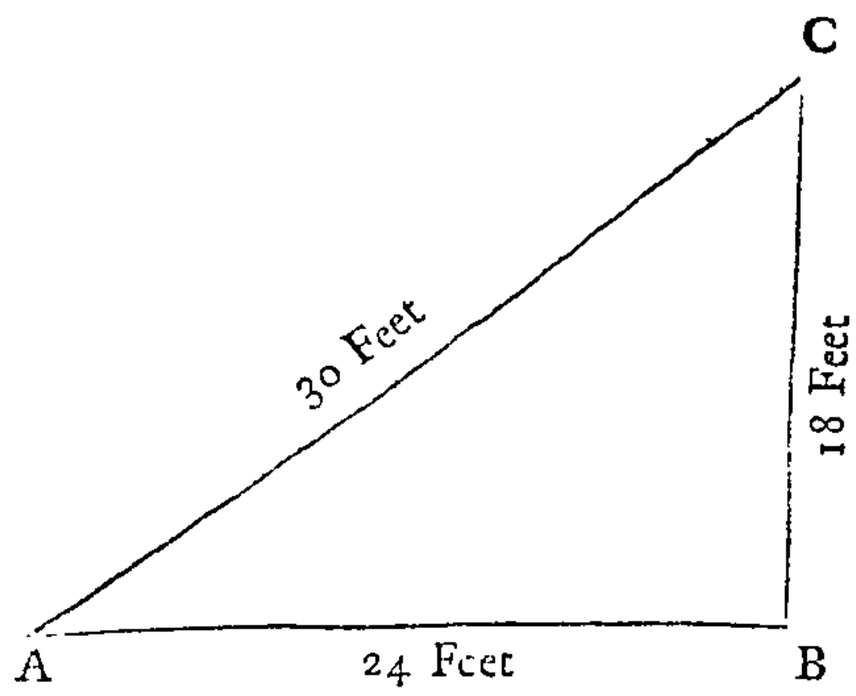
1. If I will find a mean Proportional between two given Numbers, I multiply the given Numbers, the one

one by the other, and extract the *Square Root* of the Product, so shall that Square Root be the mean Proportional sought. For Example:

Let the given Number be 16 and 64, according to my Rule, I multiply 16 by 64, and the Product is 1024, the *Square Root* of which is 32, so that 32 is the mean Proportional between 16 and 64. Thus:

```
16 }
64 } multiply
----
64
96
----
1024(32 Square Root
9
----
62) 124
    124
    ---
      0
```

Again, am I desired to find a third Side to two Sides of Right-angled plain Triangle given? For Example in the Triangle A, B, C, the Base A, B, is 24, and the Perpendicular B, C, is 18, now I am to find the Length of the Hypothenuse.



To answer this Proposition, I must first square the Base *A. B.* 24, which is 576, then square the Perpendicular 18, which makes 324; then add these two Sums together, and the Product is 900, and the Square Root of 900 is 30, which gives the Length of *A. C.* This Proportion is of great Use in measuring of Heights, Distances, and other mathematical Figures.

2. *As to solid Measures.*——If the Side of a *Cube*, be 12 Inches, how many *Cubical* Inches are contained in that *Cube?* To answer which I multiply the Length by the Breadth, and that Product by the Depth; as in this Example:

```
12
12
----
144 square Inches
12
----
1728 cubical Inches
----
```

In like Manner, if the Side of a *Cube* of Stone be 2.53 Feet, the solid Content of that *Cube* will be 16.194277 Feet. Thus:

```
2.53
2.53
----
 759
1265
506
-------
6.4009
  2.53
-------
192027
320045
128018
---------
16.194277 Feet
```

Note, That Solid in Geometry, is the 3d Species of Magnitude, having three Dimensions, Length, Breadth and Thickness.

To measure a Pyramid. A PYRAMID is a solid Figure, whose Base is a *Polygon*, and whose Sides are plain Triangles, their several Tops meeting together in one Point at the Top. Now if the superficial Content of the Base of a *Pyramid* be 5.756 Feet, and the Height thereof 14.25. (which said Height is the Length of the perpendicular Line, that falls from the Top of the *Pyramid* to the Base) what is the solid Content of that Pyramid? The Operation must be thus:

If the *Area* of the Base of the *Pyramid* be multiplied by $\frac{1}{3}$ of the Height thereof, the Product shall be the solid Content of the *Pyramid*, therefore $\frac{1}{3}$ of 14.25 is equal to 4.75, and 5.756, the Base be multiplied by 4.75 = 27.341 Feet, the Solidity of the *Pyramid* required.

```
5.756          3)14.25(4.75
 4.75            12 ..
-------          ----
 28780            22
40292             21
23024             ----
-------             15
27.34100 solid Feet 15
-------             ---
                     0
                     ---
```

To measure a Globe. A GLOBE, is a perfect round Body contained under one Plain; in the Middle of the *Globe* there is a Point, called the Center, from whence all strait Lines drawn to the Out-side, are of equal Length, and called Semi-diameters, the Double of any one of which, is equal to the Diameter of the Globe. Now if the Diameter of the Globe of Stone be 1.75 Feet, how many Feet solid are contained in that Globe? The Operation must be conducted by multiplying first the Diameter 1.75 by itself, the Product will be 3.0625, which multiplied again by the said 1.75, gives for the Product 5.359375, to wit the Cube of the Diameter; which being multiplied by .5238, the Product thence arising will be 2.807 +, which is the Solidity of the Globe propounded. Thus:

```
   1.75
   1.75
   ----
   875
  1225
  175
  -------
  3.0625
    1.75
  -------
   153125
  214375
  30625
  ---------
  5.359375 Cube
     5.238
  ---------
   42875000
  16078125
 10718750
26796875
-----------
2.807240625 0 the Solidity of the Globe
-----------
```

Having already demonstrated and elucidated, all the Rules and Operations in *Arithmetick*, I'll conclude with what the *Arithmeticians* are pleased to call an *irrational*, or *incommensurable Number*, otherwise *Surd*.

SURD in *Arithmetick*, denotes a Number that cannot be expressed; or a Number that is incommensurate to Unity. When any Number or Quantity has its Root proposed to be extracted, and yet is not a true figurate Number of that Kind; that is, if its *Square Root* be demanded, and it is not a true Square; if its *Cube Root* be required, and itself be not a true Cube, *&c.* then it is impossible to assign, either in whole Numbers or in Fractions, any exact Root of such Number proposed. And whenever this happens, it is usual in *Arithmetick*, to mark the required Root of such Numbers or Quantities, by prefixing before it the proper Mark of Radicality, which is (as we have observed already) $\sqrt{}$: Thus $\sqrt{}$: 2 signifies the Square Root of 2, and $\sqrt[3]{}$: 16, or $\sqrt{}$: (3) 16, signifies the Cubick Root of 16; which Roots, because they cannot be expressed in Numbers exactly, (for no effable Number, either Integer or Fraction, multiplied into itself, can ever produce 2; or being multiplied cubically, can ever produce 16) are properly called *Surd Roots*.

There is also another Way of Notation now much in Use, whereby Roots are expressed without a radical Sign, by their Indexes: Thus, as x^2, x^3, x^5, *&c.* signifies the Square, Cube, and fifth Power of x; so $x^{\frac{1}{2}}$, $x^{\frac{1}{3}}$, $x^{\frac{1}{5}}$, signify the Square Root, Cube, *&c.* of x. The Reason of which is plain enough; for since $\sqrt{}$: x is a geometrical mean Proportional, between 1 and x, so $\frac{1}{2}$ is an Arithmetical mean Proportional between 0 and 1; and therefore as 2 is the Index of the Square of x, $\frac{1}{2}$ will be the proper Index of its Square Root, *&c.*

We must observe also, that for Convenience or Brevity's Sake, Quantities or Numbers, which are not *Surds*, are often expressed in the Form of *Surd Roots*. Thus $\sqrt{}$: 4, $\sqrt{}$: $\frac{9}{4}$, $\sqrt[3]{}$: 27, *&c.* signify 2, $\frac{3}{2}$, 3, *&c.*

But though these Surd Roots (when truly such) are inexpressible in Numbers, they are yet capable of arithmetical Operations, (such as Addition, Subtraction, Multiplication and Division, *&c.*)

Surds are either *Simple* or *Compound*.

Simple Surds are those which are expressed by one single Term, as $\sqrt[1]{}$ c.

Compound Surds are those formed by the Addition or Subtraction of *simple Surds*: as $\sqrt{}$: 5 + $\sqrt{}$: 2 : $\sqrt{}$: 5 — $\sqrt{}$: 2, or $\sqrt[3]{}$: 7 + $\sqrt{}$: 2 : which last is called an universal Root, and signifies the Cubick Root of that Number, which is the Result of adding 7 to the Square Root of 2.

To Reduce rational Quantities to the Form of any *urd Root* assigned. For Example, if 3 were to be brought to the Form of $\sqrt[4]{}$: 12, you must raise 3 up to its fourth Power, and then prefixing the Note of Radicality to it, it will $\sqrt[4]{}$: 81, or 81 $\frac{1}{4}$, which is the same Form with $\sqrt[4]{}$: 12. And this Way may a simple *Surd* Fraction, whose radical Sign refers only to one of its Terms, be changed into another, which shall respect both Numerator and Denominator. Thus $\frac{\sqrt{}:2}{25}$ is reduced to $\sqrt{}$: $\frac{2}{25}$ and $\frac{5}{3}$, to $\sqrt[3]{}$: $\frac{125}{4}$; where the radical Sign affects both Numerator and Denominator.

To reduce *Surds* to the lowest Term possible. Divide the *Surd* by the greatest Square, Cube, Biquadrate, *&c.* or any other higher Power, which you can discover, is contained in it, and will measure it without any Remainder; and then prefix the Root of that Power before the Quotient, or *Surd*, so divided; this will produce a new *Surd* of the same Value with the former but in more simple Terms.

This Reduction is of great Use, whenever it can be performed; but if no such Square, Cube, Biquadrate, *&c.* can be found for a Divisor, find out all the Divisors of the Powers of the *Surd* proposed; and then see if any of them be a Square, Cube, *&c.* or such a Power as the radical Sign denotes; and if any such can be found, let that be used in the same Manner as above, to free the surd Quantity in Part from the radical Sign. Thus if $\sqrt{}$: 288 be proposed; amongst its Divisors will be found the Squares, 4, 9, 16, 36, and 144; by which, if 288 be divided, there will arise the Quotients 72, 32, 18, 8, and 2; wherefore instead of $\sqrt{}$: 288, you may put 2 $\sqrt{}$: 72, or 3 $\sqrt{}$: 32, or 4 $\sqrt{}$: 18, or 6 $\sqrt{}$: 8, or lastly, 12 $\sqrt{}$: 2, and the same may be done in *Species*.

We have very little Intelligence about the Origin and Invention of *Arithmetick*; History neither fixes the Author, nor the Time. In all Probability however, it must have taken its Rise from the Introduction of Commerce, and consequently be of *Tyrian* Invention.

From *Asia* it passed into *Egypt*, (*Josephus* says by means of *Abraham*) here it was greatly cultivated and improv'd; insomuch that a large Part of their Philosophy and Theology, seems to have turned altogether upon Numbers, hence those Wonders related by them about Unity, Trinity; the Numbers seven, ten, four, *&c.* In Effect, *Kircher* in his *Œdip. Ægypt. Tom.* II. *p.* 2. shews that the *Egyptians* explained every Thing by Numbers; *Pythagoras* himself affirming that the Nature of Numbers goes through the whole Universe; and that the Knowledge of Numbers is the Knowledge of the Deity.

From *Egypt*, *Arithmetick* was transmitted to the *Greeks*, who handed it forward, with great Improvements, which it had received by the Computation of their Astronomers, to the *Romans*; from whom it came to us.

The antient *Arithmetick* however, fell far short of that of the Moderns; most of what they did was to consider the various Divisions of Numbers; as appears from the Treatises of *Nicomachus*, wrote in the third Century of *Rome*, and that of *Boethius* still extant. A Compendium of the antient *Arithmetick*, wrote in *Greek*, by *Ptellus*, in the ninth Century from our Saviour, was given us in *Latin* by *Xylander*, in 1558. A more ample Work of the same Kind was wrote by *Jordanus*, in the Year 1200; published with a Comment by Father *Stapulensis*, in 1480.

Arithmetick, under its present State, is divided into different Kinds; *viz.* Theoretical, Practical, Instrumental, Logarithmetical, Numerous, Specious, Decimal, Dignamical, Tetractical, Duodecimal, Sexagesimal, *&c.*

Euclid furnishes a *Theoretical Arithmetick*, in the seventh, eight, and ninth Books of his Elements (which *Theoretical Arithmetick* is the Science of the Properties, Relations, *&c.* of Numbers considered

 abstractedly;

abstractedly; with the Reasons and Demonstrations of the several Rules.) *Barlaamus Monachus* has also given a Theory for demonstrating the common Operations, both in *Integers* and broken Numbers, in his *Logistica*, published in *Latin* by *J. Chambers* an *Englishman*, in 1600. To which may be added *Lucas de Burgo*, who in an *Italian* Treatise, published in 1523, gives the several Divisions of Numbers from *Nichomachus*, and their Properties from *Euclid*; with the Algorithm, both in Integers, Fractions, Extractions of Roots, *&c.*

The first entire Body of *Practical Arithmetick* (which is the Art of numbering or computing from certain Numbers given, or finding certain others, whose Relation to the former is known, as if a Number be required equal to two given Numbers 6 and 8) was given by *Nich. Tartaglia* a *Venetian*, in 1556, consisting of two Books; the former, the Application of *Arithmetick* to civil Uses; the latter, the Grounds of *Algebra*. Something had been done before by *Stifelius*, in 1544; where we have several Particulars concerning the Application of Irrationals, Cossicks, *&c.* no where else to be met withal. There is almost an infinite Number of practical Authors, who have appeared since; as *Gemma Frisius*, *Metius*, *Clavius*, *Ramus*, *Buckley*, *Diggs*, *Record*, *Wingate*, *Cocker*, *Leyburn*, &c.

The Theory of *Arithmetick* is joined with the Practice, and even improved in several Parts by *Maurolicus*, in his *Opuscula Mathematica*, 1575; *Heneschius* in his *Arithmetica Perfecta*, 1609, where the Demonstrations are all reduced into the Form of Syllogisms; and *Tacquet* in his *Theoria & Praxis Arithmetices*, 1704.

Instrumental Arithmetick is that where the common Rules are performed by Means of Instruments contrived for Ease and Dispatch; are several Scales and sliding Rules; such more particularly are *Neper's* Bones, an Instrument whereby Multiplication and Division of large Numbers are facilitated and expedited; and so called from its Inventor *John Neper*, Baron of *Marchiston* in *Scotland*.

This Instrument is made of five Rods, Plates, or Lamellæ, of Wood, Metal, Horn, Past-board, or other Matter of an oblong Form, and divided each into nine little Squares; each of which is resolved into two Triangles by Diagonals. In these little Squares are wrote the Number of the Multiplication Table; in such Manner as that the Units, or Right-hand Figures, are found in the Right-hand Triangle; and the Tens, or the Left-hand Figures, in the Left-hand Triangle.

Use of Neper's *Bones in Multiplication.* To multiply any given Number by another; dispose the *Lamellæ* in such Manner, as that the Top Figures may exhibit the Multiplicand; and to these on the Left-hand, join the *Lamellæ* of Units; in which seek the Right hand Figure of the Multiplicator; and the Numbers corresponding thereto, in the Squares of the other *Lamellæ*, write out, by adding the several Numbers occurring in the same Rhomb together, and their Sums. After the same Manner write out the Numbers corresponding to the other Figures of the Multiplicator, let them be disposed under one another, as in the common Multiplication: And lastly, add the several Numbers into one Sum. For Example:

Suppose the Multiplicand 5978, and the Multiplicator 937, from the outermost Triangle on the Right-hand, which correspond to the Right-hand Figure of the Multiplicator 7, write out the Figure 6, placing it under. In the next Rhomb towards the Left, add 9 and 5; their Sum being 14, write the Right-hand Figure, *viz.* 4 against 6; carrying the Left-hand Figure 1, to 4 and 3, which are found in the next Rhomb. The Sum 8 join to 46 already put down; after the same Manner in the last Rhomb, add 6 and 5, the latter Figure of the Sum 11, put down as before, and carry 1 to the 3 found in the Left-hand Triangle; the Sum 4 join as before on the left of 1846: Thus will you have the Factum of 7 into 5978; and after the same Manner will you have the Factum of the Multiplicand, into the other Figures of the Multiplicator: The Whole added together, gives the whole Product.

```
     5978
      937
    -----
    41846
   17934
  53802
  -------
  5601386
```

Use of Neper's *Bones in Division.* Dispose the *Lamellæ* so, as that the uppermost Figures may exhibit the Divisor; to these on the Left-hand join the *Lamellæ* of Units. Descend under the Divisor, till you meet those Figures of the Dividend, wherein it is first required, how oft the Divisor is found, or at least the next less Number, which is to be subtracted from the Dividend; the Number corresponding to this, in the Place of Units, write down for a Quotient. By determining the other Parts of the Quotient after the same Manner, the Division will be compleated. For Example:

Suppose the Dividend 5601386, and the Divisor 5978; since it is first asked how often 5978 is found in 56013, descend under the Divisor, till in the lowest Series you find the Number 53802 approaching nearest to 56013; the former whereof is to be subtracted out of the latter, and the Figure 9 corresponding thereto in the *Lamellæ* of Units, write down for the Quotient. To the Remainder 2211, join the following Figure of the Divisor 8; and the Number 17934 being found, as before, to be the next less Number thereto, the corresponding Number in the *Lamellæ* of Units, 3, is to be wrote down for the Quotient; and the Subtraction to be continued as before. After the same Manner the third and last Figure of the Quotient will be found to be 7; and the whole 937.

```
5978)5601386(937
     53802
     -----
      22118
      17934
      -----
       41846
       41846
       -----
       00000
```

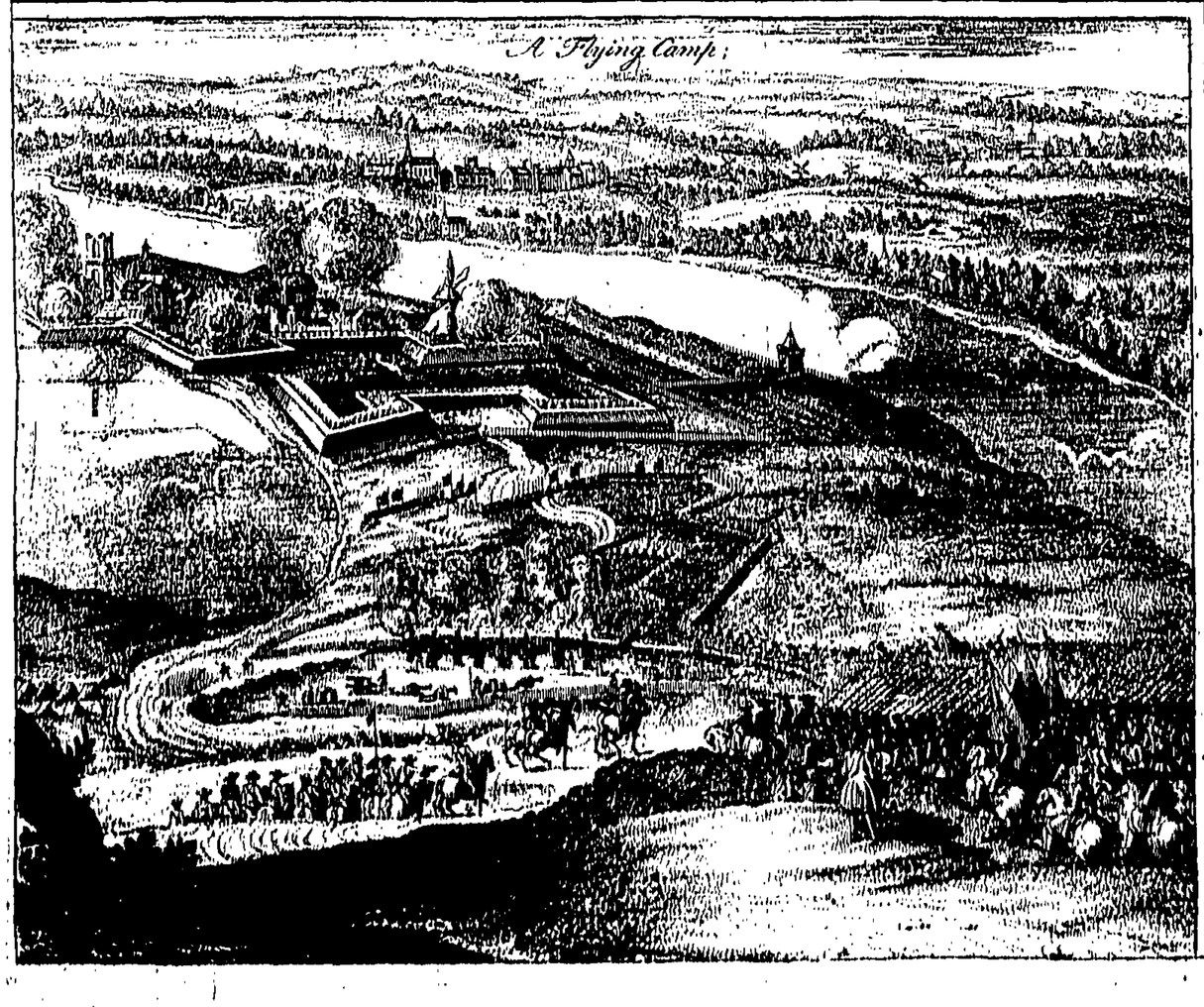
To *Neper's* Bones may be added Sir *Sam. Moreland's* Instrument, the Description whereof was publish'd by himself in 1666; that of Mr. *Leibnitz*, described in the *Miscellan. Berolin*; that of *Polenus*, published in the *Venetian Miscellany*, 1709; the *Arithmetica Logarithmica* of *Hen. Briggs*, published 1624: and the Universal *Arithmetical Tables of Prosthaphereses*, published 1610, by *Herwart ab Hohenburg*; whereby Multiplication is easily and accurately performed by Addition, and Division by Subtraction.

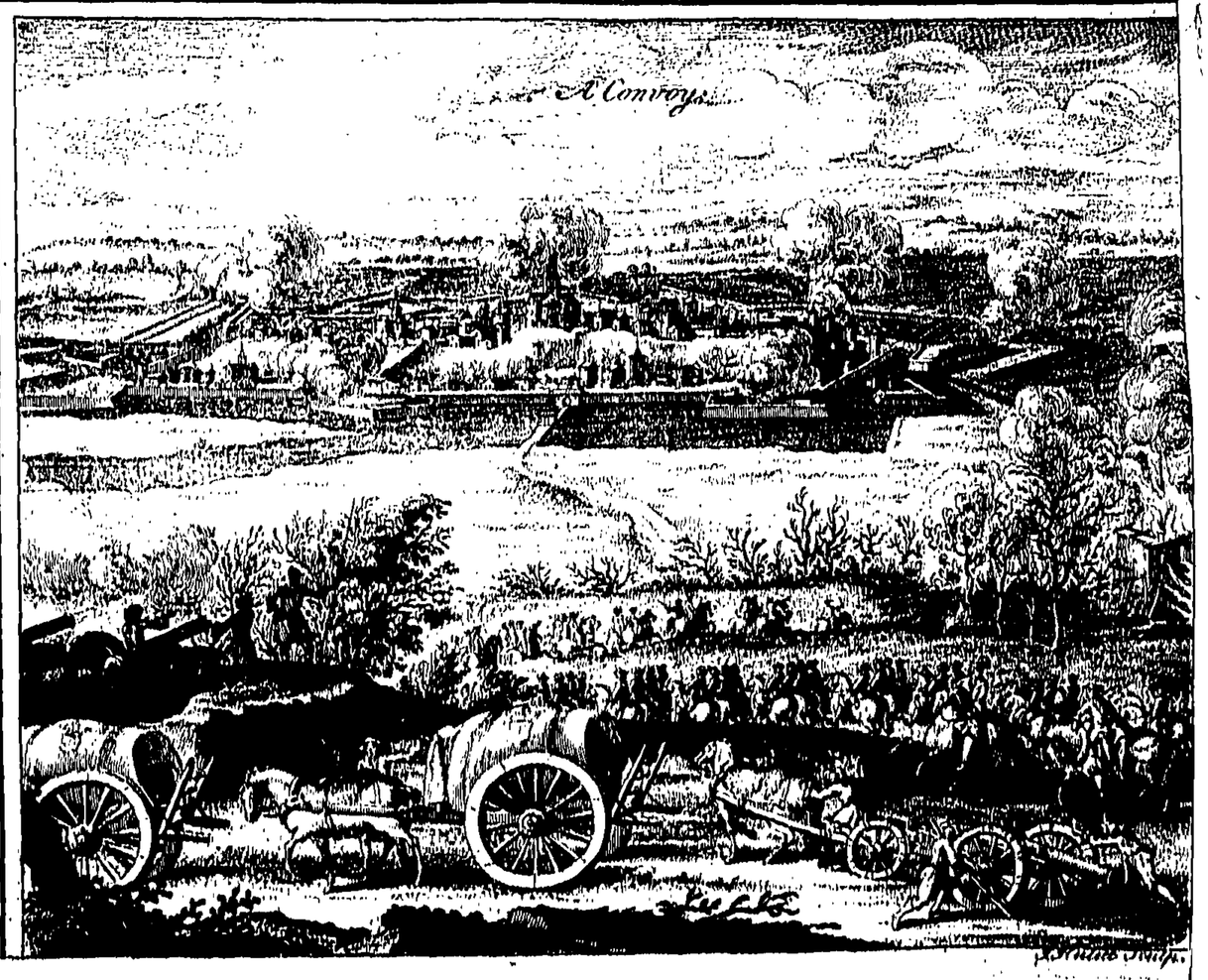
The *Chinese* have little Regard to our Rules in their Calculations; instead of which, they use an Instrument made of a little Plate, a Foot and Half long, a-cross which are fitted ten or twelve Iron Wires, on which are strong little round Bales. By drawing these together, and dispersing them again one after another, they count somewhat after the Manner in which we do by Counters; but with so much Ease and Readiness, that they will keep Pace with a Man reading a Book of Accounts, let him make what Expedition he can: And at the End the Operation is found done; and they have their Way of proving it.

The

Different Dispositions of an ARMY.

A Battle





The *Decimal Arithmetick* is not of a very antient Date; since it was first introduced into *Europe*, by *Gerbert*, afterwards Pope, under the Name of *Silvester* II, who borrowed it from the *Moors* of *Spain*. No Doubt it took its Origin from the ten Fingers of the Hands, which were made Use of in Computation before *Arithmetick* was brought into an Art. The Eastern Missionaries assure us, that to this Day the *Indians* are very expert at computing on their Fingers, without any use of Pen and Ink. Add, that the Natives of *Peru*, who do all by the different Arrangement of Grains of Maise, out-do any *European*, both for Sureness and Dispatch, with all his Rules.

ARMY.

ARMY, is a large Body of Soldiers under the Command of a General, with several Ranks of subordinate Officers under him.

Under this general Term *Army*, are commonly understood both a Land and a Naval, or Sea *Army*.

A *Land Army* is a large Body of Soldiers consisting of Horse and Foot; and a *Naval Army* is a Number of Ships of War, equipped and manned with Sailors and Marines, under the Command of an Admiral, with other inferior Officers under him.

Note, That under this Title *Army*, I design to treat of all the different military Expeditions, both on Sea and Land, *viz.* of the forming an *Army*, of Marches, Counter-marches, Camps, Battles, Retreats, Sieges, Defiles, *&c.* and of the Equipment of a Fleet, of a whole Fleet, of a Squadron, of Convoys, Sea-fights, *&c.* Beginning by the forming of a *Land Army*.

A *Land Army* is composed, as I have already observed, of both Horse and Foot, the Horse being called *Cavalry*, and the Foot *Infantry*.

The CAVALRY (from the *French Cavalerie*, and from the corrupt *Latin*, *Caballus*, Horse) is a Body of Soldiers, who fight or march on Horse-back. The *Cavalry* is usually divided into *Horse* and *Dragoons*. The Horse are either regimental or independent Troops, to which latter Sort belong the Horse-guards, and in *France*, the great *Gendarmes*, properly called the *Gendarmerie*, the *Mousquetaires*, the *Chevaux Legers*, and *Horse Grenadiers*.

The *Horse-Guards*, by the *Spaniards* called *Guardas a Cavello*, by the *French*, *Gardes de Corps*, or *du Corps*, and by the *English*, usually *Life-Guards*; are the Guards of the King's Person and Body, consisting among us of 800 Men well armed and equipped. They are divided into four Troops; to which are now added, by Establishment, two Troops of Grenadiers, consisting of 80 Men, all under the Command of a Captain.

Each Troop of Horse-guards is divided into four Divisions or Squadrons; two of which consisting of 100 Men, commanded by a principal commission'd Officer, two Brigadiers and two Sub brigadiers, with two Trumpets, mount the Guard one Day in six, and are relieved in their Turns.

Their Duty is by Parties from the Guard, to attend the King's Person, when he goes out near home.—— When he goes out of Town, he is attended by Detachments out of all the three Troops.

One of the three Captains of the *Horse guards* attend on the King when he walks on Foot, immediately next his Person; carrying in his Hand an Ebony Staff, or Truncheon with a Gold Head.

One Division of the *Grenadiers* mounts with a Division of the Troop to which they belong; and go out on small Parties from the Guard, perform centinel Duty on Foot, attend the King also on Foot, *&c.*

The *Gardes de Corps*, or *Life guards* in *France*, consist of four Companies of Horse. The first was antiently *Scotch*, and still retains the Name; though it now consists wholly of *Frenchmen*. Not only the Name, but they also retain the antient Phrase or Formula of answering when called upon, *I am here*.

The *Scotch Guard* was first established in *France* by *Charles* VII. who chose himself a *Guard* out of such *Scots* as were sent by the Earls of *Bucan*, *Douglas*, and other *Scotch* Lords, to drive out the *English*.

The *Grands Gens D'armes*, are also a Troop of Gentlemen, to the Number of about 250, who guard the King's Person. The King himself is their Captain, and one of the prime Peers the Captain Lieutenant. When the King marches with all his houshold Troops, the *Gens D'armes* close the March. Their Device is a Thunder-bolt falling from Heaven, with the Motto, QUO JUBET IRATUS JUPITER.

The MUSQUETEERS are also of the King of *France*'s Horse-guards; there are two Troops of *Musqueteers*, distinguished into the gray and black *Musqueteers*, from the Colour of their Horses. These are young Gentlemen of Distinction, instructed at the King's Expence in all the Rules of the Military Art or Discipline.

These three Bodies of Cavalry of the King of *France*'s Houshold, *viz.* the *Gardes du Corps*, the *Grand Gens D'armes* and the *Musqueteers*, are composed of none but of Persons of Distinction.

That Body of Horse called by the *French*, *Gendarmerie*, is also of the King's Houshold, and consists of sixteen Companies, *viz.* the Scotch *Gens D'armes*; the English *Gens D'armes*; the Burgundy *Gens D'armes*, and the Flemish *Gens D'armes*, which four Companies compose the King's *Gens D'armes*.

The other Companies take their Names from the Princes who command them, as Captains, *viz.* the Queen's *Gens D'armes*; the Queen's *Light-horse*: The Dauphin's *Gens D'armes*; the Dauphin's *Light-horse*: The Duke of *Burgundy*'s *Gens D'armes*; the Duke of *Burgundy*'s *Light-Horse*: The Duke of *Orleans*'s *Gens D'armes*, &c. Each Troop at a Medium, consists of seventy-six *Gens D'armes* or *Light-horse*.

Light-Horse in *England* includes all the Horse, except those of the Life-guard.——The Denomination arose hence, that antiently they were lightly armed, in Comparison of the royal Guards, which were armed at all Points.

The regimental Cavalry is composed of what we call here Troopers, and in *France* Cavaliers.—The *French* chuse for their Cavaliers, not very tall and bulky Men, which they suppose too heavy, and to fatigue too much their Horses; but square shoulder'd Men, with a full Face; which they suppose to have a better Grace on Horse-back.

The best Qualities for a TROOPER is to be bold and resolute, strong and healthy, of a daring and sprightly Temper, ambitious of Honour, and fearful of nothing but Shame and Disgrace.—Men inured to all Sorts of Fatigues, are to be preferred before those who are brought up in Ease and Softness, and their Age ought not to exceed thirty five Years, except they have been bred up in the Army, nor to be under eighteen.—— They should be eager to improve that they may be advanced, and willing to obey.——They should be well mounted upon young, strong and sound Horses; and armed with good Pistols, Carabines, and good broad-cutting Swords.

The *Troopers* are to be instructed in the Use of their Horse and Arms, to march orderly in their Ranks, and to execute such Orders as they receive: Their

Their Arms are to be kept clean and well fixed, and the least Defect rectified. The Troop, if raw and undisciplined, are to be exercised every other Day, that they may know how to use their Arms dextrously, and march orderly. Old Troopers are to be placed upon the Right and Left, and when they are drawn out, let them march gently, and file off by four and four, then continue the March, and let them file off by two and two; then double and march again by fours, and at last still marching to form the Squadron again, another Day they may be taught to march upon a Trot, and in close Order; and in that Manner to file off by four's and two's, and then again to form the Squadron all upon a Trot. Another Day they may be taught to wheel to the Right and to the Left, and about, with some Firings, to inure their Horses to stand Fire.

The Troopers are formed into *Troops*, each Troop consisting commonly of 50 private Troopers, besides a *Captain*, a *Lieutenant*, a *Cornet*, and a *Quarter-Master*.

A CAPTAIN should be endued with a great and generous Soul, preferring his Honour above all Things, Life not excepted. When he first appears at the Head of his *Troop*, he is to salute the Subalterns, and having produced his Commission, assure them of his Friendship; and then invite them to his Quarters. The like Assurance may afterwards be given to all the Troopers upon their good Behaviour, whose Horses and Accoutrements he is to view carefully. He should consult with the Lieutenant, and Quarter-master, about filling up the Vacancies in his Troops, in remounting such as want Horses, and doing whatever else is necessary. He must know all the Troopers by their Names, that he may call any of them to give them his Orders. He is not to be guilty of Extortion upon any Account; neither is he to detain in his Hands the Troopers Pay, lest by such Practices he occasions them to desert or pilfer, which Crimes are not to go unpunished.

A *Captain* must chuse a Trumpeter who understands how to sound well, and particularly one who has been trained up in the War, and in whom he can confide. A Man thus qualified, when sent to the Enemies Camp, or any of their Garrisons, may give an Account how the Enemy is posted, the Nature of their Entrenchments, Ditches, Out-works, and of their Guards and the Avenues to their Camp.

A *Captain* ought to keep a competent Number of good Horses, and be curious in his Fire-arms, both for himself and Servant, and take Care that they be kept in good Order.

The LIEUTENANT of a *Troop*, ought to be a Person trained up in the Cavalry, and well experienced in that Part of the *Military Art*. He is to have a personal Knowledge of every Trooper; and, on Occasion, to call him readily by his Name. He is to observe diligently the Condition of every *Trooper*'s Horse and Arms, and reprimand those who neglect either: And when they are upon a March, his Post is in the Rear of the Troop, if single, in Order to take Care that no Man quits his Rank, but follow his file Leaders. When they engage the Enemy as by Squadron, his Post is on the Right or Left, according to the Seniority of his Commission. When the Captain is commanded upon the grand Guard, or any other Guard, as soon as he comes to his Post, the *Lieutenant* having drawn up the *Troop*, shall continue at the Head of it on Horse-back, while the *Captain* receives Orders, and goes with the *Quarter-Master* to place the Vedettes, or Out-posts, on Horse-back, and to view their Posts, and instruct them how they are to behave themselves, till the *Captain* returns to give the other necessary Orders for his Guard.

The Duty of a CORNET consists principally in carrying the Standard upon a Review, or other publick Appearance, or to bear it in the Day of Battle, and in an Engagement to defend it; to salute the Prince, and in his Absence the General, and his Post is in the Centre of the *Squadron*, about half a Horse's Length behind the Field Officer.

A QUARTER-MASTER, ought to be a Man of good Parts, Activity and Experience, since the Œconomy of the Subsistence, and Service of the Troops, depends upon him. — He should understand Writing and Arithmetick, whereby he may be qualified to keep the Accounts of the Troop, and to account with them for their Pay, or for any Share of Booty taken from the Enemy. — He is to receive Orders and the Word, which he should commit to Writing, and then carry them to his Officers.

He ought to view often the Troopers Horses, and take Care that they be well fed, dressed, shod, and accoutred, and to see that their Arms be clean, and to have such refitted as are out of Order. — Upon a March he is to receive Orders from the Captain, to go before and provide Quarters for the whole Troop, and for better Dispatch may, with the Captain's Leave, take one or two Troopers with him. — He is to shew his Orders to the Magistrate, and acquaint him with the Captain and other Officers of his Retinue, and to view their Quarters, that they may have no Cause to complain. — The Quarters being timely provided, he shall mount and meet the Troop as it draws near; and if the Billets be delivered to him, he is to conduct the *Captain* and the *Troop* to his Quarters; but if the Magistrate will see the Effective Men before he delivers the Billets, then he shall lead the *Captain* and the *Troop* to the Town-Hall, or some other publick Place, and having received the Billets, shall wait on the *Captain* to his Quarters, and drawing up the Troop in one single Rank, cause the Billets to be drawn out of his Hat, and admonish the *Troopers* to be civil to their Landlords. — He is to keep an exact List of the Quarters, that he may visit their Horses; and if any of them have received any Damage, he is to take Care to have them speedily cured.

When the Trumpet sounds to Horse, he is to mount first and hasten the Troopers, and repair to the *Captain*'s Quarters. — Upon a March, his Post is upon the Flank of the *Troop* or Squadron, and he is to ride from the Front to the Rear, and from the Rear to the Front, to view the Ranks, and make them keep their due Distance. — In Time of Action he is to be upon the Flank, with his Sword drawn, to prevent the Men falling into Disorder, and to kill the first who shall offer to fly.

TROOPS are form'd into Squadrons; three Troops to each Squadron: And those Squadrons into Regiments; three Squadrons to each Regiment, which commonly consists of 300 Men: Though there are some in *Germany* of 2000 Men.

Among us a Regiment of Horse is commanded by a Colonel, and in *France* by a *Mestre de Camp*.

There are *Colonels*, *Colonel-Lieutenants*, and *Lieutenant-Colonels*. — A *Colonel* is an Officer who has the Command in chief of the Regiment. — A *Colonel-Lieutenant*, is he who commands a Regiment of Guards, whereof the King, Prince, or other Person of the first Eminence is Colonel. — And a *Lieutenant-Colonel*, is the second Officer in a Regiment; who is at the Head of the Captains, and commands in the Absence of the *Colonel*. — In the Horse, the *Lieutenant Colonel* is the first Captain of the Regiment.

The DRAGOONS are also ranked in the *Cavalry*. The Dragoons are a Body of Soldiers who march on Horse-back, and fight on Foot; though most commonly on Horse-back.

The *Dragoons* are usually posted in the Front of the Camp, and march first to the Charge, like a kind of *Enfans perdus*. They are by some reputed as belonging to the Infantry, and in that Quality have Colonels and Sergeants; but they have Cornets too, like Cavalry. — In *France*, to inspire the Dragoons with Valour, they are allowed a Pair of Kettle-drums, when they have gained it from the Enemy, else they have only Drums. The *French* Dragoons have Boots

without Shoes, which they call *Botines*; and which, when dismounted, cannot hinder them from fighting on Foot. Their Arms are a Sword, Firelock, and Bayonet. In the *French* Service, where the *Dragoons* march on Foot, the Officers bear the Pike, and the Serjeants the Halbert; neither of which are used in the *English* Service.

The CUIRASSIERS belong also to the Cavalry, so called from wearing a *Cuirass*, which is a Piece of defensive Armour, made of an Iron Plate well hammered; serving to cover the Body from the Neck to the Girdle, both before and behind. The *Cuirass* was not brought in Use till about 1300. Good Part of the *German* Cavalry are *Cuirassiers*.

The *Ottoman Cavalry* are called SPHAHIS, chiefly raised in *Asia*, and the Aga or Commander of the *Spahis*, *Sphahi Agasi*.

The most considerable Part of an Army consists in the Foot, or INFANTRY, divided also into Companies, Battalions and Regiments.

A COMPANY is a little Body of Infantry, commanded by a Captain. The Number of Men in a Company is uncertain; in the ordinary Regiments it is fifty Centinels, besides three Serjeants, three Corporals, 2 Drums, *&c.* A Company in the Guards is eighty Private Men. In the *French* Guards, the Company is 120, in the *Swiss* Guards 200. Companies not imbodied into Regiments are called *Independent Companies*.

The Officers of a *Company of Infantry* are a Captain, a Lieutenant, an Ensign, and a Serjeant.

A CAPTAIN *of Infantry* must understand perfectly the Duties of a *Lieutenant*, *Ensign*, and *Serjeant*, and when a Vacancy happens, he should give the Halbert to him that deserves it best, allowing to the eldest *Corporal* somewhat more than his bare Pay, lest he debauches the whole Company. A *Captain* should understand Arithmetick as far as the *Square Root*; and if he knows not how to take the Dimensions of inaccessible Bodies, he must at least know the Lines of Defence, and how to gain a flank'd Angle, to carry up a Trench to it, to make a good Lodgement upon it, and to flank it well; to order his Place of Arms and Batteries conveniently; to begin the Sap at the Foot of the *Glacis*, on the Edge of the Ditch; to make a Descent into a Place that is easy to be defended; to carry a Gallery a-cross a Ditch, after he has made a good Lodgement to support it, well empaled and flank'd; so that the Enemy may not attack it without Danger; and in fine to know how to lodge himself on a Breach; for though there are Engineers who are to order these Things, yet they are generally tedious, and many Eyes can see more than two. Besides as a *Captain* is sometimes obliged to do the Duty of a *Major*, or *Major of Brigade*, he must therefore be laborious and vigilant, and understand their Duties, Rights, Privileges and Prerogatives. Moreover he is to know all the other Duties of those Posts to Perfection, and the Articles of War; how Cases have been decided upon Controversies formerly started; the Posts of all Regiments, and what is due to his own. These are the most essential Duties of a *Captain*.

A LIEUTENANT of *Infantry* ought to know the Duty of a Soldier to Perfection, and allowing him to have the Qualifications of an *Ensign*, he is farther to know how to discourse pertinently of the Methods of War; as how to gain an Advantage in all Places and Exigencies; of making a good Encampment; of intrenching in all Sorts of Places; of cantoning without Noise or Confusion, because he commands the Company in the Absence of the *Captain*. He is to know all the Articles of War, and all that concern the Right, Honour, and Duty of his Post, to prevent Mistakes and Contests, which often retard the Service; and that he may give his Opinion upon due Information, in Councils of War, to which he may be called for want of *Captains*. He must know all the Soldiers of the Company and hold Intelligence with some of them, take Care that they keep their Arms clean, to send the Sick to the Hospital, and that they be diligently attended.

An ENSIGN should be perfect in all the Duties of a Soldier, and understand *Arithmetick* as far as the Extraction of the Square Root, because it is the *Basis* of the Military Art. He should be expert in handling his Arms, that he may judge whether the Soldiers do it gracefully; and he should teach and cause them to be taught before him. He is not to be ignorant of any Thing that belongs to the Rank, Honours, Privileges, Service, and Post due to his Employ. He is to keep a List of all the Men in the Company, and to know them so well as to call them readily by their Names. He is not to miss a Siege, or fail to go into the Trenches. He is to listen to old Officers, and wait upon the *General* with his *Captain*, to study Fortification, and Geography, and be conversant in History.

A SERJEANT should be perfect in the Exercise of the Fire-lock, and the usual Evolutions, that he may instruct raw and ignorant Soldiers, and make them honour and respect him; and he is to see that the Word of Command, when given to the Battalion, be punctually obeyed. He must understand how to make a good Lodgment and Epaulement, and to carry on a Sap as directed; and he must never disguise the Truth, and especially when sent to view or measure any Thing; and on him often depends the Honour of the Regiment; for it is usual to detach a Serjeant with a small Number of Men, to fall on before a greater Detachment, that is to follow; to advance a Lodgement, gain a Traverse, or Barricade, or to begin an Attack of any Kind whatever: If he performs not his Duty, either through Cowardice or Ignorance, every Thing is presently in Disorder; and if this happens in the Trenches, it may retard the taking a Place a Day, and then if it should be relieved that Day, the whole Fault will be laid upon the Regiment then in the Trenches; and it will be long before it can wipe off a notable Blemish; and it were much better a Company had no *Serjeant*, than to have such as do not understand those great and essential Parts already mentioned.

A *Serjeant* is to be diligent and assiduous in his Duty, either upon a March, or in Garrison, and see all his Soldiers quartered before he quarters himself; He must never fail to receive Orders, and carry them to his Officers; and agree with his Brother *Serjeants*. He is to chuse a favourite Soldier in whom he can confide, and adjust all Differences that shall arise in the Company; and to compel them to mend their Cloaths and Shoes, and oblige them to keep their Arms in good Order. He must keep Intelligence with the most tried Men, to discover whether any of the others design to desert. He ought not to be fond of his own Opinion, but to ask Advice of the *Major*, or some other experienced Officer.

The COMPANIES of Infantry are formed into Battalions.

A BATTALION, is a little Body of *Infantry*, rang'd in Form of Battle, and ready to engage. A *Battalion* usually contains from 5 to 800 Men, of which one Third were formerly Pikes in the Middle, and the other two Thirds Muskets, posted on the Wings: But the Number of Men it consists of is not determined. *Battalions* are usually drawn up with six Men in a File, or one before another.

A REGIMENT usually consists of several *Battalions*, though some consist but of one, which is too few, others of four, or five, which are too many. The *French Regiments* consist commonly of three *Battalions*, or fifteen *Companies*. Though the *Regiment* of *Picardy* consists of 120 Companies or 6000 Men.

A *Regiment* is commanded by a *Colonel*, a *Lieutenant-Colonel* and a *Major*.

The COLONEL of a Regiment of *Infantry* should be a Man of Credit and Authority, grave in his Behaviour, lofty in his Deportment, yet without Vanity and Haughtiness; courteous to all Men, particularly,

larly to the Officers of his own Regiment. He muſt extol Worth, though it be in a private Centinel; and is to make known to the General, or even to his Sovereign, any good or notable Action performed by any Man under his Command. If he has juſt Cauſe to ſpeak ill of any Man, let him not do it in Publick, except he has reproved him twice in private. If any of his Officers are guilty of Cowardice or Mutiny, he is to acquaint the General, or Commander in Chief, in Order to have them brought to a general Court Martial. He muſt frequently view and examine all the Companies in his Regiment, commending thoſe Captains who have good ones, and privately reprimanding thoſe who have bad; and he is to be frequently preſent, when the Regiment performs their Exerciſe, and to encourage ſuch who do better than the reſt.

The Duty of a LIEUTENANT COLONEL is much the ſame with that of a *Colonel*.——In the Abſence of the *Colonel* he is to command the Regiment, and then the Major is to receive Orders from him.

A MAJOR of a Regiment of *Infantry* ſhould have a profound Experience in War, eſpecially in the Foot Service.——He is to underſtand how to attack a Place; and when the Regiment marches into the Field, he is to give Notice of the effective Strength of it, and is to acquaint the General, or his Sovereign, if he diſcovers any evil Deſign among the Officers.——Beſides the Knowledge of drawing up the Forces, forming Battalions, and exerciſing them, the *Major* of a Regiment is to ſee, that in marching they obſerve their Diſtances, that they carry their Arms well, that the Ranks be ſtrait, and every Thing done with Decency, and a good Grace. —In the Field he ſhould have two or three Horſes, War-Horſes, and Pads, becauſe it is his Buſineſs to carry Orders, and to be every where upon Occaſion. —The *Major* muſt alſo have an Adjutant, who ought to be well mounted, and be a Perſon of Experience, Ability, Courage, and Judgment, becauſe he is the *Major*'s Right-hand, to eaſe him of Part of the great Burden of his Employment, and upon all Occaſions in his Abſence, whether for Wounds, Sickneſs, or any other Occaſion to perform all the Duty of a *Major*.——Care is to be taken that there be a good *Drum-Major* to the Regiment, who is to teach the others how to behave on all publick Occaſions.

The Squadrons of Cavalry, and the Battalions of Infantry are formed into Brigades.

The BRIGADE of an *Army*, conſiſts of ten or twelve Squadrons, or of five or ſix Battalions, and in this Manner, an *Army* is ſometimes divided into eight *Brigades*; four of Horſe and four of Foot. Each *Brigade* is commanded by an Officer called *Brigadier-General*, who has under him an Officer called *Brigadier Major*, or *Major* of a *Brigade*, to aſſiſt him in the Management and ordering his *Brigades*, in which he acts as a *Major-General* does in an Army.

An ARMY is commanded by a General, who has under him Lieutenants-General, Majors-General, Brigadiers, *&c.*

A GENERAL is an Officer who commands all the military Power of a Nation; who gives Orders to all the other general Officers; and receives no Order himſelf but from the King.

> Monſieur *Balzac* obſerves, that the Cardinal *de Richelieu* firſt coined this Word, of his own abſolute Authority, upon his going to command the *French* Army in *Italy*.

At preſent in the *French* Armies a *General* is almoſt always a Marſhal of *France*, which is the higheſt military Dignity or Preferment.——The Dignity of a Marſhal is now for Life, though at its firſt Inſtitution it was otherwiſe. They were then only the King's firſt Ecuyers under the Conſtable, but in time they became the Conſtable's Lieutenants in the Command of the Army, the Conſtable himſelf being then become Captain-General. At firſt they were but two in Number, and their Allowance was but 500 Livres *per Annum* in Time of War, and nothing in Time of Peace. In the Reign of *Francis* I. their Number was increaſed to five, ſince him it has been various; the late King increaſed it at Pleaſure, and made ſome very little deſerving that high Dignity; it is now eleven. Their Office at firſt was to marſhal the *Army*, under the Conſtable, and to command in his Abſence. They did then what the *Marſhals de Camp* do now, to which laſt they have given their Title, and the leaſt conſiderable Part of their Authority.

A Prince can never be too cautious in the Choice of his *Generals*, ſince the Preſervation or Loſs of Kingdoms often depends upon the Conduct of thoſe intruſted with the Command of *Armies*.

The principal Qualities requiſite in a *General*, are Courage, Conduct, and Zeal; and if a natural Inclination to War attends theſe Qualities, there are ſcarce any Difficulties which may not be ſurmounted. Probity is another Quality neceſſary in a *General*; and it is this Virtue which informs a *General*, that he is not to employ the Forces his Prince intruſts him with, any otherwiſe than for the Good of his Country; and that he muſt not make Uſe of them to commit Rapine and Violence on the Subjects, nor even on the Enemies, except it be for his Prince's Advantage. Liberality gives a great Luſtre to all the other Perfections of a *General*, ſince nothing is more ſcandalous for him, and more injurious to the Prince he has the Honour to ſerve, than to ſee him governed by that monſtrous Vice *Avarice*, which eclipſe at once the moſt excellent of all his Qualities, as his Courage, Skill, Experience, *&c.*

The Duties of a *General* are to order an Encampment, to poſt the Camp-Guard, to march an Army, to draw it up, to give Battle, to attack Enemies Quarters or Towns, to form a Blockade, and lay Siege to any Place. He muſt underſtand what Train of Artillery is requiſite in Proportion to the Strength of his Army, and what he is capable of attempting; and alſo from whence he is to have his Proviſions and Ammunitions, what Money will be allowed to pay his Men to defray the Charge of Works, for his Proviſions, Artillery, and Hoſpitals, and for ſecret Services, upon which Matters of the greateſt Importance frequently depend.

A LIEUTENANT-GENERAL is next in Rank to the *General*; he commands in Battle one of the Lines or Wings; a Detachment in a March, or a Flying Camp; alſo a Quarter at a Siege, or one of the Attacks, when it is his Day of Duty.

MAJOR GENERAL, is a general Officer, who receives the General's Orders, and delivers them out to the *Majors* of *Brigades*, with whom he concerts what Troops are to mount the Guard, what to go on Parties, what to form Detachments, or to be ſent on Convoys, *&c.*

There are other general Officers attending an Army, as *General* of the Artillery, *Engineer-General*, *Muſter-Maſter*, or *Commiſſary-General*, &c.

GENERAL OF ARTILLERY, more properly called *Maſter of the Artillery*, is an Officer, who has under his Command and Direction the Train of *Artillery*, which follows an Army, and all the Batteries at a Siege. He has under him a great Number of ſubaltern Officers.

The ENGINEER-GENERAL, is an Officer, who has the Direction of Attacks, Defences, Works, *&c.* An *Engineer* ſhould be an able and expert Mathematician, particularly verſed in Military Architecture, and Gunnery; being often ſent to view and examine the Places intended to be attacked, to chooſe out and ſhew the *General* the weakeſt Place, to draw the Trenches, aſſign the Places of Arms, Galleries, Lodgements on the Counterſcarp, and Half-moons; conduct the Works, Saps, Mines, *&c.* and appoint the Workmen their nightly Taſk: He is alſo to make the Lines of Contravallation with the Redoubts, *&c.*

MUSTER-MASTER, or *Commissary-General*, is an Officer in the Army who takes Account of every Regiment, their Number, Horses, Arms, *&c.*

Having thus formed an Army, both of Cavalry and Infantry, appointed and commissioned all the Officers both General and Private, instructed them in their several Duties; we must not keep it idle in its Quarters, since through Idleness, Effeminacy, Pusillanimity, Debauchery, and all the other Vices capable to weaken an *Army*, and render it despicable, are introduced into it; for there is a great deal of Difference betwixt appearing at a Review, and facing the Enemy; betwixt firing in Platoons, or otherwise, with Powder only, and hearing that whistling Musick, which diverted so well *Charles* XII. King of *Sweden*, at his Landing in *Denmark* in 1700, that he declared then, he would thenceforwards make it one of his principal Diversions; therefore to inspire our *Army* with the same noble Desire, and to use it to the same Entertainment, we will order to beat the *General*, in order for an Encampment; since all the Courts of *Europe* seem inclinable at this Conjuncture, to have most of their Troops encamped: To order which, (as I have no Design that my Army should continue any Time in the Camp, for I am all for Action) I'll send the *Major-General* of the Day, to mark out the Camp; for if my Army was to continue long in it, it would be my Duty as a *General* to mark the Camp myself.——For the well ordering of this, I suppose my *Major-General* to know the Number and Post of the Troops which compose the Army, what Train of Artillery there is, and what Provisions.——He'll take with him the *Quarter-Master-General* of the Army, the *Quarter-Master-General* of the Horse, the *Quarter-Masters* of each Regiment of Horse, the *Majors* of Foot Regiments and their *Quarter-Masters*, a Commissary of the Artillery, and a Commissary of the Provisions.——The head Officers of the *Army* must each of them send one of their Guard, to take up their Quarters; and the *Provost-Marshal* or his *Lieutenant*, with Part of their Men, must attend the *Major-General*, to be the First upon the Quarters to prevent any Body from foraging.

Note, That the *Provost-Marshal* of an Army is an Officer appointed to seize and secure Deserters, and all other Criminals. The *Provost-Marshal* is to go often abroad round the Army to hinder the Soldiers from pillaging; it is his Office to indict Offenders, and to see the Sentence passed upon them executed. He likewise regulates the Weights and Measures, and the Price of all Provisions, *&c.* in the Army. For the Discharge of his Office, he has a Lieutenant, a Clerk, and a Troop of *Provosts*, or *Marshal-Men* on Horse-back; as also an Executioner.

The *Major-General* must take a Guard sufficient to conduct him safe to the Ground, on which he designs to encamp, and carry Horse and Foot enough with him, if he is apprehensive he shall meet with any Opposition from the Enemy; and if he is not, he then may leave the Army a League, or three Miles distant from the Place he designs for the Camp; but if he is, then he must not leave them above a Quarter of a League, or little more than a Mile behind him. If he is not acquainted with the Way, he must take Guides with him, and some Officers of the Train of Artillery, with Pioneers, and Cart-loads of Tools, to make the Way easy for the Army to march; and if there be much Work to be done, a Guard must be left to secure the Pioneers. He must detach a Party before him to go and view the Ground, and on the Right and Left to prevent Ambuscades, and to appoint them a Place of Rendezvous, which is generally on a rising Ground, the Way he comes to them, if he has not a particular Reason for not shewing himself. If the Detatchments are not returned when he comes up to the Place of Rendezvous, he must halt there till he has Intelligence of them, and send out Parties the Way they should come; and he must not take the Ground till he has heard of them, or at least till the Ground has been nicely viewed. He is to regard the Conveniency of Forage, of Springs, Brooks, Marshes, of Woods, the Goodness of the Way, the Conveniency of filing off to march the next Day, and the Distance of the Place from whence the Army sets out, that the March may not be too long or too short.

If the *Major-General* cannot be so fully informed as he could wish, to make a good Choice of the Ground to encamp on, he must send Persons which can make a judicious Report, and then he must send Part of his Guard beyond the Place of Encampment, who are to continue there upon Guard till they are relieved; and several Scouts shall be sent out to examine all the Parts about the Guard. If the *Major-General* has more Troops than are necessary for the Guard of the Quarters, he shall order them to dismount, and let their Horses graze. He shall leave a small Guard on that Side by which he came; and if from an Eminency he cannot discover all round the Quarters, he then shall ride over all the Ground, and in the mean Time the *Quarter-Master General* shall mark out the Ground, and divide it among the *Quarter-Masters*; and if there remains any after the General Officers have their Ground, it must be given to Officers of Regiments for their Baggage, they being obliged to encamp with their Corps; and the *Quarter-Master-General* is to make his Report to the *Major-General*, that he may lodge the General's Guard by his Quarters, and the others who are to be about him. He shall shew to the *Majors* of *Brigades* the Ground that is allotted to each of them, and the *Quarter-Master-General* of the Horse where he is to encamp. He shall also appoint the Place for the Cannon, and the Park for the Train and Provisions.

Note, That a *Quarter-Master-General* is a General Officer, whose Business is to provide good Quarters for a whole Army. A *Quarter-Master* of Horse, quarters for a Troop of Horse. And a *Quarter-Master* of Foot, for a Regiment of Foot.

He must encamp as near as possible to a River, or Brook; and if the Enemy is near and strong, the Troops shall encamp all on one Side. If the Enemy is beyond the River in respect to the Army's March, they must not pass over, until all the Passes are lined with Cannon, and Musqueteers, that the Army defiling in a short Time, may not be engaged by Piecemeal; neither must the Passage be attempted, except there be Day-light enough for all the Army to pass: But if there be any Cause to fear that the Enemy, taking the Advantage of the Night, may entrench themselves on the Bank of the River, and so render the Pass the more difficult the next Day, then the Troops are to pass as fast as they come up; and the Post they take ought to be deemed an advantageous Field of Battle, rather than a convenient Lodgment. If the Enemy be not far off, then the *Major-General* shall cause the Cannon to be posted on the Side next to them, if not, at the Head of the Road they are to march next Day.

The Park of the *Train of Artillery* is generally near the Cannon; but in Case of Danger the safest Place is about the Camp; because an Army may be routed by losing its Ammunition. The Horses of the *Artillery* are to encamp, or graze, near the Park. The Provisions are for the most Part near the *Artillery*, and the Bread Carts are drawn up in a Ring to inclose their Horses; but it is better to inclose the Ammunitions with them, if you fear the Enemy.

The *Cavalry* is to encamp the nearest to Water, and to Orchards, or Hedges, if there are any, that they may have Time to mount, and not be surprized in Case of an Alarm; and Ways should be cut a-cross them towards the General's Side, to receive Orders, and towards the open Plain, to march out to the

Field of Battle. The Camp of the Horse is covered with that of the Foot, leaving the Space of fifty Foot between them; but if the Foot are so weak that they cannot cover the Camp of the Horse, then they are to encamp on that Side that is most exposed to the Enemy. The Troops are to have their Back towards the Quarters, and to face outwards; and their File, or Rows of Huts, being three Paces from their Arms, which are always in the Front. The *Serjeants* have the front Hut, and the Officers encamp in the Rear.

In an Encampment for a Night, fifty Paces in Depth, of three Foot to a Pace, and four Paces in Breadth are allowed for every Company, for the Soldiers Huts; and if the Company exceed not seventy Men, Ground is to be allowed only for one Row, or File of Huts. The *Subalterns* are next behind the Huts, the *Captains* behind them, the Field Officers behind the *Captains*, and a convenient Interval for a large Street is left, clear between every two Reginents. But the Horse have fifty Paces in Depth for sixty Horse, and fourteen Paces in Breadth for three Rows of Huts; and if there are Hedges, they have as much Space allowed them as is requisite to tie their Horses. If the Enemy be stronger in Horse, and the *Major-General* apprehends that the Camp may be attacked, he must order Ditches and Trenches to be cut in their Way, to prevent their charging in good Order, to gain an Opportunity for the Foot to engage upon an Advantage; but if the Enemy be stronger in Foot, then the *Major-General* should encamp on the Edge of a Plain, that the Horse may draw up there, and the Enemy's Foot be afraid to engage where they can have no Advantage against the Horse.

A convenient Place must be chosen by the *Major-General*, to draw up the Army in Case of an Alarm, and there the Forces are to rendezvous: And besides the general Field of Battle, every Regiment must have its particular Ground to draw up on, from whence it must not march, 'till it has formed the Battalion, or Squadron; otherwise a small Number of the Enemy's Forces, having gained the Field of Battle, would defeat a great *Army*, should they be divided into small Bodies, and those ill-formed. It is dangerous to appoint but one Field of Battle for all the Forces, because, should all the Avenues to the Camp be left unguarded, the Enemy might give an Alarm in one Place to draw the *Army* thither, and then attack it in another. It would therefore be convenient to appoint the best Field of Battle for half the *Army*, and two or three others for the rest of the Forces, there to expect the *General*'s Orders. If the Safety of the Troops only be regarded, it is best to have but one Field of Battle, but if we consider the Loss of the Baggage, something may be hazarded to save the whole. When there is Cause to fear such an Attempt, the best Way is to encamp in Battle, so that every Battalion and Squadron drawing up before their own Tents, will there be in Order; and if the Enemy is near, and has no Defile to pass, the Troops are to continue loose, and shall rest upon their Arms, being drawn up. If there be the least Danger to be apprehended, the eldest Regiment in the *Army*, the Artillery, the Provisions, and a great Part of the Foot, must encamp near the *General*'s Quarters. Those Troops which are to have the Van next Day, must encamp on the most advanced Part of the Camp, on the Way they are to march, and so likewise if the Quarters are divided.

But when an *Army* is to encamp for any Time, the *General* for the most Part orders the Encampment. He is then to consider what Provisions are in or near the Place, and what Conveniency of securing and bringing them to the *Army*; and if there be Corn how it may be made into Meal. If there be no Provisions, he must consider how to get them, and take Care that they be not cut off by the Enemy. The Conveniency of Forage, Water, Shelter, Wood, and Wholesomness of the Air, to prevent Diseases, are also to be considered: If he must entrench, a convenient Ground must be sought out. In this Case the Manner of encamping shall be according to the Method of Entrenchment; and the Head of the Camp shall be at least a hundred Paces from it, without extending the Camp too far: And the Intrenchment is to be made as near as can be on the highest Ground all about the Camp, provided it be not at too great a Distance; and though it seems, when of the greatest Extent, to require the greatest Guard, yet fewer Men will maintain it, than when it is smaller, and the Enemy has the Advantage of the Ground.

The Ditch of the Entrenchment must be at least nine Feet over at the Top, and three or four at the Bottom, and six in the Depth: But Experience has taught us, that there may be more Hopes in fighting in an open Field, than behind a less Intrenchment than we represent, even though our *Army* be weaker than the Enemy: For the Soldiers placing most of their Hopes in the Strength of the Intrenchment, if one Part be forced they abandon the rest; and the Assailants, being persuaded that all the Difficulty consists in forcing the Intrenchment, think nothing can stand before them, and with this Confidence they increase their Courage.

However this Intrenchment is good, when the Ditch is 12 Foot wide at the Top, four at the Bottom, and eight in Depth; and when the Earth is thrown up out of it, makes a proportional *Parapet*, with a *Banket* behind it for the Musketeers to stand on. At every eight Foot Distance there must be *Redans*, or indented Works; and it is observable that twenty Shots flanking do more Execution, that sixty right forwards. No Redoubts are to be made there, because if the Enemy should once possess them, it would be hard to dislodge them. It is also dangerous to make any Forts, because the Loss of one of them would open a Way for the Enemy into the Intrenchment; but if there be any higher Ground that might command the Camp, or advantagious Place within it, which might facilitate the rallying the Forces, in Case they were routed; there Forts may be made, provided there may be no Fear of losing them. The Ditch of them must be fourteen or sixteen Foot over at the Top, and five or six at the Bottom, and nine or ten in Depth: Pallisadoes and Stockades must also be fixed on the Edge of the Ditch faced with Sods, and *fraised* where there are no Sods; the Earth must be held together with Fascines, and well beaten down, and *Chevaux de Frise* placed in the Intervals. Men vary in their Opinion concerning the placing Pallisadoes. If they are placed in the Ditch, they may serve to help up Planks to come at the Parapet, and there may be *Ponts Volans*, or flying Bridges, laid on, so that the Ditch will be useless: But as it has this Disadvantage, it has also an Advantage, which is, that the Enemy cannot break in with their Cannon, as they can that on the Edge of the Ditch; and therefore where there is more Danger of a Surprize, than a regular Attack, I would advise to place it on the Edge of a Ditch; and in the Bottom, where they apprehend being attacked in Form.

The chief Skill of a *General* lies in the Art of encamping well: This the *Romans* were unacquainted with, 'till the War with *Pyrrhus*; from whose Camp they learned to model their own. 'Till then they knew not how to post themselves to Advantage, nor with any Order in their Camp.

Rhoe describing the great *Mogul*'s Camp, says, it is twenty *English* Miles round, and contains more Space than the largest City in *Europe*; that it is composed of 800,000 Men, and 40,000 Elephants; and what increases the Miracle is, that all these Tents are pitched in four Hour's Time.

When the *Army* is encamped, and the Enemy is not very near, an eighth Part of the *Army* is generally upon Guard, and disposed according to the Easiness, Difficulty, or the Consequence of the Avenues, for the Guard of Horse. During the Day-time if the Enemy be feared but one Way, one Half or two Thirds

Thirds of those that mount the Guard shall be posted on that Side, about a Quarter of a League from the Camp, or somewhat further if it be a champaign Country. About an eighth Part is detached from that Guard, seven or eight hundred Paces further upon some Eminence, if there be any, which small Guard detaches one or two Vedets to be posted on the most advantageous Ground for Discovery. All Guards are to be posted that the Main-Guard may not be cut off from the Camp, nor the small Guards from the greater.

Note, There are several Kinds of Guards, as, 1. *Advanced Guard*, a Party of Horse or Foot, which marches before a Corps, to give Notice of approaching Danger. When an Army is upon the March, the *Grand Guard* which should mount that Day, serves as an *Advanced Guard* to the Army. That small Body also of fifteen or twenty Horse, commanded by a Lieutenant beyond, but within Sight of the *Main*, or before the *Grand Guard* of a Camp, are called the *Advanced Guard*. 2. The *Grand Guard*, which consists of three or four Squadrons of Horse, commanded by a Field-Officer, and posted before the Camp on the Right and Left-Wing towards the Enemy, for the Security of the Camp. 3. The *Quarter Guard*, which is a small *Guard*, commanded by a Subaltern Officer, and posted by every Battalion of a Camp 100 Yards before its Front. 4. The *Standard-Guard*, a small Guard of Foot, which a Regiment of Horse mounts in their Front under a Corporal. 5. The *Main-Guard*, from whence all the other *Guards* are detached. Those who are to mount the *Main-Guard*, meet at the respective Captain's Quarters, and from thence go to the Parade; where after the whole *Guard* is drawn up, the small *Guards* are detached for the Posts and Magazines; and then the subaltern Officers draw Lots for their Guards, and are commanded by the Captain of the *Main Guard*. 6. The *Picquet-Guard*, which is a Number of Horse and Foot, who keep themselves always in a Readiness in Case of an Alarm; the Horses being saddled, and the Riders booted all the while: The Foot draw up at the Head of the Battalion at the Beating of the Tattoo, but afterwards return to their Tents, where they remain in a Readiness to march on any sudden Alarm. This *Guard* is to make Resistance in Case of an Attack 'till the Army can get ready. A *Vedette* is a Centinel on Horseback, detached from the main Body of the Army, to discover and give Notice of the Enemy's Designs.

If the Country be inclosed, the *Main-Guard* must be so near the Camp that it cannot be cut off, but yet at such a Distance, that if the Enemy appears, they may give timely Notice; and to prevent the Army being surprized, they must send out little *Guards* of two or three hundred Horse on the Right and Left, who shall post *Vedettes* for their Security. The Commander shall from Time to Time visit the *Advanced-Guard* and *Vedettes*; and the Time of the *Guard* be so divided in relieving them, that every Man in his Turn may be upon the *Advanced-Guard*, who are not to dismount, except in a very open Place, and then the Horses must not be unbridled. The *Main-Guard* may unbridle half the Horses, the other remaining in Readiness. If the Country be inclosed, Scouts must be sent from Time to Time, some going strait forward, others a cross from one small *Guard* to another, to take Care that the Enemy do not slip in between. When the *Main-Guard* is ordered, the rest of the *Cavalry* shall be divided into two or three other *Guards*, to be disposed about the Camp; and they may be stronger or weaker, as there is Occasion.

The *Guards of Foot* are generally at the Head of their own Battalions, but if there be a Steeple, Tower, or strong House near the Camp, a *Guard* of Foot shall be sent to it: So likewise if there be any Pass upon a River, or any deep Valley, about half a Quarter of a League from the Camp, and the Country be not much enclosed, a *Guard* of Foot shall be sent there at Night only. If the Pass be at a Distance, some Foot may be sent, supported by a *Guard* of Horse; but if the Place be too dangerous for the Foot, a few Horse may be sent to inform of the Enemy, or Scouts may be sent thither often. Every Regiment ought to send 50 Men, according to its Strength, every Night upon the *Guard*, at the Head of the Camp, commanded by a *Captain* and *Lieutenant*, or one of them, if there be Cause to fear any Thing.

When the *Camp* of the Foot does not cover the Horse, and is encompassed with Hedges and Ditches, a *Guard* of Foot is generally posted at the Head of them, to give them Time to mount in Case they are attacked. When there are several detached *Guards*, the *Camp Guard* is lessened, provided the others cover it; and the *Major-General* is to appoint the *Guard* of the *Artillery* as strong as he thinks fit.

When he has given his Orders he goes to meet the *General*, and shews him the Disposition of the *Camp* and *Guards*, and in the mean Time the *Quarter-Master-General*, shews the *Majors of Brigades* of Foot, and the *Quarter-Master-General* of the Horse, the Places where they are to be posted, and what Force each of them is to consist of. As for the other Particulars of the *Guards*, as from what Regiments they are detached, they are left to the *Quarter-Master-General* of the Horse, and the *Majors* of *Brigades*.

When the *Major-General* appoints the *Guard* for the Day, he shews the Place where they are to retire at Night, which is generally within two or three hundred Yards of the Camp. He is to visit them once in a Night, to see if they are posted according to his Orders; that is, whether the Officers are there, and their Number complete; whether the detached *Guards* are on Horseback, and half the *Main-Guard*, and the rest in their Rank, and Horses bridled; whether the necessary Number of *Vedettes* be posted for the Security of the Camp, and whether from Time to Time they send out their Scouts, who are to be sent from one *Vedette* to another, when there is a Possibility that the Enemy may step between them and the *Vedettes*; or else the *Vedettes* being coupled, as they ought to be at Night, one of them goes as far as the others on the Right; and when he returns, his Comrade goes as far as the *Vedettes* on the Left, and thus they continue all Night. Scouts are also going continually about the Camp from one Guard to another.

The *Guard* of an intrenched Camp is quite different; the Intrenchment is divided among all the Foot, who post Centinels on it, so that there can be no passing between any two of them; and the *Guard* of Horse is weaker than when the Camp is open. It is posted within the Intrenchment in two or three Bodies, near the Barriers that are upon the great Avenues, and only send a small *Guard* 50 Paces without the Lines, who continually patrol, and send out Scouts on the Right and Left, and strait forwards.

But as we do not design to continue long in our Camp, to put our Friends to the needless Expences of coming to visit us, we have no need of using these Precautions, therefore we'll order the *Major-General* of the Day to make the Dispositions for the March, which he learns from the Number of the Battalions and Squadrons of which the *Army* is composed; what Enemies may be met in the March, and whether in Front, on the Right or on the Left; whether the Way be plain or woody, or incumbred with Hedges, Ditches, Marshes, or Rivers; whether there be one or several Roads or Defiles; how many Men, Horses, or Waggons can march in Front; and which is the soundest and eveneſt Way for the Artillery.

If the Enemy be in Front, and the Army in a Champaign Ground, he must march in order of Battle, with the Cannon in Front, the Horse on the Wing, and

and the Foot in the Center; then the second Line, and after the two Lines the Train of Artillery, thro' as many Defiles as he can, that they may be the less Time in passing. Next the Train of Artillery, the Provisions, and all the Baggage of the *Army* opposite to its Regiments upon the same Line with the Train of Artillery; that is, the Baggage of the first Line foremost, and in the Rear the Baggage of the second Line, then the Baggage of the *Rear-Guard*, or *Corps de Reserve*, which *Rear-Guard* shall march after the Baggage, leaving only one Squadron in the Rear of them to prevent any Disorder, or running away; but upon Expedition the Artillery and Baggage march in two or more Columns.

Note. That a DEFILE is a narrow Pass or Way, through which a Company of Horse or Foot can pass only in *File*, by making a small Front, so that the Enemy may take an Opportunity to stop their March, and to charge them with so much the more Advantage, in regard that the Front and Rear cannot reciprocally come to the Relief of one another. The Word is derived from the *French*, *Deffile*, to unthread or unstring.

If the Enemy be in Front, and the Country be woody, or enclosed with Hedges or Ditches, advanced Parties of Scouts must march before, supported by some Platoons of Musqueteers, and those by Squadrons or Detachments of Horse, if the Country will prove fit for the Horse. If the Country be enclosed, so that the Horse cannot come to do Service, a Battalion is to march after the first Squadron, and so all the Horse and Foot are mixed; and as there are generally more Squadrons than Battalions, the Squadrons shall be equally divided among the Battalions, and each Squadron have Platoons of Musqueteers; and in this Manner the *Van-Guard* and main Body shall march, then the heavy Cannon, the Ammunition, Provisions and Baggage.

Note, That PLATOON is a small square Body of 40 or 50 Men drawn out of a Battalion of Foot, and placed between the Squadrons of Horse to sustain them; or in Ambuscades, Streights and Defiles, where there is not Room for whole Battalions or Regiments. The Grenadiers are generally posted in *Platoons*. The Word is formed by Corruption of the *French*, *Pilaton*, a Bottom or Clue of Thread.

The Field-Pieces are to march with the *Van-Guard*, and the heavier Pieces with the main Battle, and many Platoons in the Intervals between the Baggage, for Fear the Enemy should cut it off in the Wood; then the *Rear Guard* shall march. It is dangerous to place the heavy Cannon between the Battalions and Squadrons in a Country that is enclosed, because if they were to draw up in Order of Battle on a sudden, and the *Van-Guard* should be attacked it might hinder the March of the Troops, and can do them no great Service. However if the Country be enclosed in some Places, and open in others, they must draw up in Battle when they come into the Plain, if the Enemy be at Hand, and turn to their former Order when they have passed it. If there are several Roads they must draw up in two or three Columns, and at the Head of every one of them a Cart loaded with Tools, and a Number of Pioneers and Soldiers.

Note, That a COLUMN in War denotes a deep *File*, or Row of Troops; or a Division of an *Army*, which marches at the same Time, and towards the same Place, at Intervals large enough to avoid Confusion. An *Army* marches in one, two, three, or more *Columns*, according as the Ground will allow, and the *General* sees expedient.

Note also, That the VAN, or *Van-guard* of an *Army* is the first Line, and is the same with the Front of an *Army*, and gives the first Charge upon the Enemy. Every *Army* being composed of three Parts, a *Van-Guard*, *Rear-Guard*, and *Main-Body*. The *Rear-Guard* is that Part which march last, following the *Main-Body* to stop Deserters. The *Main-Body* marches between both, and is ordinarily the *General*'s Post. The *Corps de Reserve*, are the Forces disposed in the third or last Line of an *Army*, and destined to sustain the rest, as Occasion requires, and are not to engage but in Case of Necessity.

The better to regulate the March, some General Officers should keep in the Rear of the Baggage, each according to his Post, except among the Foot, where the Baggage of the *Rear-Guard* march according to the Seniority of the Regiment, and that of the elder Regiments march foremost, though they make a Retreat. The Sutlers and other Trades, who do not belong to any particular Regiment, march after the Baggage of the main Battle. Every Regiment of Foot sends a Man out of each Company to guard its Baggage, under the Command of a *Serjeant*; and each Troop of Horse one Trooper. The *Provost Marshal*, and all the other Provosts are to march with their Men, to see that the Soldiers keep their Ranks, and to prevent Disorder.

A *Captain*, or Conductor of the Baggage, is appointed, who puts the Baggage into the marching Order, and makes the *Guards* observe it as they march; and every Regiment puts up a Flag of the same Colour and Shape, that their Baggage may the better be kept together; and some of them are carried to the *Major-General* of the Day, who orders them to be placed at the Head of every Column of Troops and Baggage.

If the Enemy be on the Right Wing, and the Country plain, they must march thus. Those who are to compose the *Van-Guard* in the Order of Battle, are to be on the Right of those who are to compose the *Main-Battle*; the *Main Battle* on the Left of the *Van Guard*, and the *Corps de Reserve* on the Left of the *Main-Battle*; each of those Bodies making a File, with the Horse at the Head and in the Rear, and the Foot in the Center, so that when the Army halts, and each Line faces to the Right, the Order of Battle will be formed, provided the *Van-Guard* observes its due Distance in marching, and the Troops of the *Main Battle* keep opposite to the Intervals of the *Van-Guard*. The Troops that guard the Baggage are to be on the Left of all the rest, making the largest Front they can, that their File may extend almost as far as those of the *Army*, and they are to have but one Squadron on the Left. In this Order of Marching, all the Cannon must march on the Right of the *Van-Guard*, that it may be at the Head of the *Army* in case of Battle.

If the Country be enclosed or cut with Trenches, and the Enemy on the Right, the *Army* must march almost in the same Order as in the Plain, provided the Roads will admit it, or can be made without much Labour, as in the Summer when all Lands are enclosed; and all that is altered at that Time is, that the Column on the Right, which composes the *Van-guard*, shall be stronger in Foot, than that which composes the *Main Battle*, and each Squadron of the *Van-guard*, shall have *Platoons* of Musqueteers. The Cannon must march between two Columns, because it cannot do great Service in a Country that is inclosed; and if it were upon the Right of all, the Enemy might take it, or nail it, before it could be relieved.

If there be two Defiles, all the Troops are to march through that on the Right, and the Baggage through that on the Left; Part of the Field-Pieces in the Intervals of the *Van-guard*, part with the *Main Battle*, and some few with the *Rear guard*. The heavy Can-

Cannon is to march in the Column of the Baggage, but not quite at the Head of it, left the Enemy send some Troops to attack it, but after the Baggage of the *Van-guard*, that it may be the better covered by Troops.

The *Van-guard* files off first, then the *main Body*, and next the *Corps de Reserve*. If there should happen to be but one *Defile*, then all the *Van-guard* marches off first; the Artillery, the Provisions, and the *General's* Baggage next, then the *Main-Battle*, and all the other Baggage, and then the *Corps de Reserve*. But this is a very dangerous Way of marching if the Enemy be near, because the Lines being divided by the Baggage, they cannot come to succour one another: And on the other Hand, should all the Troops march together, and the Baggage after them, it would be too much exposed, and the Loss of it be as detrimental to the *Army*, as the Defeat of a considerable Part of the Troops; therefore to avoid this Inconvenience, the Baggage should in this Case march through another Defile, than that the Troops march through, though it were a League distant; and so they ought to have a Guard of a sixth or fourth Part of the *Army* according to the Force which it may be expected that the Enemy would send to attack it. In such a March it should have many small Parties of Horse if they can be had; if not, of Foot, to scour on the Right, and discover if the Enemy comes to attack it, at which Time Surprizes are most dangerous, because it is difficult for Troops when they are put into Disorder in a *Defile*, to rally. Parties should be frequently sent out towards the Enemy, that if one should happen to be cut off, the other might give Notice of it.

If the Enemy be in the Rear, the Order prescrib'd must be inverted; and when there are *Defiles* in the Way, great Care must be taken to make them easy, that the Troops may come to each others Succour, if the *Rear* should be attacked. The Field Pieces must be lodged on the Edge of the *Defile*, to favour the Retreat of the hindmost Troops, unless it be woody; if not, then many Field-pieces are more necessary than at another Time.

When there is little Cause to suspect the Enemy, and the Country is champain, the *Van-guard* marches in two Columns, then the *Main Battle*, and the *Corps de Reserve* after it; in the same Order, the Baggage between the two Columns, with the Artillery and Provisions in the Front; or else the *Van guard* may march in three Columns, the main Battle in the same Manner, and the Artillery, Provisions, and Baggage after it, and last of all the Rear-guard, or *Corps de Reserve*.

If the Country be enclosed, and there is but one *Defile*, then let the Van-guard and main Battle march next the Artillery, Provisions and Baggage, and then the *Rear-guard*. If there are many *Defiles*, the *Van-guard* and *Main Battle* may march in as many Columns, then the Baggage after them, and the *Rear-guard* last; or else the Troops and Baggage may pass through several *Defiles*. When the Order of marching is resolved, the *Major General* is to acquaint the *General* with it, to know whether it meets with his Approbation.

Note, that AMMUNITION signifies all Sorts of warlike Stores, but more especially Powder and Ball. The Word is formed of the Latin, *Admonitio*, which according to *Du Cange*, was used, in the corrupt State of that Language, for *Subsistence*. AMMUNITION *Bread*, is what is provided for, and distributed daily to the Soldiers of an Army or Garrison.

But why should we amuse ourselves to give the Etymology of Words, and change my *Marshal-staff* into a Pen, while at the Head of an Army, and the Enemy is in Sight, and I must prepare for a Battle? Quickly let all my Officers be called to receive the Order for a general Engagement. But before we go to the Enemy, let me instruct them how they are to behave themselves in Fight; therefore I will have all my Officers encourage and animate their Soldiers in the Combat, more by their Courage, Intrepidity and Valour, than by their Discourses; since a good Example makes a stronger Impression on their Mind than a studied and florid Discourse. I hope all the Horse Officers are well mounted, and have all chosen a Horse that has a good Mouth, for if he carries him into the Enemy's Squadrons, his Life or Liberty lies at stake; and if he takes the contrary Way, his Honour will be in Danger; for who can prevent ill Tongues from imputing such Accident to Cowardice. *Landresse*, *Major* of the Regiment of *Chate*, lost his Life for want of this Precaution; for his Horse being hard mouthed, and the *Major* pursuing a Soldier that run away, he was contemned by the Army, and to recover his Reputation was obliged to expose himself too much upon the first Opportunity, and had not the good Fortune to come off.

An Officer should not ride a fleet Horse on the Day of Battle, except he rides him usually at other Times, left he gives Occasion to have it said, that he chose that Horse to run away the faster. He must take Care to have his Horse's Buttocks within the front Rank, and the Ranks so close, that they may not be broke; for the Strength of a Squadron consists in being kept close.——In Pursuit of the Enemy the Squadron must be kept in Order of Battle, and if they come to a Defile, make a Halt, till all are past, and then form again.——When a Battalion or Squadron is formed in the Face of an Enemy, the best Way is to form them by Ranks, and not by Files.——Where there are Ditches or Hedges, an Officer of Horse must take Care not to get too far from the Foot, left he should want their Assistance; and therefore Platoons should be always placed between the Squadrons.——When the Enemy is routed, the Men must not stay for Plunder, for by that Means the Enemy will gain Ground and get off safe: and as there is a Season for all Things, it is not a Time to plunder, while the Enemy is before the Soldiers; for if this were allowed, the Enemy might rally, and change the Face of Affairs; besides their Flight may be a Stratagem, or an Amusement to get an easy Victory; and Armies have forsaken their Waggons and Baggage to deceive the Enemy, and to fall upon them when they thought themselves securest.—There are Rules for plundering as well as for every Thing else, and Detachments are generally appointed for it; but such is generally the Greediness of Soldiers, that unless the Officer stops them, they will not have so much Patience. Prisoners taken in Battle are to be put into the Hands of Men detach'd to secure them.——If Soldiers will not refrain from Plunder when they are ordered another Way, one of them should be shot, as an Example to the rest; and they who survive, will have the more Value for the Officer when they come to themselves, and acknowledge that he was in the Right.

These few Salutary Advices are not out of Season, especially at the Eve of a Battle; as we are at present.

A BATTLE (for I cannot help giving a Definition before I proceed further) is an Action which passes between two *Armies* ranged in Order of *Battle*, and who engage in a Country sufficiently open for them to encounter in Front, and at the same Time, or at least for the greater Part of the Line to engage, while the Remainder is in Sight, by Reason of some Difficulty which hinders it from entring so readily into an Action, with a Front equal to that which may be opposed to it by the Enemy.

Other great Actions, though generally of a longer Duration, and even frequently attended with greater Slaughter, are only called *Fights*; by the *French*, *Combats*.

A *Battle* lost, almost always draws with it the Loss of the Artillery of the Army, and frequently also that of the Baggage: Consequently as the *Army* beaten cannot again look the Enemy in the Face, till it have repaired

paired those Losses, it is forced to leave the Enemy a long Time Master of the Country, and at Liberty to execute all its Schemes.—Whereas a great Fight lost is rarely attended with a Loss of all the Artillery, and scarce ever of the Baggage, because the two Armies not meeting in Front, they can only have suffered in the Part that has been engaged.

An ingenious modern Author remarks, that it is not usually the Loss sustained in a *Battle* (that is of some Thousands of Men) that proves so fatal to a State; but the imaginary Loss and Discouragement, which deprives it of the Use of those very Powers which Fortune had left to it.—The History of *Battles* are only the History of the Faults and Oversights of *Generals*: Luckily enough the Mistakes of the two opposite Commanders generally ballance one another: One of them makes a Fault, and the other overlooks, or does not take Advantage of it.—*Monsieur de Feuquiere's Remarques sur la Guerre*, are little else but a Recital of Mistakes on both Sides: he scarce speaks of a modern General, except *Turenne*, *Luxembourg*, and the Prince of *Condé*, whose Conduct was not full of them: *Crequi* and *Catinat* were guilty of great ones, which however they compensated by their judicious Conduct on other Occasions.—But to avoid, on our Side, being branded with the same Reproaches, we'll endeavour to make all the best Dispositions we can, and take all the Precautions imaginable, to gain a complete Victory.

Therefore we must so contrive the Order of *Battle*, (supposing that we are already acquainted with the Number, Posts, Strength, and Names of the Troops which compose our Army, but also with the Ground we are to engage on, and what Nations make up the Troops of the Enemy, what is their Strength in Horse, Foot, and Cannon, and their Manner of fighting) that all the Troops may support one another without Confusion, that when one Body is broke it may not bear down another; and they should make the largest Front, as well to prevent being outflanked by the Enemy, if they are in more open Order, as to enclose them if they are in a narrow Compass. And yet they must not be extended so much, that when one Body is broken, there may be none left to support it, and to oppose them that have routed it; or that the Battalions and Squadrons should be so distant, that if two of the Enemies should happen to join one of ours, those on the Right or Left of it, could not come to its Relief before the Enemy had broke it.

To keep a due Proportion, we must draw our Army in two Lines, *viz.* The first and second Line, which must be of equal Force, and the *Corps de Reserve*.——The Foot shall be placed in the Center, and the Horse on the Wings.——The Squadrons from one hundred and fifty Men each, at least, to two hundred at most, and but three deep.——The Battalions of five, six, or seven hundred at most, and drawn up three deep.—If our *Army* consist of forty Squadrons, and eighteen Battalions, we should place sixteen Squadrons, and eight Battalions in the first Line, sixteen Squadrons and seven Battalions in the second, and eight Squadrons and three Battalions in the Rear-guard, or *Corps de Reserve*.—Or else in the first Line place fourteen Squadrons and nine Battalions; in the second, sixteen Squadrons and five Battalions; and in the *Rear-guard*, ten Squadrons and four Battalions.—Or else in the first Line, let there be sixteen Squadrons and ten Battalions, in the second, seventeen Squadrons and six Battalions, and for the *Rear-guard*, seven Squadrons and two Battalions.

The eldest Corps has the Right, the next the Left, and so on according to Seniority, till the youngest meet in the Center.——The first Line is more honourable than the second, and the second than the *Rear guard*.——The Guards are always in the Line of Battle, and the Carabineers and Fusileers are on the Wings, somewhat advanced before the other Troops.——The Space of two hundred Paces is allowed for the Distance between the first and second Line, and one hundred between the second and the Rear-guard.

Note, That the CARABINEERS are a Sort of Light-Horse, carrying longer *Carabines* than the rest; and used sometimes on Foot. The *French* of late have formed entire Corps of these *Carabineers*, which cannot but have good Effect; this being a Sort of Soldiery chosen out of the whole Cavalry, and better paid than the rest. FUSILEERS are Foot-Soldiers, armed with Firelocks which are generally slung. There is a Regiment of Fusileers for the Guard of the Artillery.

The Battalions and Squadrons of the second Line are placed opposite to the Intervals between those of the first Line, that they may march through the Enemy; and those of the first Line, if broken, may pass through the Intervals of the second without Disorder to either. The Intervals are to be half the Breadth of the Front of the Battalion or Squadron that it sustains, when doubled from three to six. It has been found of Service to place all the Foot almost in the two first Lines, as being very near useless in the *Corps de Reserve*, because they cannot come Time enough to relieve the Troops that are bore down. More Foot should be placed in the first Line than the second, and their Place be supplied in the second by some Squadrons, which would do great Execution, coming up to charge between the two Battalions, after they had spent their Fire: Besides the Foot would be greatly encouraged, who love to be sustained by the Horse, and the Horse would charge with more Alacrity, after the Foot have given their first Volleys; and the Fire of the Battalions has more Effect when the first Troops have the Onset, than when they are mixed, and in Confusion; and it often happens that the Battalion of the second Line do not spend half their Fire, being come up to Push of Bayonet before they make their Discharge.

The Cannon must be placed in Brigades before the first Line, reserving some few Pieces an hundred Paces behind the *Corps de Reserve*, guarded by a small Number of Men to favour a Retreat, or prevent being attacked in the Rear. If there be any rising Ground, either in the Front, or on the Right or Left, the utmost Efforts must be made to gain it, in order to plant the Cannon there, and prevent the Enemy taking the same Advantage of it; and sometimes a general Battle has been changed into an Engagement of Regiments against Regiments to possess an advantageous Ground; and the Time being thus spent 'till Night, both Parties are obliged to draw off, each finding their Troops much weakened, not knowing the Damage on either Side.

The *Army* being drawn up, 'tis best to charge the Enemy before they are in order of Battle; but if their Ground be more advantageous than ours, as being to mount a rising Ground, or to pass a Brook, Ditch, or hollow Way, 'tis better to expect their coming than to attack them, except we be much superiour to them in Number, and our Cannon be posted to Advantage.

When the first Line or *Van Guard* advances, let the second move also, keeping equal Pace with the first, and leaving a small Interval between them, lest the first should be broke before the second can march up to relieve it; or if it should break the first Line of the Enemy, lest their second Line may relieve it before ours can march up to sustain our *Van-Guard*.

The *Corps de Reserve* must advance gently towards the Enemy, that the broken Troops may have Time to rally, and they must engage all at once, and it must be always observed to give them Time to recover their Spirits.

The *General*, if the Distance of Ground hinders his Sight, must send an *Aid de Camp* to know how Matters go through the whole *Army*, that he may either

push on his Advantage, or go in Person, or send Succours to those Troops that suffer.

No Prisoners, except they are Men of Note, must be taken until the Victory be certain, nor the Horse or Foot be permitted to plunder; but when we are Masters of the Field, rally our Men immediately, and send some Squadrons after the Enemy to take Prisoners, and observe whether they rally in Order to renew the Charge.

When the Victory is complete, and our Forces not over-fatigued, we must send a strong Party to pursue the Enemy to the Gates of their next Town, or to some Defile, where there are often as many Prisoners taken, as in the Field of Battle.

If one Part of the *Army* has the better, and the other be worsted, we must nicely observe whether the Enemy have not a greater Advantage over that Part whom they push, than we have over those Men where we are successful; and if our Advantage be greater than theirs, we must not withdraw any of our victorious Troops to succour the others, 'till they have entirely defeated those that oppose them; but if the Enemy presses more vigorously upon one Part of our *Army* than our other presses theirs, we must then send as many of our victorious Troops as can be spared to succour the rest; and Care must be taken that the Troops which give Ground be sustained by those behind them, and make them rally as soon as possible.

While there remains any Hope of gaining the Battle, the rally'd Forces must charge again; but if their Number be so small in Comparison of the Conquerors, that all Hopes are lost, then retreat in the best Order, and rally again as near the Field of Battle as you can, that you may be in a Condition to oppose any small Bodies of the Enemy that shall pursue you, and with the Remains of your Troops throw yourself into the next considerable Town, which in all Probability they will first attack.

A VICTORY depends as much on the Judgment, Prudence, and Presence of Mind of a *General*, as on his Valour, and on the Strength and Courage of the Forces he commands; since with those excellent Qualities he is capable, not only to range his *Army* in good Order, and make the necessary Dispositions above-mentioned, but likewise rectify the Mistakes and Oversights which might happen during the Engagement, to send the necessary Succours to the Right and Left, as it is wanted, to moderate the too great Impetuosity of some of his Forces, and to animate the others to fight with Courage. A good *General* should act as a *General*, without forgetting that he is also a Soldier, and act as a Soldier without forgetting that he is a *General*, on whose Preservation the Success of the Day entirely depends. After the famous Battle of *Senef*, fought between King *William*, while yet but Prince of *Orange*, and the Prince of *Condé*, the greatest *General* of his Time, the Prince of *Condé* complimented the Prince of *Orange*, saying, that he had behaved in that Action as the most experienced *General*, but at the same Time reprimanded him for having exposed himself too much, like a young Man; for in a Battle there is some Respect shewn to a *General* while in his Post, but none when found fighting like a common Soldier.

A *General* must be likewise very careful of his Troops, and not send them to attack a Post without, at least, some very great Probability of Success, otherwise it would be sending them with a premeditated Design to the Slaughter, which was a very great Fault in the Prince of *Condé* here mentioned, who did not care how many Men he lost, provided he could gain the Victory, saying, that 15,000 or 20,000 Men were but a Night's Work at *Paris*; and who at the Battle of *Senef*, sent the Chevalier *de Fouville*, to attack a Body of Cavalry posted upon an Eminence, which he knew could not be done with the least Appearance of Success; but the Prince hated *Fouville*, and was glad of the Occasion to sacrifice him to his Hatred as he did, for the Party commanded by *Fouville*, was almost cut to Pieces, and himself mortally wounded, of which Wound he died a few Moments after, wishing to live only one Hour longer to see, said he, how that Butcher, meaning the Prince of *Condé*, would extricate himself out of that dangerous Affair, wherein 20,000 Men were killed on both Sides, *Condé* gaining no other Advantage, but on the Side of the Prisoners, having taken whole Regiments of them.

Turenne, who commanded at the same Time, and at another Place, another of the King of *France*'s Armies, follow'd a quite different Method; for the Life of the meanest Soldier of his *Army* was as dear to him as his own, and he was as careful of it, oftener conquering the Enemy, by his Marches and Countermarches, than in pitched Battles. They often expected to meet with him at one Place, when he was 20 or 30 Leagues from it, and while they were pursuing him thither, he was come back to the Place they had left last; and after he had long harrassed and weakened them in that Manner, he was on their Heels, while they thought him far off, and when they were half conquered by the Fatigues of the March.

No General had ever a greater Presence of Mind than the late Duke of *Marlborough*, of immortal Memory, for he was as sedate and calm in the greatest Heat of the Battle, as if he had been in the Queen's Cabinet, giving then his Orders with as much Tranquillity and Prudence, as he could have done his Sentiments on some State Affairs.

The *French* had at that Time a *General*, viz. *Villeroy*, of a quite different Disposition; 'Tis true, that no *General* has ever made finer Dispositions for a Battle than *Villeroy* did, but as soon as the Cannon began to roar, he seemed to have lost the *Tremontane*, which made the Dutchess of *Bourbon*, say of him, *Il avoit bien Cent Mille Bras, mais il n'avoit point de Teste*, i. e. He had an hundred thousand Arms, but no Head.

A *General*'s Conduct is as often commended in a Retreat as in a Battle, and his Intrepidity and Courage as much signalized. As it cannot be reasonably expected he should fight to too great a Disadvantage, proceeding either from the too small Number of his Forces, when compared with those of the Enemy, or from the Situation of his Army, or from his Provisions being cut off, or from the imminent Danger of being surrounded by the Enemy, so as to be forced to surrender, or to be cut to Pieces, *&c.* and that the Reputation of a *General* is almost always lost in a Flight; he must have some Means left to extricate himself from those Difficulties, with Honour, which cannot be done otherwise than by what's called an honourable Retreat, which, under the above-mentioned Disadvantages, must be made with all possible Expedition, even though the *Army* should lose some Soldiers that could not keep up with it, and a *General* must not quit all, or any Part of his Cannon, except the utmost Necessity compels him to it: But for the Baggage, if the Retreat be not easy, he must incumber himself with as little as may be; and if he is so hard pressed that he must unavoidably come to a Battle, he must chuse an advantageous Opportunity for himself, endeavouring to draw up behind a Wood or Hill, that he may fall upon the Enemy's Flank; or else as they pursue him, making a quick Countermarch, after passing a Defile, that he may engage one Part of the Enemy's *Army* before it can all join together. In such Cases of Compulsion there is no counting the Number of Men; for though you are but half or the third Part of their Number, yet you may lay hold of such an Opportunity, and with such Resolution that you may defeat them.

If you are so weak that nothing can be done by fighting, or speedy marching; or, if a too powerful Number of the Enemy have got before, and hinder your passing; then the last Resolution to be taken, is to preserve what may be saved, dividing the Army into four or five Bodies, which must march several Ways to make their Escape; and thus the Enemy not being

being able to divide themselves so soon to follow them, some of them will have the good Fortune not to be pursued, or to escape if they are. But if the retreating *Army* is not above one Third weaker than that which pursues, and the *General* has Orders not to engage, he must then quit the worst of his Baggage; and if he can leave his Cannon in a Place of Safety, only take some small Pieces which will not retard his March, and then set forwards with the greatest Secrecy. He must march Day and Night, and not halt any longer than is sufficient to give Time to his Men and Horses to recover their Strength; but if the Enemy comes up with him, he must march slower, and send Pioneers before him to mend the Ways, with such Officers as are in Authority, careful and understanding, that the Work may be done with Expedition, the most necessary Thing in Retreats. If any Party be detached from the main Body to pursue him, he must charge in furiously, or endeavour to cut off by an Ambush, or send some Squadrons about to cut off their Retreat, while he attacks it in the Front.

Musqueteers must be placed in all strait Places to skirmish with the Enemy; and in Plains let the Army march in close Order, and retire through the Plains or Covert-Ways, according as he is stronger or weaker than the Enemy in Horse or Foot. He must endeavour to halt by Night or Day, on the Edge of some Defile after he has passed it; and if he has made a very long March, and believes the Enemy have left so many behind, that they cannot be so strong as he, let him lay hold of that Opportunity to give them Battle; and if he marches through a Wood, he shall cause as many Trees as he can to be cut down a-cross the Wood, for it will take up more Time to remove than to fell them.

But if the *Army* that retreats is stronger than that which pursues, at all Defiles thro' which it must pass, the Troops of the Rear should not be too far divided from the rest, that they may be easily succoured in Case they be attacked. If it must file off in a Wood, a great Number of Musqueteers must be posted on the Right and Left, 'till all the Horse are past. The heavy Cannon and Baggage is to march in the Front, with only one or two Squadrons and some Musqueteers, as well to disappoint any Ambush, as to prevent the Baggage from falling into Confusion. If the *General* suspects that the Enemy will detach Parties from their *Army*, or send Troops from their Garrisons or Country, towards the Front of the *Army*, either to cut off the *Van* in some difficult Pass, or to plunder the Baggage; he must detach such Forces from his *Army*, as he shall think necessary to prevent these Inconveniencies, either securing the Baggage or the Place through which he is to file off. In all Defiles he must cover himself with the Cannon as much as may be, lining the Edges of the Pass with Field-Pieces, and with all his Cannon, if he perceives the Enemy will attack him when he is half through.

If he is in such a Condition as to desire to come to a Battle, he must endeavour to draw the Enemy to it, either by turning back upon them, when they have passed some dangerous Defile after him, or else by drawing up in Order of Battle, behind a Hill or Wood, with the greatest Part of his Forces, and causing the Baggage and the rest to hold on their March, so to take from the Enemy all Knowledge of his Ambush, or to fall upon their Flank, when they are advanced towards their Baggage.

All Orders of Battle for a Retreat differ according to the Diversity of Circumstances that occur; the usual Method of retreating is in Columns, except a small Body in the Rear. And in an Army of 15000 or 20,000 Men, it usually consists of eight or ten Squadrons, and two or three Battalions, which are to march in a Line in an open Country, only keeping two Squadrons behind to amuse the Enemy. In an enclosed Country the Battalions and Squadrons must be intermix'd, and detached Musqueteers must bring up the Rear. Secrecy in setting forwards, Diligence in marching, Care in mending the Ways, and Cunning in fighting, are all the Advantages in this Part of War; and a *General* who manages a Retreat, in the different Manners here prescribed, is always commended and admired for his Prudence and Conduct. That of *Schulembourg* in *Poland*, before the victorious *Army* of the two Kings, *Charles* XII. of *Sweden*, and *Stanislaus* of *Poland*, was commended by *Charles* as a Victory; *Schulembourg*, said he to *Stanislaus*, has conquered us this Day.

But as we suppose our *Army* to have gained a complete Victory, which has inspired our Forces with new Courage, we'll not quit the Field 'till we have attempted something farther; therefore we'll march to the Siege of the next Town of the Enemy, where they could rally and recruit their routed Forces; which the better to effect, we'll view the Ground round about it, especially on that Side the Enemy may come, and we'll order Parties abroad to give Intelligence of their March; and according to the Information we receive, we'll either expect their coming, in an advantageous Post, or go to meet them, which last is the surest Way; for if we wait for them in one certain Place, we give them an Opportunity of relieving the Town some other Way, which is not to be done, since we are not so weak, as to expect to fight to a great Disadvantage, for if we were, we ought to secure ourselves by a strong Line of Circumvallation.

Therefore being determined to meet the Enemy, we'll view all the Way as far as possible, and having observed the advantageous Places, we'll draw up before them, which must be done according to the Nature and Situation of the Ground. If there be a River, a Morass or Wood, or a Hill on one Wing, we'll place almost all the Horse on the other, and the Foot in the Wood, if it is not too close, or along the Ridge of a Hill. If we are stronger in Horse, and weaker in Foot than the Enemy, we'll endeavour to fight in an open Plain; and in Enclosures, if we are stronger in Foot than in Horse. If the Enemy will not hazard a Battle, they will endeavour to steal Succours into the Town by Night, which is difficult to be obstructed, if there be no Line of Circumvallation made, and it is dangerous to detach Forces sufficient to invest the Town, lest the Enemy take that Advantage to attack the *Army*.

When the Quarters are entrenched, and the Line of Circumvallation not made, they serve only to prevent a Surprize, and to gain Time for the Foot to join, in case the Enemy comes unexpected, or in case an *Army* much stronger than ours should come to relieve the Town before we be informed of it; in which Case all the Forces must be brought into the strongest Quarters, if we have not Time to retreat before, and then we must draw off in the Night.

The Enemy must be expected or avoided, according to the Strength of the Line of Circumvallation. The Order of Battle behind a Line is quite different from the others; for a third Part, or thereabouts, are posted to man the Line, and some are to be posted for the most Part in *Redans*, or Angles saliant, they being the most considerable Places for Defence of the Line. The rest of the Forces must be drawn up in two Lines, the first thirty Paces from the Entrenchment, and the second one hundred Paces from the first Line; and we must intermix the Battalions and Squadrons. It would be convenient that every Squadron had four or five Files, somewhat detached from the rest, to be ready to charge any that begin to pass the Line, if we had not Numbers sufficient to oblige the whole Squadron to charge them, unless we should detach small Parties of fifteen or twenty Men for this Purpose.

All the Forces must never be posted to guard any one Part of the Line, unless we be thoroughly assured that the Enemy's Troops are in one Body, and have not detached any Number to attempt another Place. The Defence of a Camp that is intrenched is the same with that of a Circumvallation, and the chief Care is that the Enemy do not fortify themselves within the Intrenchments; to prevent which, they must

muſt be continually charged as faſt as they enter, and not be allowed Time to draw up in Order of Battle.

A ſufficient Number of Workmen muſt be ready to repair the Line, when the Enemies have thrown it down, and are repulſed, leſt they make a freſh Attack; or elſe in Order to throw down the Line to ſally after them if they are much weakened, and diſcouraged. Many Cannon are of great Uſe for the Defence of the Lines, becauſe there's no coming to handy Strokes ſo ſoon as when a Battle is fought where there are no Intrenchments. The Cannon is to be planted in thoſe Parts which command moſt of the Plain, and in the *Redans*, from whence they ſweep the Length of the Intrenchment.

If the Enemy attempts to make us raiſe the Siege; and our Trenches are opened, and no Lines of Circumvallation drawn, which ſhould have been done, then if we are not much ſuperiour to them, we muſt draw off all our Men to bend our united Force againſt theirs; but if we are much ſtronger, we'll leave then as many Men as may ſecure the Trenches, and meet the Enemy with the Reſt; marching not too far, leſt they ſhould throw Succours into the Town, who, joining with the Garriſon, could gain our Trenches.

But perhaps we march to raiſe a Siege, and deſign to take the Advantage of the Circumvallation being not finiſhed, to fight the Enemy; then we muſt march directly up to the Place, having firſt ſent Parties to bring Advice whether they come to meet us, taking particular Care that they do not fight us when we are half paſſed a Defile, and that we do not attack them in an advantageous Poſt.—In ſuch a Caſe we muſt turn to the Right or Left, and march another Way to the Place.—We muſt not march ſo cloſe that they may attack our Flank or Rear, but keep at a due Diſtance, that if they quit their Poſt, they may find us in a Poſture to receive them.——If we have no Mind to fight, we'll keep ourſelves in an advantageous Poſt, and at Night detach two or three conſiderable Parties to relieve the Place, and order them to take the greateſt Compaſs we think fit, and while they are endeavouring to throw themſelves into the Place, we'll make a Shew of intending to fight, that the Enemies may not divide their Forces.

If our Parties ſhould happen to be defeated, and we obliged ſoon to retire either for Want of Proviſions, or for any other Reaſon, or the Circumvallation finiſhed before our Return, then we'll hazzard a Battle, if the Place be worth it.——To this Purpoſe we'll ſend a Party or two to alarm the Enemy in the Night, and oblige the Enemy to divide their Forces, then march with our Army the Way we think we are leaſt expected.——If the Enemies have taken up their Quarters and are not intrenched, we'll endeavour to ſurprize one of them, and throw in our Succours that Way; and ſo weakening their Army, we may be in a Condition to fight them.——But if their Quarters be intrenched, we'll endeavour to chop in between them, and throw in our Succours that Way.——If we are much their Superiors, then we'll attack one of their Quarters; or if they all get into one, and we have put Succours into the Place, we'll encamp between them and their Country to ſtarve them; or if they come out, to fight them in their Retreat.

If the Line of Circumvallation be finiſhed, and we deſign to force it, in Order to throw Succours into the Town, we muſt encamp as cloſe as we can, that is, out of Cannon-Shot, and at Night divide the *Army* into one main Body, and ſeveral ſmall ones, ſo to make two Attacks; but they muſt not be ſo far aſunder, that if the Enemy ſallies out upon one Body and beats it, the other cannot come to its Relief; and we'll march in the Night, that the Enemy may not diſcover our Deſign.

The propereſt Time for attacking is half an Hour before Day-break; for then the Enemy not being able to diſtinguiſh between a true and falſe Attack, will not know how to uſe their Cannon, and the Fire of their ſmall Arms will do leſs Execution by Night; and when we have gained ſome Advantage by the firſt Attack, the Day increaſing will let us ſee where to improve our Succeſs.——As the Iſſue of Battles fought by Night is more dubious than by Day, and *Armies* are often ſeized with a panick Fear, which cauſes them to run away; this is the propereſt Time to attack *Armies* ſtronger than ourſelves.——Beſides, an Attack in the Day expoſes our Men to the Shot of the Cannon and ſmall Arms, which are under Covert, and if we do not force the Line at firſt, we may have ſo many Men killed, that it may diſcourage the reſt of our Forces.

The Order obſerved in attacking of Lines, is to give Advice to the Town what Hour the Attack will be made, that they may ſecond it by a Sally; and to know which Way they can be more ſerviceable to us, whether by breaking through unexpectedly as far as the Line, or by throwing down ſome Part of it, or by ſeizing ſome Redoubts, if they are ſtrong enough to undertake it; or if not, by poſſeſſing themſelves of an advantageous Spot of Ground, as near the Line as may be, yet ſo that they may not be cut off from the Town; but take ſome Field-pieces along with them.——The Advantage conſiſts in the Garriſon being ſo far advanced, that they leave the Enemy leſs Ground to draw up in Order of Battle between them and the Circumvallation; and ſo if one Troop enters the Line, and the reſt are repulſed (which often happens) the Garriſon will receive thoſe who go to relieve them, who would otherwiſe be in Danger of being cut off between the Line and the Town.

It muſt alſo be known which Part of the Line is the weakeſt; as if the Ditch be narrower and ſhallower, and the Parapet lower than in other Parts, leſs flanked with *Redans* or Angles ſailant, and leſs defended by Forts.——If the Ground behind it be unfit for drawing up the Forces to defend it, as if there were Vineyards, Woods, and Moraſſes.—If it be ſo near the Place beſieged that the Cannon can reach it, and play upon the Troops poſted to defend it.——Or laſtly, if it be commanded by any riſing Ground, on which we can lodge ourſelves.——There is another Advantage to be ſought for, when we deſign to attack the Lines by Day, which is to find a Place that may bring us up cloſe to the Line under Covert.

The Weakneſs of Lines proceeding from the Fault of the *Ditch*, the *Parapets* and *Flanks*, and Inconveniency of the Ground within, where the Forces cannot be drawn up, may be advantageous to us by Night or Day; and when the Line is too near the Town, or commanded by a riſing Ground, we muſt not be too haſty in attacking, but rather ſtand ſtill in Battle, before the Places where thoſe Faults are; and if the Enemy do not poſt any great Number of Troops there, then force them: But if they do, then attack them not, but let them be deſtroyed by the Cannon of the Town, and by ours.

In attacking the Lines, ſeveral Platoons, each commanded by a Serjeant, muſt march before, who are to be followed by two or three hundred Men, each carrying a Faſcine and his Arms, who, when they have caſt their Faſcines into the Ditch, endeavour to mount the Line.——After this an hundred Men muſt go with Pick-axes and other Tools, to throw down the Line that the Horſe may enter; and in Caſe of a Repulſe, other Attacks may be made with Eaſe the ſame Way.——The Men muſt be ſuſtained by Battalions always firing while the others work.——Two or three thouſand Men may be employed in every Attack, and ordered to fall on near one another, or at a ſmall Diſtance, and the Horſe to be divided to ſuſtain them: And a ſtrong *Corps de Reſerve* is to ſtand ready out of Cannon ſhot, but the nearer the better, if a Place can be found under Covert.——The Battalions which ſuſtain that which falls on, muſt be directly in the Rear of it, but on the Right and Left, and at a greater Diſtance: By this Means they will ſee how thoſe who attack proceed, and the better judge what they are to do themſelves, and cannot be

be disordered by such as run away, or the wounded Men who retire.

It would be proper to send a Squadron to sustain them near at Hand, and the rest are to be kept just out of Musquet-shot, causing them to advance, as the Foot make themselves Masters of the Line.—— The Regiments which sustain should have some Tools, because if the Enemy in a Consternation quit any other Place than that which was attacked, those Regiments may possess themselves of it.

Note, That though we should defer speaking of Lines of *Circumvallation*, of *Redans* or *Angles Sailant*, and of Redoubts, till we come to our Treatise of *Fortifications*, under the Letter *F*; moreover as we have mentioned them here, for the better Satisfaction of the Reader, I think myself obliged to elucidate these Terms; therefore,—A Line of *Circumvallation*, from the *Latin*, *Circum*, and *Vallum*, Wall or Mound, is a Line or Trench with a Parapet, thrown up by the Besiegers encompassing all their Camp, to defend it against any *Army* that may attempt to relieve the Place.——A *Parapet* is a Defence or Skreen on the Extreme of the Line, to cover the Soldiers and the Cannon from the Enemy's Fire.——*Redans* are a Kind of Work indented in Form of the Teeth of a Saw, with *saliant* and *re-entring Angles*, to the End that one Part may flank or defend another.—A *Redoubt* is a small square Fort, without any Defence but in Front.—The Word is *French*, from the *Latin*, *Reductus*.

But perhaps after a Victory, or without a Victory, we enter the Enemy's Country, or to ravage it, or to put it under Contribution, or to hinder the Junction of an Army designed to rendezvous there, or to fight one already joined.

If to ravage the Country, we must divide our *Army* into several Bodies, but not so small as that either of them may be beaten.——If to take a Post, to lay it under Contribution, we must chuse one commodious for Forage, that has good Air, and so seated, that we may have Provisions from our own Country, in Case the Place where we are cannot furnish our Forces; and we must take Care to secure a Retreat, if the Enemy should come upon us with stronger Force; and it is safest to intrench.—If to hinder the Junction of an *Army*, we must hasten into our Quarters, to surprize those who shall not be quick enough to retire, and then pursue the rest as far as can be. —If to fight an *Army* already formed, we must be cautious, and know the Strength of it, and the Place where it lies, lest in our March we meet with it, in a disadvantageous Place.

When we enter an Enemy's Country, we must consider the Nature of the Rivers we pass; as whether a great Shower of Rain, or the Sun melting the Snows, may not prevent us from repassing.—Or if we would force any considerable Pass into it, as one on the Mountains, or over a River, or an Intrenchment, all depend on Expedition, especially in gaining Passes on Mountains, from whence it is not an easy Matter to drive those, who have once lodged themselves.

If the Enemy are there before us, and are not numerous, we must endeavour to surprize them; but if we fail herein, and are obliged to do it by open Force, we must strive to gain an Eminence above them, or if they are not very strong, and are shut up with Batteries, we must attack them with *Petards*, *Scaling-Ladders*, and *Hand granades*.—— If a Tower or Castle secures a Pass, we must use the *Petard*, or fix the *Miner* to it: And remember that in all difficult Places we must forecast to secure a Retreat; and if we leave a Pass behind us, to place a sufficient Guard there.

If we are to force a Pass upon a River, we must chuse a convenient Place for a Passage on our Side, and if there be any rising Ground, place our Cannon upon it, to prevent the Enemy's Troops from drawing up.—Having viewed the Place, we must make a shew of passing in several Places; and when our Cannon is planted, throw up a Parapet on the Bank of the River, about a thousand Fathoms in Length, placing Musqueteers behind it, then launch our Tinn Boats, and send over some Men, part Soldiers and part Workmen, to throw up a half Moon.— This being done, we are to send more to defend it, in Case we be attacked, and other Workmen to make another half Moon, on the Right, or on the Left of the first.—If we are not pressed by the Enemy while we are making the first half Moon, we may carry on a Horn-work, the Wings of it to be flanked by the first Parapet, and the Cannon lodged there.—But if the River be so broad that a Musquet cannot defend the Wings of the Horn-work, it must be defended by half-Moons made beyond the Water. In the mean Time we must labour hard at the Bridge, and when finished cause the Troops to pass, if the Enemy be not on the Spot; if they are, the Horn-work must be finished, that they may not fall upon the Troops as they pass.——When it is finished as strong as it shall be thought necessary, we must put as many Foot in it, as it will conveniently hold, and some Field Pieces; then the Cannon upon the Hill keeping the Enemy at a Distance; the Cavalry may also pass.——But yet this is not to be done, but when their Army is much weaker than our own, for if they were as strong as we, then when half our Men were over they would fall in with them, and our Cannon or Musquets would do them no Harm; and though they could not force our Intrenchment, yet they would cut off all without it.——Therefore if their Army be near as strong as ours, we must finish the Horn-work, and at the same Time making another Bridge and another Horn-work, at some Distance from the first, draw a Line from one to the other. The last and surest Way is to secure a Pass at some Distance from the Place where we lie, that the Enemy may not presently have Notice of it; and to keep Part of our Forces, as long as we can before them, to give them the least Occasion to suspect we have detached any Troops.

If there be any Brook, Morass, Ditch, hollow Way, rising Ground, or other difficult Pass, or any Eminence at Hand, on which the Enemy may conveniently lodge themselves, and plant Cannon on the other Side the River, where we design to pass; it will be requisite to make some Redoubts on the Passes, if the Enemy are not there already; for if they are much weaker than we, they may come and intrench themselves there, and by securing the second Pass, make the first useless.

But perhaps we are to guard such a Pass, therefore we must view all Places along the River which are fit for that Purpose, and throw up Forts and Redoubts before them, if we can, and cause the Country People to be upon Guard, if we are afraid to divide our *Army* too much, that we may have Notice of the Approach of the Enemy, and be ready to receive them, and by our Spies and other Means get Intelligence when they make a Detachment to surprise another Pass. If we believe that a Part of our *Army* can easily defend the Passes, we may divide the Remainder into as many Parts as we shall think fit, to secure the other Passes from Surprize; but if our *Army* is so far inferior to the Enemy, that they despise it, and will pass by main Force, we must make the best of them according to our Circumstances.

If they draw up their Field-Pieces on the Edge of the Water, and have planted their heavy Cannon on higher Ground, determined to pass, without any Entrenchment, under the Fire of their Cannon and small Arms, which they suppose will keep us at a Distance; then if we have not an advantageous Place to plant our Cannon, we must post ourselves a Musket-shot from their Passage, either above or below it, that so making an Entpalement, to cover us from their

Artillery, we may fire upon the Pafs without being expofed. If there are any Hedges or Trees, we fhould take the Advantage of that Covert, for it is dangerous to lodge Cannon in the Sight of great Batteries. If there be a hollow Way, Ditch, Ridge of Ground, or Hedge, we'll lodge as many Foot as we can there, and ftrengthen our Lodgment the beft we can. Yet if all our Efforts cannot prevent the Enemy from paffing, as foon as a Part which is weaker than our *Army* is over, we'll rufh in upon them, that in the Confufion the Remainder on the other Side may not fire upon us, left they kill their own Men. If they make a Parapet on the Edge of the Water on their Side, and detach fome Men to make a Half-moon, and their Bridge, and our Cannon and fmall Shot cannot hinder them, then if the Place be convenient for Horfe, we muft fend fome fmall Parties, ftronger than thofe that are pafs'd; for if we fend great Bodies, they will receive more Damage from the Enemies beyond the Water than we can receive by thofe that are pafs'd.

If there be any Likelihood of carrying the Half-moon the Enemy have made at the Pafs, we muft attack it with Vigour, and if we are repulfed, endeavour then to prevent their throwing up other Works, by pofting our Cannon and fmall Shot advantageoufly for that Purpofe. But if they have got a good fafe Half-Moon, and are not over-hafty, it will be difficult to obftruct their Paffage; becaufe their Workmen whom they fend to make other Intrenchments, will retire to the Ditch of the Half-moon, if we prefs upon them, and they that fuftain them will force us with their Volleys, and the Affiftance of thofe beyond the Water to retire, and then the Men will return to their Work; and as often as we attack them they will kill more of our Men than we can of theirs. However though thefe little Attacks coft us fome Men, yet if by that Means we can retard the Work 'till Night, it will be a great Advantage to us; for then being out of Sight of their Fire, we may make Lodgments for Mufqueteers, and raife Batteries as near their Works as poffible, fo that they who are lodged in them, will, by their Fire in the Morning, hinder the Enemies from extending their Works; and in Order to prevent their working by Night, we muft make frequent Sallies, as often as they go about it, which will not be very dangerous, or keep a continual Firing from our fmall Arms, charged with Partridge Shot; but if we cannot hinder their Paffing, it will be eafier to retire by Night than by Day. If we find the Pafs well fecured with Works, then if there be a Morafs, Ditch, or Ridge, or any other advantageous Ground, we'll entrench ourfelves upon the Ridges of it, to obftruct their fecond Paffage.

When both Armies have a Defign to poffefs themfelves of an advantageous Poft, it often occafions a Battle. The Precaution to be ufed, in that Cafe, is to fend out Scouts towards them, and not to march without a good Number of fmall Parties out before us, to prevent meeting the Enemy in a dangerous Place. A ftrong Detachment is to be fent from the *Army* to take Poffeffion of the Poft, and expect the Enemy there, provided our Detachment be ftrong enough, to maintain it 'till the whole *Army* come up. If we know that the Enemy muft pafs a difficult Defile, we muft fend fome Parties thither to fpoil the Ways, and to fkirmifh with them.

When we find ourfelves invefted by an *Army* ftronger than ours, whereby our Provifions are cut off, and no Hope of getting any, without hazarding a Battle, we muft then make an Attempt, either in Order, to get clear out of our Poft, or elfe to bring in the Convoy; though it has happened fometimes, that by a too great Confidence, or rather Prefumption, in a *General*, an *Army* has been fo well hedged in, that it was impoffible to fally out, without it being expofed to be cut to Pieces, as it happened to the *Czar*, *Peter* I. upon the *Pruth*, where his whole *Army* muft have perifhed for Want of Provifions, or fallen by the Swords of the *Turks*, if the *Czarina*, *Catherine*, his Wife, had not found the Secret of amufing the *Grand Vizir* with advantageous Propofals, to give Time to the *Czar* to extricate himfelf out of that great Dilemma, as he did, to the Difappointment of *Charles* XII. King of *Sweden*, who came one Day too late to make the Advantage he expected, from the Diftrefs of his moft formidable Enemy; which Difappointment fo enraged the Hero, that he could not help reproaching the *Grand Vizir* with Perfidy and Cowardice.

If we defign to bring in the Convoy, we muft order it to come with the greateft Secrefy, through fuch a Road, as we'll judge more proper for us to meet it, without hazarding a difadvantageous Battle; to effect which we muft march out with all our Forces; for though we ventured but little before the Coming of the Convoy, yet the Lofs of it would lofe all, if our Safety depended on its coming fafe. But if we think there is as much Difficulty to bring in the Convoy fafe as in leaving our Poft; or though it fhould come fafe it would fubfift our *Army* but for a few Days, and that there might be the fame Hazard foon after in bringing another, fo that the Delay would be no Advantage to us, then it would be more prudent to make an Effort at firft than to ftay any longer, becaufe an *Army* always declines, and for the moft Part lofes Courage and Strength.

Note, That a CONVOY, in this Place, is a Body of Forces fent to guard a Supply of Provifions, Arms, or Ammunition, going to a Camp, to an *Army*, or to a befieged Town. There are two Sorts of *Convoy*, *viz.* a *fmall* and a *Grand Convoy*; a *fmall Convoy* confifts only in a few Waggons, or Horfes loaded, with Ammunition or Provifions, and is efcorted with a fmall Detachment of Infantry. A *Grand Convoy* confifts of a very confiderable Number of Waggons and Horfes loaded with Ammunition, Provifions, and often with Money for the Payment of the *Army*, accompanied fometimes with a Train of Artillery, and efcorted with ftrong Detachments of both Cavalry, and Infantry, the Cavalry on the Right and Left, and the Infantry in the Front and on the Rear.

In order to force our Way, we muft either leave our Baggage, in the Place we quit, with a Guard; or if the Place cannot be defended without leaving a confiderable Part of the *Army*, take all with us, for Fear of weakening ourfelves, and if we apprehend that our Baggage may incumber us, and hinder the Retreat we hope to make without it, we muft fave the beft, and burn the reft. Having firft viewed the eafieft Way, we muft fet forward towards the Evening, and at the fame Time fend Parties to alarm the Enemy in feveral other Places, that they may be doubtful which Way we draw off. If we carry our Baggage with us, then we muft keep between it and the Enemy, that is, when the Enemy is in the Rear, and the Baggage before us; and on the Left if they are on the Right; and fo on the Right if they are on the Left. If the Enemy be before us, we muft march on fighting courageoufly, and the fame if they attack us briffkly in the Rear, or on the Flank; but if they come on but flowly, to retard us 'till all their Forces come up, then we muft not ftop at all, but defend ourfelves, retreating, never lofing Time to fuftain the Troops that are attacked, though fome of them be loft: Nay, it is fometimes abfolutely neceffary to lofe a fmall Part to fave a greater; but this Refolution is never to be taken unlefs the greateft Extremity compels us to it.

When two Armies are to be brought together, and the Enemy lies between them to hinder the Junction, we muft appoint the *Rendezvous* upon the fame Spot, and at the fame Hour, on the Right, or on the Left of the Enemy; that fo we may endeavour to join before they have got Intelligence of our March: Or if there be no paffing without attacking them in their Poft, then both muft march and fall on at the

 fame

ſame Time. But if we can find Means of joining elſewhere, and there is a River or *Defile* to paſs, before the one can come at the other, then the *Army* that is not to paſs muſt be there firſt, to expect the other, and throw up ſome Intrenchments expeditiouſly, to lodge Muſqueteers in them to ſecure the Paſs, in Caſe the Enemy ſhould come, and fight the other *Army* ſeparately from ours; and in this Caſe we muſt paſs to relieve it. If the Enemy march to meet one of our *Armies*, it muſt avoid a Battle, until the other is come up, which may be effected by ſecuring an advantageous Poſt.

If it happens that a General is drawn in to give Battle by an Army which comes to beſiege a Place which he has newly taken, and before he has decamped from before it; if he will avoid fighting, and prevent the Place being beſieged again, he muſt furniſh it as expeditiouſly as he can with Ammunition and Proviſions, repair the Breaches, and add what Fortifications he thinks fit; and though his Convoy be not quite ready, or ſo compleat as he could wiſh, yet if he apprehend that the Enemy may come on before its Arrival, he muſt haſten it away in the Condition it is, and ſend back immediately for the reſt. When he is Maſter of the Place, he muſt keep only that Part of the Circumvallation which is moſt advantageous, joining it to the Town with an Intrenchment, that his *Army* may not be too far divided, and then throw down all the reſt.

When the Enemy comes to beſiege the Place, if we have almoſt put it into the Poſture we deſire, we muſt place there all the Proviſions and Ammunition we have for the Army, and retire into our own Country, leaving ſuch a Number of Forces as we judge requiſite for its Defence; taking Care however, not to leave ourſelves ſo bare of Proviſions, that the Enemy may take an Advantage of it, if they purſue us, and that they may not hinder our coming to the Place where we can have a Supply before what we carry with us be ſpent.

If the Enemy encamp between us and our Country, and we are not in a Condition to give them Battle, we muſt continue in our Camp, provided we have Proviſions enough to ſupport our Army, while we ſtay for conſiderable Succours. If we will not ſtay, and have Proviſions enough in the Place, we muſt take Care that our Retreat be as little known to the Enemy as we can, leaving our heavy Cannon in the Town, if we have no Time to ſend it away before us. If the Place be not ſufficiently provided, and we have Hope of Doing it, we muſt ſtay in our Camp to prevent the Enemy from forming the Siege; then cauſe our Convoy to come with as much Secreſy as poſſible, and ſend out Parties to meet them, ſome one Way and ſome another. In this Caſe we muſt conſider well which is of the greateſt Importance, the *Army* or the Place, and hazard the leaſt to ſecure the moſt.

When a General is to croſs an Enemy's Country, to relieve a Town, he muſt march with all poſſible Expedition, by way of Surprize, carrying nothing with him that is heavy, though there is ſometimes a Neceſſity of carrying heavy Cannon, as where there is a Caſtle or Town in the Way, through which he muſt unavoidably paſs.

If we would prevent the *Army* of the Enemy croſſing our Country, we muſt endeavour to cut it off in the Van at ſome Paſs, or fall upon its Rear, when half paſſed ſome *Defile*, giving it a Check by this Means, till the Country is in Arms, and all our Forces are joined: And we muſt endeavour as much as poſſible to avoid coming to a Battle, unleſs we have a great Advantage, becauſe by fighting in our own Country, the Loſs of one Battle may loſe all.

The Judgment, Prudence, and Conduct of a *General*, are alſo evidenced in the Surprize of an *Army*, or of Quarters. To ſurprize an *Army*, he muſt underſtand the Situation of the Camp, whether it is intrenched or not; its Strength in Horſe, Foot, and Cannon; how poſted; the Manner of the Encampment; what Guard is kept within and without; where the Guards, Centinels, and Vedets are poſted, and Care muſt be taken to avoid or ſurprize them. As ſoon as the Enemy has taken the Alarm, he muſt fall on with the greateſt Fury imaginable, that they may not have Time to form themſelves. If the Camp is intrenched, there muſt be carried Faſcines to fill up the Ditches, Pont-volans, Hand-Granades, and Hatchets.

Note, That FASCINES are ſmall Branches of Trees, or Bavins bound up in Bundles, which being mixed with Earth, ſerve to fill up Ditches, to ſcreen the Men, make the Parapets of Trenches, *&c.* Some of them are dipt in melted Pitch or Tar, and being ſet on fire, ſerve to burn the Enemies Lodgments or other Works. A pitched *Faſcine* is a Foot and a Half about; a *Faſcine* for Defence, two or three Foot. *Pont-volans*, or *Flying Bridge*, is a Kind of Bridge made of two ſmall Bridges laid one over another, and ſo contrived by Means of Cords and Pullies placed along the Sides of the under Bridge, that the upper may be puſh'd forwards, till it join the Place where it is deſigned to be fixed: The whole Length of both not to be above five Fathom, leſt they ſhould break with the Weight of the Men.

If he will ſurprize any particular Quarters of Horſe or Foot, if they are in a Place that is enclofed, he muſt uſe the ſame Method practiſed to ſurprize Garriſons, but if in an open Place, he muſt act according to their Strength, Guard, and Situation.

In order to break a Bridge which is advantageous to the Enemy, we muſt ſtrive to make ourſelves Maſters of one or both Ends, if they are not well fortified. If we dare not attempt the Lodgments the Enemies have made, we are to endeavour to burn the Bridge with Fireſhips, if it be a Bridge of Boats, or ſend ſome good Swimmers to cut the Ropes, or drive down a ſtrong Veſſel, heavy laden, to break them. If it be a wooden Bridge upon Piles, Men may be ſent in cover'd Boats to ſaw them, or elſe to daub them with Pitch and other combuſtible Matter, and then ſet Fire to it. We may alſo build a ſmall Body of Stone-work upon Boats, in the midſt whereof there ſhall be a Mine, loaded at Top with the largeſt Stones we can get, and over that a Piece of Timber to bear under the upper Part of the Bridge, or upon the Piles, and ſo open a Trunk to give Fire to the Mine, which ſhall ſpring while the Boats are under the Bridge. If we cannot make ſure of the Trunk for firing, a good Swimmer may carry a Boat, and tie or hook it to one of the main Pillars, and having ſet Fire to a *Sauciſſe*, ſwim away as faſt as he can. The Boats which have the Mines, may be conducted by other Boats; and ſo the Men in them, having faſtened the Boats that have the Mines, and giving Fire, may get off without Danger.

We would not ſend our *Army* into Quarters, before having beſieged a Town in Form, were we not to conſider, that Sieges and Manner of Beſieging belong properly to Fortification, and conſequently is to be included in our Treatiſe on that Subject, under the Letter *F*. Therefore we'll conclude this with ſome general Remarks on *Armies*.

The Author of the *Conſiderations ſur les Cauſes de la Grandeur des Romains*, c. 3. p. 24. is of Opinion, that a Prince with a Million of Subjects, cannot keep an *Army* of 10000 Men, without ruining himſelf. It was otherwiſe, ſay they, in the antient Republicks: The Proportion of Soldiers to the reſt of the People, which is now about one to an Hundred, might then be as about one to eight. The Reaſon ſeems owing to equal Partition of Lands which the antient Founders of Commonwealths made among their Subjects; ſo that every Man had a conſiderable Property to defend, and Means to defend it with. Whereas amongſt us the Lands and Riches of

of a Nation being ſhared among a few, the reſt have no Way of ſubſiſting, but by Trades, Arts, and the like; and have neither any free Property to defend, no Means to enable them to go to War in defence of it, without ſtarving their Families. A large Part of our People are either Artizans or Servants, and ſo only miniſter to the Luxury and Effeminacy of the Great. While the Equality of Land ſubſiſted, *Rome*, though only a little State, being refuſed the Succours which the *Latins* were obliged to furniſh after the taking of the City, in the Conſulate of *Camillus*, preſently raiſed ten Legions within their own Walls: Which was more, *Livy* aſſures us, than they were able to do in his Time, though Maſters of the greateſt Part of the World. A full Proof, adds the Hiſtorian, we are not grown ſtronger; and that what ſwells our City, is only Luxury, and the Means and Effects of it.

A LEGION was a Kind of Regiment, or Body of Forces, of a Number whereof the *Roman* Armies were chiefly compoſed. The Number of Soldiers and Officers whereof the *Legion* was compoſed, was different at different Times, but it is impoſſible to determine the preciſe Time and Manner of their Alteration. In the Time of *Romulus* each *Legion* contained 3000 Foot, and 300 Equites or Horſe; theſe were divided into three Bodies, which made as many Orders of Battle. Each Order conſiſted of ten Companies or Manipules, ranged at ſome Diſtance from each other, though in the ſame Front. Each Body had two general Officers to command it, called *Tribunes*, and each Manipule two *Centurions*.

The TRIBUNES were in the *Roman Armies*, much the ſame with our Colonels, or the *French Meſtre de Camp*. There was ſome Diſtinction of the *Tribunes*, into *Laticlavii*, and *Auguſticlavii*. The *Laticlavii*, were thus denominated, from their Garment, which was a Kind of Tunick or long Coat, faced with one or two Slips of Purple, applied lengthwiſe to the two Sides of the Tunick. In the *Latus clavus*, theſe Slips were pretty broad, and in the *Auguſtus clavus*, narrower. There were Buttons ſet on the *Latus clavus*, which appeared like the Heads of large Nails; whence ſome think it took its Name. There was no other Difference betwixt the *Latus clavus*, and *Auguſtus clavus*, but in the Broadneſs of the Slips of Purple.

A CENTURION was an Officer of Infantry who commanded a *Century*, or hundred Men. The firſt Centurion of the firſt Cohort of each *Legion*, was called *Primipilus*, *Primopilus*, or *Primipili Centurio*, ſometimes *Primus Centurio*, he was not under the Command of any Tribune, as all the reſt were; and had four *Centuries* under his Direction. He guarded the Standard and the Eagle of the *Legion*.

Under the *Conſuls* the *Legion* conſiſted of 4000 Men, who made four Bodies commanded by a Conſul, or one of his Lieutenants; and each Legion had its Share of Cavalry, which was from two to three hundred Horſe. Afterwards in the Time of *Marcus*, theſe four Diviſions of the *Legions* were united into one, and augmented; and *Cohorts* were appointed from five to ſix hundred Men, each under the Command of a Tribune. Each *Cohort* conſiſted of three Companies or Manipules, each Manipule of two Centuries; and the *Legion* was divided into ten *Cohorts*, who made as many diſtinct Battalions, diſpoſed in three Lines; ſo that the *Legion* then conſiſted of five or ſix thouſand Men.

Iſidore tells us, that the *Legion* conſiſted of ſix thouſand Men, divided into ſixty *Centuries*, thirty *Manipules*, twelve *Cohorts*, and two hundred *Troops*. According to the *French* Academy, the *Legion* conſiſted of ſix thouſand Foot, and ſeven hundred and twenty-five Horſe.

The *Legions* were by far the moſt conſiderable Part of the *Roman Army*, their Number in the Time of *Auguſtus*, were thirty three; and were compoſed wholly of *Roman* Citizens. The *Allies* formed a Body of auxiliary Forces.

When the *Army* was ranged in Order of Battle, the *Cohorts*, or Battalions were diſpoſed in the following Manner. The firſt Cohort took up the Right of the firſt Line, as the Companies of Grenadiers do in our Regiments; the reſt followed in their natural Order; ſo that the third was in the Center of the firſt Line of the Legion, and the fifth on the Left. The ſecond between the firſt and third; and the fourth between the third and fifth. The five remaining Cohorts formed a ſecond Line in their natural Order; thus the ſixth was behind the firſt, and ſo of the reſt.

The firſt, third, and fifth Cohorts were eſteemed the beſt, at leaſt it appear'd ſo from the Poſt they took up, which were looked on by the *Romans* as the moſt important.

The *Cohorts*, called *Pretorian*, from their Place or Station, in the Palace called *Prætorium*, were the Soldiers of the Emperor's Guards. Their Inſtitution was owing to *Scipio Africanus*, who firſt eſtabliſhed a Company of the braveſt Men in his *Army*, pick'd out for the Purpoſe, to be his Guard, and never to ſtir from his Side in Battle. *Dion* tells us, that their Number was at length increaſed to ten thouſand. They were commanded by an Officer, created by *Auguſtus*, called *Præfectus Prætorii*, the Prefect of the Pretory or Palace.

The STANDARD bore by the *Legions* was various. At firſt a Wolf, in Honour of that which ſuckled *Romulus*; afterwards a Hog, by Reaſon, ſays *Feſtus*; War is only undertaken with a View to Peace, which was concluded by Sacrificing a Hog. Sometimes they bore the *Minotaur*, to remind their General that their Deſigns were to be kept ſecret and inacceſſible as the *Minotaur* in the Labyrinth. They alſo bore a Horſe, a Boar, *&c.* *Pliny* tells us, that *Marius* was the firſt who changed all thoſe *Standards* into Eagles.

The ARMS of the antient *Roman Armies*, were a Launce or Javelin, a Sword and a ſmall Argian Buckler, which *Romulus*, during his Wars with the *Sabines*, a bold and warlike Nation, changed into a broad Buckler; and what contributed moſt to render the *Romans* Maſters of the World, was, that having ſucceſſively warred againſt all Nations, they renounced their own Methods, Arms, *&c.* whenever they met with better.

The *Armies* of the Grand Signior conſiſt chiefly of *Janizaries*, *Spahis*, and *Timariots*.

The JANIZARIES, reputed the Grand Signior's Foot Guards, are the beſt Infantry in the *Turkiſh Armies*; firſt inſtituted by *Amurath* I. called the Conqueror, who chuſing out one fifth Part of the Chriſtian Priſoners he had taken from the *Greeks*, and inſtructing them in the Diſcipline of War, and the Doctrine of their Religion, he ſent them to *Hagi Bektaſche* (a Perſon whoſe pretended Piety rendered him much revered among the *Turks*) to the End that he might confer his Bleſſing on them, and at the ſame Time give them ſome Marks to diſtinguiſh them from the reſt of the Troops. *Bektaſche*, after bleſſing them in his Manner, cut off one of the Sleeves of his Fur Gown, and put it on the Head of the Leader of this new Militia; from which Time, *viz.* the Year of Chriſt 1361, they have retained the Name of *Jenitcheri*, and the Fur Cap.

As in the *Turkiſh Armies* the *European* Troops are diſtinguiſhed from thoſe of *Aſia*; the *Janizaries* are alſo diſtinguiſhed into *Janizaries* of *Conſtantinople* and of *Damaſcus*. Their Dreſs conſiſts of a *Dolyman*, or long Gown with ſhort Sleeves, which is given them annually by the Grand Signior, on the firſt Day of *Ramazan*. They wear no Turban, but in lieu thereof a Kind of Cap which they call *Zarcola*, and a long Hood of the ſame Stuff, hanging on their Shoulders. On ſolemn Days they are adorned with Feathers, which are ſtuck in a little Caſe in the Forepart of the Bonnet.

Their Arms in *Europe*, in a Time of War, are a Sabre, a Carabine, or Muſquet, and a Cartouch-Box hanging on the left Side. At *Conſtantinople*, in a Time

Time of Peace, they wear only a long Staff in their Hand. In *Asia*, where Powder and Fire-Arms are less common, they wear a Bow and Arrow, with a Poniard, which they call *Haniare*.

The *Janizaries* were heretofore a Body, formidable even to their Masters, the *Grand Seigniors*: *Osman* they first stripped of his Empire, and afterwards of his Life: *Abassa* taking Occasion therefrom, to revolt against his Successor and Brother *Amurath* IV. by pretending that while at his Prayers in a *Mosque*, *Osman*, the murthered Emperor, appeared to him, and calling to him, *Abassa*, said he, the most faithful of all my Slaves, I command thee to revenge my Death by that of a hundred thousand *Janizaries*. But they are now much less considerable. Their Number is, or ought to be fixed at twenty Thousand.

The *Janizaries* are Children of Tribute levied by the *Turks* among the Christians, and bred up to the military Life. They are taken at the Age of twelve Years, to the End that forgetting their Country and Religion, they may know no other Parent but the *Sultan*. However, generally speaking, they are not at present raised by Way of Tribute; for the *Carach* or *Tau*, which the *Turks* impose on the Christians, for allowing them the Liberty of their Religion, is now paid in Money, excepting in some Places where Money being scarce, the People are unable to pay in Specie, as in *Mingrelia*, and other Provinces near the *Black Sea*.

The Officer who commands the whole Body of the *Janizaries*, is called *Janizar Agasi*; in *English Aga* of the *Janizaries*; who is one of the chief Officers of the Empire.

Though the *Janizaries* are not prohibited Marriage, yet they rarely marry, nor then, but with the Consent of their Officers; as imagining a married Man to make a worse Soldier than a Batchelor. *Vigenere* tells us, that the Discipline observed among the *Janizaries*, is extremely conformable in a great many Things, to that used in the *Roman* Legions.

The SPAHIS, as we have observed already, compose Part of the Cavalry of the *Ottoman Army*; their Commandant is called *Spahi Agasi*.

The TIMARIOTS, are those who enjoy Lands on the Footing and Tenure of *Timar*, which is a Tract or Portion of Land which the *Grand Seignior* grants to a Person, on Condition of serving him in War on Horseback.

The *Timariots* are obliged to serve in War personally with as many Men and Horses for Service as their *Timar*, by the Estimation made thereof, contains Times 2500 *Aspers*, or about six Pounds Sterling; and to maintain them constantly mounted and armed after their Manner, to be ready to march at all Hours when commanded, and that on Pain of Death, nothing, not even Sickness itself, being allowed to excuse them.

Besides this Service, they likewise pay an Acknowledgment of one Tenth of their Revenue. If they have any Children of Age to bear Arms, and fit for the Service after their Decease, or in Defect thereof, if they have any Relations that have the least Interest, the *Timar* is used to be continued to them on the same Conditions; otherwise it is transferred to others.

If the Revenue thus held of the *Grand Seignior* exceed 15000 *Aspers*, or 36 *l.* Sterling, they who hold it are not called *Timariots*, but *Subassi* or *Zaims*, and have the Administration of Justice in the Place.

The *Timariots* have different Appointments from 4 or 5000 *Aspers*, equal to about 12 *l.* Sterling, to 20,000 *Aspers*: But unless their *Timar* exceed 8000 *Aspers*, they are never obliged to march, except when the *Grand Seignior* goes to the *Army* in Person, on which Occasion none are exempted.

The Origin of the *Timariots* is referred to the first Sultans, who being Masters of the Fiefs or Lands of the Empire, erected them into Baronies or Commanderies, to reward the Service of their bravest Soldiers; and especially to raise and keep on Foot a Number of Troops without disbursing any Money. But it was *Soliman* II. that first established the Order and Discipline among these Barons or Knights of the Empire; but Avarice, the ordinary Fault of the Orientals, has occasioned their Declension of late Years. The Vice-Roys and Governors of Provinces manage their Matters so at Court, that *Timars*, even out of their Jurisdiction, are given to their Domesticks, or to such as will give the most Money for them.

There are two Kinds of *Timariots*, the one appointed by the *Porte*, the other by the Viceroy of the Country; but the Revenues of both are less than those of the *Zaims*. Those who receive their Patents from the Viceroys, have from 3 to 6000 *Aspers per Ann.*

This *Cavalry* is better disciplined than that properly called the *Spahis*, though the *Spahis* be the neatest and briskest. These last only fight in Platoons; whereas the *Zaims* and *Timariots* are divided into Regiments, and commanded by Colonels, under the Direction of Bashaws. The Bashaw of *Aleppo*, when in the *Army*, is *Colonel-General* of this Militia.

Shepherds, Water-Carriers, and other such undisciplined Mob, compose the rest of the *Ottoman* Forces or *Armies*.

Note, That the *Aspers* which we have often mentioned in this Place, is a little *Turkish* Silver Coin, worth something more than an *English* Halfpenny. The only Impression it bears is that of the Prince's Name under whom it was struck. The Pay of the *Janizaries* is from two to twelve *Aspers per Diem*. Most of the *Grand Seignior's* Revenues are paid in *Aspers*.

Our *Armies* antiently were a Sort of Militia, composed chiefly of the Vassals and Tenants of the Lords. When each Company had served the Number of Days or Months enjoined by the Tenure, or the Customs of the Fees they held, they returned Home.

The *Armies* of the Empire consist of divers Bodies of Troops furnished by the several Circles.

The Gross of the *French Armies* under the *Merovingian*, or first Race of their Kings, consisted of Infantry. Under *Pepin* and *Charlemaign*, the *Armies* consisted almost equally of Cavalry and Foot; but since the Declension of the *Carlovingian* or second Line, the Fees being become Hereditary, the national *Armies*, says *Le Gendre*, are chiefly Cavalry. The late King of *France*, *Lewis* XIV. has often brought twelve *Armies* into the Field, making up in all 500,000 Men.

As for *England* its greatest Strength consists in its *Naval Forces* or *Armies*; which NAVAL ARMIES are a Number of Ships of War, equipped and manned with Sailors and Marines, under the Command of an *Admiral* with other inferior Officers under him.

An ADMIRAL is a great Officer, who commands the *Naval Forces* of a Kingdom or State, and takes Cognizance by himself, or Officers appointed by him of all maritime Causes.

Du Cange assures us, that the *Sicilians* were the first, and the *Genoese* the next after them, who gave the Denomination *Admiral* to the Commanders of their *Naval* Armaments, and that they took it from the *Sarazen* or *Arabic Amir*, a general Name for any commanding Officer; though there are no Instances of *Admirals* in this Part of *Europe*, before the Year 1284; when *Philip* of *France*, who had attended St. *Louis* to the Wars against the *Sarazens*, created an *Admiral*.

The *French* have at present an *Admiral* in chief, called the *Great Admiral of France*, who is always a Person of the first Rank, and of an illustrious Birth. The late *Grand Admiral* was the *Count de Toulouse*, natural Son of *Lewis* XIV. by Madam *Montespan*, who had under him two *Vice-Admirals*, one of the *Levant*, who was the Marechal *Destrees*, and the other of the *Ponant*, the Marquis *De Coetlogon*. The two *Vice-Admirals*

Admirals have alſo under them *Rear-Admirals*, *Lieutenant-Generals*, and chief *Deſcadres*. When the *Grand* or *High Admiral* commands in Perſon, the *Vice-Admirals* command each his Diviſion. A *French* Fleet is commonly divided into three Diviſions; the white Diviſion; the blue Diviſion; and the white and blue Diviſion. But when the *High* or *Grand Admiral* does not command in Perſon, 'tis always the *Vice-Admiral* of the *Levant* who commands in the *Mediterranean*, and that of the *Ponant* on the Ocean. The *Grand Admiral* carries a ſquared Flag, at the main Top-maſt, of blue Silk, embroidered with a golden *Sun*, with the late King's *Device* or *Motto*, *nec pluribus impar*. The *Vice Admiral*, when the Admiral commands in Perſon, carries his *Flag* at the mizen Top-maſt. The King of *France* has always 50000 Seamen regiſtered, who are obliged to paſs in Review before the Commiſſary of the Marine appointed for that Purpoſe in each Department or Diſtrict of the maritime Provinces, *viz. Britanny*, *Normandy*, *Poitou*, *Aunis*, *Provence*, *Guienne*, *Languedoc*, &c. on the firſt Notice given them by the ſaid Commiſſary; who chuſes from among thoſe who appear before him, as many Boatſwains, Gunners, Carpenters, Calkers, and common Sailors as he wants, without being obliged to preſs Vagrants or Men unacquainted with Sea Affairs, into that Service. Each Man of War, beſides its Complement of Sailors, has on board one or two Companies of Marines, which are independent Companies always kept in Pay, and exerciſed for that Purpoſe, beſides a Detachment or Brigade of *Guards Marines*, who are young Noblemen, brought up to the Sea at the King's Expence, and commanded by a *Brigadier*. Out of that Body of the *Guards Marines*, are taken all the Officers of the Navy, and they are promoted according to the Report made by their ſuperior Officer to the King, of their Courage, Knowledge, and Experience.

In every Sea Port there is a Commandant of the Marine, who is commonly a Captain of *haut Bord*, as they call it, or of a firſt Rate Man of War, and who commands all the Marines of that Department or Diſtrict; an Intendant of the Marines, who is Judge of the Court of *Admiralty* in that Place, and a Commiſſary of the Marine, who has under him a Comptroller, a Treaſurer, and ſeveral *Commis* or Clerks of his Office, which they call *Le Bureau des Claſſes*, becauſe there is kept the Regiſter of all the Sailors of that Department, wherein every Sailor is regiſtred according to his Rank and Employment.

The LORD HIGH ADMIRAL of *England*, in ſome antient Records called *Capitaneus Mariniorum*, is Judge or Preſident of the Court of Admiralty.

He takes Cognizance by himſelf, his Lieutenant or Deputies, of all Crimes committed on the Sea, or the Coaſt thereof, and all the civil and marine Tranſactions relating thereto: As alſo of what is done in all great Ships riding in any River, beneath the Bridges thereof next the Sea. We have had no High Admiral for ſome Years; the Office being put in Commiſſion, or under the Adminiſtration of the *Lords Commiſſioners of the Admiralty*.

Admiral is alſo uſed here, for the Commander in Chief of a ſingle Fleet or Squadron. Thus we ſay, the *Admiral* of the Red, the *Admiral* of the White, and the *Admiral* of the Blue. The Term *Admiral*, is alſo applied to all Flag-officers: In which Senſe it includes *Vice-Admirals*, and *Rear-Admirals*. No Nation in the whole World has ever produced a greater Number of braver *Admirals*, and other Sea-officers than *England*. Their heroick Actions have been admired and applauded under both Hemiſpheres; and their ſingle Appearance has always alarmed the Coaſts of the moſt formidable Enemies of the *Engliſh* Name; and no Doubt but our Poſterity will remember with as much Pleaſure and Gratitude, the *Bings*, *Skovels*, *Jennings*, *Norris*, *Hoſier*, *Wager*, *Vernon*, *Haddock*, *Ogle*, &c. as we do *Cavendiſh*, *Blake*, *Rooke*, &c.

ASTROLOGY.

ASTROLOGY, from the *Greek* ἀστὴρ, Star, and λόγος, Diſcourſe, is the Art of foretelling future Events from the Aſpects, Poſitions and Influences of the heavenly Bodies; which the better to underſtand we muſt conſider firſt what's *Aſpect*.

Kepler defines ASPECT an Angle formed by the Rays of two Planets meeting on Earth, able to excite ſome natural Power or Influence.

Aſtrology is divided by its Profeſſors and Students (as they are pleaſed to call themſelves) into two Branches, *Natural* and *Judiciary*.

Goad has compoſed two Volumes of the former, wherein he pretends, that Inundations may be foretold, and an Infinity of *Phænomena* explained, from the Contemplation of the Stars. Accordingly he endeavours to account for the Diverſity of Seaſons, from the different Situations and Habitudes of the Planets; from their retrograde Motions; the Number of fixed Stars in the Conſtellations, *&c.* This Kind of *Aſtrologers* pretend, that the Deluge was owing to a Conjunction of all the *Planets* in *Capricorn*; and that the *Conflagration* will be occaſioned by their Conjunction in *Cancer*.

Mr. *Boyle* endeavours to juſtify this Sort of *Aſtrology*, in his Hiſtory of the Air; and having preſuppoſed *Generation* and *Corruption* to be the Extremes of Motion, *Rarefaction* and *Condenſation*, the mean ones, he proceeds to ſhew, that the Effluvia of the heavenly Bodies, as we find them immediately to contribute to the latter, muſt alſo have a mediate Influence on the former; and conſequently all phyſical Bodies be affected thereby.

MEAD *de imperio Solis*, *& Lunæ*, &c. pretends, that it is evident that the Properties of Moiſture, Heat, Cold, *&c.* employed by Nature to produce the two great Effects of Rarefaction and Condenſation, almoſt wholly depend on the Courſe, Motion, Poſition, *&c.* of the heavenly Bodies. And that it is alſo clear, that every Planet muſt have its own proper Light, diſtinct from that of any other; Light being not a bare viſible Quality, but endued with its ſpecifick Power. That we know that the Sun not only ſhines on all the Planets, but by its genial Warmth calls forth, excites, and raiſes the Motions, Properties, *&c.* peculiar to them; and its Rays muſt ſhare or receive ſomewhat of the Tincture thereof; and thus tinged, be again reflected into the other Parts of the World, and particularly the adjacent Bodies of the planetary Syſtem. Whence according to the Angle the Planets make with that grand Luminary, and the Degree wherein they are enlightened, either by its direct or oblique Rays; together with their Diſtance or Situation, in Reſpect of our Earth; the Powers, Effects or Tinctures proper to each, muſt be tranſmitted hitherto, and have a greater or leſs Effect on ſublunary Things.

This Opinion (which I ſee diveſted of thoſe Principles it ſhould be founded upon, to demonſtrate thoſe Virtues or Qualities aſſigned to the heavenly Bodies) is refuted by ſome of the moſt eminent modern Philoſophers.

Rohault's Tract. Phiſic. Par. 2. *c.* 27. having preſuppoſed that it is impoſſible to revoke in Doubt the Influences of the Sun on all ſublunary Things, and conſidered it as the ſole and primary Cauſe of all the Effects which appear here on Earth, ſince if the Plants grow,

grow, if the Harvest ripens, and the Fruits are brought to Maturity, all that must be attributed to the Light, or rather Heat of the *Sun*, divest the other *Planets* of all those Powers, Effects and Influences attributed to them by *Astrologers*, or their Partizans, unless it be those which proceed from their Light, in which he confesses to be a Virtue or Power, to move the smallest Filaments of the optick Nerves; and as he supposes, at the same Time, that there are, in the *Air*, in the *Water*, and in the *Earth*, Particles as subtle and as easy to be moved as those Filaments: He agrees that in such Case, those Particles can be said to be influenced by the other Planets, as well as when the same unperceptible Particles, by agitating a more palpable Matter, produces some apparent Effects; but at the same Time, as the Light of the Sun is infinitely greater than that of all the other *Planets* joined together, he will also have all Effects they are supposed to produce, attributed to it as to their first Principle and principal Cause; so that if we perceive some Changes in the Constitution of the Air, though the *Sun* dart his Rays on the Earth in its accustomed Manner, those Changes proceed rather from the present Dispositions of the Air or Earth, than from the different Aspect or Position of the other *Planets*.

This Author is even of Opinion, that this was the real and true Sentiment of the antient Philosophers, pretending that what could have infatuated the *Egyptians* with the extravagant Belief of the Influences of the Stars, is, that their Astronomers having distinguished the different Days of their solar Year, by the different fixed Stars, which were seen to rise at the Declension of the *Sun* (at which Time they used to inform the People of the difference of the Seasons, and of the Weather that was to accompany each Season, that they might act accordingly, with Regard to the Culture of the Earth) the Vulgar concluded from thence, that some of the Stars were humid of their Nature, and brought Rain; others dry, and created Drought; that these were calculated for the Production of Plants, and these influenced the animal World. But that when they perceived by a long Experience, that the Temperature of the Air was not the same every Year, though the same fixed Stars rose every Year, always in the same Place; and on the contrary the Planets had a *loco Motion*, they, at last, divested the fixed Stars, of those Influences, they had for so long a Series of Years enriched them with, to bestow them on the Planets.

The human Mind thus infatuated of the Power and Efficacy of the Planets, *Astronomers* have since attempted to discover, by what they call *Astronomical Calculus*, the Position of the Planets in future Ages, whereby they pretend to foretel Rains, the Serenity of the Air, the Winds, Thunder, Tempests, Plenty, Sterility, Plague, Wars, and the like; though we have annually several Instances of their gross Mistakes on that Particular only; while at the same Time they pretend that the Infallibility of their Principles, and the Exactitude of their *Calculus* is founded and confirmed by Experience; when on the contrary, they are so little capable of making so great a Number of Observations on the Constitution of the heavenly Bodies, that it is impossible they could make twice the same Observation, but within the Interval of several thousand Years, since the Constitution of the Heaven, which is to be to Morrow, has not been seen yet since the Creation of the World.

Add to this, that if even *Astrologers* could observe what is to happen in future Ages, under certain Positions of the heavenly Bodies, that would be of no Service or Utility, but to those who inhabit those Countries where those Observations are made, since it is evident, that what happens under one Hemisphere, or even in one Climate, is not universal, and does not affect equally the whole Superficies of the Earth, for it often rains for the greatest Part of the Year in one Country, while in another, they complain of a too great Siccity.

Nothing, for Example, is more vain and ridiculous, than what the greatest Part of the *Europeans* have fancied of the Star called *Canicule*, which they imagine hot of its Nature, which is their Reason for calling the Time when that Star appears with the *Sun*, *Caniculary* or *Dog Days*, because, perhaps, being at that Time in the Sign of the Lyon, it is not a great Distance from the *Canicule*, if so, the Heat must proceed from the Sun, not from the *Canicule*; therefore *Gassendi*, lib 6. sect. 2. c. 1. *de siderum effectibus*, very judiciously observes, that the *Canicule* being placed beyond the *Equator*, with Respect to us, and passing over the Zenith of the meridional Parts of the Earth, at the same Time it appears to us to arise with the *Sun*, the Inhabitants of those Parts feeling a violent Cold, at the same Time we are scorched with the most extreme Heat of the Summer Season, could with a greater Appearance of Reason, suppose that Star of an extremely cold Nature; therefore we conclude, that there is no depending on the Calculations and Suppositions of a natural *Astrology*, and all the Predictions of *Astrologers*, as to the Vicissitude and Changes of the Seasons, and the various *Phænomena* happening therein, are frivolous and uncertain; for if it happens that some of them hit right, it is only by mere Chance or Accident, in which the most ignorant, could often succeed as well as the greatest *Astrologer*; which Sentiment can easily be supported by what happened to *Lewis* XI, King of *France*, who going a hunting (having first asked his *Astrologer* what Weather he should have that Day) happened to meet upon the Road with the *Hut* of a Coal-man, which the King entered, and his Majesty being told by him that it was a going to rain, as it really did a few Hours after, contrary to the *Astrologer*'s Opinion, who had foretold fair Weather; the King dismissed the *Astrologer* and put the Coal-man in his Place: since this Man, by the halting of his Ass, severely bit by the Flies at the Approach of Rain, could with a greater Certainty foretel a Tempest, than the *Astrologer* by the Rules of his Art.

But nothing of this Kind has more flattered the criminal Curiosity of Mankind, than what they are pleased to call *Judiciary*, or JUDICIAL ASTROLOGY, which is that which pretends to foretel moral Events; that is to say, such as have a Dependance on the Free-will and Agency of Man; as if it were directed by the Stars.

The Professors hereof maintain, 'That the Heavens are one great Volume or Book, wherein God 'has wrote the History of the World; and in which 'every Man may read his own Fortune, and the 'Transactions of his Time. The Art, say they, 'had its Rise from the same Hands as *Astronomy* itself: 'while the antient *Assyrians*, whose serene unclouded Sky favoured their celestial Observations, 'were intent on tracing the Paths and Periods of 'the heavenly Bodies; they discovered a constant 'settled Relation or Analogy between them and 'Things below; and hence were led to conclude 'these to be the *Parcæ*, the *Destinies*, so much talk'd of, which preside at our Births, and dispose of our 'future State.'

This is the advantagious Opinion *Astrologers* have of that scandalous, vain, sacrilegious and pretended Art, *Judicial Astrology*, which had its Origin from the Ignorance and too great Credulity of the Vulgar, and from the Avarice, Craft and Fraud of Thieves and Knaves, against whose Superchery, *Horace* himself cautions us, *Lib.* 1. *Ode* XI.

——————— *nec Babylonios*
Tentaris numeros.

i. e. Do not consult the *Calculus* Tables or *Ephemerides*, used by *Astrologers*.

The chief Foundation of *Judicial Astrology*, is the Erection of a *Theme*, at the Time given for the Moment of the Birth of a Person, whereby *Astrologers* pretend to discover what Star presided at that Birth, that

that is to ſay, in what Part of our Hemiſphere that Star was placed, when ſuch Perſon came into the World. This Erection of their *Theme*, they pretend to perform with the Aſſiſtance of the *Celeſtial Globe*, or of the *Planiſphere*, with Regard to the *fixed Stars*; but as to the Planets, they do it with *Aſtronomical Tables*, or *Ephemerides*. To accompliſh which, they have Recourſe to a *Semi-circle*, which they call *Poſition*, by which they repreſent the ſix great Circles paſſing thro' the Interſection of the *Meridian* and *Horizon*, and dividing the *Equator* into twelve equal Parts. The Spaces included between theſe Circles, are what they call the twelve Houſes, and which they refer to the twelve Triangles marked in their *Theme*, placing ſix of thoſe Houſes above the *Horizon*, and ſix underneath the *Horizon*.

The firſt of the *Houſes* under the *Horizon* toward the Eaſt, they call the *Horoſcope*, or *Houſe of Life*; the ſecond, the *Houſe of Wealth*; the third, the *Houſe of Brothers*; the fourth, the *Houſe of Parents*, &c. as is clearly explained in the two following Verſes.

Vita, lucrum, fratres, genitor, natique, valetud',
Uxor, mors, pietas, & munia, amici, inimici.

Thus turned into *Engliſh* Meter by ſome *Students in Aſtrology*,

The firſt Houſe ſhews Life, the ſecond Wealth doth give;
The third how Brethren, fourth how Parents live;
Iſſue the fifth; the ſixth Diſeaſes bring;
The ſeventh Wedlock, and the eighth Death's Sting;
The ninth Religion; the tenth Honour ſhews;
Friendſhip the eleventh, and the twelfth our Woes.

The *Aſtrologers* draw their Table of the *twelve Houſes*, into a triple *Quadrangle* prepared for the Purpoſe, of which there are four principal Angles, two of which fall equally upon the *Horizon*, the other upon the *Meridian*, which Angles are ſubdivided into twelve Triangles for the twelve Houſes, and in thoſe Houſes they place the twelve Signs of the *Zodiack*, attributing to each of them their particular Quality, *viz.*

ARIES, denoted by this Figure, ♈, is in their extravagant Opinion, a maſculine, diurnal, cardinal, equinoctial, eaſterly Sign, hot and dry, the Day-houſe of *Mars*.

TAURUS, ♉, is a feminine, nocturnal, melancholy, beſtial, furious Sign, cold and dry.

GEMINI, ♊, is a maſculine Sign, hot and moiſt, diurnal, aerial, human, double bodied, *&c.*

CANCER, ♋, is a feminine, nocturnal, phlegmatick Sign, by Nature cold and moiſt, the only Houſe of *Luna*.

LEO, ♌, is a Sign, maſculine, diurnal, beſtial, cholerick and barren; a commanding, kingly Sign, hot and dry, the only Houſe of the *Sun*.

VIRGO, ♍, is a feminine, nocturnal, melancholy, and barren Sign.

LIBRA, ♎, is a Sign maſculine, cardinal, equinoctial, diurnal, ſanguine and human, hot and moiſt.

SCORPIO, ♏, is a feminine, nocturnal, cold and phlegmetick nothern Sign.

SAGITTARIUS, ♐, is a Sign, maſculine, cholerick and diurnal, by Nature hot and dry.

CAPRICORN, ♑, is a feminine, nocturnal, melancholy, ſolſtitial, moveable, cardinal and ſouthern Sign.

AQUARIUS, ♒, is a maſculine, diurnal, fixed ſanguine, and human Sign.

PISCES, ♓, is a feminine, nocturnal, phlegmatick, northerly, Double-bodied Sign, the laſt of the twelve.

Having thus houſed their Signs, and directed them in their Operations, they afterwards come to enquire of their Tenants, what Planet, and fixed Star they have for Lodgers, at the Moment of the Nativity of ſuch Perſon, from whence they draw infallible Concluſions (if one's Fool enough to believe them) with Regard to the future Incidents of that Perſon's Life. For Example, if at the Time of that Perſon's Nativity they find *Mercury* in 27 Degrees, 52 Minutes of *Aquarius*, and in the *ſextile Aſpect* of the *Horoſcope*; they foretel that Infant will be a Perſon of great Sagacity, Genius and Underſtanding, and therefore capable to learn the moſt ſublime Sciences, tho' perhaps at the very Time, the Accompliſhment of ſuch Prediction ſhould happen, he'll be accounted the greateſt Blockhead of his Time.

Aſtrologers imagine alſo, for the ſame ridiculous Purpoſe, to be in the ſame Houſes, different Poſitions of the Signs and Planets, and from their different Aſpects, Oppoſition and Conjunction, and according to the Rules and Axioma's they have preſcribed to themſelves, and invented, have the ſacrilegious Preſumption to judge, *in dernier reſort*, of the Fate of Mankind, though their pretended Art or Science is quite ſterile or barren in Proofs and Demonſtrations. For if they are aſked why they have divided the Heavens into twelve Houſes, rather than into a leſs or greater Number? Why the firſt muſt be rather a Houſe of *Life* than of *Death*? Why the ſecond a Houſe of *Wealth*, not of *Poverty*, &c. They'll give none but fictitious, vain, frivolous, chimerical and ſcandalous Anſwers, and none to the Purpoſe.

Moreover, not yet ſatisfied with this chimerical Partition of the Heaven into twelve Parts, they have Recourſe to other Methods, equally contrary to Experience and Reaſon, to direct the Signs of the *Zodiack*, and make them act according to their ridiculous Fancy. 1. They call ſome of thoſe Signs *Vernal*, or of the Spring, as *Aries*, *Taurus*, *Gemini*; ſome *Æſtival*, or of the Summer, as *Cancer*, *Leo*, *Virgo*. 2. Others are called by them *Cardinal*, as beginning the Seaſons, ſuch are *Aries*, *Cancer*, *Libra*, and *Capricorn*; others fixed, which have the Direction of the Middle of the Seaſons. 3. If we are Fools enough to believe thoſe Impoſtors, ſome of thoſe Signs are human; as *Gemini* and *Virgo*; ſome are wild, voracious, Beaſts of Prey, as *Aries* and *Taurus*. 4. Some have an enchanting Voice, and in all Appearance have preſided at the Birth of *Seneſino*, *Farinelli*, &c. and theſe are *Gemini* and *Virgo*; though they had done better, to place *Gemini* ſomewhere elſe, ſince ſuch delicate Voices as thoſe here mentioned, do not admit of *Copulation*; others have no Voice at all, as *Piſces*. 5. Some, as we have already obſerved, are maſculine and diurnal, as *Aries*; ſome feminine and nocturnal, as *Taurus*; though for my Part I could never diſcover any Sign of Muliebrity in a *Taurus*; but I ſuppoſe that *Aſtrologers* mean thereby, that *Taurus* has a very great Influence upon the fair Sex, eſpecially in the Night. 6. Some are prolifick, fruitful, as *Piſces*; though begging thoſe *honeſt Gentlemen*'s Pardon, ſuch Excellence had been far better appropriated to *Taurus*; others barren, as *Virgo*, which by that I ſuppoſe to be a very old Maid; others hot, others cold, handſome, ugly, fat, lean; ſome govern certain Countries and Cities, as *Aries*, *England*, *France*, *Germany*, *Sileſia*, *Poland*, *Denmark*, *Burgundy*, *Syria*, &c. *Ancona*, *Capua*, *Naples*, *Ferrara*, *Florence*, *Verona*, *Marſeilles*, &c. *Taurus*, *Ruſſia*, *Swedeland*, *Lorain*, *Switzerland*, *Perſia*, *Zeland*, *Cyprus*, &c. Therefore we ought not to be ſurprized if ſome of our beſt Stallions come out of ſome of thoſe Countries. And thus all the reſt of the *Signs*.

The PLANETS have allowed them, every one, except *Sol* and *Luna*, two Signs for their Houſes; to SATURN, the *Capricorn* and *Aquarius*; to JUPITER, *Sagittarius* and *Piſces*; to MARS, *Aries* and *Scorpio*; to SOL, *Leo*; to VENUS, *Taurus* and *Libra*; to MERCURY, *Gemini* and *Virgo*; and to LUNA, *Cancer*.

The *Planets* by their continual Mutation through the twelve *Signs*, make ſeveral Angles or Aſpects, the moſt forcible of which are theſe five.

& *Conjunction*,

☌ *Conjunction*, △ *Trine*, □ *Quadrate*, ✱ *Sextile*, ☍ *Opposition*.

A Conjunction is when two *Planets* are in one and the same Degree and Minute of a Sign; and this is, say our Jugglers, either good or bad, as the *Planets* are either Friends or Enemies.

A Trine is when any two *Planets* are four Signs, or 120 Degrees distant, as *Mars* is in 12 Degrees of *Aries*, and *Sol* in 12 Degrees of *Leo*. Here *Sol* and *Mars* are said to be in Trine Aspect. And this is an Aspect of perfect Love and Friendship; by which I understand that Friendship in the Zodiack, as here upon Earth, is always greater and more perfect, when Friends are at some Distance from one another.

A Quadrate *Aspect* is when two *Planets* are three Signs, or 90 Degrees distant, as *Mars* in 10 Degrees of *Taurus*, and *Venus* in 10 Degrees of *Leo*. This particular Aspect is of imperfect Enmity, and *Astrologers* say, that Persons signified thereby, may have Jars at some Time, but such as may be reconciled again.

A Sextile *Aspect* is when two *Planets* are two Signs, or 60 Degrees distant, as *Jupiter*, in 15 Degrees of *Aries*; and *Saturn*, in 15 Degrees of *Gemini*; here *Jupiter* is in a *Sextile* Aspect to *Saturn*. This is an Aspect of Friendship.

An Opposition, is when two *Planets* are diametrically opposite, which is, when they are six Signs, or 180 Degrees (which is one Half of the Circle) asunder and this is an Aspect of perfect Hatred.

A Partile *Aspect*, is when two *Planets* are in a perfect Aspect to the very same Degree and Minute.

Dexter *Aspects*, are those which are contrary to the Succession of Signs, as a *Planet* in *Aries* casts its *sextile Dexter* to *Aquarius*.

Sinister *Aspect* is with the Succession of Signs, as a *Planet* in *Aries* casts its *sextile Sinister* in *Gemini*.

Astrologers play a great many other diverting Tricks, or *Tours de Passe Passe*, with the *Planets*, for they cannot let those celestial Bodies stay long in the same Lodging. They must be always on the moving Strain; therefore there are Application, Prohibition, Separation, Translation, Refrenation, Combustion, Exception, Retrogradation, and what not, of *Planets*.

The Application of *Planets* is performed by them, three Ways. 1. When a light *Planet* being direct and swift in Motion, applies to a *Planet* more ponderous, and slow in Motion, as *Mercury* in 8 Degrees of *Aries*, and *Jupiter* in 12 Degrees of *Gemini*, and both direct; here *Mercury* applies to a *Sextile* of *Jupiter*, by direct *Application*. 2. When they are both retrograde, as *Mercury* in 20 Degrees of *Aries*, and *Jupiter* in 15 Degrees of *Gemini*; here *Mercury*, the lighter *Planet*, applies to the *sextile Aspect* of *Jupiter*; and this is by *Retrogradation*. 3. When one of the *Planets* are direct, and the other retrogade; as suppose *Mercury* were retrogade in 18 Degrees of *Aries*, and *Jupiter* direct in 14 Degrees of *Gemini*; here *Mercury* applies to a *Sextile* of *Jupiter*, by a retrograde Motion.

Prohibition, is when two *Planets* are applying either by Body or Aspect; and before they come to their *partile* Aspect, another *Planet* meets with the Aspect of the former, and so prohibits it.

Separation, is when two *Planets* have been lately in *Conjunction*, or *Aspect*, and are separated from it.

Translation of Light and Virtue, is when a lighter *Planet* separates from the Body or Aspect of a more weighty one, and immediately applies to another superior *Planet*, and so translates the Light and Virtue of the first *Planet* to that which it applies to.

Refrenation, is when a *Planet* is applied to the Body or Aspect of another; and before it comes to it, falls retrograde, and so refrains by its retrograde Motion.

Combustion. A *Planet* is said to be combust of *Sol*, when it is within 8 Degrees 30 Minutes of his Body, either before or after their Conjunction; but *Astrologers* complain, that a Planet is more afflicted when it is applying to the Body of *Sol*, than when it is separating from *Combustion*.

Reception, is when two Planets are in each others Dignities, and it may be either by House, Exaltation, Triplicity, or Term.

Retrogradation, is when a Planet moves backward from 20 Degrees to 9, 8, 7, and so out of *Taurus* into *Aries*.

Frustration is when a swift Planet applies to the Body or Aspect of a superior Planet; and before it comes to it, the superior Planet meets with the Body or Aspect of some other Planet.

To the seven *Planets*, viz. *Saturn*, *Jupiter*, *Mars*, *Sol*, *Venus*, *Mercury* and *Luna*, *Astrologers* add two certain Nodes or Points, called the *Dragon's-Head*, distinguished by this *Sign* ☊, and the *Dragon's-Tail* by this other ☋. In those two Extremities of the Beast, our Students in *Astrology* place such Virtues, that they can draw from thence Wealth, Honours, Preferments, *&c.* enough to flatter the Avarice, Ambition, Vanity, *&c.* of the Fools who follow them, or to affright them, not out of their Wits, for it cannot be supposed that they have the least Tincture of it, but of their Money, in order to render the Aspect more favourable, in Case the *Dragon* was to shew his Teeth or cock up his Tail.

The strongest Arguments employed by *Astrologers* to support their Principles, and defend their Doctrine, are Experience, and the Authority of Historians, who have witnessed the Truth of an infinite Number of Predictions by the Event. As *Spurina* having bid *Julius Cæsar* to beware the Ides of *March*, on which he was stabb'd in the Capitol; and *Socrates* foretold the Death of *Crito*. *Calanus*, an *Indian*, cautioned *Alexander* against entring *Babylon*, lest he should die there, and *Sulla* forewarned *Caligula* of his Death. The *Astrologer* to *Frederick* II. Emperor of *Germany*, having foretold his Master that he should be succeeded in the Empire by *Rodolphus* of *Hapsbourg* (though the Emperor had at that Time ten Sons alive) which happened accordingly, *Rodolphus* having been elected King of the *Romans* by the *Germans* in 1273 *Regiomontanus*, having pointed out in 1475 all the great Changes, Revolutions, and remarkable Incidents which happened, especially in *France*, in 1588; as the Barricado of *Paris*; the King's Flight from thence; the Slaughter of the Duke *de Guise*, and of his Brother, the Cardinal, at *Blois*; the Death of the Queen-mother; the Poisoning of the Prince of *Conti*; the Overthrow of the Duke of *Mercœur* by the King of *Navarre*. The Defeat of the *Turks* in *Hungary*; and the *Spanish Armada* designed against *England* dispersed at Sea by the Tempest. *Michael Nostradamus*, of St. *Remi* in *France*, having foretold, in his Book of Centuries, printed in *French*, in 1555, the Martyrdom of King *Charles* I. in *England*, and also the Fire of *London* in 1666, although 100 Years after *Nostradamus*'s Death; and many other Things passed and yet to come.

To this, I answer, 1. That the Credit, or Authority of an Historian, let him be ever so impartial and so faithful, is not of such Weight, and so infallible as not to be mistaken in several Circumstances and Incidents, giving us often Things for Facts, which have never been in Being. 2. Since they are as often deceived by the Memoirs, and Relations from which they compile their Histories, as they deceive us. We must know by Experience, that Historians are sometimes obliged to supply the Deficiency of their Memoirs, and to fill the Vacancies of their Histories with publick Reports, which are almost always partial or false, and even sometimes without the least Foundation; and when they have any, 'tis often nothing else but Suppositions and Conjectures; and without being obliged to go further than our own Times, and our own Country, for Proofs to confirm what I advance here, are we not daily entertained with Incidents, which had never any other Existence, but in a common Report, contradicted the next Day by another

common Report, both Reports being a few Days after destroyed by the real Truth. How often our daily and weekly Historians entertain us with every Circumstance of the Death of Persons, even of their Neighbours, who at that very Time are alive and in perfect Health; and if those Historians can be so grossly imposed upon by a publick Report, and can so grossly impose upon us, by neglecting to be better informed of such Incidents before they give them to us as Fact; could not those pretended Predictions, alledged by *Astrologers* to support their Principles, and which the Historians of those Times have transmitted to us as Facts, have been as many Romances, imposed on them by the Report of the Vulgar? I'll agree with them, if they please, that *Julius Cæsar* was forewarned of his unhappy Catastrophe, by *Spurina*, which *Spurina* could have done, without being a *Conjuror*, or an *Astrologer*; for the following Reasons. 1. He knew very well that *Julius Cæsar*, by usurping a supreme Authority, and by his endeavouring to enslave the *Roman* Liberty, contrary to the fundamental Laws of the Republick, had revolted the most considerable Part of the Senate against him; and that the *Romans*, not accustomed to that insupportable Yoke *Cæsar* was bringing them under, would use all the Means imaginable, and lay hold of the first Opportunity to shake it off. 2. *Spurina* could be well enough acquainted with the Humours, Inclinations, Firmness, Resolution, and Courage of the Senators, who oppos'd *Cæsar*'s Usurpation, as to know them capable of undertaking any Thing, so far as to sacrifice their own Lives to the *Roman* Liberty, and so enterprising as to concert Measures, even the most desperate, to break their Chains. 3. *Spurina* was perhaps privy to the Conspiracy formed against *Cæsar*, and to the Manner it was to be put in Execution, but as he was not willing to expose the Conspirators to *Cæsar*'s Resentment, and would, at the same Time, save *Cæsar*'s Life, whom he knew worthy of the Empire, and if the *Romans* must be enslaved, it could not be done by a more deserving Master, and more capable to command them, he advised *Cæsar* to take Care of himself, only as a Friend. 4. That knowing that nothing could be undertaken against the Emperor's Person, while at the Head of his Armies, or amidst his Friends, the Senate, where he came always accompanied but with very few of them, was the properest Place for that Purpose. 5. Even the Circumstance of the *Ides* of *March*, the only one that gives to *Spurina*'s Advice an Air of *Prediction*, could be added to it without the Intervention of *Astrology*; since we have all the Reason to suppose, that it was publickly known at *Rome*, that *Julius Cæsar* had fixed that Day for his being present at that August Assembly, where Affairs of the greatest Consequence were to be debated, the same as we often know here, when our Kings are to go to their Parliament; therefore this pretended Prediction proves nothing in Favour of judicial *Astrology*; neither do the Historians of those Times inform us that *Spurina* was an *Astrologer*, or knew *Julius Cæsar*'s future Catastrophe, with the Assistance of the *Planets*. The same might be said of *Sulla* forewarning *Caligula* of his Death, since any Body else, without being a Conjurer, who knew the Humour of the *Romans*, could have concluded from that Emperor's ill Conduct, and his insulting Manner of treating the Senate, that he run the Risque of an untimely Death. As to *Regiomontanus* and *Nostradamus*'s Predictions, they were conceived in such obscure and unintelligible Terms, that they have never been understood but after the Event, and even then but by a Supposition that they meant such a Thing.

2. Let it be even admitted, that among a World of the *Astrologers* Predictions they have sometimes happened to hit the Truth, that's rather to be attributed to a pure Hazard than to the Certainty of their Rules; according to this Observation of *Phavorius*, *in Aul. Gell. Lib.* 14. *Nat. Attic. c.* 1. *Ista omnia quæ aut temerè, aut astutè vera dicunt, præ cæteris quæ mentiuntur, non sunt Pars Millesima.* Besides, *Astrologers* have often, even according to the best Rules of their Art, foretold a different Fate, from the same Position of Heaven, and the same Fate from a different Position, as is evident from the two *Horoscopes* of *Luther*, (mentioned by *Gassendi*, *Sect.* 2. *Phys. Lib.* 6. *c. ult.*) in which *Cardanus* and *Gauricus*, two famous *Astrologers*, and strenuous Asserters of the Principles of *Astrology*, have found the same Fate, though in a different Position of Heaven, and with the Difference of a Year. What could *Astrologers* say of *Esau* and *Jacob*, who though born at the same Time, had, nevertheless, so different a Fate? Was the same *Horoscope* drawn for all those who were put to the Sword in the Battle of *Marathon*? Or for those in different Countries, and at different Times, met together in the same Ship, and are altogether lost in a Naufrage? An Objection, which St. *Augustin*, *Lib.* 7. *Confess. c.* 6. assures us could never be solved, by *Astrologers*. *Cardanus* himself, was so conscious of the Fallacy and Incertitude of his Principles, that having foretold his Death, and afraid he should be mistaken in his *Ephemerides*, starved himself to Death to save his Reputation, and died at *Rome* in 1576.

Tullius himself, during the darkest Clouds, and greatest Obscurity of Paganism, while Religion itself seemed to countenance *Astrology*, inveighs severely against it. *Quam multa*, says he, *Lib.* 2. *de Divinat. ego Pompeio quam multa Crasso, quam multa huic ipsi Cæsari a Chaldæis dicta memini, Neminem eorum nisi Senectute, nisi Domi, nisi cum Claritate esse moriturum? Ut mihi per Mirum videatur quemquam extare, qui etiam nunc Credatis, quorum prædicta quotidie videat Re & Eventis refelli. i. e.* I so well remember the *Chaldæans* Predictions to *Pompey*, to *Crassus*, and to this same *Cæsar*, that none of them should die, but full of Years and Glory, and in his House, that I am surprized, that there are yet some Persons capable to believe those, whose Predictions are every Day contradicted and refuted by the Event.

We must not forget here those vain, ridiculous, and insignificant Figures, invented by the *Chaldæans*, *Persians*, *Ægyptians*, and *Arabs*, called in the *Arabic* Language *Talismans*; which are the Seal, Figure, Character or Image of a heavenly Sign, Constellation or Planet, engraven on a Sympathetick Stone, or on a Metal, corresponding to the Star, *&c.* in order to receive its Influences; and to which *Astrologers* attribute some ridiculous, marvellous Effects; as those of curing Distempers, of rendering Persons invulnerable, *&c.* so that a Figure of Lead, called *Saturn* by the Alchymists, made a *Saturday*, called also the Day of *Saturn*, and imprinted with the Character of *Saturn*, being tied to the Neck of a Person who has the Plague, which, say they, is a Saturnian Distemper, will effectually cure him.

The TALISMANS of the *Samothracians*, so famous of old, were Pieces of Iron formed into certain Images, and set in Rings, *&c.* They were held Preservatives against all Kinds of Evils. There were other *Talismans* taken from Vegetables, and others from Minerals.

In the general we use to distinguish three Kinds of *Talismans*: *Astronomical*, which are known by the Signs or Constellations of the Heavens engraven thereon, with other Figures, and some unintelligible Characters. *Magical*, which bear very extraordinary Figures, with superstitious Words, and Names of Angels unheard of. And *Mixt*, which consist of Signs and barbarous Words, but have no superstitious ones, or Names of Angels.

Some *Rabbins* maintain, that the Brazen Serpent, raised by *Moses* in the Wilderness, was a *Talisman*; and thereby have the sacrilegious Presumption to debase that into a scandalous, vain, and criminal Invention, which was a Miracle of the Divine Providence.

All the miraculous Things wrought by *Apollonius Tyaneus*, are attributed to the Virtue and Influence of *Talismans*; and he is even said to have been the Inventor of *Talismans*.

Astrologers have also made use of all their best Artifices,

fices, and employed all the Rules of their pretended Art, to render those Years of our Age, which they call *Climactericks*, dangerous and formidable.

CLIMACTERICK, from the *Greek*, κλιμακτηρ, *q. d.* by a Scale or Ladder, is a critical Year, or a Period in a Man's Age, wherein, according to those Jugglers, there is some notable Alteration to arise in the Body; and a Person stands in great Danger of Death.

The first *Climacterick*, say they, is the seventh Year of a Man's Life; the rest are Multiples of the first, as 21, 49, 56, 63, and 84; which two last are called the *Grand Climactericks*, and the Dangers here supposed more imminent.

Marc Ficinus gives us the Foundation of this Opinion: He tells us there is a Year assigned for each *Planet* to rule over the Body of Man, each in his Turn; now *Saturn* being the most maleficent *Planet* of all, every seventh Year, which falls to its Lot, becomes very dangerous; especially those of 63 and 84, when the Person is already advanced in Years.

Some hold, according to this Doctrine, every seventh Year an established *Climacterick*; but others only allow the Title to those produced by the Multiplication of the climacterical Space by an odd Number, 3, 5, 7, 9, *&c.* Others observe every ninth Year as a *Climacterick*.

Hevelius has a Volume under the Title of *Annus Climactericus*, describing the Loss he sustained in the Burning of his Observatory, *&c.* which it seems happened in his first *Grand Climacterick*. *Suetonius* says, *Augustus* congratulated his Nephew upon his having passed his first *Grand Climacterick*, whereof he was very apprehensive.

Some pretend that the *Climacterick* Years are also fatal to political Bodies; which perhaps may be granted, when it is proved that they are so to natural ones; for I must confess that I cannot discover the Reason of such Danger, nor what Relation it can have with the Numbers above-mentioned. Though this Opinion has a great deal of Antiquity on its Side. *Aulus Gellius* says, it was borrowed from the *Chaldeans*, who might probably receive it from *Pythagoras*, whose Philosophy turned much on Numbers, and who imagined an extraordinary Virtue in the Number 7.

Authors on the Subject, are *Plato*, *Cicero*, *Macrobius*, *Aulus Gellius*, among the Antients; *Argol*, *Magirus*, and *Salmatius* under the Moderns. St. *Augustin*, St. *Ambrose*, *Beda*, and *Boetius* countenance the Opinion.

Astrologers have also brought under their Inspection the Days of the Years which they have the Presumption to divide into lucky and unlucky Days, calling even the sacred Text, and the common Belief of Christians, in former Ages, to their Assistance on this Occasion. They pretend that the fourteenth Day of the first Month was a blessed Day among the *Israelites*, authorised therein, as they pretend, by the several Passages out of *Exod.* xii. 18, 40, 41, 42, 51. *Levit.* xxiii. 5. *Numb.* xxviii. 16. *Four hundred and thirty Years being expired of their dwelling in* Egypt, *even in the self same Day departed they thence.*

As to evil Days, and Times they refer to *Amos* 5. 13, *and* 6. 3. *Eccles.* 9. 12. *Psal.* 37. 19. *Obad.* 12. *Jer.* 46. 21.—and to *Job* cursing his Birth Day, *Chap.* 3. *v.* 1 to 11. In Confirmation thereof, they also quote a Calendar, which they pretend to have extracted out of several Manuscript Roman Catholick Prayer Books, written upon Vellum before the Invention of Printing, wherein were inserted the unfortunate Days of each Month, as in the following Verses.

JANUARY. *Prima dies mensis, & septima truncat ut Ensis.*
FEBRUARY. *Quarta subit mortem, prosternit tertia Fortem.*
MARCH. *Primus mandentem, disrumpit quarta bibentem.*
APRIL. *Denus & undenus est mortis vulnere plenus.*
MAY. *Tertius occidit, & septimus ora relidit.*
JUNE. *Denus pallescit, quindenus fœdera nescit.*
JULY. *Ter denus mactat, Julii denus labefactat.*
AUGUST. *Prima necat fortem, perditque secunda Cohortem.*
SEPTEMBER. *Tertia Septembris, & denus fert mala membris.*
OCTOBER. *Tertius & denus, est sicut mors alienus.*
NOVEMBER. *Scorpius est quintus, & tertius est vita tinctus.*
DECEMBER. *Septimus exanguis, virosus denus ut Anguis.*

This Poetry tastes much of the Rusticity and Ignorance of those Times, and is a convincing Proof that Christianity had yet a very strong Tincture of the Pagan Superstitions, which the Purity of the Gospel has not been capable yet to blot out among us.

That such ridiculous Notion of lucky and unlucky Days, owes its Origin to a Pagan Superstition, may be proved from the *Roman* Historians, who mention that that very Day four Years, the *Civil Wars* were begun by *Pompey* the Father; *Cæsar* made an End of them with his Sons, *Cneius Pompeius* being then slain; and that the *Romans* accounted *February* the 13th an unlucky Day, because on that Day they were overthrown by the *Gauls* at *Allia*, and the *Fabii* attacking the City of the *Recii*, were all slain save one. From the Kalendar of *Ovid's Fastorum*. *Aprilis erat Mensis Græcis Auspicatissimus*; and from *Horace*, *Lib.* 2. *Ode* 13. Cursing the Tree that had like to have fallen upon him.

Ille ne fasto te posuit Die.

What has contributed much to confirm the Pagans as well as the Christians in their Opinion on that Subject, are the several remarkable Events happened at some particular Days. As *Alexander the Great*, being born the 6th of *April*, having conquered *Darius*, and died the same Day. The Emperor *Bassianus Caracalla*, being born the 6th of *April*, and died the same Day. *Augustus* having been adopted the 19th of *August*, began his *Consulate*, conquered the *Triumviri*, and died the same Day.

As for the Christians they have observed that the 24th of *February* was four Times fortunate to *Charles* V. Emperor. That *Wednesday* was a fortunate Day to Pope *Sextus* V. for on a *Wednesday* he was born; on that Day made Monk; on the same Day made General of his Order; on that Day created Cardinal; on that Day elected Pope; and also on that Day inaugurated. That *Thursday* was a fatal Day to *Henry* VIII. King of *England*, and his Posterity, for he died on *Thursday*; King *Edward* VI. on *Thursday*; Queen *Mary* on *Thursday*; and Queen *Elizabeth* on *Thursday*. The *French* have observed that the Feast of Pentecost had been lucky to *Henry* III. King of *France*, for on that Day he was born; on that Day elected King of *Poland*, and on that Day he succeeded his Brother *Charles* IX. on the Throne of *France*.

Since I have mentioned *Henry* III. I cannot help taking Notice here, that *Judicial Astrology* has never been more in Vogue than it was in *France*, successively under the Reigns of the three Brothers, *Francis* II, *Charles* IX, and *Henry* III; through the great Encouragement *Astrologers*, Fortunetellers, and other such Impostors met with, from the Queen-Mother, *Catherine* of *Medicis*. That wicked Woman was so infatuated with the Notion of *Astrology*, that that superstitious Science was the sole Directress of all her Actions; and she had thought it a Crime to have undertaken any Affair, of the least Consequence, without having consulted first some of her *Astrologers*, of whom she had always a certain Number near her Person. Once, in particular, having been foretold by some of them, that all her four Sons would be Kings, and afraid they meant Kings of *France*, which could not

not have happened, without the Reign of all of them had been very short; she had one elected King of *Poland*, and offered the *Grand Seignior*, that the *Duke d'Alençon* should turn *Mahometan*, if he would make him Emperor of *Morocco*.

This predominant Humour in that Court, was well rallied by *Barclay*, in his *Argenis*, Lib. II. on Occasion of an *Astrologer*, who had undertook to instruct King *Henry* III. in the Event of the War, then threatened by the Faction of the *Guises*.

'You maintain, says *Barclay*, that the Circumstances of Life and Death depend on the Place and Influence of the celestial Bodies, at the Time when the Child first comes to Light; and yet own that the Heavens revolve with such vast Rapidity, that the Situation of the Stars is considerably changed in the least Moment of Time. What Certainty, then, can it be in your Art, unless you suppose the Midwife constantly careful to observe the Clock; that the Minute of Time may be conveyed to the Infant, as we do his Patrimony? How often does the Mother's Danger prevent this Care? And how many are there who are not touched with this Superstition? But suppose them watchful to your Wish; if the Child be long in Delivery; if, as is often the Case, a Hand, or the Head come first, and be not immediately followed by the Body; which State of the Stars is to determine for him? That when the Head made its Appearance; or when the whole Body was disengaged? I say nothing of the common Error of Clocks, and other Time-keepers, sufficient to elude all your Cares.

'Again, Why are we to regard only the Stars at his Nativity, and not those rather which shone when the Fœtus was animated in the Womb? And why must those others be excluded which presided while the Body remained tender, and susceptible of the weakest Impression during Gestation?

'But setting this aside; and supposing, withal, the Face of the Heavens accurately known: Whence arises this Dominion of the Stars over our Bodies and Minds, that they must be the Arbiters of our Happiness, our Manner of Life and Death? Were all those who went to Battle, and died together, born under the same Position of the Heavens? And when a Ship is to be cast away, shall it admit no Passengers, but those doomed by the Stars, to suffer Shipwreck? Or rather, do not Persons born under every Planet go into the Combat, or aboard the Vessel; and thus, notwithstanding the Disparity of their Birth, perish alike? Again, all who were born under the same Configuration of the Stars, do not live or die in the same Manner. Are all who were born at the same Time with the King, Monarchs? Or are they all even alive at this Day? View M. *Villeroy* here; nay, view yourself: Were all that came into the World with him, as wise and virtuous as he; or all born under your own Stars, *Astrologers* like you? If a Man meets a Robber, you will say he was doomed to perish by a Robber's Hand; but did the same Stars which, when the Traveller was born, subject him to the Robber's Sword; did they likewise give the Robber, who perhaps was born long before, a Power and Inclination to kill him? For you will allow it as much owing to the Stars that the one kills, as that the other is killed. And when a Man is overwhelmed by the Fall of a House, did the Walls become faulty, because the Stars had doomed him to die thereby; or rather was not his Death owing to this, that the Walls were faulty? The same may be said with Regard to Honours, and Employs: Because the Stars that shone at a Man's Nativity, promised him Preferment, could those have an Influence over other Persons not born under them, by whose Suffrages he was to rise? Or how do the Stars, at one Man's Birth, annul or set aside the contrary Influences of other Stars, which shone at the Birth of another?

'The Truth is, supposing the Reality of all the Planetary Power; as the Sun, which visits an Infinity of Bodies with the same Rays, has not the same Effect on all; but some Things are hardened thereby, as Clay; others softened, as Wax; some Seeds cherished, others destroyed; the tender Herbs scorched up, others secure by their coarser Juice: So, where so many Children are born together, like a Field tilled so many different Ways, according to the various Health, Habitude, and Temperament of the Parents, the same celestial Influx must operate differently. If the Genius be suitable and towardly, it must predominate therein; if contrary, it will only correct it. So that to foretel the Life and Manners of a Child, you are not only to look into the Heavens, but into the Parents, into the Fortune which attended the pregnant Mother; and a thousand other Circumstances utterly inaccessible.

'Further, does the Power that portends the new-born Infant a Life, for Instance, of forty Years; or perhaps a violent Death at thirty; does that Power, I say, endure and reside still in the Heavens, waiting the destined Time, when, descending upon Earth, it may produce such an Effect? Or is it infused into the Infant himself; so that being cherished, and gradually growing up together with him, it bursts forth at the appointed Time, and fulfils what the Stars had given it in Charge? Subsist in the Heavens it cannot; in that depending immediately on a certain Configuration of the Stars, when that is changed, the Effect connected with it must cease, and a new, perhaps a contrary one, take Place. What Repository, then, have you for the former Power to remain in, till the Time comes for its Delivery? If you say it inheres or resides in the Infant, not to operate on him till he be grown to Manhood; the Answer is more preposterous than the former: For this, in the Instance of a Shipwreck, you must suppose the Cause why the Wind rises, and the Ship is leaky, or the Pilot, through Ignorance of the Place, runs on a Shoal, or a Rock. So the Farmer is the Cause of the War that impoverishes him; or of the favourable Season which brings him a plenteous Harvest.

'You boast much of the Event of a few Predictions, which, considering the Multitude of those your Art has produced, plainly confess its Impertinency. A Million of Deceptions are industriously hidden and forgot, in Favour of some eight, or ten, which have succeeded. Out of so many Conjectures, it must be preternatural if some did not hit; and it is certain, that considering you only as Guessers, there is no Room to boast you have been successful therein. Do you know what Fate awaits *France* in this War; and yet are not apprehensive what shall befal your self? Did not you foresee the Opposition I was this Day to make you? If you can say whether the King shall vanquish his Enemies; find out first whether he will believe you.'

This Reasoning of *Barclay*, and these Objections he makes to Queen *Catherine*'s *Astrologers*, evidence well enough the Vanity and Ridicule of their Art; but it does not shew, to the general Satisfaction, in what that Vanity consists, nor how it is impossible the different Configurations of the *Planets* should have so great an Influence, at our Births, as to determine, at that very critical Moment, the future various Incidents of our Life: Therefore to elucidate this important Subject in a still clearer Manner than *Barclay* has done, I'll take the Liberty to make here the following Reflections, which, I hope, will ruin the whole System of *Astrology*, Divination, Fortune-telling, Interpretation of Dreams, *&c.*

Nothing is more monstrous, than to suppose that our temporal Fate is under the Influence of the fixed Stars, for these Reasons. First, Before we admit of such Influences, we must presuppose, those heavenly Bodies endued, from their first Formation, with an unlimited Power, for the sole Direction and Oeconomy of the whole Terraqueous Globe, and of all that is contained therein; and even suppose also, which would be

be a sacrilegious Temerity, that the very Power of the supreme Being, or to speak like *Christians*, the divine Providence herself, is to be controlled, opposed, and disappointed, or else has resigned the sole and entire Government of the Globe, to the celestial Bodies, standing only as an idle Spectatress, of all the Events they are pleased to operate among the sublunary Beings, so far as to force Nature it self to a Compliance; unless we'll rather believe, that the heavenly Bodies are as Instruments in the Hands of a supreme Being, which he makes use of to cause the visible Changes and Vicissitudes which happen among us. If so, why should these Changes and Events be confined to the Velocity of a momentaneous, and single *Configuration* of the heavenly Bodies? Why should a single Aspect of those heavenly Bodies, be of such Efficacy, as to necessitate all the future Events of our Life, so as to be accounted as irrevocable as the Decrees of the supreme Being? Why should the different Position of the heavenly Bodies change the Nature of their Aspects? Can such a Position which happens on the first Moment of our Birth, govern all the Actions of our Life, till our Death? Are their Operations, or rather Influences, physical, or metaphysical? If physical, how can they influence Things which have not yet any Existence? Or could it be possible, that we should have, within us, some organical Part, among the rest, not yet discovered by Anatomists, which, like the Needle of a Compass, is susceptible of the most subtle Effluvia's of the Stars and Planets, wherewith it is so strongly impregnated at our Birth, as to move always towards those *Poles* it has been directed to at first, so that if that Needle has been touched by the magnetic Side of the *Star*, or *Planet*, which pushes us into a pacific Sea, (our Life being compared to an Ocean) we'll meet throughout our Navigation on that Sea, with nothing else but Calms, a serene Sky, and favourable Winds: But if, on the contrary, the Needle has been touched on the wrong Side of the Star or Planet, we are to expect nothing but Storms, Tempests, a boisterous Sea, and at last an unfortunate Naufrage; if so, how can that Needle preserve always the same Qualities it has received at the first Instant of its Impregnation; without being obliged, by the too great Dissipation of its Effluvia's, to return under the same Position of the Planet or Star, for to be touched and directed a-new? And if it is so susceptible of the Influences of the heavenly Bodies, how comes it to pass, that when quite exhausted of its former Qualities, and meeting with a Configuration of the same, or of another Planet, different from the first, it does not likewise receive a different, or contrary Direction? Is it because it has received, at one and the same Time, both attractive and repulsive Virtues or Qualities, and that when it meets under a different Configuration, the repulsive Qualities repel, or oppose the Introduction of Qualities different from those it received at first? If so, there must be an Atmosphere subsisting between the supposed *Needle*, and that Side of the Star or Planet it has been first touched with; which Atmosphere, must be so strong, and of so compact a Nature, by the firm Adhesion of the Corpuscles it is composed of, to each other, as to keep always the same Continuity, notwithstanding the Velocity of the Motions of the heavenly Bodies, and the violent and continual Agitation of an Atmosphere of a far greater Volume it is environed with. But it is impossible there should be such an Atmosphere subsisting between the heavenly Bodies and the sublunary Beings, considering the immense Distance which subsists between both, which keeps us in the Dark, as to their true Position, their Motion, Phases, Configuration, Progresses, *&c.* since all we pretend to know of it is by mere Supposition and Conjecture; and if we do not so much as know what's their Substance, and how they exist, how can we pretend to know how they operate, since by their immense Distance from us we have no clearer Proofs or Demonstration of the one than of the other; how can we pretend that they influence our Actions, and decide of our Fate, since we have not the least essential Reason to suppose that they are capable to produce any such Effects? How do we know but that the Stars are nothing else but insensible Bodies, and which have nothing to deserve our Attention, but that glimmering Light, which affects none of our Senses but our Sight, and who knows but that Light is even a borrowed one, and reflected on the Planisphere thro' the Opacity of their Bodies, like that of the *Moon*, since it is deemed by the Radiancy of the *Sun*.

What's the more surprizing to me is, that we have the Folly to have Recourse to the fixed Stars, and to the superior *Planets*, as *Saturn*, *Jupiter*, &c. which are so far out of our Knowledge, for Effects which could be easier produced by the inferior ones, as the *Sun* and *Moon*; for would it not be more reasonable to attribute to the *Sun*, which by his Heat fertilizes our Fields, reanimates our natural Warmth, when in the most languishing State, and revives Nature itself; and by its Light enlightens our Hemisphere; all the marvellous Effects and Operations we would force on the superior Planets, since its Effects affect our Senses, and those attributed to the other Planets, only our Imagination? Is it not more just to believe, that a Planet, in whose Absence, all sublunary Things, sensible, as well as insensible, appear in Mourning, or are thrown into Convulsion, can influence our Destiny, or dispose of our Fate, than others, which when in their greatest Glory spread a dark Veil over all the Beauties of the visible World, and condemn the whole Creation to a profound Silence? The Revolution of the Seasons, which happens while the *Sun* is running his annual Course through the *Zodiac*; during which our Constitution is subject to several Changes and Vicissitudes, might very well make us suppose that we are in some Measure under the Influences of that *Planet*, as to the various Incidents of our natural Life, but not as to those of our civil one; for its most bearing Influences cannot contribute otherwise towards our temporal Felicity, than to render us, by exhilerating our Spirits, inspiring us with Chearfulness and Gaiety, and keeping us in a flourishing State of Health, more capable to apply ourselves to our several Occupations, or by fertilizing our Lands increase our Stores; but never so far as to render some Moments of our civil Life more critical than others; therefore, if we cannot, nor ever have attributed those Effects to a *Planet*, which, we know, produces daily so many other visible ones, though of a quite different Nature, how can we, with the least Appearance of Reason, consider them as proceeding from the Position or Configuration of the most distant *Planet*, which remains inactive, with regard to all other Sublunary Events, but those which have no other Existence but in our Imaginations. How can we carry our Folly even so far, as to pretend that the different *Positions*, and Configurations of those *Planets*, have no Influence upon us but at the critical Moment of our Birth, and then only on future Events, which perhaps are not to happen, but after we have met under the same Configuration of that very same *Planet* we are born under, or a contrary one several Times in the Course of our Life? If the *Planets* have so strong a Power, as to be capable to direct or govern Incidents *in Fieri*, or to come, would it not be more reasonable to suppose that Power stronger, and less resistible, when the Influence is immediate, and to believe that the various Incidents of our Lives are governed or directed by that *Planet*, under whose Aspect they happen? What! Have the heavenly Bodies entered into a Confederacy, or rather agreed among them not to contradict or oppose what any of them shall have ordered; even so far, as when we have had the Unhappiness to be born under a malign Aspect, they have all concerted to look with the same evil Eye on the different Incidents of our Lives, which must be, else, a benign Aspect of a *Planet*, under which some of those Events should happen, must infallibly over-balance the malign Influences of our Birth?

Our wise *Astrologers* will object, perhaps, that Man at

at his Birth, being like a soft Wax susceptible of any Impression, and the first Impression of any Kind whatever being always the strongest, the *Planet* which presides at his Birth, taking Advantage of that critical Moment of his first Appearance into the World, seizes, with its Influences, all his Faculties, and in so efficacious a Manner, as to be utterly impossible afterwards to blot out those primary Traces. But I would ask them in my Turn, where are those Impressions made, if on our corporeal or spiritual Subitance? If on our corporeal Substance, and by the Pores of our Bodies, being more dilated and open at our Birth, than at any other Time, the Effluvia's of the *Planet*, which presides then, being quicker in their Motion, than those of the other Atmospheres, the Infant is at that Time wrapp'd in, seize so effectually those Interstices, as to oppose the Admission of any others; and circulating afterwards with the Fluids, communicate the Figuration to the most subtle Particles of our Substance, and thereby cause that Sympathy, which subsists ever after, between the Aspect of the *Planet*, and our Microcosm. This Sort of reasoning would certainly prove something in Favour of the judicial *Astrology*, that is to say, as far as it could be possible that the *Planet*, which has presided at our Birth, could influence our Constitution, *viz.* render it phlegmatick, sanguine, bilious, *&c.* agreeable to the Qualities we suppose to be in that *Planet*; and subject to the Maladies attributed to it, as to their Origin and principal Cause; and perhaps some Incidents of our Lives, proceeding from the Humours predominant in that Constitution, could be considered as the Effects of the Aspects of the *Planets*, *viz.* Prudence and Discretion, in a phlegmatick Courage; and Intrepidity in a sanguine; Morosity, Spite, Malice, Revenge, in an atrabilary; Rage, Passion, Fury, *&c.* in a bilious; though we have not the least Occasion to run some Millions of Leagues out of our Way, for the Origin of those Effects, which can be all attributed to nearer and more natural Causes; since we must be convinced that the Constitution of our Parents, the Difference of the Climate, and even the first Rudiments of our Education, can operate all those different Changes within us.

But if it was even so true, that the Difference of our Passions proceeded from the different Aspects of the *Planets* at our Birth, if we be pleased to consider that those Passions, let them be ever so violent, can be brought under the Direction of our Reason, and often silenced by her; we'll find that it is ridiculous to pretend to draw Conclusions from thence, with Regard to the different Events of our Lives. How often do we see two Persons born under the same Aspect of the same *Planet*, one prodigal, and the other parcimonious, one brave and couragious, and the other pusillanimous and a Coward; one giving a full Career to his Passions, and the other, though born with the same Passions, refraining them; one in the Phrenzy of those Vices cutting his Throat, or hanging himself, and the other bearing with much Patience and Resignation the same Disappointments, without anticipating the Decrees of a supreme Being? On the other Side could it be reasonably supposed, that five, ten, fifteen, or twenty Thousand Men, killed in the same Battle, were all born under the same malign Aspect of a *Planet?* And since the Loss of a Battle affects equally the Prince, whose Army has been beaten; the General who commands that Army; and the Troops 'tis composed of; I would ask an *Astrologer* (since the Event is equally fatal to the Prince, to the General, and to the Army) to which Aspect is that Event to be attributed? Is it to that which influenced the Birth of the Prince, or that of his General, or of his Soldiers? If to the *Planet* which presided at the Birth of the Prince only? Then the *Astrologer* has been disappointed, who has calculated the Nativity of the General, and of his Army; if to the malign Aspect which presided at the Birth of the General; there is likewise a Disappointment on the Side of the Prince. But perhaps, the *Planets*, in a grand Council, had resolved to bring none into that Army, but those born under a malign Aspect? If so, why should that same *General*, who has lost a Battle this Time, gain a Victory the next, though commanding the same Army, and for the same Prince? Why should one who has always been victorious, and always attended with the greatest Success, all sufficient Proof that he was born under a benign Aspect, be carried off at last by a Cannon-ball, or some other unforeseen Accident? If any *Astrologer* can answer this Argument as it should be, *erit mihi magnus Apollo.*

To pretend that the various Aspects of the Heavenly Bodies can influence our spiritual Substance, or the Faculties of our Souls, is not only a monstrous Paradox, but likewise a prophane and sacrilegious Temerity: For I'll speak in this Place as a Christian, since I speak to Persons, who pretend to profess the Religion of Christ in its greatest Purity; what greater Insult can be offered to the divine Providence, than to invest a created and insensible Being, formed only for the just Symmetry and Ornament of this visible World; (for we are not certain yet, that some of the heavenly Bodies are placed in their Orb for any other Use) with a supernatural Power, which he has reserved to himself, founded only on the scandalous Report or Evidence of Jugglers and Impostors, contrary to the best established Principles of Christianity? How can those who have not entirely renounced Piety, Virtue, Religion, or even Sense and Reason, expect to find their Fate written within the Compass of the Circles of an *Astrologer*, which they know to be in the Hands of their Divine Creator? How can they suppose, the various Incidents of their Lives to be under the immediate Direction or Influence of the Stars or *Planet*, when the Holy Ghost himself assures them, that not even a Hair falls from their Heads, without a special Leave from the Almighty? To countenance, encourage, or even tolerate such scandalous and criminal Practices; is it not breaking into an open Rebellion against his irrevocable Decrees? And to attempt to penetrate into Futurity, what is it else, but endeavouring to discover the most hidden Secrets of his sacred Wisdom? How can we have so mean an Opinion of ourselves, to suppose that we are under the Influence of a created Being, when we have so many certain and undeniable Proofs of the Existence of a supreme, eternal, immortal, uncreated, and incomprehensible Ruler of this vast Universe? Why are we not ashamed to acknowledge a Superiority over us, in a Being so inferior to us in all Respects; and which we cannot suppose to act otherwise, than according to the Caprice and Phantasy of Visionaries and Impostors? For we should be all convinced by this Time, that all those Positions, Oppositions, and Configurations of the *Planet*, their different Houses, *&c.* have no other Existence but in the empty *Pericranium* of *Astrologers*; and if even they had any other, the immense Space between them and us could let us know nothing of it but by Conjecture. What Pleasure then can we take in deceiving ourselves? Is our Lives so continued a Series of Peace and Tranquillity, that we should be so much tired of it, as to endeavour to disturb it by a criminal Curiosity? Are not the Dangers we are exposed to on the tempestuous Sea of this World frequent enough, without our seeking after chimerical ones in Places we know nothing of?

To this chimerical Doctrine of the heavenly Bodies, we may add in this Place, all the other Tricks, Impostures, and *Legers de Main*, made Use of by *Astrologers*, Jugglers, and Fortune-tellers, to decoy us into their Nets, and pick our Pockets. There is scarce a Corner in our Streets, which, notwithstanding the salutary Laws made against such scandalous and criminal Practices, is not pestered with the Emissaries of Students in *Astrology*, and who take Care to inform young buxom Lasses in a longing Condition for a Husband; Wives tired of theirs; barren Ladies, who want to be rendered Prolitick; young Widows, who would be glad to find some Body unwise enough to renew the Lease of their Freehold, *&c.*

That in ſuch a Place lives a Student in *Aſtrology*, or Star-Gazer, who reſolves all lawful Queſtions (as he calls them) by the Help not only of the *Stars* and *Planets*, but likewiſe of *Brizomancy*, *Chiromancy*, &c.

Brizomancy, is the pretended Art of foretelling future Events by *Dreams*.

Macrobius mentions five Sorts of *Dreams*, *viz.* 1. a *Viſion*, 2. A Diſcovery of ſomething between Sleep and Waking. 3. A Suggeſtion caſt into our Fancy, called by *Cicero*, *Viſum*. 4. An ordinary *Dream*, and, 5. A Divine Apparition or Revelation in our Sleep; ſuch as were the *Dreams* of the Prophets, and of *Joſeph*, as alſo of the *Magi* of the Eaſt.

The fictitious Art of interpreting *Dreams*, had its Origin among the *Egyptians* and *Chaldeans*, thoſe Countries being fertile in Superſtitions of all Kinds. The ſame Art was brought from thence, among the *Romans*, who judging ſome *Dreams* worthy of Obſervation, appointed Perſons on purpoſe to interpret them. Thoſe who pretend that Dreams are Significatives of Things to come, bring in Confirmation of their Opinion, an infinite Number of *Dreams*, which have been the Fore-runners of very ſingular Events; *viz*, *Calpburnia*, *Julius Cæſar*'s Wife, dreaming the Night before his Death, that ſhe ſaw him ſtabbed in the Capitol. *Artorius*, *Auguſtus*'s Phyſician, dreaming before the Battle of *Philippi*, that his Maſter's Camp was pillaged. The Emperor *Veſpaſian* dreaming an old Woman told him, that his good Fortune would begin, when *Nero* ſhould have a Tooth drawn, which happened accordingly. *Cæſar* dreaming he committed Inceſt with his Mother, was crowned Emperor of *Rome*: And *Hippias* the *Athenian* Tyrant dreaming the like, died ſhortly after, and was interred in his Mother Earth. *Mauritius* the Emperor, who was ſlain by *Phocas*, dreaming a little before, that an Image of Chriſt which was over the brazen Gate of his Palace, called him and charged him with his Sins, and in the End demanded of him, whither he would receive the Puniſhment thereof in this Life or the next; and he anſwering in this, the Image commanded he ſhould be given, with his Wife and Children, into the Hands of *Phocas*. Whereupon *Mauritius* awaking in great Fear, aſked *Philippus* his Son in Law, whether he knew any Soldier in the Army called *Phocas*; he anſwered there was a Commiſſary ſo called: And *Phocas* was his Succeſſor, having killed him, with his Wife and five Children. *Arlet*, while with Child of *William the Conqueror*, dreaming that a Light did ſpread from her Womb, that ſhone all over *England*. *Maia*, *Virgil*'s Mother, Prince of the *Latin* Poets, dreaming ſhe was delivered of a Laurel Branch, *&c.*

The moſt pious of our *Dreamers*, and the moſt devoutly inclined Interpreters of *Dreams*, have even Recourſe to the *Roman* Catholick Religion, to ſtrengthen their Opinion, by pretending that many of the religious Orders have been firſt occaſioned by Warnings delivered to the Authors of them in *Dreams*; as the Order of *Trinitarians*, *Auguſtinians*, of the Nuns of *St. Katharine*, &c. the *Camaldulenſes*; the Monks of *St. Anthony*, &c.

But all the *Dreams* above-mentioned, prove nothing in favour of our Interpreters of *Dreams*; for they are of a quite different Kind from thoſe they pretend to interpret; and we are not obliged to believe, as an Article of Faith, the Reality even of theſe, here quoted; at leaſt as to ſome of their Circumſtances. For Example, it could very well happen, that *Calpburnia*, having her Imagination ſeized with Fears and Terrors, occaſioned by the ambitious Enterpriſes of *Cæſar* her Huſband, who was then enſlaving a bold and couragious People, uſed to Liberty, ſhould dream of the Danger the Emperor was expoſed to, and even perhaps that ſhe ſaw him murthered. For in theſe Sorts of *Dreams*, occaſioned, either by Fear, or a violent Deſire, the Animal Spirits aſſigned for the Function, or rather Operations of the ſeveral Faculties of our Souls, being kept in a perpetual and uncommon Motion, by the Abſence of the Object, only formed yet by the Imagination; and offered by her to the other Faculties, to be feared or wiſhed for; cannot be ſuſceptible of Quietude or Reſt, till they be fixed once, or by the real Appearance of that Object, or by a Certitude of its being for ever abſent; till then they are like the Needle of a Compaſs, kept in perpetual Motion by the Load-Stone, which one ſhould turn round the Compaſs, even at ſome very conſiderable Diſtance from it.

As for the *Dreams* of the Founders of religious Orders, they were certainly real *Dreams*; for a great many of them uſed to dream awake as well as aſleep, and ſome have done nothing elſe all their Life-time but dreamed; the Maceration of their Bodies, by continual faſting, praying and watching, contributed much towards keeping almoſt always their *Brain* free from thoſe Fumes, which obſtruct the too great Agitation of the Animal Spirits, retard their Circulation, and occaſion a profound Sleep. During thoſe few Hours they were forced to indulge Nature, contrary to their Inclinations, they dreamed they ſaw the Object they had always preſent to their Imagination while awake, and imagined they had with him thoſe myſtical Converſations, they communicated afterwards to their Diſciples. Some are of Opinion, that thoſe *Dreams* revealed by the Patriarchs of religious Orders to their Diſciples, were nothing elſe but political Inventions, forged by them on purpoſe to gain a greater Number of Proſelytes, and engage them to embrace a Manner of Life ſo contrary to our natural Inclinations, which perhaps they had not been ſo ready to do, if they had not been made believe that it was founded on divine Inſpiration.

But it is ridiculous to compare the *Dreams* minded by the Vulgar, and which they want to be interpreted by Conjurers and Fortune tellers, to theſe Sorts of *Dreams*; ſince what they want to know, is, what is meant when they *dream* that they ſee *Ants*, *Armed Men*, *Aſſes*, *Black-Birds*, *Birds fighting*, *Candles burning*, *Children born*, a *Croſs*, *Dragons*, *Eagles*, *Broken Eggs*, *Fire*, *Flies*, *Fountains*, *White Horſes*, *King* or *Queen*, &c. that they *commit Adultery*, *eat Apples*, *cut Bacon*, *eat Bacon*, *bathe in a clear Fountain*, *in ſtinking Water*, *eat Beans*, *have a long Beard or Hairs*, *hear Bells ring*, *hear a Cock crow*, *fall in the Dirt*, *hear a Dog bark*, *loſe their Eyes*, *or their Teeth*, *gather Grapes*, *fall on the Ground*; and an Infinity of other ſilly Queſtions, which the Impoſtor Interpreter has the Impudence, in Defiance of all Laws and Authority, to call lawful Queſtions, and on whoſe Interpretation the ignorant Queriſt has but too often the Folly to build an imaginary Fortune. The ridiculous Infatuation of *Dreams* is ſo predominant here, even among Perſons who ſhould know better, and eſpecially the Fair Sex, that ſeldom a Converſation paſſes without ſome *Dreams* or other being brought on the Tapis, to be interpreted by the Company. I *dreamed* laſt Night, ſays one, that I had loſt ſome of my Teeth; that's a Sign, ſays another, that you'll loſe ſome of your Relations; I am afraid I ſhall, replied the *Dreamer*, for my Couſin, or Uncle, or Brother ſuch a one, is very ill; that's a very ſure Sign, ſays a third, for I *dreamed* once the ſame Thing, and my poor Huſband (fetching then an affected Sigh) died ſoon after; Not ſo ſure neither, objected a Fourth, for I *dream* often that I loſe my Teeth, and my Huſband is yet alive, and not likely to die ſoon as I know of, though he is a very great Rogue to me. But what ſignifies my *dreaming* laſt Night that I rode a great Horſe, aſked a pretty Miſs, who all the while had been very attentive to the Interpretation of *Dreams* propos'd? That's a very good Sign, Miſs, anſwer'd the Interpreter, and ſignifies Joy; ah, ſays another, and that you'll ſoon be married, for riding ſignifies Matrimony; what, riding to the Devil, aſks another, in a Sort of Paſſion, for that's all the Riding I have met with ſince I have been married; Lord, Madam, ſays the *dreaming* Miſs, you was not always of that Opinion, for, while a Maid, you had as great an Inclination for that

that Jant as any of your Neighbours; when I was a Maid, say you, Miss, I'll be glad to know when that was? And thus the whole Conversation is spent in telling and interpreting Dreams; and the next Opportunity the pretty Miss goes to a Fortune-teller, to know if he'll confirm the Opinion of the first Interpreter of her *Dream*, that she'll be married soon.

What surprizes me most, is, that this ridiculous Notion is so strongly inculcated in the Minds of Children, from their very Cradle, that it is utterly impossible to root it out afterwards. If Parents are not themselves ashamed of that scandalous Infatuation, which is a Plague to all those they are acquainted with, they should however have Tenderness enough for their Children, to forbear instructing them in the Principles of that scandalous and ridiculous Doctrine, which contributes so much toward disturbing their domestick Peace and Tranquillity, and render them insupportable to themselves, and to those who are to live with them. Often the first Salute a Husband receives from his Wife, in a Morning, is the Recital of her *Dreams*, and half the Day is spent in nothing else but relating and interpreting them. All the Gossips she is visited by, must pass their Verdict upon it, and the Husband often obliged, to avoid being teazed with it, to forsake his House, till some other Incidents have forced the Dreamer to forget her *Dream*. Such Practice smells so much of Paganism and Idolatry, that it is a Scandal to Christianity, as entirely contradictory of the Orders of the divine Providence. Why does not our Clergy thunder from the Pulpit against it, and represent it as an Artifice of the Tempter of Mankind, to decoy our Souls into his Net? Why does not the Legislature punish it with the greatest Severity?

Avicen makes the Cause of Dreams to be an ultimate Intelligence moving the *Moon* in the Middle of that Light with which the Fancies of Men are illuminated while they sleep. *Aristotle* refers the Cause thereof to common Sense, but placed in the Fancy. *Averroes* places it in the Imagination. *Democritus* ascribes it to little Images, or Representations, separated from the Things themselves. *Plato* among the specifick, and concrete Notions of the Soul. *Albertus* to the superior Influences which continually flow from the Sky, through many specifick Mediums. And some Physicians impute the Cause thereof to Vapours and Humours, and the Affections and Cares of Persons predominant when awake: For, say they, by Reason of the Abundance of Vapours which immoderate Feeding exhales, the Brain, being therewith stuffed, forms infinite Monsters, and strange Chimæra's, whereof the greatest Eaters and Drinkers may well satisfy us. Some Dreams, continue they, are governed partly by the Temperature of the Body, and partly by the Humour which abounds most in them; to which may be joined, the Apprehensions which have preceded the Day before, which is discovered in Hounds, and some other Creatures, which bray and bark in their Sleep. As for Dreams, conclude they, proceeding from the Humours and Temperature of the Body, we see the *Cholericks* dream of burning, Combats, yellow Colours, *&c.* The *Phlegmaticks*, of Water, Baths, of sailing upon the Sea, *&c.* The *Melancholicks*, of thick Fumes, Desarts, Fantasies, hideous Faces, *&c.* The *Sanguines*, of merry Feasts, Dances, *&c.* They that have the hinder Part of their Brain stopp'd with clammy Humours, called by Physicians *Ephialtes incubus*, or, as we call it, the *Night Mare*, imagine, in dreaming, that they are stifled. And they that have the Orifice of their Stomach charged with malignant Humours, are affrighted with strange Visions, by Reason of those venomous Vapours that mount into the Brain, and distemper it.

For my Part, I attribute the Cause of *Dreams* to an extraordinary Direction made by a superior Faculty, made in our Imagination of the Spirits assigned to receive the Impression from the first Perception of an Object; which Spirits, remaining, thereby, longer than usual in their Position, retain the Image of the Object as *vivid* as when first imprinted on them. It also often happens, that those Spirits, having been equally directed towards two different Objects while we are awake, wanting, while asleep, the Regulation of our Reason, represent those two Objects as if they were but one, and make a Monster of it; representing, sometimes, the Head of a Lyon placed on the Shoulders of a Man, or *vice versa*.

CHIROMANCY, from χειρ, Hand, and μαντεια, Divination; is the Art of divining the Fate, Temperament, and Disposition of a Person, by the Lines and Lineaments of the Hand; otherwise called *Palmistry*.

We have a Number of Authors on this vain, and trifling Art; as *Pythagoras*, *Helenus*, *Ptolemæus*, *Hermes*, *Avicen*, *Racis*, *Artemidorus*, *Fludd*, and *Johannes de Indagines*; *Taisnerus* and M. *De la Chambre* have done the best.

This last insists on it, that the Inclinations may be known by inspecting the Hand, there being a very near Correspondence between the Parts of the Hand, and the internal Parts of the Body, the Heart, Liver, *&c.* whereon the Passions and Inclinations much depend. He adds, however, that the Rules and Precepts of *Chiromancy* are not sufficiently warranted, the Experiments whereon they stand not being well verified. He concludes, that there must be a new Set of Observations, made with Justness, and Exactitude; in order to give *Chiromancy* the Form and Solidity which an Art or Science demands.

This fictitious Art is only practised by *Gypsies*, Vagabonds, and silly old Women; who have, however, Cunning enough to make the Vulgar believe that the seven *Planets* predominate over the seven Mountains this Art places in the Palm of a Man's Hand; and that the Lines therein have a Doctrine of Community with the Length of Life; and that Riches, Accidents, or other Events, are to be judged of thereby.

Of all these fanciful Arts of the Ancients, diffused among the Moderns, there are none which have so much Foundation in Nature as *Physiognomy* and *Metoposcopy*.

PHYSIOGNOMY, (from φυσις, Nature, and γινωσκω, I know) is the Art of knowing the Humour, Temperament, or Disposition of a Person, from Observation of the Lines of his Face, and the Characters of his Members or Features.

There seems to be something in *Physiognomy*, and it may, perhaps, bear a much purer Philosophy, than what the modern Authors who have wrote upon it, *viz. Baptista Porta*, and *Robert Fludd*, were acquainted with. We really believe, that there is an apparent Correspondence between the Face and the Mind; that the Features and Lineaments of the one, are directed by the Motions and Affections of the other; that there is even a peculiar Arrangement of the Muscles of the Face, a peculiar Disposition of the Countenance to each particular Affection, perhaps to each particular Idea of the Mind.

In Effect, the Language of the Face, *Physiognomy*, is as copious, nay, perhaps, as intelligible, and distinct as that of the Tongue, and Speech. Thanks to bounteous Nature, she has not confined us to one only Method of conversing with each other, and of learning each other's Thoughts: We have several; we do not wholly depend on the Tongue, which may happen to be bound; and the Ear, which may be deaf; but in those Cases, we have another Resource, the Countenance, and the Eye, which afford us this further Advantage, that by comparing the Reports of the Tongue (a Member exceedingly liable to deceive) with those of the Face, the Prevarications of the other may be detected.

If it be asked how such an Impression should be effected? Some will answer, that it follows from the Oeconomy of the Creator, who has fixed such a Relation between the several Parts of the Creation, to the End we may be apprized of the Approach or Recess of Things useful and hurtful to us. But this, in my

my Opinion, is a very silly Answer, and which has not the least Report to the Question proposed. Therefore I'll rather chuse to say, that the Creator, whose Wisdom is infinite, considering that the Mechanism of the several Parts which compose an organical Body, let it be ever so perfect, could not, however, subsist always, in the same just and exact Symmetry it came out of his sacred Hands, without being exposed to many Changes, Vicissitudes, and Accidents; that some of those Parts, by their continual Motions, could chance to be disordered, by the Intervention of some heterogeneous Bodies, and perhaps rendered entirely useless, or incapable of performing any longer their respective Functions; that divine and skilful Architect had precautioned himself against those Inconveniencies, by establishing such a Correspondence between every Part of that grand Machine, as to render one capable of supplying the Place of the other, in case it should be rendered useless, or incapable of performing its Functions. That our superior Faculties, placed by the same *Artist*, as in the Center of the Machine, and as a Master-spring to the whole, being perfectly acquainted with the different Operations of every Part, (since it influences each of them, and sets them all to work) by a certain Caprice common to all great Masters in their Art, was pleased to make one Part (often with an absolute Necessity) perform the Functions of another. For Example, in Love Intrigues, wherein the Secret quickens the Taste, and sharpens the Appetite, when the Tongue should, according to its natural Functions, interpret the Sentiments of the Heart; the Soul, on the contrary, directs those animal Spirits designed for the Motion of the Tongue, on those Occasions, to the Eyes, and the Muscles of the Face. So that those Spirits which should have been directed, perhaps, toward moving the Tongue to express Sorrow, and Disappointment in Love, by a contrary Direction of the magnetick Virtue of the Soul, glide slowly through the Optick Nerves, and make a languishing Eye express more Sorrow in a Moment, than the Tongue could have done in a tedious Discourse; at the same Time, Part of the Spirits which should be directed to the Muscles of the Face; for their natural Motion being intercepted, they suffer a sensible Alteration in their Functions, and, by a sort of Convulsion, give a still greater Energy to the Language of the Eyes. But if, on the contrary, 'tis to express a kind of Satisfaction, then there is a total Direction of all the Spirits to all the Organs, through which they flow with such Impetuosity, that it seems as if they would force the Limits prescribed to them by Nature: The Eyes sparkle with such Vivacity and Fire, as if the whole *Orbit* was threatened with an Incendy. The Muscles of the Face are not only restored to their former Form, but have even a Superabundance of Spirits, which heighten the Agreement of the Face, or add a new Lustre to its Beauty. The Tongue it self, through the Petulancy of the Spirits it is agitated with, can scarcely keep within Bounds, and seem impatient to utter what the Faculties of the Soul have not digested for her; she moves, even makes a sort of confused Sound, and would speak, if she knew what.

The same Thing happens, though in a different Manner, in an Excess of Rage, or Fury. For in one of Satisfaction and Pleasure, let the Spirits flow with ever so great an Impetuosity, as such Excess has nothing opposite to Nature, but, on the contrary, flatters all the sensitive Faculties, all the organical Parts dilate themselves as in Concert, to render the Circulation of the Spirits free and easy; which thereby roll, without Obstruction, through their respective Channels. But in an Excess of Rage, the too great Impetuosity of the Spirits, directed all on a sudden, and without the necessary Measures taken by the directive Faculties to express Joy or Satisfaction, causes a preternatural Confusion among them, and making them mistake their proper Organs, they meet in every one of them such Obstructions, occasioned by the Configuration of the Pores, not appropriated to them, as throws the whole Microcosm into strange Convulsions; as it appears at the different Changes of the Face, the *Sardick Laugh*, &c. This is my Opinion, or System, with Regard to *Physiognomy*.

The *Cartesians* express themselves in another Manner; for they say, that the animal Spirits moved in the Organ by an Object, continue their Motion to the Brain; whence that Motion is propagated to this or that particular Part of the Body as is most suitable to the Design of Nature; having first made a proper Alteration in the Face, by Means of its Nerves, especially the *Pathetici*, and *Oculorum motorii*.

They pretend, that the Face here does the Office of a Dial-Plate; the Wheels and Springs within-side the Machine actuating its Muscles, shew what is next to be expected from the striking Part. Not that the Motion of the Spirits is continued all the Way by the Impression of the Object; the Impression probably terminates in the *Medulla* of the Brain, the common Fund of Spirits. The rest Dr. *Gwither* imagines may be effected much after the same Manner as the Air is conveyed into the Pipes of an Organ, which being uncovered, the Air rushes in, and when the Keys are let go, stopped again.

Now if by repeated Acts, or the frequent entertaining of a favourite Passion, or Vice, which natural Temperament has hurried, or Custom dragged one to; the Face is often put in that Posture which attends such Acts; the animal Spirits will make such patent Passage through the Nerves, (in which the Essence of Habit consists) that the Face is sometimes unalterably set in that Posture. (as the *Indian* Religious are, by a long continued sitting in strange Postures in their Pagods) or at least falls insensibly and mechanically into that Posture, unless some present Object diverts it therefrom, or Dissimulation hides it.

This Reasoning, *Chambers* pretends, or some Body else for him, is confirmed by Observation: Thus, says he, we see great Drinkers, with Eyes generally fixed to the Nose; the adducent Muscles being oft employed to put them in that Posture, in order to view their loved Liquor in the Glass, at the Time of drinking; whence those Muscles are also denominated *Drinking Muscles*.

Thus, also, lascivious Persons (continues the same Author) are remarkable for the *oculorum mobilis petulantia*, the roving Ogle of the Eye, as *Petronius* calls it. Hence we may account, concludes he, for the *Quaker*'s expecting Face waiting the Spirit; the melancholy Face of most Sectaries, the studious Faces of Men of great Application of Mind, *&c.* and were our Observation a little more strict and delicate, we might, doubtless, not only distinguish Habits and Tempers, but even Professions. In Effect, does there need much Penetration, to distinguish the fierce Look of the Veteran Soldier, the contentious Look of the practised Pleader, the solemn Look of the Minister of State, *&c.*

I am of Mr. *Chambers*'s Mind, in this, that we might, by observing attentively the Lineaments of the Face of a Person, distinguish his Habits, Inclinations, Passions, *&c.* to which Observation, the System here by me established, would be of very great Service; for the following Reasons. 1. If a Person is subject but to few or no Passions, at least to none of those violent ones capable to distort the Muscles of the Face; or if entirely actuated by Interest, or some other Consideration, his Reason has such Ascendant over the inferior Faculties, as to hinder the animal Spirits, employed in their several Operations, from being directed otherwise than is agreeable to the just Harmony, Order, or Regularity, which should subsist between the organick Parts; those same Spirits being kept always regular in their Motion, keep also the Organs, through which they pass, always in their same natural Situation, without Distortion, Contortion, or Intumescence; and if it should ever happen some Effervescence, in those Spirits, the *Habit*, which the Reason of that Person has contracted, by repeated Acts, of directing those Spirits so as to keep him almost always

always in a certain Subordination among themselves, would soon rectify the Mistake: Therefore such a momentaneous Disorder could not be capable of making any Alteration in the Muscles of the Face. Persons thus qualified, and in Possession of so excellent a *Magnet*, for the Direction of their Passions, have this excellent Advantage above all the rest of the rational Beings, of being a sort of *Enigma*, very difficult to be enucleated; and the most learned *Physiognomist* is often mistaken in the Conjectures he forms of them. Though with a very serious Study, and a great deal of Application, it is not entirely impossible to make a just Difference between what's natural, and what's affected.

A Person who from the first Moment he has known that he had a superior Faculty for the Direction of all the inferior ones,as well as of his Passions, has from that Moment made no other Use of that Faculty, than according to the Intentions of the Divine Architect of the whole Machine, to keep them in a just Subordination among themselves, the Habit, which *repetitis Actibus comparatur*, that Person has contracted, of governing thus his Passions, as soon as he was sensible that he had any, having prevented the least of those Disorders, which those who follow a contrary Conduct are subject to, makes its outward Frame all of a Piece, and keeps always the same Serenity on his Face, and without shadowing the least of its Lineaments. But if, on the contrary, that Person, for some private View, or Consideration, and the better to impose on the Publick, affects only to have gained that Ascendant over his Passions; the Violence which his Reason makes to herself, to direct the other Faculties, contrary to his Inclinations, and the great Dissonance subsisting between her and those Faculties, appear in the Inequality of the Distribution of the Spirits, which gives a different Light to every Lineament of the Face, and makes the principal Organs faulter. For if a Portion of globulous Spirits, all homogeneous, is directed to the Tongue, in order to make it speak fair and smooth; a larger Portion flowing naturally from the natural Affection of the Soul, and which are in such abundance, as not to be restrained from flowing through the other Organs, are conveyed to the Eyes, wherein they cause a certain preternatural, and affected Leering, by the Difference subsisting between them, that they contradict the Language of the Tongue. But if even the Tongue and the Eyes speak in Concert, they are likewise contradicted by the Changes which the Distortion of the Muscles of the Face causes in its Features and Lineaments. Thus we can easily discover the Sincerity of a true Friend, and the Hypocrisy and Falshood of a disguised, or hidden Foe. For the Sincerity of the Protestations of a true Friend, is not only evidenced by the Strength, Energy, and Fluidity of his Discourse, but also in the Vivacity of his Eyes, whose Radiancy appears then in its greater Lustre, without the least Cloud or Shadow; and in the Serenity of his Face, without Contortions, Grimaces, or affected Smiles; while, on the contrary, an affected Friendship, or a hidden Foe, has all his Organs in Masquerade, his Tongue being a false Interpreter of the real Sentiments of his Heart, utters an artful Speech, the less to be depended upon, because the more studied, and less natural; the Vivacity of his Eyes appears as in a Cloud, whose Opacity meets always those of the Person he is perfidiously endeavouring to persuade of his Friendship; and if by Chance they dart some Glances, reflecting on that Cloud, they are always oblique, and never in a direct Line. Several other Clouds of Malice, Spite, and sometimes of Revenge, overcast, by Intervals, the affected Serenity of his Soul. This is the Difference I have made between the Countenance of a true Friend, and that of a disguised Foe; though I would not have the Temerity to say, as *Chambers* does, that this is the Badge whereby the Sectaries of our Time (as he is pleased to call them) are distinguished from the Orthodox; let it be granted, if he pleases, that a grave and modest Countenance is oftener affected among them than among other *Christians*; but I utterly deny that they, oftener than others, employ it as a Mask to Perfidy, and Deceit; nay, I have seldomer seen it applied to that Purpose among them, than among other *Christians*; and for one false Friend among them, I have found twenty, in other *Christian* Societies, even those which boast most of Orthodoxy, and that hidden Enmity attended with more dangerous Consequences. As for a *Politician*, or a Minister of State's Countenance, we need not take much Pains in studying it; for besides a certain affected Gravity, discernible enough of itself, 'tis very easy to know his Intentions, if we take this for an infallible Rule, that they are almost always contrary to his Words, and *vice versa*.

The Fair Sex has also, of late Years, wore three Masks; one to screen their Complexion from the unfavourable Aspects of the Seasons; one to change or alter that Complexion; and the third to disguise their Inclinations, and the real Sentiments of their Hearts. The first steals from us the Beauty of their Charms; the second is employed as a Prism, to represent them otherwise than they are in Reality; and the third is a sort of *Bait*, to hook us in by false Appearances. Therefore to caution Mankind against the Illusions and Deceits of this last Mask, I'll make a kind of Dissection (if I may use the Expression) of all its Parts. It is very natural to the Fair Sex, and it has been almost always a constant Practice among them, when they first begin to think of setting to Auction a certain Merchandise, which they are never desirous to keep long on their Hands, as soon as they are sensible that it is to be disposed of, to give to it the best Gloss they can, and to place it in such a Light, as could hide all its Defects, and shew it only on the best Side; therefore their principal Care is, to hide those Defects, if there are any, in the Pleats of the Face: And it is to be observed, that the greater the Defects are, the more Art is used to disguise them, in which the Fair Sex has always been very expert. Therefore let us unfold these Pleats, and discover, if possible, all the Defects hidden in them.

It would be ridiculous to suppose that a Lady who consults her own Advancement, or Interest, should not take the necessary Precautions to disguise her Merchandise, if bad, while she is treating with a Merchant. For my Part, I'll always suspect one who affects a Modesty, an Evenness of Temper, a Complaisance, or some other rare Perfection, to Excess; since when the Merchandise is sold, and delivered, that fine Gloss vanishes at once, and is infallibly changed into another Excess. An extraordinary innocent Look, frequent Blushes at every Word spoken, though with the greatest Circumspection, Glances accompanied with a Lear, a pretty long Nose, a canting Tune in speaking, an unsettled and grinning Countenance; are all indicative Signs of a Shrew, or of a Woman without Virtue, Prudence, Judgment, Conduct, Housewifery, *&c.* born for the Plague of a Husband, the Ruin of her Family, and the Scandal of her Sex. But, on the contrary, a Woman with an open, though modest Countenance, without Affectation, a natural Vivacity in her Eyes, without borrowed, or studied Looks; a becoming Reservedness, without Haughtiness, and Insolence; an engaging Voice, firm, and without whining, regular Features, *&c.* are almost always infallible Marks of a real Merit in the Fair Sex. But, however, all these Rules are not infallible; for they are as deficient, in several Particulars, as they are true in others: Therefore we can very well say, with *Tullius, Lib.* 1. *Epist. ad quintum fratrem, Epist.* 1. *Frons, oculi, vultus, persæpe mentiuntur*, i. e. the Forehead, Eyes, and Face, very often lie.

METOPOSCOPY is no more than a Branch of *Physiognomy*, with this single Difference, that *Metoposcopy* is the Art of discovering the Temperament, Inclinations, and Manners of Persons, by inspecting the Lines of their Foreheads; while *Physiognomy* takes its Conjectures

Conjectures from the whole Face, and even all Parts of the Body; but both the Body and the Branch are extremely precarious, not to say vain.

Coro Spontoni, who has wrote on the Subject of *Metoposcopy*, observes, that there are four principal Lines considered in the Forehead, each of which has its peculiar *Planet*. The first is the Line of *Saturn*, the second of *Jupiter*, &c.

For my Part, I am of Opinion, that it is almost impossible to be mistaken in the *Physiognomy* of a Person, especially when he speaks; for then, by observing attentively the Motion of his Eyes, if we find that they act in Concert with the Tongue, *i. e.* when it expresses Sorrow, or Affliction, the Eyes appear dull, heavy, and as in a Cloud; and, on the contrary, when it expresses Satisfaction, Pleasure, *&c.* the Eyes sparkle with a fiery Vivacity; such Person speaks the real Sentiments of his Heart, *&c.*

We'll conclude this Treatise, by observing, that *Judicial Astrology* is commonly said to have been invented in *Chaldæa*, and thence transmitted to the *Egyptians*, *Greeks*, and *Romans*. Though some will have it of *Egyptian* Origin, and ascribe the Invention to *Cham*. But we owe it to the *Arabs*. At *Rome* the People were so infatuated with it, that the *Astrologers*, or, as they were then called, the *Mathematicians*, maintained their Ground, in Spite of all the Edicts of the Emperors, as they do here, in Spite of the Acts of Parliament. The *Bramins*, who introduced, and practised this Art among the *Indians*, have hereby made themselves the Arbiters of good and evil Hours, which gives them a vast Authority; they are consulted as Oracles, and they have took Care never to sell their Answer but at a good Rate.

Here among us there is scarce a House where there are not two or three *Astrologers*, especially of the Female Kind, who are more careful to observe a lucky or unlucky Day, than to keep their Family in good Order; who study a Stranger at the Grate, the Motions of a Cat, the Howling of a Dog, the Death-Watch, the Itching of their Elbow, Knee, Feet, or of something else, with a greater Attention than the Education of their Family, and how to please their Husbands; who are two or three Hours poring over an empty Tea-Cup, to see if they could discover in it another Husband, who could keep a Coach and Six (though the first is yet living and in good Heath) or if a secret Intrigue is to succeed according to Expectation, or a Love-Letter to be answered, and an Infinity of other ignorant, stupid, scandalous, ridiculous, and unchristian like Observations, when she should be otherwise employed. These Errors and scandalous Practices proceed from a vitiated Education; and in some Families this Sort of *Astrology*, Divination, or what you'll be pleased to call it, is a Kind of hereditary Distemper, which circulates with the Blood throughout whole Generations, and has its first Origin from the *Auguries* of the *Pagans*, which were Presages taken concerning Futurity, from Birds, Beasts, and the Appearances of the Heavens.

Varro distinguishes four Species of *Augury* according to the four Elements. *Pyromancy*, or *Augury* by the *Fire*; *Aëromancy*, or *Augury* by the *Air*; *Hydromancy*, or *Augury* by the *Water*; and *Geomancy*, or *Augury* by the *Earth*.

PYROMANCY. The Antients imagined they could foretel Futurity by inspecting Fire and Flame; to this End they considered its Direction, or which Way it turned, (which answers very well to the Prognostications we draw from the Manner our Fire burns). Sometimes they added other Matters to the Fire, *e. gr.* a Vessel full of Urine, with its Neck bound about with Wool, watching narrowly on which Side it bursts, and thence taking their *Augury*. Sometimes they threw Pitch on it, and if it took Fire immediately, esteemed it a good *Augury*.

HYDROMANCY. *Varro* mentions the *Persians* as the first Inventors of *Hydromancy*, adding that *Numa Pompilius* and *Pythagoras* made Use thereof.

GEOMANCY, is performed by means of a Number of little Points or Dots made on Paper at Random; and considering the various Lines and Figures, which those Points present; and thence forming a Judgment of Futurity, or deciding any Question proposed.

Polydore Virgil, lib. 1. *c.* 23. *de Invent. Rer.* defines *Geomancy* a Kind of Divination performed by Means of Clefts or Chinks made in the Ground, and takes the *Persian Magi* to have been the Inventors thereof.

The particular Branches of *Augury*, are *Alectoromancy*, *Anthropomancy*, *Belomancy*, *Catoptromancy*, *Capnomancy*, *Gastromancy*, *Aruspicina*, *Libanomancy*, *Lecanomancy*, &c.

ALECTOROMANCY, from αλεκτωρ, a Cock, and μαντεια, Divination, is an antient Kind of *Divination*, performed by Means of a Cock.

This Art was in Use among the *Greeks*, and the usual Manner of it was this. A Circle was made on the Ground, and divided into twenty four equal Portions or Spaces; in each of which Spaces was written one of the Letters of the Alphabet, and upon each of these Letters was laid a Grain of Wheat. This done, a Cock was turned loose in the Circle, and careful Observation made of the Grains he pecked. The Letters corresponding to those Grains were afterwards formed into a Word; which Word was to be the Answer desired.

It was thus that *Libanius* and *Jamblichus* sought who should succeed the Emperor *Valens*; and the Cock answering to the Spaces ΘΕΟΔ, they concluded upon *Theodore*, but by a Mistake instead of *Theodosius*.

ANTHROPOMANCY, from ανθρωπος, Man, and μαντεια, Divination, is a Method of Divination performed by inspecting the *Viscera* of a Person deceased.

BELOMANCY, from βελος, Arrow, and μαντεια, Divination, is a Kind of Divination, by Means of Arrows practised in the East, but chiefly among the *Arabians*.

Belomancy has been performed in different Manners: One was to mark a Parcel of Arrows, and put eleven or more of them into a Bag; these were afterwards drawn out, and according as they were marked, or not, they judged of future Events.

Another Way was to have three Arrows, upon one of which was wrote, *God orders it me*; upon another *God forbids it me*; and upon the third nothing at all. These were put into a Quiver, out of which they drew one of the three at Random; if it happened to be that with the first Inscription, the Thing they consulted about was to be done; if it chanced to be that with the second Inscription, it was let alone; but if it proved that without Inscription, they drew over again.

Belomancy is an antient Practice, and probably that which *Ezekiel* mentions, *c.* xxi. 21. at least St. *Jerom* understands it so, and observes that the Practice was frequent among the *Assyrians* and *Babylonians*. Something like it is also mentioned in *Hosea*, c. iv. only that *Staves* are there mentioned instead of Arrows, which is rather *Rhabdomancy* than *Belomancy*. *Grotius* as well as St. *Jerom* confounds the two together, and shews that it prevailed much among the *Magi*, *Chaldeans*, and *Scythians*; whence it passed to the *Sclavonians*, and thence to the *Germans*, whom *Tacitus* observes to make Use of it.

CATOPTROMANCY, from κατοπτρον, *Speculum*, and μαντεια, *Divinatio*, is a Kind of Divination among the Antients; so called, because consisting in the Application of a Mirrour.

Pausanias says, it was in Use among the *Achaians*, where those who were sick, and in Danger of Death, let down a Mirrour, or Looking-Glass, fastened by a Thread into a Fountain before the Temple of *Ceres*; then looking in the Glass, if they saw a ghastly, disfigured Face, they took it as a sure Sign of Death: On the contrary, if the Face appeared fresh

System of Ptolemy

Primo Mob.
2d Crystall
3d Crystall
Fixed Stars
Saturn
Jupiter
Mars
Sun
Venus
Mercury
Moon

System of Copernicus

System of Ty

fig. 9.

fig. 7

fig. 8

fig. 4

fig. 5

fig. 6

Moon.

Globe

Quadrant.

Globe

Sphere.

Globe

Moon

Moon

Moon

P. Lebrun Sculp

fresh and healthy, it was a Token of Recovery. Sometimes Glasses were used without Water, and the Images of Things future represented in them.

CAPNOMANCY, from καπνος, Smoak, and μαντεια, Divination, is a Kind of Divination by means of Smoke, used by the Antients in their Sacrifices. The Rule was, when the Smoke was thin, and light, and rose strait up, it was a good Omen; if the contrary it was an ill one.

There was another Species of *Capnomancy* consisting in the Observation of the Smoke rising from Poppy, or Jessamin Seed, cast upon light Coals.

GASTROMANCY, from γαστηρ, Belly, and μαντεια, Divination, is a Kind of Divination practised among the Antients, by Means of Words coming, or seeming to come out of the Belly.

There is another Kind of Divination called by the same Name, *Gastromancy*, which is performed by means of Glasses, or other round, transparent Vessels; at the Bottom whereof certain Figures appear by Magick Art. It is thus called, by Reason the Figures appear, as in the Belly of the Vessels.

ARUSPICINA, is the Doctrine or Discipline of the *Aruspices*.

The *Aruspices* were an Order of Priests among the antient *Romans*, who foretold Things to come, chiefly by inspecting the Entrails of Beasts killed in Sacrifice. The Antients were so fond of this Art, that nothing of publick or private Affairs should be transacted without it. In *Aruspicina* it was observed whether the Beast came willingly to the Altar or not. Whether the Entrails were of a natural Colour, and not ulcerated, or whether any Part were defective or wanting; and when *Augustus* found two Galls in his Sacrifice, the Credulity of the People concluded a Hope of Peace with *Anthony*, and the Amity of Persons in Choler with each other.

Cato, who was himself an *Augur*, had so bad an Opinion of the Solidity of the *Aruspicina*, that he used to say he wondered how one *Aruspex* could look at another without laughing in his Face.

The *Augurs* made a College of Community, which at first consisted of three Persons (one for each Tribe); then of four (when *Servius Tullius* encreased the Tribes to that Number;) then of nine (four of them Patricians, and five Plebeians:) *Lastly*, *Sylla* made the Number fifteen. They bore an augural Staff or Wand, called *Lituus*; as the Ensign of their Office and Authority. No Affair of Moment, as I have already observed could be resolved on, without first consulting them; and their Advice, be what it would, was, by a Decree of the Senate, appointed to be exactly and religiously observed; but in all Appearance, their Advice was always agreeable to the Sentiments of the Senate, else I am of Opinion, that he had made no Scruple, to follow a contrary one, or else, which is the more likely, those Advices were dictated by the Senate, and that Mummery of consulting the *Augurs* was only to render his Decrees more solemn to the People, who are always easily imposed upon by an outward Shew of Religion; for it is not reasonable to suppose, that the most sensible Part of that warlike and judicious Nation could have been thus led by the Nose, or believed blindly all their superstitious Ceremonies, and the pious Frauds and Impostures, invented with no other Design than to abuse the Ignorance, and too great Credulity of the Vulgar.

ASTRONOMY.

ASTRONOMY, from αστηρ, Star, and νομος, Law, Rule, is the Doctrine of the Heavens, and the *Phænomena* thereof.

HEAVEN is that immense Region, wherein the Stars, Planets, and Comets are disposed; but *Heaven* is more particularly used in this Place, for an *Orb* or circular Region of the Ætherial *Heaven*.

The antient *Astronomers* assumed as many different *Heavens* as they observed different Motions therein. These they supposed all to be solid, as thinking they could no otherwise sustain the Bodies fixed in them; and spherical, as being the most proper Form for Motion. Thus we had seven *Heavens* for the seven *Planets*, *viz.* the *Heavens* of the *Moon*, *Mercury*, *Venus*, the *Sun*, *Mars*, *Jupiter*, and *Saturn*. The eighth was for the fixed Stars, which they particularly called the *Firmament*. *Ptolemy* added a ninth, (as we'll see when we come to examine his Hypothesis) which he called the *Primum Mobile*. After him two crystalline *Heavens* were added by King *Alphonsus*, to account for some Irregularities in the Motions of the other *Heavens*; and *lastly* an *Empyrean Heaven* was drawn over the whole; for the Residence of the Deity, which made the Number twelve.

The *Crystalline Heavens* were not supposed to have any Stars fixed in them: They encompassed the inferior, starry, and Planetary *Heavens*, and communicated their Motion to them. The first served to account for that slow Motion of the fixed Stars, whereby they advanced a Degree Eastward in 70 Years; whence the Procession of the *Equinox*. The second was to solve the Motions of Libration, or Trepidation. But others admitted many more *Heavens*, according as their different Views and Hypotheses required. *Eudoxus* supposed 23, *Calippus* 30, *Regiomontanus* 33, *Aristotle* 47, and *Fracastor* no less than 70.

We may add, that the *Astronomers* did not much concern themselves whether the *Heavens* they thus allowed of were real or not, provided they served a Purpose in accounting for any of the celestial Motions, and agreed with the *Phænomena*. Among the other Reveries of the *Rabbins* contained in the *Talmud*, we find it asserted, that there is a Place where the *Heavens* and Earth join together; that *Rabbi Barchana* going thither, laid his Hat on the Window of *Heaven*; and that going to take it again immediately after, it was gone, the *Heavens* having carried it off; so that he must wait for a Revolution of the Orbs to bring it to its Place again.

The *Heavens* may be considered two Ways; either as they appear to the naked Sense, or as they are discovered by the Understanding; and hence *Astronomy* is divided into two Branches, *Spherical* and *Theorical*.

SPHERICAL *Astronomy*, is that Part of *Astronomy* which considers the Universe, such as it appears to the Eye. Under *Spherical Astronomy*, then come all the *Phænomena* and Appearances of the *Heavens* and heavenly Bodies, such as we perceive them; without any Inquiry into the Reason, the Theory, or the Truth thereof. In this Kind of *Astronomy*, the World is conceived to be a Concave, *spherical* Surface, in whose Center is the Earth, or rather the Eye, about which the visible Frame revolves, with Stars and Planets fixed in the Circumference thereof, and on this Supposition all the *Phænomena* are determined.

'Tis called *spherical Astronomy*, from the *Sphere*, the Subject thereof; and which is that concave *Orb* or Expanse, which invests our Globe, and in which the heavenly Bodies, Sun, Stars, Planets, and Comets appear to be fixed at an equal Distance from the Eye.

This *Sphere* (as it includes the fixed Stars, whence we also call it the *Sphere* of the fixed Stars) is vastly great. The Diameter of the Earth's *Orbit* is so small in Respect of the Diameter hereof, that the Center of the *Sphere* is not sensibly changed by any Alteration of the Spectator's Place in the several Parts of the *Orbit*:

Orbit: But ſtill, in all the Points of the Earth's Surface, and at all Times, the Inhabitants have the ſame Appearance of the *Sphere*; that is, the fixed Stars ſeem to poſſeſs the ſame Points in the Surface of the *Sphere*. For our Way of judging of the Places, *&c.* of the Stars, is to conceive right Lines drawn from the Eye, or the Center of the Earth, through the Centers of the Stars, and continued thence, till they cut the aforeſaid *Sphere*; the Points where theſe Lines terminate therein, are the apparent Places of thoſe Stars.

The better to determine the Places of the heavenly Bodies in the *Sphere*, ſeveral Circles are imagined to be deſcribed on the Surface thereof; hence called Circles of the *Sphere*; which are ten in Number, *viz.* ſix greater, and four leſſer.

The greater are, the (a) *Horizon*, (b) *Meridian*, (c) *Equator*, (d) *Ecliptick*, (e) the *Colures*, and the (f) *Azimuths*; which are all equal, and cut each other into equal Portions, or Semicircles, and cut the whole *Sphere* into two equal Parts, or *Hemiſpheres*, having their Center in the Center thereof.

The *leſſer Circles* are, the two (g) *Tropicks*, and the two (h) *Polars*; which divide the *Sphere* into two unequal Parts.

Of the four *greater Circles*, there are three, *viz.* the *Horizon*, *Meridian*, and *Equator*, whoſe Poles, or the Points they are underſtood to be drawn or deſcribed from, are of very great Conſequence in the *Sphere*, and are called *Cardinal Points*. The two firſt are the *Arctick*, or *North Pole*, which is that viſible to us; and its oppoſite the *Antarctick*, or *South Pole*. Theſe two Points, each 90 Degrees diſtant from the *Equator*, are called, by way of Excellence, the *Poles of the World*, and are the two Extremities of the *Axis* whereon the *Sphere* revolves; whence their Name πολος, from πολειν, *vertere*, to turn. The next to theſe, are the *Zenith* and *Nadir*, called *vertical Points*; one directly over our Heads, which is the *Zenith*; and the other, *viz.* the *Nadir*, directly under our Feet.

The ZENITH, is a Point in the Surface of the *Sphere*, from which a right Line, drawn through the Spectator's Head, paſſes through the Center of the Earth. Hence there are as many *Zeniths* as there are different Places on the Earth where the Heavens may be ſeen; and upon the changing our Place, we alſo change our *Zenith*.

The NADIR, is that Point diametrically oppoſite to the *Zenith*. The *Nadir* is the *Zenith* to our *Antipodes*; as our *Zenith* is the *Nadir* to them. Theſe two Points are alſo the *Poles* of the *Horizon*.

The other *Points*, are the EQUINOCTIAL, wherein the *Ecliptick* and *Equator* interſect; particularly that whence the *Sun* aſcends towards the *North Pole*, is called the *vernal Point*; and that by which he deſcends to the *South Pole*, the *autumnal Point*. Which Points are conſidered as the *Poles* of the *Meridian*.

Having conſidered theſe *Points*, we'll proceed to the *Examen* of the ſeveral different Circles which we imagine to compoſe the *Sphere*, beginning by the greater, and of them, by the *Horizon*.

The HORIZON, (in *Greek* ὁριζων, from ὁριζω, *termino*, *definio*; and in *Latin*, *finitor*, finiſher) is a *Circle*, which when, from an even and open Place, we turn our Eyes round about us, terminates every where our Sight, and ſeems to join the Heavens and Earth together; and ſerves, as I have already obſerved, to divide the *Sphere*, or the World, into two equal Parts, or Hemiſpheres, *viz.* ſuperior, and inferior; and is ſuppoſed to be deſcribed from the two Points oppoſite to us, *i. e.* the *Zenith* and *Nadir*: So that when we change Place, we alſo change the *Horizon*, becauſe the *Zenith* and *Nadir* are changed.

The MERIDIAN (the ſecond great *Circle* in Order) is a *Circle* of the *Sphere*, paſſing through the *Zenith*, *Nadir*, and *Poles* of the World, and dividing the *Sphere* into two *Hemiſpheres*, the one eaſtern, and the other weſtern.

It is called *Meridian*, from the *Latin*, *meridies*, Noon, or Mid-day; by reaſon when the *Sun* is in this *Circle*, the Day is half ſpent, in thoſe Places ſituate under it; the Sun being then at an equal Diſtance from the *Orient* and *Occident*, or from the *Eaſt* and *Weſt*.

The EQUATOR, (the third of the great *Circles* we have imagined) is a *Circle* of the *Sphere* equally diſtant from the two *Poles* of the World, or having the ſame *Poles* with thoſe of the World. It is called *Equator*, by reaſon when the *Sun* is therein, the Days and Nights are equal; which happens twice a Year, *viz.* according to the *New Style*, about the twentieth Day of *March*, and the twenty-third of *September*; whence, alſo, it is called *Equinoctial*.

Every Point of the *Equator* is a Quadrant's Diſtance from the *Poles* of the World; whence it follows, that the *Equator* divides the *Sphere* into two Hemiſpheres, in one of which is the northern, and in the other the ſouthern *Pole*; which are both joined by an imaginary Line, called the *Axis* of the World.

The *Equator*, by its Converſion from Eaſt to Weſt, meaſures the Day. For the *Equator* being cut into 360 Parts, or Degrees, and the Day divided into 24 Hours, 15 of thoſe Degrees are elapſed in the Space of an Hour. Hence we have frequent Occaſion for the Converſion of Degrees of the *Equator* into Time; and, again, for the Re-converſion of Parts of Time into Parts of the *Equator*. For Performance whereof, we refer to our Treatiſe of *Geography*.

We muſt obſerve here, that from the various Poſition of the *Equator* to the *Horizon*, we uſe to diſtinguiſh a triple Situation of the *Sphere*. For thoſe are ſaid to have the *Sphere direct*, who dwell under the *Equator*; becauſe the *Equator* cuts their *Horizon* at right Angles. On the contrary, the *Sphere* is *oblique* to thoſe who inhabit the Parts between the *Equator* and the *Poles* of the World; becauſe the *Equator* cuts their *Horizon* in an oblique Manner. And thoſe who are placed under the *Poles*, have the *Sphere* parallel; becauſe the *Equator* is parallel to their *Horizon*; or rather, is the ſame as their *Horizon*, and is parallel to the *Tropicks* and *Poles*.

Between theſe four great *Circles*, is a *Faſcia*, or broad *Circle*, called ZODIACK, whoſe Middle is in the *Ecliptick*, and its Extremes two *Circles* parallel thereto, at ſuch a Diſtance from it, as to bound or comprehend the Excurſions of the Sun and Planets. It is called *Zodiack*, from the *Greek* ζωον, an Animal; by reaſon of the Conſtellations therein. Others derive it from ζωη, Life; from an Opinion that the Planets have a great Influence on animal Life.

The *Sun* never deviates from the Middle of the *Zodiack*, *i. e.* from the *Ecliptick*, (which is a Line drawn in the Middle of the *Zodiack*) the *Planets* all do it, more or leſs. Their greateſt Deviations, called *Latitudes*, are the Meaſure of the Breadth of the *Zodiack*; which is broader, or narrower, as the greateſt Latitude of the *Planets* is made more or leſs. Accordingly, ſome make it 16, ſome 18, and ſome 20 Degrees broad.

The ZODIAC cutting the *Equator* obliquely, makes an Angle therewith of 23 Degrees and an half; or, more preciſely, of 23° 29′, which is what we call the *Obliquity of the Zodiack*, and is the Sun's greateſt Declination.

The *Zodiac* is divided into twelve Portions, called *Signs*; and thoſe Diviſions, or *Signs*, are denominated from the Conſtellations which antiently poſſeſſed each Part. *Auſonius* has comprehended the Names of thoſe *Signs*, in the two following Verſes:

Sunt Aries, Taurus, Gemini, Cancer, Leo, Virgo,
Libraque, Scorpius, Arcitenens, Caper, Amphora,
Piſces.

But the *Zodiack* being immoveable, and the Stars having a Motion from Weſt to Eaſt, thoſe Conſtellations no longer correſpond to their proper *Signs*; whence ariſes what we call the *Preceſſion* of the Equinoxes, a Term applied to the Equinoxes, which, by a very

very slow, insensible Motion, change their Places, going backwards, or westward, *i. e. in antecedentia*, as Astronomers call it, or contrary to the Order of the *Signs*.

When a Star, therefore, is said to be in such a *Sign* of the *Zodiack*, it is not to be understood of that *Sign*, or *Constellation* of the Firmament; but only of that twelfth Part of the *Zodiack*, or *dodecatemory* thereof.

Cassini has also observed a Track in the Heavens, within whose Bounds most of the Comets, though not all of them, are observed to keep, which, for this Reason, he calls the *Zodiack* of the Comets. This he makes as broad as the other *Zodiack*, and marks it with *Signs*, and *Constellations*, like that; as *Antinous*, *Pegasus*, *Andromeda*, *Taurus*, *Orion*, the *lesser Dog*, *Hydra*, the *Centaur*, *Scorpion*, and *Sagittary*.

The Points of the *Ecliptick* whereby the Sun's Ascent above the *Equator*, and its Descent below it, are terminated, are called *solstitial Points*. The first Point, which is the Beginning of the first Degree of *Cancer*, is called the *Æstival*, or *Summer Point*; and the latter, which is in the Beginning of the first Point of *Capricorn*, the *Winter Point*: Therefore the Time when the Sun is in one of the *solstitial Points*, that is, when he is at his greatest Distance from the *Equator*, which is 23 Degrees and an half, is called *Solstice*, because he then appears to *stand still*, and not to change his Place in the Degrees of the *Zodiack*, any Way; not that he does not follow, then, his usual Course from East to West, but because he is no longer perceived to advance towards the *Septentrion*, or *Meridian*; an Appearance owing to the Obliquity of our *Sphere*, and which those who live under the *Equator* are Strangers to.

The SOLSTICES are two in each Year, the *Æstival*, or *Summer Solstice*; and the *Hyemal*, or *Winter Solstice*. The *Summer Solstice* is when the Sun is in the *Tropick*, which is on the 11th of *June*; when he makes the longest Day. The *Winter Solstice* is when he enters the first Degree of *Capricorn*, which is on the 11th of *December*; when he begins to return towards us, and makes the shortest Day.

This is to be understood as in our northern Hemisphere; for in the southern, the Sun's Entrance into *Capricorn* makes the *Summer Solstice*; and that into *Cancer* the *Winter Solstice*.

Besides these two *solstitial Points* placed in the Beginning of *Cancer* and *Capricorn*, there are two others in the Beginning of *Aries* and *Libra*, called *equinoctial*; which are the two Points wherein the *Equator* and *Ecliptick* intersect each other. That in the first Point of *Aries* is called the *vernal*; and the other, in the first Point of *Libra*, the *autumnal Point*. In these four Points, *viz.* the two *solstitial*, and the two *equinoctial*, the four Seasons of the Year begin; *viz.* the *Spring*, the *Summer*, the *Autumn*, and the *Winter*.

Through these Points passes two Circles, the last of the greater ones, called COLURES, from κολος, *mutilus*, or *truncatus*, and ουρα, Tail, *q. d.* appearing with the Tail cut off; because never seen entire above the Horizon. One of them, because passing through the *solstitial* Point of the *Ecliptick*, is called *solstitial Colure*; and the other *equinoctial*, because it passes through the *equinoctial* Point. These two *Colures* are imagined to intersect each other at right Angles, in the Poles of the World.

The four lesser Circles, which divide the *Sphere* into two unequal Segments, are the two *Tropicks*, and the two *Polars*.

The TROPICKS, iK, are two Circles parallel to the *Equator*, at such Distance therefrom, as is equal to the Sun's greatest Recess from the *Equator* towards the Poles; or to the Sun's greatest Declination; or the Obliquity of the *Ecliptick*. Of the two *Tropicks*, that drawn through the Beginning of *Cancer* is called the *Tropick of Cancer*; and that through the Beginning of *Capricorn*, the *Tropick of Capricorn*.

They have their Names from the *Greek* τροπη, turn, Conversion; as being the Limits of the Sun's Way, or Declination towards the North and South; so that when the Sun is arrived at either of them, he turns the other Way.

Hence, 1. Since the Declination of the *Ecliptick* is the Arch B D, A C will be the Distance of the *Tropicks*; which is double the greatest Declination.

2. Wherefore, if the Sun's Meridian Altitude be observed, both in the Winter and Summer *Solstice*, and the latter be substracted from the former, the Remainder will be the Distance of the *Tropicks*; half whereof is the greatest Declination of the *Ecliptick*.

The POLAR CIRCLES, p q, are two lesser Circles of the *Sphere*, parallel to the *Equator*, at the Distance of 23 Degrees from each Pole, serving to mark the Beginning of the Frigid Zones. The *Polar Circles* are particularly denominated from their respective neighbouring Poles, the *Arctick* and *Antarctick*.

These several *Circles* are represented in their natural Order, in an artificial *Sphere* called *Armillary*, from its consisting of a Number of *Fasciæ*, or Rings of Brass, or other Matter; called, by the *Latins*, *Armillæ*, from their resembling of Bracelets, or Rings for the Arms. This *Armillary Sphere* serves to give an Idea of the Office and Position of each Circle thereof, and to solve various Problems relating thereto.

Armillary Spheres are of different Kinds, with regard to the Position of the Earth therein; whence they become distinguished into *Ptolemaic* and *Copernican Spheres*; in the first whereof the Earth is in the Center, and in the latter near the Circumference, according to the Position which that Planet obtains in those Systems.

The *Ptolemaic Sphere*, is that commonly in Use. In the Middle, upon the *Axis* of the *Sphere*, is a Ball T, representing the Earth, on whose Surface are the Circles, *&c.* of the Earth. The *Sphere* is made to revolve about the said *Axis*, which remains at Rest; by which Means the Sun's diurnal and annual Course about the Earth, are represented, according to the *Ptolemaick Hypothesis*: And even, by Means whereof, all Problems, relating to the *Phænomena* of the Sun and Earth, are solved as upon the Celestial Globe, and after the same Manner.

The *Copernican Sphere*, is very different from the *Ptolemaic*, both in its Constitution and Use; and more intricate in both. Indeed the Instrument is in the Hands of so few People, and its Use so inconsiderable, except what we have in the more common Instruments, particularly the *Globe*, and *Ptolemaic Sphere*, that we shall be easily excused the not filling up Room with any Description thereof.

Having thus far proceeded on the Doctrine of the *Sphere*, and mentioned here the *Ptolemaic* and *Copernican Spheres*; I judge it proper, for the Instruction of those who have not the least Tincture of *Astronomy*, and to leave nothing untouched which could contribute toward the Elucidation of all, and every one of the Problems of that divine Science, to attempt in this Place the several Systems, or Hypotheses, of the World, but more particularly, those of *Ptolemy*, *Copernicus*, and *Tycho Brahe*; beginning with the Definition of *System*.

SYSTEM, in *Astronomy*, denotes an *Hypothesis*, or Supposition, of a certain Order, and Arrangement of the several Parts of the Universe; whereby *Astronomers* explain all the *Phænomena*, or Appearances of the heavenly Bodies, their Motions, Changes, *&c.* *System* and *Hypothesis* have much the same Signification; unless, perhaps, *Hypothesis* be a more particular *System*; and *System* a more general *Hypothesis*.

Some late Authors, indeed, furnish a further Distinction: An *Hypothesis*, say they, is a mere Supposition, or Fiction; founded rather on Imagination, than Reason: A *System* is only built on the firmest Ground, and raised by the severest Rules: It is founded on *astronomical* Observations, and physical Causes, and confirmed by geometrical Demonstrations.

The most celebrated *Systems* of the World are, as I have already observed, the *Ptolemaick*, the *Copernican*, and the *Tychonick*; the Œconomy of each whereof is as follows:

PTOLEMAICK *System* places the Earth at Rest in the Center of the Universe; and makes the Heavens, solid and uncorruptible, revolve round the same from *East* to *West*, and carry all the heavenly Bodies, Stars, and Planets along with them.

It is called *Ptolemaick System*, not because *Ptolemy* is the Author of it, but because he has perfected it; since the *Egyptians* and *Chaldeans*, two Nations, much addicted to *Astronomy*, had, long before him, placed the Earth likewise at Rest in the Center of the Universe; and imagining they had observed eight different Motions in the *Heavens*, *viz.* the Motion of the fixed Stars from *East* to *West* in 24 Hours; and the Motion of the seven Planets from *West* to *East*, they thought fit to distinguish eight different heavenly *Orbs*, which moved round the Earth, *viz.* the *Orb* of the fixed Stars, and seven *Orbs* for the seven Planets.

Plato, *Aristotle*, *Eudoxus*, *Calippus*, and almost all the most famous *Astronomers*, who preceeded *Ptolemy*, followed this System, and were pleased to call the *Orb* or *Heaven* of the fixed Stars *primum mobile*, under the Supposition, that by its Motion the inferior Orbs of the Planets were carried in the Space of 24, or rather 23 Hours, 56 Minutes, 4 Seconds from *East* to *West*.

They had also appointed a certain Period of Time for the Planets to perfect their Course from *West* to *East*, each in its respective Orb, against the Motion of the *Primum Mobile*; viz. *Saturn* accomplished his in almost thirty Years, *Jupiter* in twelve, *Mars* in two, the *Sun* in one, *Venus* in a little more than seven Months, *Mercury* in three Months, and the *Moon* in one Month.

The *Astronomers*, who succeeded these, particularly *Arsatilis* and *Timocharis* (who flourished at *Alexandria* about 330 Years before the Birth of Christ,) having compared their own Observations, with those of their Predecessors imagined to have discovered in the fix'd Stars, a Motion from *West* to *East*; confirmed therein, by pretending to have observed, that the first and the most occidental or westward Star in the Horn of *Aries*, which the antient *Astronomers* had discovered in the greater Circle of Latitude, passing through the Poles of the Zodiac and the vernal equinoctial Point, had, according to the Order of the *Signs*, or by Consequence, advanced further with the rest of the Stars, which was confirmed two hundred Years afterwards by *Hypparchus*, and also by *Ptolemy* himself, in the Year of *Christ*, 130; therefore above the Firmament, or the *Heaven* of the Stars, which *Ptolemy* supposed to be carried round its Orb, by its proper Motion, in the Space of 36000 Years, they thought proper to imagine a ninth *Heaven*, as a *primum mobile*, which, in the Space of 24 Hours, could carry the other *Heavens* along with him, from *East* to *West*; which Opinion was defended afterwards by *Albategnius*, *Alphraganus*, *John de Sacrobosco* and others; but in the thirteenth Century *Thebitius* and *Alphonsus*, King of *Castille*; and in the fourteenth, *George Puerbach*, and *John Regiomontanus* discovered, or rather thought to have discovered in the Firmament or eighth *Sphere*, a third Motion, which they called Trepidation.

The Sectators of King *Alphonsus* conceived three Motions in the eighth *Sphere*; the first they called *Raptus*, whereby the eighth *Sphere*, together with the rest of the inferior *Orbs*, were carried by the *Primum Mobile*, in the Space of 24 Hours, from *East* to *West*. They were pleased to give it a second Motion which they called *Proper*, whereby, in the Space of 49000 Years, it was carried from *West* to *East*; and the third they divided into two Librations, whereby the same eighth *Sphere* seemed to waver or librate through an Arch of two Degrees and twenty Minutes, sometimes to the *East*, and sometimes to the *West*. They attributed the first Titubation, or Libration to a ninth *Sphere*, and the last, to a tenth, calling those two *Spheres* the *Chrystalline Heavens*; the first served to account for that slow Motion of the fixed Stars above-mentioned, and the second was to solve the Motions of Libration and Trepidation.

Note, That the *Motion of Trepidation* is a Kind of Libration or Shaking, which the antient *Astronomers* attributed to the *Chrystalline Heaven*, to account for certain Irregularities, which they observed in the Motion of the Planets.

Therefore in this *Hypothesis* the ninth *Sphere* is the first *Chrystalline Heaven*, and the tenth the second *Chrystalline*; and consequently there should be eleven *Mobile Heavens*; to which some famous Theologians, and the *venerable Bede* among the rest, have added a twelfth, which they place above the rest, for the eternal Mansion of the Blessed, and which they call *Empyreum*; and this they make immobile and Square; because 'tis said in the *Apocalypse*, *c.* 21. *v.* 16. that the celestial City is placed in a Square. The Order of these twelve *Heavens*, is expressed in the following Verse:

Em mo cry cry fi: Sa ju ma Sol ve me lu.

i. e. Empyreum; *Primum Mobile*; the second *Chrystalline*; the first *Chrystalline*; the Firmament, *Saturn* designed by a Scythe; *Jupiter* by a Thunderbolt; *Mars* by a Buckler; *Sol* by his Disk; *Venus* by a Mirrour; *Mercurius* by his Cadduce; and the *Moon* by a Crescent.

But as the *Alphonsians*, besides the proper Motion of the fixed Stars, or of the Firmament, from *West* to *East*, have attributed to the same Firmament or eighth *Sphere*, another Motion (though a very uncertain one) which they called *Trepidation*; they have in the same Manner extended their Liberality to the inferior Planets, to each of whom (the *Sun* excepted) they have granted, besides their proper Motion from *West* to *East*, another which they call *Retrogradation*; besides the *Sun*, as well as the other Planets is sometimes more and sometimes less distant from us. Whence *Ptolemy*, to explain all those Appearances, has imagined *Excentrick Circles*, and *Epicicles*. By the *Excentrick*, he pretends to give sufficient Reasons for the greater or lesser Distance of the Planets from the Earth; and to explain by the *Epicycles* their *Station*, *Direction*, and *Retrogradation*.

An EXCENTRICK CIRCLE, is a Circle which has not the same Center with the Earth, and is in this System the very *Orbit* of the Planet itself, and which it is supposed to describe about the Earth, and which is conceived *Excentrick* thereto. The antient *Astronomers* called also this Circle *Deferent*, because passing through the Center of the Planet it seems to support or sustain in its *Orbit*.

The PTOLEMAICK EPICYCLE is a Sphere which revolves with the *Moon*, of the Thickness allowed its *Heaven* or *Orbit*; and which sometimes shews it higher and sometimes lower.

Having thus given a general Idea of the *Ptolemaick System*, which all the modern *Astronomers* reject, as contrary to all their Observations, and attended with several Absurdities, though in some Measure more agreeable to the Scripture, which Places the Earth at rest upon its own Stability. We'll proceed to the COPERNICAN SYSTEM.

This System, which attributes a Motion to the Earth, has had its Partisans in all Ages. *First*, *Aristotle* tells us, *l.* 2. *de Cœlo. c.* 13. that *Pythagoras* and his Disciples had placed the *Fire* or *Sun*, as the most perfect of the Elements in the Center of their System, and made the Earth move like a Planet round it; to which this other Opinion of the *Pythagoreans*, that the heavenly Bodies move, and by their Motion form an Harmony among them, is in no manner contrary; since the Earth, being a *Planet*, and having its

its Motion like the reſt, might be ſaid to obſerve by that Motion a conſtant Order, and to form an Harmony with the reſt of the heavenly Bodies.

Ariſtarchus the *Samian*, *Philolaus*, *Heraclides*, *Nicetas* of *Siracuſa*, *Ecphantus*, *Leucippus*, and *Plato* himſelf defended the *Pythagoræan Hypotheſis*, which when once reduced into a better Form by *Aſtronomical* Obſervation, acquired ſo great a Reputation, that it was very much illuſtrated by Cardinal *Cuſanus*; and after him *Nicholas Copernicus*, a Prebend of *Thorn* in *Poland*, employed thirty Years in an aſſiduous Labour, *viz.* from 1500 to 1530, to eſtabliſh it on the ſureſt and moſt demonſtrable Principle, hence it has been called ſince the *Copernican Hypotheſis*; and has been followed by almoſt all the moſt modern *Aſtronomers*, as *Joachim Rheticus*, *Chriſtopher Rothmannus*, *Meſthlinus*, *Eraſm. Reinold*, Computator of the *Prutenick-Tables*, *Kepler*, *Galilæo*, among the reſt, *Renatus des Cartes*, who by the new, perfect, and eaſy Method he has reduced it to, can claim a Right to it as his own. This *Hypotheſis* is digeſted in the following Manner.

The *Sun* (a) is placed in the Middle of our *Vortex*, or *Syſtem*, as a fixed Star. Around the *Sun* move in ſeveral *Orbits*, firſt *Mercury*, (b) who accompliſhes his Courſe in the Space of three Months; then *Venus*, (c) who perfects hers in eight Months. Afterwards comes the great *Orbit*, (e) which the Earth runs round in its annual Motion. About the Earth in a particular *Orbit* moves the *Moon*, (d) or rather *Ellipſis*, and who accompliſhes her Courſe in the Space of a Month. The great *Orbit* of the Earth is received into the Circle of *Mars*, which *Mars* over-run in the Space of two Years; to this ſucceeds the Circle of the *Orbit* of *Jupiter*; and to *Jupiter*, *Saturn*, or the *Orbit* of *Saturn*; ſo that *Jupiter*, in his *Orbit*, in the Space of twelve Years, and *Saturn* in his, in the Space of thirty, accompliſh their Courſes or Periods. Beſides as the *Moon* moves round the Earth, likewiſe four ſmall *Moons*, or Satellites move round *Jupiter*, and five round *Saturn*.

If we believe *des Cartes*, there are in our *Vortex* or *Syſtem*, in whoſe Center the *Sun* is placed, ſeveral ſmaller *Vortices*, *viz.* thoſe of *Saturn*, *Jupiter*, and of the *Earth* itſelf. In the Earth's *Vortex*, the *Moon* moves, as in an *Ellipſis*; and in the *Vortex* of *Saturn*, and of *Jupiter* moves *Saturn*, and *Jupiter*'s Satellites. The ſame *Des Cartes* believes, that what we have conceived of our *Vortex* can alſo be applied or attributed to all the others, which we may imagine round the fixed Stars; for every one of the fixed Stars ſeem to him as ſo many *Suns*, which have every one of them their *Vortex*.

The *Copernican* and *Carteſian Syſtem*, being thus clearly demonſtrated, we'll proceed to the Explication of its different *Phænomena*.

1. When the *Earth* by its diurnal Motion, is carried from *Weſt* to *Eaſt*, the *Sun* appears to us to be carried from *Eaſt* to *Weſt*, whence proceeds the Viciſſitude of the Day and Night.

2. The Earth moves not only round its *Axis*, but proceeds alſo each Day in the great *Orbit* or *Zodiack*, according to the Order of the *Signs*, in the ſame Manner a Globe rolled on a Plan, proceeds according to the Length of the Plan, while its Superficy turns round the Center or Axis; or as a Bird, flying from one End of a Ship under Sail to the other, moves alſo with the Ship. Therefore, while the Earth is between the *Sun* and one of the Signs, the *Sun* appears to be in the Sign oppoſite to that, *v. gr.* Suppoſe the *Earth* to be between *Aries* and the *Sun*, the *Sun* appears then to be in *Libra*; if the *Earth* be in *Cancer*, or between the *Sun* and *Cancer*, the *Sun* will be ſeen in *Capricorn*. In a Word if the Earth be in the boreal or northern *Signs*, the *Sun* will appear in the Auſtral or Southern *Signs*, and *vice verſa*.

3. In this Hypotheſis the *Axis* of the *Earth*, muſt always be conceived Parallel to itſelf, and to the *Axis* of the *Equator*; for if it was parallel to the *Axis* of the *Ecliptick*, there would be a perpetual and univerſal *Equinox*: That's to ſay, that the Days would be always, and every where, equal to the Nights; and there would happen no Changes in the Seaſons. But as the *Axis* of the Earth, being parallel to the *Axis* of the *Equator*, or of the World, exceeds 23 Degrees and an half from the *Axis* of the *Ecliptick*, and therefore inclines to the *Plane* of the *Ecliptick*, ſo as to form an Angle of 66 Degrees, 30 Minutes, and to keep always its Parallelism with the *Axis* of the World, or to move always in the ſame ſenſible Parts of *Heaven*; hence proceeds, while the Earth by its annual Motion is carried round the *Sun*, that Succeſſion in the Viciſſitude or Changes of Seaſons; for Example:

If at the Beginning of *Summer* (while the *Sun* appears in *Cancer*, and the Earth is in *Capricorn*) the Earth be placed in Œ, (*Fig.* 2.) and its *Axis* (S M) be parallel to the *Axis* of the World; and therefore diſtant 23 Degrees, 30 Minutes from the *Axis* of the *Ecliptick*, and conſequently inclined to the Plan of the annual *Orbit* of the Earth, agreeable to the Angle, B Œ H, 66 Degrees and an half, the *Ray* of the *Sun* perpendicular to the Earth, or the *Ray* carried from the *Sun*'s Center to the Earth's Center will touch the Superficy of the Earth, not in the terreſtrial *Equator*, but in the *Tropick* of *Cancer*, remote 23 Degrees 30 Minutes from the *Equator* towards the *Pole Arctick*, and therefore the illuminated Hemiſphere will comprehend the whole Circle Polar, *Arctick*; and exclude the whole *Antarctick*.

Let the Earth be transferred into, A, at the Beginning of *Autumn*, and the *Axis* of the Earth, S M, always remain Parallel, as well to itſelf, as to the *Axis* of the World: As the *Sun* appears at that Time in *Libra*, the Earth being then in *Aries*, the *Ray* conducted from the *Sun*'s Center to the Earth's Center, *perpendicular* then, to the *Axis* of the World, will fall on the Superficy of the Earth at the Beginning of *Libra*, and be diſtributed to both Poles.

Let's now imagine the *Earth* in, H, at the Beginning of *Winter*, the perpendicular *Ray* of the *Sun* (the Parallelism of the *Axis*, S M, always remaining) will fall on the *Tropick* of *Capricorn*; and therefore the illuminated, or lighted Hemiſphere, will contain within itſelf the *Antarctick* Pole, and exclude the *Arctick*.

Laſtly, The *Earth* being placed in, V, at the Beginning of the *Spring*, *i. e.* at the Beginning of *Libra*, at which Time the *Sun* appears in *Aries*, the *Ray* conducted from the *Sun*'s Center to the *Earth*'s Center will reach the Superficy of the *Earth* at the Beginning of *Aries*, and then both Poles will be again illuminated; but as the illuminated Face of the *Earth* looks at the *Sun*, it cannot be conſpicuous to us who are placed without the *Figure*.

Thus the *Copernicans* explain, and elucidate the Viciſſitudes of the Seaſons.

Note, That a PARALLELISM, of the Earth's Axis, which we have mentioned ſeveral Times in this Place, is that Situation, or Motion of the Earth's *Axis*, in its Progreſs through its *Orbit*, whereby it ſtill looks to the ſame Point of the Heavens, *viz.* toward the Pole Star; ſo that if a Line be drawn parallel to its *Axis*, while in any one Poſition; the *Axis*, in all other Poſitions or Parts of the *Orbit*, will always be parallel to the ſame Line. This *Parallelism* is the neceſſary Reſult of the Earth's double Motion; the one round the *Sun*, the other round its own *Axis*. Nor is there any Neceſſity to imagine a third Motion, as ſome have done, to account for this *Parallelism*.

The Space B C, or D E, in the Sphere of the fixed Stars, which is equal to the annual *Orbit* of the Earth, appearing almoſt as a Point, by reaſon of its too great Diſtance from us; hence it follows, that the *Axis* of the Earth, in each Point of its great *Orbit*, ſhould always appear directed to the ſame Points, or Parts of the World; ſo that there ſhould always appear the ſame Altitude of the Pole, the ſame vertical Stars, and of

of the same Magnitude, with respect to the same Part of the World, although the Earth, by its annual Motion in the Zodiack, should approach nearer these or those Stars, or nearer the North or South.

If this *Hypothesis* should appear ridiculous, or impossible, to some, the *Copernicans* would tell them, that they should remember the great Absurdities found in the *Ptolemaic System*; as the prodigious Rapidity with which the *Primum mobile* must accomplish its diurnal Course; then the Revolution of the inferior Spheres, against the Motion of the *Primum mobile*, though they are daily carried along with it. Which Absurdities are corrected, by the *Copernican Hypothesis*; since, by the diurnal Motion of the Earth, that incredible Velocity of the *Sun*, as well as that of the fixed Stars, whereby the remotest should be carried with 400,000 Times more Rapidity than a Ball from a Cannon) is rendered vain, and useless. How easier it is, say they, for the small Sphere of the Earth, so fit for Motion, by its round Figure, to move round the *Sun*; than for a huge Machine, whose exterior Figure is utterly unknown, to be carried with such incredible Velocity round so small a *Pole* as the Earth.

When it is said, in the *Copernican Hypothesis*, that the Earth, while carried through its great annual *Orbit*, keeps the *Parallelism* of its *Axis*; this is not to be so strictly understood, as if that *Axis* did not change a little its *Situation*, and could not by a very slow Motion, *viz.* in the Space of 25816 *Egyptian* Years, according to *Copernicus*, describe a certain Circle, towards the Poles of the *Zodiack*, against the Order of the *Signs*, or from East to West; the Semidiameter of which Circle, is, according to the said *Copernicus*, 23 Degrees, and 40 Minutes: Whence it must follow, that the Intersections of the *Ecliptick*, and of the *Equator*, or the *equinoctial Points*, are carried, by the same Motion, against the Order, or *in præcedentia* of the Signs; a Motion called, by *Copernicus*, the *Precession of the Equinoxes*. Hence he has drawn the Appearance of the Motion of the fixed Stars, by which they seemed to be carried, according to the Order, or *in consequentia* of the Signs, from West to East, and changed the apparent Mutation of Distance of the fixed Stars, from the *equinoctial Points* toward the East, into a real Motion of *Precession of the Equinoxes*.

Note, That PRECESSION, in this Place, is a Term applied to the *Equinoxes*, which by a very slow, insensible Motion, change their Places, going backward, or westward, *i. e. in antecedentia*, as Astronomers call it, or contrary to the Order of the *Signs*. The *Pole*, the *Solstices*, the *Equinoxes*, and all the other Points of the *Ecliptick*, have a retrograde Motion; and are continually moving from East to West, or from *Aries* towards *Pisces*, &c. by means whereof the *equinoctial Points* are carried farther and farther back, among the preceding Signs of Stars, at the Rate of about 50 Seconds each Year; which retrograde Motion is called the *Precession*, *Recession*, or *Retrocession* of the *Equinoxes*.

Hence, as the fixed Stars remain immoveable, and the *Equinoxes* go backward, the Stars will seem to move more and more eastward with respect thereto; whence the Longitudes of the Stars, which are reckoned from the first Point of *Aries*, or the *vernal Equinox*, are continually increasing.

Hence the Motion of the *Axis* of the Earth has sometimes appeared unequal; since from the Time of *Timocharides*, to that of *Ptolemy*, the fixed Stars seemed, every Hundred Years, to have moved a Degree, according to the Order of the Signs. From *Ptolemy* to *Albategnius*, they run one Degree every 66 Years. At present, they accomplish one Degree, according to *Tycho Brahe*, in 70 Years; so that their Revolution is finished in 25806 *Julian* Years. But in *Ricciolus*'s Opinion, they employ 72 Years in running a Degree; therefore they cannot accomplish their Revolution in less than 25920 Years.

To rectify this Irregularity of Motion, and keep still the fixed Stars immoveable, *Copernicus* has imagined an Irregularity in the Motion of *Precession of the Equinoxes*; whose *Anomaly* should be restored in 1717 *Egyptian* Years.

Note, That ANOMALY, in *Astronomy*, is the Distance of a Planet from the *Aphelion*, or *Apogee*; or an Irregularity in the Motion of a Planet, whereby it deviates from the *Aphelion* or *Apogee*.

But as the Obliquity of the *Ecliptick* had been observed to vary otherwise, by the antient Astronomers, and its *Anomaly* to take twice the Time of the *Anomaly* of the *Equinoxes*, before it could be finished, *viz.* 3434 *Egyptian* Years; he has explained both Inequalities, by the sole Motion of the Poles of the Earth; and by imagining the *Axis* of the Earth to be carried from North to South, and from South to North, in the Interval of 24 Minutes only; and from East to West, and from West to East, through an Arch of 2 Degrees, and 20 Minutes; so that by those *complicate Motions*, the Extremity of the *Axis* forms a *Corolla interta*, in the two Revolutions of the *Anomaly* of the *Equinoxes*, and in one of the Obliquity of the *Zodiack*, following the Order of the Numbers 1, 2, 3, 4, 5, 6, 7, 8, 9: Whence 'tis understood, that seven, or more, of those *Corolla's*, are contained in an entire Revolution of 25816 *Egyptian* Years; during which Time, the *Axis* of the Earth is carried round the Poles of the *Zodiack*, against the Order of the *Signs*.

Now as to what relates to the *Stations*, *Directions*, and *Retrogradations* of the *Planets*, it may be explained, in this *Hypothesis*, with an admirable Facility, and without being obliged to have Recourse to *Epicycles*. *Venus* and *Mercury* have sooner finished their Courses round the Sun, than the Earth; because they describe their Circles nearer the Sun; and the Earth sooner than *Mars*, *Jupiter*, and *Saturn*. Whence it happens, that the Earth passes, sometimes, between the superior Planets and the Sun, the same as *Venus* and *Mercury* pass between the Sun and the Earth. For Example,

Let the Sun be k, and the annual Circle of the Earth b h j c T l; the Circle of some of the superior Planets, *viz.* of *Saturn*, *Jupiter*, or *Mars*, be o d q R E P, an Arch of which, or at least a Portion thereof, a Planet should visit while the Earth is running through its whole Circle. Let also the Firmament be M F G N.

If the Earth be placed in N, and the Planet in O, it will be seen in the Point of the Firmament M. Let the Earth advance from L to B, and the Planet from O to D, so that the Earth should be very near to pass between that Planet and the Sun; then the Planet will be seen in G; and because it will appear to have hastened its Motion from the Point M, to the Point C, such Motion shall be called a direct Motion.

If afterwards the Earth arrives from the Point B to the Point H, and the Planet from the Point D to the Point q; this will again be seen in G, and be called stationary, which will be its first Station. But if the Earth was to pass to I, and the Planet to R, the Planet will appear in D; and thereby appearing to have retrograded against the Order of the Signs, it will be then called retrograde.

If the Earth being in C, the Planet be in E, it will be seen again in D, and appear stationary; therefore this will be its second Station.

Lastly, When the Earth will be arrived from the Point C, into T, and the Planet into P, it will appear in N; and as it seems then to have advanced according to the Order of the Signs, it will be called again *direct*.

In this Manner, the *Station*, *Direction*, and *Retrogradation* of the superior Planets, *Mars*, *Jupiter*, and *Saturn*,

Saturn, are very easily accounted for, according to the *Copernican Hypothesis*. Where we are to observe, that there is a greater Quantity of *Retrogradation* in *Mars* than in *Jupiter*, and in *Jupiter* than *Saturn*.

As to the other Planets, called *inferior*, viz. *Venus* and *Mercury*; as they are nearer the Sun than the Earth, they also perfect their Course with a greater Celerity than she can; whence they appear sometimes placed between her and the Sun; and hence seem sometimes to advance, sometimes to stand still, and sometimes to be retrograde.

Let us then place the Earth to run in its Orbit the Part T B C D E F, *Fig.* 2. *cap.* 1. while *Mercury* runs the whole Circle G L M N O. If the Earth be in T, and *Mercury* in G, he'll be seen in the Point of the Firmament F. But if the Earth be arrived at the Point B, and *Mercury* at the Point I, *Meccury* will be seen in P. And because the Progress will seem then to be made with a greater Celerity, it will be called *direct*. But where he'll gain the Point H, the Earth being in C, then he is to be *stationary*, because he seems to stay almost in the same Point P. This is his first *Station*.

But if the Earth occupies the Point D, and *Mercury* the Point N, he'll appear in q; and thus will be *retrograde*, because he'll be supposed removed against the Order of the *Signs*. But if the Earth being in E, *Mercury* is in O, he'll be thought *stationary*, because he'll be seen in the same Point q. And then it will be his second *Station*.

Lastly, When the Earth will be in f, and *Mercury* in Gj, *Mercury* will be referred to the Point I, and become *direct*, because the Progress will then appear, made according to the Order of the *Signs*.

What is said here of *Mercury*, is to be understood of *Venus*, this excepted, that these Mutations are not so frequent in her, because she takes more Time than *Mercury* to run through her *Orbit*.

The principal Arguments alledged against this *Hypothesis*, are, 1. That the Motion of the Earth is repugnant to the Scripture; which teaches us in several Places, that the Sun moves, and the Earth is immoveable. *The Earth*, says the *Ecclesiastes*, chap. i. ver. 4. *abides for ever*. And ver. 5. *The Sun also rises, and the Sun goes down, and hastens to his Place where he arose*. And the Psalmist, *Psal.* civ. 5. *Who laid the Foundations of the Earth that it should not be removed for ever*. And *Joshua* x. 12. *Sun stand thou still upon* Gibeon.

2. That if the Earth was far from the Centre of the World, and was to run, by an annual Motion, round a *great Orbit*, or the *Zodiac*; the same *vertical Stars* should not always appear, neither could we see a whole Hemisphere. That the Sun should not become *Apogee*, or *Perigee*. That that immense Distance which makes the *great Orbit* which the Earth overruns every Year, appear to us as a Point, with regard to the Firmament, is entirely incredible.

3. That if the Earth were to move round its *Axis*, we should be rendered sensible of it, by our Houses, Buildings, *&c.* tumbling down.

4. That Bodies would not fall upon the Places perpendicularly under them; nor a Bullet, *e. gr.* shot perpendicularly from the Ground, fall back again upon the same Spot.

To the first Objection *Des Cartes* answers, *Tert. part. princip. num.* 18, 28, and 38. that the Earth does not move, though the *Vortex*, wherein it is contained, moves; and that there is even more Motion attributed to the Earth in the *Ptolemaick*, or *Tychonick* System, than in the *Copernican*; because, according to *Copernicus*, the Earth is always environed with the same Particles of the Liquid, and rests within them, as a Man sitting in a Ship. As to the Objections taken from the Scripture, the *Copernicans* answer, That the sacred Text speaks very often according to the Prejudices of our Senses, and often declares, not what the Thing is in Reality, but what it appears to be; *i. e.* in those Affairs which do not concern the Faith. Thus the Moon is called, Gen. iv. 16. *A great Light*; though she be, perhaps, the lesser of all the *Asters*, and though she has no Light but what she borrows from the Sun. That nothing is truer than what says the *Ecclesiastes*, that the *Earth abides for ever*, since that Sentence is immediately preceded by this other; *One Generation passes away, and another Generation comes, but the Earth abides for ever*. That is to say, it always remains the same, nor does it change its Existence, though there happens a continual Succession of Generations within it; whence it is well said by the Psalmist, that it is founded on its Stability, *i. e.* on its Solidity, according to the *Hebrew* Text, or on its Firmity, according to the old Version, made use of by St. *Augustine*. For the Earth is not dissipated, or reduced into Dust, but all its Parts are firmly connected together. But they deny that it must be concluded, from those Passages, that the Earth is fixed, and without Motion, in the Centre of the World, since *Job*, inspired by the *Holy Ghost*, says this of God, *c.* ix. *v.* 6. *which shakes the Earth out of her Place, and the Pillars thereof tremble*. Thereby *Job* seems to attribute some Motion to the Earth, or a Translation from one Place to the other. Besides the *Copernicans* confess that they would not deviate from the common Way of Speaking, since they say themselves, that the *Sun* rises, and declines towards the *West*, and that therefore, if *Copernicus* had spoke to the *Sun* as *Joshua* did, he had done it in the same Manner.

To the* second Objection they answer, 1. That there must appear always the same Altitude of the Pole, to us who inhabit the same Part of the Earth, and always the same vertical Stars, with an entire Hemisphere; or six Signs of the *Zodiac*; since the great *Orbit*, which the Earth describes by its annual Motion, is but like a Point in Respect to the Firmament, and the *Axis* of the Earth remains always parallel to the *Axis* of the World, and is always directed towards the same sensible Parts of *Heaven*. They say that there must always appear the same Altitude of the Poles, with Respect to us, provided we always inhabit the same Part of the Earth, and do not change *Horizon*, nor consequently our *Zenith* or vertical Point; for if, leaving our first Place, we remove towards the North or South, having changed then our *Horizon*, or *Zenith*, some Parts of the Heavens will appear to us, which had been, till then, inconspicuous to us; and others which appeared, while we inhabited the first Place, will be hidden: And thus the Altitude of the Pole will be changed, with respect to us; neither shall the same vertical Stars appear. 2. That the Sun is in *Apogee*, or fartheft from the Earth, when the Earth is in *Aphelia*, i. e. at the greatest Distance from the Sun; and *Perigee*, when the Earth is in *Perihelia*, or nearest the Sun.

Note, That APHELION is that Point of the Earth's, or a Planet's *Orbit*, in which it is the fartheft distant from the Sun that it can be. And *Perihelion*, that Point of the *Orbit* of a Planet, or of the Earth, wherein it is at its least Distance from the Sun.

3. That the immense Distance of the fixed Stars from us, must not seem incredible, in whose Respect the Earth is but like a Point; since neither our Reason, or Observations, can convince us that that Distance is less; but, on the contrary, by its being supposed such, all the *Phenomena* are easily explained, and demonstrated.

They reply, to the third Objection, that we are not sensible, or do not perceive the Motion of the Earth, because we float, and are in the same *Liquid* along with it; and that we must think the same of our Houses, Buildings, Trees, *&c.* which consequently must stand, and not be subverted. That they do not see why heavy Bodies should not fall upon the Places perpendicularly under them, let the Earth be at Rest, or move in the *Liquid*; since those Bodies, besides that Motion whereby they are precipitated downwards on the Earth,

Earth, participates, likewise, of the Motion of the whole *Vortex*; in the same Manner as a Stone thrown down from the Top of the Mast, in a Ship sailing, falls then at the Foot of the Mast, as well as if the Ship was at Rest; because the Stone is moved, both by its own Motion, and by that of the Ship. Therefore, say they, if we'll speak just, those Motions judged perpendicular, are not in Fact right, but describe a Curve. Though it must appear right to us; just as those who are in the Ship imagine that a Ball thrown down from the Top to the Foot of the Mast, has descended by a right Motion, though those on the Shore have discovered two Motions; a perpendicular one, by which it was carried downward; and the other horizontal, by which it followed the Mast of the Ship. Therefore the Ball, by that double Motion, describes, not a right, but a curve Line. Lastly, They pretend, that a Cannon Ball is not to be carried farther toward the West, than toward the East; since that Ball pushed toward the East, besides the Motion it receives from the Cannon, participates also of the other Motion common to the whole *Vortex*; in the same Manner as two Persons, one at the Poop, and the other at the Prow, throwing a Ball between them, he that throws the Ball toward the Poop, does not throw it farther than he that throws it toward the Prow, though the Superficy of the Ship moves from the Poop toward the Prow; because the Ball, besides the peculiar Motion it receives from the Gamesters, participates, also, of the common Motion of the whole Ship. Likewise, when a Cannon Ball is exploded toward the North, or toward the South, it does not only receive the Motion from the Cannon, but participates, likewise, of the Motion which is common to the Earth, and the Air wherein it is contained; whence it always follows a right Line, and hits the Mark.

They conclude, by saying, that to suppose the Earth at Rest, confounds and destroys all the Order and Harmony of the Universe, annuls its Laws, and sets every Part at Variance with each other, robs the Creator of half the Praise of his Works, and Mankind of the Pleasure of the Contemplation thereof. That it renders the Motions of the Planets inextricable and useless, which otherwise are plain and simple. So that such of the later Astronomers as have asserted it with the most Zeal, have been forced to set it aside, when they came to compute the Motions of the Planets. That none of them would attempt to compute those Motions in variable Spirals, but in all their Theories they tacitly suppose the Earth to move on its Axis, so as to turn the diurnal Spirals into Circles.

Copernicus, the Author of this *Hypothesis*, was born at *Thorn*, in *Polish Prussia*, in the Year 1472, according to *Justinus*, or 1473, according to *Maestlinus*. After the usual domestick Education, he was sent to the University of *Cracow*; where he applied himself to Philosophy and Physick, and at length commenced Doctor in Medicine. In the mean Time, having a strong Propensity to Mathematicks, he diligently attended the Lectures of *Albert Bradzevius*, and even learn'd of him at Home. After he had here attained to the Use of the Astrolabe, and was entering upon Astronomy, he took *Regiomontanus* for his Guide: Though he run through all the Mathematicks of the Age, yet he seemed most taken with Perspective; on Occasion whereof, he learned Painting, in which he is said to have excelled. When 23 Years of Age, being at *Bologna*, he became acquainted with that eminent Mathematician, Dom. *Maria Ferrariensis*; and was admitted to share with him in making astronomical Observations. Here, in the Year 1497, *Copernicus* first observed an Occultation of *Palilicium* by the Moon. Going on to *Rome*, he taught publickly, and made some considerable Observations; and at his Return to *Cracow*, was made Canon of the Church of *Wermelandt*, or *Ormeland*, and at length Vicar General.

The Course he took in prosecuting *Astronomy*, which has rendered his Name immortal, is as follows: Observing how the *Astronomers* of those Times were gravelled to make the Planets move equably in circular *Orbits*, *viz.* to suppose them to move, not about their own Centre, but about the *Equant*; and that they could no Way make out a tolerably regular System, out of all their Shifts and Hypotheses; he resolved to try what he could do. With this View, he perused the Writings of all the Philosophers and Astronomers extant, and picked out of each what appeared probable and elegant. In this Review, he was chiefly taken with two almost similar Opinions, (the one attributed to *Martianus Capella*, the other to *Apollonius Pergæus*;) which give a very good Account of the Motions of *Venus* and *Mercury*, and explain the Cause of their *Directions*, *Stations*, and *Retrogradations* very happily: The latter, withal, performing the same in the three superior Planets. But then, in both these Hypotheses, the Earth being supposed the Centre, *Copernicus* chose rather to adopt the Opinion of the *Pythagoreans*; to remove the Earth out of the Centre of the World, and to give it not only a diurnal Motion round its own *Axis*, but also an annual one round the *Sun*.

On this Footing, he began to observe, calculate, compare, *&c.* and at length, after a long sollicitous Disquisition, found himself in a Condition to account for the *Phenomena* and Motions of all the Planets, and to make an orderly Arrangement, or Disposition of the whole Heavens; wherein nothing could be altered, or displaced, without bringing the utmost Confusion into the whole.

These Things he began to write down about the Year 1507; he then proceeded to furnish himself with a new *Apparatus*, particularly a *parallactick* Instrument, and some *Ptolemaick* Rulers, wherewith to observe the Altitude of the Stars, and determine the Periods of the Sun and Moon: And without any other Means, composed his six Books, *De Orbium Celestium revolutionibus*; containing the whole of *Astronomy*, delivered after the Example of *Ptolemy*, in a geometrical Method. We have already observed, that he began it in 1507; he finished it in 1530; five Years after, he polished, and improved it. He died of a *Dysentery*, and a *Palsy* on his Right Side, in the Year 1543.

As the *Copernican System* appeared contrary to Prejudices and Authority, and that of *Ptolemy* to Reason and Experience; *Tycho Brahe*, a noble *Dane*, applied himself, in the sixteenth Century, under the Reign of *Christian* IV. King of *Denmark*, to find out a third, which has been called since, from his Name, the *Tychonick System*.

With *Ptolemy*, he places the *Earth* immoveable in the Centre, or not far from the Centre of the Firmament; and, with *Copernicus*, the *Sun* in the Centre of the Motion of the *Planets*; making the *Moon* to move round the *Earth*.

In this *System*, three Things move round the *Earth* as round their Centre; the *Moon*, which is the nearest to it, by a monthly Motion; the *Sun*, which is more distant from it, by an annual Course; and the *Firmament*, or the *Sphere* of the *fixed Stars*, the remotest of all three, by a slow Motion of 25000 Years.

Round the *Sun* five *errant Stars*, or *Planets*, have their particular Motions, *viz.* *Mercury*, of three Months; *Venus*, of eight Months, *&c.* with this Order, or Rule, that the *Sun*, by his annual Motion, running through the *Zodiac*, carries them all along with him. Besides, as *Mercury* and *Venus*, by their Revolutions round him, do not embrace the *Earth*; *Mars*, *Jupiter*, and *Saturn*, embrace it by theirs, but especially *Mars*, which, while in B, becomes nearer the *Earth* than the *Sun* himself.

But there is no mention made, in the *Tychonick System*, of a diurnal Motion; those who follow his *Hypothesis*, place a *Primum mobile* above the *Firmament*, whereby the whole Machine of the World may be moved by a diurnal Motion; or suppose those three *Mobiles*, the *Moon*, the *Sun*, and the *Sphere* of the *fixed*

fixed Stars, while by a slow Motion they move from West to East in the *Zodiac*, to be also moved daily from East to West, in a Circle, almost Parallel to the Equator. Moreover they conceive that the five errant Stars, besides their proper Motions, they have round the *Sun* from West to East through the *Zodiac*, are also carried daily from East to West, in a Plan parallel to the *Equator*, not by themselves, but by the *Sun* who serves them instead of *Primum mobile*.

The *Tychonicians* have this common, with the *Copernicans*, that they both acknowledge the Heaven's Fluid; and in Fact the *Tychonick System* is nothing else but that of *Copernicus* inverted, for if the *Sun* with *Venus* and *Mercury* was restored to the Centre of the World, the Earth would accomplish its annual Period through the Circle assigned to the *Sun*, and the Planets, or the Sphere of the fix'd Stars would be understood to remove at such a Distance, that the Circle of *Saturn* would be every where equally distant from the fix'd Stars; and then the System would be the same as described by *Copernicus*.

As to the Number of Heavens, *Tycho*'s Partisans admit of three, *viz.* the *Empyreum*, the *Firmament*, and the *Planetick*, which Number they pretend to support with the Authority of the Apostle, who is said, *Eph.* ii. *Corinth. c.* xii. *v.* 12. to have been caught up to the third Heaven; *i. e.* as they interpret it, to the *Empyreum*. But those among them who place a *Primum mobile* above the Firmament, ought to reckon four Heavens, and therefore cannot be assisted therein by the Text of the Apostle, which, on the contrary, the *Copernicans* and *Cartesians* borrow to support their Hypothesis. For our *Vortex* is the first Heaven of the *Cartesians*; that vast Region of the fix'd Stars conspicuous to us, establishes another with Respect to us; and all that is extended beyond that immense Region may form the *Empyreum*, or a *third Heaven*.

Tycho and his Disciples had proceeded thus far in the Explanation, as well of the diurnal Motions of the heavenly Bodies from East to West, in a Plan Parallel to the Equator, as of the monthly, annual, *&c.* from West to East in the *Zodiac*; but there remained still, for them, to explain the *Station*, *Direction*, and *Retrogradation* of the Planets, when *Kepler*, by an admirable Invention, undertook that arduous Task.

This famous *Astronomer* (considering the whole Planetick Region thus drawn, the *Sun* in such a Manner as for the *Axis* to keep always its *Parallelism*, and for each Planet, besides, to have, at the Times fixed, its particular Motion round the *Sun*) shews how to compose a spiral Motion from those two, *viz.* of Abduction from the *Sun*, and of Conversion round the *Sun*. For Example:

Let the Earth be T, and the *Orbit* of the *Sun*, in which he is moved, SSSS. If *Jupiter* be in A, and by a composite Motion, as we have said, be carried into B, it will become *Stationary*; because it is not understood to move, nor according to the Order of the Signs, nor against it. If afterwards it passes from the Point B to C, it will be direct, because it advances according to the Order of the Signs; and from the Point C to the Point D becomes again Stationary. But from the Point D to E, because carried against the Order of the Signs, it will be called *Retrograde*.

However the Planets do not accomplish a whole *Spiral* every Year; but that Time is required which is necessary for a Conjunction of the *Sun* with the Planet, particularly if the Beginning of the *Spiral Motion*, is taken from the Conjunction; or for an Opposition, if the Beginning of the *Spiral Motion* is expected from an Opposition. Therefore we must imagine eleven of those *Spirals* in the Circle of *Jupiter*; twenty-nine in the Circle of *Saturn*, &c. which *Spirals* are greater in *Jupiter* than in *Saturn*, and again greater in *Mars* than in *Jupiter*; whence those *Spirals* are not so soon perfected in *Mars* as in *Jupiter*; nor so soon in *Jupiter* as in *Saturn*.

From this Explanation of the different Systems of the World, which I consider as the Foundation of this Treatise of *Astronomy*, and without which it would be absolutely impossible, for those who have not the least Tincture of that Science, to understand it, I'll proceed to the Demonstration of the Distances, Magnitudes, Motions, *&c.* of the celestial Bodies; but the better to execute this difficult or arduous Task, we must first take a View of the Figure and Dimension of our Earth; and as we make use of Feet or Cubits to measure the Distances of Places on the *terrestrial Globe*; we'll likewise measure the immense Distances of the celestial Bodies, with the Assistance of terrestrial Semidiameters; which the better to execute, we'll consider first the Figure of the Earth, and afterwards its Magnitude or Extent.

The *Figure of the Earth* is demonstrated to be nearly spherical thus: The Moon is frequently seen eclipsed by the Shadow of the Earth; and in all Eclipses that Shadow appears circular, what Way soever it be projected, whether towards the East, West, North, or South, howsoever in Diameter vary, according to the greater or less Distance from the Earth.

Hence it follows that the Shadow of the Earth, in all its Situations, is really conical; and consequently the Body that projects it, *i. e.* the Earth is nearly *Spherical*. We say its nearly *Spherical*; for the Inequalities of its Surface prevent its being perfectly so; besides that *Huygens* and Sir *Isaac Newton* have shewn that the Earth is higher and bigger under the *Equator* than at the *Poles*: So that its Figure, nearly, is that of an *oblate Spheroid*, swelling out towards the Equatorial Parts, and flatted or contracted towards the Poles. The Reason of this Inequality is deduced from the diurnal Rotation of the Earth on its *Axis*.

This Roundness of the Earth is farther confirmed by its having been frequently sailed round: The first Time was in the Year 1519, when *Ferdinand Magellan* made the Tour of the whole Globe in 1124 Days. In the Year 1557 *Drake* performed the same in 1056 Days. In the Year 1586, Sir *Thomas Cavendish* made the same Voyage in 777 Days. *Simon Cordes* of *Rotterdam*, in the Year 1590; and in the Year 1598, *Oliver Noort*, a *Hollander*, in 1077 Days. *Jac. Heremites*, and *Joh. Huygens*, in the Year 1623, in 802 Days: All of whom sailing continually from East to West, at length arrived in *Europe*, whence they set forth; and in the Course of their Voyage observed all the *Phænomena*, both of the Heavens and Earth, to correspond and confess this spherical Figure.

What the Earth loses of its Sphericity by Mountains and Valleys, is nothing considerable; the highest Eminence being scarce equivalent to the minutest Protuberance on the Surface of a Lemon: What it loses by the Swelling of the equatorial Parts is more sensible. Sir *Isaac Newton* makes the greatest Diameter 34 Miles bigger than the less, fixing the *Ratio* as 692 to 688. If the Earth were in a fluid State, its Revolution round its *Axis* would necessarily put on such a Figure, by reason the centrifugal Force being greatest towards the Equator, the Fluid would there rise, and swell most: And that it should be so now, seems necessary to keep the Sea in the *Equinoctial* Regions from overflowing the Earth thereabouts. Add those Experiments made on Pendulums, which must be of different Lengths, to swing equal Times here and at the *Equator*, evince the same Thing.

M. *De la Lare*, and M. *Derham* indeed have shewn, that this Diversity, may arise either from the greater Heat, or the greater Rarity of the Air there than here; as having observed a-like Variation between Pendulums when heated and cold, and when in *Vacuo* and open Air. But besides that Sir *Isaac Newton* and *M. Bernoulli*, have set aside these Causes as insufficient. *M. Cassini* has found, that the Degrees of a Meridian grows larger, the farther we go towards the Line by one eight hundredth Part of every Degree; which puts the Spheroidism of the Earth past Question.

Fa. Tacquet draws some pretty Conclusions from the spherical Figure of the Earth; as, 1. That if one Part of the Surface of the Earth were quite plain

plain, a Man could no more walk upright thereon, than on the Side of a Mountain. 2. That the Traveller's Head goes a greater Space than his Feet; and a Horseman than a Man on Foot, as moving equal Arches of greater Circles. 3. That a Vessel full of Water being raised perpendicularly, some of the Water will be continually flowing out, yet the Vessel still remains full; and on the contrary, if a Vessel full of Water be let perpendicularly down, though nothing flow out, yet it will cease to be full: Consequently there is more Water contained in the same Vessel at the Foot of a Mountain than at the Top; by Reason the Surface of the Water is compressed into a Segment of a less Sphere below than above.

The Antients had various Opinions as to the Figure of the Earth. Some, as *Anaximander*, held it cylindrical; and others, as *Leucippus*, in Form of a Drum. But the principal Opinion was, that it was flat; that the visible *Horizon* was the Bounds of the Earth, and the Ocean the Bounds of the *Horizon*: That the Heavens and Earth above this Ocean, was the whole visible Universe, and that all beneath the Ocean was *Hades*; of which Opinion were, not only divers of the antient Poets and Philosophers, but also some of the Christian Fathers, as *Lactantius*, St. *Augustin*, &c.

The MAGNITUDE OF THE EARTH, we are to consider next, and the Number of Miles its Diameter contains, has been variously determined by various Authors, antient and modern. The Way to arrive at it is, by finding the Quantity of a Degree of a great Circle of the *Earth*. But this Degree is found very different, according to the different Method and Instruments made use of, as well as the different Observers.

The Method observed by Mr. *Norwood*, and the *French* Astronomers, *Picard*, *Cassini*, &c *viz.* By measuring the Difference between two remote Places on the same Meridian, is undoubtedly the best; and was performed by such exceeding Accuracy, especially by M. *Cassini*, that hardly any thing further or better can be expected. According to that Author the *Ambit*, or Circumference of the *Earth* is 123,750,720 *Paris* Feet; or 134,650,777 *English* Feet; or 25031½ of our Statute Miles; whence, supposing the *Earth* spherical, its Diameter must be 7967 Statute Miles; and consequently its *Radius*, or Semi-diameter, may be taken in a round Number 200,000000 Feet; its Surface will be 199,444,206 Miles; which being multiplied into ⅓ of its Semi-diameter, gives the solid Content of the Globe of the *Earth* 264,856,000000 Cubick Miles.

Mr. *Whiston* reckons the *Ambit* of the *Earth* to be 123,249,600 *Paris* Feet, or 131,630,573, or thereabouts, *English* Feet.

Having thus determined the *Figure* and *Magnitude of the Earth*, and nothing left in this sublunary World, deserving the Attention of the *Astronomer*, we'll abide no longer on these terrestrial Mansions, but will be carried through that vast Ocean, and those immense Intervals of the heavenly Bodies, beginning by those which are at a greater Distance from us, and are called fix'd Stars, not from their being fixed in a hard *Fornix*, but from their observing always the same Distance between them; since we have demonstrated already, that the Heavens are not hard or solid, but fluid; and that it is admitted by *Astronomers*, as a Thing very probable, that they are exended through indefinite Spaces, and have Stars dispersed in them.

But to make this more evident, and to appear in a clearer Light, it will not be improper to insert here the *Hypothesis* of *Des Cartes* of the Formation of the World; since that once very well understood, it will be easy to account for all the *Phænomena* of the *fixed Stars*.

Des Cartes, then, *Tertia Part. Princip. num.* 45. and *Tract. de Lum. c.* 6. believes the World to have been formed in that Manner mentioned in the Scripture, *Gen.* i. so that every Part were perfect from the very Instant of their Creation, and all compleated in the seventh Day; but however he would have us examine, in a more particular Manner, how all the sensible Bodies could be formed, since thereby we shall be more capable to understand their Nature.

'Therefore, says he, *Num.* 46. let's suppose that Matter, which composes this visible World, to have been at first divided by the Creator into small Portions, or Masses full of Angles, of which the Heavens and heavenly Bodies are composed, which had then as much Motion of themselves as the World is found to have. That those Parts have two Motions; one whereby each Part revolve round its Centre, so as to compose a Fluid Body, such as we suppose the Heavens to be; and another, whereby an Assemblage, or System of them, turned round a common Centre, whereby the Centres of the *fixed Stars* are formed.

'This must be first considered, continues he, *Numb.* xlviii. that those Particles which we suppose the whole Matter of the World to have been divided into, could not be spherical at first, since several Globules joined together cannot fill up a continued Space, but of what Figure they were then, they could in Process of Time, and after they had had so many circular Motions, but become round. Having been violently enough agitated for to be separated from each other, and the same Agitation continuing, must have by a continual Friction broke their Angles. And as there can be no *Vacuum*, and those round Particles of the Matter joined together, must have left some small Intervals about them, it was absolutely necessary that those Intervals should be filled, with some of the minutest Atoms of the Matter; and of a Figure proper to fill up those Intervals, which Figure they could change as often as the Places they are to fill should require; for when the Angles of the Particles which become round are broken; what's broke off is such a fine Dust, and acquires so great a Celerity, that by the sole Velocity of its Motion, 'tis divided into innumerable Atoms, and thus fills up all the Angles which the other Particles of the Matter could not enter.

'Hence have been generated, two different kinds of Matter, which may be called the two first Elements of this visible World. The first is of that Matter, which is so violently agitated, that by its Collision with other Bodies, 'tis broken into Minuties of an indefinite Parvity, or Smallness; and appropriate their Figures, to fill up the smallest Intervals, of the Angles they have deserted,'

Of this Kind of Matter the *Sun* and the fixed Stars were formed.

The second Kind of Matter is that divided into *spherical Particles*, which must be supposed very small, if compared with the Bodies discernible by the Sight; but are, nevertheless, of a certain determinate Quantity, and divisible into others infinitely smaller.

This Matter makes the Atmosphere, and all the Element between the *Earth* and the *fixed Stars*; in such Manner, as that the largest Spheres are always next the Circumference of the Vortex, and the smallest next its Centre.

There is, besides, a third Element, composed of heavier Particles, and less adapted to Motion; of which the *Earth*, *Planets*, and all the opake Bodies are formed; this is its Origin. While the Matter of the first, and that of the second Element move round the common Centre, and recede as much as they can from it, the Matter of the first Element, from the *Ecliptick* of the *Vortex*, influences all the circumjacent *Vortices* near their Poles, by falling between the Particles of the second Element, which cannot happen to the second Element; and reciprocally as much of the Matter of the first Element breaks forth from the adjacent *Vortex* into the same *Vortex*, through its Poles; so as for those Poles to have a Communication between them, not by touching each other at their respective Poles, but by being directed to each other.

If

If then there are to be found in the Matter of the first Element, which is directed from the Poles to the Centers of the *Vortices*, some Particles less divided, and less agitated, these, because of their hooked Figures, will be concatenated together, and being transformed, by their Agitation, into lesser, and more adapted to Motion, they'll be condensed into opake *Molecules*, and form the third Element.

As to the Figure of these *Molecules*, when they are found intercepted in the Middle of three Globules of the second Element, and have the same Motion with the whole *Vortex*; they must assume a triangular Figure.

Des Cartes disposes the Globules of the second Element in the following Manner: He will have those nearer the Center of the *Vortex*, to be less, and to move with a greater Celerity, till they have attained at a certain Term, beyond which the superior move with a greater Celerity than the inferior, being all equal as to their Magnitude, *v. gr.* the Globules in our *Vortex*, *fig.* 9. in which float *Mercury* and *Venus*, are less, and move with a greater Celerity, than those which take in the *Earth*; likewise those round the *Earth* are less, and move with a greater Celerity than those which move round *Mars*, or *Jupiter*, or round *Saturn*; since the *Earth* accomplishes its Course in the Space of a Year, *Mars* in two, and *Saturn* in thirty Years; but beyond *Saturn*, as far as the Superficies of the *Vortex*, all the Globules might be imagined of an equal Magnitude among them, and are more agitated in those Places than round *Saturn*.

Sir *Isaac Newton* is of an Opinion different from *Des Cartes*, and thinks, that it is very probable that God, in the Beginning, formed Matter, in solid, massive, hard, impenetrable, moveable Particles, of such Sizes, and Figures, and with such other Properties, and in such Proportion to Space, as much conduced to the End for which he formed them; and that these primitive Particles being Solids, are incomparably harder than any porous Bodies compounded of them; even so very hard, as never to wear out, no ordinary Power being able to divide what God made one in the first Creation. While the Particles remain entire, they may compose Bodies of one and the same Texture in all Ages; but should they wear away, or break in Pieces, the Nature of Things depending on them would be changed. Water and Earth, composed of old worn Particles, and Fragments of Particles, would not be of the same Nature and Texture now, with Water and Earth composed of entire Particles in the Beginning. And therefore, that Things may be lasting, the Changes of corporeal Things are to be placed only in the various Separations, and new Associations and Motions of those permanent Particles, compound Particles being apt to break, not in the midst of solid Particles, but where those Particles are laid together, and only touch in a few Points. It seems to him, likewise, that these Particles have not only a *Vis inertiæ*, with the passive Laws of Motion resulting therefrom, but are also moved by certain active Principles; such as is Gravity, and that which causes Fermentation, and the Cohesion of Bodies.

My own *Hypothesis*, or *System*, is, That in the Separation of the *Matter* at the Beginning, the three Elements, mentioned by *Des Cartes*, were formed by the Association of those Particles, wherewith the divine Creator was determined each of them should be composed, having himself, in his infinite Wisdom, and as a skilful Artist, formed and disposed each Particle in the Shape, Form, and Figure, he judged fit to compose (with a just Symmetry, which could answer the End he proposed to himself from it) that GREAT WHOLE they were designed for. That the most subtle, and best configurated, having been *exalted* from the whole Mass, were impregnated, in that *Exaltation*, with a Principle of Activity, and with a magnetick Virtue, or Quality, of Attraction and Repulsion, which, from that Instant, kept them in a perpetual Motion, and at such competent Distance from each other, as to form themselves into an elementary Substance, and Existence. That that subtle Matter (which we'll call, if you please, the first Element) was divided by the Creator into two Parts; one Part whereof he placed in the Center of the World, or of the *System*, as in a *Medium*, between the second and third Element, to quicken, by the extreme Celerity and Activity of its Effluvia, the Slowness of the Motion of their Particles, and to rectify the Disorders which might be occasioned by the different Configuration of their Particles. The other Part of that Element having received a still greater Degree of Perfection, as well in the Symmetry and Arrangement of its Particles, as in their Expurgation from all heterogeneous Bodies, which could obstruct their Action, following the *Impetus* of their natural Elasticity proceeding from their globular Configuration, and by the Compression of the Atmosphere of that Mass they had been extracted from, were carried upward with such Velocity, that nothing but the immense Spaces they were to fill could have moderated their Course. That thus expanded, they began to move with that Order and Regularity, each in its respective *Orbit* formed by the *Effluvia*, which must necessarily flow from each other to keep a due Distance between them and avoid Confusion, as to form a visible *Certum quid*. That thus disposed, floating, as it were, in their respective *Orbits*, without touching one another, otherwise than by the mutual Communication of their *Effluvia*, they can suffer no Alteration, or Changes, since, by the natural Configuration of their Pores, adapted, from the Beginning, for Attraction, Direction, or Repulsion; those different Actions are made, without the least Force or Violence, through the Particles, which could alter their natural Form; being thereby free from that Collision, Grinding, *&c.* to be met with in *Des Cartes*'s *System*.

As for the Formation of the *fixed Stars*, in this *my Hypothesis*, I suppose, that in that *elastick Rapidity* of the Particles of the first Element, at the Beginning, those endued with a still greater Principle of Activity and Elasticity, having preceded the others in their Progress, and arrived sooner at the Term fixed, had formed themselves into an infinite Number of different *Focus's*, the Intervals whereof were afterwards filled with the other less active Particles. That in those *Focus's*, preserving that extremely perfect Virtue or Quality of Attraction, Direction, and Repulsion, they move with such incomprehensible Rapidity, as to cause that Radiancy, a Glimpse whereof is transmitted to our Sight; which would appear infinitely greater, notwithstanding their immense Distance *from* us, if the Creator had not formed of those other Particles separated from them, in the last Rarefaction, a Veil, which steals from, or dims part of their *Eclat*; and this is what I call the second Element, which being composed of more palpable *Molecules* than the first, and their *Effluvia* (for they all move in the same Manner) endued with less Activity, is nevertheless capable of *Refraction*. Of the *Scories* of those sublimated Particles, the third Element is formed, which being but a Composition of hooked Particles, of different Configurations, is a great deal slower in its Motion, some of them, by their Concatenation, appearing as if they were at Rest, and entirely deprived of Motion: Of these those Bodies, through whose Opacity the Light of that Part of the first Element placed in the Center of the *System*, and which we call *Sun*, is reflected on our *Vortex*; such as the *Planets*.

Having thus explained the *Hypothesis* of the Origin of the World, and the different Elements; we'll proceed to the Explanation of the Doctrine of the *fixed Stars*; and first of their Motion.

The FIXED STARS have two Kinds of Motions; one called the *first*, *common*, and *diurnal Motion*, or the *Motion* of the *Primum mobile*: By this they are carried along with the *Sphere* or *Firmament* wherein they appear fixed, round the *Earth*, from East to West, in the Space of twenty-four Hours.

The other, called the *second*, or *proper Motion*, is that whereby they go backwards, from West to East, round

round the Poles of the *Ecliptick*, with an exceeding Slowness, as not describing above a Degree of their Circle in the Space of 71 or 72 Years, or 51 Seconds in a Year. Some have imagined, that when they have got round to the Points whence they first departed, Nature will have finished her Course, and the *Stars*, having performed their Career, the Heavens will remain at Rest, unless the Being, who first gave them Motion, appoints them to begin another Circuit. On the Footing of this Calculation, the World should last about 30,000 Years, according to *Ptolemy*; 25816, according to *Tycho*; 25920, according to *Riccioli*; and 24800, according to *Cassini*.

In Effect, the *Latitudes* of the *fixed Stars*, we find, by comparing the Observations of the *antient* Astronomers with those of the *Moderns*, continue still the same; but their *Longitude* is, by this *second Motion*, always increasing. Thus, for Example, the *Longitude* of *Cor Leonis* was found by *Ptolemy*, *A. D.* 138, to be 2° 30′; in 1115 it was observed by the *Persians* to be 17° 30′; in 1364, by *Alphonsus*, 20° 40′; in 1586, by the Prince of *Hesse*, 24° 11′; in 1601, by *Tycho*, 24° 17′; and in 1690, by Mr. *Flamsteed*, 25° 31′ 20″: Whence the *proper Motion* of the *Stars*, according to the Order of the *Signs*, in Circles parallel to the *Ecliptick*, is easily inferred.

It was *Hipparchus* first suspected this *Motion*, upon comparing the Observations of *Tymocharis* and *Aristyllus* with his own. *Ptolemy*, who lived three Centuries after *Hipparchus*, demonstrated the same by undeniable Arguments. Some, it is true, have imagined a Change in the *Latitude* of the *Stars*; but such an Opinion has but little Countenance from Observation. *Tycho Brahe* makes the Increase of *Longitude* in a Century 1° 25′; *Copernicus* 1° 23′ 40″ 12‴; *Bullialdus* 1° 24′ 54″; *Hevelius* 1° 24′ 46″ 50‴; whence, with Mr. *Flamsteed*, the annual Increase of the *Longitudes* of the *fixed Stars* may be well fixed at 50″.

From these *Data*, the Increase of the *Longitude* of a *Star*, for any given Time, is easily had; and hence the *Longitude* of a *Star*, for any given Year, being given, its *Longitude* for any other Year is readily found.

The better to understand this *Phænomenon*, we must imagine, that the *Earth*, in its annual Motion round the *Sun*, does not keep exactly a Parallelism, and therefore is subject to some imperceptible *Titubation*, that, in the Course of several Thousand Years, each of its Poles describes a small Circle, from East to West.

As, from this Supposition, it is easily conceived that the *Celestial Equator* corresponds to the different Parts of Heaven; it follows, that the *Terrestrial Equator* must be subject to the same *Mutations*, and must cut the *Ecliptick* into various Points, from East to West: And because from the Intersection of those two Circles is reckoned the *Longitude* of the *Stars*, they must necessarily be seen to increase, every Century, to a *certain Quantity*.

The *Mutation* happening in a certain Number of Years to the *Longitude* of some *Stars*, must be semblable to that which happens to the *Longitude* of another *Star*; and all the *Stars* must be altogether susceptible of *Mutation* in *Longitude*, which will be more sensible in one Century than in another, especially if the *Titubation* of the *Earth* be more manifest in that Century than in another.

The *Diminution* of the *Declination* of the *Ecliptick*, cannot be better understood, than by minding that the *Titubation* of the *Earth* is occasioned by a slight Direction of its *Axis* on the Plane of the *Ecliptick*, whence it follows, that the *Celestial Equator* must pass over the Places nearer the Circle of the *Firmament*, under which the *Sun* is supposed to move; therefore as there is then a lesser Distance from the *Ecliptick* to the *Equator*, than heretofore, we must judge that the first of those Circles has approached the other.

The next Thing which falls under our Consideration, with regard to the *fixed Stars*, is their *Magnitudes*, which appear to be very different; which Difference probably arises, not from any Difference in their real *Magnitudes*, but from their Distances, which are different. From this Difference the *Stars* become distributed into seven several Classes, called *Magnitudes*.

The first Class, or *Stars of the first Magnitude*, are those nearest us, and whose Diameters are therefore biggest. Next these, are those of the *second Magnitude*; and so on, to the *sixth*, which comprehends the smallest *Stars* visible to the naked Eye; all beyond, are called *Telescopick Stars*. Not that all the *Stars* of each Class appear justly of the same *Magnitude*; there is a great Latitude in this Respect, and those of the *first Magnitude* appear almost all different in Lustre, and Size. Other *Stars* there are, of *intermediate Magnitudes*, which Astronomers cannot refer to this, rather than the next Class, and therefore place them between the two.

Procyon, for Instance, which *Ptolemy* makes of the *first Magnitude*, and *Tycho* of the *second*, *Flamsteed* lays down as between the *first* and *second*. Thus, instead of six several *Magnitudes*, we have really six Times six. Some Authors assert, that the *Stars* of the *first Magnitude* subtend an Angle of at least a Minute; but the *Earth*'s *Orbit* seen from the *fixed Stars*, only subtends an Angle of 20 Seconds; and hence they conclude that the Diameters of the *Stars* are vastly greater than that of the *Earth*'s whole *Orbit*. Now a Sphere whose Semidiameter only equals the Distance between the *Sun* and the *Earth*, is, by some, supposed to be Ten Millions of Times greater than the *Sun*; consequently the *fixed Stars* must be much more than Ten Millions of Times greater than the *Sun*. But Mr. *Whiston* is of Opinion, that this is a Mistake, and that the Diameters, even of the largest *Stars*, viewed through a Telescope, which magnifies, for Example, a Hundred Times, subtend no visible Angle at all, but are mere lucid Points.

The Incertitude, as to the *Magnitude*, and Distance of the *fixed Stars* from us, proceeds from their having no *Parallax*; since all Astronomers, both *antient* and *modern*, agree, that the Doctrine of the *Distances* of the *Celestial Bodies* consists in their *Parallaxes*, and that it is impossible we should have any just Observation without it.

Note, That a PARALLAX is an Arch of the Heavens intercepted between the *true Place* of a *Star*, and its *apparent Place*. The *true Place* of a *Star*, is that Point of the Heavens wherein it would be seen by an Eye placed in the *Center* of the *Earth*. The *apparent Place*, is that Point of the Heavens, wherein the *Star* appears, to an Eye on the *Surface* of the *Earth*.

It is past all Controversy, that the *fixed Stars* have no diurnal *Parallax*; and a vast Number of Astronomers question yet if they have an annual one; though several are of Opinion that they have, but so small, that it is almost imperceptible, and cannot be observed but with the greatest Care and Attention; in which *Hook* and *Flamsteed* imagined to have succeeded, and which to obtain, *Hook* had fixed a Telescope, of 30 Foot long, on the Roof of his Room, with whose Help having measured, in the Months of *July*, *August*, and *October*, the nearest Distance from the *Vertical* of a *bright Star* in the Head of the *Dragon*; he always found its Distance from the *Vertical* continually diminishing, (very little declining from the *Zenith* towards the *North*) as the *Ratio* of a *Parallax* should require; and at last observed that Distance from the *Vertical* to be so changed, as to admit of an Interval of 24 or 26 Seconds.

Flamsteed has since confirmed the annual *Parallax* of the *fixed Stars*, both by his own Observations, and by his Correction of those of *Hook*; for he has observed, with great Care and Attention, for seven Years together, the same *Parallax* in the *fixed Stars*, and has, by the great Numbers of his Observations, reduced

reduced the *Parallax* to a certain Quantity. There is in the Tail of *Ursa minor*, a *Polar Star*, more apparent than the rest, and consequently more proper to find out the *Parallax* of the *fixed Stars*; for as that *Star* appears always at Night, provided the Sky be not overcast with Clouds; as it is always at such a Distance from the Horizon, as to admit of not even the least Refraction; as it appears always, to those who take Observations, at the Meridian Circle, as well above, as under the Pole; as also from its great Distance from the *Ecliptick*; it must be subject to a *Parallax*: That *Star*, for these Reasons, when carefully observed, must produce a *Parallax*. Therefore *Flamsteed* thought fit to make use of it, to discover, and to demonstrate a *Parallax*, in which he flattered himself to have very well succeeded: For, after he had compared together, and supputed the fifteen Observations he made in the Space of seven Years, he found, that the *Polar Star* had a less *Latitude*, or Distance from the *Ecliptick*, towards the Summer's Solstice, than towards the Winter's Solstice.

Among the *fixed Stars*, there is a long, white, luminous Track, which seems to encompass the Heavens like a Swath, Scarf, or Girdle, called *Via Lactea*, or *Galaxy*, of Γαλαξτος, Milk; and which is easily perceived in a clear Night, especially when the Moon does not appear. It passes between *Sagittary* and *Gemini*, and divides the Sphere into two Parts: It is unequally broad, and in some Parts is single, in others double. The *antient Poets*, and even *Philosophers*, speak of the *Galaxy* as the Road, or Way, by which the Hero's went to Heaven.

Aristotle makes it a kind of Meteor, formed of a Croud of Vapours, drawn into that Part by certain large *Stars* disposed in the Region of the Heavens answering hereto. Others finding that the *Galaxy* was seen all over the Globe, that it always corresponded to the same *fixed Stars*, and that it transcended the Height of the highest *Planet*; set aside *Aristotle*'s Opinion, and placed the *Galaxy* in the *Firmament*, or Region of the *fixed Stars*, and concluded to be nothing but an Assemblage of an infinite Number of minute *Stars*.

Since the Invention of the Telescope, this Opinion has been abundantly confirmed. By directing a good Telescope to any Part of the *Milky Way*, where before we only saw a confused Whiteness, we now descry an innumerable Multitude of *little Stars*. These *Stars* are so remote, that a naked Eye confounds them. The like we observe in those other Spots called *nebulose Stars*, which, when examined with the Telescope, are distinctly perceived to be Clusters of *little Stars*, too faint to affect the Eye singly.

The Number of the *Stars* appears to be vastly great, almost infinite; yet Astronomers have long ago ascertained the Number of those visible to the Eye; which are found vastly fewer than one would imagine. *Hipparchus*, 125 Years before the Incarnation, on Occasion of a *new Star* then appearing, made a Catalogue of the *Stars*, *i. e.* an Enumeration thereof, with an exact Description of their *Magnitudes*, *Situation*, *Longitude*, *Latitude*, &c. that it might be known if any the like Change should happen, for the future, in the Heavens. He made the Number of visible *Stars* 1022. These were reduced into 48 *Constellations*; and he laid it down, that if there sometimes appeared more in Winter Nights, it was owing to a Deception of the Sense. *Ptolemy* added four *Stars* to *Hipparchus*'s *Catalogue*, and made the Number 1026. In the Year 1437, *Ulug Beigh*, Grandson of *Tamerlane*, in a new *Catalogue* he made, only gives 1017. But in the seventeenth Century, when *Astronomy* began to be retrieved, their Number was found to be much greater.

To the forty-eight *Constellations* of the Antients were added twelve new ones, discovered towards the South Pole, and two towards the North; besides several others not universally admitted, as the *Flower-de-lis*, the *Royal Oak*, &c.

Tycho Brahe published a Catalogue of 777 Stars, from his own Observations; which *Kepler* from *Ptolemy* and others increased to 1163, *Ricciolus* to 1468, and *Bayer* to 1725: Dr. *Halley* 373 observed by him within the *Antarctick Circle*. *Hevelius*, from his own Observations, and those of Dr. *Halley*, and the Antients, made a Catalogue of 1888 *Stars*; and Mr. *Flamstead* has since made a Catalogue of no less than 3000 *Stars*, all from his own most accurate Observations. Of these 3000, it is true, there are many only visible through a *Telescope*; nor does a good Eye scarce ever see more than a hundred at the same Time in the clearest Heaven: The Appearance of innumerable more frequent in clear winter Nights, arrives from our Sight's being deceived by their Twinkling, and from our viewing them confusedly, and not reducing them to any Order. Yet for all this, the *Stars* are really almost infinite. *Riccioli* makes no Scruple to affirm, in his new *Almagest*, that a Man who should say there are above twenty thousand Times twenty thousand, would say nothing improbable; for a good Telescope directed to any Points of the Heavens, discovers Numbers, that are lost to the naked Sight.

In the single Constellation of the *Pleiades*, instead of six or seven *Stars* seen by the best Eye, Dr. *Hook* with a Telescope twelve Foot long, told seventy-eight; and with larger Glasses many more of the same Magnitudes. *F. de Reita*, a Capuchin, affirms, that he has observed above 2000 *Stars* in the single Constellation of *Orion*. The same Author found above 188 in the *Pleiades*: And *Huygens* looking at the Star in the middle of *Orion*'s Sword; instead of one, found it to be twelve. *Galileo* found 80 in *Orion*'s Sword; 21 in the nebulous *Star* of his Head; and 36 in the nebulous *Star præsepe*.

I have so often mentioned *Constellation* in this Article, that I must explain here what's meant by *Constellation*, and what the *Constellations* are.

CONSTELLATION is an Assemblage or System of several *Stars*, expressed and represented under the Name and Figure of some animal or other Thing, called also an *Asterism*.

The Antients portioned out the Firmament into several Parts, or *Constellations*, reducing certain Number of Stars under the Representation of certain Images, in Order to aid the Imagination, and the Memory to conceive and retain their Number, Disposition, and even to distinguish the Virtues which they attributed to them.

The Division of the Heavens into *Constellations* is very antient, and in all likelyhood as old as *Astronomy* itself; at least it was known to the most antient Authors extant, whether sacred or profane. In the most antient Book of *Job* Mention is made of the Name of some of them; witness that sublime Expostulation, *Canst thou restrain the sweet Influence of the* Pleiades, *or loosen the Hands of* Orion? And the same may be observed of the oldest among the Heathen Writers *Homer* and *Hesiod*.

The Division of the Antients only took in the visible Firmament, or so much as came under their Notice: This they distributed under 48 *Constellations*; twelve whereof took up the *Zodiack*; the Names they gave them are, *Aries*, *Taurus*, *Gemini*, *Cancer*, *Leo*, *Virgo*, *Libra*, *Scorpius*, *Sagittarius*, *Aquarius*, *Capricornus*, *Pisces*; from whence the Signs of the *Ecliptick* and *Zodiack* take their Names; though now no longer contiguous to the *Constellations*.

The other Stars on the Northern Signs of the *Zodiack*, were disposed into 21 *Constellations*, viz. *Ursa major* and *minor*, *Draco*, *Cepheus*, *Bootes*, *Corona septentrionalis*, *Hercules*, *Lyra*, *Cygnus*, *Cassiopeia*, *Perseus*, *Andromeda*, *Triangulum*, *Auriga*, *Pegasus*, *Equuleus*, *Delphinus*, *Sagitta*, *Aquila*, *Ophiculus*, or *Serpentarius*, and *Serpens*; to which have been added since *Antinous*, and *Coma Berenices*.

The Stars on the Southern Side of the *Zodiack* were distributed into 15 *Constellations*; their Names *Cetus*, *Eridanus Fluvius*, *Lepus*, *Orion*, *Canis major* and *minor*, *Argo*, *Hydra*, *Crater*, *Corvus*, *Centaurus*, *Lupus*,

Lupus, *Æra*, *Corona Meridionalis*, and *Piſcis Auſtralis*: To which have been ſince added the following, *viz.* *Phœnix*, *Grus*, *Indus*, *Pavo*, *Piſcis Auſtralis*, *Piſcis volans*, *Toucan*, *Hydrus*, and *Xiphias*.

Of theſe *Conſtellations* the 15 laſt with the greateſt Part of *Argo*, *Navis*, *Centaurus* and *Lupus* are not viſible in our Horizon.

In theſe *Conſtellations* the Stars are ordinarily diſtinguiſhed by that Part of the Image wherein they are found. *Blayer* diſtinguiſhes them farther by the Letters of the *Greek* Alphabet; and many of them again have peculiar Names, as *Arcturus* between the Feet of *Bootes*; *Gemina* or *Lucida* in the *Corona Septentrionalis*; *Palilitium* in the *Bull's-Eye*; *Pleiades* in the Back, and *Hyades* in the Forehead of the *Bull*; *Caſtor* and *Pollux* in the Head of *Gemini*; *Capella*, with the *Hædi* in the Shoulder of *Auriga*, *Regulus*, or *Cor Leonis*; *Spica Virginis* in the Hand, and *Vindemiatrix* in the Shoulder of *Virgo*; *Antares*, or *Cor Scorpii*; *Fomahaut* in the Mouth of *Piſcis Auſtralis*; *Regel* in the Foot of *Orion*; *Sirius* in the Mouth of *Canis major*; and the *Pole-Star*, the laſt in the Tail of *Urſa minor*.

The other *Stars* not comprehended under theſe *Conſtellations*, yet viſible to the naked Eye, the Antients called *Informes*, or *Sporades*, ſome whereof the modern *Aſtronomers* have ſince reduced into new Figures or *Conſtellations*. Thus *Hevelius*, *v.gr.* between *Leo* and *Urſa minor*, makes *Leo minor*; and between *Urſa minor* and *Auriga*, over *Gemini*, makes *Lynx*, under the Tail of *Urſa major*, *Canes Venatici*, &c.

The Changes which have happened in the *Stars* are very conſiderable, contrary to the Opinion of the Antients, who held, that the Heavens and heavenly Bodies were incapable of any Change, the Matter thereof being permanent and eternal, infinitely exceeding the Hardneſs of Diamonds, and not ſuſceptible of any different Form; and in Effect, 'till the Time of *Ariſtotle*, and even two hundred Years afterwards, there had no Change been obſerved. The firſt was in the Year 125, before the Incarnation, when *Hipparchus* diſcovering a new *Star* to appear, was firſt induced to make a Catalogue of the *Stars*, that Poſterity, as we have obſerved, might perceive any future Changes of the like Kind.

In the Year 1572, *Tycho Brahe* obſerved another new Star in the *Conſtellation Caſſiopeia*, which was likewiſe the Occaſion of his making a new Catalogue. Its Magnitude at firſt exceeded that of the biggeſt of our Stars, *Sirius* and *Lyra*; it even equalled that of *Venus*, when neareſt the *Earth*, and was ſeen in fair Day-light. It continued ſixteen Months, toward the latter Part whereof it began to dwindle, and at laſt totally diſappeared, without any Change of Place in all that Time. *Leovicius* tells us of another Star appearing in the ſame *Conſtellation*, about the Year 905, which reſembled that of 1572; and quotes another antient Obſervation, whereby it appears that a new *Star* was ſeen about the ſame Place in 1264. Dr. *Keil* takes thoſe to have been all the ſame *Star*; and does not know but it may make its Appearance a-new 150 Years hence.

Fabricius diſcovered another new *Star* in the Neck of the *Whale*, which appeared and diſappeared ſeveral Times in the Years 1640 and 1662: Its Courſe and Motion is deſcribed by M. *Bouillaud*. *Simon Marius* diſcovered another in *Andromeda*'s Girdle in 1612 and 1613; though M. *Bouillaud* ſays it had been ſeen before in the 15th Century. Another was obſerved by *Kepler* in *Serpentarius*. Another of the third Magnitude in the Conſtellation *Cygnus*, near the Bill, in the Year 1601, which diſappeared in 1626, and was obſerved again by *Hevelius* in 1659, 'till the Year 1661, and again in 1666 and 1671, as a *Star* of the ſixth Magnitude.

It is certain from the antient Catalogues that many of the antient *Stars* are not now viſible. This is particularly notorious in the *Pleiades* or ſeven *Stars*, whereof ſix are now viſible to the Eye; a Thing long ago obſerved by *Ovid*. M. *Montaner*, in his Letter to the *Royal Society*, in 1670, obſerves that there are now wanting in the Heavens two *Stars* of the ſecond Magnitude, in the Stern of the Ship *Argo* and its Yard, which had been ſeen 'till the Year 1664. When they firſt diſappeared it is not known; but he aſſures us, that there was not the leaſt Glympſe of them in 1668. He adds, he has obſerved many more Changes in the fixed *Stars*, even to the Number of an hundred.

Theſe *Stars* which appear and diſappear by Turns, being always found to increaſe in Magnitude at their firſt Appearance, and to decreaſe as they begin to diſappear, and being likewiſe ſtill viſible through Teleſcopes, for ſome Time after they are loſt to the naked Eye, ſeem to be no more than Planets, performing their Periods about the fix'd Stars, as their reſpective Suns, (if it might be ſuppoſed that each *Star* is the Center of a Syſtem, and has Planets or Earths revolving round it, in the ſame Manner as round our Sun; *i. e.* has opake Bodies illuminated, warmed and cheriſhed by its Light,) unleſs we ſhould be rather inclined to Dr. *Keil*'s Opinion, *viz.* that the *Stars* loſe their Brightneſs, and diſappear, by becoming covered with *Maculæ* or Spots, ſuch as are frequently found to overſpread the Sun.

Some are of Opinion that thoſe temporary *Stars*, which upon their diſappearing have never been found to return again, are probably conjectured to be of the Number of *Comets*, which make long Excurſions from their Suns, or the Center of the upper Planetary Syſtems, *i. e.* from the fix'd Stars; returning too ſeldom to have their Returns perceived.

The fix'd Stars ſhine with their own Light, for they are much farther from the Sun than *Saturn*, and appear much ſmaller than *Saturn*; but ſince, notwithſtanding this, they are found to ſhine much brighter than *Saturn*, it is evident they cannot borrow their Light from the ſame Source as *Saturn* does, *viz.* the Sun: But ſince we know of no other luminous Body beſides the Sun, whence they might derive their Light, it follows that they ſhine with their own native Light.

From the Firmament or Heaven of the fixed Stars we'll deſcend, *gradually*, to the inferior Heavens, taking, in our Progreſſes, the *Comets* under our Conſideration.

Ariſtotle, *lib.* 1. *Meteor.* c. 7. falſly imagined that *Comets* were only a Kind of tranſient Fires or Meteors, conſiſting of Exhalations raiſed to the upper Region of the Air, and there ſet on Fire; far below the Moon's Courſe; but from the Time of *Tycho Brahe*, all *Aſtronomers* have been of Opinion, that *Ariſtotle* was miſtaken, and have all approved *Seneca*'s Sentiments, who, *lib.* 7. *natural. queſt. c.* 22. places a *Comet* among the eternal Works of Nature; and conſiders it as an heavenly Body, or Star, or Planet, placed in another Vortex ever ſince the Creation. Beſides it is incredible that bituminous and ſulphurous Exhalations could remain inflamed in the Air, for ſo long a Time, as we ſee a *Comet* appear; add to it, that a *Comet* has no *Parallax*, which is a convincing Proof of its immenſe Diſtance from us; for the Moon has a ſenſible *Parallax*. For Example:

Let the Earth be A, *Fig.* 2. in which two Spectators will be placed, *viz.* in B and C: He who will be in C, will ſee the Moon D in J, and *Mars* E in H; and he in B will ſee the Moon D in F, and *Mars* E in G. Therefore both will judge that the *Moon* and *Mars* do not exiſt in the ſame Part of the Heavens or Firmament, or near the ſame Stars; but will refer them to different Parts of Heaven, and to different Stars; and the nearer the Earth a Star is ſuppoſed to be, the greater will be the Diverſity of Aſpect. Hence if the *Star* be the remoteſt from the Earth, ſuch as is L, ſo that the Magnitude of the Earth, with Reſpect to that Diſtance, ſhould not be ſenſible, or be like a Point, then the Star will be ſeen in the ſame Place by both Spectators; which is the Reaſon why *Comets* have no *Parallax*, becauſe ſeen in the ſame Place from

from several Spectators, and from several Places, *viz.* from *London*, *Paris*, *Rome*, *Constantinople*, &c. therefore the *Comets* are at an immense Distance from us.

If any Body was placed in the Center of the World, he would see the right Place of a Star. As if the Earth was in the Center of the World, and a Person placed in that Center, the Moon would appear to him under those Stars it is really placed; but he who inhabits the Superficies of the Earth, must see the Moon under other Stars, unless it be placed in its Vertical; in which Case, the Lines of the true and apparent Place concur. For Example,

Let the Center of the Earth be A, *Fig.* 2; and the Moon D; the Person placed in A, will see the Moon in E; and he in B, see it in D: For the Arch E D, is the Difference of the true and apparent Place, which is called *Parallax*. But if one of the Spectators be placed in A, and the other in C, to whom the Moon should be *vertical*; then because the Ray of the true, and the Ray of the apparent Place, coincide in the same Point, there will be no *Parallax* in the Moon, because it will be referred in E, by both Spectators. Therefore, from a *Parallax*, the Distance of a Star from the Arch is investigated; and where there is no *Parallax*, *i. e.* where the terrestrial Semidiameter, or the Diversity of Aspect from which the *Parallax* is required, has no sensible Magnitude, with Respect to the Distance of some celestial Body, because of its great Distance from the Earth; that celestial Body must be supposed far above the Planets of our *Vortex*; which is the Case of the *Comets*, which, as I have already observed, have no *Parallax*.

Hence *Anaxagoras*, and *Democritus*, *apud Arist. l.* 1. *Meteor. c.* 6. would have the *Comets* to be nothing else but an Assemblage of errant Stars. But in what Manner those Stars could assemble in one Body, without the least sensible Fissure? why their Conjunction and Dissolution are not perceivable? how they are altogether susceptible of the same Motion, every one of them having a different one before their Conjunction? is what we cannot understand. Therefore it would be still better to say, with *Pythagoras*, and the *Pythagoreans*, that the *Comets* are some Planets, which, though offuscated with the too great Radiancy of the Sun, and thereby hidden from us, are, nevertheless, some Time distanced from the Sun, and come in Sight.

Des Cartes, *Tert. part. Princip. num.* 119. conjectures, that *Comets* P, are only Stars, formerly fixed like the rest, in the Heavens; but which becoming by Degrees covered with *Maculæ*, or Spots, and at length wholly robbed of their Light, cannot keep their Place, but are carried off by the *Vortices* of the circumjacent Stars; and in Proportion to their Magnitude and Solidity, moved in such Manner, as to be brought nearer the Orb of *Saturn*, and thus coming within Reach of the Sun's Light, rendered visible.

Bernoulli, in his System of *Comets*, supposes some primary Planet revolving round the Sun in the Space of four Years, and 157 Days; and at the Distance from his Body of 2583 Semidiameters of the *great Orbit*: This Planet, he concludes, either from its vast Distance, or Smalness, to be invisible to us; but, however, to have, at several Distances from him, several *Satellites* moving round him, and sometimes descending as low as the *Orbit* of *Saturn*; and that these becoming visible to us, when in their *Perigæum*, are what we call *Comets*.

Others will have the Motion of *Comets* made in the excentrick Circle of the *Earth*, so that when they are in the *Apogee* of that Circle, they cannot be seen, because of their great Distance from us; and are only visible, when near the *Perigee*; and that it might very well happen, that even in the *Perigee* they are not visible, since then they would be wrapp'd up in the Rays of the Sun, being never but in Day-time on the Horizon.

Some pretend to refute all these *Hypotheses* from the very *Phænomena* of the *Comets*; objecting, 1. That those *Comets* which move according to the Order of the Signs, either advance slower than usual, or retrograde, a little before they disappear, if the *Earth* be between them and the Sun; and more swiftly, if the *Earth* be situate in a contrary Part: On the contrary, those which proceed contrary to the Order of the Signs, proceed more swiftly than usual, if the *Earth* be between them and the Sun; and more slowly and go retrograde, when the *Earth* is in a contrary Part. 2. So long as their Velocity is increased, they move nearly in great Circles; but towards the End of their Course, deviate from those Circles; and as often as the *Earth* proceeds one Way, they go the contrary Way. 3. That they move in Ellipses, having one of their *Foci* in the Center of the Sun; and by *Radii* drawn to the Sun, describe Areas proportionable to the Times. 4. That the Light of their Bodies, or *Nuclei*, increases in their Recess from the *Earth* towards the Sun; and, on the contrary, decreases in their Recess from the Sun towards the *Earth*. 5. That their *Tails* appear the largest, and brightest, immediately after their Transit through the Region of the Sun; and that they always decline from a just Opposition to the Sun towards those Parts which the Bodies, or *Nuclei*, pass over, in their Progress through their *Orbits*. 6. That this Declination, *cæteris paribus*, is the smallest when the Heads, or *Nuclei*, approach nearest the Sun; and less still, near the *Nucleus* of the *Comet*, than towards the Extremity of the *Tail*. 7. That the *Tails* are somewhat brighter, and more distinctly defined, in their convex, than in their concave Part; and that they always appear broader at their upper Extream, than near the Center of the *Comet*; which *Tails* are transparent, the smallest Stars appearing through them.

Some are of Opinion, that Sir *Isaac Newton* solves all these *Phænomena*, by his supposing that the *Comets* are compact, solid, fixed, and durable Bodies; in one Word, a kind of Planets, which move in very oblique *Orbits*, every Way, with the greatest Freedom, persevering in their Motions, even against the Course and Direction of the Planets: Their *Tails* being a very thin, slender Vapour, emitted by the Head, or *Nucleus* of the *Comet*, ignited, or heated by the Sun. From whence they draw the following Conclusions, with him.

1. That it is evident, that the *Comets* which proceed according to the Order of the Signs, a little before they disappear, must move more slowly, or appear retrograde, if the *Earth* be between them and the Sun; and swifter, if the *Earth* be in a contrary Part: On the contrary, those proceeding against the Order of the Signs, *&c.* for since their Course is not among the fixed Stars, but among the Planets; as the Motion of the *Earth* either conspires with them, or goes against them, their Appearance, with Regard to the *Earth*, must be changed, and, like the Planets, they must sometimes appear swifter, sometimes slower, and sometimes retrograde. 2. When the *Comets* move the swiftest, they must proceed in strait Lines; but in the End of their Course decline, *&c.* because in the End of their Course, when they recede almost directly from the Sun, the Part of the *apparent Motion* which arises from the *Parallax*, must bear a greater Proportion to the whole *apparent Motion*. 3. The *Comets* must move in *Ellipses*, having one of their *Foci* in the Center of the Sun; because they do not wander precariously from one fictitious *Vortex* to another, but, making a Part of the Solar System, return perpetually, and run a constant Round. 4. The Light of their *Nuclei* must increase in their Recess from the Sun, and *vice versa*; because as they are in the Regions of the Planets, their Access toward the Sun, bears a considerable Proportion to their whole Distance. 5. Their Tails must appear the largest, and brightest, immediately after their Transit through the Region of the Sun; because then their Heads being the most heated, will emit the most Vapours; which Tails must still decline from a strict Opposition to the Sun, towards those Parts which the Heads pass over in their Progress through their *Orbits*; because

all Smoak and Vapours emitted from a Body in Motion, tends upwards obliquely, still receding from that Part towards which the smoaking Body proceeds. 6. That Declination will be still the least near the *Nucleus* of the *Comet*, and when the *Comet* is nearest the Sun; because the Vapour ascends more swiftly near the Head of the *Comet*, than in the higher Extremity of its Tail; and when the *Comet* is at a less Distance from the Sun, than at a greater. 7. The Tail is brighter, and better defined, in its convex Part, than in its concave: Because the Vapour in the convex Part, which goes first, being somewhat nearer and denser, reflects the Light more copiously. The Tail must also appear broader towards the higher Extremity of the *Comet*, than towards the Head; because the Vapour in a free Space perpetually rarefies and dilates. Lastly, The Tail must be transparent, because consisting of infinitely thin Vapour, *&c.*

There is no certain Time fixed for the Appearance of the *Comets*; for sometimes many Years have elapsed in which we could discover none, and sometimes several have appeared in the Space of two Months. The Part of the Heavens wherein they appear first, is not, likewise, determined; for some appear first towards the *Ecliptick*, and others towards the *Poles* of the World. Neither is the Time of the Duration of their Appearance fixed; for some are seen for a few Days only, others, on the contrary, for several Months.

All the *Comets* seem to have a diurnal Motion from East to West, towards the *Earth*, and in that Sense to describe Circles parallel to the *Equator*. Besides that apparent Motion they have in common with the other heavenly Bodies, they have another proper, and peculiar to them under the *Firmament*, which cannot be regularly determined; for some are carried to the East, some to the West, and others otherwise.

The Celerity of this peculiar Motion is not equal in all the *Comets*, but is rather various and unequal; since some of them run several more Degrees of a great Circle than others; neither is the Celerity of the Motion of each *Comet* always equal: For the Arch B, which it runs each Day, is sometimes greater, and sometimes less, in such Manner, however, that if several right Lines were drawn from the Center of the *Earth*, to be carried through the Places wherein the *Comet* is seen at that Hour, those Lines would divide another right Line into almost equal Parts, which should touch the Circle described by the *Comet*, in that Place where its Motion appears the most rapid. Neither is the Way they run through always equal, since some describe a greater Space in the Heavens than others. But, however, let that Space be what it will, none, or very few, have been known to have described above one Half of the great Circle under the *Firmament*, *i. e.* to have run more than Half the Heavens.

When a *Comet* is seen to dart its Rays toward that Place of the Heavens where its Motion seems to carry it, those Rays are called the *Beard* of the *Comet*; when, on the contrary, those Rays are extended towards that Part of the Heavens whence its proper Motion seems to recede, they are called the *Tail* of the *Comet*; but when they are equally dispersed on all Sides, some call it the *Hairs* of the *Comet*. Thus the *Comet* which was seen in 1664, at the Beginning of *December*, in the meridional Part of the World, to whose Respect the Sun was East, darting its Rays towards the West, where its proper Motion inclined, was called *bearded*; being turned afterwards towards the Sun, it shewed its *Hairs*; and, lastly, having the Sun on the West, its Rays being then darted towards the East, formed a *Tail*.

Rohault does not believe that those Rays, whereof the *Beard*, *Tail*, or *Hairs* of a *Comet* are imagined to be made, are produced of some particular Matter, accompanying the Body of the *Comet*; because he supposes that there is not that Connection perceived, which should be between that Matter and the Sun, on the Reason of the prodigious Distance which that Matter should be obliged to extend to. Therefore he supposes that *Phænomenon* to proceed from the Rays of Light reflected by the Body of the *Comet*, *i. e.* from Reflection.

Apollonius Myndius was the first who took *Comets* for regular Stars; and ventured to foretel, that one Day the Periods, and Laws of their Motion, would be discovered. Astronomers, however, are still divided on that Head; *Newton*, *Flamsteed*, *Halley*, and all the *English* Astronomers, seem satisfied of the Return of *Comets*. *Cassini*, and others of the *French*, think it highly probable. *De la Hire*, and others, oppose it.

Those on the affirmative Side, suppose the *Comets* to describe Circles prodigiously eccentrick, insomuch, as we can only see them in a very small Part of their Revolution; out of this they are lost in the immense Spaces; hid not only from our Eyes, but from our Telescopes. That little Part of their Circle next us, M. *Cassini*, &c. have found to pass between the *Orbits* of *Venus* and *Mars*.

M. *Cassini* gives the following Reasons for the Return of the *Comets*. 1. In considering the Course of the *Comets*, with Regard to the fixed Stars, they are found to keep a considerable Time in the Arch of a great Circle, *i. e.* a Circle whose Plane passes through the Center of the *Earth*; indeed, they deviate a little from it, chiefly towards the End of their Appearance; but this Deviation is common to them with the Planets. 2. *Comets*, as well as Planets, appear to move so much the faster, as they are nearer the *Earth*; and when they are at equal Distances from their *Perigee*, their Velocities are nearly the same. 3. There are no different Planets whose *Orbits* cut the *Ecliptick* in the same Angle, whose Nodes are in the same Points of the *Ecliptick*, and whose apparent Velocity in their *Perigee* is the same: Of Consequence, two *Comets*, seen at different Times, yet agreeing in all those three Circumstances, can only be one and the same *Comet*. And this were the *Comets* of 1577, and 1680, observed to do; and those of 1652, and 1698: Not that this exact Agreement in these Circumstances is absolutely necessary to determine them the same *Comet*. M. *Cassini* finds the Moon her self irregular in them all: Accordingly, he is of Opinion, that there are several which disagree herein, yet may be accounted the same.

In 1702 was a *Comet*, or rather the *Tail* of one, seen at *Rome*, which M. *Cassini* takes to be the same with that observed by *Aristotle*, and that since seen in 1668; which would imply its Period to be 34 Years. Again, in *April* of the same Year 1702, a *Comet* was observed by Messieurs *Biancini* and *Maraldi*, supposed by the latter to be the same with that of 1664, both by reason of its Motion, Velocity, and Direction. M. *De la Hire* took it to have some Relation to another he had observed in 1698, which M. *Cassini* refers to that of 1652: On this Supposition, its Period appears to be 43 Months, and the Number of Revolutions between 1652 and 1698, fourteen.

M. *De la Hire* proposes one general Difficulty against the whole System of the Return of the *Comets*, which would seem to hinder any *Comet* from being a Planet; and it is this: That by the Disposition necessarily given to their Courses, they should appear as small at first, as at last, and always increase, till they arrive at their greatest Proximity to the *Earth*; or if they should chance not to be observed as soon as they become visible, for want of Attention thereto, at least it is impossible but they must frequently shew themselves e're they have arrived at their full Magnitude and Brightness: But he adds, that none were ever yet observed till they had arrived at it.

Sir *Isaac Newton* supposes, that as those Planets which are nearest the Sun, and revolve in the least *Orbits*, are the smallest; so, among the *Comets*, such as in their *Peribelion* come nearest the Sun, are the smallest, and revolve in lesser *Orbits*.

When any Body will determine the Place or Course of a *Comet*, he must observe the Distance of the

Comet from two fixed Stars, whose *Longitudes* and *Latitudes* are known: From the Distances thus found, he must calculate the Place of the *Comet* by *Trigonometry*. But if he will do it mechanically, and without any Apparatus of Instruments, he must observe four Stars round the *Comet*, such, as that the *Comet* may be in the Intersection of the right Lines that join the two opposite Stars; which is easily found, by means of a Thread placed before the Eye, and extended over-against the Stars and *Comet*; for which Invention we are indebted to *Longomontanus*.

I should be apt to believe, that the *Comets* proceed from nothing else but from some of the most subtle Particles of the first Element, left in the second after their first Separation, of the same kind of those which compose the fixed Stars; that those Particles, as well by their own innate Velocity, as by the continual Agitation of the Atmosphere, existing between both Elements, finding Means to disengage themselves, to disunite and break the Texture of the hooked and tenacious Corpuscles of the second Element, they were wrapp'd in, and almost overwhelmed with, they all meet together in a *Focus*, wherein, by the Rapidity of their Motion, they form that accidental Light, to which we give the Name of *Comet*. That by the almost insuperable Obstacles which obstruct their Reunion, and which they are obliged to conquer, losing Part of their Vivacity, they do not appear in their *Focus*, with the same Light and Radiancy the fixed Stars are seen to move with in their *Orbits*. That their Formation being but accidental, and they being, as it were, but *detached Pieces* of the whole Mechanism of the Heavens, without whose Assistance they can preserve their entire Symmetry; they cannot be supposed to have any regular Form, but will appear sometimes bigger, sometimes less, according to the greater or less Assemblage of the Particles they are composed of. That in the Progress from the Place they sally out, to that of their Destination, leaving a Tract or Passage for others of the same Nature to follow them, those Particles dispersed throughout that whole Passage, form what we take for the *Tail* of the *Comet*; and what we consider as the *Beard* and *Hairs* of the *Comet*, is nothing else but the different Position of those Particles, before they are entirely directed toward forming themselves into one single Body, which Body exists no longer in the same Form, than while it is capable to oppose the frequent Assaults it receives from the whole Element it appears in; which is evident, from its gradual Diminution, proceeding from its being overwhelmed by Degrees, by the *ambient Particles*; which conquering, at last, accomplishes its Dissolution.

Having thus considered all the heavenly Bodies, which are supposed to be placed beyond our *Vortex*; we come next to those placed within our *Vortex*, or System. Among those, the SUN challenges the first Place, as the Soul of all the rest, who, by his Force and Action, communicates all the Motion and Strength to the other heavenly Bodies. The Heat and Light of the *Sun* demonstrate its being of a fiery Nature; as being a Part of the first Element, tempered by the Accession of the Particles of the second and third Element.

The fiery Nature of the *Sun*, is proved by its Rays being collected by concave Mirrors, or convex Lenses, burning, consuming, and melting the most solid Bodies, or else converting them into Ashes. Wherefore as the Force of the Solar Rays is diminished by their Divergency, in a duplicate *Ratio* of the Distances reciprocally taken; it is evident, their Force and Effect is the same, when collected by a burning Lens, or Mirror; as if we were at such a Distance from the *Sun* where they were equally dense. The *Sun*'s Rays, therefore, in the Neighbourhood of the *Sun*, produce the same Effects, as might be expected from the most vehement Fire: Consequently the *Sun* is of a fiery Substance.

Hence it follows, that its Surface is every where fluid, that being the Condition of Flame. Indeed, whether the whole Body of the *Sun* be fluid, as some think, or solid, as others; we do not determine: But as there are no other Marks, whereby to distinguish Fire from other Bodies, but Light, Heat, a Power of burning, consuming, melting, calcining, and vitrifying; we do not see what should hinder, but that the *Sun* may be a Globe of Fire, like our's, invested with Flames. From the Nature, we proceed to

The Figure of the *Sun*, which is a Spheroid, higher under its *Equator*, than under the *Poles*; which is proved thus: The *Sun* has a Motion about its own *Axis*, and therefore the Solar Matter will have an Endeavour to recede from the Centers of the Circles wherein it moves, and that with the greater Force, as the Peripheries of the Circles are greater. But the *Equator* is the greatest Circle, and the rest towards the *Poles* continually decrease: Therefore the Solar Matter, though at first in a spherical Form, will endeavour to recede from the Center of the *Equator*, further than from the Centers of the *Parallels*. Consequently, since the Gravity whereby it is retained in its Place, is supposed to be uniform throughout the whole *Sun*; it will really recede from the Center more under the *Equator*, than under any of the *Parallels*. And hence the *Sun*'s Diameter drawn through the *Equator*, will be greater than that passing through the *Poles*; and therefore its Figure is not perfectly spherical, but *spheroidical*.

According to the *Copernican Hypothesis*, which is now generally received, and which has even Demonstration on its Side, the *Sun* is the Center of the *Cometary* and *Planetary* Systems; round which, all the *Planets*, and our *Earth*, among the rest, revolve, in different Periods, according to their different Distances from the *Sun*.

But the *Sun*, though thus eased of that prodigious Motion, whereby the Antients imagined him to revolve daily round our *Earth*; yet is not a perfect quiescent Body; for it evidently appears, from the *Phænomena* of its *Maculæ*, or Spots, that he has a *Rotation* round its *Axis*, like that of the *Earth*, whereby the natural Days are measured, only slower. Some of these Spots have made their first Appearance near the Edge, or Margin of the *Sun*, and have been seen some Time after on the opposite Edge; whence, after a Stay of about 14 Days, they have re-appeared in their first Place, and taken the same Course over-again; finishing their entire Circuit in 27 Days Time: Which is hence deduced to be the Period of the *Sun*'s *Rotation* round its *Axis*. This Motion of the *Spots* is from West to East, whence we conclude that of the *Sun*, to which the other is owing, to be from East to West.

Besides this *Rotation* of the *Sun* round his *Axis*, he appears as if he had an annual Motion round the *Earth*, whereby he is seen to advance, insensibly, towards the eastern Stars; though it be demonstrated that there is no such Thing, and that such Appearance is occasion'd by the annual Motion of the *Earth*.

What's worthy our Observation in this apparent annual Motion of the *Sun*, is, 1. That he always appears to move in the same *Plane*, or *Ecliptick* Line, and never to change his Course; and that the *Earth*'s Center is always inherent on the same *Plane*, while it accomplishes its Course round the *Sun*; which is agreeable to this general Rule, that all impulsive Force must always operate according to the Direction of a right Line: And as the annual Motion of the *Earth* proceeds from a projectile Impulsion, according to a right Line, and from a perpetual Attraction towards the Center of the *Sun*, it is absolutely necessary that the *Earth*, as well as the rest of the *Planets*, should form her Course on the same Plane, by a Line of Direction of an impulsive Force, and which should pass through the Center of the *Sun*.

2. That his Motion is inequable, though in the same *Ecliptick*; for a little after the *Vernal*, and some Time before the *Autumnal Equinox*, his Motion is moderately swift; but a little after the *Winter's Solstice*, the same Motion is swifter; and after the *Summer's*

mer's Solstice, slower. This Inequality of Motion is occasioned by the *Earth*, not describing a Circle round the *Sun*, but an *Ellipsis*.

3. That the *apparent Diameter* of the *Sun* is greater in *Winter*, while his Motion is swifter, than in *Summer*, while slower; because as the *Earth*, as we have observed already, performs its Course in an *Ellipsis*, and in the same *Ellipsis* is always removed from the *Sun*, at an unequal Distance, as well when it ascends from the *Perihelion* to the *Aphelion*, as when it descends from the *Aphelion* to the *Perihelion*; and as the *Earth* is in its *Perihelion* a little after the *Winter Solstice*, and in its *Aphelion* a little after the *Summer Solstice*, the *apparent Diameter* of the *Sun*, or of his reciprocally proportional *Distance* from the *Earth*, must be either *greater* or *lesser*, as the *Distance* is *greater* or *lesser*. Therefore it is found, towards the Beginning of the *Winter*, very great; *mediocre*, towards the Beginning of the *Spring*, and *Autumn*; and very small about the Beginning of *Summer*.

4. That the *Ecliptick* being divided into two Parts by the *equinoctial Points*, the *Sun* stays longer in its northern Part, than in the southern Part; that is to say, the *elliptical Orbit* of the *Earth* is divided by the *equinoctial Points* into two unequal Parts; for the *Perihelion* is not at a very great Distance from the *Winter Solstice*: Therefore the *equinoctial Points* must almost coincide, not with the great *Axis*, but with the right Side, and thereby render the Spaces unequal. Therefore the *apparent Motion* of the *Sun*, which in equal Times describes equal Spaces, must be unequal, and appear to stay several Days longer in the six *northern*, than in the *southern Signs*; and though this Difference be of almost eight Days, it nevertheless will decrease, in the succeeding Years, so as to be reduced to nothing at last; and again decrease and increase, by Course, as long as the annual Motion will last.

5. That, however, the Space of the entire annual Revolution, which we call *Year*, is equal to each other, and consists of 365 Days, 5 Hours, 49 Minutes; since whatever be the Inequality of the Parts, when compared to each other, there is nothing taken, thereby, from the whole Revolution: For the whole Space of the same *Ellipsis* is the same, and we begin to enumerate the Areas from what Place soever, because the Beginning and the End of the Numeration will be the same. There is, however, some Inequality betwixt the Time of the *Anomaly* restored, or of the Revolution from the Point of the *Ellipsis*, to the same Point, (which is equal to the *Starry Year*) and the Time of the *Tropical Year*; for the *Starry Year*, or the Revolution of the *Earth* from a fix'd Star to the same Star, is not always of the same Magnitude with the *Tropical Year*.

6. That the *Obliquity* of the *Ecliptick*, or the Angle wherein it cuts the *Equator*, is usually fixed at 23° 29′; which, therefore, is the greatest *Declination* of the *Ecliptick* from the *Equator*.

The Method of observing the greatest *Declination* of the *Ecliptick* is thus: About the Time of one of the *Solstices*, observe the *Sun*'s *Meridian Altitude*, with the utmost Care, for several Days successively; from the greatest *Altitude* observed, substract the *Height* of the *Equator*, the Remainder is the greatest *Declination* in the *solstitial Point*. *Ricciolus*, *E. gr.* at *Bologna*, in the Year 1646, observed the *Sun*'s *Meridian Altitude*, on the 20th of *June*, to be 68° 59′ 55″; on the 21st, 69° 0′ 10″; and on the 22d, 68° 59′ 55″. The greatest, then, was, 69° 0′ 10″; from which the *Altitude* of the *Equator*, 45° 29′ 50″, being substracted, left 23° 30′ 20″, for the greatest *Declination*.

It has been a Matter of great Dispute among the late *Astronomers*, whether the *Obliquity of the Ecliptick* be fixed or moveable? It is certain the Observations of the antient *Astronomers* represent it considerably greater than those of the Moderns: Whence *Purbachius*, *Reinholdus*, *Regiomontanus*, *Copernicus*, *Rheticus*, *Longomontanus*, *Tycho*, *Snellius*, *Lansbergius*, *Bullialdus*, and others, have concluded it variable.

To determine the Point, the Observations of the *Astronomers* of all Ages, have been collected together; the chief of which are: That of *Pytheas* in the Year of *Christ* 324, which makes it 23° 52′ 41″: That of *Eratosthenes*, in 230, 23° 51′ 20″: And that of *Hipparchus* in the Year before *Christ* 140, 23° 51′ 20″: That of *Ptolemy* in the Year after *Christ* 140, 23° 51′ 20″: Of *Albategnius* in 880, 23° 35′: *Regiomontanus* in 1460, 23° 30′: *Waltherus* in 1476, 23° 30′: *Copernicus* in 1525, 23° 28′ 24″: *Rothmannus* and *Byrgius* in 1570, 23° 30′ 20″: *Tycho* in 1587, 23° 30′ 22″: *Kepler* in 1627, 23° 30′ 30″: *Gassendus* in 1636, 23° 31′: *Ricciolus* in 1646, 23° 30′ 20″: *Hevelius*, 23° 30′ 20″: *Marton*, 23° 30′: And *De La Hire* in 1702, 23° 29′.

Upon the whole, though the oldest Observations make the Obliquity the greatest, yet it appears to be immutable; for it was by Mistake that *Eratosthenes* concluded, from his Observations, the greatest Declination to be 23° 51′ 20″; from the same Observations he should only have made it 23° 31′ 5″; as is shewn by *Ricciolus*; and the like Oversight has been found by *Gassendus*, and *Peirescius* in the Observation of *Pythias*, which Mistakes of *Eratosthenes* and *Pythias* were retained by *Hypparchus* and *Ptolemy*; and gave Occasion to the aforementioned Authors to conclude that the Obliquity was continually decreasing. Yet the Chevalier *de Louville*, who has examined the Merit of the Cause with great Attention, is of another Sentiment; the Result of his Researches he gives us in the Memoirs of the *Royal Academy*, for the Year 1716, *viz.* that the *Obliquity of the Ecliptic* diminishes at the Rate of a Minute in 100 Years. The Antients had no Regard to any Refractions in their Observations: And besides made the *Sun*'s Horizontal *Parallax* 3′; whereas the modern *Astronomers* scarce make it 10″. These two Inaccuracies have a very ill Effect on their Observations; which M. *de Louville* is obliged to free them of, e'er he can build on them.

According to an antient Tradition of the *Egyptians*, mentioned by *Herodotus*, the *Ecliptick* had antiently been perpendicular to the *Equator*: This Notion they were led into, by observing, for a long Series of Years, that the *Obliquity* was continually diminishing; or which amounts to the same, that the *Ecliptick* was continually approaching to the *Equator*: For hence they took Occasion to suspect that those two Circles, in the Beginning, had been as far off each other as possible. *Diod. Siculus* relates, that the *Chaldeans* reckoned 403000 Years from their first Observations to the Time of *Alexander*'s entring *Babylon*. This enormous Account may have some Foundation, supposing the *Chaldeans* to have built on the Diminution of the Obliquity of the *Ecliptick* of a Minute in 100 Years. M. *de Louville* taking the Obliquity, such as it must have been at the Time of *Alexander*'s Entrance into *Babylon*, and going back to the Time, when the *Ecliptick*, at that Rate, must have been perpendicular to the *Equator*, actually finds 402942 *Egyptian* or *Chaldean* Years, which is only fifty Years short of the former Epocha. In the general there is no Way of accounting for the fabulous Antiquity of the *Egyptians*, *Chaldeans*, &c. so probable, as from the Supposition of long Periods of very slow celestial Motions, whereof they had observed a little Part, and thence calculated the Beginning of the Period; making the World and their own Nation to commence together. If M. *de Louville*'s System be true, in 140000 Years more, the *Ecliptick* and *Equator* must coincide and mix in one.

But the most essential, and the most worthy our Observation of all the *Sun*'s *Phenomena*, is his *Parallax*, either Diurnal or Monthly, since thereby we discover his true Distance, and his true Magnitude, and with it the true Distances and Magnitudes of the other Planets.

The great Distance of the *Sun* renders his *Parallax* too small, to fall even under the nicest immediate Observation: Indeed many Attempts have been made both by the Antients and Moderns; and many Methods

thods invented for that Purpose. The *First*, that of *Hipparchus*, followed by *Ptolemy*, *&c.* was founded on the Observation of *Lunar Eclipses*. The *Second* was that of *Aristarchus*, whereby the Angle subtended by the Semidiameter of the Moon's Orbit seen from the *Sun*, was sought from the *Lunar Phases*: But these both proving deficient, *Astronomers* are forced to have Recourse to the *Parallaxes* of the Planets nearer us, as *Mars* and *Venus*; for from their *Parallaxes* known, that of the *Sun*, which is inaccessible by any direct Observation, is easily deduced. For from the Theory of the Motion of the Earth and Planets, we know at any Time the Proportion of the Distances of the *Sun* and *Planets* from us; and the Horizontal *Parallaxes* are in a reciprocal Proportion to those Distances: Knowing therefore the *Parallax* of a Planet, that of the *Sun* may be found from it. Thus *Mars* when opposite to the *Sun*, is twice as near as the *Sun* is: His *Parallax* therefore will be twice as great as that of the *Sun*: And *Venus*, when in her inferior Conjunction with the *Sun*, is sometimes nearer than he is; her *Parallax* therefore is greater in the same Proportion.

Thus from the *Parallaxes* of *Mars* and *Venus*, *Cassini* found the *Sun*'s *Parallax* to be ten Seconds, which implies his Distance to be 22000 Semi-Diameters of the Earth. In an Observation of the Transit of *Venus* over the *Sun*, which will be seen in *May* 1761. Dr. *Halley* has shewn a Method of finding the Sun's *Parallax*, and Distance to a five hundredth Part of the whole.

Before we proceed to the Observations of the *Moon* and the other Planets, it is very proper we should explain what is here understood by Planets, their Distinction, *&c.*

PLANET, in *Astronomy*, is a celestial Body, revolving round the *Sun* as a Center, and continually changing its Position with Respect to the other Stars, whence its Name πλανήτης, Wanderer, in Opposition to a Star which remains fixed.

The *Planets* are usually distinguished into *Primary* and *Secondary*.

The *Primary Planets* called also simply, and by Way of Eminence, *Planets*, are those which move round the *Sun* as their proper Center; and are again subdivided into superior and inferior *Planets*. The Superiors are those further off the *Sun* than our Earth is. Such are *Mars*, *Jupiter*, and *Saturn*. The Inferior are those nearer the *Sun* than our Earth is, and situate between the Earth and the Sun. Such are *Venus* and *Mercury*.

Secondary Planets, are such as move round some *primary Planets*, as their respective Center, in the same Manner as the *primary Planets* do round the *Sun*. Such are the *Moon* moving round our Earth; and those others moving round *Saturn* and *Jupiter*, properly called *Satellites*.

Though the *Moon* be ranked here among the *secondary Planets*, we'll nevertheless give her the Preference, because being nearer us she appears the greatest and most enlightened of all the other *Planets*.

The MOON is a dark opake and spherical Body, which, though called in the Scripture, *Gen.* c. i. v. 16. a great Luminary, has no Light of itself, but only shines with that she receives from the *Sun*; whence only that half turned towards him is illuminated; the opposite one remaining in its native Darkness. The Face of the *Moon* visible on our Earth is that Part of her Body turned towards the Earth; whence according to the various Positions of the *Moon*, with regard to the *Sun* and Earth, we observe different Degrees of Illumination; sometimes a large, and sometimes a less Portion of the enlightened Surface being visible, which different Degrees of Illumination proceed also from the Superficy of the *Moon* being rough, uneven, and not smooth; whence *Hevelius* and *Ricciolus* conclude, that some Parts of the *Moon* are high, like Mountains and Rocks, and others low and level, like Valleys, Lakes, Seas, *&c.* pretending that those Mountains, and high Rocks, shadow the various Parts of the Earth, according to the various Aspect of the Sun. That is to say, if the Sun be East with Respect to the *Moon*, then the Mountains of the *Moon*, being illuminated on the East, will spread the Shadow towards the West. Likewise, if the Sun be Westward, the same Mountains being illuminated Westward, will spread the Shadow Eastward.

But, however, some Astronomers will not have us imagine, that those low, level, and shadow'd Parts of the *Moon* are of the same Nature with our Seas, Rivers, Lakes, *&c.* Since they pretend that there is no Atmosphere round the *Moon*, like that raised round the Earth, from the Vapours of our Seas and Rivers; for, say they, when *Saturn* disappears by the Interposition of the *Moon*, or suffers an Eclipse, he is not observed to suffer any Mutation in the Ingress or Egress of the Shadow of the *Moon*, which should happen, if the *Moon* had an Atmosphere, different from the Æthereal Substance, and which would produce such a *Penumbra* as that we observe in an Eclipse of the *Moon*. For then *Saturn* would be observed considerably darkened by the *Penumbra* of the Atmosphere, before he could enter the real Shadow of the Earth; since in a Total Eclipse of the *Moon*, that dark Colour observed in the *Moon*, proceeds from the Refraction of the *Sun*'s Rays, in the Atmosphere of the Earth.

Others, like *Melthlinus*, *Kepler*, *Galilæo*, &c. encompass the *Moon* with a heavy and elastick Atmosphere, wherein Vapours, and other Exhalations ascend, and whence they return in Form of Dew and Rain, which they suppose to be that lucid Ring they discover the *Moon* encircled with, and parallel to her Periphery, in a total Eclipse of the *Sun*. *Kepler* observed that Ring at *Naples* and *Antwerp* in an Eclipse which happened in 1605; *Wolfius* in another in 1606 at *Leipsick*: The same was observed in the great Eclipse in 1713. Hence they conclude, that there is some Fluid about the *Moon*, which corresponds to her Figure, and which both reflects and refracts the *Sun*'s Rays; and hence also that this Fluid is denser below near the *Moon*'s Body; and rarer above. Now as the Air which encompasses our Earth is such a Fluid, it is manifest, say they, there is Air above the *Moon*; and since the different Density of the Air depends on its different Gravity and Elasticity, no doubt the different Density of the Lunar Air has the same Causes. We have observed, continue they, the Lunar Air is not always equally clear and transparent: That sometimes it changes the spherical Figures of the Stars into Ovals; and in the several total Eclipses we have also observed a trembling in the *Moon*'s Limb, immediately before Immersion, with an Appearance of thin light Smoke flying over it during Immersion. And hence as these same *Phænomena* are observed in our Air, when full of Vapours, it is pretty plain, conclude they, at the Time when those *Phænomena* are observed in that of the *Moon*, it is full of Vapours and Exhalations. And *Lastly*, Since at other Times the *Lunar Air* is clear and transparent, the Vapours must have been precipitated on the *Moon*; and therefore either Dew or Rain, or Snow have fallen.

The other Proofs to support their Opinion of the *Moon*'s Atmosphere are, that the *Moon* sometimes disappears in a clear Heaven, so as not to be discoverable by the best Glasses; little Stars of the fifth and sixth Magnitude all the Time remaining visible. *Kepler* says that he has observed this *Phænomenon* twice, *viz.* in 1580 and 1583. *Hevelius* did the same in 1620. *Ricciolus* and other *Jesuits* at *Bologna*, and many People throughout *Holland* observed the like, *April* 14, 1642; yet at *Venice* and *Vienna* she was all the Time conspicuous. *December* 23, 1703, there was another total Obscuration. At *Arles* she first appeared of a yellowish Brown; at *Avignon* ruddy and transparent, as if the *Sun* had shone through; at *Marseilles* one Part was reddish, the other very dusky; and at length, though in a clear Sky, wholly disappeared. Here it is evident, say they, that the Colours appearing different at the same Time, do not belong to the *Moon*; but that they are occasioned by an Atmosphere around her, variously disposed in this and

that Place, for refracting of these or those colour'd Rays.

Cassini frequently observed *Saturn*, *Jupiter*, and the fix'd Stars, when hid by the *Moon*, near her Limb, whether the illuminated or dark one, to have their circular Figure, as we have mention'd already, chang'd into an oval one; and in other *Occultations* found no Alteration of Figure at all. In like manner, the *Sun* and *Moon* rising in a vaporous Horizon, do not appear circular, but elliptical. Hence, as we know, by sure Experience, (say those who contend for an Atmosphere of the *Moon*) that the circular Form of the *Sun* and *Moon* is only chang'd into an elliptical one by Means of the Refraction in the vapoury Atmosphere; it is pretty apparent, that at the Time when the circular Figure of the Stars is thus chang'd by the *Moon*, there is a dense Matter encompassing the *Moon*, wherein the Rays emitted from the Stars are refracted, and that at other Times, when there is no Change of Figure, this Matter is wanting.

Having thus form'd the *Moon* on the same Plan with our *Earth*, and over-stock'd it with Mountains, (which *Ricciolus* was pleas'd to distinguish by the Names of celebrated Astronomers, having himself taken the Height of that which he calls St. *Catherine*, and found it of nine *English* Miles) with Vallies, Forests, Seas, Rivers, *&c.* having likewise encompass'd it with an Atmosphere, which they are pleas'd to resolve into *Rain*, *Mists*, *Frost*, *Snow*, &c. according to the different Seasons of the Year, (for there must be, likewise, in the *Moon*, a Vicissitude of Seasons, and Variety of Climates) considering, at last, that Nature produces nothing in vain; that Dew and Rain fall on our *Earth*, to make Plants vegetate; and that Plants take Root, grow, produce Seeds and Fruits for Animals to feed on; in order that Nature should not be frustrated in her Designs, they have plac'd Animals in the *Moon*; reasonable, as well as irrational ones. Though they have not been capable, yet, notwithstanding their nicest Observations, to discover their Stature, none of them daring to venture to take a Trip into those Climates, to inform us of the Fertility of the Soil, the Product of the Country, of the Manners, Virtues, Vices, Passions, Affections of the Inhabitants; of the Form of their Government; of their Religion, if divided into several different Sects, or if they all adore a supreme Being, in the same Manner, and with the same Ceremonies; if their Priests content themselves with instructing those committed to their Care, in their Duty to God, and to their Neighbours, without interfering in State Affairs; or if they do not rather turn the Chair of Truth into a political *Rostrum*. If Hypocrisy is there a Mask for Religion; and if Perfidy, Falshood, Deceit, Treachery, *&c.* are as much in Vogue, under that Hemisphere, as they are under our's; if Bravery and Courage are as rare to be met with in their Armies, and Modesty and Virtue among the Fair Sex; if Idolatry in the Sanctuary, Venality in the Employments, Corruption in the Legislature, unfair Dealing in the Commerce, *&c.* are banish'd from among them? But how could they inform us of all those Particulars, since they never venture further into those Territories, than the Length of a *Telescope* will allow? Therefore, could we not very well believe, that what they are pleas'd to relate of that pretended Empire of the *Moon*, is all chimerical, and fictitious, since not supported by Reason, nor Authority; and has been invented by those who delight in Paradoxes and Obscurity.

From the *Nature* and *Furniture* of the *Moon*, we'll proceed to her various *Motions*.

Cassini is of Opinion, that the *Moon* revolves, every Month, round her proper *Axis*; with the same Face always turn'd towards the Earth; which can be easily understood, if we consider that a Man who runs round the Circumference of a Circle he has describ'd on an *Area*, always looks on the Center of that Circle, since in that whole Course he must revolve round himself.

2. The *Moon* is observ'd to be carried every Day, with the rest of the heavenly Bodies, from East to West.

3. The *Moon* advances, every Day, very near thirteen Degrees, from West to East; so that she finishes, or accomplishes her Course in the Space of 27 Days, and almost 8 Hours; which Interval, we call a *Periodical Month*; because then the *Moon*, mov'd from West to East, accomplishes her Period, *i. e.* from a determinate Part of the Heavens, to the same, or returns from one fix'd Star, to the same fix'd Star. But if we compare the *Moon* with the Sun, who does not remain, like a fix'd Star, in the same sensible Place, but every Day runs almost a Degree in the *Zodiack*, from West to East; she is longer in passing from one Conjunction to another, than in returning from a determinate Point of the Heavens to the same Point: Therefore as the Sun will be advanc'd 26 Degrees, or thereabouts, in the Space of a *Periodical Month*, the *Moon* must add two Days, or more, to the *Periodical Month*, in order to compleat the *Synodical Month*, and overtake the Sun, *i. e.* the Space from one *Syzygy* to the other: Whence the *Synodical Month* consists of 29 Days, 12 Hours, 44 Minutes, and 3 Seconds; though commonly the Minutes and Seconds are neglected, and the *Synodical Lunar Months* are reckon'd to consist alternately of 29 and 30 Days.

However, this Motion of the *Moon* does not describe a perfect Circle; for it is an *elliptical*, or approaching to the *elliptical*. For if we follow *Des Cartes*'s Hypothesis, the *Vortex* of the *Moon* being press'd on both Sides by *Mars* and *Venus*, must be *elliptical*. Hence the *Moon* occupies a lesser Diameter of that *Vortex* near the *Syzygies*, *i. e.* near the Conjunction and Opposition with the Sun; and a greater, when near the Quadratures.

As the *Plane* of the *Moon*'s *Orbit*, and the *Plane* of the *Ecliptick*, cut each other in a right Line, as, and in the same Manner as the same *Ecliptick* divides the *Equator* in the *Equinoctial Points*; hence ensues, that they are inclin'd to each other in an Angle of about five Degrees. The Points of those *Intersections* are call'd *Nodes*, by *Ptolemy*; whereof that where the *Moon* ascends above the *Plane* of the *Ecliptick* northward, is call'd the *Ascending Node*, and the *Head of the Dragon*; and the other, the *Descending Node*, and the *Dragon's Tail*; and the Interval of Time between the *Moon*'s going from the *Ascending Node*, and returning to it, a *Dracontick Month*.

If the Line of the *Nodes* was immoveable, that is, if it had no other Motion but that whereby it is carried round the Sun, it would still look towards the same Point of the *Ecliptick*, *i. e.* would always keep parallel to it self; but it is found by Observation, that the Line of the *Nodes* constantly changes Place, and shifts its Situation from East to West, contrary to the Order of the Signs, and by a retrograde Motion finishes its Circuit in about 19 Years; in which Time each of the *Nodes* returns to the Point of the *Ecliptick* whence it before receded. Hence it follows, that the *Moon* is never precisely in the *Ecliptick*, but twice each Period, *viz.* when she is in the *Nodes*; throughout the rest of her Course she deviates from it, being nearer or further from the *Ecliptick*, as she is nearer or further from the *Nodes*.

We call the *Moon*'s Distance from the *Nodes* her *Latitude*, which is measur'd by an Arch of a Circle drawn through the *Moon*, perpendicular to the *Ecliptick*, and intercepted between the *Moon* and the *Ecliptick*. The *Moon*'s *Latitude*, when at the greatest, never exceeds 5 Degrees, and about 18 Minutes; which *Latitude* is the Measure of the Angles of the *Nodes*.

M. *Cassini* observes, that while the *Moon* is performing her Revolution round the Earth, she varies her Distance from it, in three different Manners. For, 1. She runs every Day its *Apogee*, 6 Minutes, 42 Seconds, towards the East, and her *Excentricity* contains 42 Parts of a *mille*, into which the Semidiameter of the *Orbit* of the *Moon* is suppos'd to be divided. This

This *Excentricity* is less, when the Sun is at an equal Distance from the *Moon's Perigee* and *Apogee*; but when the Sun approaches nearer the *Moon's Apogee* or *Perigee*, that *Excentricity* increases; and when the Sun is existant in the *Moon's Apogee* or *Perigee*, the lesser or simple *Excentricity* is increas'd by a half Part of it. The Space of Time wherein the *Moon*, going from the *Apogee*, returns to it again, is call'd the *Anomalistick Month*.

Tycho Brahe has discover'd, that the *Moon* changes her Motion, according to her different Distance from the *Syzygies*, *i. e.* from Opposition, or Conjunction. That in the first Quarter, that is, from the Conjunction to her first Quadrature, she abates somewhat of her Velocity; which in the second Quarter she recovers: In the third Quarter she again loses; and in the last again recovers. This *Tycho* call'd the *Moon's Variation*.

There are other very considerable Irregularities in the *Moon's* Motion, in that of her *Apogee*, and in the *Nodes*: For when the *Earth* is in its *Aphelion*, the *Moon* is in her *Aphelion* likewise; in which Case, she quickens her Pace, and performs her Circuit in a shorter Time: On the contrary, when the *Earth* is in its *Perihelion*, the *Moon* is so too; and then she slackens her Motion; and thus revolves round the *Earth* in a shorter Space when the *Earth* is in its *Aphelion*, than when in its *Perihelion*: So that the *Periodical Months* are not all equal.

The Irregularity of the *Moon's Apogee* is discover'd by its being found to move forwards when it coincides with the Line of the *Syzygies*, and backwards, when it cuts that Line at right Angles. Nor is this Progress and Regress in any Measure equal; in the Conjunction and Opposition it goes briskly forwards, and in the Quadratures moves either slowly forwards, stands still, or goes backward.

The Motion of the *Nodes* is not uniform; but when the Line of the *Nodes* coincides with that of the *Syzygies*, they stand still; when the *Nodes* are in the Quadratures, *i. e.* when their Lines cut that of the *Syzygies* at right Angles, they go backward, from East to West; and this Sir *Isaac Newton* shews, with the Velocity of 16″ 19‴ 24⁗ in an Hour.

Note, That SYZYGY, (from the *Greek* συζυγία, *Conjunctio*) is a Term equally us'd for the *Conjunction* and *Opposition* of a Planet with the Sun. On the *Phænomena* and Circumstances of the *Syzygies*, a great Part of the *Lunar Theory* depends. For, 1. The Force which diminishes the Gravity of the *Moon* in the *Syzygies*, is double that which increases it in the *Quadratures*: So that in the *Syzygies* the Gravity of the *Moon* from the Action of the Sun, is diminish'd by a Part, which is to the whole Gravity, as 1 to 89,36; for in the *Quadratures* the Addition of Gravity is to the whole Gravity, as 1 to 178,73.

2. In the *Syzygies* the disturbing Force is directly as the Distance of the *Moon* from the *Earth*, and inversly as the Cube of the Distance of the *Earth* from the Sun. And as the *Syzygies* the Gravity of the *Moon* towards the *Earth*, receding from its Center, is more diminish'd, than according to the inverse *Ratio* of the Square of the Distance from that Center. Hence, in the Motion of the *Moon* from the *Syzygies* to the *Quadratures*, the Gravity of the *Moon* towards the *Earth* is continually increas'd, and the *Moon* is continually retarded in its Motion; and in the Motion from the *Quadratures* to the *Syzygies*, the *Moon's* Gravity is continually diminish'd, and its Motion in its *Orbit* accelerated.

3. Further, in the *Syzygies* the *Moon's Orbit*, or Circle round the *Earth*, is more convex, than in the *Quadratures*; for which Reason, the *Moon* is less distant from the *Earth* at the former, than the latter. When the *Moon* is in the *Syzygies*, her *Apsides* go backwards, or are retrograde. When the *Moon* is in the *Syzygies*, the *Nodes* move *in antecedentia* fastest; then slower and slower, till they become at Rest when the *Moon* is in the *Quadratures*.

Lastly, When the *Nodes* are come to the *Syzygies*, the Inclination of the Plane of the *Orbit* is least of all. These several Irregularities are not equal in each *Syzygy*, but all somewhat greater in the *Conjunction*, than the *Opposition*.

Note also, That the QUADRATURE *fig.* 7. of the *Moon*, is her Aspect, or Situation, when she is 90° distant from the Sun. Or her *Quadrature* is when she is in a middle Point of her *Orbit*, between the Points of *Conjunction* and *Opposition*, which happens twice in her Revolution, *viz.* in the first and third Quarters.

When the *Moon* is in her *Quadrature*, she exhibits that *Phasis* which we call the *Half Moon*, *i. e.* she shines with just Half her Face, and is said to be bissected, or *dichotomized*. It is very difficult to fix the precise Moment, when the *Moon* is bissected, or in her true *Dichotomy*. Observation informs us, that when she is 30 Minutes distant from the *Quadratures*, she appears bissected; but she appears so too in the *Quadratures* themselves, and sometimes afterwards, as *Ricciolus* acknowledges, in his *Almagest*. So that she appears *dichotomized*, or cut in two, at least for the Space of a whole Hour; in which Time, any Moment may be taken for the true Point of *Dichotomy*, as well as any other. But the infinite Number of Moments of Time, give an infinite Diversity of Distances. The Moment in which the true *Dichotomy* happens, being thus uncertain, but it being granted, withal, that it happens before the *Quadrature*; *Ricciolus* takes the middle Point between the *Quadrature* and the Time when it is first dubious whether the *Moon* be *dichotomized*, or not, for the true *Dichotomy*.

Astronomers determine the Period of the Moon's Revolution round the Earth, or the *Periodical Month*, and the Time between one Opposition and another, or the *Synodical Month*, by computing the Time between two Eclipses, or Oppositions; and dividing this, by the Number of Lunations that have pass'd in the mean Time: Hence they find the Quotient to be the Quantity of the *Synodical Month*. They likewise compute the Sun's mean Motion during the Time of the *Synodical Month*, and add this to the entire Circle describ'd by the *Moon*. Then, as the Sum is to 360°, so is the Quantity of the *Synodical Month* to the *Periodical*.

Thus *Copernicus*, in the Year 1500, *November* 6, at 12 at Night, observ'd an Eclipse of the Moon at *Rome*; and *August* 1, 1523, at 4 Ho. 25 Sec. another at *Cracow*; hence the Quantity of the *Synodical Month* is thus determin'd:

Obs. 2.	*An.* 1523.	d. 292h.	2.5′
Obs. 1.	*An.* 1500.	d. 310h.	2.20′
Interval of Time	*An.*	22 d. 292h.	2.5′
Add the Intercalary Days		5	
Exact Interval	*An.*	22 d. 297h.	2.5′
Or			11991005′

Which divided by 282 Months, elaps'd in the mean Time, gives the Quantity of the *Synodical Month*, 42521′ 9″ 9‴; that is, 29 Days, 12 Hours, 41 Minutes.

From two other Observations of Eclipses, the one at *Cracow*, the other at *Babylon*, the same Author determines more accurately the Quantity of the *Synodical Month* to be

42524′ 3″ 10‴ 9⁗
That is, 29d. 11h. 43′ 3″ 10‴.

The

	°	′	″	‴
The Sun's mean Motion in the Time	29	6	24	18
The Moon's Motion	389	6	24	18

Quantity of the *Periodical Month* 27d. 7h. 43′ 5″

Hence, 1. The Quantity of the *Periodical Month* being given; by the Rule of Three we may find the Moon's diurnal and horary Motion, *&c.*

2. If the Sun's mean diurnal Motion be subtracted from the Moon's mean diurnal Motion, the Remainder will give the Moon's diurnal Motion from the Sun.

3. Since in the Middle of a total Eclipse the Moon is in the Node; if the Sun's Place be found for that Time, and to this be added six Signs, the Sum will give the *Place of the Node.*

4. From comparing the antient Observations with the modern, it appears, that the Nodes have a Motion, and that they proceed *in antecedentia*, *i. e.* from *Taurus* to *Aries*, from *Aries* to *Pisces*, &c. if then to the Moon's mean diurnal Motion be added the diurnal Motion of the Nodes, the same will be the Motion of the Latitude; and thence by the Rule of Three may be found in what Time the Moon goes 360° from the *Dragon's Head*, or in what Time she goes from, and returns to it; that is, the Quantity of the *Draconitick Month.*

5. If the Motion of the diurnal *Apogee* be subtracted from the mean Motion of the Moon, the Remainder will be the Moon's mean Motion from the *Apogee*; and thence, by the Rule of Three, is determin'd the Quantity of the *Anomalistick Month.*

According to *Kepler*, the mean *Synodical Month* is 29 Days, 12 Hours, 44 Minutes, 3 Seconds, 2 Thirds. Her *Periodical Month*, 27 Days, 7 Hours, 43 Minutes, 5 Seconds. The Place of the *Apogee* for the Year 1700, *January* 1, *O. S.* was 11 S. 8° 57′.1. The Place of the Ascending Node 4 S. 27° 39′ 17″. Mean diurnal Motion of the Moon 13° 10′ 35″. Diurnal Motion of the *Apogee*, 6′ 41″. Diurnal Motion of the Nodes, 3′ 11″. Lastly, the Eccentricity 4362 Parts, such, whereof the Semidiameter of the Eccentrick is 100000: And therefore the diurnal Motion of the Latitude is 13° 13′ 46″; and the diurnal Motion from the *Apogee* 13° 3′ 54″.

Note, That ECCENTRICITY is the Distance of the *Orbit* of a Planet from the Center of the Sun, *i. e.* the Distance between the Center of the *Ellipsis* and the *Focus* thereof; called also, *simple*, or *single Eccentricity.*

Double Eccentricity, is the Distance between the two *Foci* in the *Ellipsis*, which is equal to twice the single *Eccentricity.*

The Tables of Equation which serve to solve the Irregularities of the *Sun*, do likewise serve for those of the *Moon*, with this Precaution, that these Equations must be corrected for the *Moon*, otherwise they will not exhibit the true Motion in the *Syzygies*; which Corrections are attended with prodigious Difficulties: for the Lunar Inequalities are so many, that no *Astronomer* could bring them under any Rule, before Sir *Isaac Newton* was pleased to favour the learned World with the Mechanical Causes of these Inequalities, and with the Method of computing and ascertaining them. He shews, from the Theory of Gravity, that the larger Planets revolving round the *Sun* may carry along with them small Planets revolving round themselves; and shews, *A priori*, that those smaller must move in *Ellipses*, having their *Umbilici* in the Centers of the larger; and have their Motion in their *Orbits* variously disturbed by the Motion of the *Sun*; and, in a Word, must be affected with those Inequalities which we actually observe in the *Moon*: And from this Theory he argues analogous Irregularities in the *Satellites* of *Saturn.*

From this same Theory he examines the Force which the *Sun* has to disturb the *Moon*'s Motion, determine the horary Increase of the Area which the *Moon* would describe in a circular *Orbit* by *Radii* drawn to the Earth. Her Distance from the Earth. The horary Motion in a circular and Elliptick *Orbit.* The mean Motion of the Nodes. The true Motion of the Nodes. The horary Variation of the Inclination of the *Moon*'s *Orbit* to the Plane of the Ecliptick. From the same Theory he has found the annual Equation of the *Moon*'s mean Motion to arise from the various Dilatation of her *Orbit*; and that Variation to arise from the *Sun*'s Force, which being greater in the *Perigee*, distends the *Orbit*; and being less in the *Apogee*, suffers it to be again contracted. In the dilated *Orbit* she moves more slowly; in the contracted more swiftly: And the annual Equation, whereby this Inequality is compensated, in the *Apogee* and *Perigee*, is nothing at all; at a moderate Distance from the *Sun* amounts to 11′, 50″; and in other Places is proportional to the Equation of the *Sun*'s Center, and is added to the mean Motion of the *Moon*, when the Earth proceeds from its *Aphelion* to its *Perihelion*; and subtracted when in the opposite Part. Thus, supposing the Radius of the great *Orbit* 1000, and the Earth's Excentricity $16\frac{7}{8}$; this Equation when greatest, according to the Theory of Gravity, comes out 11′, 49″.

He adds, that in the Earth's *Perihelion* the Nodes move swifter than in the *Aphelion*, and that in a triplicate Ratio of the Earth's Distance from the *Sun*, inversely, and the greatest Equation of the Center which this Inequality occasions, is 1°, 56′, 26″, agreeable to the *Sun's* Excentricity $16\frac{15}{16}$. If the *Sun*'s Motion were in a triplicate Ratio of its Distance inversely, this Inequality could generate the greatest Equation 2°, 56′, 9″; and therefore the greatest Equations which the Inequalities of the Motions of the *Moon*'s *Apogee* and Nodes occasion, are to 2°, 56′, 9″, as the mean diurnal Motion of the *Moon*'s *Apogee*, and the mean diurnal Motion of her Nodes, are to the mean diurnal Motion of the *Sun*. Whence the greatest Equation of the mean Motion of the *Apogee* comes out 19′, 42″; and the greatest Equation of the mean Motion of the Nodes 9′, 27″. The former Equation is added, and the latter subtracted, when the Earth proceeds from its *Perihelion* to its *Aphelion*; and the contrary in the opposite Part of its *Orbit.*

From the same Theory of Gravity it also appears that the *Sun*'s Action on the *Moon* must be somewhat greater when the transverse Diameter of the Lunar *Orbit* passes through the *Sun*, than when it is at right Angles with the Line that joins the Earth and *Sun*: And, therefore that the Lunar *Orbit* is somewhat greater in the first Case than in the second. Hence arises another Equation of the mean Lunar Motion, depending on the Situation of the *Moon*'s *Apogee* with Regard to the *Sun*, which is greatest when the *Moon*'s *Apogee* is an Octant with the *Sun*; and none, when she arrives at the Quadrature or *Syzygies*; and is added to the mean Motion in the Passage of the *Moon*'s *Apogee* from the Quadrature to the *Syzygies*, and subtracted in the Passage of the *Apogee* from the *Syzygies* to the Quadrature. This Equation, which Sir *Isaac* calls *Semestris*, when greatest, *viz.* in the Octants of the *Apogee*, arises to 3′, 45″, at a mean Distance of the Earth from the *Sun*; but it increases and diminishes in a triplicate Ratio of the *Sun*'s Distance inversely; and therefore in the *Sun*'s greatest Distance, is 3′, 34″; in the smallest 3′ 56″, nearly. But when the *Apogee* of the *Moon* is without the Octants, it becomes less, and is to the greatest Equation, as the Sine of double Distance of the *Moon*'s *Apogee*, from the next *Syzygy* or Quadrature to the *Radius.*

From the same Theory of Gravity it follows, that the Sun's Action on the *Moon* is somewhat greater when a right Line drawn through the *Moon*'s Nodes passes through the Sun, than when that Line is at right Angles with another joining the Sun and Earth; and hence arises another Equation of the *Moon*'s mean Motion, which he calls *Secunda Semestris*, and which is greatest when the Nodes are in the Sun's Octants, and

and vanishes when they are in the *Syzygies*, or *Quadratures*; and in other Situations of the Nodes, is proportionable to the Sine of double the Distance of either Node from the next *Syzygy*, or *Quadrature*.— It is added to the *Moon*'s mean Motion while the Nodes are in their Passage from the *Sun*'s *Quadratures* to the next *Syzygy*, and substracted in their Passage from the *Syzygies* to the *Quadratures* in the Octants.—When it is greatest it amounts to 47″, at a mean Distance of the Earth from the *Sun*; as appears from the Theory of Gravity: At other Distances of the *Sun*, this Equation in the Octants of the Node is reciprocally as the Cube of the *Sun*'s Distance from the Earth; and therefore in the *Sun*'s *Perigee* is 45″, in his *Apogee* very near 49″.

By the same Theory of Gravity, the *Moon*'s *Apogee* proceeds the fastest when either in Conjunction with the *Sun*, or in Opposition to it; and is retrograde when in *Quadrature* with the *Sun*. In the former Case, the Eccentricity is greatest, and in the latter, smallest. These Inequalities are very considerable, and generate the principal Equation of the *Apogee*, which he calls *Semestris*, or *Semi-menstrual*.—The greatest *Semi-menstrual* Equation is about 12°, 18′.

Horrox first observed the *Moon* to revolve in an *Ellipsis* round the Earth placed in the lower *Umbilicus*: and *Halley* placed the Center of the *Ellipsis* in an *Epicycle*, whose Center revolves uniformly round the Earth: And from the Motion in the *Epicycle* arise the Inequalities now observed in the Progress and Regress of the *Apogee*.

Note, That EQUATION is the Difference between mean and apparent Time; or the Reduction of the apparent unequal Time, or Motion of the *Sun*, or a *Planet*, to equable and mean Time or Motion.—Time is only measured by Motion; and as Time, in itself, flows ever equably; to measure it, such a Motion must be used as is equable, or which always proceeds at the same Rate.

Before we proceed to the Demonstration of the *Eclipses* of the *Sun*, *Moon*, &c. we must observe the *Moon*'s *Parallax*; which is done by observing the *Moon*'s Meridian Altitude with the greatest Accuracy; and marking the Moment of Time: This Time being equated, we must compute her true Latitude and Longitude, and from these find her Declination; and from her Declination and the Elevation of the *Equator* find her true Meridian Altitude. If the observed Altitude be not Meridian, we must reduce it to the true Altitude for the Time of Observation; and by taking the Refraction from the observed Altitude, and subtracting the Remainder from the true Altitude; the Remainder will be the *Moon*'s *Parallax*. By this Means, *Tycho*, in *October* 1583, 12 Days, 5 Hours, 19 Minutes, from the Moon's Meridian Altitude observ'd, 13 Degrees, 38 Minutes, found her *Parallax* 54 Minutes.

Note, That ALTITUDE, in *Astronomy*, is the Distance of a Star, or other Point in the Mundane Sphere, from the Horizon. This *Altitude* may be either true or apparent. If it be taken from the rational or real Horizon, the Altitude is said to be true and real; if from the apparent or sensible Horizon, the Altitude is apparent. Or rather the apparent Altitude is such as it appears to our Observation; and the true, that from which the Refraction has been subtracted. The Meridian being a vertical Circle, a *Meridian Altitude*, that is, the Altitude of a Point in the Meridian, is an Arch of the Meridian intercepted between it and the Horizon. The *Longitude* of the *Moon* is her Place in the *Zodiack*.

De la Hire makes the greatest horizontal *Parallax* 1°, 1′, 25″, the smallest 54′, 5″. Therefore the *Moon*'s Distance from the Earth, when in her *Perigee*, is $55\frac{07}{100}$, that is almost 56 Semi-Diameters; in her *Apogee* $63\frac{57}{100}$, that is, $63\frac{1}{2}$ Semidiameters of the Earth.

Note, That a SEMIDIAMETER is a right Line drawn from the Center of a Circle or Sphere to its Circumference, the same with what we otherwise call *Radius*.

Note also, That the Distances of the Planets from the Sun and Earth, in Semidiameters of the Earth, supposing the greatest horizontal *Parallax* 6″; and the Dimensions of the *Orbits* as assigned by *Kepler*, are as follow:

Distance from the *Sun*	greatest	mean	least	Distance from the *Earth*	greatest	mean	least
Saturn,	326925	308290	187254	*Saturn*,	380556	327544	274532
Jupiter,	178640	170026	34560	*Jupiter*,	222250	179259	136268
Mars,	57226	52326	47426	*Mars*,	92221	52944	13668
Earth,	37995	34377	33758	*Earth*,	34996	34377	33759
Venus,	25061	24889	24718	*Venus*,	60056	34548	9041
Mercury,	16142	13340	10537	*Mercury*,	51138	37179	23221
				Luna,			

Cassini makes the Distances somewhat less; as supposing the *Sun*'s *Parallax* a little greater.

Distance from the *Earth*	greatest	mean	least	Distance from the *Earth*	greatest	mean	least
Saturn,	244000	210000	176000	*Venus*,	38000	22000	6000
Jupiter,	155000	143000	87000	*Mercury*,	33000	22000	11000
Mars,	59000	33500	8000	*Moon*,			
Sun,	22374	22000	21626		57	53	6

Note, further, that the *Distance of the Sun from the Moon*'s *Node*, or *Apogee*, is an Arch of the *Ecliptick*, intercepted between the *Sun*'s true Place, and the *Moon*'s Node or *Apogee*. That by the *Sun*'s Place is understood the Sign and Degree of *Zodiack*, which the Luminary is in: Or is that Degree of the *Ecliptick*, reckoning from the Beginning of *Aries*, which the *Sun*'s Circle of Longitude cuts: And therefore coincides with the Longitude of the *Sun*. As the Sine of the *Sun*'s greatest Declination, 23° 30′ to the Sine of any present Declination given or observed, *v. gr.* 23° 15′: So is *Radius* 10 to the Sine of his Longitude 81° 52′; which if the Declination were North, would give 20° 52′ of *Gemini*, if South 20° 52′ of *Capricorn*, for the *Sun*'s Place. The *Moon*'s Place is that Point of her *Orbit* wherein she is found at any Time.

Persons, utter Strangers to *Astronomy*, will certainly expect that I'll instruct them how to find the *Moon*'s Age, the Time of her being in the Meridian, and the Time of her beginning to shine. Therefore:

To find the *Moon*'s Age, we must add to the Day of the Month the Epact of the Year, and the Months from *March* inclusive. The Sum, if under 30; if over, the Excess is the *Moon*'s Age. If the Month has but 30 Days, the Excess above 29 is the *Moon*'s Age.

To find the Time of the *Moon* being in the Meridian, we must multiply her Age, if under 15 Days by 4; and divide the Product by 5; the Quotient gives the Hour, and the Remainder multiplied by 12 the Minute. If her Age exceeds 15, we must subtract 15, and proceed with the Remainder as before. To find the Time of the *Moon*'s Beginning to shine, we must mutiply her Age, if under 15 by 48, and divide the Product by 60: The Quotient gives the Hour; and the Remainder the Minute. If her Age be above 15 Days, we must subtract the Time thus found from 24; the Remainder gives the Time of shining in the Morning.

At present we'll proceed to *Eclipses* of the *Sun* and *Moon*.

ECLIPSE, from the *Greek* εκλειψις, from εκλειπω, I fail, in *Astronomy*, is a Privation of the Light in one of the Luminaries, by the Interposition of some opake Body, either between it and the Eye; or between it and the *Sun*.

When the *Moon* passes between the Earth and the *Sun*, and deprives us of his Aspect, that's called an *Eclipse* of the *Sun*, which is always the greater, the greater is the Part, it steals from our Sight, which may also sometimes be total, if the Eclipse covers it entirely.

Eclipse of the *Sun*, *fig.* 4. is distinguished into *Total* and *Partial*.

As the *Moon* is found to have a *Parallax* of Latitude; *Eclipses* of the *Sun* only happen when the Latitude of the *Moon*, viewed from the *Sun*, is less than the Aggregate of the apparent Semidiameter of the *Sun* and *Moon*. Therefore solar *Eclipses* happen when the *Moon* is in Conjunction with the *Sun*, in or near the Nodes, *i. e.* at the new *Moons*. Consequently the memorable *Eclipse* of the *Sun*, at our Saviour's Passion, happening at the Time of full *Moon*, when the *Sun* and *Moon* are in Opposition, was preternatural.

If there is not an *Eclipse* of the *Sun* every new *Moon*, though the new *Moon* covers the *Sun* from the Earth, 'tis because the *Moon*'s Way is not precisely under the *Ecliptick*, but placed obliquely thereto; only intersecting it twice in every Period; so that *Eclipses* can only be occasioned in such new *Moons*, as happen in these Intersections or Nodes, or very near them. In the Nodes, when the *Moon* has no visible Latitude, the *Occultation* is total, *fig.* 5; and with some Continuance, when the *Disk* of the *Moon* in *Perigæo*, appears greater than that of the *Sun* in *Apogæo*, and its Shadow is extended beyond the Surface of the Earth; and, without Continuance, or moderate Distances, when the Cusp or Point of the *Moon*'s Shadow barely touches the Earth. Out of the Nodes, but near them, the *Eclipses* are partial.

The other Circumstances of solar *Eclipses* are, 1. That none of them are universal; that is, none of them are seen throughout the whole Hemisphere, which the *Sun* is then above; the *Moon*'s Disk being much too little, and much too near the Earth to hide the *Sun* from the Disk of the Earth, which is fifteen Times bigger than it. 2. Nor does the *Eclipse* appear the same in all Parts of the Earth, where it is seen; but when in one Place it is total, in another it is partial. Farther, when the *Moon* being in her *Apogee*, appears much less than the *Sun*, as happens most sensibly, when he is in *Perigæo*; the Cusp of the Lunar Shadow not reaching the Earth, she becomes in a central Conjunction with the *Sun*, yet not able to cover his Disk; but lets his whole Limb appear like a lucid Ring or Bracelet, hence called an *annular Eclipse*. 3. It does not happen at the same Time in all Places where it is seen; but appears more early to the Western Parts, and later to the Eastern. 4. Its Beginning is always on the Western Side the *Sun*, and on the same Side it ends. 5. In total *Eclipses* of the *Sun* the *Moon*'s darkened *Disk* is seen covered with a faint dawning Light; which is commonly attributed to the Reflection of the Light from the illuminated Part of the Earth. *Lastly*, in *total Eclipses* of the *Sun*, the *Moon*'s Limb is seen surrounded by a pale Circle of Light; which the late *Astronomers* take for a manifest Indication of a Lunar Atmosphere.

Note, That DISK, in *Astronomy*, is the Body or Face of the *Sun* or *Moon*, such as it appears to us. The *Disk* is conceived to be divided into twelve equal Parts, called *Digits*; by means whereof it is, that the Magnitude of an *Eclipse* is measured, or estimated. Such an *Eclipse* was so many Digits or Parts of the *Sun*, or *Moon*'s Disk. *Mercury* and *Venus* are sometimes seen in the *Sun*'s *Disk*, transiting the *Sun*'s *Disk*. In a *total Eclipse* of either of those Luminaries, the whole *Disk* is obscured or darkened; in a partial *Eclipse* only Part of them.

Note further, That the LIMB signifies the outermost Border, or Edge of the *Sun* or *Moon*, when the Middle or *Disk* is hid in an *Eclipse* of either Luminary. *Astronomers* observe the lower and the upper *Limb* of the *Sun*, in Order to find its true Heighth, which is that of its Center.

To determine the Bounds of a solar *Eclipse*, we must 1. Add together the apparent Semidiameters of the Luminaries both in *Apogæo* and *Perigæo*. 2. To the former Sum the greatest *Parallax* of Latitude possible, since the *Parallax* diminishes the Northern Latitude; and since it augments the Southern Latitude from the same Sum we must subtract the greatest *Parallax* of Latitude. Thus in each Case we'll have the true Latitude, beyond which there can be no *Eclipse*. This Latitude given, the *Moon*'s Distance from the Nodes, beyond which *Eclipses* cannot happen, is found.

Ptolemy makes the utmost Bound of *Eclipses* at 10° 25′ Distance from the Node. *Copernicus* at 19° 12′. *Tycho* at 18° 25′. *Kepler* at 17° 16′. *Riccioli* at 18° 49′.

To find the Digits eclipsed, we must add the apparent Semidiameters of the Luminaries into one Sum, and subtract the *Moon*'s apparent Latitude from it, the Remainder is the Scruples or Parts of the Diameter eclipsed. Then say, as the Semidiameter of the *Sun* is to the Scruples eclipsed; so are 6 Digits reduced into Scruples, or 360 Scruples to the Digits eclipsed.

The Duration of a Solar *Eclipse* is determined by finding the horary Motion of the *Moon* from the *Sun*, for one Hour before the Conjunction, and another Hour after; then we must say, as the former horary Motion is to the Seconds in an Hour, so are the Scruples of half Duration to the Time of Immersion; and as the latter horary Motion is to the same Seconds, so are the same Scruples of half Duration to the Time of Immersion. And adding the Time of Immersion to that of Emersion; the Aggregate is the total Duration.

By finding the Distance of the greatest Obscurity from the Moon's Latitude for the Time of Conjunction, the Beginning, Middle, and End of a *Solar Eclipse* is determin'd. Then we say, As the horary Motion of the Moon from the Sun before the Conjunction, is to 3600 Seconds of an Hour; so is the Distance of the greatest Darkness, to the Interval of Time between the greatest Darkness and the Conjunction. We then subtract this Interval, in the first and third Quarters of the Anomaly, from the Time of the Conjunction; and in the other Quarters we must add it to the same; the Result is the Time of the greatest Darkness. Lastly, From the Time of the greatest Darkness, we subtract the Time of Incidence, and add it

it to the Time of Emersion; the Difference, in the first Case, will be the Beginning; and the Sum, in the latter Case, the End of the *Eclipse*. Though the Interval between the Conjunction and the greatest Obscurity is so very small, and so exceedingly precarious, that it is scarce worth while to be so very precise; and, accordingly, many Authors use the Time of the apparent Conjunction for that of the greatest Darkness. Or if you would determine it with more Accuracy, subtract about two Minutes for the Distance between the Conjunction seen, and the Time of the greatest Obscurity.

To calculate an *Eclipse of the Sun*, we must find, 1. The mean New Moon, and thence the true one, together with the Place of the Luminaries for the apparent Time of the true one. 2. Compute the apparent Time of the New Moon observ'd for the apparent Time of the true New Moon. 3. Compute the Latitude seen, for the apparent Time of the New Moon seen. 4. Thence determine the Digits eclips'd. 5. We must find the Times of the greatest Darkness, Immersion, and Emersion; and thence determine the Beginning and Ending of the *Eclipse*.

Flamsteed has invented a Method of representing the *Solar Eclipses*, which, by a geometrical Construction, removes all the Difficulties and Impediments of the *Calculus*; which is this:

There must be understood innumerable Lines conducted from the Circles of the Earth, (through a Plane which should touch the *Lunar Orbit*; which Plane must be level to the right Line which connects the Centers of the Sun and of the Earth) to the Center of the Sun. All those Lines shall cut the said Plane, and will shew the Terrestrial Sphere, projected with its Circles on that Plane: So that the Eye plac'd in the Sun's Center, must see the Earth, and its annual, as well as diurnal Motion, accomplish'd in the same Plane, in the same Manner we see from the Earth, the Moon and the Sun, with all their Mutations, as if they were but plain Superficies, and had their spherical Circles describ'd in plain *Disks*: Then from the Projection of such spherical Terrestrial Superficy, will arise in this Plane, a Circle of Basis, call'd the *Disk of the Earth*; and which is to be every where equal to the Plane of the *Ecliptick*: Then will arise, likewise, a right Line extended on each Side through its Center, which will represent the Axis of the Earth, projected in that Plane, inclin'd on each Angle to the Plane of the *Ecliptick*, according to the Difference of the Seasons. And the *Parallelism* of the Terrestrial Axis, on Reason of its different Situation to our Plane, will make the Inequality of the Angle in the same Plane. There will arise, likewise, in the same Plane, by the diurnal Motion of each Point in the Superficy of the Earth, innumerable *Ellipses*, by whose different Situations the Place in the Plane given will be determin'd, and separated from them all.

Therefore, if in the *Solar Eclipses* we can discover in that Plane, the Lines, and the Ways which the Moon will pass through, we'll discover, also, the Place of our Hemisphere which is to be at that Time darken'd, by its Interposition; which can be done in the following Manner:

Having found the lesser Distance of the Center of the Earth, or of the *Disk* and *Penumbra* of the Center, and likewise the Distance of its smaller Line in our Plane, from the Area of the *Ecliptick*, let be drawn from the Point of the lesser Distance in the Plane, a Line perpendicular to it; this Line will trace the Passes or Way of the *Penumbra*, in the Base, or *Disk* of the Circle. Then we must mark in that right Line the Hours, with their Quarters and Minutes, of our Meridian, which answer to the *Phænomena* of the *Eclipse*; marking, likewise, in the Ecliptick Line of our Plane, the Hours, with their Parts, so that each Hour, and each smaller Part of the Hour, mark the Point where your Place, describ'd in the *Ellipse*, is fix'd: In this Manner, and by those Moments of Time given, in our Right, and Elliptical Line, we'll discover the *Phænomena* of the *Eclipse* which are to appear in our Place. Take from a Scale of equal Parts, especially that from whence you have taken your whole Delineation, the Semidiameter of the *Penumbra*, and having carried one Shank of your Compass through the Paths of the *Penumbra*, and direct the other towards the Path of your Place, if it cannot reach it, there will be no Occultation of the Sun in your Place; but if, on the contrary, you perceive that it not only reaches it, but even goes beyond it, then there will be an *Eclipse*; *total*, if there be an Intersection between the Trace of the *Penumbra*, and that of your Place; and only *partial*, if there be no such Intersection. Likewise, you'll have the Middle of the *Eclipse* at that very Time, when having applied the Shanks of the Compasses to the Axis of the parallel *Ecliptick*, you'll observe the same Hour in both Traces, or Paths. Lastly, you'll find the End of the *Eclipse*, when it will be proper to mark the same Hour, in the Path of the Center of the *Penumbra*, and in the Path of your Place; whence the Beginning, Middle, and End of an *Eclipse* may be accomplish'd by a Projection of Lines, without the Assistance of a *Calculus*, or *Parallaxes*.

Note, That IMMERSION, or *Incidence* of an *Eclipse*, we have so often mention'd in this Place, is the Moment when Part of the Sun or Moon's *Disk* first begins to be hid. And *Emersion*, or *Expurgation* of an *Eclipse*, is the Time when the eclipsed Luminary begins to re-appear, or emerge out of the Shadow.

ECLIPSE *of the Moon*, *fig.* 6. is a Deficiency of Light in that Planet, occasioned by a diametrical Opposition of the Earth, between the *Sun* and *Moon*.

When all the Light of the *Moon* is intercepted, or when her whole *Disk* is covered, the *Eclipse* is said to be *total*; when only part, *partial*. When the *total Eclipse* lasts for some Time, it is said to be *totalis cum morâ*, total with Continuance; when only instantaneous, *totalis sine morâ*, total without Continuance. *Eclipses of the Moon* only happen in the Time of Full Moon; because it is only then the Earth is between the *Sun* and *Moon*. Nor do they happen every Full Moon, by reason of the Obliquity of the Moon's Way with Respect to the Sun's; but only in those Full Moons which happen either in the Nodes, or very near them, where the Aggregate of the apparent Semidiameters of the Moon, and the Earth's Shadow, is greater than the Latitude of the Moon, or the Distance between their Centers.

The most considerable Circumstances in the *Eclipses* of the *Moon*, are, 1. That as the Sum of the Semidiameters of the Moon, and Earth's Shadow, is greater than the Aggregate of the Semidiameters of the Sun and Moon, it is evident *Lunar Eclipses* may happen in a greater Latitude of the Moon, and at a greater Distance from the Nodes; and consequently are more often observed in any one Part of the Earth, than Solar ones; though with Respect to the whole Earth the latter are as frequent as the former. 2. *Total Eclipses*, and those of the longest Duration, happen in the very Nodes of the *Ecliptick*; by reason the Section of the Earth's Shadow, then falling on the Moon, is considerably greater than her *Disk*. There may likewise be *total Eclipses* within a little Distance of the Nodes; but the further, the less their Duration; further off still, there are only partial ones, and at length none at all: As the Latitude and the Semidiameter of the Moon, together, are either less, equal, or greater than the Semidiameter of the Shadow. 3. All *Lunar Eclipses* are universal, *i. e.* are visible in all Parts of the Globe which have the Moon above their Horizon; and are every where of the same Magnitude, and begin and end together. 4. In all *Lunar Eclipses* the eastern Side is what first immerges, and also emerges; so that though at first the *Moon* be more westerly than the Earth's Shadow, yet her proper Motion being swifter than the same, she overtakes

takes, and out-goes it. 5. The *Moon*, even in the Middle of an *Eclipse*, has usually a faint Appearance of Light; which *Gassendus*, *Ricciolus*, *Kepler*, &c. attribute to the Light of the Earth's Atmosphere transmitted thither. Lastly, She grows sensibly paler, and dimmer, before ever she enters within the Earth's Shadow, which is attributed to the Earth's *Penumbra*.

Note, That PENUMBRA, is a faint, or partial Shade, observ'd between the perfect Shadow, and the full Light of an *Eclipse*. The *Penumbra* arises from the Magnitude of the *Sun*'s Body; were he only a luminous Point, the Shadow would be all perfect; but by reason of the Diameter of the *Sun*, it happens, that a Place which is not illuminated by the whole Body of the *Sun*, does yet receive Rays from a Part thereof. A *Penumbra* must be found in all *Eclipses*, whether of the *Sun*, *Moon*, or the other Planets, primary or secondary; but it is most considerable with us in *Eclipses* of the *Sun*. In *Eclipses* of the *Moon* the Earth is encompass'd, indeed, with a *Penumbra*, but it is only sensible to us on the Earth near the total Shadow. The *Penumbra* extends infinitely in Length, inasmuch as to each Point of the Diameter of the *Sun* there answers a Point infinite in Length, into which no Rays enter from that Point, though they do from others. M. *De la Hire* examines the different Degrees of the *Penumbra*, and represents them geometrically, by the Ordinates of a Curve, which shall be among themselves, as the several Parts of the *Sun*'s *Disk*, wherewith a Body planted in the *Penumbra* is enlighten'd.

Before we can expect to be Masters of a sure Method of calculating the Times, Places, Magnitudes, and other *Phænomena* of the *Eclipses* of the *Moon*, we must endeavour to find, 1. The Length of the Earth's shadowy Cone. 2. The apparent Semidiameter of the Earth's Shadow, in the Place of the *Moon*'s Passage, for any given Time. And, 3. The Arch between the Centers, (*fig.* 12.) and the Arch C. after the *Moon*'s Latitude at the Time of her Opposition, together with the Angle at the Node B. has been given.

The Length of the Earth's shadowy Cone is found, by finding the *Sun*'s Distance from the Earth for the given Time. Suppose, for Example, the *Sun*'s greatest Distance from the Earth 34996 Semidiameters of the Earth; and the *Sun*'s Semidiameter to be to that of the Earth, as 153 to 1; then will the Length of the shadowy Cone be found 230¼. Hence, as the *Moon*'s least Distance from the Earth is scarce 64 Semidiameters, the *Moon*, when in Opposition to the *Sun*, in or near the Nodes, will fall into the Earth's Shadow, though the *Sun* and *Moon* be in their *Apogees*; and much more, if they be in or near their *Perigees*, by reason the Shadow is then longer, and the *Moon* nearer the Base of the Cone.

By finding the *Sun* and *Moon*'s Distance from the Earth, and thence their *horizontal Parallaxes*, is found the apparent Semidiameter of the Earth's Shadow, in the Place of the *Moon*'s Passage for any Time given; if the *Parallaxes* be added together, and the apparent Semidiameter of the *Sun* be subtracted from the Sum, then the Remainder is the apparent Semidiameter of the Shadow. Thus suppose the *Moon*'s *horizontal Parallax* 56′ 48″, the *Sun*'s 6″; the Sum is 56′ 54″: From which the *Sun*'s apparent Semidiameter, 16′ 5″, being subtracted, leaves 40′ 49″ for the Semidiameter of the Shadow. M. *De la Hire* omits the *Sun*'s *Parallax* as of no Consideration; but increases the apparent Semidiameter of the Shadow by a whole Minute, for the Shadow of the Atmosphere; which would give the Semidiameter of the Shadow, in our Instance, 41′ 13″.

Since in the spherical Triangle A I L, (*fig.* 35.) rectangular at I, the Side A L is given, as also the Angle A L I, as being the Complement of L A I, or B, to a right Angle; the Arch between the Centers, A I, is found by spherical Trigonometry: And since the Angle L A I is equal to B, each of them, with A B, making a right Angle; and the *Moon*'s Latitude A C is given; the Arch L I will likewise be found by spherical Trigonometry.

We determine the Bounds of an *Eclipse of the Moon*, by adding the apparent Semidiameters of the *Moon*, in *Perigæo*, and of the Shadow, supposing the *Sun* in *Apogæo*; by which we shall have the Side M O (*fig.* 36.) Then in the spherical Triangle M N O, having given, the Angle at the Node, whose Quantity is the *Moon*'s greatest Latitude in the Conjunction, the right Angle E, and the Leg M O, we must find the *Moon*'s Distance from the Node N O, which is the utmost Bound, beyond which the *Eclipse* cannot reach. Adding, after the same Manner, the apparent Semidiameters of the *Moon* in *Apogæo*, and of the Shadow of the *Sun* in *Perigæo*, for the Sake of having the Arch L K, in the Triangle N L h, the Distance of the *Moon* in the Ascending Node will be found by spherical Trigonometry; which is the Bound within which the *Moon* will necessarily be *eclipsed*. For Example; The Semidiameter of the Shadow, when the *Sun* is in *Apogæo*, and the *Moon* in *Perigæo*, according to *Kepler*, is 49′ 40″, and the apparent Semidiameter of the *Moon* in *Perigæo* 16′ 22″; consequently, M O is 66′, or 1° 6′; and therefore there will be no *Eclipse* at all, if the *Moon*'s Latitude be greater than 1° 6′. Now as the same Angle N, is suppos'd by *Kepler* to be 5° 18′;

Log. of Sine N	89655337
Sine M O	82832433
Whole Sine	100000000
Log. of Sine O N	93177096

The Remainder corresponding to which, in the Tables, is 11° 59′ 50″. If, therefore, the *Moon*'s Distance from the Ascending Node be greater than 12°, no *Eclipse* can happen. And, in like Manner, the Semidiameter of the Shadow in the *Sun*'s *Perigee*, and the *Moon*'s *Apogee*, is 43′ 50″, and the *Moon*'s Semidiameter in her *Apogee* 15′: Consequently L h is 58′ 50″; and therefore there will be an *Eclipse*, if the *Moon*'s Latitude do not exceed 58′ 50″: But here, as before, the Argument of the Latitude is found 1° 40′.

Note, That SINE, is a right Line drawn from one Extremity of an Arch, perpendicularly upon the Radius, drawn from the other Extremity. Or the *Sine* is Half the Chord of twice the Arch. That *Arch*, is a Part of any curve Line, for Example, of a *Circle*, *Ellipsis*, or the like. And that *Chord*, is the Base, or Line that joins the two Extremes of the *Arch*.

If we will determine the *Quantity of an Eclipse*, or *the Number of the Digits eclipsed*, we must add the *Moon*'s Semidiameter to the Semidiameter of the Shadow, and subtract, from the Sum, the Arch between the Centers; the Remainder gives the Scruples, or Parts of the Diameter, *eclipsed*. Arguing thus; As the Measure of the Semidiameter of the *Moon*, signified by the Parts of the Degrees, is to the same Semidiameter, signified by the *Digits*; so is the Difference answering to the Quantity of Darkness, or the deficient Parts, mark'd by the Parts of the Degrees, to the same Parts, to be indicated by *Digits*. Whence, having applied every where the Rule of Proportion, the *ecliptical Digits*, with their Parts, may easily be found.

When we design to discover the Angle of Incidence, we must proceed thus: As the Sum of the apparent Semidiameters of the Shadow, and of the *Moon*, is to the Radius; so is, every where, the less Distance of the Centers, to the Sine Complement of the

the Angle of Incidence; therefore the three first Terms being given, we'll discover the fourth by the Rule of Three, which will give not only the Angle of Incidence enquir'd for, but likewise that of *Exitus*. But as in the *total Eclipse*, not only the Angles of Incidence, and of *Exitus*, are to be consider'd, but also those of a total Immersion, and Emersion; to find it, we must speak thus:

As the Difference of the apparent Semidiameter of the Shadow, and *Moon*, is to the Radius; so is the less Distance of the Centers, to the Cone of the Angle of Immersion: Therefore the three first Parts of the Analogy being given, the first must be known, which answers our *Quære*; and thereby we'll have discover'd both, the Angles of Incidence, and of Immersion.

At present we must endeavour to find (through Means of this Calculus) the Duration of an *Eclipse*.

To find *the Time of half Duration of an Eclipse*, or the Arch of the *Lunar Orbit* which her Center describes from the Beginning of the *Eclipse* to the Middle thereof; we must add the Semidiameters of the Shadow A P, and the *Moon* P M, together; the Sum gives A N. From the Square of A N, we must substract the Square of A I, the Remainder is the Square of I N; and the Square Root of this Residue is the Arch I N, requir'd. But we will, perhaps, have the Scruples of half Duration of *total Darkness*, in a *total Eclipse*. Then we'll substract the Moon's Semidiameter S V, from the Semidiameter of the Shadow A V; the Remainder is A S. In the Triangle A I S, which is rectangular at I; therefore we have the Arch A S, given by the last Method; and the Arch between the Centers A I; where the Arch I S is found, as in the last Problem.

We'll proceed still further, and find, if we can, the Beginning, Middle, and End of a *Lunar Eclipse*. Which to perform, we'll say, As the Moon's horary Motion from the Sun, is to 3600 horary Seconds; so are the Seconds of the Arch L I, (*fig.* 35.) to the horary Seconds equivalent thereto: Then substracting these Scruples, or Seconds, in the first and third Quadrant of the Anomaly, from the Time of Full Moon; and adding it to the same in the second and fourth, the Result is the Time of the *Middle of the Eclipse*. Then we'll say again, As the Moon's horary Motion from the Sun, is to 3600 Scruples, or Seconds; so are the Seconds of half Duration I N, to the Time of half Duration; the double of which gives the whole Duration. Lastly, We'll substract the Time of half Duration from the Time of the *Middle of the Eclipse*, the Remainder will be the *Beginning of the Eclipse*. And if we add the same to the same, the Sum will be its End.

I cannot better conclude this Article, than by instructing my Pupils how to calculate an *Eclipse of the Moon*, which must be done in the following Manner:

1. To find whether there will be an *Eclipse*, or not. For the given Time of the mean Full Moon, we must compute the Moon's Distance from the Node. 2. The Time of the true Full Moon must be computed, with the Sun and Moon's true Place reduc'd to the *Ecliptick*. 3. For the Time of the true Full Moon, we are to compute the Moon's true Latitude, the Distance of each Luminary from the Earth, with the *horizontal Parallaxes*, and apparent Semidiameters. 4. For the same Time we must find the Sun and Moon's true horary Motion. 5. The apparent Semidiameter of the Shadow. And, 6. The Arch between the Centers A I, with the Arch L I. 7. Compute the Scruples of half Duration. And thence, 8. Determine the Beginning, Middle, and End of the *Eclipse*. Lastly, Find the Scruples *eclipsed*, and thence the Quantity of the *Eclipse*.

The Antients had frightful Ideas of *Eclipses*, as Presages of the most dismal Events. *Plutarch* assures us, that at *Rome*, it was not allow'd to talk publickly of any natural Causes of *Eclipses*. They made a great Noise with brazen Instruments, and rais'd loud Shouts, during *Eclipses* of the Moon, as thinking thereby to ease her in her Labour: Whence *Juvenal*, speaking of a talkative Woman, says; *Una laboranti poterit succurrere Lunæ*. Others have attributed the *Eclipse* of the Moon to the Art of Magicians, who, by their Inchantments, pluck'd her out of Heaven, and made her skim over the Grass. The Natives of *Mexico* keep Fast, during *Eclipses*, and, particularly, their Women, who beat and abuse themselves, drawing Blood from their Arms, *&c.* They imagine the Moon has been wounded by the Sun, in some Quarrel between them.

Having thus finish'd the Theory of the *Eclipses* of the *Sun* and *Moon*, I should proceed to the other Planets, if I was not determin'd to leave nothing untouch'd, in each Treatise, which can instruct, or flatter the Curiosity of the Reader; therefore I judge it proper to inform him, in this Place, of the Number of the *Stars* contain'd in each of the 48 *Constellations*; which I have heretofore often mention'd; beginning with those of the *Zodiac*, and of those, with *Aries*, which is, as I have already observ'd, the first of the 12 Signs of the *Zodiac*.

The *Stars* in the *Constellation* of *Aries*, in *Ptolemy's Catalogue*, are 18; in *Tycho's*, 21; in the *Britannic Catalogue*, 65. In *Taurus*, the second in Order, in *Ptolemy's Catalogue*, 44; in *Tycho's*, 41; in the *Britannic Catalogue*, 135. In *Gemini*, the third, in *Ptolemy's Catalogue*, 24; in *Tycho's*, 29; in the *Britannic Catalogue*, 89. In *Cancer*, the fourth, in *Ptolemy's Catalogue*, 13; in *Tycho's*, 15; in *Bayer* and *Hevelius's*, 29; in Mr. *Flamsteed's*, 71. In *Leo*, the fifth, in *Ptolemy's Catalogue*, 32; in *Tycho's*, 37; in the *Britannic Catalogue*, 97. In *Virgo*, the sixth, into which the Sun enters in the Beginning of *August*, in *Ptolemy's Catalogue*, 32; in *Tycho's*, 39; in the *Britannic Catalogue*, 89. In *Libra*, the seventh Sign, so call'd, because when the Sun is in it, at the *Autumnal Equinox*, the Days and Nights are equal, as if weigh'd in a Ballance, there are 45 *Stars*. In *Scorpio*, the eighth, in *Ptolemy's Catalogue*, 20; in *Tycho's*, 10; in *Flamsteed's*, 49. In *Sagittarius*, the ninth, in *Ptolemy's Catalogue*, 31; in *Tycho's*, 16; in the *Britannic Catalogue*, 50. In *Capricorn*, the tenth, in *Ptolemy* and *Tycho's Catalogues*, 28; in that of *Hevelius*, 29; in the *Britannic Catalogue*, 51. In *Aquarius*, the eleventh, in *Ptolemy's Catalogue*, 45; in *Tycho's*, 40; in the *Britannic Catalogue*, 99. In *Pisces*, the twelfth Sign, in *Ptolemy's Catalogue*, 38; in *Tycho's*, 33; in the *Britannic Catalogue*, 109.

Of the other 36, 21 are plac'd on the North of the *Zodiac*, and 15 on the South.

The first of those on the North, is *Ursa major*, a *Constellation* plac'd near the Pole, which consists, according to *Ptolemy's Catalogue*, of 35 *Stars*; according to *Tycho's*, of 56; and according to the *Britannic Catalogue*, of 215. *Ursa minor*, plac'd also in the Neighbourhood of the North Pole, of 8, according to *Ptolemy* and *Tycho*; and of 14, according to *Flamsteed*. In *Draco*, the second northern *Constellation*, there are, according to *Ptolemy*, 31; according to *Tycho*, 32; according to *Bayer*, 33; and according to *Flamsteed*, 49. In *Cepheus*, the third, there are, in *Ptolemy's Catalogue*, 13; in *Tycho's*, 11; in *Hevelius's*, 40; in the *Britannic Catalogue*, 35. In *Bootes*, the fourth, in *Ptolemy's Catalogue*, 23; in *Tycho's*, 28; in *Bayer's*, 34; in *Hevelius's*, 52; in *Flamsteed*, 55. In *Corona Borealis*, the fifth, in *Ptolemy's Catalogue*, 8; in *Tycho's*, 8; in the *Britannic Catalogue*, 21. In *Hercules*, the sixth, in *Ptolemy's Catalogue*, 29; in *Tycho's*, 28; in the *Britannic Catalogue*, 95. In *Lyra*, the seventh, in *Ptolemy* and *Tycho's Catalogues*, 10; in the *Britannic Catalogue*, 19. In *Cygnus*, the eighth, in *Ptolemy's Catalogue*, 17; in *Tycho's*, 19; in the *Britannic Catalogue*, 107. In *Cassiopeia*, the ninth, in *Ptolemy's Catalogue*, 13; in *Tycho's*, 28; in *Flamsteed's*, 56.

Note, That in 1572, there appear'd a new *Star* in this *Constellation*, which at first surpass'd, in Magnitude, and Brightness, *Jupiter* himself; but

but it diminish'd by Degrees, and at the End of 18 Months totally disappear'd. It allarm'd all the Astronomers of that Age, many of whom wrote Dissertations on it. Among the rest *Tycho Brahe*, *Kepler*, *Maurilius*, *Licetus*, *Gramineus*, &c. *Beza*, the *Landgrave* of *Hesse*, *Rosa*, &c. wrote to prove it a Comet, and the same which appeared to the *Magi* at the Birth of *Jesus Christ*, and that it came to declare his second Coming. *Tycho* answered them.

In *Perseus* (the tenth) in *Ptolemy*'s Catalogue 29; in *Tycho*'s 29: In the *Britannick* Catalogue 67. In *Andromeda* (the eleventh) there are two Stars of the second Magnitude, and very conspicuous; another is called *Umbiliculus Andromedæ*, and another *Lucida Pedis Andromedæ*. In *Triangulum* (the twelfth) in *Ptolemy* and *Tycho*'s Catalogue 4; in the *Britannick* Catalogue 24. In *Auriga* (the thirteenth) in *Ptolemy*'s Catalogue 14; in *Tycho*'s 23; in *Hevelius* 40; in the *Britannick* Catalogue 68.

Note, That in one of these *Constellations*, called also *Erichthonius*'s Shoulder, there is a very bright Star, called *Capella*, and near it three others lesser, placed in the Form of an isocel Triangle, called *Hædi*.

In *Pegasus* the fourteenth, in *Ptolemy*'s Catalogue 20; in *Tycho*'s 19; in the *Britannick* Catalogue 93; in *Equuleus* (the fifteenth) in *Ptolemy*'s Catalogue 4; in *Tycho* 4; in *Flamsteed* 10. In *Delphinus* (the sixteenth) in *Ptolemy*'s Catalogue 10; in *Tycho*'s 10; in *Flamsteed* 18. In *Sagitta* (the seventeenth) in *Ptolemy* and *Tycho*'s Catalogue 5. In *Flamsteed* 23. In *Aquila* (the eighteenth) in *Ptolemy*'s Catalogue 15; in *Tycho*'s 17; in the *Britannick* Catalogue 70. In this Constellation there is a Star of the first Magnitude; In *Serpentarius* (the nineteenth) in *Ptolemy*'s Catalogue 29; in *Tycho*'s 25; in the *Britannick* Catalogue 69. In *Serpens* (the twenty-first) in *Ptolemy*'s Catalogue 17; in *Tycho*'s 19; in the *Britannick* Catalogue 59.

Note, That to these twenty-one *Constellations* of the Northern Hemisphere, have been added two others, *viz.* *Antinous*, and *Coma Berenices*: Tho' *Antinous* be but a Part of *Aquila*; and *Coma Berenices*, composed only of unformed Stars near the *Lion*'s *Tail*; though the Stars in that modern Constellation, are, in *Ptolemy*'s Catalogue 3; in *Tycho*'s 13; in the *Britannick* Catalogue 40.

The Stars on the Southern Side of the *Zodiack* are distributed into 15 *Constellations*, *viz.*

In *Cetus* (the first) in *Ptolemy*'s Catalogue there are 22 Stars; in *Tycho*'s 21; in *Hevelius*'s 22; in the *Britannick* 78. In *Eridanus Fluvius* (the second) in *Ptolemy*'s Catalogue 30; in *Tycho*'s 19; in *Flamsteed*'s 68. In *Lepus* (the third) in *Ptolemy*'s Catalogue 12; in *Tycho*'s 13; in the *Britannick* 19. In *Orion* (the fourth) in *Ptolemy*'s Catalogue 37; in *Tycho*'s 62; in the *Britannick* 80.

Note, That in this *Constellation* there are two Stars of the first Magnitude, a reddish one in the Shoulder, called *Bellatrix*; and another Yellowish in the Foot. There is, besides, in it the *Balteus*, or *Girdle*, consisting of three Stars. The Antients supposed that *Orion* raised Tempests at its Rising and Setting; hence its Name *Orion* from the *Greek* ὀρίειν, to make Water.

In *Canis major* (the fifth) in *Ptolemy*'s Catalogue 18; in *Tycho*'s 13; in the *Britannick* 32.

Note, In the Mouth of *Canis major* there is a Star, the most brillant or shining of all, called *Sirius*, at which, when the *Sun* arrives, then the *Canicule*, or Dog Days begin.

In *Canis minor* (the sixth) in *Ptolemy*'s Catalogue 17. In *Argo* (the seventh) in *Ptolemy*'s Catalogue 8; in *Tycho*'s 11; in the *Britannick* 25. In *Hydra* (the eighth) in *Ptolemy*'s Catalogue 25; in Dr. *Halley*'s 68. In *Crater* (the ninth) in *Ptolemy*'s Catalogue 7; in *Tycho*'s 8; in the *Britannick* 11. In *Corvus* (the tenth) in *Ptolemy*'s Catalogue 7; in *Tycho*'s 7; in the *Britannick* 10. In *Centaurus* with *Lupus* (the eleventh) in *Ptolemy*'s Catalogue 19; in *Tycho*'s 4; in the *Britannick* 13.

Note, That *Lupus*, which is considered as one of the *Constellations* of the Southern Hemisphere, is but a Moiety or Part of one, which joined with the *Centaure* makes a whole one.

Ara (the twelfth) consists of 7 Stars; whereof 5 are of the fourth Magnitude, and 2 of the fifth. This *Constellation* is not visible in our Hemisphere; no more than *Corona Meridionalis*, nor *Piscis Australis*.

Note, That the first who undertook to reduce the fixed Stars into a Catalogue was *Hipparchus Rhodius*, about 120 Years before *Christ*; in which he made Use of the Observations of *Tymocharis* and *Aristillus*, for about 180 before him. *Ptolemy* retained *Hypparchus*'s Catalogue; though he himself made Abundance of Observations, with a View to a new Catalogue, about the Year of *Christ* 880. *Albetagni*, a *Syrian*, brought down the same to his Time. *Anno* 1437, *Ulugh Beigh*, King of *Parthia* and *India*, made a new Catalogue of the fixed Stars; since translated out of *Persian* into *Latin* by Dr. *Hyde*. The Third who made a Catalogue from his own Observations was *Tycho Brahe*, who determined the Places of 777 Stars for the Year 1600; which *Kepler* from other Observations of *Tycho* afterwards increased to 1000, in the *Rudolphin* Tables. At the same Time *William*, Landgrave of *Hesse*, with his Mathematicians, *Christopher Rothmannus*, and *Justus Byrgius*, determined the Places of four hundred fixed Stars, by his own Observations, which *Hevelius* prefers to those of *Tycho*'s. *Riccioius*, in his *Astronomia Reformata*, determined the Places of 101 Stars for the Year 1700, from his own Observations; for the rest he followed *Tycho*'s Catalogue; altering it where he thought fit. *Anno* 1677, Dr. *Halley*, in the Island of St. *Helena*, observed 350 Southern Stars, not visible in our Horizon. The same Labour was repeated by *F. Noel* in 1710, who published a new Catalogue of the same Stars constructed for the Year 1687. The next was *J. Hevelius*, who made a Catalogue of 1888 fixed Stars; whereof 950 had likewise been observed by the Antients; 355 by Dr. *Halley*, and only 603 by himself. The *last* and greatest is the *Britannick* Catalogue, compiled from *Flamsteed*'s Observations, who for a long Series of Years devoted himself wholly thereto; it contains 2734 Stars. There was another published in 1725, pursuant to his Testament.

Having thus passed through the immense Regions of the fixed Stars, examined attentively the various *Phænomena* and *Phases* of the *Sun* and *Moon*, we'll descend for a Time to the two lower Planets, *Venus* and *Mercury*, with the Design of re-ascending again to *Mars*, *Jupiter*, and *Saturn*.

MERCURY, is so small a Planet, that it can scarcely be distinguished but by those versed in *Astronomy*, though almost equal in Radiancy, or Brightness to the fixed Stars; but is never seen, but when in a very great Digression from the *Sun*, and is seldom discovered round, even by the Telescope, but only divided into two Parts, like the *Moon* while in the Quadratures.

The mean Distance of *Mercury* from the *Sun* is to that

that of our Earth from the *Sun*, as 387 to 1000, its Eccentricity 8 Degrees. The Inclination of its *Orbit*, that is, the Angle formed by the Plane of its *Orbit*, with the Plane of the Ecliptick, is 6 Degrees 52 Minutes. Its Diameter to that of the Earth, as 3 to 4; and therefore the Globe of *Mercury* will be to that of the Earth, as 2 to 5. According to Sir *Isaac Newton*, the Heat and Light of the *Sun* on the Surface of *Mercury*, is seven Times as intense as on the Surface of our Earth in the Middle of Summer: Which, as he found by Experiments made for that Purpose by a Thermometer, is sufficient to make Water boil.

The Revolution of *Mercury* round the *Sun*, or his Year, is performed in 87 Days 23 Hours; his diurnal Revolution, or the Length of his Day, is not yet determined; nor is it certain, whether he has such a Motion round his own Axis or not. The Force of Gravity on his Surface, is seven Times as strong as on the Surface of the Earth. Its Density, and consequently the Gravitation of Bodies towards the Center cannot be accurately determined; but, no doubt, it must exceed that of our Earth, by Reason of the Excess of Heat there.

Mercury changes his *Phases*, like the *Moon*, according to his several Positions, with Regard to the *Sun* and Earth. Some *Astronomers* have imagined to have found him full in his superior Conjunctions with the *Sun*, because they could see, say they, the whole illuminated Hemisphere; but in his lower Conjunction they only see the obscure and unilluminated Hemisphere. In his Approach towards the *Sun*, his Light as we have already observed, is falcated and horned. *Rohault* and *Purchot* are of Opinion that he has no Light of himself, but borrows it from the *Sun*. As to his Situation, *Mercury* is sometimes observed betwixt the Earth and the *Sun*; and sometimes beyond the *Sun*. Its greatest Distance from the *Sun*, with Regard to us, never exceeds 28 Degrees, whence it is seldom visible; being commonly either lost in the *Sun*'s Light, or, when the most remote from the *Sun*, in the *Crepusculum*. The best Observations of this Planet are those made when it is seen on the *Sun*'s Disk; for in its lower Conjunction it passes before the *Sun* like a little Spot, eclipsing a small Part of his Body, which was first observed by *Cassendi* in 1632; but not without a Telescope. The following *Calculus* will elucidate the *Phænomena* and *Phases* of *Mercury*.

Mercury, seen from the *Sun* in the ascending Node, his mean diurnal Motion, is 6°, 3′, 52″. But while in the other Node, it runs only 3°, 34′, 12″. This extreme Difference of Velocity proceeds from the different Distance of *Mercury* from the *Sun*, in either Node, and depends on the Eccentricity of its *Orbit*. The diurnal Motion of *Mercury*, from the Earth, seen from the *Sun*'s Center, in the ascending Node, rises to 5 Degrees, 48 Minutes, and as many Seconds; and only one Degree, 55 Minutes, and 28 Seconds in the descending Nodes. Therefore an angular Motion of *Mercury* from the *Sun*, being given in both Nodes to an Eye placed in the Center of the *Sun*, there will likewise be given an angular Motion of *Mercury* from the *Sun*, to an Eye placed in the Center of the Earth, from the following Analogy; for as the Distance of *Mercury* from the Earth is to his Distance from the *Sun*, so is the angular Motion, lately found, of *Mercury* towards the *Sun*, to his apparent angular Motion towards the Earth, *viz.* In the ascending Node 675921 : 67591 : 31365°.–5°, 3′, 48″, in the descending Node, 55699 : 45308.–1°, 55′, 28″–1°, 55′, 28″.

The Angle whereby the Plane of *Mercury*'s *Orbit* inclines to the Ecliptick is, according to *Kepler*, of 6 Degrees and 54 Minutes. The Angle of the Way of *Mercury*, when discovered in the *Sun*'s Disk, is very little greater than the Angle whereby *Mercury*'s *Orbit* inclines to the Ecliptick; and in the Conjunction at The ascending Node, becomes of 8 Degrees and 15 Minutes, but in the Conjunction at the descending Node it increases to 10 Degrees and 18 Minutes.

The diurnal Motion of *Mercury* is greater in its own *Orbit* towards the Nodes than its diurnal Motion in the Ecliptick; and in the ascending Node it becomes of 2 Degrees, 22 Minutes, and 40 Seconds; and a little bigger towards the descending Node, in Proportion to the Angle of the apparent Way to the Ecliptick, which is easily discovered by *Trigonometry*. If there happen a Conjunction of *Mercury*, and the *Sun* in the Node, *Mercury* will pass in such a Manner through the Disk of the *Sun*, as to enter the Center of the *Sun*, and that Passage will be the slowest of all. But if the Conjunction happens a little before, or a little behind the Node, *Mercury* will also pass thro' the *Sun*, but at a greater Distance from the Center; so that he will appear then to describe a Chord, but not a Diameter of the Disk.

If it is wanted to describe the Limits of those Passages, an Angle is given of the Way seen of the Ecliptick, and of the Side opposite to it, perpendicular to the Way seen, in a Triangle rectangled, the other Sides are also given from *Trigonometry*, one whereof will determine the Longitude of *Mercury* from the *Sun* in the Ecliptick, and the other its Longitude in its proper *Orbit*, where *Mercury* will only reach, but not enter the *Sun*'s Disk.

Therefore if *Mercury* is once observed in Conjunction in either Node, at that Time, the mean annual Motions of that Planet are as often added, while its Place, through Excess or Defect, is less distant for the Place of the *Sun* than the Limits above defined, it will appear that *Mercury* must pass through the *Sun*'s Disk, before or after its Arrival at the Node. Provided we take the annual Motions, agreeable not to the current, but to the astreal Year. These Things presupposed, we'll give here the Method of the *Calculus*, as taken from Dr. *Halley*, and adapted to the ascending Node.

Let *Mercury*, retrograde, be in Conjunction with the *Sun*, in the Center, at the ascending Node, in the Month of *October*, from the abovementioned Hypotheses and Arguments we'll have,

The Sun's Longitude from the first Star of *Aries*.	S	°	′	″
	6	15	44	00
Mercury's Longitude seen from the Sun	0	15	44	00
Mercury's Parts Distance from the Sun	31365			
Mercury's Parts Distance from the Earth	67591			
The Angle of Inclination of *Mercury*'s *Orbit*	0	6	54	00
The Motion of six Hours of *Mercury* seen from the Sun	0	1	30	58
The Motion of the Sun in those six Hours	0	0	15	5
Hence (the last Number being subtracted from the first) *Mercury*'s Motion from the Sun in six Hours	0	1	15	53
And its Motion from the Sun seen from the Earth in six Hours	0	0	35	12
And the Angle of the Way of *Mercury* seen within the Sun, with the Ecliptick	0	8	15	00
Hence the visible Motion of *Mercury* in its *Orbit* for six Hours	0	0	35	40
Mercury accomplishes, besides, above four Revolutions in the Course of a Sydereal Year	1	24	45	8
Therefore in thirteen Years it accomplishes	11	21	46	44
Therefore there wants to the whole Revolutions fifty-four	0	8	13	16
		d.	h.	′
Which Space *Mercury* runs in		2	00	13
To which the Place of the Sun is removed, and *Mercury* placed in the Node, is as much distant from the Conjunction of the Earth	S.	°	′	″
	0	2	1	00
But that Arch seen from the Sun is	0	0	56	10
Whence from the Angle given of the Way, seen 8° 15′ issues the Base, or the Distance from the visible Conjunction in the Ecliptick	0	0	55	00

Which

	d.	h.	′
Which Arch *Mercury* runs, according to the horary Motion given	0 0	9	21
But thirteen *Sydereal* Years exceed as many *Julian* Years, by three Intercalations	0 0	8	00
Therefore *Mercury* returns to the *Sun*, after thirteen *Julian* Years, and above	0 2	17	34
Or with four Intercalations, if the preceding Year be the third from the *Bissextile*	0 1	17	34
Therefore from the Arch given, 56′ 10″, and the Angle of the Way seen with the *Ecliptick* (8° 15′) appears, by *Trigonometry*, the Perpendicular, or nearest Distance of *Mercury* from the *Sun*	0 0	8	3
Therefore *Mercury*, after 13 Years, advances, conspicuous, within the *Sun*, northward, 8′ 3″			

	S.	°	′	″
For the same Reason, *Mercury* moves, in 46 *Sydereal* Years	11	28	36	8
Therefore it wants to 191 whole Revolutions	0	10	23	52

		h.	′
i. e. In Time, 8′ 12″	0 0	8	12

		′	″
When the *Sun* moves	0 0	20	41
This Arch seen from the Earth, becomes	0 0	9	36
And the Basis competent to it	0 0	9	30

	d.	h.	′
And the Time which *Mercury* is running the Basis, is	0 0	1	36
And 46 *Sydereal* Years exceed as many *Julian* Years, by eleven Intercalations	0 0	19	3
Mercury returns to the *Sun*, after 46 *Julian* Years, and above	0 1	4	51
Or with six Intercalations, as it happens when the preceding Year is the second or third from the *Bissextile*	0 0	4	51

		′	″
Therefore the Perpendicular by which *Mercury* is carried to the North, is	0 0	1	22

	°	h.	′
And the most accurate Period of *Mercury* to the *Sun*, is accomplish'd in 265 *Sydereal* Years, and above	0 0	1	11½
And those *Sydereal* Years surpass as many *Julian* Years by 66 Intercalations	0 0	10	20
Whence, after 265 *Julian* Years, *Mercury* is revolv'd to the *Sun*, but slower	0 0	11	31½
If the preceding Year has been *Bissextile*, there must be added	0 1	11	31½

Lastly, After that Interval, it advances no more than 10 Seconds northward.

Mercury's other Periods are easily deduc'd, from what has been observ'd already, and are of six or seven Years.

From this Explanation of the Conjunction of *Mercury* with the Sun at the Ascending Node, we'll proceed to the Conjunction of the same Planet with the Sun at the Descending Node.

Therefore let *Mercury* retrograde, be in a central Conjunction with the Sun at the Descending Node, in the Month of *April*. From the preceding Hypotheses we shall have

	S.	°	′	″
The Longitude of the Sun from the first Star of *Aries*	0	15	44	00
Mercury's Longitude seen from the Sun	6	15	44	00
Its Parts Distance from the Sun	45308			
The Distance of its Parts from the Earth	55699			
The Motion of *Mercury* seen from the Sun six Hours	0	0	43	21
The Motion of the Sun in the same Time	0	0	14	29
Hence, by Subtraction, the Motion of *Mercury* from the Sun, is 6 Hours	0	0	28	52
And the Angle of the Way of *Mercury*, seen within the Sun, with the *Ecliptick*	S.	0	10	18 00
And the visible Motion of *Mercury* in its *Orbit* 6 Hours	0	0	23	52

Whence, by following the Method of the preceding Calculus, we'll be convinc'd that *Mercury*, after 13 *Julian* Years, and above, revolves to the Conjunction of the Sun 3° 7h. 37′. If the preceding Year has been the third from the *Bissextile*, then a Day must be taken from the first Number, and then *Mercury* will be found advancing southward, 16′ 55″. Therefore after 46 *Julian* Years, with 12 Intercalations, we'll add 7h. 14′; then *Mercury* will be found in Conjunction with the Sun, in the most austral Crossway, 2′ 53″: But if the first Year was *Bissextile*, or the first from the *Bissextile*, a Day must be added to the first Computation, that it might be had quite synodal.

Likewise, after 265 Years, in which *Mercury* declines to the South only 22″, there must be added, 1d. 11h. 49′, or, omitting the Day, 11h. 49′, according to the Rules prescrib'd for the intercalary Year. However, *Mercury*, by reason of its Neighbourhood with the Earth, does not return in six or seven Years to the Sun, so as to be seen within his Disk; but after 13 Years it passes the Sun, by a more northern Way, 14′ 2″; and we have the Moment of Conjunction, by subtracting from the Time of the first, 3d. oh. 23′; if it be the third Year from the *Bissextile*; otherwise, subtracting only 2d. oh. 23′.

This being found, it will be easy to continue the Calculus for all these Conjunctions of *Mercury* with the Sun; and to discover, with Certitude, if they be all possible, or not. By the sole Addition, the Moments of the Conjunctions, and Distance of the Planet from the Center of the Sun, is found.

Note, That the SYDEREAL YEAR, is the Space of Time wherein the Sun, going from any fixed Star, returns to the same. It consists of 365 Days, 6 Hours, 10 Minutes. The *Intercalary Year*, consists of 13 Lunar Civil Months; and therefore contains 384 Days. For as the Difference between the common Lunar Civil Year, and the Tropical Year, is 11 Days, 5 Hours, and 49 Minutes; to have the former keep Pace with the latter, there are 34 Months of 30 Days, and 4 Months of 31 Days each, to be inserted in every 100 Lunar Years; which still leave behind them an Appendix of 4 Hours, 21 Minutes; which, in six Centuries, make nearly a Day more.

Having thus explain'd the different *Phenomena* of *Mercury*, we'll pay a short Visit to *Venus*, as its next Neighbour, and which we'll find constantly attending the Sun, and never departing from him above 47 Degrees. When she goes before the Sun, that is, rises from him, she is call'd *Phosphorus*, or *Lucifer*, or the *Morning Star*; and when she follows him, that is, sets after him, *Hesperus*, or *Vesper*, or the *Evening Star*.

The Diameter of *Venus* is to that of the Earth, as 10 to 19; her Distance from the Sun is $\frac{7}{10}$ of the Earth's Distance from the Sun; her Eccentricity 5; the Inclination of her *Orbit* 3° 23′; her periodical Course round the Sun perform'd in 224 Days, 17 Hours; and her Motion round her own Axis, in 23 Hours. Her greatest Distance from the Earth, according to *Cassini*, is 38000 Semidiameters of the Earth; and her smallest 6000. Her *Parallax* is 3 Minutes.

Venus, when view'd through a Telescope, is rarely seen to shine with a full Face, but has *Phases* just like those of the Moon; being now gibbous, now horn'd, &c. and her illumin'd Part constantly turn'd towards the Sun, *i. e.* it looks towards the East, when *Phosphorus*; and towards the West, when *Hesperus*

De la Hire, in 1700, through a Telescope of 16 Feet, discover'd (as he pretended) Mountains in *Venus*, which he found to be larger than those in the Moon. And *Cassini*, and *Campani*, in the Years 1665 and 1666, discover'd Spots in her Face; from the Appearance of which, he ascertain'd her Motion round her Axis. Sometimes she is seen in the Disk of the Sun, in Form of a dark round Spot. In 1672, and 1686, *Cassini*, with a Telescope of 54 Feet, thought he saw a *Satellite* moving round this Planet, and distant from it about $\frac{3}{5}$ of *Venus*'s Diameter. It had the same *Phases* as *Venus*, but without any well defin'd Form, and its Diameter scarce exceeded $\frac{1}{4}$ of that of *Venus*.

Dr. *Gregory* thinks it's more than probable, that this was a *Satellite*; and supposes the Reason why it is not usually seen, to be the Unfitness of its Surface to reflect the Rays of the Sun's Light; as is the Case of the Spots in the Moon: Of which, if the whole Disk of the Moon were compos'd, he thinks that Planet could not be seen as far as to *Venus*.

The *Phænomena* of *Venus* evidently shew the Falsity of the *Ptolemaic* System: For that System supposes, that *Venus*'s Orb, or Heaven, incloses the Earth; passing between the Sun and *Mercury*. And yet all our Observations agree, that *Venus* is sometimes on this Side the Sun, and sometimes on that; nor did ever any Body see the Earth between *Venus* and the Sun; which yet must frequently happen, if *Venus* revolv'd round the Earth, in a Heaven below the Sun. *Venus* is easily distinguish'd, by her Brightness, and Whiteness, which exceeds that of all the other Planets, and which is so considerable, that in a dusky Place she projects a sensible Shadow. Her Place is between the Earth and *Mercury*.

The visible Conjunctions of *Venus* with the Sun, are not so frequent as those of *Mercury*, by reason of the slower Motion of *Venus*, whereby she seldomer attains to the Places given. And because her periodical Times, compar'd with the periodical Times of the Earth, are less commensurable, and therefore very seldom co-incident. As to those Periods, they are not so easily describ'd as those of *Mercury*; since *Venus* has never been but once, ever since the Creation, found within the Disk of the Sun. But, however, the Motions being as well corrected, as the imperfect Observations of the Antients can allow it; we'll give this Sum of a *Calculus*.

Let *Venus* retrograde, be in a central Conjunction with the Sun, at the Ascending Node, in the Month of *November*; then we'll have

	S. ° ′ ″
The Longitude of the Ascending Node of *Venus* from the first *Star* of *Aries* (the Eye being plac'd in the *Sun*)	1 15 16 00
Therefore the *Sun* is join'd to it in the opposite Point (*i. e.* during those Centuries toward the End of *November*)	7 15 16 00
The Distance of the Parts of *Venus* from the *Sun*	71994
The Distance from the Earth	26438
The Inclination of *Venus* to the *Ecliptick*	0 3 23 00
The Motion of *Venus* in eight *Sydereal* Years above thirteen Revolutions	0 1 30 28½
The Motion of *Venus* in 235 *Sydereal* Years above 381 Revolutions	11 29 17 39
The Motion of *Venus* in 243 *Sydereal* Years above 395 Revolutions	0 0 48 8

The *Calculus* began on this Principle, and according to the Method given in *Mercury*'s *Calculus*, we'll have the Intervals of the Times, and Distances, as follows:

After eight Years, *Venus* revolves to the *Sun*; that is, having taken, from the Moment of the first Transition, 10 Hours, 52 Minutes, and a Half, the Planet advances that Way which inclines more toward the South than the first, by 24 Minutes, 41 Seconds.

After 235 Years, 2 Days, 10 Hours, 9 Minutes, being added, *Venus* can again enter the *Sun*, but a more northern Way, 11 Minutes, 33 Seconds.

If the preceding Year has been *Bissextile*, we must add 3 Days, 10 Hours, 9 Minutes.

After 243 Years, *Venus* can also pass the *Sun*, (by only taking off 43 Minutes from the Time of the first) but more northward, by 13 Minutes, 8 Seconds. If the preceding Year has been *Bissextile*, add 23 Hours, 17 Minutes, of the first Time taken off, to compleat a whole Day; and in all those Approaches of *Venus* to the *Sun*, in the Month of *November*, the Angle of the Way seen, of *Venus* with the *Ecliptick*, is 9 Degrees, 5 Minutes, and her horary Motion within the *Sun*, 4 Minutes, 4 Seconds; and as the Semidiameter of the *Sun* is 16 Minutes, 22 Seconds, the Duration of the Passage of *Venus*'s Center, must be 7 Hours, 56 Minutes. These for *Venus*'s Conjunction at the Ascending Node, in the Month of *November*.

As for her central Conjunction at the Descending Node, we must form our *Calculus* on the Principles before mention'd, and it will be evident, that after the smallest Interval of eight Years, 2 Days, 6 Hours, and 55 Minutes, are to be taken off, and then *Venus* will pass through the most northern *Orbit* 19 Minutes, 58 Seconds. It will likewise be evident, that after the next Interval of 235 Years, there must be added, 2 Days, 8 Hours, 18 Minutes; or, if the first Year has been *Bissextile*, 3 Days, 8 Hours, 18 Minutes; and then *Venus* is to pass through a most northern *Orbit*, 9 Minutes, 21 Seconds. Lastly, It will appear, that after the longest Interval of 243 Years, there must be added 1 Hour, 23 Minutes; or if the first Year has been *Bissextile*, 1 Day, 1 Hour, 23 Minutes; and that at that very Time it will again be found in Conjunction with the Sun, but 10 Minutes, 37 Seconds, more toward the North.

In all the Passage of *Venus* within the *Sun*, at the Descending Node, the Angle of the Way seen, with the *Ecliptick*, will be 8 Degrees, 28 Minutes; the horary Motion 4 Minutes, and the longest Duration of the central Passage, 7 Hours, 56 Minutes.

As to the *Epocha's*, we must follow the Method before mention'd; since by the sole Addition all *Phænomena* of that kind are easily computed. Dr. *Halley* informs us, that the next Passage of *Venus* will happen the 26th of *May*, 1761; and will be observ'd a little before Six in the Morning; and in that Passage, *Venus* is to be at no greater Distance from the *Sun*'s Center, than 1 Minute, $\frac{1}{4}$.

From the inferior *Planets*, we'll ascend to the superior ones; and from *Venus*'s inchanting Bosom, visit *Mars*'s Fields.

MARS, *Cop. Syf.* is one of the three superior *Planets*, and of those three the nearest to us; being placed between the *Sun* and *Jupiter*. Its mean Distance from the *Sun*, is 1524 of those Parts, whereof the Distance of the *Sun* from the Earth is 1000; its Eccentricity 141; the Inclination of its *Orbit*, that is, the Angle form'd by the Plane of its *Orbit* with the Plane of the *Ecliptick*, 1 Degree, 52 Minutes; the Periodical Time, in which it makes its Revolution round the *Sun*, 686 Days, 23 Hours.

In 1666, *Cassini* observ'd several Spots in the two *Faces*, or Hemispheres of *Mars*, which he found to move by little and little, from East to West, and to return in the Space of 24 Hours, 40 Minutes, to their former Station. Hence he concluded the *Planet* to turn round its own Axis, in the Space of 24 Hours, 40 Minutes.

It must be observ'd, that in the *Copernican* and *Tychonick* Hypotheses, the Earth is contain'd within the Circumference of this Circle; and that hence *Mars* is, at certain Times, in Opposition to the *Sun*; that is, when near the Earth; and sometimes *Mars* is nearer to it than the *Sun* himself; as it is evident in both Systems: And then he appears bigger to us, than

while in Conjunction with the Sun, though in Conjunction, as well as in Opposition, it shines in full Orbit; but in Conjunction he is superior to the Sun, and at a greater Distance from us; but nearer, when in Opposition, in the Quadratures, he has the same *Phases* the Moon has, but they are very little sensible to us.

Mars always appears with a ruddy troubled Light, whence we conclude it is encompassed with a thick, cloudy Atmosphere, which by disturbing the Rays of Light in their Passage and Repassage through, it occasions that Appearance.

Besides this ruddy Colour of *Mars* we have another Argument of its being encompassed with an Atmosphere; and it is this; that when any of the fixed Stars are seen near his Body, they appear extremely obscure, and almost extinct. If this be the Case, an Eye placed in *Mars* would scarce ever see *Mercury*, unless perhaps in the Sun at the Time of Conjunction, when *Mercury* passes over his Disk, as he sometimes appears to us in Form of a Spot. A Spectator in *Mars* will see *Venus* about the same Distance from the Sun, as *Mercury* appears to us; and the Earth about the same Distance from the Sun, that to us *Venus* appears; and when the Earth is found in Conjunction with, and very near the Sun, he will see in *Mars* what *Cassini* saw on the Earth, *viz.* the Earth appears horned or falcated, and its Attendant, the Moon, of the same Figure, and at its utmost Distance from the Earth not above 15 Minutes of a Degree.

Having been inspired in *Mars*'s Field with a noble and becoming Boldness, we'll dare to approach *Jupiter*'s Throne; without the least Fear of his Thunder.

JUPITER, 9. *Cop. Syst.* is one of the superior Planets, situate between *Saturn* and *Mars*, remarkable for its Brightness, which by its proper Motion seems to revolve round the Earth in about 12 Years. It has a Rotation round its own Axis in 9 Hours 56 Minutes; and a periodical Revolution round the Sun in 4332 Days, 12 Hours, 20′ 9″. It is the biggest of all the Planets; its Diameter, to that of the Sun appears, by Astronomical Observations, to be as 1077 is to 10,000; to that of *Saturn*, as 1077 to 889; to that of the Earth, as 1077 to 104. The Force of Gravity on its Surface is to that on the Surface of the Sun, as 797,15 is to 10,0000; to that of *Saturn*, as 797,15 to 534,337; to that of the Earth, as 797,15 to 407,832. The Density of its Matter is to that of the Sun, as 7404 to 10,000; to that of *Saturn*, as 7404 to 6011; to that of the Earth, as 7404 to 3921. The Quantity of Matter contained in its Body is to that of the Sun, as 9,248 to 10,000; to that of *Saturn*, as 9,248 to 4,223; to that of the Earth, as 9,248 to 0,0044.

Note, That GRAVITY is the natural Tendency, or Inclination of Bodies towards a Center. DENSITY is that Property or Habitude of Bodies, whereby they contain such a Quantity of Matter under such a Bulk; accordingly a Body that contains more Matter than another, under the same Bulk, is said to be denser than the other.

The mean Distance of *Jupiter* from the Sun is 5201 of those Parts, whereof the mean Distance of the Earth from the Sun is 1000, though *Kepler* only makes it 5196 of those Parts. *Cassini* calculates *Jupiter*'s mean Distance from the Earth to be 115,000 Semidiameters of the Earth. *Gregory* computes the Distance of *Jupiter* from the Sun to be five Times as great as that of the Earth from the Sun; whence he gathers, that the Diameter of the Sun, to an Eye placed in *Jupiter*, would not be a fifth Part of what it appears to us; and therefore its Disk would be Twenty-five Times less, and his Light and Heat in the same Proportion.

The Inclination of *Jupiter*'s Orbit, that is, the Angle formed by the Plane of its Orbit, with the Plane of the Ecliptick, is 1 Degree, 20 Minutes; its Eccentricity is 250; and *Huygens* computes its Surface to be 400 Times as large as that of our Earth. *Jupiter* has no *Parallax*, his Distance from the Earth being too great, to have any sensible Proportion to the Diameter of the Earth. Though it be the greatest of the Planets, yet its Revolution round its Axis is the swiftest, its polar Axis is observed to be shorter than its equatorial Diameter; and Sir *Isaac Newton* determines the Difference to be as 8 to 9; so that its Figure is a Spheroid, and the Swiftness of its Rotation occasions this Spheroidism to be more sensible than that of any other of the Planets.

Jupiter appears almost as large as *Venus*, but is not altogether so bright. He is eclipsed by the Moon, by the Sun, and even by *Mars*. He has three Appendages, called *Zones* or *Belts*, which Sir *Isaac Newton* thinks are formed in his Atmosphere. In these are several *Maculæ* or Spots, carried from East to West (in a Part conspicuous to us) in the Space of 9 Hours 56 Minutes, the Discovery of which is controverted between *Eustachio*, *P. Gotignies*, *Cassini*, and *Campani*.

In 1610, the 7th of *January*, at one the following Night, *Galilæo* discovered, round *Jupiter*, four little Planets or Moons, which move round him, and which he called the *Astra Medicæa*, and we the *Satellites* of *Jupiter*. Those nearer to him move with a greater Celerity, than those at a greater Distance. *Simon Marcus* has defined their Revolutions in the following Manner. Revolves:

The first and innermost	The Second.
d h ′ ″	d h ′ ″
1 18 28 30	3 13 18 00
The Third.	**The Fourth.**
d h ′ ″	d h ′ ″
7 03 56 34	16 18 09 15

Cassini observed that the first or innermost of these *Satellites* of *Jupiter*, was five Semidiameters of *Jupiter*, distant from *Jupiter* itself, and made its Revolution in one Day, 18 Hours, and 32 Minutes. The Second, which is somewhat greater, he found eight Diameters distant from *Jupiter*, and its Revolution 3 Days, 13 Hours, and 12 Minutes. The Third, which is the greatest of all, is distant from *Jupiter* 13 Semidiameters, and finishes its Course in 7 Days, 3 Hours, and 50 Minutes. The last which is the least of all, is distant from *Jupiter* 23 Semidiameters; its Period is 16 Days, 18 Hours, and 9 Minutes.

Jupiter's *Satellites* when they enter its Shadow (like the Moon when she enters the Earth's Shadow) are eclipsed, because they are opake Bodies, and receive their Light from the Sun. The three first cause three Eclipses in each Revolution. 1. When the *Satellite* enters the Disk of *Jupiter*. 2. When the Shadow of the *Satellite* darkens the Disk of *Jupiter*. 3. When the superior Part of *Jupiter* hides the *Satellite*. 4. When the *Satellite* is immerged in *Jupiter*'s Shadow. Therefore the first *Satellite* causes Eclipses within seven Days; the second eight; the third four; and all together twenty-eight. The first *Satellite*, when arrived at the Node, causes four Eclipses within seventeen Days. To this it may be added, that one of these *Satellites* sometimes eclipses another; where the *Phasis* must be different, nay frequently opposite to that of the *Satellite* falling into the Shadow of *Jupiter* just mentioned; for in this the Eastern Limb immerges first, and the Western immerges last; but in the others it is just the Reverse. The Shadow of *Jupiter*, though it reaches far beyond its *Satellites*, yet falls short of any other Planet; nor could any other Planet, *Saturn* excepted, be immerged in it, even though it were infinite. Indeed *Jupiter*'s Shadow could not reach *Saturn*, unless *Jupiter*'s Diameter were half that of the Sun; whereas in Effect it is not one ninth of it.

Cassini has invented proper Tables for the Computation of the Eclipses of the *Satellite* next *Jupiter*, which indicates the very Moment of the Eclipse. He supposes

ſuppoſes the periodical Time of that *Satellite* to be the 2448th Part of the Periodical Time of *Jupiter* himſelf from the *Aphelion* to the *Aphelion*; whence the Equations of *Jupiter*'s Orbit, turned into Minutes, and adapted to each Revolution of the *Satellite*, can make up the principal Parts of the Equation of thoſe Eclipſes. It muſt be obſerved, that theſe Tables ſuppoſe *Jupiter*'s *Aphelion* in the Beginning of the ninth Degree of *Libra*; and that the Plane of the Orbit of the *Satellite* is ſo little diſtant from the Plane of *Jupiter*'s Orbit, as well as of the Ecliptick, that the Differences ariſing from thence are not to be minded. But however we muſt obſerve, that the Supputation of thoſe Eclipſes cannot be made with Accuracy, without another Equation, for the various Situation of the Earth, with Reſpect to *Jupiter*, which Situation, Reſtitution, Oppoſition, *i.e.* of *Jupiter* and the *Sun*, contains within itſelf $225\frac{3}{8}$ Periods of that *Satellite*. *Caſſini* is of Opinion that the Quantity of ſuch Equation does not extend further than 14′ 10″.

From this Source the *Satellite*'s ſecond Equations of $225\frac{3}{8}$ Revolutions adapted to each, entirely make up the ſecond Parts of thoſe *Eclipſes*. There could alſo have been added a Table, demonſtrating half the Stay of the *Satellite* in *Jupiter*'s Shadow, and fitted to the firſt Periods of the 2448 Parts: For, as *Jupiter* approaches the *Sun*, the Shadow increaſes and decreaſes as he recedes from the Sun. But this Equation is contained within ſo narrow a Compaſs, that it may very well be omitted. However there is added, as it ought to be, a Table, which is to demonſtrate the half Stay of the *Satellite* in *Jupiter*'s Shadow, for the different Poſition of the *Satellites* towards the Nodes and the Limits: For though the Plane of the *Equinox* of *Jupiter*, or of the Orbit of the *Satellite*, be not inclined in a great Angle, 'tis however inclined in ſome, and therefore there will be a greater Immerſion in the Shadow towards the Nodes of the Orbit than towards the Limits; which Difference, *Caſſini* (by Reaſon of the Numbers appropriated to the firſt Equation) has not judged proper to have omitted.

For the *Calculus* of theſe *Eclipſes*, the Year given muſt be found at the left of the Table of the *Epocha's* of the Revolutions of the firſt *Satellite* to *Jupiter*'s Shadow, and then we'll write down the Numbers which ſhew the Days, Hours, Minutes, and Seconds of the Revolution. We will alſo take out the Numbers diſtinguiſhed by two ſmall Squares, as ſo many Degrees of *Anomaly*. To theſe Numbers muſt be added thoſe affixed to the Month given, and to the Day of the Month, each in its Order, with the Numbers contained in the two ſmall Squares; which done, we'll gather each Proceſs into one Sum by Addition. The firſt Sum will ſhew the mean Moment of the mean *Eclipſe*; the ſecond will ſerve to find the firſt Equation, and the third the ſecond Equation.

Antony Maria Shyrlæus de Rheita, a Capuchin of *Cologne*, imagined, that beſides the four known *Satellites* of *Jupiter*, he had diſcovered five more, the 29th of *December*, *Anno* 1642, and in Honour of *Urban* VIII. the Pope then reigning, denominated them *Sidera Urbanoctoviana*. But upon *Nauda*'s communicating the Obſervation to *Gaſſendi*, who had obſerved *Jupiter* on the ſame Day, he ſoon perceived that the Capuchin had miſtaken five fixed Stars, in the Effuſion of the Water of *Aquarius*, marked in *Tycho*'s Catalogue 24, 25, 26, 27, for *Satellites* of *Jupiter*: Whence it is no wonder they ſhould appear to the Diſcoverer to move a contrary Way to that of the reſt, *viz.* from Weſt to Eaſt.

We muſt end our Journey through the Heavens at *Saturn*'s Orbit.

SATURN is of all the Planets the fartheſt from the Earth and the Sun, on which Account, though the biggeſt of all the Planets it appears the ſmalleſt, and to ſhine but with a feeble Light. Its Period, or the Space of Time wherein he revolves round the Sun (which makes his Year) according to *Kepler*, is 29 Years, 174 Days, 4 Hours, 58 Minutes, 25 Seconds, and 30 Thirds; whence his diurnal Motion muſt be 2 Minutes, 0 Seconds, 36 Thirds; though *De la Hire* makes his diurnal Motion 2 Minutes, 1 Second. The Inclination of his Plane to that of the *Ecliptick*, *Kepler* makes 2° 32′; *De la Hire* 2° 33′. Its mean Diſtance from the Sun is 326925 Semidiameters of the Earth; and from the Earth 210,000 of the ſame. Its ſmalleſt Diameter, according to *Huygens*, is 30 Seconds. The Proportion of its Diameter to that of the Earth, as 20 to 1; of its Surface to that of the Earth, as 400 to 1; of its Solidity to that of the Earth, as 1 to 8000.

The Diſtance of *Saturn* from the Sun being ten Times greater than that of the Earth from the ſame, it is found that the apparent Diameter of the Sun ſeen from him, will not exceed 3 Minutes, which is but little more than twice the Diameter of *Venus*.

It is doubted, whether or no *Saturn*, like the other *Planets*, revolves round its Axis: It does not appear, from any aſtronomical Obſervations, that he does; and there is one Circumſtance that ſhould ſeem to argue the contrary, *viz.* that whereas the Earth, and other *Planets*, which we know do revolve on their Axes, have their *Equatorial Diameters* greater than their *Polar*; nothing like this is obſerv'd in *Saturn*.

The ſuppos'd various and extraordinary *Phaſes* of *Saturn*, have long perplex'd the Aſtronomers, who could not divine the Cauſe of ſuch Irregularity. Thus *Hevelius* obſerv'd him to be ſometimes *monoſpherical*, ſometimes *triſpherical*, *ſpherico-anſated*, *elliptico-anſated*, and *ſpherico-cuſpidated*. But *Huygens* plainly ſhews, that all theſe monſtrous Appearances are owing to the Imperfection of the Teleſcopes that Author had us'd. *Huygens*, upon obſerving him very attentively with much better Glaſſes, reduc'd all his *Phaſes* to three principal ones, *viz. round*, *brachiated*, and *anſated*.

Saturn has a *Ring* peculiar to himſelf, which ſurrounds his Middle like an Arch, or like the Horizon of an *Armillary Sphere*, without touching him any where; the Diameter whereof is more than double that of the Planet which it ſurrounds; the former containing 45 Diameters of the Earth, the latter only 20. When rais'd enough to be out of the Shadow of the Body of *Saturn*, it reflects the Light of the Sun very ſtrongly. Dr. *Keill* obſerves, that the Thickneſs of the *Ring* takes up one Half of the Space between its outer, or convex Surface, and the Surface of the Planet. This *Ring* is found to be an opake, ſolid, but ſmooth, and even Body. *Galileo* firſt diſcover'd, that the Figure of *Saturn* was not round; and *Huygens*, that its Inequality was in Form of a Ring. *Caſſini* conjectures, that from ſome Zones which are ſometimes ſeen in *Saturn*, that he revolves round his own *Axis*; but thoſe Conjectures ſhould be confirm'd, or ſupported, by a vaſt Number of very accurate Obſervations.

Saturn performs his Courſe round the Sun, attended with five *Satellites*, or *Secondary Planets*; the firſt of which was diſcover'd by *Caſſini*, at the Royal Obſervatory at *Paris*, *Anno* 1672, to be diſtant from the Center of *Saturn*, a Diameter and two Thirds of the *Ring*, and to accompliſh his Courſe round *Saturn* in the Space of 4 Days, 12 Hours, and 27 Minutes. The ſecond had been long before diſcover'd by *Huygens*, and is a great deal bigger than the firſt. This is diſtant from *Saturn*'s Center, four Diameters of the *Ring*, and revolves round him in 16 Days, 23 Hours. The third was obſerv'd by *Caſſini*, *Anno* 1671, towards the latter End of *October*, in a great Digreſſion from *Saturn*, but ſoon vaniſh'd from his Sight, and could not be ſeen again till towards the 15th of *December*, and ſoon diſappear'd again, till the Beginning of *February* 1673; when it continu'd viſible for thirteen Days ſucceſſively. No other Reaſon can be aſſign'd for this Viciſſitude of Light, than that a Portion of this *Satellite* is capable to reflect the Light it receives with ſome Vivacity, the other not; juſt as we ſee it happen in the Globe of the Earth, that Part whereof which is cover'd with Water, is not apt to reflect the Rays of the Sun, while the dry Part does it

on all Sides. Therefore this *Satellite* revolves round its proper Center, or, like the Moon to the Earth, lends an Hemisphere to *Saturn*. Therefore when that Part of the *Satellite* which is semblable to the Earth's Continent, is turn'd toward us, then it renders it self visible, and vanishes from the Sight, when that Part which is like our Ocean inclines towards the Earth. The two others were also discover'd by M. *Cassini*, who is pleas'd to give us the Periodical Times of those five *Satellites* of *Saturn*, and their Distances from his Center.

Their Periodical Times, according to that most famous Astronomer, are as follow:

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Their Distances from *Saturn*'s Center, are,

First *Satellite*	$4\frac{3}{8}$	Semidiameters of *Saturn*, or,	1	Diameters of *Saturn*'s *Ring*.
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The great Distance between the fourth and fifth *Satellite*, gave Occasion to *Huygens* to suspect that there might be some intermediate one, or else that the fifth might have some other *Satellite* moving round it as its Center. Dr. *Halley*, in the *Philosophical Transactions*, gives us a Correction of the Theory of the Motion of the fourth *Satellite*. Its true Period he makes 15 Days, 22 Hours, 41 Minutes, 6 Seconds; its diurnal Motion, 22° 34′ 38″ 18‴; its Distance from the Center of *Saturn*, 4 Diameters of the *Ring*; and its *Orbit* to be little or nothing distant from that of the *Ring*, intersecting the *Orbit* of *Saturn* under an Angle of 23 Degrees and a Half.

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4. These being given, we discover the true Motion of the *Satellite* in the following Manner: We gather the mean Motions of the *Satellite*, proportionable to the Year, to the current Month, to the Days, to the Hours, and the Parts of the Hours, into one Sum; this Sum shewing then the mean Longitude of the *Satellite*, will also give us (after we shall have subtracted from it the Place of the *Apocronium*) its mean Anomaly. Searching in the little Table of Equations of a Lunar Eccentricity, an Equation adapted to that Anomaly. Which Equation of the Anomaly of the *Satellite* being either added, or subtracted from it, as the Title requires it, will give the true Longitude of the *Satellite*.

5. From the true Place of the *Satellite*, already given, by the Longitude, must be subtracted the Longitude of the *Apogee*; if the Arch left is lesser than six Signs, the *Satellite* will be seen toward the East; if greater, toward the West of *Saturn*: For as the Radius is to the Arch left; so are eight Semidiameters of the *Ring*, or the least Elongation of the *Satellite* from *Saturn*, to the Semidiameter of the *Ring* and their Parts; whereby the *Satellite* is distant from *Saturn*'s Center, towards the East, or West, at the Time given.

6. The better to have the true Latitude of the *Satellite*, either northern, or southern, from the Line of the *Anses*, we must make use of this Analogy; as the Radius is to the Cosine of the Arch left; so is the greatest Latitude, to the Latitude competent to the Time given.

Before we leave the Planetary System, it will not be improper to make, with *Rohault*, the following general Observations on the *Phases* of these three Primary Planets, *Mars*, *Jupiter*, and *Saturn*; *viz.* that those three Planets appear to revolve in such a Manner round the Sun, that the Circles they describe contain the Circle of the Earth; therefore 'tis to be believ'd that they are at a greater Distance from the Sun than the Earth. This presuppos'd, it follows, that *Mars*, *Jupiter*, and *Saturn*, must not only appear to revolve, from East to West round the Earth, in the Space of 24 Hours; but likewise to be carried by the heavenly Matter, wherein they are contain'd, in the same Sense *Mercury*, *Venus*, and the *Earth* are carried by it.

According to the same Rules of Mechanicks, the Circles describ'd by *Mars*, *Jupiter*, and *Saturn*, must be found under the *Zodiack*; and as they are greater than those describ'd by the Earth, we may easily judge, that they cannot accomplish them in so short a Time as the Earth does her's.

Though these *Planets* are always carried by a direct Motion, and are never stationary, nor retrograde; nevertheless, there must appear Stations and Retrogradations, even at the very Time they are suppos'd to happen; *viz.* retrograde Motions as often as the Earth passes between them and the Sun. For as we advance with a greater Celerity than they, towards the same Parts, we must see them every Day to answer to various Places of the Firmament, and proceed towards the Side opposite to that we are carried by. As to the Stations, they must be remark'd, before and after each Retrogradation; because the Determination of the Motion of the Earth is then, in some Measure, oblique, with respect to the Determination of the Motion of the Planet. Hence the Celerity, wherewith we are carried, has no other Effect than to make us advance in such a Manner, as we may see during several Days, and in Order, the Planet under the same Place of the Firmament.

The Planets are represented by the same Characters the Chymists use to represent their Metals by, on account of some suppos'd Analogy between those celestial, and subterraneous Bodies. *Saturn* is represented by the Character ♄. *Jupiter* by ♃. *Mars* ♂. *Venus* ♀. *Mercury* ☿. To which we now add, *Tellus*, the *Earth*, mark'd ⊕, or ♁.

All the Observations heretofore mention'd, of the *Phænomena*, *Phases*, &c. of the heavenly Bodies, have been, for the greatest Part of them, made in Places call'd *Observatories*, which are Buildings usually in Form of a Tower, rais'd on some Eminence, and cover'd with a Terrace, for making those Observations.

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was first committed was Mr. *Flamsteed*. The *Greenwich Observatory* is found, by very accurate Observations, to lie in 51 Degrees, 28 Minutes, 30 Seconds, *North Latitude*.

2. The *Paris Observatory*, built by the late King *Lewis* XIV. in the *Fauxbourg St. Jaques*. It is a very singular, but, withal, a very magnificent Building; the Design of M. *Perrault*. It is 80 Feet high, and at Top is a Terrace. It is here M. *De la Hire* has been employ'd. The Difference in Longitude between this and the *Greenwich Observatory*, is 2 Degrees, 20 Minutes West. In the *Paris Observatory* is a Cave, or Cellar, of 170 Feet Descent, for Experiments that are to be made far from the Sun, *&c.* particularly such as relate to Congelations, Refrigerations, Indurations, Conservations, *&c.*

3. Father *Le Compte* describes a very magnificent *Observatory* erected at *Pekin*, and furnish'd by the late Emperor of *China*, at the Intercession of some *Jesuit Missionaries*, chiefly Father *Verbiest*, whom he made his chief Observer. The Instruments are exceedingly large, but the Divisions less accurate, and the Contrivance, in some Respect, less commodious, than those of the *Europeans*. The first is an *Armillary Zodiacal Sphere*, of six *Paris* Feet Diameter; an *Equinoctial Sphere*, six Feet Diameter; an *Azimuthal Horizon*, six Feet Diameter; a large *Quadrant*, six Feet Radius; a *Sextant*, eight Feet Radius; and a *Celestial Globe*, six Feet Diameter.

Tycho Brahe erected an *Observatory*, in the little Island *Ween*, between the Coast of *Schonen* and *Zeland*, in the *Baltick*, which he call'd *Uraniburgh*; and furnish'd it with Instruments at his own Expence. Here he spent twenty Years in observing the Stars; the Result is his *Catalogue*.

The Instruments requisite in *Astronomical Observations*, are *Telescopes*, of several Sizes; *Armillary* and *Zodiacal Spheres*; *Celestial Globes*, *Astronomical Quadrants*, *Azimuthal Horizons*, *Sextants*, &c.

A TELESCOPE, is an Optical Instrument, consisting of several Glasses, or Lens's, fitted into a Tube, through which remote Objects are seen, as if nigh at Hand. The *Telescopes* us'd in *Astronomical Observations*, call'd also *Astronomical Telescopes*, consist of an Object Glass, which is that Glass turn'd towards the Object; and an Eye Glass, which is that next the Eye, both convex.

ARMILLARY SPHERE, is an Astronomical Instrument, representing the several Circles of the Sphere, in their natural Order; serving to give an Idea of the Office and Position of each thereof, and to solve various Problems relating thereto. It is thus call'd, as consisting of a Number of *Fasciæ*, or Rings of Brass or other Matter, call'd by the *Latins*, *Armillæ*, from their resembling of Bracelets, or Rings for the Arm. By this it is distinguish'd from the *Globe*, which though it has all the Circles of the Sphere on its Surface, yet is not cut into *Armillæ*, or Rings, to represent the Circles simply, and alone; but exhibits also the intermediate Spaces between the Circles.

Armillary Spheres are of different Kinds, with regard to the Position of the Earth therein; but the most commonly us'd is the *Ptolemaick*; in the Middle thereof, upon its Axis, is a Ball, representing the Earth, on whose Surface are the Circles, *&c.* of the Earth. The Sphere is made to revolve about the said Axis, which remains at Rest; by which Means, the Sun's diurnal and annual Course about the Earth, are represented, according to the *Ptolemaick Hypothesis*; and even by Means hereof all Problems relating to the *Phænomena* of the Sun and Earth, are solv'd, as upon the *Celestial Globe*, and after the same Manner.

The CELESTIAL GLOBE, is an artificial Sphere, made of Metal, Plaister, Paper, or other Matter; on whose convex Surface the fix'd Stars are plac'd, at proportionable Distances, together with the principal Circles of the Sphere. The Use of this Instrument is very extensive; scarce any Thing in the *spherical Astronomy*, but may be exhibited thereby, without having recourse to *trigonometrical Calculation*. The principal Points are contain'd in the following Problems, with their Solutions; which will let the Reader enough into the Nature and Reason of this Instrument, to apply it, of his own Accord, in any other Cases.

To find, 1. The Right Ascension and Declination of a Star, represented on the Surface of the *Globe*. 2. The Longitude and Latitude of a Star. 3. The Sun's Place in the Ecliptick. 4. The Declination of the Sun. 5. The Place of a Planet, with its Right Ascension and Declination; its Longitude and Latitude, for the Time given. 6. To rectify the *Globe*, or adjust it to the Place, *&c.* so as it may represent the present State or Situation of the Heavens. 7. To know all the Stars and Planets, by Means of the *Globe*. 8. To find the Sun's Oblique Ascension, his Eastern Amplitude and Azimuth, with the Time of Rising. 9. The Sun's Oblique Descension, Western Amplitude and Azimuth, with the Time of Setting. 10. The Length of the Day and Night. 11. The Rising, Setting, and Culminating of a Star; its Continuance above the Horizon, for any Place and Day; together with its Oblique Ascension and Descension, and its Eastern and Western Amplitude and Azimuth. 12. The Altitude of the Sun, or a Star, for any given Hour of the Day or Night. 13. The Altitude of the Sun by Day, or of a Star by Night, being given; to find the Time of that Day or Night. 14. To find the Interval of Time between the Rising of two Stars, or their Culminations. And, 15. To find the Beginning and Ending of the *Crepusculum*, or Twilight.

1. The Right Ascension and Declension of a Star is found, by bringing the Star to the graduated Side of the brazen Meridian; then the Number of Degrees intercepted between the Equator and the Point of the Meridian cut by the Star, gives its Declination; and the Degree of the Equator which comes under the Meridian together with the Star, is its Right Ascension.

2. By applying the Center of the Quadrant of Altitude over the Pole of the Ecliptick, in the same Hemisphere with the Star, and bringing its graduated Edge to the Star; the Degree on the Quadrant cut by the Star, is the Star's Latitude, reckon'd from the Ecliptick; and the Degree of the Ecliptick cut by the Quadrant, its Longitude.

3. If we seek the Day of the Month in the proper Calendar on the Horizon, we'll find against that Day in the Circle of Signs, the Sign and Degree the Sun is in for that Day. This done, by finding the same Sign upon the Ecliptick on the Surface of the *Globe*, we'll have found the Sun's Place for that Day.

4. The Sun's Place for the Day given being brought to the Meridian, the Degrees of the Meridian intercepted between the Equinoctial and that Place, are the Sun's Declination for that Day, at Noon.

5. Apply the Center of the Quadrant of Altitude, on the Pole of the Ecliptick, of the same Denomination with the Latitude, and bring it to the given Longitude in the Ecliptick; this Point is the Planet's Place: And bringing it to the Meridian, its Right Ascension and Declination will be found.

6. To rectify the *Globe*, &c. 1. If the Place be in North Latitude, the North Pole must be rais'd above the Horizon; if in the South, the South Pole. 2. The Quadrant of Altitude is to be fix'd on the Zenith, *i. e.* on the Latitude of the Place. 3. By Means of a Compass, or Meridian Line, the *Globe* must be plac'd in such a Manner, as that the brazen Meridian may be in the Plane of the terrestrial Meridian. 4. The Degree of the Ecliptick the Sun is in, must be brought to the Meridian, and the horary Index set to 12: Thus will the *Globe* exhibit the Face of the Heavens for the Noon of that Day. 5. By turning the *Globe* till the Index comes to any other given Hour: Thus will the *Globe* shew the Face of the Heavens for that Time.

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The more celebrated *Observatories*, of our Times, are, 1. The *Greenwich Observatory*, built in 1676, by Order of King *Charles* II, at the Sollicitation of Sir *Jonas Moor*, and Sir *Christopher Wren*; and furnish'd with the most accurate Instruments by the same. The Person to whom the Province of observing was

was first committed was Mr. *Flamsteed*. The *Greenwich Observatory* is found, by very accurate Observations, to lie in 51 Degrees, 28 Minutes, 30 Seconds, *North Latitude*.

2. The *Paris Observatory*, built by the late King *Lewis* XIV. in the *Fauxbourg St. Jaques*. It is a very singular, but, withal, a very magnificent Building; the Design of M. *Perrault*. It is 80 Feet high, and at Top is a Terrace. It is here M. *De la Hire* has been employ'd. The Difference in Longitude between this and the *Greenwich Observatory*, is 2 Degrees, 20 Minutes West. In the *Paris Observatory* is a Cave, or Cellar, of 170 Feet Descent, for Experiments that are to be made far from the Sun, *&c.* particularly such as relate to Congelations, Refrigerations, Indurations, Conservations, *&c.*

3. Father *Le Compte* describes a very magnificent *Observatory* erected at *Pekin*, and furnish'd by the late Emperor of *China*, at the Intercession of some *Jesuit Missionaries*, chiefly Father *Verbiest*, whom he made his chief Observer. The Instruments are exceedingly large, but the Divisions less accurate, and the Contrivance, in some Respect, less commodious, than those of the *Europeans*. The first is an *Armillary Zodiacal Sphere*, of six *Paris* Feet Diameter; an *Equinoctial Sphere*, six Feet Diameter; an *Azimuthal Horizon*, six Feet Diameter; a large *Quadrant*, six Feet Radius; a *Sextant*, eight Feet Radius; and a *Celestial Globe*, six Feet Diameter.

Tycho Brahe erected an *Observatory*, in the little Island *Ween*, between the Coast of *Schonen* and *Zeland*, in the *Baltick*, which he call'd *Uraniburgh*; and furnish'd it with Instruments at his own Expence. Here he spent twenty Years in observing the Stars; the Result is his *Catalogue*.

The Instruments requisite in *Astronomical Observations*, are *Telescopes*, of several Sizes; *Armillary* and *Zodiacal Spheres*; *Celestial Globes*, *Astronomical Quadrants*, *Azimuthal Horizons*, *Sextants*, &c.

A TELESCOPE, is an Optical Instrument, consisting of several Glasses, or Lens's, fitted into a Tube, through which remote Objects are seen, as if nigh at Hand. The *Telescopes* us'd in *Astronomical Observations*, call'd also *Astronomical Telescopes*, consist of an Object Glass, which is that Glass turn'd towards the Object; and an Eye Glass, which is that next the Eye, both convex.

ARMILLARY SPHERE, is an Astronomical Instrument, representing the several Circles of the Sphere, in their natural Order; serving to give an Idea of the Office and Position of each thereof, and to solve various Problems relating thereto. It is thus call'd, as consisting of a Number of *Fasciæ*, or Rings of Brass or other Matter, call'd by the *Latins*, *Armillæ*, from their resembling of Bracelets, or Rings for the Arm. By this it is distinguish'd from the *Globe*, which though it has all the Circles of the Sphere on its Surface, yet is not cut into *Armillæ*, or Rings, to represent the Circles simply, and alone; but exhibits also the intermediate Spaces between the Circles.

Armillary Spheres are of different Kinds, with regard to the Position of the Earth therein; but the most commonly us'd is the *Ptolemaick*; in the Middle thereof, upon its Axis, is a Ball, representing the Earth, on whose Surface are the Circles, *&c.* of the Earth. The Sphere is made to revolve about the said Axis, which remains at Rest; by which Means, the Sun's diurnal and annual Course about the Earth, are represented, according to the *Ptolemaick Hypothesis*; and even by Means hereof all Problems relating to the *Phænomena* of the Sun and Earth, are solv'd, as upon the *Celestial Globe*, and after the same Manner.

The CELESTIAL GLOBE, is an artificial Sphere, made of Metal, Plaister, Paper, or other Matter; on whose convex Surface the fix'd Stars are plac'd, at proportionable Distances, together with the principal Circles of the Sphere. The Use of this Instrument is very extensive; scarce any Thing in the *spherical Astronomy*, but may be exhibited thereby, without having recourse to *trigonometrical Calculation*. The principal Points are contain'd in the following Problems, with their Solutions; which will let the Reader enough into the Nature and Reason of this Instrument, to apply it, of his own Accord, in any other Cases.

To find, 1. The Right Ascension and Declination of a Star, represented on the Surface of the *Globe*. 2. The Longitude and Latitude of a Star. 3. The Sun's Place in the Ecliptick. 4. The Declination of the Sun. 5. The Place of a Planet, with its Right Ascension and Declination; its Longitude and Latitude, for the Time given. 6. To rectify the *Globe*, or adjust it to the Place, *&c.* so as it may represent the present State or Situation of the Heavens. 7. To know all the Stars and Planets, by Means of the *Globe*. 8. To find the Sun's Oblique Ascension, his Eastern Amplitude and Azimuth, with the Time of Rising. 9. The Sun's Oblique Descension, Western Amplitude and Azimuth, with the Time of Setting. 10. The Length of the Day and Night. 11. The Rising, Setting, and Culminating of a Star; its Continuance above the Horizon, for any Place and Day; together with its Oblique Ascension and Descension, and its Eastern and Western Amplitude and Azimuth. 12. The Altitude of the Sun, or a Star, for any given Hour of the Day or Night. 13. The Altitude of the Sun by Day, or of a Star by Night, being given; to find the Time of that Day or Night. 14. To find the Interval of Time between the Rising of two Stars, or their Culminations. And, 15. To find the Beginning and Ending of the *Crepusculum*, or Twilight.

1. The Right Ascension and Declension of a Star is found, by bringing the Star to the graduated Side of the brazen Meridian; then the Number of Degrees intercepted between the Equator and the Point of the Meridian cut by the Star, gives its Declination; and the Degree of the Equator which comes under the Meridian together with the Star, is its Right Ascension.

2. By applying the Center of the Quadrant of Altitude over the Pole of the Ecliptick, in the same Hemisphere with the Star, and bringing its graduated Edge to the Star; the Degree on the Quadrant cut by the Star, is the Star's Latitude, reckon'd from the Ecliptick; and the Degree of the Ecliptick cut by the Quadrant, its Longitude.

3. If we seek the Day of the Month in the proper Calendar on the Horizon, we'll find against that Day in the Circle of Signs, the Sign and Degree the Sun is in for that Day. This done, by finding the same Sign upon the Ecliptick on the Surface of the *Globe*, we'll have found the Sun's Place for that Day.

4. The Sun's Place for the Day given being brought to the Meridian, the Degrees of the Meridian intercepted between the Equinoctial and that Place, are the Sun's Declination for that Day, at Noon.

5. Apply the Center of the Quadrant of Altitude, on the Pole of the Ecliptick, of the same Denomination with the Latitude, and bring it to the given Longitude in the Ecliptick; this Point is the Planet's Place: And bringing it to the Meridian, its Right Ascension and Declination will be found.

6. To rectify the *Globe*, &c. 1. If the Place be in North Latitude, the North Pole must be rais'd above the Horizon; if in the South, the South Pole. 2. The Quadrant of Altitude is to be fix'd on the Zenith, *i. e.* on the Latitude of the Place. 3. By Means of a Compass, or Meridian Line, the *Globe* must be plac'd in such a Manner, as that the brazen Meridian may be in the Plane of the terrestrial Meridian. 4. The Degree of the Ecliptick the Sun is in, must be brought to the Meridian, and the horary Index set to 12: Thus will the *Globe* exhibit the Face of the Heavens for the Noon of that Day. 5. By turning the *Globe* till the Index comes to any other given Hour: Thus will the *Globe* shew the Face of the Heavens for that Time.

7. The Stars and Planets are easily known, by Means of the *Globe*; if, 1. We adjust the *Globe* to the State of the Heavens for that Time. 2. If we look on the *Globe* for some one Star which we know, *e. gr.* the middlemost Star in the Tail of the *Great Bear*. 3. If we observe the Position of the other most conspicuous Stars in the same Constellation; for by transferring the Eye from the *Globe* to the Heavens, we'll easily note the same there. 4. Thus we may proceed from this to the neighbouring Constellations, till we have learn'd them all. If the Planets be represented on the *Globe* after the Manner above describ'd, by comparing them with the neighbouring Stars, we'll likewise know the Planets.

8. By rectifying the *Globe* for the Hour of Twelve, and bringing the Sun's Place to the Eastern Side of the Horizon, the Number of Degrees then intercepted between that Degree of the Equator now come to the Horizon, and the Beginning of *Aries*, is the Sun's Oblique Ascension. The Degrees on the Horizon intercepted between the East Point thereof, and the Point wherein the Sun is, is the Ortive, or Rising Amplitude. The Hour pointed to by the Index, is the Time of the Sun's Rising. Turning the *Globe* till the Index points to the present Hour, we must lay the Quadrant to the Sun's Place, the Degree cut by the Quadrant, in the Horizon, is the Sun's Azimuth.

9. The Sun's Oblique Descension, Western Amplitude, and Azimuth, with the Time of Setting, is found in the same Manner, as its Oblique Ascension, Eastern Amplitude, *&c.* excepting that the Sun's Place must be here brought to the Western Side of the Horizon; as in the former it was to the Eastern.

10. The Length of Day and Night is found, 1. By finding the Time of the Sun's Rising; which being number'd from Midnight, the Double thereof gives the Length of the Night. 2. By subtracting the Length of the Night from the whole Day, or 24 Hours, the Remainder is the Length of the Day.

11. Having adjusted the *Globe* to the State of the Heavens at Twelve o'-Clock that Day, we'll find the Eastern Amplitude, Azimuth, and the Time of Rising of a Star, by bringing the Star to the Eastern Side of the Horizon; and by bringing the same Star to the Western Side of the Horizon, we'll find its Western Amplitude, and Azimuth, and the Time of its Setting. The Time of Rising subtracted from that of Setting, leaves the Continuance of the Star above the Horizon; and this Continuance above the Horizon subtracted from 24 Hours, leaves the Time of its Continuance below the Horizon. Lastly, The Hour to which the Index points when the Star is brought to the Meridian, gives the Time of Culmination.

Note, That CULMINATION, is the Transit of a Star, or Planet, over the Meridian; or that Point of its *Orbit* wherein it is at its greatest Altitude. Hence a Star is said to *Culminate*, when it passes the Meridian.

12. The Altitude of the Sun, or a Star, for any given Hour of the Day, or Night, is found; 1. By adjusting the *Globe* to the Position of the Heavens, and turning it till the Index points at the given Hour. 2. Then fixing on the Quadrant of Altitude at 90 Degrees from the Horizon, and bringing it to the Sun's or Star's Place, the Degrees of the Quadrant intercepted between the Horizon and the Sun or Star, is the Altitude requir'd.

13. The Altitude of the Sun by Day, or of a Star by Night, being given; the Time of that Day or Night is found, 1. By rectifying the *Globe* as in the preceding Problem. 2. By turning the *Globe* and Quadrant till such Time as the Star, or Degree of the Ecliptick the Sun is in, cut the Quadrant in the given Degree of Altitude; then does the Index point at the Hour sought.

14. By rectifying the *Globe*, and bringing the Quadrant to the given Azimuth in the Horizon, and turning the *Globe* till the Star comes to the same; the Index will shew the Time of Day or Night.

15. If the Pole of the *Globe* is rais'd so many Degrees above the Horizon, as is the Elevation of the Pole of the Place; if the first Star is brought to the Horizon, and the Time observ'd the Index points to; if the same be done by the other Star; then by subtracting the former Time from the latter, the Remainder is *the Interval between the Risings of the two Stars.*

16. The *Crepusculum*, or Twilight, is found, by first rectifying the *Globe*, and setting the Index to the twelfth Hour, the Sun's Place being in the Meridian. 2. By noting the Sun's Place, and turning the *Globe* Westward, as also the Quadrant of Altitude, till the Point opposite to the Sun's Place cut the Quadrant of Altitude in the eighteenth Degree above the Horizon, the Index will shew the Time when the Twilight commences in the Morning. 3. By taking the Point opposite to the Sun, bringing it to the Eastern Hemisphere, and turning it till it meet with the Quadrant of Altitude in the eighteenth Degree, then will the Index shew the Time when Twilight ends.

An ASTRONOMICAL QUADRANT T, is an Instrument usually made of Brass, sometimes of wooden Bars, only fac'd with Plates of Iron, or the like; having its Limb curiously divided, diagonally, or otherwise, into Degrees and Minutes, and even Seconds, if possible; with plain Sights fix'd to one Side of it, or, instead thereof, a Telescope; and an Index moving about the Center, carrying either plain Sights, or a Telescope. These *Quadrants* are of principal Use, in taking Observations of the Sun, Planets, or fix'd Stars. The *Antients* used only plain Sights, but the *Moderns* have found it of great Benefit to use Telescopes instead of them. And the Contrivance of moving the Index, by the Help of a Screw on the Edge of the Limb, and of readily and easily directing it, and the *Quadrant* upon its Pedestal, to any desir'd *Phænomenon*, by Means of the Screws and dented Wheels, is a still greater Improvement of the Instrument, whose Use is obvious; for it being adjusted, as above, and turn'd horizontally round on its Axis till through the moveable Telescope the Object be seen to fall in with the Point of Intersection of the Cross Bars; the Degrees cut by the Index, give the Altitude requir'd.

Gunter's QUADRANT, thus called from the Inventor's Name, *Edmund Gunter*, besides the graduated Limb, fixed Sights, and a Plummet, as the other *Quadrants*; has likewise a Stereographical Projection of the Sphere on the Plane of the Equinoctial, with the Eye placed in one of the Poles; by which, besides the common Uses of other Quadrants, several useful Questions in *Astronomy* are easily solv'd, *viz.* To find, 1. The Sun's Meridian Altitude for any given Day, or the Day of the Month for any given Meridian Altitude. 2. The Hour of the Day. 3. The Sun's Declination from his Place given, and contrariwise. 4. His Right Ascension, or contrarily. 5. His Azimuth, and contrariwise. 6. The Hour of the Night, from some of the five Stars laid down on the *Quadrant*.

1. The Thread being laid to the Day of the Month in the Scale next the Limb; the Degree it cuts in the Limb, is the Meridian Altitude of the Sun. Thus the Thread being laid on the 15th of *May*, cuts 59° 30′, the Altitude sought. And contrarily, the Thread being set to the Meridian Altitude, will shew the Day of the Month.

2. Having put the Bead, which slides on the Thread, to the Sun's Place in the Ecliptick, the Sun's Altitude must be observ'd by the *Quadrant*; then, if the Thread be laid over the same in the Limb, the Bead will fall upon the Hour requir'd. Thus, suppose on the 10th of *April*, the Sun being then in the Beginning

ning of *Taurus*, we obſerve the *Sun*'s Altitude by the *Quadrant* to be 36°, we place the Bead to the Beginning of *Taurus* in the *Ecliptick*, and lay the Thread over 36° of the Limb; and find the Bead to fall upon the Hour-Line mark'd 3 and 9; accordingly, the Hour is either 9 in the Morning, or 3 in the Afternoon. Again, laying the Bead on the Hour given, (having firſt rectified, or put it to the *Sun*'s Place) the Degree cut by the Thread on the Limb, gives the *Altitude*. *Note*, That the Bead may alſo be rectified, by bringing the Thread to the Day of the Month, and the Bead to the Hour-Line of 12.

3. Setting the Bead to the *Sun*'s Place in the *Ecliptick*, and moving the Thread to the Line of *Declination*, the Bead will cut the Thread of *Declination* requir'd. Contrarily, the Bead being adjuſted to a given *Declination*, and the Thread mov'd to the *Ecliptick*, the Bead will cut the *Sun*'s Place.

4. We muſt lay the Thread on the *Sun*'s Place in the *Ecliptick*, and the Degree it cuts on the Limb, is the *Right Aſcenſion of the Sun*. Contrarily, laying the Thread on the *Right Aſcenſion*, it cuts the *Sun*'s Place in the *Ecliptick*.

5. Rectify the Bead for the Time, (as in the ſecond Article) and obſerve the *Sun*'s *Altitude*; bring the Thread to the *Complement* of that *Altitude*; thus the Bead will give the *Azimuth* ſought, among the *Azimuth* Lines.

Note, That the AZIMUTH of the *Sun*, or a *Star*, is an Arch of the Horizon comprehended between the Meridian of the Place, and any given *Vertical*. The *Azimuth* is the *Complement* of the eaſtern and weſtern *Amplitude* of a *Quadrant*.

6. Fit the Bead to the *Star* you intend to obſerve, and find how many Hours it is off the Meridian, (by the ſecond Article) then from the *Right Aſcenſion* of the *Star*, ſubtract the *Sun*'s *Right Aſcenſion*, converted into Hours; and mark the Difference; which Difference added to the obſerv'd Hour of the *Star* from the Meridian, ſhews how many Hours the *Sun* is gone from the Meridian, which is the Hour of the Night. Suppoſe, for Example, on the 15th of *May* the *Sun* being in the 4th Degree of *Gemini*, I ſet the Bead to *Arcturus*; and obſerving his *Altitude*, find him to be in the Weſt, about 52° high, and the Bead to fall on the Hour-Line of 2 Afternoon; then will the Hour be 11 Hours, 50 Minutes paſt Noon, or 10 Minutes ſhort of Midnight. For 62°, the *Sun*'s *Right Aſcenſion*, converted into Time, makes 4 Hours, 8 Minutes, which ſubtracted from 13 Hours, 58 Minutes, the *Right Aſcenſion* of *Arcturus*, the Remainder will be 9 Hours, 50 Minutes; which added to 2 Hours, the obſerv'd Diſtance of *Arcturus* from the Meridian, ſhews the Hour of the Night to be 11 Hours, 50 Minutes.

A SEXTANT, is an *Aſtronomical Inſtrument*, made like a *Quadrant*; excepting that its Limb only comprehends 60 Degrees. The Uſe and Application of the *Sextant*, is the ſame with that of the *Quadrant*.

The Motions, Places, and other *Phænomena* of the *Planets*, both *Primary* and *Secondary*, are alſo digeſted, or computed into what we call *Aſtronomical Tables*. The oldeſt of them are the *Ptolemaick*, found in *Ptolemy*'s *Almageſt*; but theſe no longer agree with the Heavens. In 1252, *Alphonſo* XI, King of *Caſtile*, undertook the correcting them, chiefly by the Aſſiſtance of *Iſaac Azan*, a *Jew*; and ſpent 400,000 Crowns therein. Thus aroſe the *Alphonſine Tables*, to which that Prince himſelf prefix'd a Preface. But their Deficiency was ſoon perceiv'd by *Purbachius* and *Regiomontanus*; upon which, *Regiomontanus*, and after him *Waltherus*, and *Warnerus*, applied themſelves to Celeſtial Obſervations, for the farther amending them; but Death prevented any Progreſs therein.

Copernicus, in his Book of the Celeſtial Revolutions, inſtead of the *Alphonſine Tables*, gives others of his own Calculation, from the latter, and partly from his own Obſervations. From *Copernicus*'s Obſervations and Theories, *Eraſmus Reinholdus* compil'd the *Prunetick Tables*. But *Tycho Brahe*, becoming ſenſible, even in his Youth, of the Deficiency of them, applied himſelf, with a great deal of Aſſiduity, to Celeſtial Obſervations; yet all he gain'd thereby, was, to adjuſt the Motions of the *Sun* and *Moon*; though *Longomontanus*, from the ſame, to the Theories of the ſeveral *Planets* publiſh'd in his *Aſtronomia Danica*, added *Tables* of their Motions, now call'd the *Daniſh Tables*; and *Kepler*, likewiſe, from the ſame, in 1627, publiſh'd the *Rudolphine Tables*, which are, now, much eſteem'd. Theſe were afterwards, *Anno* 1650, turn'd into another Form, by *Maria Cunitia*, whoſe *Aſtronomical Tables*, comprehending the Effect of *Kepler*'s *Phyſical Hypotheſis*, are exceedingly eaſy, and ſatisfy all the *Phænomena*, without any Trouble of Calculation, or any Mention of *Logarithms*; ſo that the *Rudolphine Calculus* is here greatly improv'd.

Mercator made a like Attempt, in his *Aſtronomical Inſtitution*, publiſh'd in 1676; and the like did *J. Baptiſt Marini*, whoſe Abridgment of the *Rudolphine Tables* was prefix'd to a *Latin* Verſion of *Street*'s *Aſtronomia Carolina*, publiſh'd in 1705. *Lanſbergius*, indeed, endeavour'd to diſcredit the *Rudolphine Tables*, and fram'd *Perpetual Tables*, as he calls them, of the Heavenly Motions; but his Attempt was never much regarded by the Aſtronomers; and *Horrox* gave a ſufficient Check to his Arrogance, in his Defence of the *Keplerian Aſtronomy*. Nor was the Authority of the *Rudolphine Tables* impair'd by the *Philolaick Tables* of *Bullialdus*'s *Hypotheſis*; or the *Britannick Tables* of *John Newton*; or the *French* ones of the Count *De Pagan*; or the *Caroline Tables* of *Thomas Street*; all calculated on Dr. *Ward*'s *Hypotheſis*; or the *Novalageſtick Tables* of *Ricciolus*.

The lateſt *Tables* are the *Ludovician*, publiſh'd in 1702, by M. *De la Hire*, wholly from his own Obſervations, and without the Aſſiſtance of any *Hypotheſis*.

We deſign'd to prefix the *Caroline Tables* to this *Treatiſe* of *Aſtronomy*; but as they'll take up ſeveral Sheets of Paper, and conſequently would perhaps appear too tedious, to thoſe of our *Subſcribers* who have no Tincture of *Aſtronomy*; we'll defer publiſhing them, till the latter End of this Work, when the *Subſcribers* will have them Time enough to bind with the reſt of the Book.

The Invention of *Aſtronomy* remains yet a Problem, though *Belus*, King of *Aſſyria*, *Atlas*, King of *Mauritania*, &c. are complimented with having been the firſt Inventors and Cultivators of it. For this Reaſon it is, perhaps, that *Plato* tells us, that it was a *Barbarian* who firſt obſerv'd the *Heavenly Motions*, induced to it by the Clearneſs of the Weather in the *Summer Seaſon*, as in *Egypt* and *Syria*, where the *Stars* are conſtantly ſeen, there being no Rain or Clouds to interrupt the Proſpect. And the Want of this Clearneſs of *Atmoſphere*, the ſame Author lays down as the Reaſon why the *Greeks* came ſo late to the Knowledge of *Aſtronomy*.

Some Authors attribute to the *Chaldeans* the Invention of *Aſtronomy*, as well as of *Aſtrology*; and pretend, that a *Chaldean*, *Aſtronomer*, and *Aſtrologer* are ſynonymous. Others conſider the *antient Hebrews* as the firſt Inventors of *Aſtronomy*; and pretend, that our *Protoplaſtus Adam* applied himſelf to it: Though I am of a different Opinion; for he muſt have done it, while in the Garden, or after he had been expell'd from it. If in the Garden, and in his State of Innocence, what could he have diſcover'd then, of this viſible World, which had not been reveal'd to him by his divine Creator; and could he have any Ambition to penetrate further into the Myſtery of the Creation, than what could contribute toward advancing his temporal Felicity, which was then ſo perfect, as to be impoſſible for him to make the leaſt Addition to it by any new Diſcovery? It muſt be ſuppos'd, that he

knew

knew enough, then, of the *Motion* of the *Heavens*, (which he had all the Reason to believe were form'd for him, and consequently should always move in that just Order establish'd among them, and necessary to cause those *periodical Mutations*, which should always render his transitory Mansion enchanted, and fortunate) to raise his Thoughts from the Admiration of that inimitable Piece of Workmanship, to the Contemplation of the divine Perfections of the great Architect. Why even should we not suppose that *Adam* had by Infusion, and from the first Instant of his Creation, what we have so long attempted in vain to gain by Art, a perfect Knowledge of the *Motions* of the *Heavens*, of the *Number* of the *fixed Stars*, of the *Distances* of the *Planets*, of their *Revolutions*, *Phases*, *Phænomena*, &c. and if not, had it not been a Crime in him to have attempted in the Garden the Discovery of what the *Almighty* had judg'd proper to hide from him? But perhaps he did not become an Astronomer till after he had forfeited his Innocence, and made a sort of Divorce with his Senses and Reason; *i. e.* after his Expulsion from the Garden; which I can scarcely believe, especially when I reflect on that severe Punishment inflicted on him, by his offended Creator, *In sudore vultus tui vesceris Panem*; In the Sweat of thy Brow shalt thou eat thy Bread: Which makes me suppose that he could not spare Time enough to make *astronomical Observations*.

Rudbeck, with more Appearance of Reason, compliments the *Swedes*, in his *Atlantica*, with the Invention of *Astronomy*, founded on the great Diversity in the Length of the Days in that Country, which he supposes must naturally lead the People to conclude the *Earth* round, and that they live near one of its Extremes; and that prompted thereby to enquire further into the great Opposition of Seasons, the *Swedes* soon discover'd that the *Sun* bounds its Progress by a certain Space in the Heavens, *&c.* which *Sentiment* would be more agreeable to Reason, if supported by historical Facts, which are not to be met with.

Porphyry would have the Origin of *Astronomy* traced as far as the Building of *Babel*, and insinuates, perhaps, that *that* monstrous Edifice was erected for an *Observatory*, from whence *Nimrod*, the Projector of the Work, could have easier peep'd into Heaven, (being himself of a very tall Stature) than ever *Cassini* or *Flamsteed* did, even with the Assistance of their most monstrous *Telescopes*. But if the *Almighty* was provok'd at their too great Curiosity, or not, the Truth is, if we believe *Moses*, that he confounded the Understanding of the Astronomers, a Malady, which has been since hereditary, more or less, in the *Family*; though, if we believe *Porphyry*, there were found in *Babylon*, when taken by *Alexander*, *Celestial Observations* for the Space of 1903 Years, which therefore must have commenc'd within 115 Years of the Flood, or 15 Years of the Building of *Babel*.

Achilles Tatius, with far greater Foundation, considers the *Egyptians* as the first Inventors of *Astronomy*, who took Care to have their Knowledge therein transmitted to Posterity, by having it engraven on Columns and Pyramids. *Laertius* informs us, that from the *Egyptians*, *Astronomy* pass'd to the *Greeks*, and that *Thales Milesius* first, about the 19*th Olympiad*, and after him *Eudoxus* and *Pythagoras*, travell'd into *Egypt* to be instructed therein.

Pythagoras, after he had liv'd in a close Community with the *Egyptian* Priests for seven Years, and had been initiated into their Religion, where he was let into the true System of the Universe; pass'd afterward into *Greece* and *Italy*, where he taught the first *Elements* of that curious, though very *intricate Science*. He had made so considerable a Progress in it, that he went further in his Discoveries, than his Masters; for he was the first who placed the *Sun* in the *Center* of the *System*, and made the *Earth* and *Planets* to turn round him. Supposing the *diurnal Motion* of the *Sun* and *fixed Stars* to proceed from the *Earth's Motion* round its own Axis, and consequently apparent only, and not real. After *Pythagoras*, *Astronomy* sunk into Neglect; most of the Observations brought from *Babylon* were lost, and *Ptolemy* could recover but a very small Number of them. However, *Philolaus* and *Aristarchus Samius*, with a few more of his Disciples, continu'd to cultivate *Astronomy*.

It continu'd in that languishing State, till the *Ptolemies*, Kings of *Egypt*, declar'd themselves its Protectors, by erecting an Academy at *Alexandria*, which produc'd several eminent Astronomers; and, among the rest, *Hipparchus*, who undertook to number the *Stars*, and to leave the Heavens as an Inheritance to Posterity. He foretold the *Eclipses*, both of the *Sun* and *Moon*, for 600 Years; and on his *Observations* is founded *Ptolemy*'s Μεγαλησυνταξις.

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Of the *Apogee* of the Sun	3	7	23	30
The mean Motion of the Moon	6	1	35	45
Of the *Apogee* of the Moon	8	4	28	5
Of the Ascending Node of the Lunar Orbit	5	24	14	35
And *Anno* 1700, the last Day of *December*, *O. S.* the mean Motion of the Sun, Merid. is	9	20	43	50
Of the *Apogee* of the Sun	3	7	44	30
The mean Motion of the Moon	10	15	19	50
Of the Moon's *Apogee*	11	8	18	20
Of the Ascending Node	4	27	24	20

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Therefore in 20 *Julian* Years, or 7305 Days, the Motion of the Sun is	20	0	0	9	4
The Motion of the Sun's *Apogee*	0	0	0	21	00
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Of the Moon's *Apogee*	2	3	3	50	15
The Motion of the Node	1	0	26	50	15

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All the above-mention'd Motions are from the Point of the *Vernal Equinox*. But if the Motion, *in antecedentia*, of the *Equinoctial Point* be subtracted from them, *viz.* 16′ 40″, the following Motions will remain, with Respect to the *fixed Stars*, in 20 *Julian* Years, *viz.*

	Rev.	S.	°	′	″
The *Motion* of the *Sun*	19	11	29	52	24
Of the *Sun*'s *Apogee*	0	0	0	4	20
Of the *Moon*	247	4	13	17	25
Of the *Moon*'s *Apogee*	2	3	3	33	35
Of the Node of the *Moon*	1	0	27	6	55
According to this Computation, the	D.	H.	′	″	
Tropical Year is	365	5	48	57	
And the *Sydereal* Year	365	6	9	14½	

These *mean Motions* of the *Moon* (according to Sir *Isaac Newton*) are subject to various Inequalities. 1. There are annual Equations of those above-mention'd; *mean Motions* of the *Sun* and *Moon*; and of the *Apogee* and *Node* of the *Moon*. The annual Equation of the *mean Motion* of the *Sun*, depends on the Eccentricity of the Lunar Orbit round the *Sun*, which is of $16\frac{11}{12}$ Parts of which the mean Distance of the Sun from the Earth is 1000; hence call'd the Equation of the *Center*; which, when the greatest, is 1° 56′ 20″.

The greatest annual Equation of the *Moon*, is 11′ 49″; of her *Apogee*, 20′; and of her *Node*, 9′ 30″. These four annual Equations are always proportionable among themselves; so if one of them be greatest, the other three will also be greatest; and if one be diminish'd, the other three are likewise diminish'd: Whence the annual Equation of the Sun's *Center* being given, the other three Equations are given likewise, as it appears by the Table. For if the annual Equation of the *Center* of the Sun agreeable to what Time soever, taken from thence, be call'd P, and makes $\frac{1}{10}$ P = Q. Q + $\frac{1}{60}$ Q = R, $\frac{1}{6}$ P = D, D + $\frac{1}{30}$ D = E, and D − $\frac{1}{60}$ D = 2 F: The annual Equation of the *Moon* answering to that Time, will be R, of the Lunar *Apogee* E; and of the *Node* F. Let it be observ'd, that if the Equation of the Sun's *Center* is to be added, the abovemention'd Equation of the *Moon* is to be subtracted, the Equation of the Lunar *Apogee* added, and the Equation of the *Node* subtracted. On the contrary, if the Equation of the Sun's *Center* is to be subtracted, the Equation of the *Moon* shall be added, that of the *Apogee* subtracted, and that of the *Node* added.

There is another Equation of the mean Motion of the *Moon*, (continues Sir *Isaac*) depending on the Situation of the Lunar *Apogee* with Respect to the *Sun*, which is greatest when the *Moon*'s *Apogee* is in an Octant with the *Sun*, and vanishes, when it arrives at the *Syzygies*, or *Quadratures*. This Equation, when greatest, rises to 3′ 52″, the *Sun* being then in *Perigeo*; but if the *Sun* be in *Apogeo*, it goes no further than 3′ 34″. In the other Distances of the Sun from the Earth, this Equation is reciprocally greatest, as the Cube of that Distance. But when the Moon's *Apogee* is beyond the Octants, the said Equation grows less; and is to the greatest, suppos'd the same Distance of the Earth and Sun, as the Sines of the duple Distance of the Lunar *Apogee* from the *Syzygy*, or Quadrature, to the Radius. This is added to the Motion of the *Moon*, when the *Moon*'s *Apogee* passes from the Quadrature of the *Sun* to the *Syzygy*, and subtracted in the Passage of the *Apogee* from the *Syzygy* to the Quadrature.

There is likewise another Equation of the *Moon*'s Motion, depending on the Aspect of the *Nodes* of the Lunar Orbit with the *Sun*; and is greatest when the *Nodes* are in the Octants of the *Sun*, but vanishes when they call at the *Syzygies*, or at the Quadrate Aspect. This Equation is proportional to the *Sine* of the duple Distance of the *Node* from the next *Syzygy*, or Quadrature; and when the greatest, rises to 47″. This is added to the Motion of the *Moon*, when the *Nodes* pass from the *Syzygies* of the *Sun* to his Quadratures; and subtracted, in their Passage from the Quadratures to the *Syzygies*.

Take off, says again the same Author, the *mean Motion* of the *Moon*'s *Apogee*, equated as above, from the true Place of the *Sun*, the Remains will be the *annual Argument* of the said *Apogee*.

Having form'd of these Principles (proceeds Sir *Isaac*) a Table of Equations of the *Apogee* of the *Moon*, and of the Eccentricities of her Orbit, to every Degree of the annual Argument, to the Place of the *Moon*'s *Apogee*, first adequated, as above; let be added the Equation lately found, if the annual Argument be less than 90°, or greater than 180°; but if less than 270°, let it be subtracted: The Sum or Difference of the Lunar *Apogee*, equated a second Time; which subtracted from the *Moon*'s Place, equated a third Time, there remains the *mean Anomaly* of the *Moon* answering to the Time given. Moreover, from this *mean Anomaly* of the *Moon*, and the Eccentricity of the Orbit, we'll have a *Prostapheræsis*, or Equation of the *Moon*'s *Center*.

The greatest Variation of the *Moon*, (says he) *viz.* that which happens when the *Moon* is in the Octants of the Sun, is almost reciprocally as the Cube of the Distance of the Sun from the Earth. Let it be taken 37′ 25″, while the Sun is in *Perigeo*; and 33′ 4″ while in *Apogeo*; and let the Difference of that Variation in the Octants be reciprocally as the Differences of the Cubes of the Distances of the Sun from the Earth, and from thence let a Table be made of the said Variation of the *Moon* in the Sun's Octants, to every ten, six, or five Degrees of the mean Anomaly; and for the Variation beyond the Octants; let it be as a Radius to the Sine of the duple Distance of the *Moon* from the next *Syzygy*, or Quadrature. Thus the Variation above found in the Octant, to the Variation answering to the Aspect given; which added to the Place of the *Moon* above found, in the first and third Square, (computing from the Sun) or subtracted from the same, shews, in the second and fourth, the Place of the *Moon* fifthly equated.

Again, as the Radius is to the Sine of the Sum of the Distances of the *Moon* from the Sun, and of the *Apogee* of the *Moon* from the *Apogee* of the Sun, (or to the Sine of the Excess of that Sum above 360°); so is 2′ 10″ to the sixth Equation of the Place of the *Moon*; to be subtracted, if the aforesaid Sum, or the Excess, be less than a Semicircle; and added, if greater. Let also the Radius be to the Sine of the Distance of the *Moon* from the Sun, as 2′ 20″ to the seventh Equation; this take off, when the Light of the *Moon* increases; and add, when it diminishes; and the Place of the *Moon* will come out equated for the seventh Time, which is her Place in her proper Orbit. This is to be observ'd, that the Equation, here brought through the *mediocre* Quantity 2′ 20″, is not always of the same Magnitude, but is increas'd and diminish'd, according to the Situation of the *Moon*'s *Apogee*; for if the Lunar *Apogee* had been in Conjunction with the Sun's *Apogee*, the aforesaid Equation is very near 54″ greater, and as much less, if in Opposition; and it *librates*, or wavers, between the great Quantity, 3′ 14″, and the less Quantity, 1′ 26″.

If the sixth and seventh Equations be increas'd or diminish'd in the reciprocal *Ratio* of the *Moon*'s Distance from the Earth, *i. e.* in the direct *Ratio* of the horizontal *Parallax* of the *Moon*, they'll become more exact.

From the true Place of the Sun, take off the mean Motion of the Ascending Node of the *Moon*, equated as above; what remains, will be the annual Argument of the *Node*. *Newton* reckons the horizontal *Parallax* of the *Moon*, in the *Syzygies*, at a mean Distance from the Earth, 57′ 30″. The horary Motion, 33′ 32″ 32‴, and the apparent Diameter 31′ 30″. But in the Quadratures, at a mean Distance from the Earth, he reckons the *Parallax* 56′ 40″, the horary Motion 32′ 12″ 2‴, and the apparent Diameter 31′ 3″. The

knew enough, then, of the *Motion* of the *Heavens*, (which he had all the Reason to believe were form'd for him, and consequently should always move in that just Order establish'd among them, and necessary to cause those *periodical Mutations*, which should always render his transitory Mansion enchanted, and fortunate) to raise his Thoughts from the Admiration of that inimitable Piece of Workmanship, to the Contemplation of the divine Perfections of the great Architect. Why even should we not suppose that *Adam* had by Infusion, and from the first Instant of his Creation, what we have so long attempted in vain to gain by Art, a perfect Knowledge of the *Motions* of the *Heavens*, of the *Number* of the *fixed Stars*, of the *Distances* of the *Planets*, of their *Revolutions*, *Phases*, *Phænomena*, &c. and if not, had it not been a Crime in him to have attempted in the Garden the Discovery of what the *Almighty* had judg'd proper to hide from him? But perhaps he did not become an Astronomer till after he had forfeited his Innocence, and made a sort of Divorce with his Senses and Reason; *i. e.* after his Expulsion from the Garden; which I can scarcely believe, especially when I reflect on that severe Punishment inflicted on him, by his offended Creator, *In sudore vultus tui vesceris Panem*; In the Sweat of thy Brow shalt thou eat thy Bread: Which makes me suppose that he could not spare Time enough to make *astronomical Observations*.

Rudbeck, with more Appearance of Reason, compliments the *Swedes*, in his *Atlantica*, with the Invention of *Astronomy*, founded on the great Diversity in the Length of the Days in that Country, which he supposes must naturally lead the People to conclude the *Earth* round, and that they live near one of its Extremes; and that prompted thereby to enquire further into the great Opposition of Seasons, the *Swedes* soon discover'd that the *Sun* bounds its Progress by a certain Space in the Heavens, *&c.* which *Sentiment* would be more agreeable to Reason, if supported by historical Facts, which are not to be met with.

Porphyry would have the Origin of *Astronomy* traced as far as the Building of *Babel*, and insinuates, perhaps, that *that* monstrous Edifice was erected for an *Observatory*, from whence *Nimrod*, the Projector of the Work, could have easier peep'd into Heaven, (being himself of a very tall Stature) than ever *Cassini* or *Flamsteed* did, even with the Assistance of their most monstrous *Telescopes*. But if the *Almighty* was provok'd at their too great Curiosity, or not, the Truth is, if we believe *Moses*, that he confounded the Understanding of the Astronomers, a Malady, which has been since hereditary, more or less, in the *Family*; though, if we believe *Porphyry*, there were found in *Babylon*, when taken by *Alexander*, *Celestial Observations* for the Space of 1903 Years, which therefore must have commenc'd within 115 Years of the Flood, or 15 Years of the Building of *Babel*.

Achilles Tatius, with far greater Foundation, considers the *Egyptians* as the first Inventors of *Astronomy*, who took Care to have their Knowledge therein transmitted to Posterity, by having it engraven on Columns and Pyramids. *Laertius* informs us, that from the *Egyptians*, *Astronomy* pass'd to the *Greeks*, and that *Thales Milesius* first, about the 19*th Olympiad*, and after him *Eudoxus* and *Pythagoras*, travell'd into *Egypt* to be instructed therein.

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All the above-mention'd Motions are from the Point of the *Vernal Equinox*. But if the Motion, *in antecedentia*, of the *Equinoctial Point* be subtracted from them, *viz.* 16′ 40″, the following Motions will remain, with Respect to the *fixed Stars*, in 20 *Julian* Years, *viz.*

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The greatest annual Equation of the *Moon*, is 11′ 49″; of her *Apogee*, 20′; and of her *Node*, 9′ 30″. These four annual Equations are always proportionable among themselves; so if one of them be greatest, the other three will also be greatest; and if one be diminish'd, the other three are likewise diminish'd: Whence the annual Equation of the Sun's *Center* being given, the other three Equations are given likewise, as it appears by the Table. For if the annual Equation of the *Center* of the Sun agreeable to what Time soever, taken from thence, be call'd P, and makes $\frac{1}{10}$ P = Q, Q + $\frac{1}{60}$ Q = R, $\frac{1}{6}$P = D, D + $\frac{1}{30}$ D = E, and D − $\frac{1}{60}$ D = 2 F: The annual Equation of the *Moon* answering to that Time, will be R, of the Lunar *Apogee* E; and of the *Node* F. Let it be observ'd, that if the Equation of the Sun's *Center* is to be added, the abovemention'd Equation of the *Moon* is to be subtracted, the Equation of the Lunar *Apogee* added, and the Equation of the *Node* subtracted. On the contrary, if the Equation of the Sun's *Center* is to be subtracted, the Equation of the *Moon* shall be added, that of the *Apogee* subtracted, and that of the *Node* added.

There is another Equation of the mean Motion of the *Moon*, (continues Sir *Isaac*) depending on the Situation of the Lunar *Apogee* with Respect to the *Sun*, which is greatest when the *Moon*'s *Apogee* is in an Octant with the *Sun*, and vanishes, when it arrives at the *Syzygies*, or *Quadratures*. This Equation, when greatest, rises to 3′ 52″, the *Sun* being then in *Perigæo*; but if the *Sun* be in *Apogæo*, it goes no further than 3′ 34″. In the other Distances of the Sun from the Earth, this Equation is reciprocally greatest, as the Cube of that Distance. But when the Moon's *Apogee* is beyond the Octants, the said Equation grows less; and is to the greatest, suppos'd the same Distance of the Earth and Sun, as the Sines of the duple Distance of the Lunar *Apogee* from the *Syzygy*, or Quadrature, to the Radius. This is added to the Motion of the *Moon*, when the *Moon*'s *Apogee* passes from the Quadrature of the *Sun* to the *Syzygy*, and subtracted in the Passage of the *Apogee* from the *Syzygy* to the Quadrature.

There is likewise another Equation of the *Moon*'s Motion, depending on the Aspect of the *Nodes* of the Lunar Orbit with the *Sun*; and is greatest when the *Nodes* are in the Octants of the *Sun*, but vanishes when they call at the *Syzygies*, or at the Quadrate Aspect. This Equation is proportional to the *Sine* of the duple Distance of the *Node* from the next *Syzygy*, or Quadrature; and when the greatest, rises to 47″. This is added to the Motion of the *Moon*, when the *Nodes* pass from the *Syzygies* of the *Sun* to his Quadratures; and subtracted, in their Passage from the Quadratures to the *Syzygies*.

Take off, says again the same Author, the *mean Motion* of the *Moon*'s *Apogee*, equated as above, from the true Place of the *Sun*, the Remains will be the *annual Argument* of the said *Apogee*.

Having form'd of these Principles (proceeds Sir *Isaac*) a Table of Equations of the *Apogee* of the *Moon*, and of the Eccentricities of her Orbit, to every Degree of the annual Argument, to the Place of the *Moon*'s *Apogee*, first adequated, as above; let be added the Equation lately found, if the annual Argument be less than 90°, or greater than 180°; but if less than 270°, let it be subtracted: The Sum or Difference of the Lunar *Apogee*, equated a second Time; which subtracted from the *Moon*'s Place, equated a third Time, there remains the *mean Anomaly* of the *Moon* answering to the Time given. Moreover, from this *mean Anomaly* of the *Moon*, and the Eccentricity of the Orbit, we'll have a *Prostapheræsis*, or Equation of the *Moon*'s *Center*.

The greatest Variation of the *Moon*, (says he) *viz.* that which happens when the *Moon* is in the Octants of the Sun, is almost reciprocally as the Cube of the Distance of the Sun from the Earth. Let it be taken 37′ 25″, while the Sun is in *Perigæo*; and 33′ 4″ while in *Apogæo*; and let the Difference of that Variation in the Octants be reciprocally as the Differences of the Cubes of the Distances of the Sun from the Earth, and from thence let a Table be made of the said Variation of the *Moon* in the Sun's Octants, to every ten, six, or five Degrees of the mean Anomaly; and for the Variation beyond the Octants; let it be as a Radius to the Sine of the duple Distance of the *Moon* from the next *Syzygy*, or Quadrature. Thus the Variation above found in the Octant, to the Variation answering to the Aspect given; which added to the Place of the *Moon* above found, in the first and third Square, (computing from the Sun) or subtracted from the same, shews, in the second and fourth, the Place of the *Moon* fifthly equated.

Again, as the Radius is to the Sine of the Sum of the Distances of the *Moon* from the Sun, and of the *Apogee* of the *Moon* from the *Apogee* of the Sun, (or to the Sine of the Excess of that Sum above 360°); so is 2′ 10″ to the sixth Equation of the Place of the *Moon*; to be subtracted, if the aforesaid Sum, or the Excess, be less than a Semicircle; and added, if greater. Let also the Radius be to the Sine of the Distance of the *Moon* from the Sun, as 2′ 20″ to the seventh Equation; this take off, when the Light of the *Moon* increases; and add, when it diminishes; and the Place of the *Moon* will come out equated for the seventh Time, which is her Place in her proper Orbit. This is to be observ'd, that the Equation, here brought through the *mediocre* Quantity 2′ 20″, is not always of the same Magnitude, but is increas'd and diminish'd, according to the Situation of the *Moon*'s *Apogee*; for if the Lunar *Apogee* had been in Conjunction with the Sun's *Apogee*, the aforesaid Equation is very near 54″ greater, and as much less, if in Opposition; and it *librates*, or wavers, between the great Quantity, 3′ 14″, and the less Quantity, 1′ 26″.

If the sixth and seventh Equations be increas'd or diminish'd in the reciprocal *Ratio* of the *Moon*'s Distance from the Earth, *i. e.* in the direct *Ratio* of the horizontal *Parallax* of the *Moon*, they'll become more exact.

From the true Place of the Sun, take off the mean Motion of the Ascending Node of the *Moon*, equated as above; what remains, will be the annual Argument of the *Node*. *Newton* reckons the horizontal *Parallax* of the *Moon*, in the *Syzygies*, at a mean Distance from the Earth, 57′ 30″. The horary Motion, 33′ 32″ 32‴, and the apparent Diameter 31′ 30″. But in the Quadratures, at a mean Distance from the Earth, he reckons the *Parallax* 56′ 40″, the horary Motion 32′ 12″ 2‴, and the apparent Diameter 31′ 3″. The

Moon's *Center* at a mean Diſtance in the Sun's Octant, he'll have diſtant from the *Center* of the Earth, as 6° $\frac{2}{9}$ of the Earth's Semidiameters. He reckons the Sun's horizontal *Parallax* 10″, and his apparent Diameter in the mean Diſtance from the Earth, 32′ 15″.

The Earth's *Atmoſphere*, in breaking and diſſipating the *Moon*'s Light, throws a Shadow, as if it was opake, at the Altitude at leaſt of 40 or 50 geographical Miles (he calls a geographick Mile the ſixtieth Part of a Degree of the great Circle on the Earth's Superficy); this Shadow falling on the *Moon*, in a Lunar *Eclipſe*, increaſes the Shadow of the Earth, and to every Mile of the Earth's *Atmoſphere* anſwers every Second in the *Moon*'s Diſk; therefore the Semidiameter of the Earth's Shadow thrown into the *Moon*'s Diſk, is to be augmented very near 50 Seconds. This is a general Idea of Sir *Iſaac Newton*'s *Theory* of the *Moon*.

Mr. *Flamſteed*, upwards of 40 Years, watch'd the Motions of the *Stars*, and has given us a great Number of curious Obſervations of the Sun, Moon, and Planets, beſides a *Catalogue* of 3000 fix'd Stars; which are more than double the Number in that of *Hevelius*.

Aſtronomy, with Reſpect to its different States, is divided into Old and New *Aſtronomy*. *Claudius Ptolemy*, who died *A. D.* 147. has given a very perfect Deſcription of the Old, or Antient *Aſtronomy*, in his Μεγαλη Συνταξις, an Epitome whereof was made, for the Learners, by *Purbachius* and *Regiomontanus*, in 1550, containing the whole Doctrine of the heavenly Motions, their Magnitudes, Eclipſes, &c.

Copernicus is conſider'd as the Inventor or Founder of the New *Aſtronomy*, in his ſix Books of the *Celeſtial Revolutions*, publiſh'd in 1566. The *Aſtronomers* of Note, who have wrote according to *Copernicus*'s Syſtem, are, *Kepler*, in his Commentaries of the Motions of *Mars*, publiſh'd in 1609. *Bullialdus*'s *Aſtronomia Philolaica*, publiſh'd in 1645. *Ward*'s *Aſtronomia Geometrica*, publiſh'd in 1656. *Wingate*'s *Aſtronomia Britannica*, publiſh'd in 1669. *Newton*'s *Aſtronomia Britannica*, publiſh'd in 1657. And *Street*'s *Aſtronomia Carolina*, in 1661.

We have, in *Ricciolus*'s *Almageſtam Novum*, publiſh'd in 1657, the ſeveral Hypotheſes of all the *Aſtronomers*, antient, as well as modern; and in *Gregory*'s *Elementa Aſtronomiæ Phyſicæ & Geometricæ*, in 1702, the whole modern *Aſtronomy*, as founded on the Diſcoveries of *Copernicus*, *Kepler*, and Sir *Iſaac Newton*.

ATHEISM.

ATHEISM, is a ſacrilegiouſly preſumptuous Doctrine, or rather blaſphematory Extravagance, invented by the Father of Falſhood, on purpoſe to perſuade Mankind to deny the Exiſtence of a ſupreme Being, and of a Providence.

There are two Sorts of *Atheiſm*, one Speculative, and the other Practical.

The ſpeculative *Atheiſm* is that founded on Principles and Theory. And the practical *Atheiſm* has for its Origin, Vice, Debauchery, Immorality, and Irreligion; which make thoſe abandon'd to it wiſh there was no God, to puniſh their Crimes, or to reward the Virtue of thoſe, who by their exemplary and religious Life confeſs his Exiſtence.

Thoſe two Sorts of *Atheiſm* have been cenſur'd in all Ages, and under all Sorts of Religions, not only as injurious to that omnipotent, ſupreme, and eternal Being, who has form'd the World of Nothing; but alſo as contrary to Reaſon, and to thoſe juſt Sentiments of Gratitude we are oblig'd to expreſs to the divine Providence, for our Exiſtence, and for the particular Care ſhe takes of our Preſervation; ſince was ſhe to forget, for a ſingle Moment, that we are the Work of her Hands, at that very Inſtant we ſhould return into our former Nothing.

Plato diſtinguiſhes three Kinds of *Atheiſts*; ſome who deny abſolutely that there are any Gods. Others who allow the Exiſtence of Gods, but maintain that they do not concern themſelves with human Affairs, and ſo deny a Providence. And others, who believe there are Gods, but think that they remit the greateſt Crimes for the ſmalleſt Supplication; though, in my Opinion, this laſt Claſs are not properly *Atheiſts*, but only a Sect of *Libertines*, who to ſilence the ſevere Reproaches of their Conſcience, againſt the Diſorders of a licentious, diſſolute, perhaps very criminal Life; and the firſt Rudiments of Religion they were inſtructed in, in their Infancy, which repreſented God as a juſt and impartial Judge, rewarding Virtue, and puniſhing Vice with the greateſt Severity, being not perhaps yet quite obliterated in their Memory, they endeavour to mitigate that Severity, and repreſent it to themſelves as extremely exaggerated by their firſt Tutors. They know that there is a God; they confeſs that he is to be their Judge, and to call them to a juſt Account for all the Actions of their Lives; but they would diveſt him, if they could, of one of his chief, or principal Attributes, Juſtice: They will offend him, and would do it with Impunity, and without his being ſenſible of the Offence.

Thoſe of the ſecond Claſs, who would perſuade us that they have the moſt high, advantageous, and perfect Idea of the *Divinity*, are not neither to be conſider'd as *Atheiſts*, and are very little different from thoſe of the laſt Claſs; for if there is any among them, it is only in the Choice they make of a different Attribute, to indulge themſelves in their Extravagancies, Diſorders, and Licentiouſneſs: For they both confeſs the Exiſtence of a God; they both acknowledge in him thoſe divine Attributes which are peculiar to a ſupreme, eternal, and incomprehenſible Being: But the one relies on his Clemency, Compaſſion, and Manſuetude; and the other on the Sublimity of his divine Apprehenſion, far above the Care of this tranſitory World. Theſe would have him entirely buried in the Contemplation of his divine Attributes, in which conſiſts his Divinity, (the inexhauſtible Source of that unalterable Felicity the Bleſſed enjoy in the celeſtial Manſions) without minding trifling Affairs, and the inſignificant Actions of Creatures infinitely beneath his Attention, who can neither advance his Glory, nor offend him: And thoſe, on the contrary, would have him mind his Creatures, ſo far, as to conſider all their Offences as Infirmities inſeparable from the vitiated Origin of human Nature; and, as ſuch, excuſe them.

Therefore there are, in Fact, no *Atheiſts*, but thoſe of the firſt Claſs; though the greateſt Part of our *Theologians* are of Opinion, that there can be no *Atheiſts*; and that thoſe who pretend to be ſuch, are only affected ones; ſince we have all within us an innate Idea of the *Divinity*, which can be prov'd, by that natural Inclination we have, as ſoon as we begin to know our ſelves, of adoring a *ſupreme Being*, under ſome Form or other. Ever ſince the *Creation*, under both Hemiſpheres, and as far as the remoteſt Climates, amidſt the ſcorching Sands of *Africa*, and the vaſt and dark Foreſts of *America*; there have been found Men, who, though diſtinguiſh'd from the Brutes but by a ſmall Glimmering of Senſe and Reaſon, and barren, and uncultivated, as their Fields; have liſten'd to the imperfect Dictates of that Reaſon, which could perſuade them that there was ſomething above their Apprehenſion, who had a Superintendency over all *created Beings*, and who kept all ſublunary Things in that Regularity, and juſt Harmony, which

which subsisted among them, and, as such, claim'd their Adoration. But as those Ideas of a *Divinity* were too confus'd, too imperfect, and too much wrapp'd up in the Senses, for to be rais'd to the Contemplation of the divine Object they seem'd to be design'd for; those ignorant Men look'd round about them, for one, among the visible ones, who could deserve that religious Care: And finding the *Sun* and *Moon* the most incomprehensible of all visible Things, their *periodical Motions*, their *Radiancy*, and *Situation*, above all other *created Beings*, to be something *miraculous*, and *divine*; they prostrated themselves before them: But then, though mistaken in the Object, they were not in their Intentions; which prov'd that they knew there was a God, though they were ignorant where he was, and who he was.

To this Notion, or Idea of the Existence of a supreme Being, must agree all those, who are willing to declare freely and candidly their real Sentiments; for then they are oblig'd to confess that there is a spiritual and simple Substance, existent by it self, eternal, immense, infinite, omnipotent, all-seeing, all-containing, governing, and giving Motion to all Things. Had *Protagoras* and *Diagoras* (who, according to *Tullius*, *lib.* 1. *De Natur. Deorum*, were charg'd with being profess'd *Atheists*) been ask'd, Who was he whose Existence they denied, they must have answer'd, *God*, or a spiritual Substance, perfectly simple, perfectly eternal, immense, and infinitely perfect; which must be the common Notion of all rational Beings, which the *Epicureans* have attempted to obliterate in our Imaginations, by representing *God* as an extended Substance; and, among the rest, *Spinosa*, an *Atheist* of our Time, who being born at *Amsterdam*, among the *Jews*, profess'd, at first, the *Jewish* Religion, and the *Christian* afterwards, though both in Appearance only: At last, by a just Judgment of God, as it happens always to those, who, though they know him, do not serve him as they ought, renounced all Sorts of Religion, infatuated with the extravagant Ideas he had form'd to himself, contrary to those he was born with, of a supreme Being, he began to teach that there is nothing properly and absolutely existing but Matter, and the Modification of Matter; among which are even comprehended Thoughts, abstract and general Ideas, Comparisons, Relations, Combinations of Relations, *&c.* That God is not, as we imagine, an infinite, intelligent, happy, and perfect Being, nor any Thing but that natural Virtue, or Faculty, which is diffus'd throughout all Creatures; and though he be the Cause of all Things that exist, he is not, however, different from them. That there is but one Being, and one Nature; and that this Nature produces within it self, by an immanent Act, all those which we call Creatures; and that this Being is, at the same Time, both Agent and Patient, efficient Cause and Subject; but that he produces nothing of himself, but Modifications.

Spinosa could not conceive either that Matter is eternal, and different from God, or that it could be produc'd from nothing, or that an infinite and free Being could have made a World such as this is. He thought that a Matter which exists necessarily, and which, nevertheless, is void of Activity, and subject to the Power of another Principle, is an Object that startles our Understanding, as there seems no Agreement between the three Conditions. He suppos'd, that a Matter created out of nothing is no less inconceivable, whatever Efforts we make to form an Idea of an Act of the Will, that can change what before was nothing, into real Substance, besides its being contrary to that known Maxim of Philosophers, *Ex nihilo nihil fit.* Neither could he imagine that an infinitely good, holy, free Being, who could have made his Creatures good, and happy, should rather chuse to have them wicked, and eternally miserable; and the rather, as it seems difficult to reconcile the Freedom of Man with the Quality of being made out of nothing. From this he concluded, in his Treatise *Theologico Politicus*, that all Religions are only political Engines, calculated for the publick Good; to render the People obedient to Magistrates, and to make them practise Virtue and Morality. He endeavours to shew, in the same Treatise, that the *Pentateuch* is not the Work of *Moses*; and has also his particular Sentiments, as to the Authors of the other Books. This Treatise, *Theologico Politicus*, printed at *Hambourg* in 1670, was condemn'd by a Publick Decree of the States of *Holland*, though it has since been sold publickly, and even reprinted, both in *Latin* and *French*, in that Country, and lately in *English* at *London*.

Those who have attempted to refute *Spinosa*'s Doctrine, are, *Witsius*, in *Holland*; *Majus*, in *Germany*; *De la Motte*, in *England*; *Bredenbourg*, *Velthuysius*, *De Verse*, *Poiret*, *Wittichius*, *Lami*, *Jaquelot*, *Jens*, *Colorus*, *Jenichen*, *Budeus*, and *Fabricius*.

Therefore leaving to those Authors the Care of rooting out a Doctrine so contrary to that innate Notion we should have of the Existence of a supreme Being; we'll proceed on the most convincing Proofs of that innate Idea. *Tertullian Apologet. c.* 17. proves God's Existence, from this natural Testimony of our Soul. *Quæ licet*, says he, *carcere corporis pressa, licet institutionibus pravis circumscripta, licet libidinibus & concupiscentiis evigcrata, licet falsis diis exancillata; cum tamen resipiscit, ut ex crapula, ut ex somno, ut ex aliquâ valetudine, & sanitatem suam patitur, deum nominat, hoc solo, quia propriè verus hic unus Deus bonus & magnus. O testimonium animæ naturaliter Christianæ! denique pronuntians hæc, non ad Capitolium, sed ad Cœlum respicit; novit enim sedem Dei vivi; ab illo & inde descendit: i. e.* Which although incarcerated in the Body, though vitiated in her Principles, or weaken'd by Luxury and Debauchery; though enslav'd by false Divinities, when she returns to perfect Understanding, or from a Debauch, or awaking from Sleep, or when recover'd from a Malady, or afflicted by one, names GOD, for no other Reason, but because this true and only *God* is good and great. O Testimony of a Soul naturally *Christian!* Lastly, When he pronounces these Words, he does not turn himself towards the *Capitol*, but towards Heaven, which he knows to be the Seat of the living GOD, and that he came from him, and from thence.

To this, those who deny this natural or innate Idea of the Divinity, object, that an Idea or Notion acquired by our Senses is not natural, and that that Notion of a supreme Being is acquired with the Assistance of our Senses is evident from St. *Paul*'s Testimony, *Rom. c.* i. *v.* 20. *For the invisible Things of him from the Creation of the World are clearly seen, being understood by the Things that are made, even his eternal Power and Godhead.*

The Answer to this Objection is, that the visible Things meant by the Apostle help us towards assisting us in the Acquisition of a Knowledge of the invisible ones occasionally; *i. e.* by exciting within us the innate Idea we have of a supreme Being, but not as the original Causes of that Knowledge, since neither our Reason, nor the visible Things, could by themselves, and without the Assistance of that Idea, represent to our Imagination an invisible *God.* For if we were to acquire an Idea of God from the Perception of Things visible, we certainly should form it of the Perfections inherent in those visible Things, as from the Radiancy of the Sun and Stars, from the Heat of the Fire, the Whiteness of the Snow, *&c.* But it is impossible we could form an Idea of the Divinity of those Perfections, else we should conceive God, radiant like the Sun, hot like the Fire, white like the Snow, *&c.* which would be an Absurdity; therefore we do not draw that Idea of God from the Perception of sublunary Things, as from its Source or Origin, notwithstanding what *Gassendi* pretends, *prim. Part. institu. Logi.* c. 3. that such Notion proceeds from our Senses, or by Composition or Adunation of several Ideas together; or by Ampliation or Imminution;

nution; or else by Translation and Accommodation.

1. It cannot be by Composition or Adunation of several Ideas together, like the Idea of a golden Mountain is composed of the separated Ideas of a Mountain, and of Gold, since several imperfect Ideas put together cannot represent a Thing perfect. 2. Nor by Ampliation or Imminution of the Idea of Things sensible, as when we conceive a Giant from an Infant, or an Infant from a Giant; for in this only an Infant and a Giant agree, that they are both Partakers of some Extension, of which we have a natural Idea; but God is not susceptible of, or rather subject to Extension, his being a spiritual, not a corporal Substance, else he would not be infinitely Perfect. 3. Not by Translation, or Accommodation, as when from the Flight of some small Birds we imagine the Onset of two Armies, since there is no Relation between Things corporal and imperfect, and those which are spiritual and perfect; therefore an Idea of the Divinity cannot be acquired by the single Attestation of our Senses.

Nether can it be further objected, that God is vulgarly represented under the Form of a venerable old Man, with no other Design, but that we should acquire, with the Help of our Senses, a Notion of his Eternity, that it is for that Reason *Daniel* calls him, *c.* vii. *v.* 9. *Antiquus Dierum*; for if it was so, he should be also conceived as a Fire, because he appeared to *Moses* in *Flamma Ignis de Medio Rubi. Exod. c.* iii. *v.* 2. and the Holy Ghost, understood as a Column or a fiery Tongue, because he has appeared in those Shapes, *Matt. c.* iii. *v.* 16. and *Acts Apost. c.* ii. *v.* 3.

Some are of Opinion that we cannot have a Notion of the infinite Perfections of God, without supposing him free from those Imperfections, which our Senses inform us we are Subjects to; which is an Error, since we do not know ourselves imperfect, but because we have within us an innate Idea of Perfection, from which we are sensible, we have the Misfortune to deviate much. For that Reason we pronounce our Body an imperfect Being, with Respect to our Soul, which we know perfectly well to be far more perfect. But we know nothing in the whole Creation more perfect than our Soul, therefore we could not believe it imperfect, if we had not a Notion of Perfection quite different, or rather independent of our Senses; and as we are convinced that our Soul is very far from being all Perfection, it is evident that we have an Idea of another Being, who must have all those Perfections, we know our intellectual Substance is a Stranger to.

Some would be ready enough to conclude, that if this Doctrine was true, there should be no *Atheists*; and in Fact there are none but voluntary ones; I mean those, who refuse obstinately to consult their innate Idea of the Divinity, or to have that Idea excited by the Contemplation of Things created and visible. Some of those, though they know God, because they will not glorify him as God, are abandoned to the Extravagancy of their vitiated Imagination, so far as to attempt at last to blot out of their Imagination that innate Idea of the Divinity, and to persuade themselves that all that happens in this World is to be attributed to Fate and Nature. Such were the *Epicureans* of past Ages, and such are those of the present Times.

But however we must not conclude, that because we have an innate Idea of the Divinity, or a distinct and clear Knowledge of a perfect Being, God is not above our Apprehension, since 'tis impossible for our intellectual Faculty to discover all his Perfections; though it does not result from thence, that we cannot have an Idea of an infinite Being, such as God is represented to be; since by *Infinite* is understood a Thing which has no Limits, or a Thing supreme, to which nothing can be added, even by Thought or Imagination; but we must be convinced, by only consulting our Reason, that we know what is to be without Limit, and what cannot be augmented by any Addition whatever; for we know very well that nothing can be added to a Being infinitely perfect, else he could not be infinitely perfect; we know likewise that neither a Body can be infinite, since there is no Number, let it be ever so great, which could not be augmented by Imagination; nor a Body ever so extended, whose Extension could not be protracted farther; therefore we have a clear and distinct Notion of the Infinite; not by a Negation of the Finite, as some have imagined, since we rather know it by some Diminution of the Infinite, as some determinate Being, or a Part of a Being, which we are obliged to take off, or abstract from that Being (which we understand without Limits) before we can be capable to gain a just Notion of a Thing finite, therefore we must know the Infinite before the Finite; and not by a Negation of the Infinite.

A third Objection against the innate Idea of a Divinity, is that, if we had that Idea, we should have a perfect Knowledge of *God*, contrary to the Sentiment of all the Theologians, and of St. *Thomas* in particular, who says, *prim. Part. Quest.* 2. *Art.* 1. *Nos non scimus de Deo quid est*; *i. e.* We do not know what *God* is; and that therefore we have no Idea of *God*, or if we have any, it cannot be a natural one, but only what can result from what we have learned from our Parents, School-Masters, and others.

The Answer to this Objection is, that the innate Idea we have of *God*, though clear and distinct, is nevertheless but an imperfect one; because it contains Attributes particular to God alone, and by which he is distinguished from all other Beings. For Example, this natural Idea don't give us an entire and perfect Notion of the Trinity of the Persons in one Nature; nor of the Generation of the Word from the Father; nor of the Procession of the Holy Ghost from the Father and Son, and is very deficient from the Plenitude of a Being infinitely perfect; therefore, in that Sense we rather conceive what *God* is not, than what he is; according to St. *Augustin*, in *Psalm* lxxxv. *Numb.* xii. *Deus ineffabilis est*, says he, *facilius dicimus quid non sit quam quid sit. Terram cogitas, non est hoc Deus: Mare cogitas, non est hoc Deus: Omnia quæ sunt in Terrâ, Homines & Animalia, non est hoc Deus: Omnia quæ sunt in Mari, quæ volant per aerem, non est hoc Deus: Quidquid lucet in Cœlo, Stellæ, Sol, & Luna, non est hoc Deus: Ipsum Cœlum, non est hoc Deus: Angelos cogita, Virtutes, Potestates, Archangelos, Thronos, Sedes, Dominationes, non est hoc Deus. Et quid est? Hoc solum potui dicere quid non sit. i. e. God* is ineffable; it is easier to say what he is not, than what he is: You imagine the Earth, that's not God: The Sea, that's not God: All that is upon the Earth, Men and Beasts, that's not God: All that swim in the Sea, or fly in the Air, that's not God: All that shines in the Heavens, the Stars, Sun, and the Moon, that's not God: The Heavens themselves, that's not God: The Angels, Powers, Virtues, Archangels, Thrones, Dominations, that's not God. And what is he? I have been only capable to say, what he was not. Though St. *Augustin* could not have said all those Things above-mentioned, without the Assistance of a clear and distinct Idea of God, though an imperfect one; or as he expresses himself, *lib.* 7. *Confess. c.* 17. unless the human Understanding knew in some Manner the immutable Good, he would by no means prefer it to the mutable one.

This innate Idea of the *Divinity*, or of a Being infinitely perfect, presuppos'd; it is impossible any Body could seriously deny, or even revoke in Doubt the Existence of God, by whom all we can see or conceive, is govern'd and administer'd. But, however, if there were some Men so extravagant as to say, IN CORDE SUO NON EST DEUS; *in his Heart there is no God*; we must not abandon them to the Ridicule of their false Notions, but rather endeavour, as much as lay in our Power, to reclaim them, by making them sensible of their Error.

Of an infinite Number of Arguments, whereby the *Atheists* can be convinc'd of Impiety and Folly, in denying *God*'s Existence, St. *Thomas*, *Prim. Part. sum.*

sum. Theolog. quæst. 2. *art.* 3. has selected five, which he judg'd the most persuasive. The first is taken from the Motion of Bodies, employ'd by *Aristotle*, *l.* 8. *Physic.* for the same Purpose. The second from the Order of the efficient Causes. The third from a possible and necessary Being. The fourth from the different Degrees of Perfection which occur in several Things. And the fifth from the just Order and Œconomy the visible World is kept in. But as these Things have receiv'd a new Lustre in the Physical Meditations of *Des Cartes*; it is but just we should join the modern and antient Philosophy together, for the Elucidation of a Doctrine which so nearly concerns our eternal Felicity.

All the Arguments us'd on this Occasion by both antient and modern Philosophers, are metaphysical, physical, and moral; and all, *à posteriori*, or from the Effect to the Cause; not *à priori*, or from the Cause to the Effect. We'll begin with the metaphysical Arguments, as the first known, the more general, and from which all the others depend, then we'll proceed to the physical, and conclude with the moral.

Note, That we understand by METAPHYSICAL Arguments, those taken from the Consideration of the human Understanding, and its natural Ideas.

Des Cartes, *Tertia Medita. Metaph.* draws the first metaphysical Argument from that, the innate Notion Men have of a supreme Being cannot proceed but from God himself; since we have no other Reason to prefer Good to Evil, than because we find Good more agreeable, and to approach nearer the innate Idea we have of the greatest Perfection; which Idea cannot proceed but from God himself, not from ourselves, our Parents, nor even from the Consideration of Things visible; since neither we, our Parents, nor the Things visible are possessed of that Perfection, as they should be, if it had its Origin in them, according to this Axiom: *Quidquid est Perfectionis in Re aliquâ, id in prima, tota que illius Causa, vel formaliter, vel eminenter contineri debet.* Therefore that Idea must be from God, and consequently there is a God.

On this is founded the fourth Reason of St. *Thomas*, taken from the different Degrees of Perfection, to be met with, in different Things. For, it is universally granted, that of all Things we know, some are more, and some less perfect; for Example, we always prefer an animated or living Body, to an unanimated, or dead one, and spiritual, to corporal Substances, at least we have a higher Notion of them; but there cannot be more or less, but with Comparison to something still more perfect; for as *Boetius* observes, *de Consolat. Philosop. prof. Decim. Omne quod imperfectum esse dicitur, id Diminutione perfecti imperfectam esse videatur; quo fit ut, si in quolibet genere imperfectum quid esse videatur, in eo perfectum quoque aliquid esse necesse sit. i. e.* All that's considered as imperfect, must be imperfect, by a Diminution of the perfect; therefore if any Thing seems imperfect in any Kind of Things, there must necessarily be something perfect in it: Consequently there must be a Being infinitely perfect; *i. e.* A Being existing *per se*, or by himself, eternal, infinite, immense, in a Word, there must be a *God*; for by that Name *God* we naturally understand a Being perfect in all Things; therefore God's Existence is not to be called in Question; notwithstanding what's objected by the *Atheists*; that if there was a Being infinitely perfect, he would be also infinitely good, and therefore would not suffer any Evil should happen; since if Good suffers Evils, 'tis only to draw from it a greater Good; as St. *Augustin* judiciously observes *in Enchir. ad Laur. Num.* 3. *Deus cum summe bonus sit, nullo modo sineret mali aliquid esse in Operibus suis, nisi usque adeo esset omnipotens & bonus, ut benefaceret & de malo, i. e.* since God is infinitely good, he would by no means suffer any Evil to be in his Works, unless he was likewise omnipotent as well as good, that he might bring Good out of Evil itself.

But, say they again, God can either hinder Evil, and will not; or will and cannot; if he can and will not, he is unjust; and if he will and cannot, he is weak, and consequently is not a God. No Question but God could if he would hinder the Evils which happen among us, but then it would be necessitating our Liberty, and from that Moment we should cease being accounted free Creatures.

The second metaphysical Argument is taken by *Des Cartes*, from that an actual Existence is contained in a clear and distinct Notion of God; because, says he, a Being infinitely perfect, cannot be conceived without an actual Existence, in which consists the Perfection; therefore God must exist.

To which an *Atheist* will object, that although he conceives a Mountain must necessarily be joined with a Valley, or a Circle to be round; it don't follow from thence that the very same Mountain or Circle has any Existence. This Objection would be of some Weight, if the Parity was just between Existence, with Respect to a Being infinitely perfect, and a Valley, with Respect to a Mountain, or Rotundity, with Respect to a Circle; or if actual and necessary Existence, was as inseparable from a Mountain, or from a Circle, as it is from the Idea of a Being infinitely perfect; which is a false Supposition, since Existence is only contained as possible, in the Idea of a Thing created and imperfect, while an actual Existence is necessarily contained in the Idea of God; so that as the possible Existence cannot be separated from a clear and distinct Idea of a Thing imperfect, *v. g.* of a Circle; neither can the actual Existence be separated from the Idea of a perfect Being.

The first physical Argument used to prove God's Existence against the *Atheists*, is taken from the various Affections produced within us by occasional Causes. Since our Life is a continual Series of different Changes or Affections, either of Pleasure, or of Pain, occasioned by the Contection of Bodies. For our Mind is diverted through the Means of our Sight by the Beauty of Meadows and other Fields; agreeable or disagreeable Sounds, flatter or offend our Ears. The same might be said of the different Smells or Tastes; and the same of every Motion of all sensible Bodies, and of all that affects our Senses; but as those Bodies cannot by themselves, as proper and sufficient Causes excite within us Pleasure nor Pain, because they are inactive of themselves, and there is no Habitude between corporal Motions, and the Pleasure of Pain which affects our Minds; therefore it is necessary that the Pleasure and Pain should be the Production of some occasional Causes, by Virtue of a Law established between the human Body, and a rational Soul, which Law is general and common to all, and could not be established but by him, who contains and preserves all Things; who governs both Soul and Body; who gives Motion to this, and Sense to that, *&c.* but as a particular or private Cause cannot take Care, or provide to all Things at once, or move and govern them with such an uninterrupted Order as to make them obtain what they desire, and avoid what they fear; there must then exist that universal Author, Conservator, and Moderator of all Things, whom we call *God.*

The second physical Argument used by *Aristotle*, *lib.* 8. *Phys.* and borrowed from him by St. *Thomas*, is drawn from the Motion of Bodies, *i. e.* from their Translation from one Place to another. Since it is evident that there exists some Motion in the natural Bodies, and we should be persuaded that such Motion proceeds necessarily from God, as the first Motor; since all Bodies, big or small, are inactive of themselves; and therefore cannot move, without receiving the first Impulsion from somewhere else; they cannot be moved by a Creature let it be ever so excellent, unless that Creature receives that Force from God, and be continually assisted therein by him; consequently there must be a first Author of the Motion, from whom

whom each Body receives its Motion, and is continued in it. For there is nothing more absurd, than what the *Epicureans* have imagined, that all Bodies have their Motion from themselves, and that there exist active Atoms, from whose fortuitous or sudden Concourse all created Beings were produced; which Atoms, though edged in by others, are nevertheless in a perpetual Agitation, to disengage themselves. For if an Atom has a natural Motion, I ask to which Part that Motion inclines most; for it cannot strive in every Part? And if it is supposed to incline more to one Part than to the other; I ask farther, why the Atom should be carried to that Part rather than to the other, for a simple Entity, or a Corpuscle, seems indifferent as to its Destination to any of the Parts of the World, for if once it stops, it can by no means be supposed capable of itself to reassume its former Motion; whence if once a Body stops, it is conceived to stay in that Condition 'till it be moved by another, which cannot be done without a first Motor.

Tullius, l. 2. *de Natur. Deor.* refutes admirably well this extravagant System of the *Epicureans*. *Si*, says he, *Mundum efficere potest Concursus Atomorum, cur Porticum, cur Templum, cur Domum, cur Urbem non potest, quæ sunt minus operosa, & multo quidem faciliora? Certé ita temeré de Mundo effutiunt, ut mihi quidem nunquam hunc admirabilem Cœli ornatum suspexisse videantur.* If the World has been formed by the Concourse of Atoms, what's the Reason why a Porch, a Temple, a House, a City cannot be formed by the same Concourse, since these Operations are less laborious, and attended with lese Difficulties? *&c. Nemo illa*, says also *Lactantius*, lib. 3. *Divin. Inst.* c. 17. *præter Leucippum somniavit, a quo Democritus eruditus Hereditatem Stultitiæ reliquit Epicuro*; Nobody has ever dreamed this but *Leucippus*, by whom *Democritus* having been educated, he left that Folly as an Inheritance to *Epicurus*.

The third physical Argument used by St. *Thomas* is deduced from the Series of the efficient Causes. Since, whatever Causes are observed to operate, and to produce Effects in this visible World, as a Man to beget another Man, a Lion another Lion; they must be assisted therein by some other Cause, since it is utterly impossible that a Man could give Existence to another Man, whose Fabrick, Strength, and the Constitution of his Organs, he is entirely ignorant of; therefore those Causes must depend of another in their Operations; which Cause operates of itself, or receives its Virtue of operating from another; and then there will be a Progress *in infinitum*, else it must fix in some primary Cause. But there can be no Progress *in infinitum*, at least in Causes called *Equivocal*, *i. e.* Causes, which, the last, perhaps, excepted, are of a different State from the Effect; and observe such a Subordination among themselves, that the inferior cannot act without the superior: Otherwise, if there was no primary Cause to communicate the first Impulsion, there would be no second, no third, no last Cause, and consequently, no Production of Effects, *v. gr.* a Man could not generate another Man, nor a Lion another Lion, *&c.* Therefore it must be fixed in a primary or first Cause of all Things, which first Cause must be God himself.

But what Need have we, say they, of a Process *in infinitum*, since *Aristotle*, *lib.* 8. *Physic. c.* 1. and several other Philosophers, are of Opinion, that the World has been from all Eternity, and consequently, that Men have been born infinite, and other Substances procreated infinite; and that a Time infinite, and an infinite Motion, are elaps'd. Which Absurdity can be refuted, by answering, 1. That *Aristotle* himself has confess'd, that there was a first Author of Motion, and a supreme Governor of this visible World. 2. That it is utterly impossible to imagine, that the marvellous Machine of the Organical Body, form'd with so much Art and Skill, compos'd of so infinite a Number of delicate Organs, plac'd in such beautiful and regular Order, and with so excellent a Symmetry, could have been produc'd by the single Concourse of Atoms, and without the Concurrence of an omnipotent Architect. But if it was even so, with Respect to the Body, was the Soul, that spiritual, immortal, impassible, unalterable Substance, form'd, likewise, by that Concourse; are its different, excellent, and almost incomprehensible Faculties, the Result of the different Directions, Positions, and Adunations of material Particles? Does its different Operations, proceed from the different Motions of those Particles? Do we imagine a Thing because the Atoms which compose our imaginative Faculty have an Analogy with the Object imagin'd? And if it is so, why should we imagine Things, which have no Existence but in our Imagination, and consequently cannot be the Effect of that Analogy; for if they have no Existence, they are not form'd by a Concourse of Atoms, and therefore there can be no reciprocal Communication betwixt them; and a Subject resulting from such a Concourse, especially if the Operations proceed from an Analogy between the Corpuscles the Object imagin'd is form'd of, and those that compose the imaginative Faculties. But I will suppose that the Object imagin'd is existent, which is sufficient to establish the mutual Concourse of the Corpuscles; how can the imaginative Faculty represent to it self, in an Instant, a thousand, perhaps more, different Objects, some real, some chimerical; some existing, and some which have existed? Can Bodies, like the Atoms, direct themselves, with such incomprehensible Velocity, to so many different Objects at the same Time, a Time so short, that it is easily enough conceiv'd, but not defin'd, without Interruption, and Confusion? And if they can, how can they cease, all at once, their several Operations? Who can account for that Power they have to direct, or not direct themselves, at Pleasure; for that Faculty of directing themselves to one Object, rather than to another? It cannot be said, that it is because the Object is not present; for we know, by a constant Experience, that our Imagination is not always affected by all the Objects we see; neither can it be pretended, that the imaginative Faculty ceases its Operation at the disappearing of the Objects, which interrupt the *Analogy*; since we know, also, by Experience, that it leaves an Object, though yet present, to imagine another, which is, perhaps, at an immense Distance; or perhaps has no Existence at all. The same can be said of the other Faculties of our Soul, which consequently cannot have been form'd by the Concourse of Atoms, but must have a far more perfect Origin; which Origin can be no other than *God* himself; and therefore there is a *God*.

In the *univocal* Causes, *i. e.* in those Causes which produce Effects of the same State with themselves, there can be neither a Progress *in infinitum*; for if Man's Generations are said to be infinite, and *Alexander*, *v. gr.* had been begotten by *Philip*; *Philip* by *Amyntas*; and thus *ad infinitum*; so that we never had a *Protoplastus*, or first Parent: Hence it would follow, that the Years elaps'd from all Eternity, and the Men generated, would be finite and infinite, which implies a Contradiction. 1. They would be finite, because we cannot conceive a finite Generation of Men, to have pass'd from an infinite Time. 2. They would be finite, because their Number is continually increasing; for the infinite cannot be augmented; otherwise he would have Limits, and consequently could not be infinite: Therefore there can be admitted no Progress *in infinitum*, in *univocal* Causes, which produce Effects of the same Condition with themselves; as a Man produces another Man, a Lion another Lion, *&c.* which is another convincing Proof, that, in whatever Hypothesis, we must confess a primary Cause.

The first *moral Argument*, proving the Existence of a supreme Being, is taken from, that all sublunary Things tend to an End, which could not be done, were they not mov'd and govern'd by some superior Intelligence; which Intelligence can be no other but a *God*. *Levate in excelsum oculos vestros*, says the sacred

cred Text, *Isa. c.* xl. *v.* 25. *Et videte quis creavit hæc?* Lift up your Eyes on high, and behold who has created these Things. Could the single Concourse of Atoms have form'd, by their Adunation, that vast Extent of the Heaven, and embellish'd it with those fiery and luminous Bodies, so different in their Nature and Qualities, and whose miraculous periodical Motions have caus'd the Admiration of all Ages, and have till now appear'd incomprehensible to a human Understanding. Could it be imagin'd, that a Concourse of imperceptible Corpuscles were capable to cause the Vicissitude of the Seasons, and the Difference of the Climates? Could they oblige the *Sun* to shine with his whole Radiancy under one Hemisphere, while the other is kept in Obscurity, or Darkness? Could they of themselves freeze both Men and Beasts in one Climate, and scorch them in another? And if they can, whence proceed those different Qualities? Naturally from themselves? If so, why then do they not operate all in the same Manner every where? Why don't those the *Sun* is compos'd of, for Example, which must be all of the same Nature, and must have been all directed from all Eternity, in the same Manner, tend always towards the same Place? And what could oblige them to move from one Pole to the other, and to tarry longer in one Place than in the other? If by a continual Rotation, what could cause those Vicissitudes and Inequalities in that Rotation, especially of insensible Bodies, which cannot be otherwise directed, but by their innate and proper Impulsion? Could those Bodies have a perpetual Motion of themselves, and without meeting with some Opposition from heterogeneous ones? Or could they of themselves so well avoid such Opposition, as to continue their periodical Courses, without Changes, Vicissitudes, and Alterations? Why should those which form the heavenly Bodies be more perfect in their Operations, than those which enter into the Composition of our spiritual Substance, which so often meet with so many insuperable Difficulties from extraneous Bodies; and are so often oppos'd in their Motions, and interrupted in their Operations? Have they not equally the same innate Principle of Motion? Have they not equally been directed *ab æterno?* If not, what can occasion that Difference? Perhaps the Atoms which compose our spiritual Substance, are not so perfect, nor so disengag'd from the Matter, as those the heavenly Bodies are form'd of; why, then, should they be so often more perfect in their Operations, than the heavenly Bodies? Whence should proceed those incomprehensible and marvellous Acts of our intellectual Faculties, so far above all the most extraordinary *Phænomena* of the *Heavens?* Nevertheless, those excellent Faculties are often interrupted in their Operations, since we know, by a constant Experience, that they do not always operate alike; therefore they must receive their first Impulsion from a superior Cause, which permits those Obstructions and Vicissitudes, to convince us that those different Effects have an immediate Dependance from an immutable Agent, which has within it self the Principle of all Actions, and to which all visible, as well as invisible Beings, are subordinated: And what could that be, but that omnipotent, eternal, immense, and incomprehensible Being, known to us by the Name of God? who, consequently, must have a *real Existence.*

Another Argument which can prove that those *Epicureans* have no proper Principle of Motion, nor no innate Faculty of directing themselves, is the Difference subsisting between them: For if they were *ab æterno*, and had no Principle, they should likewise have no End; an organical Body being form'd by the Concourse of Atoms, and, in all Appearance, more perfect, in the Structure and Symmetry of its Parts, than the insensible Bodies of the *Planets*, should be as little, or rather less subject to any great Changes, or Alterations, than they are, though it happens otherwise; for it is evident, that the said organical Body, perfect as it is, is always tending towards its Dissolution, that every Moment causes some Alteration in the Texture of its Parts, that the least Accident disorders the whole Machine, and often destroys its whole Symmetry; while the insensible Bodies continue longer in the same perfect State, though expos'd to a greater Number of far more dangerous Accidents; though not compos'd of two Substances equally perfect in their Nature, and equally capable to succour each other in its Distress; whence could proceed so great a Difference between the sensible and insensible Bodies, since, according to the *Epicurean Hypothesis*, they should be form'd both by the Concourse of the same Corpuscles, capable of themselves to direct themselves so to Motion, as to consult the Preservation of the Bodies they compose? It cannot be from a natural *Penchant* to *Annihilation* of the Parts of those Bodies, else they could not be eternal; therefore it must proceed from another Cause, which by an incomprehensible Order has establish'd that Difference between them.

Thus are *Atheists* to be refuted by Reason, not by Authority; since they deny all Sorts of Authority, both sacred and profane. But, however, we will not neglect to make use of those Authorities, not with the Hope of being capable of persuading, thereby, the *Atheists*, of the Extravagance and Impiety of their scandalous System, but to deter others from suffering themselves to be infected with their Dogma's.

The Apostle St. *Paul*, *Rom.* i. 20, 21, 22. assures us, that *the invisible Things of him, from the Creation of the World, are clearly seen, being understood by the Things that are made, even his eternal Power and Godhead; so that they are without Excuse: Because, that when they knew God, they glorified him not as God, neither were thankful, but became vain in their Imaginations, and their foolish Heart was darkened. Professing themselves to be wise, they became Fools.* And the Royal Prophet, Psal. xix. 1. *The Heavens declare the Glory of God, and the Firmament shews his Handywork.* Job xii. 7. and fol. *But ask now the Beasts, and they shall teach thee; and the Fowls of the Air, and they shall tell thee: Or speak to the Earth, and it shall teach thee; and the Fishes of the Sea shall declare unto thee. Who knows not in all these, that the Hand of the Lord has wrought this?*

Lactantius has crowded his whole first Book of the *Divine Institutions*, with Passages, from Philosophers, Orators, and Poets, in Vindication of God's Existence; but we'll content our selves with the Authority of *Tully*, who, *Lib.* 2. *De Natur. Deor.* has these remarkable Words: *Si quis*, says he, *in Domum aliquam aut in Gymnasium, aut in Forum venerit; cum videat omnium rerum rationem, modum, disciplinam, non possit ea sine causa fieri judicare: Sed esse aliquem intelligat, qui præsit, & cui pareatur; multo magis in tantis motibus, tantisque vicissitudinibus multarum rerum, atque tantarum ordinibus, in quibus nihil unquam immensa & infinita vetustas mentita sit, statuat necesse est ab aliquâ mente tantos naturæ motus gubernari.* And a great deal lower, in the same Book, *Quis enim hunc hominem dixerit, qui cum tam certos Cœli motus, tam ratos astrorum ordines, tamque omnia inter se connexa & apta viderit, ne ut in his ullam inesse rationem, eâque causâ fieri dicat, quæ quanto consilio generantur, nullo consilio assequi possumus? An cum machinatione quâdam moveri aliquid vidimus, ut sphæram, ut horas, ut alia permulta, non dubitamus quin illa opera sint rationis: Cum autem impetum Cœli admirabili cum celeritate moveri, vertique videamus, constantissime conficientem vicissitudines anniversarias, cum summâ salute & conservatione rerum omnium, dubitamus quin ea non solum ratione fiant, sed etiam excellenti quadam divina ratione?* Who will call him a Man, (says *Tullius*) who, when he considers the so just, and so certain Motions of the Heavens, the beautiful and regular Order of the heavenly Bodies, and all Things subsisting with such Subordination, and so just an Œconomy among them, will have the ridiculous Presumption to deny that they all proceed from rational Causes, or to attribute to Fate those Things, which though generated and produc'd with Prudence, Judgment, and Wisdom,

dom, are, however, far above a natural Wisdom or Apprehension. Can we imagine, when we see something move with a surprizing Regularity and Order, as the Sphere, the Hours, &c. that they are not the Work of an intellectual Being? Can we suppose, with the least Appearance of Reason, when we see the Heavens move, and turn with that admirable Celerity, constantly accomplishing the annual Vicissitudes of the Seasons, to the Restoration and Preservation of all Things, that they are not the Effects, not only of Judgment and Understanding, but even of a divine and supreme Understanding?

Thus spake a *Pagan* of the Divine Providence; these are the Ideas he had form'd to himself of the Existence of a supreme Being; these are the Arguments he us'd, to confound the Folly of those who had, in his Time, the phrenetical Presumption to think that the Divinity had no Hand in the Formation of the World, and consider'd him as an idle Spectator of all that passes or happens in it, without concurring, in the least, in its Preservation. Must we be oblig'd, then, to borrow those Arguments from a Person who had but an imperfect Idea of the true God, and entirely bigotted to the Worship of the *Pagan* Divinities, to convince others, born in the Light of the *Gospel*, of the Existence of a supreme Being; of which, besides their innate Idea, they are daily furnish'd with so many undeniable Proofs? Must we call the Obscurity of those dark Times to the Assistance of the Light and Radiancy of ours? Must *Pagans*, to the Scandal of *Christianity*, with no other Succours than their innate Idea of the Divinity, almost entirely smother'd, by the Prejudices of their Infancy, and those of their Education, help that Idea to force those strong Obstacles to confound the Folly of *Atheists*; while those, born in the Bosom of the true Church, endeavour to silence, within themselves, the most persuasive Dictates of that same Idea, in Spite of all the Advantages of their Infancy, and of their Education? Must they say, in their Heart, *Non est Deus*, There's no God; while that very same Heart contradicts what they say? *O tempora! O mores!*

The second moral Argument, which is of a very great Efficacy against *Atheists*, is, that the new Discoveries, daily made in the Arts and Sciences, prove that the World is not eternal; for if the World was eternal, it would not be reasonable to suppose that so many Arts and Inventions, discover'd daily, for the Good and Utility of a civil Society, could have been so long hidden. If the World was eternal, how came it to pass that so many Parts of the World have been so long uninhabited, and so many others unknown to us? If the World was eternal, why have we no History of older Date than six thousand Years? Why have not the *Atheists* found Means, all this while, to trump up some, to which they could have given the Air of the greatest Antiquity, and which could contradict the *Genesis*, and all that *Moses* says of the Creation of the World? 'Tis true, that the *Chinese* could furnish them with some Dreams or Romances of that Kind, but they are crouded with so many Incoherences, fantastical, and ridiculous Notion, that, in all Appearance, they would be ashamed of it themselves; and though they are not for denying the Existence of a *God*, or that the World is the Work of his infinite Wisdom, they would be left, perhaps, to defend their Opinion, with those ridiculous Arguments, and false Authorities, which would only serve to expose the more their Folly. Though the *Chinese* Historians could not answer all their Purposes neither; for tho' they make the World a great deal older than it is in reality; they however do not represent it as eternal; since they agree in this Point with *Moses*, that it had a Beginning. The *Epicureans* themselves, though they pretend that the World had no Beginning, with Respect to the Matter, or Atoms, are not of the same Sentiment as to the Composition of the whole; as it appears from *Lucretius*, *lib.* 1. *Rerum natura*, *v.* 325. and the following. He speaks thus:

Præterea si nulla fuit genitalis origo
Terrarum, & Cœli, semperque æterna fuere:
Cur supra bellum Thebanum, & funera Trojæ,
Non alias alii quoque res cecinere Poetæ?
Quo tot facta virum, toties cecidere, neque usquam
Æternis famæ monumentis insita florent?
Verum, ut opinor, habet novitatem summa, recensque
Natura est mundi, neque pridem exordia cepit.
Quare etiam quædam nunc artes expolientur;
Nunc etiam augescunt; nunc addita navigiis sunt
Multa, modo organici melicos peperere sonores.

The third moral Argument us'd against *Atheists*, is taken from the imminent Danger those expose themselves to, in denying the Existence of a God, without the least Appearance, or Hope, of reaping any Benefit by it: For the greatest Profligate never commits Evil without some Hope to gain some Advantage by it; an Assassin, or Murtherer, dips his cruel and barbarous Hands in innocent Blood, either to gratify his Brutality, or sariate his Revenge; a Plunderer or Thief robs his Fellow Creatures, to enrich himself; a Voluptuary plunges himself in all Sorts of illicite Pleasures, to gratify his natural Inclination to Sensuality, Luxury, and Debauchery: But an *Atheist* denies the Existence of God, for what? Because, perhaps, while he imagines that there is no *God*, he thinks that he'll be more at Liberty to give a full Carreer to his criminal Passions, without Fear of being punish'd for it; without considering that *that* sole Consideration is a Proof of the Existence of *God*; for that Notion he has of a Punishment, must proceed from another he has of the Irregularity of his Conduct, with Respect to something above the Reach of the human Laws, and that those Actions which are not subject to a transitory Punishment, and do not come under the Cognizance of mortal Judges, are, nevertheless, criminal, and should be punish'd, but by whom? Let them consult that natural and innate Idea which excites, within them, that Fear of a Punishment, and it will tell them, that it will be by the very same *God*, whose Existence they have the sacrilegious Temerity to deny, contrary to its Dictates. This must be all the Advantage they can promise themselves from their Impiety, (since they can be as much voluptuous, ambitious, vain, and avaricious, as they pleas'd, without the least Fear of a Punishment from the World, since the World not only countenances, but even approves those sort of Vices) which in Fact is no Advantage at all; for their denying *God*'s Existence, will never annihilate that Existence; their denying it will never silence the Dictates of their Reason, whereby their Soul, whose chief Faculty she is, is continually informing them that there is a *God*, since she is nothing else, her self, but a Participation of his Divinity, by that supernatural Irradiation which raises him so far above all the other created Beings: Therefore his Obstinacy on that Subject, by the continual Conflict between the superior Faculty of his Soul, and his vitiated Imagination, is rather a Supplice and a Torment to him, than any real Advantage; for as often as he denies *God*'s Existence, by his Words, or by his Actions, he hears as often an irreproachable Witness within himself, who contradicts what he says, and reproaches him with his Folly. While, on the contrary, those who admit or confess the Existence of a *God*, can be always at Peace with themselves, for that sole Belief will keep them fearful of his just Judgment, and render them cautious of offending him, and let him *exist*, or *not exist*, they have nothing to fear; and for if they live according to the Sentiments which the Notion of that Existence must inspire them with, they are sure to find him, after their Death, favourable to them; and if he do not exist, they'll die as secure, and with the agreeable Satisfaction of having liv'd as they should. Therefore there's no Risque for those who believe the Existence of *God*, while those who deny it have every Thing to fear; since, if he exist, they are sure to meet with a just Judge, who will punish them

them both for their sacrilegious Temerity and their Crime; and if not, they must die with an extreme Regret, of quitting a Life, they had made their Idol, and with the Reproaches of having lived, as though they were never to die. But I go too far, and I do not perceive that these Suppositions are false; for the Existence of this visible World, nor our proper Existence, of which we are so sensible, are so certain, as God's Existence; since our Existence, and the Existence of this World depend entirely on his; for had he never existed, we had never been; and was he to cease existing, or even to forget for a Moment that we exist, all this visible World would, at that very Instant, return into its former nothing.

The *Atheists* know all this as well as those who confess that Existence, which is plainly seen at their Death, for very few of them have continued in their affected Obstinacy to the last Moment; and those *Esprits forts*, as they are pleased to call themselves, are far more frighted at the Approaches of Death, and shew more Pusillanimity and Cowardice then, than those whom they have reproached with it, while in Health. *God* then appears to them divested of all his other Attributes, but of his Severity and Justice, and their innate Idea of his Existence, whose Dictates are no longer silenced by the Tumult of their Passions, awakened by the violent Paroxisms of a dangerous Distemper, come to paint to their frighted Imagination, that formidable Presence in the most lively Colours: They confess then, what they had so long and so obstinately denied, but often too late. What Pity, that what at another Time could have served towards their Justification, must be, then, the Subject of their Condemnation! What deplorable Necessity, to be forced to confess the Existence of *God*, when we have most Reason to wish he should not exist, and when we have put ourselves out of Power of wishing otherwise!

I'll give here an Instance of the Dilemma's an *Atheist* is in at that critical Moment. *Toland*, one of the most famous *Atheists* of the Age, who had found the Secret, under the Reign of the late Queen *Anne* of Glorious Memory, to debauch the Principles of several Young Persons of the first Rank, and to poison them with the Venom of his impious Doctrine, for which he was banished the Kingdom, having found Means, by the Credit of some of his most potent Proselytes, to return into it again, though he persisted still, in all Appearance, in the same criminal and sacrilegious Sentiments, and continued his dangerous Lessons, fell at last so dangerously ill, that his Life was despaired of, and had already received his last Passport, from his Physicians, for another World; considering that Affectation and Disguise, which had so long supplied his Extravagancy, with Profusion, could be no longer of Service to him, and that he was a-going to be overtaken by that same eternal Being, whose Existence he had so long affected to deny, tho' in Fact he had always been convinced of it, sent for a *Roman Catholick Priest*, (for *Toland* was born in that Religion,) to whom he confessed all the Enormities of his past Life, and in particular of his having infected with *Atheism*, a vast Number of Persons of both Sexes. The Priest, who knew that *non remittitur peccatum donec restituatur ablatum*, and was not one of those indulgent Confessors, who render the Road to Heaven very large, spacious, and easy, told *Toland*, that he could not absolve him, unless, besides a sincere and unfeigned Repentance, he recanted of his past Errors, before his Proselytes, that thereby they might be convinced, that himself knew, and acknowledged that the Doctrine he had taught them was false and criminal; and be persuaded in their Turn to condemn it as such. *Toland*, through Fear of God's Judgments, consented easily to this Abjuration, and made it in Presence of the most considerable and most obstinate of his Proselytes, who had been sent for, for that Purpose. But, however, *Toland*, contrary to Expectation, recovered from this Indisposition; and instead of continuing in the Christian Dispositions the Priest had inspired him with, returned to his Vomit, and began to dogmatise with as much Phrenzy as ever. But he had lost his Credit with his Proselytes, who, almost, all deserted him, in the Opinion that there was no trusting a Man who was so inconstant in his Principles, and who wanted Courage and Intrepidity (as they expressed it) when it was most wanted; therefore *Toland*, to whom, at first, his Doctrine had procured a Coach and six, and every Thing agreeable to that Equipage; found himself reduced, at last, to almost wanting the Necessaries of Life; to convince his Proselytes that he was sincere, he wrote then several Books in Defence of his Doctrine, but all to very little or no Effect, as to the Recovery of his pristine Splendor. Soon after those vain Efforts to regain his former atheistical Reputation, *Toland* fell sick again, of the Malady he died. At the Approaches of Death, feeling very quick Remorses of his past Crimes, he sent for the late Dr. *Clark*, Rector of St. *James*'s Parish, thinking, perhaps, that the Doctor would not deal so hard with him as the Priest had done; in which he found himself not entirely mistaken, for in Fact he used him in a very Gentleman-like Manner, and removed with a great deal of Dexterity, all the stumbling Blocks *Toland* had himself placed in the Road to Heaven; but however, that of all his Crimes which appeared to him the most enormous, and which he suspected *God* would be less inclinable to forgive, was a certain Book he had wrote in Defence of *Atheism*, and was a going to leave behind him, which he was afraid would produce very dangerous Effects, and make very strong Impressions on the Mind of those, who should have the Imprudence or Temerity to read it; and could not help expressing to Dr. *Clark* his mortal Uneasiness on that Subject; the Doctor, in order to compose his distracted Mind, with a scornful Smile, advised him not to let that hinder him from dying in Peace, for that Book he mentioned was so ill wrote, that few People of any Understanding would have the Patience to read it throughout; and those that would, would rather laugh at it than mind it. *Toland* was so provoked at the Doctor's despising thus his Work, that making a last Effort, he upbraided him with Stupidity and Ignorance, abandoned himself to all other Sort of Invectives against the good Parson, told him that that very Book was better wrote than ever were any of his, and that the better to convince him of it, he was determined to die as he had lived, a professed *Atheist*, as he did few Hours after.

Daniel De Foe, a Man of a rare Genius, and of excellent natural Parts, (to distinguish himself from the Vulgar, whom all those who affect a Superiority of Genius, imagine to be led by the Nose, by the Clergy, and attribute to his Ignorance and Stupidity, those Notions of the Divinity, that Hope of a Reward, and that Fear of God's Judgments he appears to believe) affected also a certain Air of *Atheism*, and had even gained a considerable Number of Proselytes: But following the Example of *Toland*, while he was ill, and one of them, who was come to visit him during his Illness, finding him in a praying Posture, reproached him with Pusillanimity and Cowardice. Ah! *B——e tu as Peure*, said he, though I have not heard that such Reproaches altered *De Foe*'s penitent Sentiments, and I have some very good Reason to believe that he died really penitent.

The only *Atheist* I have heard of, who died in his Obstinacy, was *Rablais*; for while he was on his Death-bed, the Cardinal *De Berulle*, his Patron, having sent one of his Servants to inquire how he did, *Rablais* answered him in the following bad, and ridiculous Rhimes.

Vas ten dire a ton Maitre
Que je vais voire un grand Peutestre;
Toi tu ne seras jamais q'une Beste;
Tire le rideau la Farce est Joüee.

For my Part, I am of Opinion, that the ſole Inſtinct (if I may uſe that Expreſſion) of lifting up our Hands and Eyes to Heaven, in our greateſt Diſtreſſes, and Afflictions, as to a Place of Refuge for the Unfortunate, is ſufficient to confound the Impiety and Folly of *Atheiſm*. How often *Atheiſts* themſelves have pronounc'd the Name of *God*, as a *motus primo primus*, and without Reflexion, in a firſt Surprize of ſome imminent Danger, or by a ſort of Exclamation, as if Nature it ſelf ſhould ſpeak on ſuch Occaſions, and would force the Tongue to confeſs her divine Author and Protector?

Therefore *Atheiſts* are to be conſider'd as the greateſt Fools of the whole *Creation*, and their Condition to be pitied, when, notwithſtanding the moſt perſuaſive Arguments us'd againſt them, they perſiſt obſtinately in their Error: Nay, their ſole Reaſon ſuffices, ſays *Arvernus* and *Blaſius Paſcalis*, to make them renounce it.

There is a *ſupreme Being*, the ſame who has form'd this vaſt Univerſe of Nothing; the ſame who has created the firſt Matter, and divided it into ſeveral Elements; the ſame who has adorn'd the Firmament with ſo great a Number of fiery Orbs, placed them at a due Diſtance from each other, and inſpir'd them with the firſt Principle of Motion, thereby to enable them to perform their periodical Courſes with that juſt Order and Œconomy we admire, without being capable, yet, to conceive it. The ſame who has fix'd the *Sun* as a Center, or Source of Light, from which the other *Planets* borrow their Radiancy, the Earth its Warmth, and the whole Nature its chief Nouriſhment. The ſame who has form'd Man of the Scum of the Earth, that the Remembrance of his mean Origin may hinder him from abandoning himſelf to thoſe Sentiments of Vanity and Preſumption which the ſuperior Part of himſelf, his Soul, whereby he deſign'd to diſtinguiſh him from all the reſt of the created Beings, could chance to inſpire him with. The ſame who makes, when he pleaſes, the Thunder roar, and the Ocean foam; and who commands the Winds and the Tempeſts. The ſame who puniſhes the Guilty, protects and rewards the Innocent. The ſame by whom Kings reign, and Sovereigns adminiſter Juſtice. Thoſe Sovereigns who are his lively Image and Repreſentation here on Earth, who ſhould be alſo the ſacred Depoſitories of his ſupreme Wiſdom, and the faithful Interpreters of his divine Oracles. Thoſe Princes who by their Piety and Religion ſhould perſuade their Subjects, even the moſt inclinable to *Atheiſm*, that they are fully convinc'd of the Exiſtence of a ſupreme Being; who ſhould conſider as the greateſt Affront offer'd to the Throne, to have their Religion ſuſpected, or to be reproach'd of having none but their own Intereſt, or as far as it can flatter their ambitious Views; and be ſo humble, as to conſider themſelves but as ſo many Atoms in the Preſence of the King of Kings; for if Princes themſelves, by their Conduct, deny tacitly the Exiſtence of *God*, what can be expected from their Subjects, who, eſpecially in religious Matters, ſtrive to form their Belief on that of their Sovereign?

BAKING.

BAKING, is the Art of preparing Bread, or of reducing Meal, of any Kind, whether ſimple, or compound, into Bread.

The Forms of *Baking* have been various in all Ages; almoſt each different Nation has its different Manner of making Bread. In former Ages, according to the Holy Writ, the Art of *Baking* was very ſimple, and not attended with much Formality. In thoſe golden Days of Frugality and Temperance, *Baking* was not an Art practis'd by a certain Set of People, but every Family was its own *Baker*. Some Meal, mix'd together with ſome Water, without Leaven, and *bak'd* on the Earth, before the Fire, or under the hot Embers, was the ſole Bread made uſe of by the firſt Fathers of the human Race; which ſimple Form continu'd for ſeveral Ages afterwards. And when Mankind began to refine their Taſte, or when they wanted to regale themſelves, or their Gueſts, they us'd to mix their Meal with Oil, inſtead of Water; continuing ſtill to *bake* it at their own Fires: Till, in Proceſs of Time, Mankind, forgetting their former Simplicity, and Luxury prevailing among them, this Art, as well as all others ſubſervient to that Paſſion, acquir'd daily new Perfections; and the Art of *Baking* becoming too laborious, it was expell'd from private Families, eſpecially from thoſe who were above taking Care, themſelves, of their Health, and confin'd to a Set of Men, appointed for that Purpoſe; who, to render themſelves neceſſary to the civil Society, deviated from the primitive Simplicity, and invented a new Form of *Baking*, attended with ſo much Trouble and Difficulties, as to render it entirely impracticable to the Rich; and ſo chargeable and expenſive, as to force the poorer Sort of People to deſiſt from it.

Bread was no longer *bak'd* under the hot Embers, but Ovens were built, at a great Expence, appropriated at firſt to that particular Uſe only, which could not be heated without a daily additional Charge; which rais'd, at once, Bread to five or ſix Times its intrinſick Value; and leſt the exorbitant Price it was rated at ſhould oblige Families to make it once again, a Piece of Houſewifery to *bake* at Home; the *Bakers* applied themſelves entirely to change that inſipid Taſte Bread muſt have had at firſt, into a new one, which could excite the Appetite, which has continu'd ſince; but could not be ſo perfect at firſt as we have it at preſent.

The Forms of *Baking*, among the *Europeans*, is reduc'd to two; the one for *unleavened*, the other for *leavened Bread*; though very few, the *Jews* excepted, uſe at preſent *unleavened Bread*, as being too inſipid, and even thoſe but in the Time of their *Paſſover*, or of ſome other particular Feaſt. The *Roman Catholicks* us'd alſo *unleavened Bread* in the Adminiſtration of the *Euchariſt*, which Bread is made of the fineſt Flour mix'd with Water only, without any other Addition whatever. When this Mixture is brought to the Conſiſtence of Batter, they have a Sort of Inſtrument which they call *un fere*, or Iron, made in the Form of that Wafers are made with, ingraven within one of the Sides with ſome Repreſentation of the *Paſſion* of *Chriſt* (commonly his *Crucifixion*). This Iron is heated firſt, over a clear Fire, and afterwards rubbed over with Tallow, to hinder the Bread, or Wafer, from ſticking to it; and then they pour'd over the Side, which is not ingrav'd, a Spoonful of the Batter, ſhutting immediately the Iron cloſe upon it, whereby, the Batter is ſpread all over it, putting the Iron over the Fire, turning it on both Sides, to *bake* the Bread, which is done in an Inſtant; then take that off, and put on another, and thus continue till the whole Operation is over.

The other Manner of *baking unleavened Bread*, is call'd *Manchet-baking*; which is done in this Manner: The Meal, ground and bolted, is put into a Trough, and being open'd in the Middle, to a Buſhel is put about three Pints of warm Ale, with Barm, and Salt, to ſeaſon it: This is kneaded together with the Hands through the Break, or for Want whereof with the Feet

Feet through a Cloth; after having lain an Hour to swell, it is molded into Manchets, which scorch'd in the Middle, and prick'd a-top to give Room to rise, are *bak'd* in the Oven by a gentle Fire.

The other Form of *Baking*, call'd *Cheat-bread Baking*, is most commonly us'd throughout all *Europe*; and although follow'd indifferently by all Nations, they notwithstanding do not all make Bread of the same *Goodness*. The *French* are noted for making excellent Bread, and are thought to surpass all other Nations in that Art; though it is not of an equal Goodness throughout the whole Kingdom. The *Mitrons de Gonesse*, a little Village near *Paris*, carry the Palm there; and the Bread of *Gonesse* is esteem'd the best in *France*. For my Part, I find very little Difference betwixt it and the *English* Bread; and I suppose it to be made in the same Manner. It is very close, like it, and is somewhat lighter; but, on the other Side, it has this other Imperfection, which, in my Opinion, is a very great one, it wants Salt, and must be eaten new; else, when stale, it has no Taste. The Reputation in this, like in all other Things, is of a very great Advantage to set off the Merchandise; and I suppose that the only Reason why the *Bakers* of *Gonesse* have gain'd the Vogue, is, that when they began to flourish, the Art of *Baking* was not come yet to that Perfection it has been brought to since. The sole Advantage this Bread has over others, is, that it is made of the best Meal, extraordinarily well work'd, and as well *bak'd*, neither too little, nor too much.

They have two other Sorts of Bread at *Paris*, one call'd *le Pain de Chapitre*, which is a very light Bread, and, in my Opinion, a great deal better tasted than that of *Gonesse*; it don't grow stale so soon, is not so close, but, on the contrary, is full of Eyes, (as they term it) and *bak'd* to Perfection. It is call'd *Pain de Chapitre*, because, it being the Custom of the *Chapitres*, or Communities of Prebends, of the several Cathedrals, and Collegiate Churches of *Paris*, but more especially of the Metropolitan Church of *our Lady*, to have Bread distributed, every Day, to the inferior Clergy, Choristers, *&c.* call'd *Le bas Chœure*, of their respective Churches; there are *Bakers* appointed for that Purpose, who furnish them with this excellent Bread, with the Design, perhaps, they should eat more of it.

The third Sort of Bread at *Paris*, is call'd *Pain de Mesnage*, or houshold Bread, which is also very good; but all these Sorts of Bread are without Salt, on account, perhaps, of the *Gabelle*, which renders it a very dear Commodity among them. Even the poorest Sort of People eat this Sort of Bread, which is the same with our houshold.

In the other Provinces of the Kingdom their Bread differs in Goodness, as the Soil is more or less fertile in Corn. In those where Vineyards are plenty, or in the *Payes Vignobles*, as *Champaigne*, *Burgundy*, &c. the Bread is but indifferent, and very bad among the poorest Sort of People; and in the mountainous Provinces, as *Auvergne*, they make Bread of Oats, which though very white, is nevertheless very disagreeable, sour, and gritty. They even make it sometimes, especially in Years of Scarcity, of Chesnuts, which cannot be a very pleasant Bread. In *Normandy*, and *Britanny*, they have three Sorts of Bread: The finer, which is made of Wheat; the second, of a Mixture of Wheat, Rye, and Barley, call'd *Meslin*, which makes a very pleasant and wholsome Bread, when the Barley is not predominant; for then it is too harsh, and heavy: This Sort of Bread keeps long moist and new. The third Sort is all made of Barley, and is very black and heavy; though the Country People eat seldom any other, and are nevertheless very healthy and strong. They make sometimes Loaves of a whole Bushel of Flour, which weighs sixty Pounds; so that they very seldom eat new Bread. This cannot be attributed to the Sterility of the Soil, since those two Provinces abound in *Corn*; for when there is a Scarcity, the Bushel of Wheat, which weighs sixty Pounds, is seldom sold for more than six *Livres*, which is not six Shillings of our Money; and in plentiful Years it seldom exceeds Half a Crown, or three Shillings, of our Money, the other Sorts of Corn in Proportion: But the Country People chuse to sell their best, to pay their Landlord; and keep the worst for their Use.

The Housewife is the *Baker* of the whole Family. Some have Ovens of their own, some not, and even some cannot have Ovens; for in some Provinces, as in *Britanny*, to build an Oven is a Lord's Right, *Le Droit du Seigneur*, (as they call it) who thereby becomes the *Baker*, not of his Tenants only, but likewise of all those who relieve from him; who are all oblig'd to resort to what they call the *four Banale*, *i. e.* the publick Oven; paying a certain Duty for the *baking* of their Bread. Those Ovens are farm'd like a Piece of Land. Some of them are so large, as to contain 150, and 200 Bushels of Bread; and those who keep them have no other Occupation, though they all live very well, some of them acquiring often thereby a tolerable Fortune.

In *Savoy*, *Piedmont*, and other Parts of *Italy*, they *bake* but very indifferent Bread. In *Piedmont*, besides the common Bread, they have another Sort, which they call *Croket*, or *Croquete*. It is a Sort of unleavened Bread, made in the Shape of a Stick, of about ten or twelve Inches long, and about two in Circumference. It is kneaded in the same Manner as the Manchet Bread, and *baked* with a pretty fierce Fire, which makes it to be almost all Crust; to render it more agreeable to the Eye, they give it a Glaze with the Yolk of an Egg. At all the Publick Houses, especially at *Turin*, one is serv'd, every Meal, with one of these *Crequets*, together with other common Bread.

The common Bread *Baking* is perform'd thus: The Meal being in the Trough, some Leaven (sav'd from a former Batch fill'd with Salt laid up to sour, and at length dissolv'd in warm Water) is strain'd through a Cloth into a Hole made in the Middle of the Heap, and work'd with some of the Flour to a moderate Consistence: This is cover'd up with Meal, where it lies all Night, and in the Morning the whole Heap is stirr'd, and mix'd together with a little warm Water, Barm, and Salt, by which it is season'd, stiffen'd, and brought to an even Leaven; it is then kneaded, or trodden, molded, and *bak'd*.

In the kneading of the Mass, it must be observ'd, that it is not work'd too long, else it would render the Bread heavy, and hinder it to rise in the Oven; neither is it to be work'd in too great a Hurry, for then the Mixture proving imperfect, would fill the Bread with Lumps of Flour, render it harsh, and of an indifferent Taste; Part of it being leavened, and the other unleavened; which to avoid, the Water must be pour'd by Degrees, and the Mass work'd by Degrees; waiting to pour no more Water till the first pour'd, being so incorporated with the Mass, by the working of it, till it has brought it to a due Consistence, neither too hard, nor too soft; and then pour more Water upon that Mass already work'd, and then the Workman approaches, with his Hand, new Flour, near that Mass, all ready work'd, incorporating both together, and so on, till the End of the Operation. The Water must be neither too hot, nor too cold; for if too hot, it renders the Fermentation through the whole Mass too great, and causes a disagreeable Sourness in the Bread; if too cold, it hinders the Fermentation, which renders the Bread heavy, and gives it a sweet, unpalatable Taste. In Winter, the Leaven is always prepar'd in a warm Place, else it would have little or no Effect; and the Mass, after it has been kneaded, is kept longer before it is put into the Oven, than in the Summer; in order to give Time to the Leaven to ferment through the whole Mass.

There is an Art in heating the Oven for the *baking* of Bread; for if it is too hot, it hinders the Bread from rising, and makes it almost all Crust; if too cold, instead of evaporating the whole Humidity, it keeps

keeps the greatest Part of it within the Mass, and renders the Bread heavy, and disagreeable: Therefore a gradual Heat is best; for then the Bread rising and *baking* by Degrees, acquires a due Consistence, and a savoury Taste.

It must be observ'd, also, that the Leaven, arriv'd at an extraordinary Sourness, is not to be us'd, not even in the smallest Quantity; for it would communicate a very disagreeable Taste to the whole.

Bisket, which is a Sort of Bread, for the Service of the Sea, is made in the same Manner as other Bread, with this single Difference, that it passes the Oven twice. The first Time it is *bak'd* to the Consistence of common Bread, and kept till it has sweated all its Humidity, and then put into the Oven again, to dry it quite; otherwise it would be subject to grow mouldy, and sour. For long Voyages, they bake it four Times, and prepare it six Months before the Embarkation. The Word *Bisket* comes from the *Latin bis*, and the *French cuit*, *coctus*, *q.d.* twice *bak'd*.

There are but too often unpardonable Cheats committed in the Preparation of *Sea-Bisket*, which should be punish'd with the greatest Severity: For it happens, but too often, that the Undertakers have it made, but with stinking and damag'd Flour, which renders the *Bisket*, already unpalatable enough of it self, nauseous, and very unwholsome. There's scarce any Barbarity comparable to this; for it is in some Manner poisoning, with a premeditated Design, those brave Fellows, who expose their Lives, in more than one Manner, to save ours, and who may very justly be consider'd as the Bulwarks of the Kingdom. What! do they feast so splendidly on Board, as to be able to bear the Inconvenience of black and stinking Bread? Or rather, is not Bread their chief Food and Support? For, except one Meal of salt Meat a Day, are they not obliged to feed on Bread the rest of the Time? Which Bread has often as much Taste as a Brickbat, and is as easy of Digestion. It is surprizing that *England*, which abounds with all Sorts of the best Corn, and with Wheat in particular, provides her Fleet with such indifferent Bread; the *French* are a great deal more careful of the Lives and Health of their Sailors, and their *Sea-Bisket* is far preferable to ours. The *English* Sailors, though the best in the whole World, and as such should be better us'd, eat, to my certain Knowledge, some Bread worse than that condemn'd as *machemoure* on Board the *French* Men of War, and as such given to the Poultry, Hogs, *&c.* This Mismanagement deserves the Attention of those who have the Inspection of those Affairs, and should be carefully examin'd into.

The different Sorts of Bread, above-mentioned, are for common Use. The other Sorts, as what they call at *Paris*, *Pain De Montou*, mixed with Milk instead of Water, Ginger-bread in *French*, *Pain d'espices*, Cakes, *&c.* are only to please the Palate.

Their *Twelfth-Cakes* in most of the Provinces of *France* are made by the common Bakers, with Flour, Milk, Butter, Eggs, and Sugar, in the same Manner they make other Bread, with this Difference, that there is no Leaven in it. They make a Hole in the Heap, which is always of the finest Flour, in which they put as much Butter, Eggs, and Sugar, as they think fit, for there is no other Quantity fixed for those Ingredients than the Fancy of the Person who makes it; these they mix together with the Flour, with Milk, adding to it two or three Glasses of Sack, according to the Quantity of the Mass, which being made up, is left in a warm Place, to ferment for the Space of two or three Hours, and afterwards is molded into what Form they please, but the most common is flat and round, as commonly all Cakes are made. *Bakers* present, at the *New-year* or *Twelfth-days*, their best Customers with one of those Cakes.

Ginger Bread, is a rich Sort of Bread, the Flavour and Taste whereof are heightened and improved with Spices, and particularly *Ginger*, whence the Name. There are various Forms and Preparations of *Ginger-bread*: We shall content ourselves with the following one, which is well recommended. Into a Pound of Almond grate a Penny White-Loaf, and beat them together; to the Mixture add an Ounce of *Ginger*, scraped fine, and Aniseed and Liquorice in Powder, of each a Quarter of an Ounce: Pour in two or three Spoonfuls of Rose-water, and make the whole into a Paste, with half a Pound of Sugar; mould and roll it, print it and dry it in a Stove.

Others make it with Treacle, Citron, Lemon, and Orange-Peel, candied Ginger, Coriander and Carraway-Seed, mixed up with as much Flour, as will make it into a Paste. The best *French Ginger-Bread*, called by them *Le Pain d'Espice de Reims*, because invented in that Place, is made according to the first Direction, except they leave out the Liquorice, and add to it all the best Ingredients of the second Preparation, as the Lemon, Citron, and Orange-Peel; Rose-water, Coriander and Carraway Seed; but very little Ginger, and no Aniseed.

In all the other Parts of the World they have little or no Notion of Baking, except in those Parts where the *Europeans* have settled, and where they are numerous; every where else they follow yet the primitive Simplicity of baking their Bread under the Embers; the greatest Part of the Eastern and Western Nations having not even the least Notion of Bread. Especially those who dry their Meat by the *Sun*, and eat it without any other Cookery, as most of the *Tartars*. In the *West-Indies*, and on the Coast of *Brazil*, some *Indian* Nations make Bread of a Sort of Root, they call *Cassave*, or *Cassabre*, which is a Sort of Poison of itself, and before its Preparation; which is done in this Manner, they pound the Root, to extract all its Juice, in which consists all its Malignity; they afterwards dry it in the *Sun*, so that it may easily be reduced into a Sort of *Farina*, or Flour, which they mix with Water, and mould it into the Form of a large Pancake, which they bake before the Fire. When baked, it is as white as a Sheet of Paper; I have eat some, and found it very insipid. They could, if they would, make a pretty tolerable good Bread of Maise, which they have in Abundance; but they content themselves with broiling the whole Ear upon the Coals, and eat it so without any other Preparation; and really, for my Part, I would prefer it to their *Cassave*.

We have nothing certain concerning the Origin of the Art of *Baking*, and when it became a particular Profession. My Opinion is, that it began with the Erection of the Tabernacle, that the *Levites* were the first *Bakers*, and that the *Shew-Bread* was the first Bread made with some Art; the Preparation whereof was assigned to a particular Set of People. Some will have it first invented in Heaven, since the *Manna*, the *Israelites* were fed with in the Desart, for a considerable Time, is often called the *Bread of Angels*, *Panis Angelorum*. Others pretend that it began in *Greece*, from whence it passed to *Italy*, after the War with *Pyrrhus*, about the Year of *Rome* 583. According to *Athenaus*, the *Cappadocians* were the most applauded *Bakers*; after them the *Lydians*, then the *Phœnicians*.

To the foreign *Bakers* brought into *Rome*, were added a Number of freed Men, who were incorporated into a Body, or, as they call it, a College; from which neither they, nor their Children, were allowed to withdraw. They held their Effects in common, and could not dispose of any Part of them. Each Bake-house had a *Patronus*, who had the Superintendency thereof; and these *Patroni* elected one out of their Number each Year, who had the Superintendance over all the rest, and the Care of the College. Out of the Body of the *Bakers* were every now and then one admitted among the Senators.

To preserve Honour and Honesty in the College of *Bakers*, they were expresly prohibited all Alliance with Comedians and Gladiators; each had his Shop or Bake-house, and they were distributed into fourteen Regions of the City. They were excused from Guardianship and other Offices, which might divert them from

from their Employment. By the *English* Statutes *Bakers* are declared not to be Handicrafts. No Man for using the Mysteries or Sciences of *Baking*, *Brewing*, *Surgery*, or *Writing*, shall be interpreted a Handicraft, 22 *H.* 8. *c.* 13.

Baking is certainly an Art very useful to the civil Society, and *Bakers* may flatter themselves with the Honour, of having ministred both to God and Men; and I could wish they would maintain the Honour of their Art, and the great Credit they have acquired in past Ages, by their Equity and Compassion in this; and not make their indigent and distressed Fellow-creatures and Countrymen subservient to their Avarice; by searching always some new Pretext, real, or specious, to raise the Price of a Commodity, so indispensably necessary for our daily Subsistance; or by cheating them in their Weight; since acting in that scandalous Manner, is feeding on the very Substance of the Poor, and killing them by Inches. When *Bakers* were so much respected at *Rome*, and enjoyed so many advantagious Privileges, they did not attempt to bribe, as I suppose, the *Tribune* of the People, to have their *Monopoly* countenanced by him: For if they had, the Senate, always intent to the Welfare of the Commonwealth, had punished both the *Tribune* and the Monopolists, according to the Nature of such high Crime, which had been considered then as wilful Murther; since I see no great Difference betwixt taking a Man's Life away, and depriving him of the necessary Means to support it; it is equal to cutting his Throat, and to render that Throat useless to him; and Death, or some other severe Punishment should be equally inflicted on both Offenders: Confiscation of Goods to the Benefit of the poorest Members of the Republick, should be the greatest Mitigation of the Laws which ought to be enacted against Monopolist *Bakers*, who thereby would be forced to vomit that innocent Blood they have fatned themselves with. Their unwarrantable Practices have rendered their Profession, so honourable of itself, odious and despicable; and they are thereby become the Object of the publick Hatred. Though it is always in their Power to retrieve their lost Reputation by a more tender and compassionate Conduct; which would change the Curses and Maledictions, they are continually loaded with, into Blessings, especially from the Poor, whose Prayers are always the most efficacious.

BAPTISM.

BAPTISM, from the *Greek* βαπτιζω, of βαπτω, is a Sacrament instituted by *Christ*, for the Ablution of the Original Sin, and for our Initiation into the *Christian* Church.

Some Authors are of Opinion, that this Ceremony of Washing was practis'd by the *Jews* after the Circumcision, long before the coming of *Jesus Christ*; though we don't see the least Trace of it throughout the Old and New Testament, (at least in the Sense we take it here) before *John* began to *baptize* in the River *Jordan*, when *Jesus Christ* presented himself to his divine Precursor to be *baptiz'd*; which *Baptism* was but a Disposition to that he instituted some Time after for the Remission of Sins: Not that he who was all Perfection, and Innocence it self, by his own Essence, wanted that Ablution, as if he had contracted the original Sin; but was only willing to *accomplish all Justice*, *i. e.* to carry upon himself all the Humiliations due to that Sin, in Satisfaction to his Justice, and glorify him by that Abnegation of himself; for which he receiv'd, coming out of the Water, a glorious Testimony of his Innocence; for the Heavens open'd, and the *Holy Ghost* descending upon him in the Form of a *Dove*, a Voice was heard, saying, *Hic est filius meus dilectus, in quo bene complacui.*

There is a great Diversity of Opinions, among the Ecclesiastical Authors, as to the Time of this *Baptism*, which the Evangelist seems to fix at the thirtieth Year of *Christ*'s Age; for some of them maintain, that he was but twenty-nine Years, and ten Months old: Others, that he had began his thirtieth Year. St. *Chrysostome*, and most of the *Greek* Fathers, believ'd that it was accomplish'd; which Date was follow'd by the *Latin* Church, and believ'd that *that* august Ceremony was perform'd the sixth of *January*.

This Sacrament was instituted by *Christ*, in Lieu of the Circumcision, which he was come to abolish, as being but a Type of the *Baptism*, when he sent his Apostles, after his glorious Resurrection, to preach his Gospel to all Nations, and to *baptize* them, in the Name of the *Father*, and of the *Son*, and of the *Holy Ghost*; and has been acknowledg'd as such, ever since the Infancy of *Christianity*, by all *Christian* Societies, Sects, *&c. i. e.* as to its being of divine Institution, and a Sacrament; but not as to its Effects, its Necessity, and the Manner of administring it, which have caus'd at different Times, and in the several Ages of the Church, several Heresies and Schisms.

As to the Manner of administring the *Baptism*, all the Fathers, both *Greeks* and *Latins*, agree, that the most antient Practice of the Church was by a triple Immersion, which was done in Form of a Cross, the Name of one of the three divine Persons being pronounc'd at each Immersion. *Tertullian*, *ad Prax.* St. *Basil*, *De Spirit. Sanct. c.* 27. *Athanasius Quest.* 125. St. *Jerome*, *Dial. contra Lucif.* St. *Ambrose*, *lib.* 2. *De Sacram.* and St. *Augustine*, *Serm.* 91. *de Temp.* says, that this Ceremony was of apostolical Tradition. By the fiftieth Canon of those attributed to the Apostles, the Bishop, or Priest, who should administer the *Baptism*, with a single Immersion, were to be suspended from their Office: Because, says that Canon, our blessed Lord has not said *Baptize in my Death*, but *Baptize in the Name of the Father, of the Son, and of the Holy Ghost.*

In the Council of *Constantinople*, the *Eunomians*, who us'd to plunge but once, were condemn'd. Though it be certain, nevertheless, that the *Baptism* is valid, as well with one Immersion, as with three; and at present it is administer'd with Aspersion only; since it suffices that the Water touches the Flesh of the Person *baptiz'd*, at the same Time that the Words are pronounc'd which make the Form of the Sacrament, where the three Persons of the blessed *Trinity* are to be nam'd, else the *Baptism* is null; which single Immersion was declar'd sufficient, by the seventh Canon of the Council of *Toledo*. St. *Gregory*, Pope, *Lib.* 1. *Epist.* 41. answer'd to a Bishop of *Seville*, that it was best to make use of but one Immersion, in Opposition to the *Arians*, who us'd three, because they divided the Natures in the *Trinity*. There is not a very great Likelihood that St. *Peter* had plung'd three Times, the 8000 Persons who were converted by his two Predications; nor that St. *Paul* was thus *baptiz'd* by *Ananias*.

The Ceremonies of *Baptism* have been subject to several Changements, in all the Ages of the Church; and I do not think it improper to make here, for the Satisfaction of the Reader, a summary Detail of them, that they may see what Respect was shewn to that Sacrament, and the Dispositions requisite in those who were to be *baptiz'd*. But before we proceed further, we must explain what's understood by *Catechumens*, and who they were.

CATECHUMEN, Κατηχουμενος, from κατηχεω, I hear any Thing spoken; is a Candidate for *Baptism*, or a Person who prepares himself for the receiving thereof.

The *Catechumens* were distinguish'd from the *Fideles*, not only by Name, but also by their Place in the Church; they were dispos'd with the Penitents in the Portico, or Gallery, at the Extremity of the Church, opposite to the Choir. They were not allow'd to assist at the Celebration of the Eucharist, but after Sermon the Deacon dismiss'd them with this *Formula*, proclaim'd three Times, *Ite Catechumeni, Missa est*, Go *Catechumens*, the *Mass* is done, or the *Mass* is finish'd; which *Formula* is yet retain'd in the *Roman Catholick* Church.

When the *Catechumens* had given their Names, to be register'd among those who ask'd for *Baptism*, their Conduct was narrowly observ'd, and they underwent a very severe *Examen*. The Use of Scrutinies was introduc'd, according to some Authors, about the Time of *Leo*, Bishop of *Rome*, to encourage the *Fideles* to declare what they knew of the Life of the *Catechumens*, before they could be admitted to the *Baptism*. This was call'd, by the Antients, the *Examen*.

There was a *Catechist* appointed for their Instruction, and from the *Catechism*, or Instruction, they are call'd *Catechumens*. The Instruction of the *Catechumens*, was properly of the Deacon's Province, and when they were ready to receive the *Baptism*, the Bishops us'd to give them the last Lessons. We have in St. *Augustine*, and in some of the other Fathers, some excellent Homilies for them. In *Alexandria*, *Pontanus* and *Clemens* us'd to make those Lessons, which the *Catechumens* were to hear standing; to learn them to be always ready to fight against Vice. The Council of *Elvira* fixes the Time of two Years for that *Catechesis*. St. *Jerome*, *Epist. ad Pammach.* informs us, that, in his Time, it was reduc'd to forty Days, and afterwards to eighteen; which us'd to begin at the fourth Fery of the fourth Week of *Lent*. If, during their *Catechumenat*, they happen'd to deny their Faith, we learn, from the Council of *Nice*, that they were to do Penance for the Space of three Years. During the whole Time of their Preparation, those who were married were oblig'd to abstain from their Wives; and the others from Flesh and Wine. St. *Cyril* of *Jerusalem* says, that they ought to renew themselves by Fasting, as the *Serpent* renews his Skin, by passing through a narrow Hole of some Stone. They were forbidden to frequent the publick Bath, and for that Reason they wash'd their Head and Feet on *Palm Sunday*, to clean themselves of the Dust and Dirt they had contracted during *Lent*. They divested themselves of all the Marks of their Dignities, walk'd bare-foot, their Head shav'd, their Face veil'd, and wore the *Cilice*.

The Renunciation of the Devil, and of the World, was made at the Church Door, standing naked to their Shirt, and the Face turn'd towards the West. They extended one Hand, as to declare War against them, and afterwards lifted up both to Heaven, and blow'd three Times against *Satan*. They were cover'd with a vile and despicable Cloak, which *Tertullian* calls, *Lib. de Pallio, c.* 5. a *renouncing Vestment*, or of *Renunciation*. As for the Exorcisms, which were made during the Time of the *Catechesis*, St. *Augustine*, and the other Fathers, assure us, that they were always practis'd by the Church. During the Pronunciation of those Exorcisms, the *Catechumens* were barefoot, in their Shirt, and a Torch lighted in their Hand. Among the *Greeks*, they were anointed all over their Bodies with Oil; and only their Breast and Shoulders, among the *Latins*; to give them to understand, that they were *Athletæ*, destin'd to the *Combat*. St. *Dennis* says, that the Bishop us'd to begin the Unction, which was ended by the Priests. Salt was given them, to learn them that henceforward all their Actions were to be season'd with Prudence and Discretion, according to the Apostle's Advice. The Salt signify'd, likewise, that the City of the Devil was entirely ruinated within them for ever, and was not to be rebuilt, no more than the Cities which the Victorious sow over with Salt.

St. *Cyril* tells us, *Cat.* 2. that both Men and Women enter'd the Fountain of the *Baptistery*, quite naked, and that without Shame, or Scandal; the Deacons undress'd the Men, and the Deaconesses the Women; and anointed the Body, after the Bishop had anointed the Head. This Nudity was a Sign of their having divested themselves of the *old Man*, who made Room for the *new*, and of their Return to the State of the original Innocence. The Minister of the *Baptism* kiss'd those he had *baptiz'd*, who were afterwards dress'd in white Gowns. *Eusebius* informs us, *Lib.* 4. *De Vita Const.* that the Emperor *Constantine*, having taken that Vestment of Innocence, at his *Baptism*, would never afterwards wear the Purple. *Tertullian*, *Lib. de Idol.* St. *Jerome*, *Ep.* 128. *Clemens Alexandrinus*, *L.* 2. *Pædag. c.* 8. St. *Gregory Nazian. Or.* 21. and several others of the antient Fathers, call this Vestment *Christ*'s Vestment. It was very strait, and girded round the Loins. It was left off the eighth Day; hence, the next *Sunday* after *Easter* is call'd *Dominica in albis*, white *Sunday*. Their Heads were adorn'd with Crowns of Flowers, which Ceremony is practis'd yet, among the *Abyssines*, and the Crown made of Myrtle and Palms. They were made to taste Milk and Honey, a Sign of the spiritual Infancy they enter'd into by the Sacrament; which Custom was observ'd till the Year 725. I find that they were presented likewise with sweet Wine, Milk, Shoes, and ten small Pieces of Money; to shew them that it was not by *Avarice* that they were *baptiz'd*.

These were the principal Ceremonies of a *Christian Baptism*, in the first Ages of the Church. But then it was administer'd but seldom; in the primitive Times, especially in the *African* Church, at the Eve of the Feast of the *Epiphany*. But under Pope *Leo* it was order'd to be administer'd publickly, at *Easter*, and at the Feast of *Pentecost*.

The Sacrament of *Baptism* has both its Matter, and Form. For the Matter, any natural Water is held sufficient, but nothing else is allow'd; for this Reason, Pope *Stephen* II. excommunicated a Priest for *baptizing* a Child with Wine. The Form consists in these Words, *I baptize thee, in the Name of the Father, of the Son, and of the Holy Ghost*. Both the Matter and Form are wanted, to make the *Baptism* valid.

Theological Authors distinguish three Kinds of *Baptism*. 1. *Water Baptism*, which is that abovemention'd. 2. *Baptism of Fire*, which is the perfect Love of God, join'd with an earnest Desire to be *baptiz'd*; call'd also the *Baptism of the Holy Ghost*. On Occasion, this may supply the Place of *Water Baptism*. 3. *Baptism of Blood*, which is the *Martyrdom*.

The first Kind of *Baptism* is practis'd, at present, among all *Christian* Denominations, the *Quakers* excepted, who prefer the second Kind, *viz. Baptismus Flaminis*, the *Baptism* of Fire, to it. They pretend, that several repeated Acts of an explicit Faith in *Christ*, which *Christ* himself proposes, as the first essential Condition of our eternal Salvation, when he says, *Qui crediderit, & baptizatus fuerit, salvus erit*; Whosoever believes, and is baptiz'd, shall be sav'd; suffices for our Initiation into the *Christian* Church, and produces within us the Effects attributed to the Sacrament, which is the Grace of God. That the Ceremony without that Faith, is nothing else but a bare, and needless Ceremony; whereas Faith, without the Ceremony, has always the Effect desir'd, since that Faith cannot be obtain'd without the Concurrence of the Holy Ghost, and consequently is a Grace of it self. But if that first Condition, *qui crediderit*, being immediately follow'd by this other, *& baptizatus fuerit*, is not a convincing Proof that our divine Saviour's Intention was, that one could not procure that End, *salvus erit*, without the other, is what all the Fathers, both antient and modern, have determin'd in the Negative. The Efficacy of *Baptismus Flaminis*, was only granted by the Church, directed, in all her Decisions, by the Holy Ghost, as sufficient in the Times of the most cruel Persecutions, while

while the Shepherds of *Christ*'s Flock, being dispers'd by the most powerful Enemies of the *Christian* Name, the *Baptism* could not be administer'd without an imminent Danger to those who were thrown into Dungeons, or should die in their Bed, before they could have been initiated among the *Fideles*, and purged of the original Sin by *Baptism*; but at present, that *Christianity* flourishes every where, that the Churches are open'd, where that inestimable Treasure of *Christ*'s Sacraments are offer'd to all those who will enrich themselves thereby, without the least Opposition or Obstacle; at present, that every Body can, if he pleases, be wash'd in that precious Blood and Water which flow'd from the sacred Side of *Christ*, on the Cross, and which is the Source of the Sacraments; at present, that his Ministers can dispense his Graces, without Control, or the least Danger, to whom they please, or judge worthy of them; if the *Baptism* of Fire be sufficient, is what I leave to the Church to determine; for my Part, I cannot believe it sufficient, especially when I read, in the sacred Scriptures, that St. *Philip* is not contented with the Faith of the Eunuch of Queen *Candace*; and that the Eunuch himself is so well convinc'd of the indispensible Necessity of *Baptism*, that he says to the Apostle, There's Water, what hinders, then, that I should be *baptiz'd*.

In the primitive Church, none but Adults were admitted to the *Baptism*; but as it was consider'd afterwards, that it was instituted for the Ablution of the original Sin, that Children had contracted the original Sin, and nevertheless often died without the Benefit of that Ablution, they were also admitted to *Baptism*. The Church supplied for the Imbecility of their Age, for the publick Profession of their Faith, and appointed *Sponsors*, who answer'd for them, that they should renounce the Devil, the World, and all its Pomps; and those *Sponsors* engag'd themselves to have them reminded, when of Age, to be susceptible of any Impressions, of what was promis'd for them. The helpless Condition they were in, seem'd to claim that Mark of the extensive Charity of the Church, of which *Christ* himself had given so signal an Example, when he order'd his Disciples to let the little Children come to him, to whom, said he, belong'd the Kingdom of Heaven. And to have acted otherwise, had been endeavouring to oppose his sacred Decrees; since they could not enter that Kingdom without having been first wash'd from original Sin.

Pelagius, and his Disciple *Celestius*, were of a contrary Opinion, pretending, especially *Celestius*, that Infants were in the same State *Adam* was before his Sin, since the original Sin had affected no Body but *Adam* alone; denying the Transmission of that Sin to his Posterity; though *Paulinus*, a Deacon, sent into *Africa* by *Venerius*, who had succeeded *Simplician* in the Bishoprick of *Milan*, to supply the Want of Ministers in that Province, pressing close *Celestius* to declare openly his Sentiment of the *Baptism* of little Children; he said, that he acknowledg'd the Necessity of that *Baptism*, not to purge them of the original Sin, but to obtain the Kingdom of Heaven.

This Opinion was condemn'd, together with four other Propositions of *Celestius*, in a Council which *Aurelius*, Bishop of *Carthage*, had assembled, to examine his Doctrine, of the original Sin; which Condemnation oblig'd *Celestius* to quit *Carthage*, and to chuse *Sicily* for the Place of his voluntary Exile; from whence he and his Disciples wrote several Letters to the Bishop of *Rome*, *Marcellinus*, on Children's *Baptism*, and original Sin, which Letters were sent to St. *Augustine*, to answer them; which he did, by his three Books of the Remission of Sins. This first Work against the *Hereticks*, was receiv'd with a great deal of Applause by the Orthodox. He treats in it of *Infant Baptism*, which he maintains necessary for the Ablution of original Sin, of which the *Pelagians* denied the Propagation to *Adam*'s Posterity, admitting only the Imitation thereof. St. *Augustine* says positively, in the sixth Chapter of the first Book, that Children who die without *Baptism*, are *in Damnation*, but not attended with the excruciating Torments of Hell.

Several modern Doctors condemn this Opinion of St. *Augustine*, as too rigorous, and send those Children to a third Place, where they suffer no corporeal Pains, though depriv'd of the Sight of God; but, on the contrary, enjoy a natural Felicity. Cardinal *Bellarmine* calls this last Opinion false, and heretical, though he does not believe that they suffer the Pain of the Fire. Father *Petau*, the *Jesuit*, is entirely of the Sentiment of St. *Augustine*, which he endeavours to confirm by the Decree of the Council of *Florence*, which seems to him formal on that Subject.

The *Pelagians* assign'd to those Children a Place out of the Kingdom of Heaven, into which they dar'd not introduce them, because of the Authority of the Gospel, which excludes from it those *who are not regenerated by the Water and the Holy Ghost*. But when St. *Augustine* urg'd them to shew, in what Place of the Scripture they could find the Life everlasting, which they granted to Children dead without *Baptism*, they were very much puzzled what to answer. As for him, as he knew perfectly well he had plac'd in the *Mysteries of his Election* certain particular Limits to human Curiosity; when he was ask'd why, of two Children, both born of *Christian* Parents, and both with the original Sin, one dying without *Baptism* was damn'd, according to his Sentiment, and the other being *baptiz'd*, was admitted into Heaven? He us'd to answer nothing else, but what he had learn'd from the Apostle, *O altitudo divitiarum sapientiæ & scientiæ Dei, quam incomprehensibilia sunt vestigia ejus!*

The same Father attacks again the *Pelagians*, in his fourteenth Sermon, *De verbis Apostoli*; on their Distinction between Life everlasting and the Kingdom of Heaven. 'You condemn, says he, those you exclude from the Kingdom of Heaven; you condemn them, not by tormenting them, but by sending them into Exile. For those who are banish'd, suffer no other Pain, but that of being banish'd from their Country; which, if they love their Country, must be a great Torment to them; if not, that Depravation of Heart must be likewise a Sort of Pain. What can be a greater Pain in a Man's Heart, than not to seek after the Society of the Saints, and not desire the Kingdom of Heaven? For if he don't desire it, that bad Disposition is a Pain in him; if he desires it, his Charity, which finds it self frustrated of what it wishes for, must cause him another great Torment. But let it be, if you please, ever so small, it must be still very great for a Person, who, having committed no Fault, deserves no Punishment. Take then the Defence of God's Justice. How can an innocent Person be subject to a Punishment, let it be ever so small?'

Some were of Opinion, that Children, born, as it were, in the Bosom of the Church, and of *Christian* Parents, though dying without *Baptism*, enter'd, notwithstanding, into the Kingdom of Heaven, since they were sav'd by the Faith of their Parents; which Sentiment St. *Augustine* refutes, likewise, as an Error, in his Book *De Naturâ & Gratiâ*; wherein he proves, that Children, though born of *Catholick* Parents, wanted still the *Baptism* to purge them of original Sin.

For my Part, I will not have the Temerity to decide so difficult, and so important a Question, which has puzzled the greatest Genius's, and the most profound Theologians of those Times. For, if we consider the Doctrine of St. *Augustine* by it self, and abstracted from all other Authority, we'll find it very severe. To refuse the Sight of God, which is to make the most essential Part of our eternal Felicity, to little Creatures, who come into the World guilty of a Sin which they have not committed, and which it was not in their Power to commit; and depart from the World charg'd with the same Sin, because depriv'd of the Means of being purg'd of it; and are, nevertheless,

theleſs, condemn'd for not having been purg'd of it; would not ſuch Conduct of the divine Juſtice appear contradictory of the advantageous Ideas the holy Writ gives us of him, *qui non vult mortem peccatoris, ſed ut magis convertatur, & vivat*; who does not deſire the Death of a Sinner, but that he rather ſhould be converted, and live. And if his Mercy is ſo infinite towards thoſe whoſe whole Life has been nothing elſe but a continual Series of Iniquities, and Crimes, as to be ready at all Times to receive them to a true and ſincere Repentance, and to forgive them all their Offences, even the moſt enormous, and thoſe that deſerve the greateſt Puniſhment; how can it be ſuppos'd that Children, who have never had it in their Power to offend him, and who never knew how to offend him, ſhould be excluded from the Kingdom of Heaven, for a Fault committed by another, whom they have not the leaſt Notion of, who has ceas'd to be, ſeveral thouſand Years before they could be ſuppos'd to have had any *Life* or Being; and therefore could not be imagin'd, with the leaſt Appearance of Reaſon, Accomplices in his Crime. But there were Means found, it is true, to waſh them of that original Spot they contracted, by being the Deſcendants of that firſt Criminal, whoſe Poſterity, by an inſeparable and ſecret Judgment of the divine Providence, has been made reſponſible for his Diſobedience; why ſhould then a very conſiderable Number of thoſe Deſcendants be depriv'd of thoſe Means, before they could be capable to do any Thing, which could cauſe that ſeeming Partiality? Were they *predeſtinated* from all *Eternity* to an eternal Privation of the Sight of God, without which, there can be no perfect Felicity; and if they were, (which would be a criminal Suppoſition) where's that great Mercy, where's that Juſtice, ſo much vaunted, in the Scriptures? Are we not aſſur'd in them, that *Chriſt* is dead for all? Is not the whole human Race intituled to the Benefits of his Death? Was not that precious Source, which flow'd from his ſacred Side, when open'd upon the Croſs, abundant enough to form a ſalutary Bath, capable to contain the whole human Race, without Excluſion; and its Waters ſufficient to waſh us of all our Impurities? And if they are not to prove beneficial to all, without Diſtinction, it ſhould be to thoſe only who have it in their Power to refuſe the Remedy when offer'd to them; and not to thoſe innocent Victims who can be reproach'd with no other Crime, but the involuntary one of being ſprung from a vitiated Origin. It is true, again, that the *final Grace* is a GRACE, and conſequently can be refus'd at Pleaſure; but if it is to be granted, and is often really granted, it ſhould be to thoſe who have done nothing to be ſequeſtrated from it. That Recourſe which St. *Auguſtine* has to the Depth of God's Judgments, is not capable to ſatisfy a rational Mind on that intereſting Subject, nor agreeable to the Sentiments we ſhould have, as *Chriſtians*, of the impartial Equity, and infinite Mercy of our divine Creator.

The Neceſſity of *Baptiſm* was no ſooner conſider'd as indiſpenſible in the Church, but it occaſion'd ſome Confuſion among its Members; for, beſides that abovemention'd, there happen'd another, in 216, about the Validity of *Baptiſm*, with regard to the Miniſters thereof.

Tertullian, in his Book of *Baptiſm*, compos'd before his Revolt, ſpeaks againſt the Validity of that Sacrament, when adminiſter'd by *Hereticks*; who having not, ſays he, the ſame God, nor the ſame *Chriſt*, with the Orthodox, could not, conſequently, have the ſame *Baptiſm*. He had wrote the ſame Thing in a *Greek* Treatiſe, which is loſt. From this Doctrine, *Agrippinus*, Biſhop of *Carthage*, through the Exceſs of an imprudent Zeal againſt the *Hereſy*, took Occaſion to condemn *Baptiſm*, adminiſter'd by any Sect whatever, out of the *Catholick* Church. He aſſembled the Biſhops of his Province, and of *Numidia*, and in Concert with them decreed, that all thoſe who had been *baptiz'd* by *Hereticks* ſhould be *baptiz'd* a new; though they had obſerv'd in the Matter and Form what was practis'd by the Orthodox. St. *Auguſtine*, *Lib.* 2. *Contra Donatiſt.* ſpeaking of this Repetition of the Sacrament, which makes us *Chriſtians*, ſays, that the Cuſtom of receiving into the Church thoſe who had been *baptiz'd* by *Hereticks*, was, in his Opinion, of apoſtolical Tradition, ſince it was not found written any where, but univerſally receiv'd every where; and that *Agrippinus*, Biſhop of *Carthage*, had corrupted, rather than reform'd it, encourag'd thereto by captious Reaſonings, and falſe Appearances of Piety; which had hinder'd him and his Colleagues from finding the Way of Truth in that Queſtion, and has caus'd a great deal of Confuſion in the Church.

Contrary to this Sentiment of St. *Auguſtine*, and following the Example of the *Cataphriges*, and of the *Novatians*, who us'd to *re-baptize* thoſe who came to them from the *Catholick* Church; ſome orthodox Biſhops, eſpecially in the Eaſt, to ſhew, through an indiſcreet Zeal, the Horror they had of the *Hereticks*, began likewiſe to *re-baptize* thoſe who renounc'd their former Errors. This Practice of ſome was ſoon chang'd into a general Law; for St. *Cyprian* aſſures us, *Epiſt.* 73. that ſeveral Biſhops of *Cilicia*, *Cappadocia*, *Galatia*, and of the neighbouring Provinces, being aſſembled in the Town of *Iconia*, in 258; declar'd the *Baptiſm* of *Hereticks* null, and conſequently ought to be adminiſter'd a-new, to all thoſe who ſhould renounce their Errors, before they could be receiv'd into the Church. *Firmilian*, Biſhop of *Cæſarea* in *Cappadocia*, was the moſt zealous Promoter of that Decree; of which Pope *Stephen* being inform'd, they were all excommunicated by him, and all thoſe Churches excluded from his Communion; or, to uſe *Euſebius*'s Terms, *l.* 7. *c.* 4. *Stephen* refus'd to communicate with them, becauſe their Decree was contrary to the antient Cuſtom. They ſent him Deputies, to inform him of their Reaſons; but he would neither ſee nor hear them. *Dennis* of *Alexandria* wrote likewiſe, as well to appeaſe him, as to procure a Reconciliation between them, leſt their Diſunion ſhould cauſe ſome great Schiſm.

From the Eaſt, the Fire ſpread as far as *Africa*; the Biſhops of *Numidia* conſulted on that Subject St. *Cyprian*, whoſe Piety and Doctrine, as well as his *Primacy*, had render'd conſiderable among them. He had no ſooner receiv'd their Letters, but he aſſembled a Synod at *Carthage*, wherein, with the Advice of the other Biſhops, he declar'd, that *Baptiſm* could be valid no where but in the *Catholick* Church, and conſequently that thoſe who ſhould return to it, from their Schiſm, ought to be *baptiz'd* a-new. This Decree was confirm'd ſoon after, in a Council of 71 Biſhops, who acquainted Pope *Stephen* with it, by a *Synodal Letter*. He anſwer'd them, *That no Innovation ought to be made in the Church, that their Deciſion was againſt the Tradition, and that they ſhould content themſelves with receiving to Penance thoſe who ſhould forſake the* Hereticks.

This Reſolution of *Stephen* did not prove very agreeable to St. *Cyprian*, who had already wrote a long Epiſtle to *Jubajanus*, to ſupport his Sentiment; proteſting, nevertheleſs, that he would oblige no Body to it, leſt it ſhould occaſion a Schiſm. Therefore he aſſembled again the Biſhops of *Africa*, *Numidia*, and *Mauritania*, who all, with one Voice, confirm'd the Decrees which had been made in the preceding Synods. He inform'd *Maximilian*, of *Cæſarea* in *Cappadocia*, of this Deciſion; and as he was already irritated againſt Pope *Stephen*, he could not help expreſſing his Reſentment, in his Anſwer to him; in which he ſays ſeveral Things very little becoming the epiſcopal Dignity, reproaching him, among other Things, with *glorifying himſelf without Reaſon, of the Place of his Epiſcopacy, and of the Succeſſion of St.* Peter, *on whom the Foundation of the Church has been eſtabliſhed, introducing ſeveral other Prayers, and conſtituting a Plurality of Churches by his Opinion, that the* Baptiſm *of* Hereticks *was valid. Stephen*, on his Side, defended himſelf with as much Heat; ſo that they both ſhew'd, on that Occaſion, that the Saints, while

while yet upon Earth, are Men, and that sometimes a too great Excess of Zeal makes the wisest commit some very great Faults.

The Question of the *Baptism* of *Hereticks* was not yet very well understood, and every one had some probable Reasons to defend his Opinion, though, to say the Truth, those of the *African* Bishops, and the Authorities they endeavour to support their Opinion with, are rather pious and moral, than literal and convincing. All the Bishops of the Province were not of the same Sentiment, and St. *Augustine* assures us, that several follow'd the Opinion and Resolution of *Stephen*.

The *Donatists* who appear'd since, and maintain'd the Necessity of that Reiteration, as one of the Foundations of their Sect, could reckon but fifty Bishops of the East, and seventy-two of *Africa*, to support their Practice by that of the Antients. *Denys*, Bishop of *Alexandria*, famous for his Piety, prov'd to be one of the most strenuous Afferters of the Opinion of the *Africans*, and wrote, on that Subject, several Letters to Pope *Stephen*, and to some Priests of the *Roman* Church, with a Design to reunite them all with the Bishops, who had embrac'd that Opinion. St. *Augustine*, *Epist.* 48. says of St. *Cyprian*, that it could not be found that he had ever chang'd his Sentiment, though it seems probable that he could very well have done it; that those who were pleas'd with his Error, might very well have suppress'd his Recantation; that several even maintain'd, that he had never advanc'd it; and that Impostors, to cloak themselves with his Authority, had attributed to him what he had never believ'd.

The *Africans* continu'd long after his Death in the Practice of *re-baptizing*; but, at the first Council of *Arles*, was found a very reasonable Medium between both Extremes; which is, that those of the *Hereticks* who would abandon their Sect, should be interrogated on the Symbol; and if it was found that they had been *baptiz'd* in the Name of the Father, of the Son, and of the Holy Ghost, they ought not to be *re-baptiz'd*, but should only have the Hands impos'd on them, that they might receive the Holy Ghost; *i. e.* that they should be confirm'd by the Bishop: That if some of them could not answer to that Trinity, (which are the express Terms of the Canon) *i. e.* should be found to have not been *baptiz'd* in the Name of the three Persons, or to have not that orthodox Belief, they ought to be *re-baptiz'd*. This universal Practice is to this Day observ'd in the Church.

In Fact, as it is an Error to say that all *Baptism*, administer'd by *Hereticks*, is bad; it is one, likewise, to pretend that all *Baptism*, coming from them, is good: This Difference is to be taken, not from the greater or lesser Spot of *Heresy*, but from the *Dogma's* relating distinctly to the orthodox Belief of the blessed Trinity.

This Error of *re-baptizing Hereticks*, or those who go from one Sect to the other, is almost entirely abolish'd in the *Christian* Religion; and all *Christians*, of what Denomination soever, do not in the least dispute the Validity of the *Baptism*, provided it be administer'd in the Name of the three Persons of the Trinity. The *Roman Catholick* Church, who believe *Baptism* to be of an indispensible Necessity to Salvation, and exclude from the Kingdom of Heaven all those who have not been regenerated by the salutary Waters of that Sacrament, does not confine its Administration to the Clergy alone, but is of Opinion, that in Case of Necessity a Layman, and even a Woman, can be Minister of *Baptism*, though *Christ* seems to have confin'd it to his Apostles, and their Successors: For we don't read in the Gospel, that he gave Power to any Body else to preach, and *baptize*; which is the second essential Function of their Apostolate: But as that Church supposes that she is in Possession of the inestimable Treasure of Grace, which *Christ* left his Apostles when he retir'd into Heaven; and that she is not to keep that Treasure hidden, but must distribute the Riches thereof with a judicious, though liberal Œconomy, to all the Members of *Christ*, as far as that Liberality can help them to reunite themselves to their Chief, in those celestial Mansions whose *everlasting Gates* (as the royal Prophet calls them) he has open'd to them by the Effusion of his precious Blood, and where he expects them, sitting at the Right Hand of his Father) supposes likewise, that she has the Power to interpret the Intentions of *Christ*, as far as it concerns the Salvation of those who can claim a Title to the Benefits of his Incarnation; and that she can appoint what Sort of Œconomists she pleases, for the Distribution of his Graces, when it is impossible they should be distributed by the Successors of those he had been pleas'd to appoint himself; especially when the Danger is imminent. That it would be acting contrary to the Principles of that extensive Charity, on which the *Christian* Church is founded, and frustrate the divine Intentions of the Saviour of the World, to expose Children to the Risque of dying without that Regeneration, which, alone, can introduce them into Heaven; which would often happen, (considering the vast Number of Accidents Children are expos'd to when they come first into the World) if none but the true Ministers of the Sacraments could administer the *Baptism*, whose Place she will have supply'd by the first Person present, when it is judg'd that by waiting for a Priest, the Infant would run the Risque of dying without *Baptism*; which salutary Precaution cannot be blam'd, especially by those who admit *Baptism* as necessary to Salvation, nor even by those who are of a contrary Opinion: For, as almost all *Christian* Sects not only *baptize*, but likewise confess *Baptism* to be a Sacrament, and consequently to confer the Grace of *God*; there can be no Crime in administering it by Precaution, nor even in the Incertitude, that it be necessary to Salvation, or not; for if it be necessary to Salvation, though not administer'd by a Priest, the Impossibility we were in of having it administer'd by a Priest, and our being certain that it is administer'd, must be a greater Satisfaction to us, than if it was not administer'd at all, and renders our Inquietudes less. And if *Baptism* is not necessary to Salvation, as we all agree that it is a very good Thing in it self, there can be no Inconvenience in the Administration of it; for if it don't produce any good Effects, it would be contradicting our selves to suppose that it can produce any bad ones. Thus we reason in our worldly Affairs; why should we not be as cautious in what relates to the eternal Felicity of our Children, who often, by our ridiculous, and most cruel Obstinacy, or Negligence, die, leaving us in the Incertitude of it. Should our fanatical Prejudices over-ballance that Tenderness Nature it self claims from us for them? Or should that Tenderness extend no farther than that Instinct we have in common with the Brutes? What Reproaches should we subject our selves to, if our Children were to lose their transitory Life by our Negligence? Could we even forgive our selves, if we thought that we could have call'd to their Assistance such and such Persons, who, we are told, could perhaps have sav'd their Lives, or neglected to apply such and such Remedy, which had been recommended to us as a Specifick in the Malady, which has carried them off? Why should we not be then as cautious, and as careful, of their eternal Life? Why should we neglect any Means offer'd to us to procure them that Life, as much preferable to the other, as a Sound, or a Chimæra, is to a Reality? Is then an Eternity of so little Value, as not to deserve to be purchas'd, at any Rate? How often do we please our selves with the Thought, that if our Children die we have nothing to reproach our selves with, since we have done all in our Power to save their Lives? With what greater Satisfaction should we say that of their eternal Life? What! because we are of an Opinion different from all other *Christian* Societies; because we have the criminal Presumption to give a forced Sense to the literal Sense of the Scripture, which assures us, that *nihil inquinatum intrabit Regnum Cœlorum*;

lorum; That nothing unholy shall enter the Kingdom of Heaven: Because, contrary to the express Commandment of *Christ* to his Apostles, who order'd them to *baptize* all Nations he sent them to, we deny the Necessity of *Baptism*; must our Children suffer for our criminal Presumption? If they have contracted the original Sin, can they enter the Kingdom of Heaven, charg'd with that original Sin? And if they can, why has the second Person of the blessed Trinity been incarnated, has suffer'd and died, when we are assur'd that it was to open to us the Kingdom of Heaven, which we had lost by *Adam*'s Disobedience? You'll say, perhaps, that his precious Blood has wash'd that original Sin: If so, why should he say himself, *qui crediderit, & baptisatus fuerit salvus erit*; Whoever believes, and is *baptiz'd*, shall be sav'd? Why should he himself make our Salvation depend on that *Baptism*, if we can be sav'd without it? And if that Commandment given to his Apostles *to baptize*, is not an obligatory Commandment, but only an Advice, (which is a false Supposition) why should we refuse to follow that Advice? If we pretend to tend towards the *Christian Perfection*, can we do it without following as much as it is in our Power, all the Advices, as well as the Precepts? And if we are not, can we err, or deceive our selves, in following them? Can we find any Thing in that sacred Book, contrary to Morality, or prejudicial to our selves? Can we find in it any Thing which could countenance our Obstinacy with Regard to *Baptism*? Can we quote any Passage from it, whereby we are forbidden to *baptize* our Children, or that it is a Crime to do it? They are not in a Condition to answer for themselves; for *Christ* says, *qui crediderit, & baptisatus fuerit*; therefore as they cannot believe they are not to be *baptiz'd*. A very just Conclusion! and very well deduc'd from the Premises! If *Christ* had said, none but he that believes shall be *baptiz'd*; or none but those that shall be capable to make an open Profession of their Faith, shall be *baptiz'd*; there would be some Appearance of Reason to refuse *Baptism* to Children newly born: But there's nothing of that in this Passage; whereby it appears that *Christ*'s Intention is, that we should not; that it is not sufficient to Salvation to believe without being *baptiz'd*; and that Faith, without that Regeneration, is nothing else but a dead Faith.

I confess, that Children are not in a Condition to ask for *Baptism*; neither are they in a Condition to ask for their temporal Preservation; therefore we must abandon them to their Fate, and let them help themselves if they can, if not, they must die. As for my Part, I see no Difference between both Cases; but if they cannot answer for their Faith, does not the Church, their Parents, or their *Sponsors*, answer for their Faith? And those who answer for their Faith, do they not contract, at the same Time, an Obligation of instructing them in that Faith? Will they have a more implicit Faith, when twelve, fifteen, or twenty Years of Age than they have; and for one that has, how many do we see, that have none, and only speak as taught by their Parents, without knowing often what they are speaking of? Is it any Difference between that Profession, and that which their Parents could have made, if they had been *baptiz'd* as soon as they were born, or are not rather both Professions the Profession of their Parents? With this single, and insignificant Difference, that it only passes through two different Organs.

I am not, however, in this Case, entirely of the Opinion of St. *Augustine*; for I cannot believe, or rather I judge it incompatible with God's infinite Mercy, that an innocent Creature, who has never offended, should be depriv'd of the Benefits of his Death, as if in some Manner created for Damnation, and only brought to Light to be a few Moments after condemn'd to an eternal Darkness, or to die before he could be sensible that he has liv'd. If *Baptism* is an essential Condition of our Salvation, this Case of an Infant's Death, before we can possibly have Recourse to that Remedy, must be excepted; otherwise it would be putting Limits to God's infinite Mercy and Power, who, by some Secrets of his profound Wisdom, which we cannot penetrate, and in that inexhaustible Source of Mercy which has flow'd continually through his Church ever since it was first open'd upon the Cross, has left some Means, unknown to us, to save those innocent Victims of a foreign Guilt from the Mass of Corruption, than those procur'd to us by *Baptism*. For how can we reasonably suppose the *Baptism of Fire*, which the Church confesses to be sufficient for the Regeneration of the Adults, reduced to the Impossibility of being *baptiz'd*, before they render the last Tribute to Nature; and that, at such a critical Conjuncture, their Faith, and the ardent Desire of being *baptiz'd*, have the same Effects as *Baptism* it self; and be so cruel to refuse to Children, reduc'd to the same Impossibility, some Means of the like Nature? Is then the Salvation of Adults dearer to God, than that of those poor Children who do not ask, or desire to be *baptiz'd*, because he will not permit them to form such Desire, and are not *baptiz'd* because he has not allow'd them Time for it. Would not their Complaints, during a whole Eternity, of their being damn'd because they were not permitted to be sav'd, be a Sort of Reflection on the divine Justice; and would not that eternal Truth, that *Christ* is dead for all, be revok'd in Doubt? Therefore have we not a very great Reason to believe that those Children who die in the Womb of their Mother, or in the Birth, or a few Moments after their Birth, are as much favour'd as the Adults who die without *Baptism*, though they ardently wish for it; and that their Innocence and Imbecility contribute as much towards their Regeneration, as the Impossibility others are reduc'd to of being regenerated by Water; and that the one and the other are regenerated by the *Holy Ghost*?

This must not be understood of Adults, who die without *Baptism*, though it has been so often in their Power to have it administer'd to them; for as our Salvation is a special Grace of God, he is not oblig'd to have Recourse to other Means to operate that Salvation, than to those he has determin'd it should be operated by, and which he is pleas'd to mention in his Gospel. We flatter our selves, if we imagine that one suffices, where he proposes two; *i. e.* that when he says, that *qui crediderit, & baptisatus fuerit, salvus erit*; Faith without *Baptism* suffices: For if that had been the Design of our divine Saviour, he had said, *qui crediderit, vel baptisatus fuerit*, or *qui crediderit* only, *salvus erit*; since his Discourse was always concise, without the least Superfluity of Words: Therefore his mentioning both Conditions, shews plainly, and without Equivocation, that one could not operate our Salvation without the other: Besides, have we the least Certitude that one will do, but, on the contrary, are more than certain that both are sufficient? Why should we be so far our own Enemies, as to depend on an Improbability, when we can so easily secure our selves on that Side? Nothing but Obstinacy, or Folly, can induce us to act, or think so contrary, not only to the Gospel, but even to the Dictates of our Reason. Would we be contented, when we purchase an Estate, with a Title which every Body else but our selves believe precarious, if we could have two very good and incontestable ones? And if we would, what Opinion could the most sensible Part of Mankind entertain of our Judgment? I hope the Reader will be persuaded that I speak in this Place without Partiality or Prejudice; that I advance no new *Dogma's*, since I content my self with exposing *naively* the Sentiments of the antient Fathers, and the Practice of the primitive Church; and if I have had the Presumption to add to it some Reflections of my own, I endeavour to render them agreeable to those Sentiments, and to that Practice, without pretending to make my self Arbiter of the Differences which subsist yet on this important Subject; or expecting that those Reflexions should be minded, otherwise than they are founded on the Prin-

Principles of *Christianity*, and authoriz'd by the Gospel itself, which should always be our Guide in Matters of Faith.

It appears plainly, by what I have said, that several Disputes have arisen in the Church touching the Form of *Baptism*, and the Manner of administring it; the opposite Parties have all agreed in this, that it was of an indispensible Necessity for our Initiation into the Church of Christ, and none has ever dared to advance, that without it we could be admitted into the Society of the Faithful, or even worthy of being called Christians; if some have been capable since to find something in the Scripture which could support another different Belief, and are authorised to consider, as Christians, those who are not distinguished from the Jews, Pagans, and Infidels, by that sacred Characteristick, they have been happier than me, who should have been extraordinarily well pleased with such new Discovery, which could flatter me with the Hope to meet in Heaven, with those who by their Piety, Equity, Charity, and all the other christian and moral Virtues, capable to adorn our Soul, seem to claim an unconteftable Right to it, though they had entered through a Door different from that, which Christ himself, his Apostles, and their Successors, were pleased to shew us; but alas! where could that be found but in the Scripture; and in what Part of the Scripture can it be found in; is what is not come yet to my Knowledge; besides, if it could even be found, it would then appear such a Contradiction, between the Oracles of the Holy Ghost, that they should lose a great deal of their Authority, and make a judicious Mind question the Truth of the whole.

No Consideration whatever should engage us to abandon ourselves to that criminal Complaisance of deceiving those who claim the same Title with us, to the Benefits of Christ's Passion, in so tender a Part as is that of their eternal Salvation; what! under Pretence of a pretended tender Conscience, must we indulge them in their erroneous Sentiment; under Pretence, that they are entirely bent on their own Destruction, must we lend them a Hand to hasten them to the Precipice? Is not he that sees unconcerned, a Murder committed, when it is in his Power to hinder it, equally guilty with the Murderer? Is that imitating the Zeal of the first Founders of the Christian Church, whom the most cruel Persecutions, could not deter from shewing to the most formidable Powers of the Earth their Errors, and the Ridicule of their Superstitions? If that Charity we boast of, and whereby we pretend to be obliged to rank among Christians, those who refuse obstinately to be such, is a true christian Charity, why has it not been practised in the primitive Church? Why did not the Apostles use the same Indulgence towards the *Jews*, who professed a Religion, whose principal Articles had been dictated by God himself? Was not the Circumcision ordered by the Law of *Moses?* Had not Christ submitted himself to it? Was not that Circumcision a Type of *Baptism*? And could not the Apostles have pleaded the tender Conscience of the *Jews*, as an Excuse for indulging them in the Practice of that Part of the Ceremonial Law exclusively of *Baptism*, with far greater Appearance of Reason, than we can pretend to have, to indulge those among us, in their Opposition to *Baptism*, when they can plead nothing which could supply its Place? In acting thus, what Idea can we pretend to give to the other Churches of our Faith; since we seem to treat the chief Articles of it in so indifferent a Manner, and to follow a Method, of which we have no Precedent, in the Histories of the Church, and which had been abhorred as well by the Hereticks of all Ages, as by the Orthodox, of which we have so many Instances, in the Conduct of the *Cataphriges*, *Novatians*, *Eunomians*, *Donatists*, &c. For if those Hereticks had not thought *Baptism* absolutely necessary for our Initiation into the Christian Church, what could have induced them to rebaptise those who came from the Orthodox to them? If they had been of the Opinion, that Faith without *Baptism*, is sufficient to distinguish a *Christian* Society from *Jews*, and Idolaters, why could they not content themselves with that Faith, and admit into their Assemblies, all those who professed publickly that Faith, without that Condition of a Regeneration by *Baptism*; and if they were not persuaded that that Sacrament was absolutely necessary to Salvation, at least in Adults, why should they have put their Proselytes to the Trouble of being baptised a-new, when they had been already baptised in another Society, since by having acted as we do, they had avoided all those Troubles and Confusions which their Precautions caused in the *Christian* Church? But we give into another Excess, for we are so very complaisant, that we even call tender Conscienced Brethren, those who were never baptised. On what Foundation can a Society be called a *Christian* Society, which has no Sacraments? Or has ever any *Christian* Society, except of later Times, pretended to be *Christians* without Sacraments? For those Societies, who deny the Regeneration by Water, have no Sacraments; since from the very Foundation of the *Christian* Church, a *Sacrament* has always been accounted *Signum visibile Rei invisibilis*, a Sign visible of a Thing invisible. Where's the Sign visible of that pretended *Baptism* by the Holy Ghost alone? For if the Water was not necessary in the Administration of that Sacrament, why would Christ be baptised by Water? Why could not St. *Philip* content himself with the publick Profession of Faith of the Eunuch of Queen *Candace*? Why would St. *Peter* take the Trouble of baptising that great Multitude, which was converted by his two Predications? And if we have not thought proper to reform that Sacrament; *but on the contrary believe that none can enter into the Kingdom of Heaven except he be regenerated, and born a-new, of Water and of the Holy Ghost*, as we express it in formal Terms in the Administration of *Infant-Baptism*; if in the same Place we *call upon God the Father, through our Lord Jesus Christ, that of his bounteous Mercy he will grant to this Child, that Thing, which* BY NATURE HE CANNOT HAVE, *that he may be baptised by Water and the Holy Ghost, and* RECEIVED INTO CHRIST'S HOLY CHURCH, *and be* MADE A LIVELY MEMBER OF THE SAME. If again, we *call upon God for this Infant, that he, coming to his holy Baptism, may receive* REMISSION OF HIS SINS BY SPIRITUAL REGENERATION; do we not contradict all this, by indulging *our tender Conscience Brethren*, (as we call them) in a contrary Opinion? For can we have the Presumption to rank them among our Brethren, and admit of a mystical Affinity with them, when we confess, that we cannot be *made a lively Member of Christ's holy Church, without being baptised by Water and the Holy Ghost?* That we cannot *receive Remission of the original Sin* (since an Infant can have no other) *but by Baptism*? Can we plead our very extensive Charity on this Occasion? And if we do, what Sort of Charity is ours? Would it be an Act of Charity to help a Person already blind of one Eye, to extirpate the other, because he is willing to do it; and that, by endeavouring to hinder him from doing it, we might run the Risk of disobliging him? Why don't we use the same Indulgence towards the *Roman Catholicks*, and call them likewise our tender Conscience Brethren; which we could do with a great deal more Reason, since they are baptised, as we are, and consequently we cannot but confess that they are *Christians*, nay that we have even received our Christianity from them; and nevertheless we exclaim and inveigh against them, as against Wolves in the Sheepfold, while we cajole, and admit into our Society, those who have not the very first distinguishable Character of Christianity? Where's our Zeal for the Edification of the Lord's House, and for the eternal Salvation of our Brethren; we know that they are born like us in the original Sin, we confess that nothing but the salutary Waters of *Baptism* can wash that Sin; we are conscious that we cannot enter the Kingdom of Heaven, before we be washed of that original Sin,

and nevertheless, we indulge our tender Conscience Brethren, so far as to leave them in their voluntary Ignorance on that Point; whereas were they once convinced of the Necessity of *Baptism*, they would add a new Lustre to the *Christian* Church by their Christian and moral Virtues, which they practise, out of it, to the Edification of the whole World. How cruel we are to contribute as much as is in our Power to the Perdition of those honest Souls, who want nothing else but *Baptism* to render them as perfect, almost, as our celestial Father is perfect; who by their Equity, Charity, Disinterestedness, Hatred of the World, and of its Pomps, give us a true Model of the Life which the Saints lead in the celestial Mansions.

In the Primitive Church, and to this Day in the *Roman Catholick*, the Water, for Persons to be baptised with, was preserved in Places or Edifices, called BAPTISTERIES. In the Churches which baptised by Immersion, the *Baptistery* was a Kind of Pond, where the *Catechumens* were plunged; though in many Places the next River served for a *Baptistery*. In Aftertimes the *Baptistery* was a little Building adjoining to the Church, purposely appointed for the Administration of this Ceremony. There were several Fonts and Altars in each *Baptistery*, because then they baptised a Number at once, all of whom received the Eucharist immediately after. At first these *Baptisteries* were only in the great Cities; but they afterwards allowed Parishes to have Fonts, for the more commodious Administration of *Baptism*. This Right was confined to Parishes alone; and if any Monasteries were found with *Baptismal* Fonts, it was because they had *Baptismal* Churches in another Place; though the Bishops sometimes granted them to Monks, upon Condition that they would have a secular Priest along with them, to take Care of the People; but they afterwards found Means to throw off the Priest, and make themselves Masters of the Church, and attach it, with its *Baptismal* Fonts, to their own Monastery. In the *Gallican* Church none but Parochial Churches are allowed to have *Baptisteries*, or, as they call them, *Fonts Baptismaux*, where all Children are carried to be baptised, except in the Cases of an extreme Necessity heretofore-mentioned.

When the Rector, or his Curate, is informed that there is a Child to be baptised, he comes to the Church, and having put on his Surplice, and a Stole, he goes to meet the Child at the Entrance of the Church, where he reads the Exorcisms, then he throws one of the Ends of his Stole over the Child, and introduces him into the Church, then he gives him the Name, after which he carries him to the Fonts, where he makes the Unctions with *Chrisma* and the blessed Oil. Beginning on the Breast, and ending at the Shoulder, and concludes with the Aspersion, which he makes on the naked Head in the Form of a Cross, receiving nothing for his Trouble, but what the Godfather and Godmother are pleased to leave at the Fonts.

The Water for *Baptism* is blessed in the *Roman* Church twice a Year, with great Ceremony, *i. e.* on the Eve of *Easter*, and on that of the Pentecost. Though the Belief of that Church is, that all Sort of natural Water is sufficient for the Administration of *Baptism*. This Custom of blessing the Water of the *Baptismal* Fonts, is very antient; since we find that it was practised in the *African* Church in the fourth Century.

These salutary Waters are of such Efficacy, that we find in the ecclesiastical History, that they have several Times procured the Health of the Body, as well as that of the Soul. *Socrates* says, *l.* 7. *c.* 4. that in 408 there was a *Jew* at *Constantinople*, who for several Years had been paralitick; without the most skilful Physicians having been capable to give him any Relief, 'till not knowing whom to apply to else upon Earth, he thought of turning Christian, hoping to find in the salutary Waters of *Baptism*, what he had so long expected, but in vain, "from human Skill. As soon as *Atticus*, Bishop of *Constantinople*, was informed of his Intention, he came to visit him, instructed him in the Christian Religion, and sometime after, had him carried on his Bed to the Church, where he baptised him; the *Jew* was not frustrated in his Expectation, for his Faith saved both his Body and Soul; since he came out of the Water in perfect Health.

Here we conclude our Treatise on *Baptism*, and proceed to give a Description of a certain profane Ceremony practised by Sailors, both on Persons and Vessels, when at certain Latitudes at Sea, call'd also by them *Baptism*, or Christening.

This Sort of Christening, happens but under the Line and the Tropicks, and only on the Vessels and Persons, who pass those Places for the first Time. If it be a Vessel, the Carpenters, shouldering their Axes, come in the Ceremony to ask the Captain that he'll be pleased to pay for the Christ'ning of the Ship, unless he'll rather chuse to have the Beak-head cut off, pretending they have Right to do the one, if the Captain, or Master refuses to comply with the other. Therefore to avoid having his Ship disfigured, he capitulates with those *Mohauks*, and ransoms his Ship, either with Money or Liquor, which is put to their Option. In a *French* Man of War it is either twenty Crowns or a Hogshead of Wine; the Money being almost always preferred to Liquor, the one or the other being immediately delivered to the Claimants, who, on those Conditions let the Ship pass unmolested.

While the Carpenters are capitulating with the Captain, a Pilot dresses himself in a Calf's Skin, or Cow's Skin, with a Furr Cap, and his Face adorned with two frightful Mustachoes, *a la Suisse*, takes his Post in the round Top, attended with a Train of Sailors, armed with Buckets full of Water, waiting for the Captain, who, after he has dispatched his Guests, the Carpenters, comes upon Deck, to whom the old Man *Tropick*, as he is pleased to stile himself, calls, asking him whence he came, and whither bound? Which Questions being answered by the Captain, through a speaking Trumpet, to denote that he is speaking to some Body at a vast Distance from him, *Tropick* tells him, that ever since he has been in that Latitude, *i. e.* from the Beginning of the World, he don't remember to have seen his Ship pass that Way, no more than several of the Crew and Passengers; and therefore must come down to take the usual Tribute, which he exacts from all those, who, for the first Time, pass through his Dominions, which being acquiesced to by the Captain, *Tropick* descends at the Sound of the Trumpets, the Beating of Drums, and the Noise of Kitchen-Instruments, his Limbs trembling, his Head paralitical, and almost worn out with Age, and goes to set himself on a mock Throne, prepared for him at the Foot of the Main-Mast, having on his Right one of the Gunners holding a Waggoner or other Sea-Book, and on his Left the Cook, with a Pot full of black Stuff. At his Feet is placed a large Tub, full of Water, a-cross which is laid a Handspike, on which Seat every one is brought to his mock Tribunal, who is obliged to swear on the Book presented to him by the Gunner, that he'll never kiss any Sailor's Wife in the Absence of her Husband, that he'll make others observe the same Ceremony, he practises at that Time, and several other ridiculous Oaths. Afterwards, if he lays down some Money in a Plate presented to him by some of *Tropick*'s Courtezans, he escapes with a little sprinkling of Water, and a small black Cross, made by the Cook, on his Forehead, to denote that he has paid the Tribute; if not, the Handspike is drawn from under him, and his Breech falls in the Tub, which is soon followed by Streams of Water poured upon him from the Shrouds. The Ceremony over, the Officers and others who have paid the Tribute retire to close Quarters; and the Tars are left to christen one another, which they do plentifully, without Distinction, of those who have not passed the *Tropick* or Line, from the others who have done it several Times; and if by Chance some Officers or others, who have paid the Tribute, chance to appear upon Deck, they seldom

dom escape receiving something of the Aspersion. The whole is concluded by a Pantomime of a whipping Bout, acted by the Ship's Boys, who in Honour of the Day are obliged to whip each other; which they do at first with some Reluctancy, 'till they feel the Smart, for then he who finds his Posteriors a little too freely dealt by, exerts himself likewise on those of his Leaders, and so on, 'till at last, every of them become a *Busby*. The Rest of the Day is spent, if the Weather permits it, in drinking and carouzing.

BOOKS.

BOOK (formed from the *Saxon*, *Boc*, which comes from the Northern *Buech*, a Beech Tree, on which our Ancestors used to write) is the Productions of Persons of Wit and Learning, digested in some Form or Order, and reduced into Writing for the Instruction or Entertainment of others, but too often for the Depravation of their Manners; and to have it transmitted to Posterity.

BOOK is distinguished from *Pamphlet*, or single Paper, by its greater Length, and from *Tome* or *Volume*, by its containing the whole Writing; which is often divided into several Volumes.

Books are commonly divided into *divine* or *sacred*, and *human Books*.

The divine or sacred *Books* are either wrote by Inspiration, as the *Pentateuch*, the *Prophets*, the *Books* of *Solomon*, the *New Testament*, &c. which several *Books*, collected together, compose a whole one called the *Bible*; or as an Explanation of the most difficult Passages of the inspired *Books*, as the several Interpreters of the Scripture, the antient Fathers of the Church, *&c.*

The BIBLE is the most valuable, and most respected of all the divine, sacred *Books*, as containing, the first Precepts, given to *Moses* by the Almighty himself, amidst the Thunder and Lightening of *Mount Sinai*, of the religious Worship and Ceremonies, he was to be adored with upon Earth, and the first Articles of a true Faith.

The *Bibles* are distinguished according to their Language, into *Hebrew*, *Greek*, *Latin*, *Chaldee*, *Syriack*, *Arabick*, *Coptick*, &c.

The first Traduction of the *Bible* is, that of the *Septuagint*, made 280 Years before the Incarnation of *Jesus Christ*, through the Care of *Demetrius Phalereus*, under the Reign of *Ptolemy Philadelphus*, King of *Egypt*, to perfect the famous Library of *Alexandria*, which contained 200,000 Volumes. This Translation was received by the *Jews*; and our Saviour, as well as his Apostles, make use of it, in the Gospel; but it was corrupted soon after the Birth of our Saviour, as well by the *Jews*, as through the Ignorance of the *Copists*. *Origen* was the first who attempted to purge it of its Imperfections, and restore it to its pristine Purity. In which noble and useful Undertaking he was succeeded by the Martyr *Lucian*. *Hesychius*, likewise applied himself to it, and St. *Jerome* perfected it.

Antient Authors do not agree among themselves as to the Manner of this Translation. Some say that the *Seventy* worked upon it separately, and that comparing afterwards their several Versions together, they were all found alike in all Things. Others pretend, that they worked at it two and two. And others, that they did it altogether, consulting one another on the most difficult Passages. The first Manner is considered as a Fable, and as mere Romance, by a great many very learned Divines.

We have at present Bibles, in the several Languages above-mentioned, both Manuscript and printed, and almost all according to the Version of the *Septuagint*, but very imperfect. *F. Simon* is of Opinion that the oldest Manuscript *Hebrew Bibles* are not above 6 or 700 Years: Nor does *Rabbi Menahem*, who quotes a vast Number of them, pretend that any exceed 600 Years. The best are those copied by the *Jews* of *Spain*, and the most common those copied by the *Jews* of *Germany*.

The best printed *Hebrew Bibles*, are those published in *Italy* by *Pesaro* and *Brets*, and there are none correct, but those printed under the Direction of the *Jews*, because a great deal more perfect in the *Hebrew*, which is a Language natural to them, than any other Nation. The *Hebrew Bibles* of *Dan. Bomberg*, printed in Folio and Quarto at *Venice*; the first in 1517, called *the Bible of* Fœlix Pratensis, the Person who revised it, and which is the less exact; and the second in 1526, with the *Massora* and the Commentaries of several *Rabbins*, are the most esteemed both by the *Jews* and *Christians*. Mr. *Chambers* says, that these Bibles were printed in the sixth Century, which is several Centuries before the Art of Printing was first invented; but this is not the least unpardonable Fault committed by that Author. In 1548, the same *Bomberg* printed the *Folio Bible* of *Rabbi Benchajim*, the best and most perfect of them all; it is distinguished from the first of the same *Rabbi*, by the Comment of *Rabbi D. Kinchi*, on the Chronicles, which is not in the preceding. It was from this Edition that *Buxtorf* the Father, printed his Rabbinical *Hebrew Bible* at *Basil* in 1618; which is full of Faults, especially in the Commentaries of the *Rabbins*, where that learned Man altered some Places that were against the Christians. *Le Modena*, a *Rabbin* of *Venice*, published, the same Year, a new Edition of the *Rabbinical Bible*, which he pretends to be more correct than the first.

The *Hebrew Bibles* printed in Quarto, at *Antwerp*, by *Plantin*, in 1566, are very beautiful, both for the Characters and Paper. Those of *Manasseh Ben-Israel*, published at *Amsterdam*, both in 4to and 8vo, the first whereof being in two Columns, is very commodious to the Reader. In 1634, *R. Jac. Lombrose* published a new Edition in 4to at *Venice*, with small literal Notes at the Bottom of each Page, where he explains the *Hebrew* Words by *Spanish* Words. This Bible is much esteemed by the *Jews* at *Constantinople*: In the Text they have distinguished between Words where the Point *Camets* is to be read with a *Camestatuph*, that is by an *o* and not an *a*. The most beautiful and correct of all the *Hebrew Bibles*, in 8vo, are the two of *Jo. Athias*, a *Jew*, of *Amsterdam*. The first, of 1661, is the best Paper; but that of 1667, the most exact; that however published at *Amsterdam* by *Vander Hooght* in 1705, is preferable to any of them.

Of the three *hebraising Protestants*, which have undertook to revise and publish the *Hebrew Bible* after *Athias*, viz. *Clodias*, *Jablonski*, and *Opitius*; that in 4to of *Opitius*, published at *Keil* in 1709, is the best; though he has this Fault in common with the two others, that he has made Use of no Manuscripts but those of the *German* Libraries, neglecting the *French* ones, which are certainly the best; though they have all three this Advantage, that, besides, the Divisions used by the *Jews*, both general and particular, into *Paraskes*, and *Pesukins*, they have also those of the *Christians*, or of the *Latin Bibles*, into Chapters and Verses; the *Keti Ketib*, or various Reading, *Latin* Summaries, *&c.* which make them of considerable Use, with Respect to the *Latin* Editions and the *Concordances*.

The *Bible* was translated into *Greek* by *Aquila*, under the Emperor *Adrian*; but that Version was very imperfect and full of Omissions. *Theodotion* published a new one in 189. *Theodotion* had been a Disciple of *Tatian*;

Tatian; he followed *Marcion*, and from his School, passed to the Synagogue of the *Jews*, where he was received on Condition that he should translate the *Old Testament* into *Greek*, which he did with more Truth and Sincerity than *Aquila* had done, though there are many Additions and Omissions, which he has marked with a great deal of Care and Attention. The numerous Editions we have of the *Bible* in *Greek*, can all be reduced to three, *viz.* that of *Complutum*, or *Alcala de Henares*, that of *Venice*, and that of *Rome*. The first published in 1515 by Cardinal *Ximenes*, and inserted in the *Polyglot Bible*, usually called the *Complutesian Bible*. This Edition is one of the best extant, and has been reprinted in the *Polyglot Bible* of *Antwerp*, in that of *Paris*, and in the 4to *Bible*, commonly called *Bible of Vatable*. The second is that of *Venice* in 1518, reckoned full of Faults of the Copists, as having been printed just as it stood in the Manuscript; it has been reprinted at *Strasburg*, *Basil*, *Francfort*, and other Places. The best of them all is the Third, printed at *Rome*, in 1587, with *Greek Scholia*, collected from the Manuscripts in the *Roman* Libraries, by *P. Morin*. This fine Edition has been reprinted at *Paris* in 1628, by *J. Morin*, Priest of the Oratory, who has added the *Latin* Translation, which in the *Roman* was printed separately, with *Scholia*. The *Greek* Edition of *Rome* has been printed in the *Polyglot Bible* of *London*; to which are added at Bottom the various Readings of the *Alexandrian* Manuscript.

The *Latin Bibles* are also reduc'd to three Classes, *viz.* the antient *Vulgate*, translated from the *Greek Septuagint*; the *modern Vulgate*, the greatest Part of which is done from the *Hebrew* Text; and the new *Latin* Translations, done also from the *Hebrew* Text in the sixteenth Century.

The *antient Vulgate* is of very great Antiquity in the *Latin* Church, since it was the common, or vulgar Version, before St. *Jerome* made a new one, whence it is nam'd *Vulgate*. *Nobilius*, in 1588, and *F. Morin*, in 1628, gave new Editions of it, pretending to have restor'd and recollected it from the Antients who had cited it. The *Vulgate* was held by St. *Augustine* to be preferable to all the other *Latin* Versions then extant; as rendering the Words and Sense of the sacred Text more closely and justly than any of the rest. It has since been retouch'd from the Corrections of St. *Jerome*, and it is from this Mixture of the antient *Italick* Version, and some Corrections of St. *Jerom*, that it is now call'd the *Vulgate*, and which the Council of *Trent* has declar'd to be authentick. This *Vulgate* alone is us'd in the *Roman* Church, excepting some Passages of the antient *Vulgate*, left in the *Missal*, and the *Psalms*; which are still sung according to the old *Italick* Version. Some Authors pretend, that we have nothing left of the *antient Vulgate* us'd in the primitive Times in the Western Churches, but the *Psalms*, *Wisdom*, and *Ecclesiastes*.

We have, on the contrary, a considerable Number of Editions of the *modern Vulgate*. That inserted by the Order of Cardinal *Ximenes*, in the *Bible* of *Complutum*, is one of the best, as well as that of *R. Stephens*, printed in 1540, and reprinted in 1545; in which are added, on the Margin, the various Readings of several *Latin* Manuscripts, which he had consulted. This Edition was revis'd afterwards by the Doctors of *Louvain*, who likewise added to it the various Readings of several *Latin* Manuscripts.

The Correction of Pope *Clement* VIII, in 1592, is now the Standard of all the *Roman* Churches; from this the *Bibles* of *Plantin* were done, and from those of *Plantin* all the rest. The *Protestants* accuse those Editions of Pope *Clement*, with having some new Texts added, and many old ones alter'd, to countenance and confirm what they call the *Catholick Doctrine*; and the *Roman Catholicks* reproach the *Protestants* with the same Want of Sincerity; pretending, that what's alledg'd against them on that Subject, is a Calumny, forg'd with no other Design, than to render them suspected to Persons who otherwise would be very ready to espouse their Doctrine: That they thought such Falshood had been clearly enough evidenc'd, in the famous, and for ever memorable Conference of *Fontainbleau*, between Cardinal *du Peron*, and *Plessis Mornay*; and by their Editions of the *Vulgate*, having been so often compar'd, by *Protestants* themselves, with the most authentick original Manuscripts.

In Answer to this, and to confirm the Charge laid against the *Roman Catholicks* of Infidelity, in the Editions of *Clement* VIII, they quote Father *Bebours*, who owns, that among the Differences that are found between the common *Greek* and the *Vulgate*, there are some wherein the *Greek* Reading appears more clear and natural than that of the *Latin*; so that the second might be corrected from the first, if the holy See should think fit. The *Catholicks* reply, that those Differences, even in the Opinion of the best *Protestant* Authors, consist only in a few Syllables, or Words that rarely touch the Sense; the *Vulgate* being authoriz'd, in the most considerable Places, by several antient Manuscripts, which, however, are not perhaps so correct as were those with which the antient *Italic* or *Vulgate* Version was compar'd by St. *Jerom*. For as they were then nearer the Times of the *Apostles*, they might be suppos'd to have had juster *Greek* Copies, and those better kept, than any of those us'd when Printing was first set on Foot.

There are great Numbers of *Latin Bibles*, of the third Class, comprehending the Versions from the Originals of the sacred *Books* made within these 200 Years. The first is that of *Santes Pagninus*, a *Dominican*, printed at *Lions*, in *Quarto*, in 1528; much esteem'd by the *Jews*. This the Author improv'd in a *second Edition*. In 1542, there was a beautiful Edition of the same at *Lyons*, in *Folio*; and *R. Stephens* reprinted it, with the *Vulgate*, in 1557. There is also another Edition of 1586, in *four Columns*, under the Name of *Vatable*. The Text of that of 1542, abovementioned, with *Scholia*, by *Michael Servetus*, is suspected by the *Roman Catholicks*, as being alter'd in several Places, as they pretend, on Purpose to favour the *Reformation*; as for the *Scholia*, they condemn them as heretical, schismatical, tending to *Heresy*, &c. This same Version of *Pagninus*, corrected by *Arius Montanus*, having been approv'd by the Doctors of *Louvain*, was inserted in the *Polyglot* of *Philip* II. and since in that of *London*; there have been various Editions of it in Folio, 4to, and 8vo, to which have been added the *Hebrew* Text of the *Old Testament*, and the *Greek*, of the *New*.

The *Samaritan Bible*, which admits no more for holy Scripture than the *Pentateuch*, or five Books of *Moses*, being the most antient of all, deserves also the first Rank. This Version has never been printed alone, nor any where but in the *Polyglots* of *London* and *Paris*. This *Samaritan Pentateuch* differs in some Respect from that of the *Jews*, and is written in different Characters, called *Samaritan Characters*; which *Origen*, St. *Jerome*, and other Fathers, and Criticks, antient and modern, take to be the primitive Characters of the antient *Hebrews*, though others maintain the contrary.

What we call *Chaldee Bibles*, are not properly a strict Version of the Scriptures, but only Glosses and Paraphrases upon it, which the *Jews* call *Targum*; for as during their long Captivity in *Babylon* they had forgot their antient Language the *Hebrew*, and now understood nothing but the Language of their Masters, the *Chaldeans*, there was a Necessity of explaining the Prophets in that Language; and to this Necessity is owing the first Beginning of the *Chaldee Paraphrase*, to make the Sense of the Text understood. Each Doctor made a Paraphrase of some Part thereof in the vulgar Tongue; and as these several Interpretations, in Time, became very voluminous, certain *Rabbins* undertook to collect them together, and this Collection they call the *Targum*. Though they do not agree about the Antiquity of the *Targum*; for the more modern *Jews*, having blended their own Comments,

ments, with those of the Antients, no certain Age or Æra can be fixed for the whole Work.

It is commonly believed that *Rabbi Jonathan*, who lived under the Reign of *Herod* the great, made the first *Chaldee* Version of the Prophets; and with this Version mixed the Interpretations borrowed from Tradition. It is certain that *Onkelos* translated the *Pentateuch* almost Word for Word, and without any Paraphrase; but it is not equally certain, that *Jonathan* was the Author of the other Version of the *Pentateuch* ascribed to him. We know little or nothing of the Authors of the Paraphrase, or *Targum* on the other Books; no more than of those of the *Targum* of *Jerusalem*, which is another imperfect Paraphrase on the five Books of *Moses*; so that in Strictness the *Targum* of *Jonathan* and *Onkelos*, is the only Paraphrase of any Authority. This is what *Scaliger* says in relation to it. The *Hebrew* was translated under the Reign of *Tiberius* into *Chaldee*, by *Jonathan*; the Prophets by *Onkelos*; and the Books of *Moses* into good old *Hierosolymitan*, which was then used at *Jerusalem*, much in the same Manner as *Latin* is among us. It is certain there was a *Targum Hierosolymitanum*, still extant: It was wrote in the vulgar Tongue, but that being then greatly corrupted, we have, now, much a-do to understand it. Those *Targumists* might have seen *Jesus Christ*; it is certain they lived long before the taking of *Jerusalem*.

Widmanstradius printed, at *Vienna*, in 1562, the whole *New Testament* in *Syriac*, in a beautiful Character: After him there were several other Editions; and it was inserted in the *Bible* of *Philip* II. with a *Latin* Translation. *Gabriel Sionita* also published a beautiful *Syriac* Edition of the *Psalms* at *Paris*, in 1525, with a *Latin* Interpretation. The whole *Bible* is printed in *Syriac* in the *Polyglots* of *London* and *Paris*. In which two *Polyglots* there are also *Arabick* Versions of the whole Scriptures, that of the *Old Testament* being attributed by some learned Men to *Saadias*; they give for Reason, that *Aben Ezra*, a great Antagonist of *Saadias*, quotes some Passages of his Version, which are the same with those of the *Arabick* Version in the *Polyglots*; yet others are of Opinion that *Saadias*'s Version is not extant. *Justinian*, Bishop of *Nebio*, printed at *Genoa* in 1516, an *Arabick* Version of the *Psalter*, with the *Hebrew* Text and *Chaldee* Paraphrase, adding *Latin* Interpretations. In 1672 there was printed at *Rome*, by Order of the Congregation *de propagandâ Fide*, an entire *Arabick* Edition of the *Old Testament*. The *Arabick* Version of the *Pentateuch*, of *Erpenices*, called also the *Pentateuch* of *Mauritania*, as being made by the *Jews* of *Barbary*, and for their Use, is esteemed literal, and very exact; as well as the four Evangelists, published at *Rome* in *Arabick*, with a *Latin* Version, in 1591; which have been since reprinted in the *Polyglots* of *London* and *Paris*. We have several authentick Manuscript Copies of the *Bible* in *Coptick* in the great Libraries, especially that of the King of *France*.

The *Æthiopians* have also translated the *Bible* in their Language; of which we have a very accurate *New Testament*, printed at *Rome* in 1548, though found Fault with by those, who discover something in it, which rises in Judgment against them. The same has been reprinted in the *English Polyglot*, as well as the *Psalms*, *Canticles*, some Chapters of *Genesis*, *Ruth*, *Joel*, *Jonah*, *Zephaniah*, and *Malachi*, all in the same Language.

Some of the *Armenian* Doctors about the Time of St. *Chrysostom*, made an *Armenian* Version of the *Bible* from the *Greek* of the *Seventy*, which was first printed entire in 4to at *Amsterdam*, in 1664, by one of their Bishops, with the *New Testament* in 8vo.

The *Persian Pentateuch*, printed in the *London Polyglot*, is the Work of *Rabbi Jacob*, a *Persian Jew*; but we have nothing now remaining of that antient *Persian* Version of the old *Bible*, mentioned by some of the Fathers. There was also a Version made of the whole *Bible* (the Book of *Kings* excepted) into *Gothick*, by *Aphilas*, a *Gothick* Bishop; the four Evangelists were printed in 4to at *Dort*, from an antient Manuscript in 1665; having nothing else remaining of that Version. The Reason given for *Aphilas* omitting the Book of *Kings* is, his being afraid that the frequent Mention of the Wars therein should inspire too much of the military Genius into his Countrymen.

Con. Basil, Duke of *Ostravia*, had an entire *Bible* in the *Sclavonick* Tongue, printed at *Ostravia*, in *Volhinia*, in the Year 1581, at his own Expence, for the common Service of all Christians, who speak the *Sclavonick* Language, whereof the *Muscovitish* is a Dialect, for which Reason this Version is commonly called the *Muscovite Bible*.

It would be endless to rehearse here the vast Number of Versions of the *Bibles* in other vulgar Tongues, as *English*, *French*, *German*, *Spanish*, *Italian*, *Dutch*, &c. since we have so many Catalogues of them in several Authors. Therefore I conclude this Detail of the several Versions of the *Bible*, by explaining what is meant by *Polyglot*, which I have so often mentioned.

POLYGLOT, from the *Greek* πολυ, many, and γλωττα, Language, denotes a *Bible*, printed in several Languages. *Ximenes de Cineros*, Cardinal and Archbishop of *Toledo*, considering that no Translation, ever so exact and perfect, can render the true Sense of the Scriptures, judged proper to give them in their Original, and therefore had the first *Polyglot Bible* printed at *Alcala de Henares* 1515, which contains the *Hebrew* Text, the *Chaldee* Paraphrase, or *Targum*, on the *Pentateuch*, the *Greek* Version of the *Septuagint*; and the antient *Latin* Version. This *Bible* is called *Complutesian Bible*; at the End whereof is added an *Apparatus* of Grammars, Dictionaries, and Indexes or Tables.

The Second *Polyglot* was printed at *Antwerp* in 1572, by *Plantin*, under the Direction of *Arius Montanus*. 'Tis called the *Polyglot* of *Philip* II. as being published by his Order; and contains, besides what's in the *Bible* of *Complutum*, the *Chaldee* Paraphrases on the Rest of the *Old Testament*, with a *Latin* Translation of them. A literal *Latin* Version of the *Hebrew* Text. An *Hebrew* and *Syriac* Version, both in *Syriac* and *Hebrew* Characters, with Points to it of the *New Testament*. *Guy le Fevre*, who had the Care of the *Syriack* Version, having added a *Latin* one to it, and a new *Apparatus* of Dictionaries, Grammars, *&c.* with several little Treatises, necessary for clearing up the more difficult Passages in the Text.

M. *Le Jay*'s *Polyglot* (which is the third) printed at *Paris* in 1645, besides the Beauty of the Characters, which are magnificent, and the Size of the Paper, has this other Advantage over that of *Antwerp*, of having the *Syriack* and *Arabick* Versions of the *Old Testament* with *Latin* Interpretations. It has likewise in the *Pentateuch*, the *Hebrew* and *Samaritan* Text; and the *Samaritan* Version, in *Samaritan* Characters; besides an *Arabick* Translation of the *New Testament*, with a *Latin* Interpretation: But it wants, to render it perfect, the Grammars and Dictionaries, which are in both the former *Polyglots*.

In Dr. *Brian Walton*'s *Polyglot*, printed in 1657, the *Vulgate* is printed according to the revised and corrected Version of *Clement* VIII. and it contains, besides, an interlineary *Latin* Version of the *Hebrew* Text, the *Greek* Text of the *Septuagint* of the Edition of *Rome*, and the *Latin* Version of the same Text, published by *Flaminius*, by Authority of Pope *Sixtus* V. besides some Parts of the *Bible* in the *Ethiopick* and *Persian*; and some Preliminary Discourses, or *Prolegomena*, on the Text, both of the Originals and Versions.

The two *Pentateuchs* printed by the *Jews* of *Constantinople*, in four Languages, but all in *Hebrew* Characters; might be also numbered among the *Polyglots*. One of these *Pentateuchs*, printed in 1551, contains the *Hebrew* Text in large Characters; on one Side whereof is the *Chaldee* Paraphrase of *Onkelos*, in middling

middling Characters; and on the other a Paraphrase in the *Persian*, composed by *Jacob de Tous*, a *Jew*. A Top of the Pages is printed, in small Characters, the *Arabick* Paraphrase of *Saadias*; and at Bottom the Commentary of *Rasch*. The other printed likewise at *Constantinople*, like the former in 1547, has the *Hebrew* Text of the Law in the Middle; a Translation into the vulgar *Greek* on one Side, and a *Spanish* Translation on the other, with the *Chaldee* Paraphrase of *Onkelos* at the Top of the Page, and the Commentaries of *Rasch* at Bottom. The *Hexapla*, and *Octapla* of *Origen*, might be ranged likewise under the Article of *Polyglots*.

The HEXAPLA, is an Edition of six Versions of the Bible disposed in six Columns, by *Origen*, after he had quitted *Alexandria*, and retired to *Tyre* in 228, a Work very much admired by St. *Epiphanius* and St. *Jerome*. The sixth Version had been found a Year before in the City of *Nicopolis*, without the Name of an Author, no more than the fifth. What engaged *Origen* to undertake this Work, was that having frequent Disputations with the *Jews*, in *Egypt* and *Palestine*, and observing that they always objected against those Passages of the Scripture quoted against them, and appealed to the *Hebrew* Text; the better to vindicate those Passages, and confound the *Jews*, by shewing that the *Seventy* had given the Sense of the *Hebrew*, or rather to shew, by a Number of different Versions, what the real Sense of the *Hebrew* was; he undertook to reduce all these several Versions into a Body, which he called Εξαπλα, *Hexapla*, *Sextuple*, Work of six Columns. Taking great Care to correct the Changes and Additions, the *Jews* and the *Christians*, and *Theodotion* among the rest, had made in the Version of the *Septuagint*; but as his Marks were easily omitted by those who transcribed so prolix a Work, Confusion and Corruption were introduced into it a-new; which was the Cause that the Martyr *Lucian*, *Hesychius*, and St. *Jerome*, applied themselves successively to restore it to its pristine Purity. This celebrated Work of *Origen* perished long ago; tho' several of the antient Writers have preserved Pieces thereof, particularly St. *Chrysostom* on the *Psalms*, *Philoponus* in his *Hexameron*, *&c.* some modern Writers have endeavoured to collect Fragments of the *Hexapla*, particularly *Drusius*, and *F. Montfaucon*.

St. *Epiphanius* calls also this Work *Octapla*, from the *Greek* οκτω, *Eight*, because consisting of eight Columns. In the first was the *Hebrew* Text in *Hebrew* Characters; in the second the same Text in *Greek* Characters; in the third, the *Greek* Version of *Aquila*; in the fourth that of *Symmachus*; in the fifth the *Septuagint*; in the sixth that of *Theodotion*, in the seventh that called the *fifth*; the last was that called the *sixth*.

The Books of the *Bible* have not always been of an equal Authority. St. *Jerome* assures us that the antient Canon, or Catalogue of the Books of the *Old Testament*, made by the *Jews* under *Esdras*, in a great Assembly of their Doctors, which they call by Way of Eminence, *the great Synagogue*, consisted of no more than twenty-two Books; though it is pretended by some Authors, that the *Jews* themselves agree that they put Books therein, which had not been so before the *Babylonish* Captivity; such are those of *Daniel*, *Ezekiel*, *Haggai*, and those of *Esdras* and *Nehemiah*. This is the Canon, according to that Father which was followed by the primitive Church, 'till the Council of *Carthage*, in 535, under the Emperor *Justinian*, who enlarged it considerably, taking into it the Books which Protestants call *Apocryphal*, which Canon has been further enlarged by the Council of *Trent*, though a great Number of other Authors are of a contrary Sentiment, and pretend that the Canon of the Council of *Trent*, is the same with that of the Council of *Hippo* held in 393; and with that of the third Council of *Carthage*, at which were present forty-seven Bishops, and among the rest St. *Augustin*, who declared they received it from their Fathers.

The *Roman Catholicks*, to support the Authority and Credit of the Council of *Trent*, on this Subject, pretend, that the Decree of that Council, with Respect to the canonical *Books*, was made in Consequence of the first Reformers having rejected all those *Books* of the Scripture which contain'd any Thing contrary to their *Dogma's*; as *Judith*, *Tobit*, the *Maccabees*, *Esdras*, &c. That the *Protestants*, considering that it was impossible to give to some Passages found in those *Books* which support the Doctrine of the Invocation of Angels, of the Prayers for the Dead, of the Merit of good Works, *&c.* than the real and genuine one, they thought fit to reject those *Books* as apocryphal, whose Authority, if they were continu'd to be consider'd as canonical, would be always a Stumbling-block in their Way. M. *Simon* contends, in Favour of those *Books*, rejected as apocryphal by the *Protestants*, that they must have been read in *Greek*, even by the Apostles themselves; which he infers from divers Passages in their Writings. He adds, that the Church receiv'd them with the other *Books* of Scripture, from the *Hellenist Jews*; and that if the Churches of *Palestine* never admitted them, it was not for their accounting them *apocryphal*, in the Sense the Word is now us'd, but because they read none but what were writ in *Hebrew*. To this Reasoning of M. *Simon*, the *Protestants* oppose the Authority of several Writers, both antient and modern, to which the *Roman Catholicks*, on their Side, oppose that of several others, together with the constant Practice of the Church, as they pretend.

Vossius observes, that, with Regard to the sacred *Books*, none are to be accounted apocryphal, except such as have neither been admitted into the Synagogue, nor the Church, so as to be added to the Canon, and read in Publick: For this Reason, the *Books* of the *Sybils* were antiently call'd *apocryphal*, as being committed to the Trust of the *Decemviri*, alone; and for the like Reason, the Annals of the *Egyptians* and *Tyrians* were call'd by the same Name. Before the *Septuagint* Version, the *Books* of the *Old Testament* were all apocryphal, in the original Meaning of the Word, which was, that all the Writings deposited in the Temple were call'd *apocryphal*, by reason they were kept secret from the People: For when the *Jews* publish'd their sacred *Books*, they only gave the Appellation of canonical and divine to such as they thus made publick; and call'd *apocryphal* such as were still retain'd in their Archives, because not made publick. But in Process of Time the Sense of the Word was chang'd, and those *Books* alone were call'd *apocryphal*, which were of doubtful or suspected Authority, which has continu'd ever since.

Some of the Fathers have, besides, distinguish'd the sacred Writings into *Proto-canonical*, and *Deutero-canonical*. The *Proto-canonical*, are those whose Authority has never been suspected; and the *Deutero-canonical* those, whose Canonicity was doubtful; for which Reason, they were added to the Canon after the rest. The *Deutero-canonical Books* in the modern Canon, are the Books of *Esther*, either the whole, or at least the seven last Chapters thereof; the Epistle to the *Hebrews*; that of *James*; and that of *Jude*; the second of St. *Peter*; the second and third of St. *John*; and the *Revelations*. The *Deutero-canonical* Parts of *Books*, are, in *Daniel*, the Hymn of the *three Children*; the *Prayer of* Azariah; the Histories of *Susannah*, of *Bel* and the *Dragon*; the last Chapter of St. *Mark*; the bloody Sweat, and the Appearance of the Angel, related in St. *Luke*, Chap. xxii. and the History of the adulterous Woman in St. *John*, Chap. viii.

Among the *canonical Books* of the *Old Testament*, the *Pentateuch*, or five Books of *Moses*, viz. *Genesis*, *Exodus*, *Leviticus*, *Numbers*, and *Deuteronomy*, are the first in Order, as being, likewise, the first for Antiquity, since there is no authentick Account of any other *Book*, either sacred, or profane, having been written before them. The whole *Pentateuch* is attributed to *Moses*, as Author thereof; though Father *Simon*,

Symon, in his critical History of the *Old Testament*, produces several Passages to prove that the Legislator of the *Jews* was not wholly the Author of the *Pentateuch*, as we now have it; which Sentiment is very well supported by the Interpolations at the End of the *Pentateuch*; since it is absurd to suppose *Moses* the Author of the Account of his own Death and Burial, and of the Comparison between him and the succeeding Prophets in *Israel*. *Esdras* is thought the Author of the interpolated Passages, being suppos'd to have publish'd the *Old Testament*, or at least a Part of it, corrected, and enlarg'd, on his Return from the *Babylonish* Captivity.

The *Jewish*, or *Hebrew Pentateuch*, wrote in the *Chaldean*, or *Assyrian* Character; and that of the *Samaritans*, wrote in the *Samaritan*, or *Phœnician* Character, have a long Time disputed the Preference, both as to Antiquity, and as to Character; both maintaining theirs to be the antient *Hebrew*. *Simon Allix*, and many other learned Men, abide by the former, pretending, that the *Chaldean* and *Syrian* Characters have been always in Use among the *Jews*; and the *Samaritan*, or *Canaanitish*, to have never been us'd by the *Jews* before the Captivity, in any Manner, either in *Books*, or on Medals. *Usher* is of the same Sentiment, and takes the *Samaritan Pentateuch* to have been compil'd by *Dositheus*, a *Samaritan*, mention'd by *Origen* to have adulterated the *Pentateuch*. *Du Pin* supposes it the Work of some modern *Samaritan*, whom he imagines to have compil'd it chiefly out of the different Copies of the *Palestinian* and *Babylonian Jews*, and the *Septuagint*; because it sometimes agrees with one, and sometimes with another. *Prideaux* believes it a Transcript out of the *Chaldean* into the old *Hebrew* Character, giving for Reason, that there are many Variations in the *Samaritan*, manifestly occasion'd by mistaking the similar Letters in the *Hebrew* Alphabet; which Letters having no Similitude in the *Samaritan* Character, it is evident the Variations must have arisen in transcribing from the vulgar *Hebrew* into *Samaritan*.

Mr. *Whiston* declares in Favour of the *Samaritan Pentateuch*, and assures it to be an uncorrupted Copy of the *Books* of *Moses*, originally deriv'd from the first Separation of the ten Tribes themselves, in the Days of *Jeroboam*; though the contrary be apparent, from the mere confess'd Interpolations ascrib'd to *Esdras*, who liv'd several hundred Years after the Time of *Jeroboam*; and from one or two more interpolated Passages in the *Samaritan*, than the *Hebrew Pentateuch*; the first of which is in *Deuteronomy*, Chap. xxvii. Ver. 4. where an Altar is enjoin'd to be built, and Sacrifices to be offer'd on Mount *Gerizzim*, or *Ebal*; which Passage was, doubtless, foisted in to countenance the *Samaritan* Worship, and represent it with equal Antiquity with that of the Temple of *Jerusalem*.

At the Head of the *Pentateuch* stands the *Book* of *Genesis*, which the *Hebrews* call *Bereschith*, because it begins with that Word, which in their Language signifies *in Principio*, in the Beginning; and the *Greeks Genesis*, Γενεσις, Production, Generation; because it begins with the History of the Production and Generation of all Beings. *Moses* is thought to be the Author of the *Genesis*, and it contains the Relation of 2367 Years, *viz.* from the Beginning of the World to the Death of *Joseph*. The *Jews* are forbid to read the Beginning of *Genesis*, and the Beginning of *Ezekiel*, before thirty Years of Age. *Cedrenus* makes mention of an *apocryphal Book*, entitled, the *Little Genesis*, *Genesis parva*; containing several Incidents, not in the other, some of which he has preserv'd; particularly, that *Cain* was buried under the Ruins of a House; that an Angel taught *Abraham* the *Hebrew* Tongue; that *Mastiphat*, Prince of the Devils, advis'd God to order *Abraham* to sacrifice his Son, for a Trial of his Obedience; that the Children of *Israel* were only cast into the *Nile* for ten Months, *&c.*

The *Exodus*, by the *Hebrews* call'd *veelle Semoth*, *hæc nomina*, these are the Names; which are the initial Words of the *Book*; and by the *Greeks* Εξοδος, which literally imports a *going out*, or *Journey*, because the History of the *Israelites* Passage out of *Egypt* is related therein. The *Exodus* contains, besides, the Story of what was transacted in *Egypt*, from the Death of *Joseph* to the Delivery of the *Jews*; as well as what pass'd in the Wilderness, and particularly at Mount *Sinai*, to the building of the Tabernacle.

The *Leviticus*, call'd by the *Jews*, *vajickra*; and the *Numbers*, *vajiedabber*; contain nothing else but the ceremonial and other Laws; and the *Deuteronomy*, *Elleh haddebarim*, is a Repetition, or Recapitulation of the Law, which *Moses* had before deliver'd them at large. And hence *Deuteronomy* is still call'd, by the *Rabbins*, *Repetition*. They likewise call it, *the Book of Reprimands*, on account of the 28th Chapter, which is full of Blessings promis'd to such as keep the Law, and of Curses threaten'd to such as transgress it. It is pretended, that *Deuteronomy* was written the fortieth Year after the Delivery from *Egypt*, in the Country of the *Moabites*, beyond *Jordan*; *Moses* being then in the 120th Year of his Age. It contains in *Hebrew* eleven Parasches, though only ten in the Edition of the *Rabbins* at *Venice*; twenty Chapters, and 955 Verses. In the *Greek*, *Latin*, and other Versions, it contains 34 Chapters. The last is not of *Moses*; some say it was added by *Joshua*, immediately after *Moses*'s Death, which is the most probable Opinion. It was the *Greeks*, when they first translated the Law, that gave the five Parts, into which it was divided, the Name of *Genesis*, *Exodus*, *Leviticus*, *Numbers*, and *Deuteronomy*, which is the Reason why all these Names are *Greek*, except the *Leviticus*, which is *Hebrew*; for it does not appear that *Moses* made any Division of what he wrote, into *Books*; or that he gave different Names and Titles to the different Parts of his Work: Nor do the *Jews*, even at this Day, distinguish them in the Copies they use in the Synagogues; but write them all running as one single Work, without any other Distinction beside that of little and great Parasches; though in other Copies, us'd by private Persons, they are divided into five Parts, as among us; but they give them no other Name, but the first Word wherewith each Division begins; much as we do in quoting a Decree, or Chapter of the Canon Law.

Joshua is the next in Order of the *canonical Books* of the *Old Testament*, and contains what happen'd to the *Israelites* under the Conduct of that famous General *Joshua*, whom *Moses* had appointed for his Successor in the Government of the People. The Author of this *Book* is not known, no more than that of the following, call'd the *Judges*, which is a Collection of several little Histories, which at first were separate, but were afterwards collected by *Esdras*, or *Samuel*, into a single Volume; and, in all Likelihood, were taken from the antient Journals, Annals, or Memoirs, compos'd by the several Judges.

The Canonicity of the *Book* of *Job* has been very much disputed among the learned Divines; neither can they agree, as to the Author of that *Book*; though the most common Opinion is, that *Moses* publish'd that Work during the Captivity of the *Israelites* in *Egypt*, to give them an Example of Patience in their Miseries. The great Erudition which appears throughout the whole, is certainly worthy that great Man who had been instructed in all the Sciences of the *Egyptians*; but the Learned in the *Hebraick* Tongue pretend, that there are several Terms in it which were not in Use till after *David*; and that it is full of Phrases of the *Idumean* Language; which makes them conjecture, that the Author who compos'd it was of that Country. *Codrutt*, a Person very well vers'd in the Oriental Tongues, is inclin'd to believe, that *Isaiah* could very well be the Author of it, from the Report he finds between the Style of the *Book* of *Job* and that of the Prophet. Some have believ'd, that there has never been such a Man as *Job*; that the Author of the *Book* which goes under his Name, had invented

vented the Subject; but that Sentiment is condemn'd by the Prophet *Ezekiel*, who mentions *Job* with *Noah*; and by St. *James*, in his Epistle, Chap. v. who proposes him to the *Christians* as a Model of Patience they are to follow, when persecuted for the Faith. *Job* was Grandson of *Esau*, born, according to Father *Petau*, 232 Years before the Deliverance of the *Israelites* from their Captivity in *Egypt*, and 1763 before the Birth of our Saviour. *Torniel*, *Sponde*, and some other modern Authors, say, after some of the Antients, that *Job* was 71 Years old, when his Calamities happen'd to him, which some of them will have to have lasted seven Years, and others one Year only; but to say the Truth, I believe no Body knows any Thing of it. The Scripture says expresly, that he liv'd 140 Years after his Calamities; which added to 71, makes 211 Years.

Sixteen *Prophets* are rank'd among the *canonical Books*, four *greater*, so call'd from the Length, or Extent of their Writings; and twelve *lesser*, from the Shortness of their Writings. The *greater Prophets* are, *Isaiah*, *Jeremiah*, *Ezekiel*, and *Daniel*; and the *lesser*, *Hosea*, *Joel*, *Amos*, *Obadiah*, *Jonah*, *Micah*, *Nahum*, *Habakkuk*, *Zephaniah*, *Haggai*, *Zechariah*, and *Malachi*. In the *Greek* Church the *lesser Prophets* are plac'd in Order before the great ones, apparently because many of the *lesser Prophets* are more antient than the *greater*. The *Greeks*, also, as well as the *Jews*, rank'd *Daniel* among the *lesser Prophets*; the *Jews* pretending that he is no more to be rank'd among the *Prophets* than *David*: Not but that both the one and the other foretold many important Things, but because their Manner of Life differ'd from that of the other *Prophets*. *Spinoza* says, that several *Prophets* prophesy'd according to their respective Humours; *Jeremiah*, for Example, melancholy and dejected with the Miseries of Life, prophesy'd nothing but Misfortunes. *Dacier* observes, that among the Antients the Name *Poet* is sometimes given to *Prophets*; as that of *Prophet* is at other Times given to *Poets*.

The *canonical Books* of the *New Testament*, are the *four Evangelists*, the *Apocalypse*, or *Revelations*, the *Acts of the Apostles*, and the *Epistles of St.* Paul, *St.* Peter, *St.* Jude, *and St.* James.

Among the four Evangelists, the Gospel of St. *Matthew* is plac'd the first. He wrote it in *Hebrew*, (*Anno Christ.* 41. and the third of the Emperor *Caligula*) for the Instruction of the *Jews* who believ'd in *Christ*, the Actions of whose Humanity are particularly describ'd therein; it is for that Reason, that St. *Matthew* is represented, among the four Evangelists, under the Figure of a Man. His Gospel was so much esteem'd, from the Time of its Publication, that St. *Barnabas* us'd to carry always a Copy of it along with him in all his Travels, with which he was buried, and which was found on his Stomach when the Place of his Sepulchre was discover'd under the Emperor *Zeno*. The *Nazarenes* kept it a long while without making any Alteration in it; and it was from them St. *Jerome* had a Copy of it, in order to translate it into *Latin*. But in Process of Time it was corrupted, as well by the *Nazarenes*, as by the *Ebionites*, the *Cerinthians*, and *Carpocratians*, who took Occasion from the human Genealogy describ'd therein, to deny the Divinity of *Christ*. St. *Jerome* says, that in his Time the *Hebrew* Original was kept in the Library of *Cæsarea*.

St. *Mark* wrote his Gospel by St. *Peter*'s Order, who had took a particular Care to inform him of the Actions and Miracles of *Jesus Christ*. *Tertullian* says, that in his Time it was call'd the *Gospel of St.* Peter. It is an Abridgment of that of St. *Matthew*. St. *Jerome*, St. *Augustine*, and St. *Chrysostome*, are of Opinion, that the Original is *Greek*; and Cardinal *Baronius*, that St. *Mark* writing the History of *Christ* for the Use of the *Romans*, he must have done it in a Language they understood; and that in several Places of his Gospel there are Locutions entirely *Latin*; perhaps while St. *Mark* was at *Aquileia*, (if we believe an old Tradition which is not warranted by good Authors) he translated into *Greek* the Gospel he had wrote in *Latin*. At *Rome*, the *Greek* Tongue was very common, since St. *Paul* wrote to the *Fideles* in that Language; but *Suetonius* assures us, that it had been much discredited by the Emperor *Claudius*, in whose Time St. *Mark* wrote.

St. *Luke*'s Gospel was wrote against the Errors of several Hereticks, which, himself says at the Beginning, was the Occasion of his writing it; and that he has learn'd the Things he is a going to recount, from those who had seen them, and who had been the first Ministers of the Word, meaning the Apostles, and St. *Paul* in particular, to whom he had been given, by the Churches, for a Companion of his Travels. He mentions several Things, in his Gospel, of the Birth, Predication, and Miracles of *Christ*, which the other Evangelists say nothing of; even his Style is more elegant than theirs.

St. *John* wrote his at the Intreaty of the Bishops of the Oriental Church, to refute the Errors of *Ebion* and *Cerinthus*.

St. *Luke* is the Author of the *Acts of the Apostles*. The principal Design of this Work, is the History of St. *Paul*, though he has omitted several of the most important Actions of that Apostle, which we find in his Epistles.

The Epistle of St. *Paul* to the *Romans*, which is the first in Order, was wrote at *Cenchrea*, the Port of *Corinth*. This Epistle contains the fundamental Truths of the *Christian* Religion, the Corruption of human Nature by *Adam*'s Sin, the Reparation by the Grace of *Christ*, the Efficacy of that Remedy, the Secret of his eternal Election, which he founds entirely on the Will of God, who, of the same Mass of Corruption, forms Vessels of Honour, and Vessels of Ignominy, without having the least Right to ask him the Reason of that Difference. He proposes to himself all the Objections which human Pride can make against that Choice, but instead of resolving them, he has Recourse to the Unscrutability of God's Judgments, which are to be respected by Mankind with Humility, without attempting to fathom them with Pride, as if the Creator owed something to those who are all born in the same Condemnation, by the original Sin, and might, without Injustice, be left in it.

The Apostle wrote the first Epistle *to the Corinthians* at *Ephesus*; and at *Rome* those to the *Ephesians*, *Philippians*, *Colossians*, the second Epistle to *Timothy*, and the famous Epistle to the *Hebrews*; wherein, by the divine Explication of the Priesthood of *Christ*, he shews his profound Erudition in the Law of *Moses*, as well as in the sublime Truths of the Gospel. This Epistle has been a Subject of great Controversy among the Learned, who could not agree as to the Author thereof, nor understand the *Sacrifice* mention'd therein. From *Macedon* he wrote the first to *Timothy*.

The antient Fathers have been long divided about the *Apocalypse*, a Book as close as that with seven Seals mention'd therein; and, in my Opinion, the Interpreters cannot flatter themselves with any Hope of Success in their Design of interpreting it: For, who knows if the greatest Part of the Prophecies it contains have not happen'd in the first Persecutions of the Church, or if they all relate to what will happen at the End of the World under the true *Antichrist*? The antient Fathers, both *Greeks* and *Latins*, have receiv'd this *Book* for *canonical*, though attributed to another *John*. St. *Jerome* says, that, in his Time, the *Greek* Churches question'd if it had been wrote by St. *John* the Evangelist. St. *Basil*, and *Gregory Nazianzen*, absolutely rejected it, and the Council of *Laodicea* never mention it in their Canon of the sacred Writings. *Dionysius Alexandrinus* censures it as written in bad *Greek*, and even finds Solecisms and Barbarisms in it, in abundance; though he allows it to contain a mystick Sense, which, he says, he admires, even where he does not understand it.

On the other Hand, St. *Justin*, *Irenæus*, *Theophilus Antiochenus*, *Melito*, *Apollonius*, *Clemens Alexandrinus*,

nus, and *Tertullian*, make no doubt of its being canonical. The third Council of *Carthage* held in 397, placed it in the Canon of the *New Testament*; and the Churches both of the East and West have acknowledged it ever since. The *Alogians* are represented by Ecclesiastical Writers, as great Declaimers against the *Apocalypse*, many of the Flights whereof they turn into Ridicule; particularly the Visions of the seven Trumpets, the four Angels bound on the River *Euphrates*, &c. St. *Epiphanius* defends it against them; the *Book*, he observes, is not a meer History, but a Prophecy, so that it is no wonder the Author should express himself after the Manner of the Prophets, whose Stile is usually figurative. Of all their Objections against the Authority of this Book, that seems the best grounded, which is drawn from those Words, *c.* 2. *v.* 18. *write to the Angel of the Church of* Thyatira; there was not, say they, any *Christian* Church at *Thyatira* at that Time. St. *Epiphanius*, who grants them this Point, is forced to have Recourse to the Prophetick Spirit, as if St. *John* had foreseen there would be a Church there in Course of Time. Several orthodox Writers have rejected the *Apocalypse*, as countenancing the Reveries of *Cerinthus* touching the carnal Reign of *Christ* on Earth.

In the first Century of the Church, there were a great many other Books attributed to the Apostles, *viz.* the Acts, Gospel, Apocalypse, and Judgment of St. *Peter*. The Gospel and Apocalypse of St. *Paul*; his Ravishment to Heaven, forged by the *Cainites*; his Acts; a third Epistle to the *Corinthians*, and to the *Thessalonians*, and one to those of *Laodicea*. A new Apocalypse was attributed to St. *John*; *Cerinthus* being suspected to have been the Author thereof. St. *Thomas*, St. *Bartholomew*, St. *James the Minor*, St. *Matthias*, St. *Thadee*, and St. *Barnabas*, were presented with each his Gospel. *Christ* himself was not spared by the Impostors of those Times, for under his Name was published a Book entituled, *of the Magick Art*, addressed to St. *Peter* and to St. *Paul*.

The Scriptures, both the *Old* and *New Testament*, are so full of intricate and obscure Passages, difficult to be understood, and of so many seeming Contradictions; that there have always been Interpreters in both the *Jewish* and *Christian* Church, to explain those Difficulties, and to reconcile those apparent Contradictions; whose Works might be considered as divine Books, since they contain our Theology, Moral, Politick, and Œconomy in clearer Terms than the Scripture itself; for it is monstrous to suppose, that every ignorant Man, who often has not Sense enough to guide himself in the most common Occurrences of Life, is capable of interpreting the Scripture. Such Doctrine is capable to cause nothing else but Disorder and Confusion in the Church, which had never been infected with the Venom of Heresies and Schisms, if Persons infatuated with their own pretended Merit, to make themselves Chiefs of Party, and Enthusiasts, had not had the sacrilegious Presumption (to serve their own Purposes) to give what Sense they pleased to the Scripture. The most esteemed modern Interpreters of the Scriptures among the *Roman Catholicks*, are *Maldonatus* and *Cornelius a Lapide*.

Among divine *Books* are also to be ranked, the Writings of the Fathers, in the different Ages of the Church; of which I'll give here a short Catalogue.

We have nothing left of what was written in the first Century, in Defence of the *Christian* Religion, neither are we certain that any Thing was wrote at that Time on that Subject; the same cannot be said of the second Century, which produced several eminent Personages, who, not contented with witnessing their Faith, by their Courage and Constancy, in the Persecution, left also behind them several other immortal Monuments of it. The first of those invincible Champions of Christianity, is *Clement*, Bishop of *Rome*, who had been Disciple of St. *Peter*; and suffered Martyrdom, under the Emperor *Trajan*, *Ann.* 102. We have yet extant several Works under his Name, especially his first Epistle to the *Corinthians*, which an *Englishman* published towards the Middle of the last Century, and who says he had found it in the King of *England*'s Library. This Epistle is some Time mentioned by the antient Fathers, especially by St. *Jerome*, *l. de Script. Eccles. in Clem.* and it bears some Character of Antiquity. As for his second to the same *Corinthians*, 'tis lost, and had never been much approved by the Church. The Falsity of that written to St. *James*, appears, by that it being made mention in it of the Death of St. *Peter*, which happened several Years after that of St. *Clement*. St. *Epiphanius* speaks of several others of his Letters, sent to all the Bishops, wherein he recommends Celibacy, and St. *Jerome* quotes them against *Jovinian*. In his Constitutions there are several Errors inserted by the Hereticks, and for that Reason were condemned by the Council, called in *Trullo*, *i. e.* assembled in the Hall of the Imperial Palace. As for his ten Books of the Recognitions, Cardinal *Baronius* says, That they had been corrupted by the *Ebionites*, even while *Clement* was yet alive; they were condemned in a Synod, under the Name of the Itinerary of St. *Peter*. They were translated into *Latin* by *Rufin*, who gave them the Name of Recognitions. To the same *Clement* is attributed a Liturgy, to which several Things have been added since.

Ignatius, Bishop of *Antioch*, has left us his excellent Epistles to the *Ephesians*, *Magnetians*, *Trallians*, and to the *Romans*. From *Philippi* he wrote to the Church of *Tharsis*, to that of *Antioch*, and to the Deacon *Heron*, and from *Troades* to the *Philadelphians*, to the Christians of *Smyrna*, and to *Polycarp*, their Bishop. The last he wrote was that to the *Philippians*. *Eusebius* and St. *Jerome* mention but the seven written from *Smyrna* and *Troades*, but the others have his Character. *Vossius*, and *Usher*, Archbishop of *Armagh* in *Ireland*, both Protestants, have given us a new Edition of those Epistles; the first has made use of a Manuscript of the Library of the Great Duke of *Tuscany*; and the second of two he has found in *England*. They both agree to receive none for true, but those written to the *Ephesians*, *Magnesians*, *Trallians*, *Romans*, *Philadelphians*, and to those of *Smyrna*; as for that to *Polycarp*, *Vossius* admits of it, and *Usher* rejects it; without giving any essential Reason for so doing, for it is certainly very much like the others. As for the Epistles directed to the *Virgin Mary*, and to St. *John*, there's no doubt but they are entirely false and spurious.

In 123 *Quadratus*, who had then the Conduct of the *Christian* Church at *Athens*, wrote an Apology for the *Christian* Religion, which he presented to the Emperor *Adrian*; and soon after *Aristides*, a *Christian* Philosopher, wrote another. These two Apologies had for some Time their desired Effect, which was to appease the Persecution against the *Christians*. In 150 *Justinus*, an excellent Philosopher, and a profound Theologian, wrote another Apology to defend the *Christians* against the Calumnies and false Accusations the *Pagans* charged them with. He presented this Apology to the Emperor *Antoninus*, and to *Marcus* and *Lucius*, his Children, but to no Purpose. *Justinus* discovers in it the Christian Ceremonies of the Baptism, and of the Eucharist; but speaking of the Angels, among several good Things, he mixes some Reveries, which the Fathers of those Times were often guilty of. *Justin* in 165 wrote another Apology to refute the Calumnies of the Cynic Philosopher *Crescens*, which he presented to the Emperor *Marcus Aurelius*, and to the Senate, and for which he received the Palm of Martyrdom. Besides these two Apologies of *Justin*; he has left us some other Works, as *his Dialogue with* Triphon, a very learned *Jew*, his *Oration to the Gentiles*; his *Treatise of Monarchy*, or *of the Unity of God*. As for the other Works attributed to him, as the Exposition of the Faith; the Epistle to *Zena* and to *Serenus*; the Questions of the *Gentiles*; the Questions and Answers to the Orthodox; we have great Reason to believe them apocryphal; because of the Difference of the Style, of the Manner of explain-

explaining the *Christian* Truths, and of several Quotations of Authors, who were not living when he died. *Eusebius*, St. *Jerome*, and *Photius* mention a Commentary against the Heresies which we have lost. *Photius* speaks also of some other Treatises against *Marcion*, and against *Aristotle*; and of one intituled the *Psalmist*. *Sixtus* of *Sienna* gives him a Commentary on the *Apocalypse*.

We have also an Epistle of *Polycarp*, Bishop of *Smyrna*, to the *Philippians*, which is almost entirely composed of Passages from the Epistles of St. *Paul* and of St. *Peter*, and has the same Air of Piety.

Meliton, Bishop of *Sardis* in *Asia*, to endeavour to stop the Rage and Fury of the Persecution of *Marcus Aurelius*, wrote in 171 an Apology, which he presented to that Emperor, but to no Purpose. We have lost that Apology. *Eusebius*, in his History, *c.* 25. mentions several other excellent Works of the same Author. The Treatise of the Death of the *Blessed Virgin*, supposed to have been composed by him, is an Injury offered to the Memory of so great a Man.

We find also among the Writings of the Fathers of the second Century, an excellent Treatise of *Tatian*, born in *Syria*, (the same who afterwards became the chief of the Hereticks call'd *Ancratists*) in Defence of the *Christians* against the *Greeks*; wherein he shews the Impertinence of the Belief of the *Gentiles*, the Crimes their Gods are made guilty of, by their Priests, and the Diversity of the Opinions of their Philosophers; but he intermixes several false, and suspected Things, with the Truths, *viz.* that the Soul, which is mortal of its Nature, becomes immortal; speaking of the Devils, according to the *Platonick* Philosophy; and of the Word of God, as if he was not coeternal with his Father.

Clemens, Reader of the sacred Scriptures in the School of *Alexandria*, whence call'd *Alexandrinus*, for, in Fact, he was born at *Athens*, has left us several excellent Volumes of his Works, and, in particular, his Tapstries, his three *Books* of the *Pædagogy*; wherein he forms the Morals, or Manners of the *Christians*, by the Example and Precepts of *Jesus Christ*. In his Oration to the Gentiles, he attributes the Origin of Idolatry to the Worship of the Heavenly Bodies, to the Custom of calling the Fruits of the Earth by the Names of Persons while yet living, as that of *Ceres* to Wheat; of *Bacchus* to Wine; and to a political Conduct of inventing Devils, Furies, *Eumenides*, *Pluto*, *Cerberus*, &c. to deter Mankind from abandoning themselves to the too great Extravagance of their Passions. We have lost several others of his Works, especially his continued Explanation of all the *Books* of the Scripture, mention'd by *Cassiodorus*, *in Præf. inst. div. Lect.* of which we have nothing left but a few short Notes on the canonical Epistles.

Eusebius mentions *Papias*, as having wrote five *Books*, which he publish'd under the Title of *The Exposition of the Words of our blessed Lord*. *Irenæus*, *Clemens Alexandrinus*, and *Origen*, quote a *Book*, intituled, *The Shepherd*, attributed to *Hermes*, mention'd in the Epistle to the *Romans*. This Work was much valu'd in the two first Centuries, nevertheless, it contains several Errors, for which *Pelagius*, Bishop of *Rome*, rank'd it among the *apocryphal*; which, in my Opinion, is the fittest Place for it. I don't speak here of the Narration we have under the Name of *Prochorus*, which is visibly false, and full of Impertinencies; of the Acts of St. *Peter*, and of St. *Paul*, attributed to *Linus*, which are of the same Stamp; the Combat of the Apostles under the Name of *Abdias*, which is a Romance. The Passion of St. *Andrew*, written by the Priests of *Achaia*, has more Authority; St. *Bernard*, *Peter Damianus*, and several grave and judicious Authors, receive this Work. *Eusebius* speaks of *Serapion*, who was made Bishop of *Antioch*, after *Maximinus*, as of an excellent Writer; and says, that he had read several of his Treatises written against *Dannus*. *Theophilus*, Bishop of *Antioch*, compos'd several Works, which are all lost, except his Commentaries on the four Evangelists, and three *Books* address'd to *Autolicus*, against the Calumniators of the *Christian* Religion. *Eusebius* speaks of an Ecclesiastical History written by *Hegesipus*, which is lost; as for the *Books* of the Destruction of *Jerusalem*, which appear under his Name, they are none of his Works.

The third Century produc'd several great Personages, eminent for their Eloquence, and profound Doctrine; particularly *Tertullian*, *Origen*, and St. *Cyprian*.

Tertullian was born at *Carthage*, toward the latter End of the second Century. St. *Jerome* says, that while yet very young, he wrote a Treatise of the Cares and Sollicitudes of the conjugal State, which makes that Father suppose that *Tertullian* was already engag'd in it, and that he wish'd he had been free. Soon after, he publish'd the *Book* of *Prescriptions*, against the Hereticks, of whom he gives a Catalogue, from the Church's Infancy. *Baronius* pretends, that in his *Book De Coronâ Militis*, (which he had wrote to justify the Conduct of a *Christian* Soldier accus'd of Indiscretion, and Imprudence, for having refus'd to put on his Head the Crown of Laurels; which intituled him to the Gratification of the Emperor) he was already fallen into the Errors of the *Montanists*, which appears by several bitter Expressions against the orthodox Bishops, whom he calls *Lions in the Time of Peace*, and *Deers in Time of War*. *Tertullian*'s Apology is a Master-piece of Eloquence and Erudition; I know that its Latinity is not the best, but the Strength of the Proofs, the Beauty of the Thoughts, and the Subtilty of Reasoning, make Amends for the Harshness of the Style, which has a particular Character. The *Christians* of those Times were accus'd, by Idolaters, of killing Children, of feeding on their Flesh, of adoring the Head of an Ass, and of committing Incest; *Tertullian* purges them so well of all these Calumnies, in his Apology; the Innocence of their Lives is so well prov'd in it, and the Imposture of their Enemies so clearly evidenc'd, that the Work is unanswerable. This Apology was address'd to the *Roman* Magistrates, in the Absence of the Emperor, but to no Purpose. This Work is translated into *French*, by *Gyri*, and so well that the Version is as good as the Original. *Tertullian* wrote, also, a Treatise, while at *Carthage*, which he address'd to *Scapula*; in which he endeavours to dissuade the Proconsul from persecuting those he should rather protect and defend; enumerating to him all the publick Calamities which had happen'd in the Province, by a visible Vengeance of Heaven, for the cruel Persecutions of the Proconsuls, his Predecessors, against the *Christians*: And proves, afterwards, that the Emperor had no better, nor truer Servants. He also wrote two *Books*, one of the *Spectacles*, and the other of *Idolatry*; in which he shews, that all those Sorts of Representations are justly abhorr'd by the *Christians*. *Vincentius*, of *Lerins*, speaking of these Works of *Tertullian*, which are yet all extant, says, that all his Words are so many Oracles, and his Thoughts as so many Victories. When St. *Cyprian* call'd for *Tertullian*'s *Books*, he us'd to say, *Give me the Master*.

Origen Adamantius had been Disciple of *Clemens Alexandrinus*, and, according to St. *Jerome*, *Lib. de Scrip. Ec.* liv'd till the Time of the Emperors *Gallus* and *Volusianus*. *Origen* was certainly the Miracle of his Time, for Piety, Virtue, Continence, Learning, and Eloquence; since while yet but eighteen Years of Age, he succeeded his Master in the Chair of *Alexandria*, as Professor of Divinity; in which Employment he had the Honour of becoming the Master of those who have been rank'd since among the most eminent Fathers of the Church. *Epiphanius*, *De Heres. Ord.* 64. says, that *Origen* wrote 6000 *Books*, but most of them are lost; those we have left, are divided into two Tomes, or Volumes. The first contains 17 Homilies on *Genesis*; 13, on *Exodus*; 28, on the *Numbers*; 16, on *Leviticus*; 26, on *Joshua*; 9, on *Judges*; 1, on the *Books* of *Kings*; 9, on the 36th, 37th,

37th, and 38th *Psalms*; 6, on the *Canticles*; 9, on *Isaiah*; 14, on *Jeremiah*; 14, on *Ezekiel*; 3 *Books* on the Book of *Job*; 4, of the *Principles*. One Treatise of the *Lamentations* of *Origen*; one Dialogue of the right Faith in God; Commentaries on *Job*, translated, and interpreted by *Joachim Du Peron*, four Homilies on the same.

The second Volume contains 35 Treatises on St. *Matthew*; 39 Homilies on St. *Luke*; 32 Treatises on St. *John*; 10 Homilies on various Places of the *New Testament*; 36 *Books* on the Epistle to the *Romans*; 8, against *Celsus*; Dialogues against the *Marcionites*; *Philocalia*, or of the Love of Honesty; an Epitome of the History of *Susanna*; an Epistle of *Julius Africanus*, relating to the same History; and *Origen*'s Answer: Besides his *Tetrapla*, *Hexapla*, and *Octapla*, heretofore mention'd.

Several of the Works here mention'd, are, by some, as well as several others of *Origen*'s *Books*, revoked in Doubt; as the Homilies on *Leviticus*, found among the *Books* of St. *Cyril*, which some suppose to be of *Origen*, as being written in his Style, and smelling much of his Errors; and some not. Three *Books* on *Job*, which I do not suppose to be of *Origen*, because mention is made, in the first, of the *Homoousians*, whom he calls a *Sect of three Gods*, which has fill'd the Earth; but that Name *Homoousians* was invented by the *Arians*, who did not appear till after *Origen*'s Death; and in the second the Author speaks of the Martyrdom of *Lucianus*, as if it had happen'd in his Time; whereas *Lucianus* was born after *Origen*'s Death. The Commentaries on *Job*, interpreted by *Du Peron*, do not seem to be of *Origen*, because in the Explanation, *c.* 3. he quotes the Exposition of *Lucian Martyr*; and likewise, in the Explanation, *c.* 7, and 8. he refutes the *Manichæans* by Name; and in the 18th Chapter mentions the *Homoousians*. But the *Manichæans*, and *Arians*, who call'd the Orthodox *Homoousians*, began but after *Origen*'s Death. Some question if the Homilies on the *Psalms* be of *Origen*, or not.

No doubt but the Homilies on various Places of the Gospel, are not of *Origen*, nor that on the first Chapter of St. *John*, wherein he mentions the *Manichæans* and *Arians*. In the 9th Homily on the various Places of the Gospel, there are found some Fragments of St. *Jerome* on the last Chapter of the Prophet *Isaiah*; and of St. *Gregory*, *C.* 15. *Moral. c.* 14. Two Fathers, who appear'd but after *Origen*, and consequently are not of *Origen*; besides, they are not written in his Style. The fifth Treatise on St. *Matthew* appears to be of a *Latin* Author; and if the fifth is of a *Latin* Author, there is a great Likelihood that the other Treatises on the same Subject are likewise of a *Latin* Author.

Of all the Works attributed to *Hippolytus* by *Eusebius*, we have none left but his Treatise of *Antichrist*, and some Fragments of those of Theology, and of the Incarnation. We have all St. *Cyprian*'s Works, tho' *Gelasius*, Bishop of *Rome*, has condemn'd them as apocryphal. Tho' those written in Defence of the Reiteration of Baptism, there's nothing in it but what's very agreeable to Orthodoxy; there are several other Works mix'd with his, which are not his, easily known by the Difference of the Style, which is notorious, and of a quite different Character. We have an Evangelical Harmony written by *Ammonius*, *Origen*'s Master, which we must not confound with that of *Titian*, which is heretical. *Julius Africanus* wrote an History in fourteen Books, from the Beginning of the World to the Empire of *Martinus*; and according to his Supputation, there had elaps'd already 5723 Years; *Eusebius* has taken from it the best Part of his Chronology. This Work of *Julius Africanus*, was publick in *Photius*'s Time, but has been lost since. We have left of that Author, an Epistle on the History of *Susanna*, which he treats as a Fable. St. *Basil* quotes a Fragment of his Books, to prove the Divinity of the Holy Ghost. We have lost his Volume wherein he treated of the different Dispositions of an Army.

In the fourth Century, *Eusebius*, Bishop of *Cæsarea*, under the Emperor *Constantine the Great*, wrote several Books, of which the following ones are yet extant, *viz.*

Fourteen Books of the Evangelical Preparation; ten, of the Evangelical Demonstration; ten, of Ecclesiastical History; four, of the Life of *Constantine*; one, against the Heresy of *Hierocles*; one, of the Difference of Sentiments among Philosophers; of Chronology, translated by St. *Jerome*.

Of these, the Books of Evangelical Preparation, and Demonstration, are imperfect; for *Eusebius* wrote (according to St. *Jerom. de Scrip. Eccles.*) fifteen Books of Preparation, and twenty of Demonstration; tho' we have but fourteen of Preparation, and ten of Demonstration. *Gelasius*, Bishop of *Rome*, condemn'd the Ecclesiastical History of *Eusebius*, as apocryphal, because, perhaps, the Historian is too lavish of his Praises on *Origen*.

Eusebius wrote, besides, under the Name of the Martyr *Pamphilius*, an Apology for *Origen*; tho' St. *Jerome*, *Lib. de Script. Eccles.* is of Opinion, that this Apology was really wrote by the Martyr *Pamphilius*. But, however, the same St. *Jerome*, *Lib.* 2. *in Ruff.* confesses, that he has found since, that this Apology was Part of that written by *Eusebius*, for *Origen*, whose Title *Ruffinus* had chang'd; and this he proves by the Testimony of *Eusebius* himself, who says, that *Pamphilius* never wrote but few Epistles.

St. *Athanasius*, *Lib. De Decret. Nic. Synod.* accuses this *Eusebius* of *Cæsarea* of *Arianism*; which Accusation is supported by St. *Jerome*, in both his Books against *Ruffinus*, wherein he calls *Eusebius* sometimes the Standard-Bearer, and sometimes Prince of the *Arians*; which is also confirm'd by the seventh Council, *Act.* 5. which rejects the Authority of *Eusebius Pamphilius*, as being an *Arian*.

St. *Athanasius*, Bishop of *Alexandria*, under the same Emperor *Constantine*, and who died, according to St. *Jerome*, *Lib. de Scrip. Eccles.* under the Emperor *Valens*, wrote a great Number of Books, which we have digested into four Volumes; tho' these are not all he wrote; for St. *Jerome* mentions two Books against the Gentiles, one against *Arsacius* and *Valens*, one of the Titles of the *Psalms*, and the Life of St. *Anthony*, Abbot, which are wanting, unless the Title has been chang'd.

The first Volume contains an Oration against Idols. Of the Incarnation of the Word. An Epistle to *Epictetus*, Bishop of *Corinth*. An Exposition of the Faith. An Epistle of *Liberius*, Bishop of *Rome*, to *Athanasius*. *Athanasius*'s Answer. An Epistle to the People of *Antioch*. Of the eternal Substance of the Son, and of the Holy Ghost, with God. An Oration on the Unity of *Christ*. To his Brother *Adelphius*, against the *Arians*. Four Orations against the *Arians*. On this Sentence, *Ex Deo, Deus est verbum*, *i. e.* the Word is God of God. On this Passage, *Omnia mihi Tradita sunt*, *&c.* all Things are given to me, *&c.* An Abridgment of the whole, against those who say that the Holy Ghost is a Creature.

The Oration against the Idols, and the Book of the Incarnation of the Word, seem to be the two Books against the Gentiles, mention'd by St. *Jerome*; for at the Beginning of the Book of the Incarnation *Athanasius* says, that having till then disputed against Idols, he is a going to dispute, likewise, of the Incarnation of the Word; that it might appear that those two Books were join'd; and that the one was but a Part of the other, both being equally against the Gentiles.

In the same first Volume there is a certain Exposition of Faith, which is very suspicious, as being different from *Athanasius*'s Symbol; for I don't see why he should have made two Expositions of Faith, especially so contrary to each other. In this Exposition he says, that the three divine Persons are not three

distinct Subsistences; and in his Symbol 'tis said, for there is one Person of the Father, another of the Son, and another of the Holy Ghost; and in the *Greek* another Hypostasis, *i. e.* Subsistence; for *Gregory Nazianzen* affirms, in his last Oration on *Athanasius*, that *Athanasius* himself had declar'd, that the Name Person had the same Signification among the *Latins*, with respect to the Trinity, as *Hypostasis* among the *Greeks*.

The Epistle of *Liberius* to *Athanasius*, and *Athanasius*'s Answer, appear to be spurious; because *Liberius* writes as if he had question'd the Faith of *Athanasius*, by ordering him to anathematize *Sabellius* and *Arius*; and his Letter begins by *Ergo*, then, without any Mark of Interrogation; which seems rather the Conclusion of a Letter, than a whole Letter. As for *Athanasius*'s Answer, it has not so much as the Form of a Letter, but only of a simple Confession of Faith, nor that neither conceiv'd in proper Terms; especially where he says, *That Flesh has been crucified, not himself; in it he has been subject to the Infirmities of human Nature, not himself.* For *Athanasius* us'd to express himself in other Terms, and more agreeable to the orthodox Faith, when he spoke of those Mysteries.

The second Tome contains an Apology to the Emperor *Constantius*; an Apology for his Flight; an Epistle to all the Orthodox; of the Sentiment of *Denis* of *Alexandria*; of the Decrees of the Council of *Nice* against *Eusebius*; the second Apology against the *Arians*; an Epistle to *Serapion*; an Epistle *ad Solitarios*; an Epistle to the Emperor *Jovinian*; of the Councils of *Arimini* and *Seleucia*; an Epistle to *Dracontius*, on his declining Episcopacy; and an Epistle to the Bishops of *Africa*; which Books, in my Opinion, are all genuine. There are, also, in this Tome, two short Epistles, after that to the Emperor *Jovinian*; which, for what Reason omitted in the Index, I know not.

In the third Tome are found the following Works, *viz.* of the Incarnation of the Word; of his having took human Nature; of the Incarnation of *Christ*; of the coming of *Christ*, against *Apollinaris*; a Sermon against Heresies; an Oration to the Philosopher *Maximus*; on this Passage, *You'll find the Colt*, &c. on the Passion of our Saviour; to *Marcellinus* of the Interpretation of the *Psalms*; of Virginity, or Meditation; Testimonies of the Scripture; of the natural Communion of the same Essence of the three Persons; to all, every where, through *Egypt*, *Syria*, &c. a Refutation of the Hypocrisy of *Meletius*; of the blessed *Mary*, Mother of God; on the Passion and Cross of the Lord; an Epistle to *Serapion*; on this Passage, *Whoever says the Word*, &c. a Disputation in the Council of *Nice*, against *Arius*; an Homily of the Sower; a Declaration on *Leviticus*, &c.

In this Volume the Sermon on the *Virgin Mary* does not appear to be of *Athanasius*; but of some later Author, who flourished after the third, fourth, and even the sixth Council; because he borrows the Expressions, with Respect to the *Virgin Mary*, made use of by those Councils in the Condemnation of *Nestorius*, *Eutiches*, and the *Monothelites*; for (as Cardinal *Baronius* justly observes, *Tom.* 1. *Annal. ad Ann. ch.* 48.) if this had been the Sermon of *Athanasius*, without doubt St. *Cyril*, and the Fathers of the third, fourth, and sixth Synod, had made use of it to convince the Heretick's of those Times. Add to this, that in the Explication of the Term ουσια, he says that ισια signifies Equality; whenas in the *Greek*, ισοτης. is Equality, not ισια, and all this Etymology of the Term ουσια, from ισος, is too trifling to be of *Athanasius*. It is not very certain, that what's intituled *Disputation with Arius*, is of St. *Athanasius*. Since that Disputation was not made in the Council of *Nice*, as indicated by the Title, but in some Monastery, as is evident from the very Beginning of the Book; neither was that Disputation with *Arius*, but with some of his Disciples; which is conspicuous from these Words, *de Repente ex Radice, Christu inimici* Arii, *Bellica, sub humanâ Specie ad nos insiluit*, i. e. Suddenly a Beast from the corrupted Root of *Arius*, Enemy of Christ, flew at us, &c.

The fourth *Tome* contains, Questions to Prince *Antiochus*; of Theological Definitions; Disputation with *Arius* at *Laodicea*; an Exhortation to the Monks; of the Passion of the Image of the Lord; an Epistle to *Mark*, Bishop of *Rome*; *Mark*'s Answer; an Epistle to *Serapion* of the Holy Ghost; 7 Books of the Unity in the Trinity; and a *Synopsis* of the whole Scripture.

There is almost nothing in this Tome of St. *Athanasius*. The Questions to *Antiochus* cannot be his, because the Author, *Quest.* 23. quotes *Athanasius*, and differs from him. In the *Question* 129. St. *Gregory* the Theologian is quoted, though a later Author than *Athanasius*; neither can he be the Author of the Theological Definitions, since his Sentiments are supported with the Authority of *Gregory* of *Nice*, who had not yet began writing when *Athanasius* died; since *Athanasius* died under *Valens*, and *Gregory* began to write, according to St. *Jerome*, under *Theodosius*. Add to this, that in this Book of the Definitions, the Author speaks so distinctly of the two Natures of *Christ* in one *Hypostasis*, that it must have been written after the Council of *Chalcedon*. The Book of the Passion of the Image of *Christ*, though received in the second Council of *Nice*, is not of this *Athanasius*, but of another more modern than this. Some Authors believe it spurious.

If we have any regard to Times, we'll find that the Epistles of *Athanasius* to *Mark*, Bishop of *Rome*, and *Mark*'s Answer, are fictitious. The seven *Books* of the Unity in the Trinity do not seem to me of *Athanasius*, because written originally in *Latin*, and not a Translation as it appears by the Style. As for the Symbole, which bears his Name, recited with so much Respect throughout all the Orthodox Churches, was certainly wrote by him. The Commentaries on all the Epistles of St. *Paul*, attributed to *Athanasius*, are of *Theophylact*.

St. *Basil* the Great, Archbishop of *Cæsarea*, in *Cappadocia*, flourished under the Emperor *Valens*, and died under *Gratian*. He has left us his Works, which were printed in four Volumes, at *Basil* in 1540. The first contains 11 Homilies on the Work of the six Days; 17 on the *Psalms*; 28 on various Subjects. The second, 2 Books of the Virginity; one of Paradise; 3 against *Eunomius*; 1 against the *Sabellians* and *Arians*; 1 of the Holy Ghost; 1 of Free-Will; 1 of Baptism. The third, 7 Sermons, *Ascetick*; 1 of the Judgment; 1 of the Confession of Faith; 80 Sums, of Morals; 55 Questions explained at length; 31 explained in Abridgment, monastick Constitutions. The fourth, 180 Epistles of *Basil*, and *Gregory* the Theologian; an Epistle to *Cilon*, or *Chilonis*, of the Solitary Life; some other of his Epistles; an Oration against those who accused the *Christians* with admitting three Gods.

In the first Volume are reckoned 11 Homilies on the Work of the six Days; though St. *Jerom* mentions but nine. In the second is inserted a Book of Paradise; and in the Edition of *Antwerp*, in 1568, are found four Homilies on that Subject. There are also in the same Volume but three Books against *Eunomius*; and in the Edition of *Antwerp* there are five; though *Erasmus* of *Rotterdam* has thought fit to take off two, as unworthy of St. *Basil*.

St. *Gregory Nazianzen*, called the Theologian, had been, according to St. *Jerome*, School-Fellow of St. *Basil*, lived under the Emperor *Valens*, and died the eleventh of *Theodosius*. He wrote several Books, those, yet extant, in the *Cologne* Edition of 1570 are the following, *viz.* 4 *Books* of Apologetick; 3 Orations to several; 7 funeral Orations, or Sermons; 1 Oration in Praise of the Philosopher *Heron*; 3 Orations, or Discourses, on Peace; 5 Orations, or *Books* of Theology; 2 Discourses against the Emperor *Julian the Apostate*; 1 Epistle to *Clidovius*; 7 Discourses on Feast-Days, one Treatise of the Faith, one of the Faith of the Council of *Nice*; 17 Orations on various Subjects;

Subjects; an Exhortation to a Virgin; one *Metaphrasis* on the *Ecclesiastes*; 80 Epistles.

His Poetry, a Tragedy, entituled *Christ's Sufferings*; Poems, 2 on his Affairs; 9 on the several Proofs of the *Old* and *New Testament*. An excellent Poem on the State of Virginity; one on the Precepts, to be kept by a Virgin; 13 Spiritual Epigrams; and 3 *Books*, in Verses, of Spiritual Sentences.

The *Metaphrasis* on *Ecclesiastes* is not of *Gregory Nazianzen*, but of *Gregory Thaumaturgus*. The Tragedy is spurious, because not written with that Gravity natural to *Gregory Nazianzen*.

St. *Ambrose*, Bishop of *Milan*, flourished under the Emperors *Gratian* and *Theodosius*, and died, according to *Baronius*, in the Year 397. His Works in the *Paris* Edition of 1549 are as follow.

In the first Tome, 3 *Books*, *de Officiis*; 3 *de Virginibus*; 1 *Institutio Virginis*; 1 *ad Devotam Virginem*; 1 *ad Virginem lapsam*; 1 of Viduity; 2 of Penitence; 1 *de Fuga Seculi*; 1 *de Bono Mortis*. In the second, 2 *Books* of the Vocation of the Gentiles; 5 of the Faith, to *Gratian*; 3 of the Holy Ghost, to the same, one of the Faith against the *Arians*, one of the History of the Incarnation, one of the History of the Resurrection. In the third, a Funeral Sermon on the Death of *Valentinian*, another on the Death of *Satyrus*, a Discourse on the Faith of the Resurrection, another on the Death of *Theodosius*; 10 *Books* of Epistles to several; 92 Sermons to the People. In the fourth, *Hexameron*, 6 *Books*; of the Paradise one *Book*; 2 *Books* of *Cain* and *Abel*, one of *Noah* and the Ark; 2 of the Patriarch *Abraham*, one of *Jacob* and the Blessed's Life; 2 of the Patriarch *Joseph*, one of the Blessings of the Patriarchs, one of *Naboth* the *Jezreelite*, one of *Elias* and Fast; 1 of *Tobiah*; 3 of the Interpolation of *Job* and *David*, an Apology of *David*; one of *Solomon*; one of those who are initiated to the sacred Mysteries; 6 of the Sacraments, one of the sacerdotal Dignity, two of the Prayers before the Mass or Liturgy, Commentaries on the 1, 35, 36, 37, 38, 39, 40, 43, 45, 47, 48, 61, and 118th *Psalms*. Another Apology of *David*, of the Interpellation of *David*. In the fifth Volume, 10 Books on the Gospel of St. *Luke*, Commentaries on all the Epistles of St. *Paul*, *Acephalus* of the Faith of the Resurrection, Pious Prayers and sacred Hymns, and the Cantick of St. *Ambrose* and St. *Augustine*, called *Te Deum Laudamus*.

In the first Tome, the Book to the fallen Virgin is not of St. *Ambrose*, because it contains the Errors of the *Novatians*, concerning Penitence, who pretended that Sins were not to be forgiven 'till the Day of Judgment. In the second, the Books of the Vocation of the *Gentiles* are falsly attributed to St. *Ambrose*; since they are of St. *Prosperus*, they certainly cannot be of St. *Ambrose*; since the Author in the first *Book*, *c.* 7, and in the second, *c.* 8. disputes against the *Pelagians*, who appeared but after St. *Ambrose*'s Death. It is certain that some of the Epistles of the third Tome are not of St. *Ambrose*, since in them the *Pelagians* are mentioned; no more than the Sermons, 9, 37 and 72, which are found among those of St. *Augustine*. Likewise the Sermon 69, which is of St. *Eusebius*, Bishop of *Vercelle*, and the 73 on St. *Cyprian* are found among those of St. *Maximus*, with the Insignificant Alteration of few Words, the following Sermons, *viz.* 3, 14, 30, 31, 32, 44, 47, 50, 51, 52, 53, 54, 56, 57, 58, 60, 61, 62, 66, 71, 77, 78, and 82, are Word for Word among the Sermons of St. *Maximus*; so that nobody can judge which of the two is the Author of them.

The 92d Sermon of the Baptism of St. *Augustin* differs much from the Style and Gravity of St. *Ambrose*; and what's said in that Sermon, that St. *Ambrose* had prayed God to deliver him from the captious Discourses of St. *Augustine*, is not credible; since St. *Augustin* was not converted by disputing with St. *Ambrose*, but by his Sermons, as he acknowledges it himself, *Lib.* 3. *Confess. c.* 13. and *Lib.* 6. *c.* 1.

In the fourth Tome the last Apology of *David*; and also the last *Book* of the Interpellation of *David* don't seem to be of St. *Ambrose*, because of the Difference of the Stile, and because the Author pretends that *David*'s Adultery was not a real Adultery, but is to be interpreted as an Allegory; whereas St. *Ambrose*, in the true Apology, is of another Opinion, but only commends *David*'s Penitence. Several are of Opinion that some of the Commentaries on the Epistles of St. *Paul*, in the fifth Volume, are not of St. *Ambrose*, and not without Cause; since the Author of those Commentaries seem to be the same who has wrote the Questions on the *Old* and *New Testament*, found among the *Books* of St. *Augustin*; for the Doctrine of those Commentaries, and of those Questions, is semblable, as justly observed by the Censors of *Lovain* in their Notes on St. *Augustine*. The Stile seems also to be the same, and the Time is agreeable to it; for the Author of those Questions, *Quest.* 44. writes, that from the Siege of *Jerusalem* to his Time, had elapsed 300 Years; to which, if the Years from Christ's Nativity, to the Siege of *Jerusalem* be added, it will make up 372 or 373 Years, as it appears by the Chronicle of St. *Jerome*; and if the Author of those Commentaries, and of those Questions, is but one and the same Author, it appears evidently that St. *Ambrose* is not the Author of those Commentaries, since he wrote nothing before he was a Bishop, and was not made a Bishop, according to *Baronius*, before the Year of Christ 374.

There are some other Works added to those abovementioned, in the *Roman* Edition of 1585, and attributed to St. *Ambrose*, which are not his; as a Commentary on the *Apocalypse*, and some others; but especially the Explication of the *Apocalypse*, wherein the Author mentions the *Lombards* invading *Italy*, which Invasion did not happen 'till after St. *Ambrose*'s Death.

St. *Jerome* flourished in the 14th Year of the Emperor *Theodosius*, and died under *Honorius*, *Anno Christ.* 422, in the 91st Year of his Age, according to the Chronicle of St. *Prosperus*, or in the Year 420, the 78th of his Age, according to *Baronius*. His Works are contained in nine Tomes, in the *Lyon*'s Edition, of 1530; but in the *Roman* Edition of 1565 and 1572, of *Marianus Victor*, though there is the same Number of Volumes, nevertheless what the former Edition had placed in the fourth Tome, is placed in this, in the eighth, and ninth; and what in the former was placed in the fifth, sixth, seventh, eighth, and ninth; this places it in the fourth, fifth, sixth, and seventh. We'll follow the Order of the first Edition.

Therefore the first Tome contains these Books, *viz.* 42 Epistles of Exhortation, to *Heliodorus*, and to *Rusticus*; to *Læta*, and *Salvia*; two to *Agerouchia*, to *Paulinus*, to *Paul*, and *Eustochius*, in *Marcella*'s Name; three to *Marcella*, to *Paul Concordiensis*, to *Theophilus* of *Alexandria*, to *Castrutius*, to *Exuperantius*; to the Deacon *Julianus*, to the Virgins of the Mount *Hermon*; to *Russinus*, to *Cromatius*, and others. To *Antony*, to avoid a suspected Company; to the Deacon *Sabinianus*, to *Nepotian*; two to *Florentinus*, to *Demetriade*, to *Furia*, to *Gaudentius*, to *Culentia*; two to *Eustochius*, to *Licinius*, to *Abigaus*, to *Julian*; to *Castorina*, to the Monk *Theodosius*, to *Augustine*, to the Deacon *Nicæus*, to *Chrisogonus*, to *Rusticus*. In the same Tome there are Panegyricks, or Funeral Epistles, to the Number of fourteen, *viz.* on *Nepotianus*, on *Marcella*, on *Blesilla*, on *Asella*, on *Lea*, on *Paula*, on *Licinius*, on St. *Paul*, on *Malchus*, on *Fabiola*, on St. *Hilarion*. Lastly, at the End of this Volume there is a Book of the ecclesiastical Writers. There is nothing in this first Tome which could be call'd in Question.

In the second there are Books against Hereticks, or Calumniators, *viz.* 1 against *Helvidius*; 2 against *Jovinian*; an Apology for his Books, against *Jovinian*; an Apologetick to *Domnionis*, to *Pammachius*, for the same Books; an Epistle to *Riparius*, against *Vigilantius*;

Vigilantius; a Book against *Vigilantius*, an Epistle to *Marcella* against *Montanus*, a Dialogue against the *Luciferians*, to *Avitus*, against *Origen*; to *John* of *Jerusalem*, an *Origenist*; to *Pammachius*, of the Errors of *John* of *Jerusalem*; to *Theophilus* against the said *John*; three Books of Apologies against *Ruffin*; to *Ctesiphon* against *Pelagius*; three Books against the *Pelagians*; thirty Epistles to several, on different Subjects; and likewise eight Epistles of *Epiphanius*, *Theophilus*, and *Augustine*, to *Jerome*. This Tome is free from all Doubts, or Suppositions.

There are in the third, Prefaces, and Answers to Questions, *viz.* to *Paulinus*, of the Books of the Scripture; *Prefaces* on the *Pentateuch*; on *Joshua*; on the Books of *Kings*; 2, on the *Paralipomenon*, on *Esdras*; on *Tobiah*; on *Judith*; on *Esther*; on *Job*; on the *Proverbs*; on *Ecclesiastes*; on the *Canticles*; on *Isaiah*; on *Jeremiah*; on *Ezekiel*; on *Daniel*; on the twelve *Prophets*; on the four *Evangelists*. Then follows, in the same Tome, the Explication of Questions, propos'd by several, *viz.* by *Damasus*, *Dardanus*, *Vitalis*, *Amandus*, *Minerius*, and *Alexander*; by *Cyprian*, *Paula*, *Evagrius*, *Marcella*, *Sophronius*, *Hedibia*, the Virgin *Principia*, *Fabiola*, *Ruffinus*, *Sunia*, and *Fresilla*, *Palgasia*, *Paulinus*, and *Desiderius*. Lastly, there are, in the same Tome, Traditions, or *Hebraick* Questions, *viz.* on *Genesis*; on the Books of *Paralipomenon*; on the Books of *Kings*. Likewise, Books of the *Hebraick* Places, or *Hebraick* Names, which occur throughout all the Books of the *Old* and *New Testament*.

In this Tome there is nothing dubious, except the Questions on the Books of *Kings*, and of *Paralipomenon*; because St. *Jerome*, *Lib. De Scrip. Eccles.* affirms, that he has wrote *Hebraick* Questions on the *Hebraick* Places, and Names, of the *Genesis*, but makes no mention of the Books of *Kings*, and *Paralipomenon*.

The fourth Tome contains Commentaries on the four great Prophets, and on the *Lamentations of Jeremiah*; the fifth, Commentaries on the *Ecclesiastes*, and the twelve little Prophets; the sixth, Commentaries on St. *Matthew*; on the Epistles to the *Galatians*, to the *Ephesians*, to *Titus*, to *Philemon*, and the Book of *Didymus*, on the Holy Ghost, translated into *Latin* by St. *Jerome*.

In these three Tomes all is genuine, except the Commentary on the *Lamentations*, which is suppos'd to be of *Rabanus*, because found among his Works, and because it contains some Passages of St. *Gregory*. After the Commentary on St. *Matthew*, follow'd one on St. *Mark*, which *Marianus* has prudently omitted, because the Author of that Commentary did not understand, either the *Greek*, or the *Hebraick* Tongue; and in the Explication, c. 14, and 15. had wrote very foolish, and false Things.

In the seventh Tome are contain'd Commentaries on all the *Psalms*, and the Version of St. *Jerome* from the *Hebrew*.

In this Tome the Commentaries on the *Psalms* are revok'd in Doubt; for though St. *Jerome* assures us himself, *Lib. De Scrip. Eccles.* that he wrote on seven Psalms, *viz.* the 14th, 15th, 16th, 17th, 18th, 19th, and 20th; and in his Epistles, to *Principia*, *Marcella*, and *Cyprian*; that he wrote, likewise, on the 44th, 89th, and 126th Psalms. It is very certain, that the Treatises on the seven Psalms are lost; and as certain, that the Explication of the three others is of St. *Jerome*, as well as the short Commentaries on all the Psalms in general; because St. *Augustine*, in his Epistle to *Fortunatianus*, quotes the Exposition of St. *Jerome* on the 93d Psalm, Word for Word, as it is found in this Commentary; which Opinion is supported by the Testimony of St. *Gregory*, who explaining these Words of the fourth penitential Psalm, *a broken and a contrite Heart, O God, thou will not despise*, alledges St. *Jerome* explaining the same Passage; and that Exposition is found in his Commentaries.

In the eighth Tome are found, the Commentaries of *Beda*, on *Job*, and on the *Proverbs*; *Origen*'s Homilies on the *Canticles*, and Commentaries on all the Epistles of St. *Paul*.

Marianus had justly refus'd to attribute the Commentaries on *Job* to St. *Jerome*, which he knew to be *Beda*'s Commentaries, since in the last Volume the Author mentions to have wrote in Favour of *Vestrius*, whom we learn from *Beda*'s History to have been a Bishop in *England*, in *Beda*'s Time. The Commentaries on the *Proverbs* are as justly attributed to *Beda*, since Pope *Gregory* is mention'd in the 21st and 30th Chapters; and in the 30th, St. *Jerome* himself by Name.

The Commentaries on all the Epistles of St. *Paul*, far from being of St. *Jerome*, are certainly of the Heresiarch *Pelagius*; for St. *Augustine*, *Lib.* 3. *De Pecc. cat. merit. & remiss. c.* 1. says, that he has read the short Commentaries of *Pelagius* on all the Epistles of St. *Paul*; and lower, *c.* 12. quotes some Passages out of the Commentary on the seventh Chapter of the first Epistle to the *Corinthians*, which Passages are found in these Commentaries.

In the *ninth Tome*, the Epistle to *Demetriades*, which begins, *si summo Ingenio*, is *Pelagian*, and attributed by St. *Augustin* to *Pelagius*, and refuted, *lib. de Gratia Ch. c.* 22, 27, 37, 38, and 40. Likewise the Epistles to the Daughters of *Geruntius* are *Pelagian*, as well as that to a Friend on the Affinity of the Divine Law. The Epistles of the Ecclesiastical Writings place among the greatest Ornaments of the Church, *Origen*, *Jovinian*, and *Pelagius*, who were Hereticks, and mentions *Hilary*, Bishop of *Rome*, who succeeded *Leo* in that See, and who was not known 'till long after St. *Jerome*'s Death. The Epistle of the luxurious and frugal Son is *Pelagian*, and very different from the true Epistle of St. *Jerome* on the same Subject. The Symbole to *Damasus*, which begins, *Credimus in Deum Patrem*, and concludes with these Words, *se imperitum & malevolum, vel non Catholicum, non me Hereticum comprobabit*, is not of St. *Jerome* to *Damasus*, but of *Pelagius* to *Innocent*, as confirmed by St. *Augustin*, *L. de Gratia Christi*, *c.* 30, 31, 32, 33, where he says that *Pelagius* sent a Profession of his Faith to *Innocent*, and recites the Words of that Profession, which are those of this Symbol. The Epistles of St. *Augustin* to *Cyril*, Bishop of *Jerusalem*, are false and spurious; since it appears that *Cyril* of *Jerusalem* died before St. *Jerome*. A Book of the Lives of the Fathers is also attributed to St. *Jerome*, but we must know, that that Book is not all of the same Author; for in the first Part are inserted the Lives of Monks, written by *Evagrius*; which in St. *Jerome*'s Opinion, *Epist. ad Ctesiph.* are all false, except the first, which is that of the Abbot *John*. *Gennadius* attributes to the same *Evagrius*, the Lives of the Fathers, written in his Catalogue. To these Lives, written by *Evagrius*, have been added the Lives of *Paul*, first Hermit, of *Hilarion* and *Malchus*, written by St. *Jerome*, likewise that of St. *Anthony*, by *Athanasius*, and that of *Mary the Egyptian*, by *Zozimus*. Also, several Things from the Collations of *Cassian*; and *lastly*, the Life of St. *Jerome*, written with a great deal of Partiality.

St. *John Chrysostom* was made Bishop of *Constantinople*, the fourth Year of the Empire of *Arcadius* and *Honorius*, and died the 13th of the same Emperors, and the 9th of his Pontificat, *Ann. Dom.* 407. The Works we have left of his are distributed into five Volumes, in the Edition of *Venice*, of 1575; which are these, *viz.*

In the first Tome, 67 Homilies on *Genesis*; 26 on the *Psalms*; 52 on several Passages of the *Old Testament*, five of which are of the Vision of *Isaiah*. In the second, 89 Homilies on St. *Matthew*; 54 of an imperfect Work, on the same; 26 on several Passages of St. *Matthew*; 14 on St. *Mark*; 7 on several Passages of St. *Luke*. In the third, 87 Homilies on St. *John*; 6 on several Places of St. *John*; 15 on the *Acts of the Apostles*; 32 Sermons of the *sacred Feries*; 14 Ho-

14 Homilies on several Places of St. *Paul*; among which there are several Panegyricks on St. *Paul*. In the fourth, Commentaries, in Form of Homilies, on all the Epistles of St. *Paul*. In the fifth, 80 Homilies to the People of *Antioch*, 6 Dialogues, or Books of the Sacerdoce, 2 Books of the Compunction of the Heart, 6 Books of Gods Providence, 2 Books of praising God, a Book of Comparison between a King and a Monk, 3 Books against the Calumniators of a monastick Life, a Book against the Gentiles, or on the Martyr *Babylas*; 12 Discourses on Penitence, 15 against the *Jews* and *Hereticks*, 2 against Concubinage, 48 on various Subjects, 8 Epistles, 2 to Pope *Innocent*, 1 to *Cyriacus*, 1 to Bishops and Priests imprison'd for their Piety, 2 to the fallen *Theodorus*, 1 to *Eutropius*, 1 to *Olympias*, an illustrious Woman; and the Liturgy of St. *John Chrysostome*.

In the first Tome, the Homilies on *Genesis*, on the *Psalms*, and of *Isaiah*'s Vision, are, without Doubt, of St. *Chrysostome*; but among the Homilies on several Passages of the *Old Testament*, there is one on the 2d Chapter of *Genesis*, which begins, *Deus institutor mundi*, which cannot be of St. *Chrysostome*, since there are inserted therein, 2 whole Chapters, extracted from a *Latin* Book, intituled, *Of the Ecclesiastical Dogma's*, viz. the 31st and 32d; which Book is of an Author later than St. *Chrysostome*. In the second, the Commentaries on St. *Matthew*, are certainly of St. *John Chrysostome*; but the imperfect Work cannot be his; for I do not see any Reason why he should have wrote twice, and so much on the same Subject: But, however, let who will be the Author of that Work, he was certainly an Heretick, or it has been corrupted by an Heretick; though, otherwise, the Book is very learned, and not at all to be despised. He says, in the 4th Homily, that *the Holy Ghost is the Minister of the Son*; and, Homily 48, ranks the *Homousians* among *Hereticks*; which two Passages are of an *Arian*: On the contrary, Homil. 27, and 44, he condemns as Hereticks those that say that *the Son is less than the Father*; which two Sentiments imply a Contradiction. Therefore the Author might have been orthodox, and his Work deprav'd by the *Arians*. In the same Tome there are Commentaries on St. *Mark*, which cannot be of St. *Chrysostome*, but are of some simple Monk who explain'd the Scripture to his Brethren, as it appears in the Homilies 3, 4, 8, and 9; but some of the others contain'd in this Tome are of St. *Chrysostome*, as the Homily of the Treason of *Judas*; Item of *Dives* and *Lazarus*. Item, Homil. 4, and others of the *Publicans*, *Pharisee*, of the Cross and Thief; the rest seems to be extracted, Part from the Commentaries on St. *Matthew*, Part from the imperfect Work, and Part from the Homilies on St. *Mark*. In the third Volume the 87 Homilies on St. *John*, are, without Controversy, of St. *Chrysostome*; and, in my Opinion, the 55 on the *Acts of the Apostles*, though *Erasmus* revokes them in Doubt. What's certain is, that Hom. 9. the Author styles himself a Bishop; Hom. 11. a Bishop of a very great City; Hom. 41. he says that he liv'd in the Time of *Julian* the Apostate; and Hom. 52. that his Name is *John*. Therefore there's no great Reason to suppose it a spurious Work. Of the six Homilies intermix'd with the Commentaries on St. *John*, and on the *Acts*, there is no Reason to doubt, except the third, which begins, *Hirundinum Pulli*, &c. all the rest are of St. *Chrysostome*, especially the Homilies in Praise of St. *Paul*. There's nothing in the 4th Tome which could justly be revok'd in Doubt. In the 5th, almost every Thing is unquestionable, except the Homilies to the People of *Antioch*; of which, 'tis said, that no more than 21 can be found manuscript in the antient Libraries.

St. *Augustine*, Bishop of *Hyppone* in *Africa*, was the greatest Ornament of the *Christian* Church in the 5th Century; he flourish'd *A. D.* 420, and died in 433, according to *Prosper*'s Chronicle. He wrote a very great Number of *Books*, which we have digested into ten Volumes.

The first Tome contains 2 Books of Recantations, 13 of Confessions, 1 of Grammar, 1 of Dialectick, 1 of the ten Categories, 1 of the Principles of Rhetorick, 6 of Musick, 3 against the Academicks, 1 of Ordination, 1 of Beatitude, 2 of Soliloquies, 1 of the Master, 1 of the Immortality of the Soul, 1 of the Quantity of the Soul, 3 of Free Will, 1 of true Religion, 1 of the Manners of the Church, 1 of the Manners of the *Monks*, 2 of the *Genesis* against the *Manicheans*, 3 of Monastick Rules, 1 of the Hermitical Life, to his Sister. In this Tome nothing is dubious, but the Monastick Rules, and the Book of the Hermitical Life; for of those Rules, none is of St. *Augustine*, the third excepted, which is mention'd in the 109th Epistle. The Book of the Hermitical Life cannot be of St. *Augustine*, because in it are named St. *Benedict* and St. *Gregory*.

The 2d Tome contains all St. *Augustine*'s Epistles, and the Answers to them, to the Number of 222. The following 7 are found in his Retractations, and therefore are genuine, *viz.* 2 to *Januarius*, 1 to *Deogratias*, 1 to *Honoratus*, 1 to *Paulinus*, 1 to *Boniface*, and 1 to *Dardanus*. Though St. *Augustine* himself, *L.* 2. *Retract.* at the latter End, informs us, that all his Epistles and Discourses are not contain'd in his Retractations. The 16 Epistles of St. *Augustine* to *Bonifacius*, and of *Bonifacius* to St. *Augustine*, which are found between the Epistle to *Honoratus*, *de fuga in persecutione*, and that to *Edicia*, *de foro Continentiæ*, do not seem to be of St. *Augustine*; but they are so short, that it matters not whose they are. The Epistles of St. *Augustine* to *Cyril*, and of *Cyril* to St. *Augustine*, on the Death and Miracles of St. *Jerome*, are false.

In the 3d Tome are found 4 Books of the *Christian* Doctrine, 7 of the Locutions of the Scripture, 1 of the Faith and Symbol, 1 *Enchiridion*, 3 of the Trinity, an imperfect one of the *Genesis*, 12 of the Letter of the *Genesis*, 3 *de Mirabilibus Sacræ Scripturæ*, 1 of the Agony of *Christ*, one of the Work of the *Monks*, 1 *de Spiritu & Litera*, 1 *de Divinatione Dæmonum*, 1 of Ecclesiastical Dogma's, 1 *de Spiritu & Animâ*, 1 *de Fide ad Petrum*, 1 *Speculum*, 1 of small Questions on the Trinity, 1 of the Blessing of the Patriarchs, 1 of Sentences.

The Book *de mirabilibus Sacræ Scripturæ*, is not found in St. *Augustine*'s Retractations, nor in the short Index of *Possidius*; because 'tis a Book beneath the Genius and Gravity of St. *Augustine*. The Book *de Ecclesiasticis Dogmatibus*, does not seem neither to be of St. *Augustine*, because fill'd with Passages of the Council of *Orange*, assembled after St. *Augustine*'s Decease. *Algerus*, who liv'd in 1100, attributes this Book to *Gennadius*, as does, likewise, *Platina*, who says, in the Life of *Simachus*, Bishop of *Rome*, that in that Prelate's Time, *Gennadius*, Bishop of *Marseilles*, wrote a Book of Ecclesiastical Dogma's. The Book *de Spiritu & Animâ* is not of St. *Augustine*, because *Boætius* is mention'd in it, who was not born when St. *Augustine* died, nor even till a long while after. That *de fide ad Petrum* don't seem to be of St. *Augustine*, because not mention'd in the Retractations, nor in the short Index; but rather of St. *Fulgentius*, because directed to the Deacon *Peter*; and there was a Deacon of that Name very intimate with St. *Fulgentius*; besides, the Style of this Book is very much like his, and *Bertramus*, who, towards the Year 850, wrote *de Corpore & Sanguine Christi*, quotes this Book as written by St. *Fulgentius*. The small Questions on the Trinity, have been extracted from the Books of St. *Augustine*, but we do not know by whom; that of the Blessings of the Patriarchs is not of St. *Augustine*, but extracted from the *Hebraick* Questions of St. *Jerome*. The Book of Sentences is of St. *Augustine*, but collected by St. *Prosper*. In his Book *de Spiritu & Litera*, he shews by the Scripture, that the Perfection of Justice is possible, though without Example, as it was possible for twelve Legions of Angels to fight for *Christ*, though such Thing did not happen.

This whole Book, almost, consists in the Explanation of this Passage of the second Epistle of St. *Paul* to the *Corinthians*, *c.* 3. *v.* 6. *For the Letter kills, but the Spirit giveth Life.*

The fourth Tome contains, one Book *de Mendacio*; one *contra Mendacium*; one of Faith and Works; 7 of Questions on the *Eptateuch*; one of evangelical Questions; one of Questions from St. *Matthew*; 4 *de Consensu Evangelistarum*; one of 81 Questions; one of 21 Sentences; 2 of Questions to *Simplicianus*; one of Questions to *Dulcitius*; *Questionum Sexaginta quinque*; *Questionum Veteris & Novi Testamenti*; one of the Care for the Dead; one of Catechising the Illiterate; 2 of the Incarnation of the Word; one of the Trinity and Unity of God; one of the Essence of the Divinity; one of the Faith of Things invisible; one of the Substance of Dilection; one of Continence; one of Patience, one of the Good of Viduity; one of true and false Repentance; one of salutary Documents; one of Friendship or Amity; 2 of the Sermon of Christ on the Mount; an Exposition began on the Epistle to the *Romans*; Exposition of some Passages of the Epistle to the *Romans*; Exposition of the Epistle to the *Galatians*; and Annotations upon *Job*.

The Book of Annotations on *Job*, though adopted by St. *Augustine*, in his Retractations, can scarcely be attributed to him; because he says himself that he has found it so much disfigured by the Uncorrectness, or Infidelity of Copists, that he could not know it for his Work. The Book of the 20 Sentences, and that of the 65 Questions, do not seem to be of St. *Augustine*, not only because they are not in his Retractations, but also because they have nothing worthy of so great a Man. The Book of Questions of the *Old* and *New Testament*, is not of St. *Augustine*, but of some Heretick, because he says, *Quest.* 24. That the World has been made on Occasion of the Presumption of the Devil. *Quest.* 21. That the Woman was not formed in the Image of God; and *Quest.* 109. That *Melchisedech* was the Holy Ghost. The Books of the Incarnation of the Word, of the Trinity, and Unity of God; of the Essence of the Divinity of the Faith of Things invisible; of the Substance of Dilection; are not of St. *Augustine*, because they are not found, nor in the Retractations, nor in the short Index of *Possidius*, who was very careful in collecting the Works of his Master; neither have they the Taste of the Style and Doctrine of St. *Augustine*. Those of Continence, of Patience, of the Good of Viduity, are of St. *Augustine*, notwithstanding what *Erasmus* says to the contrary, because they are in the short Index of *Possidius*, and quoted by the venerable *Bede*, as of St. *Augustine*, in his Commentaries on the Epistles of St. *Paul*. The Book of the true and false Repentance, is not of St. *Augustine*, for, besides, 'tis not mentioned in the Retractations, nor in the short Index; the Author quotes, *c.* 17. some Sentences of St. *Augustine*, from which he differs afterwards. The Books of salutary Documents, and of Friendship, don't seem of St. *Augustine*, because not placed in *Possidius*'s Index; the Stile, besides, being too low, and the Diction too barren for St. *Augustine*; though they be pious and useful.

The fifth Tome contains the twenty-two Books *de Civitate Dei*, which St. *Augustine*, *l.* 2. *Retract. c.* 43. acknowledges for his, and calls a grand Work, as really it is, and the Time it was written in, and the Occasion on which it was written, *viz.* the Subversion of *Rome* by *Alarick*, King of the *Goths*, proclaims it such.

The Books contained in the sixth Tome are, one Book of the Heresies, to *quod vult Deus*; an Oration on the five Heresies; a Sermon to the Catechumens; a Discourse against the *Jews*; of the Dispute between the Church and the Synagogue; one Book of the Utility of Belief; one *contra Epistolam Fundamenti*; one of the two Souls against the *Manichæans*; one against *Fortunatus*, a *Manichæan*; 1 against *Adimantus*, a *Manichæan*; 33 against *Faustus*, a *Manichæan*; 2 of the Acts with *Felix*, a *Manichæan*; one against *Secundinus*, a *Manichæan*; one *de Natura Boni*, against the *Manichæans*; one of the Faith against the *Manichæans*; 2 against the Enemies of the Law and Prophets; 1 against the *Priscillianists* and *Origenists*; *contra Sermonem Arianorum*; 3 against *Maximinus*, Bishop of the *Arians*; one against *Felicianus* an *Arian*; of the Conjugal Good against *Jovinian*; one of the blessed Virginity; *de Adulterinis Conjugiis*, to *Poliantus*; one Treatise of the *Stoicks* and *Epicureans*; a Treatise of him who says, *ego sum qui sum.*

The Book of Heresies is of St. *Augustine*, because in the short Index, and quoted by St. *Gregory*, *l.* 6. *Epist.* 179. though not mentioned in the Retractations. The small Book or Discourse of the five Heresies, is of St. *Augustine*, because placed in the short Index, and quoted by *Bede*, in his Commentaries on the Epistles of St. *Paul*, *viz.* on the first Chapter of that to the *Romans*. We must form the same Judgment of the Sermon to the Catechumens, and of the Discourse against the *Jews*. The Book of the Disputes between the Church and the Synagogue don't seem to be of St. *Augustine*, because it is not in the Recantations, nor in the Index of *Possidius*, and because it contains Expressions, which were not used by St. *Augustine*. The three Books against *Maximinus*, though not in the Recantations, being placed in the Index of *Possidius*, and quoted by *Bede*, in his Commentaries, and by the sixth general Council are, without doubt, of St. *Augustine*. The same Judgment might be formed of the Book against *Felicianus*, for the same Reasons. The Treatise of the *Stoicks* and *Epicureans*, and that on these Words, *ego sum qui sum*, are so beautifully wrote, that, though not in the Recantations, nor in the Index of *Possidius*, they might be of St. *Augustine*.

The seventh Tome contains a *Psalm contra Partem Donati*; 3 Books against the Epistle of *Parmenian*; 3 against the Letters of *Petilian*; 4 against *Cresconius*, the Grammarian; 2 against the Epistle of *Gaudentius*; 7 of Baptism against the *Donatists*; one of Baptism against *Petilian*; *Opus breviculi Collationis contra Donatistas*; *Sermo super gestis cum emerito*; 1 *de Gestis cum emerito Donatista*; 3 *de Peccatorum meritis & Remissione*; 1 *de Naturâ & Gratia*; 2 of the Grace of Christ, and of the original Sin against the *Pelagians*; 2 *de Nuptiis & Concupiscentiâ*; 4 against two Epistles of the *Pelagians*; 4 of the Soul, and of its Origin; one of Predestination and Grace; the Epistles of *Prosperus* and *Hilary* to *Augustine*; 2 *de Prædestinatione Sanctorum*, & *de bono Perseverantiæ*; one of Predestination; one of Grace and Free-Will; one of Correption and Grace; one *ad Articulos sibi falso Impositos*; 6 *Hypognosticon*, against the *Pelagians*; one *de Perfectione Justitiæ contra Cælestium*; one of the Actions of *Pelagius*.

The Book *de Naturâ & Gratiâ*, which without Controversy, is of St. *Augustine*, is the fifth he wrote against the *Pelagians*, and an excellent Treatise on the Corruption of human Nature, by original Sin; and of the absolute Necessity of a medicinal Grace; because, says he, if our Nature was in perfect Health, as *Pelagius* pretends, and could by herself, without a supernatural Succour, accomplish the Law of God; we could reasonably conclude that Christ died in vain, which would be a Blasphemy. He shews afterwards that Grace to be a free Gift, and not given for any particular Merit, all Men being wrapp'd up in a common Mass of Condemnation; in which God could leave us, without we could have the least Reason to accuse him of Injustice. The two of the original Sin also against the *Pelagians*, are of the same Force. In that of the Grace of *Jesus Christ*, he teaches that Grace does not consist in the single Possibility of doing good, under the Direction of our Free-Will, but in the *Infusion of a new Dilection*, which heals our Will, and of an *agreeable and marvellous Suavity*, *which makes us* [illegible] *what she has made us desire or will*; and which is necessary to us, not only that we may act with Facility; but, without which, it is impossible we could act at all.

all; since *she gives us the Action*, without depriving us of our Liberty, nor even offending it. In the first Book *de Nuptiis & Concupiscentiâ*, which is also his, he proves that there must be a Distinction made between those two Things; and that Concupiscence does not proceed from Marriage, which is good in itself, but from the Concupiscence which is bad. In that, *de Correctione & Gratiâ*, he shews that from the Necessity of the Grace of God for each Action in particular, from its Gratuity, it being due to nobody, and which consequently he can refuse when he pleases; it does not follow that Sinners are not to be reprimanded; or that the Menaces, the sacred Scriptures are filled with, are vain, as we shall explain it more at large in our Treatise of Grace. In that, *de Prædestinatione Sanctorum*, he establishes, on several Passages of St. *Paul*, the Predestination of the Elects before the Prevision of their good Works, and according to the Will of God; but, in my Opinion, the strongest of his Arguments, is the Predestination of *Jesus Christ*, the first of all the Elects, which he shews clearly to have preceded all Sorts of Merit, and to have been entirely gratuite; which is an indubitable Proof that the Predestination of the Members cannot be operated in a Manner different from that of the Chief. The Book *de prædestinatione & gratia*, is not of St. *Augustine*, since it differs widely from his Style and Doctrine; for the Author says, *c.* 16. that Man could have been justly damn'd, though he had not sinn'd; contrary to what St. *Augustine* says, *Epist.* 10, and 106. and *L.* 2. *c.* 16. *de Peccat. mer. & remiss.* and elsewhere. The small Book, *de Predestinatione Dei*, is not of St. *Augustine*, because the Author says, towards the latter End, that Predestination proceeds from the Prevision of Works, which Doctrine St. *Augustine* refutes every where. *Responsio ad articulos, &c.* is of St. *Prosper*, and found among his Works. The *Hypognosticon*, though very learned, and of an antient Author, are not of St. *Augustine*, because they have not his Style, neither are they mention'd by *Possidius*, *Bede*, or any other antient Father. That, *de perfectione Justitiæ*, is of St. *Augustine*, because 'tis not only in the short *Index*, but is likewise often quoted, under the Name of St. *Augustine*, by St. *Prosper*, and the venerable *Bede*. The Book *de Gestis contra Pelagium*, was discover'd and printed, but in the Beginning of the sixteenth Century.

The 8th Tome contains Treatises on all the Psalms of *David*, which Work is mention'd in the short Index of *Possidius*, and acknowledg'd by every Body to be of St. *Augustine*.

In the 9th Tome are found, 124 Treatises on the Gospel of St. *John*, 10 on the first Epistle of St. *John*, 18 Homilies on the *Apocalypse*, 1 Book of Meditations, of the Love of God, 1 Book of Soliloquies, a Manual, 1 *de triplici habitaculo*, 1 *de Scala Paradisi*, 1 *de* 12 *gradibus abusionum*, 1 of the Contrition of the Heart, 1 *de Cognitione veræ vitæ*, 1 *de Speculo*, 1 of the *Christian* Life, of the Assumption of the Virgin *Mary*, 1 of the *Christian* Discipline, 1 *de decem Chordis*, 1 *de Cantico novo*, 1 of the Contempt of the World, 1 of the Vanity of the World, 1 of Obedience and Humility, 1 *de bono Disciplinæ*, 1 of the Visitation of the Sick, 1 *de consolatione mortuorum*, 1 *de quartâ feriâ*, *de Cataclismo*, of Sobriety, *Speculum Peccatoris*, *de pœnitentiæ medicinâ*, of the Conflict of Virtues and Vices, *de quatuor virtutibus Charitatis*, of the Honesty of Women, 4 of the Shepherd and of the Flock, of the Symbol of Faith, *de Convenientiâ decem præceptorum, & decem Plagarum*; *de rectitudine Catholicæ Conversationis*, of the Utility of Fasting, of the Siege of the City, of the Creation of the first Man, of the Tree of Life, *de Pugna animæ*, of the Antichrist, *Psalterium matri suæ*, Exposition on the *Magnificat*.

Of so many Books, these only are uncontroverted, *viz.* the Exposition of the Gospel, and of the Epistle of St. *John*; all the rest are either dubious, or spurious.

In the 10th Tome are, 64 Homilies *de verbis Domini*, 35 *de verbis Apostoli*, 1 Book of fifty Homilies, 256 Homilies *de Tempore*, 51 *de Sanctis*, 76 *ad fratres in Eremo*, 2 Discourses *de communi vita Clericorum*, Discourses found at the *Cartusian* Monks at *Paris*, in the Beginning of the 16th Century, 128 found very near the same Time.

The Homilies, or Discourses *de verbis Domini*, and *de verbis Apostoli*, are all, or almost all, of St. *Augustine*; because in the short Index of *Possidius*; all the rest are dubious, except the Discourses printed at the Beginning of the 16th Century, especially those under the Direction of the Doctors of *Lovaine*, are all of St. *Augustine*, because in the short Index, and quoted by *Bede*.

St. *Augustine* died while he was answering, Book by Book, the eight *Pelagius* had wrote against him; he had already compos'd six of those Books, two of which *Claudius Menard* publish'd, towards the Middle of the last Century: He had extracted them from an old Manuscript, which is the Cause why they are so full of Faults, and *Lacunæ*; and Father *Vignier* was so happy as to find in the Library of *Clairveaux*, the four others which were suppos'd lost, and which he has publish'd, with several other new Works of that Father.

All these Works of St. *Augustine* have been preserv'd, notwithstanding the great Revolutions which have happen'd in *Africa*, and have made ever since they have been publish'd for the first Time, one of the greatest Ornaments of the most famous Libraries, though I had the Mortification, and the Happiness together, to find, some Time ago, that inestimable Book, *De civitate Dei*, of the *Paris* Edition, in a Cellar, at a Dealer in Second Hand *Books*, and which was design'd for Cheesemongers, if I had not sav'd it from those murdering Hands.

Socrates, *Ammonius*'s Disciple in the *Grammaire*, wrote, in this Century, his Ecclesiastical History, which he divides into seven *Books*, beginning where that of *Eusebius* ends, *i. e.* at *Constantine*, and contains 40 Years.

Sozomene, born at *Salamina*, in the Isle of *Cyprus*, compos'd likewise, in this Century, an Ecclesiastical History in nine *Books*, which begins at the Consulship of *Crispus*, *Constantine*'s Son. His Diction is more exact than that of *Socrates*, but we have lost the Narration of Things which happen'd during twenty Years. These two Historians are accus'd of having favour'd the *Novatians*.

Theodoret is more elegant than they, in his Ecclesiastical History, contain'd in five *Books*. He begins at the Heresy of *Arius*, and ends at the Time of *Theodosius* the younger. *Gennadius* says, that he had continu'd it as far as the Emperor *Leo*, in five other *Books*, which are lost.

Theodorus the Reader has also wrote an History in 2 *Books*, which begins at the Death of *Theodosius* the younger, and ends at the Empire of *Justinus*.

Besides the Originals, which are to be found in the most celebrated Libraries of *Europe*, we have a vast Number of Versions of these Histories, in several Languages.

Cassiodorus, Secretary of State to *Theodorick*, King of *Italy*, is one of the most famous Writers of the sixth Century. He has left us twelve *Books* of the divine Institutions, in which he teaches how the sacred Scriptures are to be read; twelve *Books* of Epistles, twelve *Books* of the History of the *Goths*, an Ecclesiastical History, extracted from those of *Socrates*, *Theodoret*, and *Sozomene*, call'd, for that Reason, *Tripartite*. A Chronicle, where Cardinal *Baronius* observes, he has been mistaken in several Things, and which the learned Chronologist considers as very imperfect. *Cassiodorus* had wrote several other Books, which are lost.

We have nothing left of the Writings of *Anastasius Sinaites*, but his Treatise against the *Acephales*, printed at *Ingolstat*, in 1606; and eleven Books of

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Anagogical Contemplations, on the Work of the Six Days; and five of the Dogma's of the Faith. *Possevin* says, that in the Libraries of *Ausbourg*, and *Vienna*, there are several others of his Works; and that his whole Homily on the *sacred Sinaxis* is to be found in that of *Bavaria*.

Evagrius wrote his Ecclesiastical History in six Books, beginning where *Theodoret* finishes his, and ending at the twelfth Year of the Emperor *Mauricius*. *Tiberius* and *Mauricius* rewarded him for his Works with some honourable Post, which shews that in an Age of Ignorance, as was the sixth Century, the greatest Monarchs of the World encourag'd Learning.

In the seventh Century flourish'd *Isidorus*, Bishop of *Seville*, who has left us a great Number of his Works, which were printed at *Paris*, for the first Time, in the last Century.

The *venerable Bede*, an *Englishman*, is the most famous sacred Writer of the eighth Century. His Works are digested into eight Tomes, of which he gives himself a Catalogue. Cardinal *Baronius* pretends, that the Commentaries on the Epistles of St. *Paul*, compos'd of Passages of St. *Augustine*, are not his, but of one *Peter*, Abbot of *Tripoly*; but his Reasons don't appear to me strong enough to take that excellent Work from *Bede*. There are few scandalous Sheets mix'd with his, which never came from the Pen of so great a Man. We have lost his Commentaries on *Isaiah*, *Jeremiah*, and the twelve little Prophets.

John Damascenus, is one of the last Fathers of the Church; Father *L'Abbé* gave, in the last Century, a beautiful Edition of his Works.

The Ecclesiastical Writers of the following Centuries, are not of the same Authority in the Church, (especially among *Protestants*) as those heretofore mention'd; therefore lest I should appear too prolix on that Subject, I'll pass them over in Silence, and proceed to *Church Books*, which I'll rank among divine Books, as being us'd in the publick Offices of Religion.

As there have been two Sorts of Churches, *viz.* the *Jewish*, and the *Christian* Church; there have been, likewise, and still are, *Jewish Church-Books*, and *Christian Church Books*.

The *Jewish* Church-Books were, the *Books* of the *Law*, the *Hagiographa*, the *Prophets*, &c.

The *Hagiographa*, call'd, by the *Hebrews*, *Cetuvim*, comprehend the Books of *Psalms*, *Proverbs*, *Job*, *Daniel*, *Esdras*, *Chronicles*, *Canticles*, *Ruth*, the *Lamentations*, *Ecclesiastes*, *Esther*. The Name is very antient; St. *Jerome* makes frequent mention of it. The *Jews* sometimes call these Books the *Writings*, by way of Eminence, as being wrote by immediate Inspiration of the Holy Spirit.

The *Christian* Church's Books were divided in the first Ages of the Church, into *Latin* Church Books, and *Greek* Church Books.

The *Latin* Church Books are, 1. The *Pontifical*, which contains all the Prayers used in the Consecration of Bishops; Ordinations of Priests, Deacons, Subdeacons, Acolytes, Exorcists, Porters, Clerks, *&c.* in the Consecration of the *Chrisma*, of the Oil, *&c.* in the Dedication of Churches; in the Consecration, or Blessing of the Vessels used at the Altar, *&c.* 2. The *Missal*; which contains the *Canon of the Mass*, and is a Compilation of select Prayers, made by several Popes, at different Times, to be recited by the Priests, with a low Voice, immediately before, and after the Consecration of the Bread and Wine; the Epistles, Gospels, Collects, Prefaces, Offertories, *&c.* for all *Masses* throughout the whole Year. 3. The *Breviary*, containing the *Office*, or Liturgy, which every Priest, Deacon, and Subdeacon, is oblig'd to recite daily, throughout the whole Year, and which is recited or sung every Day, in all Cathedral and Collegiate Churches; in all Convents or Monasteries, of Monks, Fryers, and Nuns. 4. The *Diurnal*, which contains what's call'd *Les petites heures*, viz. *Prime*, *Tierce*, *Sext*, *None*, *Vespers*, and *Complies*. 5. The Ritual, containing the Ceremonies for the Administration of Sacraments, and the Burial of the Dead. 6. The Psalter, containing all the Psalms, commonly with the Musick to it, very solemn, call'd by the *Roman* Church *Chant Gregorian*; as began to be sung, under the Pontificate of *Gregory the Great*, and by his Order. 7. The *Martyrology*, which is a Book containing a very short Account of the Lives of Martyrs, Confessors, Virgins, *&c.* of all Ages, ever since the Beginning of the *Christian* Church; and digested, by Order, with Regard to the Day, Month, and Year they died, or suffer'd in; under what Emperor, Proconsul, *&c.* which is read every Morning at the End of the Hour of *Prime*.

In the *Greek* Church, the Church's Books are, the *Menologium*, *Euchologium*, *Tropologium*, &c. also the Book of Peace, *Liber Pacis*, which is a Book given to be kissed in the Ceremony of the Mass. The Musick Book, containing the Psalms, Troparies, and other Prayers of that Kind which are used to be sung, with the Notes mark'd to each. Book of Liturgies, *Liber Liturgiarum*, containing not all the Liturgies of the *Greek* Church, but only the four now in Use, *viz.* the Liturgy of St. *Basil*, of St. *Chrysostome*, that of the *Presanctified*, and that of St. *James*; which is only used in the Church of *Jerusalem*, and that but once a Year.

The *English* Church Books, in Use in the Middle of the tenth Century, as enumerated in *Elfrick's* Canons, were, the *Bible*, *Psalter*, *Epistles*, *Gospel-Book*, *Mass-Book*, *Song-Book*, or *Antiphonary*, *Manual*, *Kalendar*, *Passional*, or *Martyrology*, *Penitential*, and the *Lesson Book*; but all these Books were abolish'd by 3 and 4 *Ed. 6. c.* 10.

The Books, call'd spiritual Books, are also a Sort of divine ones, as conducive to Piety and Virtue; such are those of St. *John Climax*, St. *Francis de Sales*, St. *Theresa*, *Thomas a Kempis*, *Granadensis*, Dr. *Horneck*, &c.

There are some Books esteem'd as divine, by some *Christian* Societies, and condemn'd by others as heretical, and by them call'd prohibited Books, because forbidden by the Superiors of the Church.

The Popes in the *Roman Catholick* Church have the Power to condemn what Books they judge contrary to the Faith, and have establish'd a Congregation at *Rome*, whose Business is to examine Books, and to put such as they think fit to prohibit the reading or selling of, into the INDEX, which is the Name by which the Catalogue of prohibited Books is call'd. Those Books, thus prohibited, are qualified, in this Index, as heretical, or schismatical, or tending to Heresy, or Schism, *&c.* Among the heretical, some are heretical of the first Class, as the Books of *Sabellius*, *Arius*, *Nestorius*, *Montanus*, *Marcion*, *Manes*, *Ebion*, *Novat*, *Paul* of *Samosate*, &c. and others of the second Class, as all the Books written in Defence of any Heresy whatever. There is also this other Difference, that some of those Books are condemn'd purely and absolutely, and others only *donec corrigantur*, till they are corrected.

Philip II, King of *Spain*, was the first who procur'd an *Index* to be publish'd of the Books condemn'd by the Inquisition of *Spain*. Pope *Paul* IV. took the Hint, and in 1559 order'd the Congregation of the holy Office at *Rome* to print a second. *Pius* V. recommended the Matter to the Council of *Trent*, who made another; after this, the Duke of *Alva* procur'd another to be printed at *Antwerp* in 1571. *Clement* VIII, in 1596, publish'd a very copious one, call'd by the Name of the *Roman Index*. There were two others, publish'd in 1583, and 1612, by the Cardinals *Guiroci* and *Sandoval*; and several others by the Inquisitors, and Masters of the sacred Palace. The most considerable of all the *Indices*, is that of *Sottomayor*, which was made for all the States subject to the King of

of *Spain*, and comprehends all the others, coming down as low as the Year 1667.

Most of the Books contain'd in the *Index*, have been burn'd by the common Executioners, to stigmatize them with a Mark of Infamy, and render them odious throughout all Ages; a severe Custom borrow'd from the *Romans*, who used to have that Punishment executed by a legal Sentence. Sometimes the Care of the Execution was committed to *Triumviri*, appointed on Purpose; sometimes to the *Prætors*, and sometimes to the *Ædiles*. *Labienus*, whom, from his satirical Spirit, some call'd *Rabienus*, is said to have been the first who underwent the Severity of it. His Enemies procur'd a *Senatus Consultum*, whereby all his Books, publish'd during several Years, were order'd to be collected, and burnt. 'The Thing, 'says *Seneca*, then appear'd new and strange to take 'Revenge on Learning; *Res nova & insueta supplicium de studiis sumi! Cassius Servius*, a Friend of *Labienus*, hearing the Sentence pronounc'd, cried aloud, 'That they must burn him too, since he had 'got all the Books by Heart.' *Nunc me vivum uri oportet qui illos didici.* *Labienus* could not survive his Books, but shutting himself up in the Tomb of his Ancestors, pin'd away, and was buried alive. Had *Labienus* wrote in our Days, the burning his Books had heighten'd their Merit, and his Reputation; and no Doubt made the Fortune of some Bookseller or other.

I divide *human Books* into publick and particular *Books*. Publick Books are those written for the Service, and Utility, or of the whole World in general; as the universal History of the World; of the Government, Religion, Customs, Manners, Laws, *&c.* of all Nations; Treatises of all Sorts of Arts and Sciences, for a general Instruction; or of some Nation in particular, as the History of the Beginning and Progress of a Nation; the Books of its Laws and Customs, the Books of Records, *&c.*

The Books which I call particular, are those which do not concern immediately the general Good; and treat only of some particular Subject, which can only flatter the human Curiosity.

Among human Books, some are good, as those which tend toward maintaining the just Harmony which should subsist in a civil Society; or serve to promote Learning, the Arts and Sciences, Commerce, *&c.* others vicious and profane; such are all those written with the Design to debauch our Principles and our Morals; which nevertheless are, at present, the best Books, if we'll speak the Language of Booksellers, who call no other Books good, but those which sell well, let them be ever so obscene. There are other Books call'd profane, though they are not criminal, nor vicious, but only to distinguish them from those which treat of Matters of Religion, in the same Sense we distinguish *profane* History from *sacred* History. In this Sense, *Seneca*, *Xenophon*, &c. are profane Authors, and all the Pontifical, Ritual, Augural, Aruspicine, Acherontick, Fulgural, Fatal, *&c.* Books of the *Romans*, are to be accounted profane among us.

The Pontifical Books of the *Romans*, *Libri Pontificales*, were those appointed by *Numa* to be kept by the *Pontifex maximus*, describing all the Ceremonies, Sacrifices, Feasts, Prayers, and other religious Matters, with the Manners and Circumstances wherewith each was to be celebrated; these were also call'd *indigitamenta*, as containing the Names of all the Gods, and the Occasions and Formula's of invoking each. The Ritual Books, *Libri rituales*, were those which directed the Order and Manner of founding, building, and consecrating Cities, Temples, and Altars; the Ceremonies belonging to Walls, Gates, Tribes, Curiæ, Camps, *&c.* the Augural Books, *Libri augurales*, call'd by *Cicero*, *Libri reconditi*, were those wherein the Science of foretelling Futurity, from the Flight and Fluttering of Birds, were contain'd. The Aruspicine Books, *Libri aruspicini*, contain'd the Mysteries of divining from the Entrails of Victims. The Acherontick Books, (call'd also *Libri etrusci*, from a Supposition that they were the Work of *Tages* the *Etrurian*) contain'd the Ceremonies of the *Acheron*, which is the Reason why some confound them with the *Libri aruspicini*, and others make no Difference between them and the *Libri fatales*, or fatal Books; wherein were written the Ages, or Terms of the Lives of Men, according to the *Hetrurian* Discipline. These were consulted by the *Romans* in all publick Calamities, and Instructions taken from them how to appease the irritated Deities. The Fulgural Books, *Libri fulgurales*, were written touching Thunder and Lightning, and the Interpretation thereof; as that compos'd by the *Tuscan* Nymph *Bigois*, preserv'd in the Temple of *Apollo*. And the Sybilline Books were those compos'd by certain Prophetesses, deposited in the Capitol under the Care of the *Duumviri*. We have but very few of all those Sorts of Books left.

But we cannot say the same of the Books written by profane Authors, which have been carefully transmitted to us, even from the dark Times of *Homer*, in all their Purity, especially those of the most eminent in all kind of Erudition; for all human Sciences, and liberal Arts, having been more encourag'd by the *Romans* than by any other Nation, before or since, they had took Care to preserve among them all the best Authors, written before the Foundation of the Republick, that they might serve as Rudiments to those who would improve their natural Talents in the same Arts and Sciences, in which they had the desir'd Success; for we are oblig'd to confess, that very few Nations have produc'd so good Authors as the *Romans* have done, and none better.

Under the Reign of *Augustus*, which was also that of the Learned, *Pliny* excell'd in the natural History, of which he has wrote several very curious Books, but they are disgrac'd by a vast Number of Improbabilities, which have added a very scandalous Epithet to his Name. *Asinius Pollio*, *Quintus Atherius*, *Cassius Severus*, *Votienus*, *Montanus*, *Domitius Afer*, and *Quintilian*, acquir'd a very great Reputation for their Eloquence; we have the Institutions of Rhetorick of the last, which deserve the Name of a perfect Work. *Asconius Pedianus* was an excellent Grammarian, and is very much valu'd for his Interpretations of *Cicero*, who carried the Palm for Eloquence, which is plainly seen in his Works, which have been, and will be admir'd throughout all Ages, as inimitable. An *English* Gentleman has lately translated his Orations into *English*, with an admirable Success, which I hope has met with a due Encouragement from the learned World. I speak on this Occasion according to my particular Sentiment, and without Partiality, since the Translator is a perfect Stranger to me.

Poetry was also then carried to its greatest Perfection. *Virgil* alone could be an Honour to several Centuries; *France* possesses all his Beauties in the excellent Translation of the Abbot *de Villeloin*. *Ovid* for the happy Facility of his Expressions, *Tibullus* for his Purity, and *Horace* for his Strength and Energy, are plac'd in the first Rank of those who cultivated then the Fields of the Muses; the last hinder'd the *Romans* from envying *Pindarus* to the *Greeks*. *Lucan* by his beautiful Verses excited *Nero*'s Jealousy, who affected, with a Passion beneath a great Emperor, of being a Poet. *Lucan* had certainly a great deal of Wit, and a vast Genius, as appears in his Descriptions; but he was guilty of the Imperfection common to young Men, of going often farther than the Subject would bear. Some value him too much, and others too little; for if he has his Faults, he has also his Perfections. *Valerius Flaccus*, *Martial*, and *Juvenal*, appear'd under *Domitian*; the last is very much inferior to *Horace* for the true Character of the Satire. *Persius*, who preceded him, was not willing, as I suppose, we should understand him, and is not worthy of the Trouble his Interpreters have taken to explain him. As for the *tragical Seneca*, he is an excellent Original in his Kind. *Statius*, in his *Thebaides*, has

ſome Strength, but is not eaſily underſtood, and has Reaſon to confeſs that he follows the *Æneid* a-far off.

Tacitus is the moſt illuſtrious Hiſtorian of thoſe Times. *Titus Livy* had wrote in the Time of the Republick. The Learned are divided for theſe two Authors; each has his Merit, but thoſe of the beſt Taſte are for the firſt, againſt the ſecond, who certainly wants his Purity. The beſt Criticks of his Time have reproach'd him with Putavinity, *i.e.* that he had ſomething of the Dialect of *Padua*; but we are not capable at preſent of ſo nice a Diſtinction. We have loſt ſeveral Pieces of both, which had been a great Treaſure for our Libraries, and had inform'd us of a thouſand Things which have been buried in Oblivion, or which the other Hiſtorians have not exactly treated. The Brevity of *Tacitus* wants the whole Attention of a learned Man, not to be ſtopp'd by his Circumlocutions, which are rather *Greek* than *Latin*. *Valerius Maximus*, who was much in Favour with *Auguſtus*, *Higinus*, *Denis* of *Halicarnaſſe*, and *Joſephus*, acquir'd alſo a great deal of Eſteem; 'tis true, that the laſt who has wrote of the Antiquities and of the Wars of the *Jews*, is reproach'd with Negligence, and Want of Sincerity in his Narrations. Some Authors make *Quintus Curtius* contemporary with theſe abovemention'd; but if the Time when he liv'd is uncertain, every Body agrees that he has wrote very well the Hiſtory of *Alexander*, and that there cannot be a more florid Style.

Herodian is much valu'd for his Hiſtory, which he continues from the Death of *Antoninus* the Philoſopher, to *Balbinus* and *Maximus*, in eight Books; whoſe *Attick* Style, without Affectation, is clean and elegant. *Photius* ſays, that few Hiſtorians ſurpaſs him. It is from him we learn diſtinctly the Ceremonies of the *Apotheoſe*, or Conſecration of the *Roman* Emperors, which he deſcribes with a peculiar Care, on Occaſion of the Funeral Honours render'd to *Severus* by his two Sons. *Suidas* ſays, that *Herodian* had wrote ſeveral other Works.

Dion Caſſius, born at *Nice* in *Bithynia*, after he had been raiſed to the Honours of the Republick, as far as the Conſulſhip, by the Emperors *Commodus*, *Pertinax*, and *Alexander*, wrote a *Roman* Hiſtory, which gain'd him a great deal of Applauſe. Of the eighty Books divided into eight *Decades*, which it contain'd, we have loſt the firſt forty-four, of which we have but few Fragments. What follows, from the thirty-fifth to the ſixtieth, is perfect enough; but we have but an Abridgment of the five laſt, by *Xiphilinus*. He had began his Hiſtory at the Time of *Æneas*, and ended it at *Alexander Severus*, with whom he had been Conſul. In his Hiſtory we read thoſe two excellent Harangues of *Agrippa* and *Mecenas* to *Auguſtus*, on the Conſultation of abdicating the Empire, or of keeping it: Nothing of the Kind can be ſtronger, but he is juſtly blam'd for having ſhew'd himſelf too partial for *Cæſar* againſt *Pompey*, and for *Anthony* againſt *Cicero*, whoſe Reputation he endeavours to blacken, by puerile and malicious Accuſations. He likewiſe uſes *Seneca* very ill, and repreſents him as a Man more diſorder'd in his Life, than he appears wiſe in his Writings. *Photius* judges him clearer than *Thucydides*, whoſe high Style, ſays he, *Dion* has imitated in his Harangues. *Suidas* makes him the Author of ſome other Works, and *Raphael Valeran* gives him three Books, intitul'd, *the Prince*, and ſome Treatiſes of Morality.

The *Juriſprudence* had been happily cultivated, by *Ulpian*, *Paul*, *Pomponius*, *Sabinus*, call'd the *Cato* of his Age, *Fabius*, and *Modeſtinus*, who had been Privy Councellors, and Friends of the Emperor *Alexander Severus*.

But alas! the great Luſtre and Reputation Learning and the Learned had acquir'd during the fortunate Days of the Republick, and of the *Roman* Empire, ſuffer'd the ſame Eclipſe with its Glory; and we have never ſeen ſince another *Cicero*, another *Virgil*, an *Horace*, an *Ovid*, &c.

I have judged it abſolutely neceſſary, to enter here into this Particular, with Regard to Authors, that henceforward one might be capable to chooſe his *Books*, and to make a juſt Difference between good and bad Authors, which is a Science abſolutely neceſſary to thoſe who apply themſelves to the Study of the *Belles Lettres*. For how can we make Choice of a *Book*, if we have not the leaſt Notion of its Author? And how can we acquire that Notion, otherwiſe than by the Judgment the learned World has formed of him? therefore I conſider this Treatiſe on *Books*, as one of the moſt neceſſary, and the moſt eſſential of my whole Work; and as entertaining as any other. Several Authors, and *Chambers*, in particular, have attempted this Subject, with giving the Definition of very few of the *Books* here mentioned, but he goes no farther; therefore the Reader can learn from him that there have been ſuch and ſuch *Books*, and that there are yet ſuch and ſuch others; but we are left to chooſe among them thoſe we like beſt, without knowing how to chooſe them; which great Inconveniency I endeavour to remedy, by having conſulted the beſt Criticks of all Ages, eſpecially thoſe who could not be biaſs'd by any Conſideration whatever; and by ſtating fairly and candidly their ſeveral Sentiments.

I make no mention in this Place of the antient Philoſophers, becauſe I deſign to make a whole Treatiſe of their ſeveral Opinions.

Books are certainly of Divine Invention, ſince the oldeſt we have any warranted Account of, and which conſequently has been the firſt, is the Decalogue given to *Moſes* by God himſelf, who wrote it on Stones. Men afterwards taking the Hint from it began to write *Books* likewiſe, but on different Matters; for inſtead of Stones they made uſe of Parts of Vegetables for Matter of their *Books*, as of the Leaves and Barks; eſpecially the Leaves of Palm-Trees, and the Rinds and Barks of *Telia* or *Philyra*, and the *Egyptian Papyrus*; which continued long the common Matter of *Books*; inſomuch that moſt of the Names and Terms belonging to *Books*, in moſt Languages, are taken thence: As the *Greek Bibles*, the *Latin Liber*, *Codex*, *Folium*, *Tabulæ*, and the *Engliſh Book* itſelf. We may add, that Barks appear ſtill in ſome Meaſure retained for *Books* in certain of the northern Countries, as among the *Calmucks Tartars*, where a Library was lately diſcovered by the *Ruſſians*, of an unuſual Form, as well as Matter; the *Books* were exceedingly long, but no Breadth; the Leaves were thick, and made of Barks of Trees, ſmeered over with a double Varniſh; the Ink or Writing being white on a black Ground.

By Degrees Wax, then Leather, were introduced, eſpecially the Skins of Goats and Sheep, of which at length Parchment was prepared; then Lead came in Uſe; alſo Linen, Silk, Horn; and *Laſtly*, Paper itſelf.

We learn from Scripture that the firſt *Books* were in Form of Blocks and Tables, under the Appellation of *Sepher*, which the *Septuagint* render a ξυλα, Square Tables, of which Form the *Book* of the Covenant, *Book* of the Law, *Book* or Bill of Divorce, *Book* of Curſes, *&c.* appear to have been. But when flexible Matter came to be wrote on, they found it more convenient to make their *Books* in Form of Rolls, called by the *Greeks*, κυλινδροι, by the *Latins*, *Volumina*, which appear to have been in Uſe among the antient *Jews*, as well as *Grecians*, *Romans*, *Perſians*, and even *Indians*. The Rolls, or Volumes, were compoſed of ſeveral Sheets, faſtened to each other, and rolled upon a Stick, or *Umbilicus*; the whole making a Kind of Column or Cylinder, which was to be managed by the *Umbilicus*, as a Handle; it being reputed a Kind of Crime to take hold of the Roll itſelf. The Outſide of the Volume was called *Frons*, the Ends of the *Umbilicus*, *Cornua*, Horns; which were uſually carved; and adorned, likewiſe, with Bits of Silver, Ivory, or even Gold and precious Stones. The Title, Συλλαβος, was ſtuck on the Outſide. The whole

whole Volume, when extended, might make a Yard and a half wide, and fifty long.

Of such *Books* did the Libraries chiefly consist, 'till some Centuries after Christ. The Form which obtains among us, is the Square, composed of separate Leaves; which was also known, though little used among the Antients, having been invented by *Attalus*, King of *Pergamus*, the same who also invented Parchment; but it has now been so long in Possession that the oldest Manuscripts are found in it. *Montfaucon* assures us that of all the antient *Greek* Manuscripts he has seen, there are but two in the Roll-Form, the rest being made up much after the Manner of the modern *Books*.

To the Form of *Books* belongs also the Œconomy of the Inside; or the Order and Arrangement of Points and Letters into Lines and Pages, with Margins, and other Appurtenances; which has undergone many Changes. At first the Letters were only divided into Lines, then into separate Words; which by Degrees were noted with Accents, and distributed by Points and Stops into Periods, Paragraphs, Chapters, and other Divisions. In some Countries, as among the Orientals, the Lines began from Right, and run to the Leftwards; in others, as the northern and western Nations, from the Left to the Rightwards; others, as the *Grecians*, followed both Directions alternately, going in the one and returning in the other, called *Bonstrophedon*. In most Countries the Lines run from Side to Side of the Page; in some, particularly the *Chinese*, from Top to Bottom. Again, the Page in some is entire and uniform; in others divided into Columns; in others distinguished into Text and Notes, either marginal, or at the Bottom; usually it is furnished with Signatures and Catch-Words; sometimes also with a Register, to discover whether the *Book* be compleat. To these are occasionally added the Apparatus of Summaries, or Side Notes; the Embellishments of red, gold, or enamell'd initial Letters, Head-Pieces, Tail-Pieces, Effigies, Schemes, Maps, and the like. The End of the *Book*, now denoted by *Finis*, was antiently marked with a ⊲, called *Coronis*, and the whole frequently washed with an Oil drawn from Cedar, or Citron Chips, strewed between the Leaves to preserve it from rotting. There also occurs certain Formula's at the Beginning and End of *Books*: As among the *Jews*, the Words, *esto fortis*, which we find at the End of the *Books* of *Exodus*, *Leviticus*, *Numbers*, *Ezekiel*, &c. to exhort the Reader to be couragious, and proceed on the following *Book*. The Conclusions were also often guarded with Imprecations against such as should falsify them; of which we have an Instance in the *Apocalypse*.

Books, with Regard to their Manufacture, may be divided into *Manuscripts*; those written with the Hand, whether originally by the Authors, called *Autographs*, or at Second-Hand, by *Librarii*, or *Copists*, &c. *Printed*, those wrought off from the Press. *Books* in *Quires*, or *Sheets*, those not bound, or stitched. *Books* in *Folio*, those wherein a Sheet is folded but once, or makes two Leaves or four Pages. *Books* in *4to*, where it makes four Leaves; in *8vo*, where eight; in *12mo*, where twelve; in 16°, where sixteen; and in 24°, where twenty-four.

There have been erected, almost ever since the first Invention of *Books*, at least from the Time they began to increase in Number, particular Places for their Receptions, which Places, in Process of Time, have been changed into publick Edifices, called Libraries, whose Origin is by several Authors attributed to the *Hebrews*; from whom the other Nations took the Hint, and *Osmanduas*, King of *Egypt* first; who according to *Diodorus*, had a Library built in his Palace, with this Inscription over the Door, Ψυχης Ἰατρειον, nor were the *Ptolemy*'s, who reigned in the same Country, less curious and magnificent in *Books*. *Esdras*, *v.* 17. speaks of a Library of the Kings of *Persia*, which some imagine to have consisted of the Historians of that Nation, and of Memoirs of the Affairs of State; but in Effect, it appears rather to have been a Depository of Laws, Charters, and Ordinances of the Kings. The *Hebrew* Text calls it the *House of Treasures*, and afterwards the *House of the Rolls*, where the Treasures were laid up. We may with more Reason call that a *Library*, mentioned in the second of *Esdras*, to have been built by *Nehemiah*, and in which were preserved the *Books* of the *Prophets* of *David*, and the Letters of their Kings.

The Tyrant *Pisistratus* was the first who erected a Library at *Athens*, though *Strabo* refers the Honour of it to *Aristotle*. *Xerxes* transported that of *Pisistratus* into *Persia*, which was afterwards brought back by *Seleucus Nicanor* to *Athens*, long after it was plundered by *Sylla*, and re-established by *Adrian*. *Plutarch* informs us, that under *Eumenes* there was a Library at *Pergamus*, containing 200,000 *Books*. *Tyrannion*, a celebrated Grammarian, contemporary with *Pompey*, had a Library of 3000 Volumes. That of *Alexandria*, according to *A. Gellius*, contained 700,000 Volumes, all in Rolls, burnt by *Cæsar*'s Soldiers. *Constantine*, and his Successors, erected a magnificent one at *Constantinople*; which, in the eighth Century contained 300,000 Volumes, all burnt by Order of *Leo Isaurus*; and among the rest, one wherein the *Iliad* and *Odyssee* were written in Letters of Gold, on the Guts of a Serpent.

The most celebrated Libraries of antient *Rome* were the *Ulpian* and the *Palatin*. They also boast much of the Libraries of *Paulus Æmilius*, who conquered *Persius*; of *Lucillius Lucullus*, of *Asinius Pollio*, *Atticus*, *Julius Severus*, *Domitian*, *Serenus*, *Pamphilus Martyr*, and the Emperors *Gordian* and *Trajan*.

St. *Jerome*, *Anastasius*, and others, inform us, that antiently every large Church had its Library, which is yet practised in several Christian Countries; especially in the Abbeys and other Monasteries; each of which has its Library, more or less numerous. Most of those Libraries are publick ones; that is to say, that the curious may resort thither, at any Time, and entertain themselves with what *Book* they please, which can be met with in that Library, without costing them any Thing, if even they were to copy whole Volumes. That of St. *Victor*, of St. *Genevieve*, and several others at *Paris*, are of that Kind, and are embellished not only with a vast Number of printed *Books*, but likewise with several antient Manuscripts, some of them *Originals*, in all Languages. The most antient, most famous, and most rich in original Manuscripts, and most numerous of the whole World, is that of the King of *France*, at the same Place, began by *Francis* I. augmented by Cardinal *Richelieu*, and compleated by M. *Colbert*, to which the learned and curious are also permitted to resort. By the Regulation of the Library at *Paris*, no *Books* of any Kind can be published before two Copies of it, neatly bound, have been deposited in the King's Library, which considering the Inclination the *French* Nation has to writing, and the great Number of religious Orders, who apply themselves to it, especially the celebrated Congregation of St. *Maure*, of the Order of St. *Benedict*, who published often several very considerable Works, as the Version of the antient Fathers, both *Greek* and *Latin*, with large Commentaries, must render, in Time, that Library, one of the Wonders of the World. I am surprised the same Method is not practised here in *England*, where there could be found as many good Authors, if they were to meet with the same Encouragement.

The next to this is that of the *Vatican* at *Rome*, founded by Pope *Nicholas* in 1450; and though it had been destroyed since by the Constable *De Bourbon*, in the taking of *Rome*, it was restored to its pristine Splendor, by Pope *Sixtus* V. and considerably enriched with the Ruins of that of *Heidelberg*, plundered by Count *Tilly* in 1622.

The Emperor's Library at *Vienna*, according to *Lambecius*, consists of 80,000 Volumes, and 15,940 curious Medals. That erected at *Florence* by *Cosmo de Medicis*,

Medicis, is ſaid to be one of the moſt compleat in *Europe*, over the Gate whereof is wrote, *Labor abſque Labore.*

The *Bodleian Library*, at *Oxford*, exceeds that of any Univerſity in *Europe*, and even thoſe of all the Sovereigns of *Europe*, except the King of *France*, and the Emperor of *Germany*, which are each of them older by a hundred Years. It was firſt open'd in 1602, and has ſince found a great Number of Benefactors; particularly Sir *Robert Cotton*, Sir *H. Savil*, Archbiſhop *Laud*, Sir *Kenelm Digby*, Mr. *Allen*, Dr. *Pocock*, Mr. *Selden*, and others. The *Vatican*, the *Medicean*, that of *Beſſarion* at *Venice*, exceed the *Bodleian* in *Greek* Manuſcripts, and the *Bodleian* exceeds them in Orientals. The *Cotton Library* conſiſts wholly of Manuſcripts, particularly of ſuch as relate to the Hiſtory and Antiquities of *England*, which, as they are now bound, make about 1000 Volumes. Moſt of the *Engliſh* Nobility and Gentry have an excellent Taſte for Learning, and a great Number of them have a ſelect *Library* of their own, which conſiſt of the beſt Authors both antient and modern; which ſhews their juſt Diſcernment in the Choice of their *Books*, of which they are competent Judges. No doubt but ſeveral of them, if they would take the Pains, or the Exigency of National Affairs could allow them Time to write, would acquire as great a Reputation in the learned World, as did the moſt celebrated Authors, during the moſt flouriſhing State of the *Roman* Republick. The moſt compact private Library, and the beſt ſtock'd with curious modern Books, in all Kinds of Literature and Languages, is that of *Joſiah Martin*, by Profeſſion a *Quaker*; and the greateſt Ornament of his Library, is himſelf.

I take no Notice here of *Books*, with regard to their Authors, *v. gr.* as that *anonymous Bocks* are thoſe without any Author's Name; *cryptonymous*, thoſe whoſe Authors Names are conceal'd, in ſome Anagram, or the like; *pſeudonymous*, thoſe which bear falſe Names of Authors; *poſthumous*, thoſe publiſh'd after the Author's Death; *genuine*, thoſe really written by the Perſons whom they pretend for their Authors, and ſtill remaining in the State wherein they were left by them; *ſpurious*, or *ſuppoſititious*, thoſe pretending to be written by others than their real Authors; *interpolated*, thoſe which ſince their Compoſition have been corrupted by ſpurious Additions or Inſertions. All I can ſay, on this Subject, is, that our Age is very fertile in Authors, but very ſterile in good *Books*: The little Encouragement Learning meets with, and the Monopoly of *Bookſellers*, render the Profeſſion of an *Author* ſo deſpicable, that none care to follow it, but thoſe who can do no better: Hence that Confuſion and Diſorder in the learned World, where the Ignorant and Illiterate, who can ſcarcely make the Difference between the Beginning and the End of a *Book*, ſet themſelves up for Authors, becauſe they are Maſters of ſome Ribaldry, and inſipid Notions, which divert the ignorant Rabble, encourag'd to it by ſome Printers, who can ſell their Works cheap, becauſe they coſt them little or nothing, from which none but Grocers, Cheeſemongers, *&c.* reap any Advantage; and when Complaint is made of it, to thoſe Retailers of bad Commodities, their Anſwer is, that the Taſte of the Age is ſo much deprav'd, that the Publick has none for thoſe ſort of Works which are conducive towards promoting Piety, Virtue, and Learning. Some of our beſt Authors are employ'd, at preſent, in National Jars, and Party Quarrels, when their Talents could be better employ'd otherwiſe, and more to the Advantage of the Republick. For though I admire the Vivacity of their Imagination, their Strength of Reaſoning, the Beauty and Elegance of their Style, the Fecundity of their Invention, (which is almoſt incomprehenſible, conſidering how long they have wrote on the ſame Subject, on either Side) and I read with a great deal of Pleaſure and Satisfaction their Works; it is my Opinion, (if I can take the Liberty to expreſs my ſelf in theſe Terms) that they could write, ſometimes, with more Decency and Circumſpection, and nevertheleſs write with the ſame Spirit; for there are by Intervals ſome Expreſſions in their Eſſays, which our Poſterity will never believe to have been wrote by the ſame Pen which has conducted the whole, but muſt conſider them as Interpolations maliciouſly inſerted therein, on purpoſe to diſfigure the whole Performance. I know, by Experience, that we are not always ſo entirely Maſters of our Paſſions, as to write always with the ſame Moderation, eſpecially when provok'd to Exceſs: But as we ſhould deſpiſe thoſe who forget themſelves ſo far, as to attack us in a Style unbecoming a Perſon of Honour, we ſhould alſo ſcorn to anſwer them in the ſame Style, ſince it is impoſſible we could be better reveng'd of their ſcandalous Aſperſions, than by publiſhing themſelves their own Scurrilities; the Filth they attempt to throw upon us, ſeldom or never miſſes returning back upon them, and their Works, or *Books*, are a kind of Common Sewer, the Stench whereof will always be avoided by the wholſomeſt Members of the Republick.

'Tis true, that the Rabble is diverted thereby, and nothing can pleaſe her more, than to ſee Perſons whom ſhe conſiders far above her, for their Education, Knowledge, and the Superiority of their Genius, uſe her Dialect: But what Man of Senſe and Underſtanding would blaſt his Reputation for ever, for the momentaneous Satisfaction of pleaſing the Rabble? An Author can never be too much valued for pleading in Defence of the Rights and Privileges of his Country; but that Defence ſhould never be founded on National Prejudices, ſince when the Humour of the Age is chang'd, and thoſe National Prejudices are vaniſh'd, the Defence is diſregarded, and the Author ſuſpected of having been actuated by other Motives than thoſe of a true and ſincere Love for his Country. When we write on thoſe intereſting Subjects, we ſhould conſider, that we write not only for the Age we live in, but likewiſe for future Ages; and that if we write with too much Partiality, and only to pleaſe a reigning Party, we run the Riſque of having our Works cenſur'd, and perhaps condemn'd, by a judicious Poſterity; who ſeeing Things in a Light quite different from that we are pleas'd at preſent to repreſent them in, eſpecially if they find our Writings over-ſtock'd with perſonal Reflections; which will make them ſuppoſe that we have made of ſome private Pique a National Quarrel. To purſue, *vi & armis*, always the ſame Perſon, and to repreſent even his moſt indifferent Actions as dangerous and criminal, is to ruin the Credit of our Writings in the Mind of all judicious Perſons; ſince *qui nimis probat, nihil probat*: Likewiſe, to attempt to vindicate the Conduct of that Perſon, as if he was not capable of committing the leaſt Fault, and to repreſent all his Imperfections as if they were ſo many Perfections, is to render him ſuſpected, and engage People to inſpect the narrower into his Conduct. Since it is impoſſible, let a Man be ever ſo perfect, that he ſhould always act with the ſame Dexterity, Prudence, and Diſcretion; to repreſent him otherwiſe, is an Impoſition on the Publick, which renders the Author ſuſpected of Flattery and Adulation: A Medium between both Extreams is the beſt. Neither are we to blame an Author for undertaking the Defence of a Perſon we hate; for why ſhould he not have as much Right to defend him, as we have to attack him? Such Partiality ſhews as if we were our ſelves conſcious of his Innocence, but would be glad to repreſent him otherwiſe, and ſorry that others ſhould repreſent him ſuch as he is. Where's that Freedom, where's that Liberty we ſeem to contend for, if we attempt to be Judges, and Parties in our own Cauſe? Muſt a Man be criminal becauſe we will have him ſo? And muſt it be a Crime to undertake his Defence, becauſe we accuſe him? Or is it impoſſible he ſhould be innocent when we accuſe him? What Temerity! what Injuſtice! Let us act with more Moderation, Modeſty, and Wiſdom. If we cenſure in our Writings the Conduct of a Perſon, let others endeavour to juſtify that

that Conduct, if they can, without accusing them of Stupidity and Ignorance; since the worse is the Cause, the greater must be their Capacity to defend it. Besides, to pretend to have all the Merit on our Side, exclusive of all others, is a ridiculous Vanity, to be laugh'd at by the whole World; and if it was ever so true, that their Writings are nothing else but a Texture of Incoherencies, false Reasoning, and Blunders; far from being provok'd, we should be pleased at it, since they add a new Lustre to ours: And if not, our Railings, and our endeavouring to represent them otherwise than they are in Reality, will have the same Effect on theirs; for we cannot expect to impose on the Publick so far, as to force him to submit his Judgment to ours; every Body will have the Liberty to judge by himself, and if after an impartial and serious Examen they find we judge wrong, what Opinion can they have afterwards of our Understanding? Will not then our Writings lose a great deal of their former Credit and Reputation? To have no other View in our Writings than to please and divert the Rabble, is to condemn our selves voluntarily to a dirty Drudgery, beneath a Man of Sense and Education; and to be too popular, is to become the Slave of the Rabble. Is an Author willing to render a signal Service to his Country, let him endeavour to reform by his Writings those Excesses, in the Vulgar, which renders him odious and insupportable; instead of prompting him to abandon himself to those Excesses which have been so often attended with fatal Consequences. Authors complain of the deprav'd Taste of the Age, and of the little Encouragement given to Merit and Learning; let them trace the Source and Origin of such a Disorder, and they'll find it in themselves; for would they leave off their Ribaldry, and all act in Concert to furnish the Nation with better Subjects, they would soon find the Taste chang'd; were not the Shops of Booksellers stock'd with obscene Books, to the Shame of our Clergy, and the Scandal of a *Christian* Country; were a Research made of those criminal Books, calculated to deprave the Principles of Youth, and debauch their Morals, and all that *Farago* committed to the Flames, to make Room for Treatises on Religion, Piety, Sciences, Arts, *&c.* we should soon see a happy Reformation, in the several Orders of the Republick, from which Authors would reap some signal Advantages to themselves.

BOOK-BINDING.

BOOK-BINDING, is the Art of gathering, and sewing together the Sheets of a Book, and covering it with a Back.

The Art of *Binding* Books, when first the several Sheets of the Writings of Authors were collected together, was not attended with great Difficulties; for the Leaves were only glued together, and rolled on round Pieces, or Cylinders of Wood; which Manner of *Book-binding*, whose Invention is attributed to the *Egyptians*, was continued till long after the Age of *Augustus*, and is still retain'd by the *Jewish* Synagogues, where they continue to write the Books of the Law on Vellums sew'd together, making, as it were, only one long Page, with two Rollers, and their Clasps of Gold or Silver at their Extremities, the whole Book being wrapp'd up in a Piece of Silk, which serves as a Cover to it.

But as this Manner of *Binding* Books is attended with many Inconveniencies, one of the *Attali*, Kings of *Pergamus*, invented the Form now in Use, of square *Binding*, or of sewing several Quires one over another, as more commodious to the Reader, who can open and shut his *Book* in an Instant, and without the least Difficulty, and without the Leaves being expos'd to wear out so soon as when roll'd up, especially of *Books* written or printed on Paper.

Before we proceed on the Manner of *Book-binding*, it will not be improper to fit up the Shop of the *Book-binder* with the several Tools or Instruments belonging to his Profession; which are, *Folding sticks*, *Hammers*, to beat the Leaves, and turn the Back, a *Sewing Press*, a *Cutting Press*, *Sheers*, a *Plough*, *Knives*, a *Smoother*, *Brushes*, *Dog's Tooth*, *Punchions*, and little Cylinders of Brass engraven in *Relievo*, in various Forms and Devices, for Ornaments; *Gold* for Gilding, Calf Skins, Parchment, Whipcord, Packthread, Needles, Backing-boards, *&c.*

Folding-sticks are Slips of Ivory, or Box, of about two Fingers broad, and eight or ten Inches long, edg'd on each Side, for the Conveniency of parting the Leaves asunder, when Occasion requires it.

Cutting Press is a Machine consisting of two large Pieces of Wood, in Form of Cheeks, join'd by two strong wooden Screws, which being turn'd by an Iron Bar, draw together, or set asunder the Cheeks, as much as is necessary for the putting in of the *Books*. The Cheeks are plac'd flat on a wooden Stand, in Form of a Chest, into which the Cuttings fall. Aside of the Cheeks are two Pieces of Wood, of the same Length with the Screws, serving to direct the Cheeks, and prevent their approaching or opening unequally upon turning the Screw. Upon the Cheeks is the Shaft or Fust, to which the Cutting-Knife is fasten'd by a Screw, which has its Key to dismount it on Occasion, to be sharpen'd.

The Shaft consists of several Parts; among the rest, a wooden Screw, or Worm, which catching within the Nuts of the two Feet that sustain it on the Cheeks, brings the Knife to the *Book*, which is fasten'd in the *Press* between two Boards. This Screw, which is pretty long, has two Directories, or Pieces of Wood, which both as to their Form and Effect resemble those of the Screws of the Cheeks. To make the Shaft slide square and even on the Cheeks, so that the Knife push'd along by the Workman may make an equal Paring, that Foot of the Shaft where the Knife is not fix'd has a Kind of Groove, directed by a Thread fasten'd along one of the Cheeks. Lastly, the Knife is a Piece of Steel, six or seven Inches long, flat, thin, and sharp, terminating at one End in a Point, like that of a Sword; and at the other in a square Form, which serves to fasten it to the Shaft.

The *Book-binder* being instated into his Shop, furnish'd with all its Implements, we'll begin to work, first with our *Folding-stick*, with which we'll *fold* the Sheets, according to the Form, *viz.* into 2 for *Folio's*; 4 for *Quarto's*; 8 for *Octavo's*, &c. being directed therein by the Signatures, or Catch-words, at the Bottom of the Page.

Note, That by SIGNATURE is understood, in this Place, a Mark at the Bottom of each Sheet, to shew the Number and Order of the Quires and Sheets. The *Signatures* consist of the Capital Letters of the Alphabet, and change in every Sheet. If there be more Sheets than Letters in the Alphabet, to the Capital Letter is added a small one of the same Sort, *i. e.* a little *a* after a great *A*, &c. which is repeated as often as is necessary.

The Leaves thus *folded*, and laid over each other, in the Order of the *Signatures*, are beaten on a Stone with a Hammer, to make them smooth, and open well, and then press'd. While in the Press, they are sew'd upon *Bands*, which are Pieces of Cord, or Packthread, six Bands to a *Folio Book*, five to a *Quarto*, *Octavo*, &c. which is done by drawing a Thread

 through

through the Middle of each Sheet, and giving it a Turn round each Band, beginning with the first, and proceeding to the last. The *French Book-binders* apply a Slip of Parchment, the Length of the *Book*, on the Inside of each Pasteboard, so, however, as that being cut, or indented, in the Places against the Bands, it comes out between the Edge of the Pasteboard and the Leaves of the *Book*, to cover the Back. They call this *Indorsing*, and they are oblig'd to do it on the Penalty of 30 Livres, and the *re-binding* of the *Book*. It is done in the Press, where the Back being grated with an Iron Instrument with Teeth, to make the Paste take hold, wherewith the Parchment is first fasten'd, they afterwards add strong Glue to fortify it. After this the *Books* are glu'd, and the Bands open'd, and scrap'd, for the better fixing the Pasteboards; the Back is turn'd with a Hammer, and the *Book* fix'd in a Press between two Boards, call'd *Backing-boards*, in order to make a *Groove* for fixing the Pasteboards; which being applied, Holes are made, for fixing them to the *Book*, which is press'd a third Time, and then cut by the Plough. Then the *Book* is put at last to the *Cutting-Press*, betwixt two Boards, the one lying even with the Press, for the Knife to run upon; the other above it, for the Knife to cut against; after which, the Pasteboards are squared with a Pair of Sheers.

The next Operation is the *Sprinkling* the Leaves of the *Book*, which is done by dipping a Brush made of Hog's Bristles into Vermilion and Sap Green, holding the Brush in one Hand, and spreading the Hair with the other; by which Motion the Edges of the Leaves are sprinkled in a regular Manner, without any Spots being bigger than the others, at least so far as to be disagreeable to the Eye.

Before this cheap Invention was found of sprinkling the Edges of *Books* with Colours, it was the Custom to have them gilded, especially valuable *Books*, which is yet practis'd in *France* for *Church Books*; and is done by putting the *Book* in the Press between two Boards, scraping and smoothing it, to take off all the Scratches, and afterwards scraping some yellow Oker upon it, which when scrap'd must be wetted with a very small Quantity of Size-water, and rubb'd off with some clean Shavings of the *Book*. The Leaves being again wetted with a Brush dipp'd in the Size-water (made with the White of an Egg mix'd with Water, and well beat together) the Gold is laid upon it, and afterwards dried before the Fire. When dried, it is burnish'd with a *Dog's Tooth*, or an Ivory Nob.

The Abbot *de Seuil* renew'd, in the Beginning of this Century, the antient Practice of making Ornaments with hot Irons, of various Forms and Devices, on the gilded Edges of the *Books*, which the *French* call *doré sur Tranche*; in which he succeeded very well; though, in my Opinion, those Sorts of Ornaments do not produce so good an Effect as a plain Gilding well burnish'd, and without Ornaments: Neither do I find that the *French Book-binders* have been very fond of this newly-reviv'd Invention, no more than they are of Gilding at all the *Tranche*, or Edges of their *Books*, except, as I have already observ'd, those for the Church, and those for the King's Library. Though they have found lately a new Invention to beautify the *Tranche* of their *Books*, which produces as good an Effect, or rather better, than *Gold* it self; which is marbling it, in the same beautiful Manner we do our marble Paper, thus;

They have a Trough of about four Fingers deep, of the Length and Breadth of the largest Volume, to contain the Liquor, which Liquor is a Quarter of a Pound of Gum Tragacanth macerated four or five Days in fair Water, and stirr'd from Time to Time, adding every Day fresh Water to it, till it be of a Consistence somewhat thinner than Oil, and then they strain it through a Cloth into the Trough.

When the Gum is well settled in the Trough, they extend a Sheet of Paper, and plunge it very shallow into the Liquor, suddenly lifting it out again, in order to stir up, and raise the subsiding Gum towards the Surface, and for the more impregnating of the Liquor. Which done, they have all the Colours rang'd in Gallipots on the Table, *viz.* for blue, Indico ground with white Lead; for green, Indico and Orpiment, the one ground, and the other temper'd, mix'd, and boil'd together with common Water; for yellow, Orpiment bruis'd and temper'd; for red, the finest Lake ground with Raspings of *Brasil* Wood, which has been prepar'd by boiling half a Day. Into all these Colours they put a little Ox or Fish Gall, which is two or three Days old; and if the Colours dilute not of themselves sufficiently, they add more Gall; on the contrary, if they spread too much, the Gall is over-dos'd, and must be corrected by adding more of the Colour without Gall. Then they begin, by dipping a Brush of Hog's Hair into any Colour, commonly the blue first, and sprinkle it on the Surface of the Liquor in the Trough, (which is also upon the Table) if the Colour were rightly prepar'd, it will dilate it self duly therein. This done, the red is applied in the like Manner, but with another Pencil; and after this the yellow, lastly, the green. For white, it is made by only sprinkling fair Water, mix'd with Ox's Gall, over the Liquor.

When all the Colours are thus floating on the Liquor, to give them that fine Cambletting we admire in marble Paper, they use a pointed Stick, which being applied, by drawing it from one Side of the Trough to the other with Address, stirs up the Liquor and fluctuating Colours; then with a Comb taken by the Head with both Hands, they comb the Surface of the Liquor in the Trough from one Extreme to another, permitting only the Teeth to enter.

The Colours being in this Posture, the *Book-binder* takes off his *Book* from the Press, keeping it closely tyed betwixt the two Back-boards, lest the Colours should penetrate too far into the Inside of the *Book*, having moisten'd it first, with fair Water, applies each Side, one after another, to the Colours, in such a Manner, that the Surface of the Colours, and that of the Edge of the *Book*, may meet equally on all Parts; the Operation is done in nine or ten Pulses. Then the *Book* is put to dry, and when dried is polish'd with the *Dog's Tooth*, the Ivory Nob, or the like. This is a vast Addition to the Beauty of the *Binding*, which being carried thus far, an Ornament of Silk of several Colours, call'd a *Head-Band*, is plac'd at each Extreme of the Back, a-cross the Leaves, and wove and twisted, sometimes about a single, and sometimes a double Piece of roll'd Paper.

Then remain the *Covers*, which are either of Calf's Skin, which the *French* call *Relier en veau*; or of Sheep's Skin, which they call *Relier en Basane*. Antiently *Books* were almost all bound in Parchment, and most of our valuable *Books*, even since the Invention of Printing, have no other *Binding*; but this Practice has been long disus'd. The best *Binding* at present is in Calf, though *Binding* in Sheep makes as good a Figure, but is not of so long a Duration. The Calf or Sheep-skin being moisten'd in Water, is cut out to the Size of the *Book* with a Knife, then smear'd over with Paste, made of Wheat Flour, and afterwards stretch'd over the Pasteboard on the Outside, and doubled over the Edges within side, after having first taken off the four Angles, and indented and plaited it at the Head-band; which done, the *Book* is corded, or bound firmly, between two Boards, with a kind of Whipcord, to make the Cover stick the stronger to the Pasteboards and the Back, as also to form the Bands or Nerves more accurately; then set to dry, and when dry, uncorded, and the Leaves at each End open'd. Afterwards, the *Book* is wash'd over with a little Paste and Water, and then sprinkled fine with a Brush, by striking it either against the Hand, or a Stick; unless it should be marbled, for then the Spots are to be made larger, by mixing the Ink with Vitriol. Then the Cover is glaz'd twice, with the White of an Egg beaten, (as Painters do their Pictures when they are finish'd) and at last polish'd with a *Polishing Iron*, pass'd hot over the glaz'd Cover.

Thus the Binding of a *Book*, properly so called, is finished, unless it should be lettered; for then a Piece of red Morocco is pasted on the Back, between the first and second Band, to receive the Title in Gold Letters; and sometimes a second between the next Bands underneath, to receive the Number of the Volume. In *France* they seldom bind any Book, without both, if the Work consists of several Volumes. Which done, the *Book-Binder* sends his Books to the Gilder, which, in that Kingdom, is a Profession apart; or separate from *Book-binding*. The Gilder makes the Letters on the Back, and the Roses, Stars, *&c.* between the Bands with Punchions, engraven in Relievo, which they press flat down; and the Lines, Embroideries, *&c.* with little Cylinders of Brass, rolled along by an Iron Ruler, by means of a double Branch; in the Middle whereof they are fitted on an Iron Stay or Axis, that passes the Middle of their Diameter. But before they apply any of these Tools, they glaze those Parts of the Leather, whereon they are to be applied, lightly over with a Pencil, or Spunge; and when half-dry, lay over them Pieces of Leaf-gold, cut out near the Size; and on these stamp the Punchions, which are beat down with a Mallet or Hammer, if the Figures be large, and require a great Relievo, as Arms, *&c.* or roll the Cylinders, both the one and the other reasonably hot. The Gilding thus finished, they rub off the superfluous Gold with a Hare's Foot; leaving nothing covered with Gold, but the Places whereon the hot Tools have left their Impressions.

BOOK-KEEPING.

BOOK-KEEPING, is the Art of keeping Accounts, or of recording the Transactions of one's Affairs in such a Manner, that the true State of any Part, or of the whole, may be thereby known with the greatest Exactness, Clearness, and Ease; which Transactions either relate to Persons dealt with, or the Things we deal in, which are either Money or Goods. As to the Person we deal with, we must endeavour to be always capable to know by our *Books* what he owes us, and what we owe him; and as to the Commodities we deal in, we must take Care to keep an Account of the Quantity and Value of every Kind of Effects, we have in our Hands, with the Gain and Loss on that Subject, within the Time of the Account; as also of any Thing whatsoever is received by us, or any Way, for our Account, by our Servants, whether the same be Money or Wares; and of every Thing whatsoever is delivered from us, upon any Account, whether Money or Wares.

Books are either kept single, as among Retailers; or double, (called the *Italian* Method) among great Merchants. For single *Book-keeping*; two *Books* are sufficient, *viz.* a *Journal*, or *Day-book*, and a *Ledger*, or *Post-book*. But there are several others requisite for keeping *Books* double, *viz.* three essential, and thirteen Auxiliaries.

The essential ones are, the *Waste-book*, *Journal*, and *Ledger*. And the Auxiliaries are, the *Cash-book*, *Debt book*, *Books of Numero's*, *of Envoices*, *of Accompts Current*, *of Commissions*, *Orders*, *or Advices*, *of Acceptances*, *of Remittances*, *of Expences*, *of Copies of Letters*, *of Vessels*, *and of Workmen*.

This Method of *Book-keeping*, in two Parts, or in *Parties double*, as the *French* call it, and which we have learned from the *Italian* Merchants of *Florence*, *Venice*, *Genoa*, &c. is universally practised throughout all *Europe*, and in the same Manner, as to Substance, but not as to Coin, which varies according to the Regulation of the Coin of the State, where the Merchants are; for in *England* the *Books* are kept in *Pounds*, *Shillings*, and *Pence*. In *France* in *Livres*, *Sols*, and *Deniers*. In *Spain* in *Maravedis*, sometimes in *Rials* and Pieces of *Eight*. At *Lisbon*, and throughout *Portugal*, in *Rees*. Throughout most Parts of *Germany*, in *Florins*, *Cruitzers*, and *Pennings*. In *Holland*, in *Florins*, *Patars*, and *Penings*. At *Florence*, in *Gold Crowns*, *Sols*, and *Deniers*. At *Venice* in *Ducats*. At *Messina* and through *Sicily* in *Ounces*, *Taris*, *Grains*, and *Picolis*. In *Muscovy*, in *Rupees*, *Altins*, and *Grives*. At *Dantzick*, in *Rixdollars*. At *Hamburgh*, in *Marks*, *Sols*, and *Deniers Lubs*. And through all the States of the *Grand Seignor*, in *Piasters* and *Aspers*.

Note, That a *Pound English*, or Sterling is 20 Shillings, a *Shilling* 12 Pence, and a *Penny* 2 Halfpence, or 4 Farthings; a *Halfpenny* 2 Farthings. A *French Livre* is 20 Sols, a *Sol* 4 Farthings, or *Liards*. A *Maravedi* is half a Farthing *English*; a *Rial* 6 Pence $\frac{3}{4}$; a *Piece of Eight* 4 Shillings and 6 Pence. A *Rees* is equal to $\frac{3}{5}$ of a Farthing Sterling. A *German Florin* is 3 Shillings. A *Dutch Florin* is 2 Shillings, a *Patard* 1 Halfpenny, $\frac{1}{4}$ of a Farthing. A *Florence Gold Crown* 5 Shillings and 6 Pence. A *Venice Ducat* 4 Shillings and 4 Pence. At *Naples* the *Carlin* is 6 Pence. Through *Italy* the *Sequin* is 9 Shillings and 2 Pence. The *Roup* 4 Pence $\frac{3}{4}$. The *Rix-Dollar* 4 Shillings and 6 Pence. A *Hamburgh Mark* 1 Shilling and 6 Pence. A *Piaster* 4 Shillings and 6 Pence; and an *Asper* something more than an *English* Halfpenny.

The WASTE-BOOK, is an universal and compleat Memorial of all the Transactions and Events of Business, taken in the natural Order of Time, wherein all Things of one Date are placed together; serving as a Preparation for the *Ledger-Book*, into which they are all to be transferred, upon distinct Accompts, according to the Order of Subjects; therefore this *Book* is rather a *Memorial Book*, or a *Memorandum Book* than a *Waste-Book*, since what Relation the Word *Waste* bears to the Nature of this *Book* is not very obvious.

The *Waste-Book* may be kept two Ways; the first by entring Things down simply as they happen; and the second, by entring at once, each Article *Debtor* and *Creditor*. The *Waste-Book* begins with the Inventory of a Merchant's Effects and Debts; and contains a compleat Record of every Transaction of his Affairs, with all the Circumstances, in a Plain Narration of Matter of Fact; every Transaction following another in the Order of the Date. For Example:

The Method of keeping the Waste-Book.

The *Waste-Book* of *L. P.* of *London*, Merchant, containing all my Dealings from the first Day of *March*, 1741.

In the Name of God, Amen.

AN Inventory taken *March* the first, containing all my Estate in Cash, Wares, and Debts, which I have at this Day, and also what Debts are owing by me to others, *&c.*

My whole Estate, this Day in Money, Wares, and Debts, is 3159 *l.* 10 *s.* *viz.*

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Imprimis, I have in ready Cash ——				1540	00	00
Item, I have Druggs, *viz.*						
340 *lb.* of Scammony at 10 *s.* *per lb.*	170	00	00			
565 *lb.* of Opium at 6 *s.* *per lb.*	169	10	00			
105 *C.* of Gallingale, at 2 *l.* *per C.*	210	00	00			
				549	10	00
				2089	10	00

Item,

	l.	s.	d.
Brought over	2089	10	00
Item, I have raw Silk, *viz.* — 440 *lb.* of *Tripoli* Belladine, at 16 *s. per lb.* 352 00 00; 650 *lb.* of Legee of *Smyrna*, at 12 *s. per lb.* 390 00 00; 1090 *lb.* in all	742	00	00
Item, I have at *Aleppo* consigned to *Peter Trueman*, my Factor there, these *Norwich* Wares remaining unsold, *viz.* — 18 Ser. Denims, which cost 6 *l.* each 108 00 00; 30 Grograms at 3 *l. per* Piece 90 00 00; 40 Barateens at 3 *l.* 5 *s.* each 130 00 00; 88 Pieces in all, which cost	328	00	00
	3159	10	00
Item, I am indebted to several Persons, *viz.* — To *Paul Shaw*, due the 3d Instant 150 00 00; To *Lewis Arundel*, to ballance his Accompt in my old Ledger 80 00 00; To *Charles Rolling*, due the 30th Inst. 140 00 00; To *Peter Eaton*, due *September* the 3d 140 00 00	510	00	00

The Method of Entries in the Waste-Book.

September 12, 1741.

Sold *John Nicholson* 300 *lb.* of Scammony for ready Money, at 20 *s.* 6 *d. per lb.*	307	10	00

Ditto 15.

Bought of *Lewis Arundel* the *Norwich* Wares following, *viz.* — 10 Grograms, at 3 *l. per* Piece 30 00 00; 24 Barateens, at 3 *l.* 6 *s. per* Piece 79 04 00; 34 Pieces, in all amounting to — Of which I have paid 80 *l.* ready Money, and the Rest, which is 29 *l.* 4 *s.* to be paid in 8 Days,	109	04	00

Ditto 20.

Received Advice from *Peter Trueman*, my Factor, at *Aleppo*, that he has sold to sundry Persons, for my Accompt, 60 Pieces of *Norwich* Wares; the neat Produce of which, as by the Particulars in his Accompt on the File is 1500 Dollars, the Exchange at 4 *s.* 6 *d. per* Dollar, makes Sterling	337	10	00
Lent *Joseph Arnold* the Sum of 500 *l.* for three Months, for which he is to pay me Interest, at the Rate of 8 *l. per Cent. per Annum.* — So that the Money lent (as entered into the Cash-Book) is	500	00	00
And the Interest thereof comes to	10	00	00

Ditto 25.

Sold *James Bold* the following Druggs, *viz.* — 42 *lb.* of Scammony at 20 *s. per lb.* 42 00 00; 350 *lb.* of Opium, at 12 *s. per lb.* 210 00 00; 392 *lb.* in all for — Of which I have received 160 *l.* and the rest which is 92 *l.* to be paid the 10th of *October* next.	252	00	00

Ditto 30.

Received from my Factor *Peter Trueman*, at *Aleppo* by my Order, and on my proper Accompt, 8 Chests of Myrrh, containing 30 *C.* neat, which at 22 Dollars *per C.* comes to 660 *Dollars*; the Exchange at 54 *d. per* Dollar makes Sterling	148	10	00
Joseph Arnold has assigned the 80 *l.* due to him from me, for the Ballance of his Accompt in my old Ledger, to *James Bold*, which I have paid to *Ditto Bold* on Demand	80	00	00

October 5.

Peter Trueman, my Factor, at *Aleppo*, has remitted to me 600 Dollars, payable here at double Usance, by *Paul Grove*, for the Value delivered there to *Mobert Janezwar*, the first of *June* last, the Exchange at 4 *s.* 8 *d. per* Dollar, makes Sterling — Which Bill is accepted	140	00	00

Ditto 10.

Sold Alderman *Tyson*, Mercer, the following *Norwich* Wares, *viz.* — 10 Grograms, at 3 *l.* 10 *s. per* Piece 35 00 00; 24 Barateens, at 4 *l.* 4 *s. per* Piece 100 16 00; 34 Pieces at — For which he has given me an Assignment on *Paul Trusty*, to be paid me in 8 Days, which I have accepted.	135	16	00
Sold *Giles Low*, the following raw Silk for ready Money, *viz.* — 350 *lb.* of *Tripoly* Belladine, at 30 *s. per lb.* 525 00 00; 650 *lb.* of Legee, at 25 *s. per lb.* 812 10 00; 1000 in all, at —	1337	10	00

The *Journal-Book*, is nothing else but a compleat Transcript of the *Waste-Book*, without any Alteration; and is kept by only leaving, on the Left Side of every Page, a large Margin, about a third Part of the Page; on which, against every Transaction, is to be written the Names of the Debtors and Creditors of that Transaction, with their Titles of Debtors and Creditors, and Sums of Money; observing, that where there are sundry Debtors and Creditors, to one Creditor or Debtor they write their Names next each other; and the Name of the one corresponding Debtor or Creditor against the Total of the other Sums; by which Means, the Ballance and Connection appears at Sight. Then when the Transaction is transferr'd to the *Ledger*, they write on this Margin the Numbers of the *Folio's* where the Accompts stand in the *Ledger*, to be examin'd by the Rules of the *Ledger*, thus:

The Entry of the Inventory in the Journal.

The *Journal* of *L. P.* of *London*, Merchant, containing all my Dealings from the 1st Day of *March*, 1741.

In the Name of God, Amen.

AN Inventory taken the first of *March* of my present Estate in Money, Wares and Debts, this Day owing to me; and what Debts are owing by me, *&c.*

Fol. Ledg.		l.	s.	d.
	Sundry Accompts are Debtor to Stock, in the Sum of 3159 *l.* 10 *s.* for so much Cash, Wares, and Debts, owing to me this Day, *viz.*			
1	Cash for so much in Chest — —	1540	00	00
2	Druggs, *viz.* — 340 *lb.* of Scammony, at 10 *s. per lb.* 170 00 00; 565 *lb.* of Opium at 6 *s. per lb.* 169 10 00; 105 *C.* of Gallingale at 2 *l. per C.* 210 00 00	549	10	00
3	Raw Silk for 1090 *lb. viz.* — 440 *lb.* of *Tripoly* Belladine at 16 *s. per lb.* 352 00 00; 650 *lb.* of Legee of *Smyrna* at 12 *s. per lb.* 390 00 00			
1	1090 in all at —	742	00	00
1	Voyage to *Aleppo* consigned to *Peter Trueman*, my Factor there, for *Norwich* Wares remaining yet unsold, *viz.* — 18 Serge Denims, that cost 6 *l.* each 108 00 00; 30 Grograms at 3 *l. per* Piece 90 00 00; 40 Barateens at 3 *l.* 5 *s.* each 130 00 00; 88 Pieces in all, which amounts to —	328	00	00
		3159	10	00

Fol.		l.	s.	d.
	Stock is Debtor to sundry Accompts 510 *l.* Due to sundry Persons, *viz.*			
	l. s. d.			
3	To *Ezekiel Scrape*, due the 3d Inst. 290 00 00			
4	To *Benjamin Strikewell* for the Foot of his old Accompt 80 00 00			
	To *James Bold*, due the 1st Inst. 140 00 00	510	00	00

The Method of Journal *Entries.*

March 2d, 1741.

1 2	Cash, Debtor to Druggs, for 300 *lb.* of Scammony, sold *George Dean*, for ready Money, at 20 *s.* 6 *d. per lb.*	307	10	00

Ditto 10.

1	*Norwich* Wares, Debtor to sundry Accompts 109 *l.* 4 *s.* for 34 Pieces bought of *Marmaduke Price*, viz.			
	l. s. d.			
	10 Grograms at 3 *l. per* Piece 30 00 00			
	24 Barateens at 3 *l.* 6 *s.* each 79 04 00	109	04	00
	l. s. d.			
1	To Cash, paid *Ditto Marmaduke*, in Part 80 00 00			
2	To *Ditto Marmaduke*, to pay him the 25th Instant 29 04 00	109	04	00

Ditto 15.

1	*Peter Trueman*, at *Aleppo*, my Accompt Current, Debtor to Voyage to *Aleppo*, consigned to *Ditto Trueman*, the Sum of 337 *l.* 10 *s.* for the Neat Proceed of Wares sold, as *per* his Account for 1500 Dollars, the Exchange at 54 *d.* Sterling, *per* Dollar, makes *English* Coin	337	10	00
3	*George Dean* Debtor to sundry Accompts the Sum of 510 *l.* for 500 *l.* lent him, at Interest, for 3 Months, at 8 *l. per Cent. per Annum*, viz.			
	l. s. d.			
1	To Cash, for the principal lent 500 00 00			
3	To Profit and Loss for Interest 10 00 00	510	00	00

Ditto 19.

2	Sundry Accompts Debtor to Druggs, the Sum of 252 *l.* for 392 *l.* sold *Joshua Mackrel*, as follows			
	l. s. d.			
	40 *lb.* of Scammony at 21 *s. per lb.* 42 00 00			
	350 *lb.* of Opium at 12 *s. per lb.* 210 00 00	252	00	00
	(*Viz.*)			
1	Cash for 160 *l.* received in Part of *Ditto Mackrel.*			
2	*Ditto Mackrel* Debtor 92 *l.* he is to pay me the 30th Instant.			

March 20, 1741.

2	Druggs, Debtor to *Peter Trueman*, at *Aleppo*, my Accompt current 148 *l.* 10 *s.* for 8 Chests of Myrrh, poize Neat 30 *C.* at 22 Dollars, *per C.* makes 660 Dollars, the Exchange at 54 *d. per* Dollar, is Sterling	148	10	00
2 1	*Paul Grove* Debtor to Cash, the Sum of 80 *l.* being the Ballance of an Accompt due to him, which I have paid *Marmaduke Price*, by Assignation of *Ditto Grove*	80	00	00
2 1	*John Gilbert*, Debtor to *Peter Trueman*, at *Aleppo*, my Accompt current, 600 Dollars, by Bill remitted to me by *Ditto Trueman*, payable at double Usance, for the Value delivered there, to *Mahoat Janestvar*, the Exchange at 4 *s.* 8 *d. per* Dollar, is in *English* Coin	140	00	00

Fol.		l.	s.	d.
	Ditto 30.			
2 1	*Peter Jones*, Debtor, to *Norwich* Wares, the Sum of 135 *l.* 16 *s.* for 34 Pieces sold Alderman *Trader*, *viz.*			
	l. s. d.			
	10 Grograms at 3 *l.* 10 *s. per* Piece 35 00 00			
	24 Barateens at 4 *l.* 4 *s. per* Piece 100 16 00	135	16	00
	For which Sum *Ditto Jones* has given me his Bill, payable in 8 Days, by Assignation of *Ditto Trader.*			
1 3	Cash, Debtor to Raw Silk 1337 *l.* 10 *s.* for 1000 *lb.* sold to *Simon Strutt* for ready Money, *viz.*			
	l. s. d.			
	350 *lb.* of *Tripoly* Belladine at 30 *s. per lb.* 525 00 00			
	650 *lb.* of Legee at 25 *s. per lb.* 812 10 00	1337	10	00

By an Ordonnance of the Year 1673, all Traders, in *France*, whether by Wholesale or Retail, are obliged to keep a *Journal*, containing all their Affairs, Debts active and passive, Bills of Exchange, *&c.* for want of keeping this, and surrendering it up, they are to be reputed fraudulent Bankrupts, and subjected to the Penalties thereof.

The LEDGER, or *Ledger-Book*, or *Great-Book*, or *Post-Book*, is a large Volume, containing all the Transactions of a Man's Affairs, in such Order, as that those belonging to every different Subject lie together in one Place, making so many distinct, or several Accounts, which are extracted either immediately from the *Waste-Book*, or from the *Journal*, and stated in the *Ledger* (which is usually rul'd in six Columns) in *Debtor* and *Creditor*; which to accomplish, two Pages are requir'd, opposite to each other; that on the Left serving for *Debtor*, the other for *Creditor*; each Article to consist of five Parts, or Members: The Date; the Person whom we credit, or are credited by; the Thing credited, or indebted for; the Page where it is found; and the Sum, or Amount of the Article.

M. *Malcome* prescribes the following Rules for the Management of the *Ledger*.

1. He will have a certain separate Place allow'd for every Person with whom we deal, on mutual Trust and Credit, or who becomes our Debtor, or we his, as well as for every Thing we deal in, wherein are to be written all, and only the Transactions relating to that Subject; whose Name is to be inscrib'd or written on the Head thereof; making thereby distinct particular Accounts.

2. Every Account is to be distinguish'd into two Parts, taking for each an equal Portion (less or more, as you think fit) of Right and Left Pages, of one *Folio*, or Opening, the Name of the Subject being written on the Account, on both Sides, which are distinguish'd by the Words *Debtor* on the Left Side, and *Creditor* on the Right, for the Uses following. 3. Every personal Account to contain, on the Debtor Side, all the Articles which that Person owes you, and the Payment you make of your Debts to him; and on the Creditor Side all that you owe to him, and the Payments he makes of his Debts to you. 4. Every real Account to contain, on the *Debtor* Side, the Quantity and Value of what was upon Hand, at the Beginning of the Account, and what was afterwards receiv'd, with all Costs and Charges; and on the *Creditor* Side the Quantity and Value of what was upon Hand at the Beginning of the Account, and what was afterwards receiv'd, with all Costs and Charges; and on the *Creditor* Side the Quantity and Value of what is dispos'd of, or in any Manner taken away, or gone out of it, with all the Returns that Subject makes you. 5. Every Transaction must be enter'd in the *Ledger-Book*, with a Ballance of Debt and Credit, *i. e.* so that every Article be plac'd on the *Debtor* Side of one Account, and the *Creditor* Side of some other, making thereby, equal Debt and Credit in the *Ledger*; and where the personal and real Account concern'd in

the Transaction do not, in the Articles belonging to them, make this Ballance, (as they will in most Cases) then some imaginary Account must be us'd to supply the Defect. 6. Those Accounts, whose Articles of Debt and Credit, in any Transaction, ballance one another, are, in the *Ledger*, to be connected together in the Style of every Article, as mutual and correspondent *Debtors* and *Creditors*; by writing in each of the corresponding Accounts the Name of the other after the Particle *to* in the *Debtor*'s Account, and *by* in the *Creditor*'s, which connect the two; the Name of the Account, in which Articles are written, with its Quality of *Debtor* and *Creditor*, being understood as join'd to, and so is read before, the Word *to* or *by*, in every Article, (though it be written only, once for all, upon the Head of the Account) then after the Name of the corresponding *Creditor* or *Debtor* follows a brief Narration of the Fact, the Date and other Numbers being plac'd in their proper Columns. Hence we find the Use of the Column which stands within the Money Column, which is this, to write in it the Number of the *Folio* where stands the corresponding Account, with which the Account, in which you write, is connected, in every Article. For Example, thus;

London, Anno Domini, 1741.

			Fol.	*l.*	*s.*	*d.*
		GEORGE DEAN, *Debtor.*				
1741 *March*	1	To Sundry Accompts for Principal, and Interest	1,3	510	00	00
		Profit and *Loss*, *Debtor*				
1741 *March*	10	To Houshold Expences	4	149	08	06
	10	To Charges on Merchandise	4	92	15	11
		To Stock gained by 1 Month's Trade	1	896	10	01
				1138	14	06
		John Stone, Debtor.				
1741 *March*	15	To Cash paid him in full		140		
		Joseph Perkins, Debtor.				
1741 *March*	5	To Cash paid him in full	1	150		
		Raw Silk, *Debtor.*				
1741 *March*	3	To Stock 1090 *l.*	1	742		
		To Profit and Loss gained by this Account	3	667	10	
				1409	10	00

London, Anno Domini, 1741.

			Fol.	*l.*	*s.*	*d.*
		Per Contra Creditor.				
1741 *March*	20	By Ballance due to me	4	510		
		Per Contra Creditor.				
1741 *March*	12	By *George Dean*, for Interest of 500 *l.* due *October* 15.	3	10		
	15	By *Norwich Wares* gained thereby	1	26	12	
		By Voyage to *Aleppo* gained thereby	1	150	02	06
		By Druggs gained thereby	2	284	10	
		By Raw Silk gained thereby	3	667	10	
				1138	14	06
		Per Contra Creditor.				
1741 *March*	25	By Stock	1	140		
		Per Contra Creditor.				
1741 *March*	1	By Stock	1	150		
		Per Contra Creditor.				
1741 *March*	30	By Cash 1000 *l.*	1	1337	10	
		By Ballance then left unsold of *Tripoly* Belladine 90 *l.*	4	72		
				1409	10	00

To your *Ledger* you must have an Alphabet, for the ready finding every Account, whether proper, or factorage, domestick or foreign; as Men, Wares, Voyages, Profit, and Loss, Accounts current, *&c.* the Method whereof let be thus, of having a Page for, as there is Occasion for each Letter. Generally it is the Letter of a Man's Sirname, and the proper Name of the Thing, or Commodity, that directs its Place in the Index.

Thus,

C.	
Cash	Fol. 1
Charges of Merchandise	4
George Clifford	2
D.	
Drugs	2
G.	
Paul Grove	1
H.	
Peter Higgs	3
Houshold Expences	4
N.	
Norwich Wares	1
Matthew Noble	2
P.	
Joseph Price	2
Profit and Loss	3
R.	
James Roland	3
Peter Rowbottom	3
Raw Silk	3
S.	
Stock	1
William Stubb	2
T.	
Peter Trueman, my Account current	4
V.	
Voyage to *Aleppo*, consign'd to *P. Trueman*	1

The *Debt-Book*, or *Book* of Payments, is a *Book* wherein is enter'd the Day whereon all Sums fall due, whether to be paid or receiv'd by Bill of Exchange, Merchandise, or otherwise; to the End, that by comparing Receipts and Payments, Provision may be made in Time for a Fund for Payments, by receiving Bills, *&c.* or taking other Precautions. This *Book*, like the *Ledger*, must be on two opposite Pages, Money to be receiv'd on the Left Hand, and that to be paid on the Right. Thus,

To

June	1741 To Pay	l.	s.	d.
6	To *Matthew Sulivan*, for Money lent *Jan.* 1.	500	00	00
	To *Joseph Plumtree*, a Note under Hand of *May* 2.	200	00	00
8	Remittance of *Trueman*, of the 30th of *November*, to *Grove*	1000	00	00
	My own Bill of the 30th of *September* to Bearer	800	00	00

June	1741 To Receive	l.	s.	d.
10	Remittance of *Peter Trueman* of the 20th of *May*	1700	00	00
20	Of *George Dean* for Druggs, sold the 30th of *January*	300	00	00
25	Of *Simpson Pickthread* for *Norwich* Wares, sold *February* 3.	150	10	03
	Of *Paul Grove*, for Money lent *May* 12	225	11	08
	Of *Peter Price*, for Money paid on his Account *June* 6.	50	15	00
	Of *Jonah* for 200 *lb.* of Opium, sold *Jan.* 1.	25	12	00

The *Cash-Book*, is the *Book* wherein are enter'd all the Sums receiv'd and paid daily; those receiv'd on the Left Hand, with the Person's Name of whom receiv'd, for what, for whom, and in what Specie; those paid on the Right, mentioning likewise, the Specie, the Reason why, the Person to whom, and for whom the Payment is made; and once in a Month, or oftener, sum up your Account of Cash receiv'd and paid, carrying the Sum to the Account of Cash in the *Ledger*, which Account, without this Book, would swell too big, provided you should enter the Particulars there. For Example,

CASH-BOOK.

June	1741 *Cash Debtor.*	l.	s.	d.
6	Received for 300 *l.* of Scammony, sold *George Dean*, in Guineas.	307	10	
8	Received in Part, of *William Short*, in Pieces of Eight	160		
	Received in full, for Raw Silk, of *Joseph Grove*, in Moidores	1337	10	
	Received in full, of *Peter Price*, Part in Moidores and Part in Guineas	92		
	Carried to Folio 1 in the Ledger	1896		

June	1741 *Cash Creditor.*	l.	s.	d.
7	Paid in full, to *John Baker*, in Guineas,	150		
12	Paid in part, for *Norwich* Wares, to *Paul Grove*, in Thirty-six Shillings, *Portugal* Pieces	80		
15	Lent *Peter Price*, in Guineas, at Interest for three Months	500		
20	Paid *Lewis Stone*, in Pieces of Eight, by Assignation	80		
25	Paid to *Ditto Lewis*, in Guineas and in full,	29	04	
27	Paid *Charles Stanyan*, in Shillings and Crown Pieces	140		
30	Paid *Joseph Grove*, in part, in Pieces of Eight	31		
31	By Houshold Expences this Month, from Folio 1.	149	08	6
	By Charges on Merchandize, this Month, as on Folio 1.	92	15	11
	Carried to the *Ledger*, Folio 1.	1252	08	05

The Cash Account in the *Ledger* is necessary for the Ballance of the whole; and the Convenience of the separate Accounts of all the Particulars is, that we have them all together, in one continu'd Account; whereas the Rule of the *Ledger* being not to allow more than one *Folio* for one Account, till that be fill'd up, the Account might hereby lie in several different *Folio's*.

The *Book* of ENVOICES, is to keep an Account of Goods, Ships, either for your Account, or for others in Commission, according to the Bills of Lading; with the whole Charges, till on Board; every *Envoice* following another, according as they happen, *i.e.* entering the Goods sent or shipp'd off to be sold, for your Account, with the Value, and Time when sent, on the Left Hand *Folio*; and entering the same on the Right Hand *Folio*, as you receive Advice of their Sale: So you may readily see how the Account stands in that Particular. Thus,

Envoice *of Goods shipp'd on Board the* America Sloop, *Burthen* 250 *Tuns*, Peter Brown *Master*, *bound for* Genoa; *the following Goods, consign'd to* William Stockwell, *for my Account, or by Order and the Account of* James Price, *and Company.*

The FACTOR-BOOK, is number'd and distinguish'd into *Folio's*, like the *Ledger*; on the Left Hand Side is written, in a plain Narrative, an Account of the Goods receiv'd, with all Charges; and on the opposite Side an Account of all the Sales and Disposals of those Goods: So that this is only a Copy of the Employer's Account of Goods in the *Ledger*, in the Stile of the *Waste-Book*.

If the *Factorage* be in domestick Trade, *i. e.* if the Factor, or his Servants, manage the Accounts for the Employer, whom he serves in Commission, he must observe the following Rules:

1. If the Factor receives Wares for his Employer, he must make the Accounts of Goods for his Employer Debtor to Cash, for so much paid Custom, Freight, *&c.* at the Receipt. Then make Cash Creditor, by Accounts of Goods so much as paid.

2. When Wares receiv'd in Commission, are sold, by the Factor, for ready Money; then Cash becomes Debtor to Account of Goods, for the Employer the Sum receiv'd. Therefore Accounts of Goods must be made, for the Employer Creditor, by Cash, the same Sum.

3. When Wares, in Commission, are sold Part for ready Money, and Part at Time; then the Buyer is made Debtor to Accompt of Goods, for Accompt of the Employer, the Sum left unpaid; and the Cash Debtor to Accompt of Goods for the Sum receiv'd.

4. When Wares are sent to the Employer, in Return, with Charges in shipping off, the Accompt of Goods for Accompt of the Owner, naming his Name, his Accompt current, is made Debtor to the Goods shipp'd, naming the Value, and Goods, with the Ship's and Master's Name, *&c.* Also, the same Accompt is made Debtor to Cash, paid for Custom, and other Charges. Then Wares shipp'd are made Creditor by the Employer, his Account current, for the Value. And Cash Creditor by the same Accompt current, for the Charges of shipping off. But if these Goods shipp'd were bought by Order, and on the Accompt of the Employer for ready Money, and not enter'd before in your *Ledger*, you are to make your Employer, by Name, his Account current, Debtor to Cash for the Value of the Goods, and Charges for shipping off. And Cash Creditor *per Contra.*

5. When a Bill of Exchange is drawn on a Factor, by his Employer, payable at Time; the Factor makes his

his Employer at ſuch a Place, his Accompt current, Debtor to whom the Bill is payable for the Content thereof; then makes him by Name, to whom the Bill is payable, Creditor, by his Employer, his Accompt current, for the ſame Sum. But if the Bill had been paid to Order of the Employer, by the Factor preſently, the Employer Account current, had likewiſe been made, Debtor to Caſh, for the Sum paid to *Peter* ſuch a one, or the like; and Caſh Creditor, by the contrary, for *Ditto* Sum. The Entry is the ſame with this laſt, when the Factor remits ready Money to his Employer.

But if the Factorage be in foreign Trade, *i.e.* if a Factor cannot carry on the Buſineſs of thoſe whom he ſerves in Commiſſion, without Aſſiſtance of foreign Correſpondence, for whoſe Returns he muſt be accomptable to his Employer, he muſt likewiſe obſerve theſe other following Rules.

1. If Goods ſent to Sea are inſur'd by him, he muſt make the Voyage to ſuch a Place; to *Leghorn*, for Inſtance, for the Account of *Peter de Lorme*, the Employer, conſign'd to *Peter Trueman*, Factor, Debtor; or to Caſh, if he pays the Inſurance Money preſently, and Caſh Creditor by Voyage, *&c.* But if the Inſurance Money was not to be paid preſently, then Voyage to *Leghorn*, &c. is made Debtor to the Inſurer, and the Inſurer Creditor by Voyage.

2. When Goods are ſhipp'd by a Factor, by Order of his Employer, to his Factor in another Country, he is to make Voyage to ſuch a Place for Accompt of his Employer, conſign'd to his Factor, by Name, Debtor to his Employer, his Accompt of Wares, for Charges at the Receipt of the Goods. And to Caſh for Charges of ſhipping. Then make *per Contra* Creditor, the Accompt of Wares and Caſh.

3. When the Factor receives Advice that the Wares are ſold which were ſent to his Factor, then he makes Factor, at ſuch a Place, for Accompt of his Employer, Debtor to Voyage to ſuch a Place, for *Ditto* Accompt, for the neat Produce, as by Advice. Then make Voyage to ſuch a Place, for Accompt of his Employer, Creditor, by Factor, at ſuch a Place, for Accompt of his Employer.

4. When a Factor is to enter his Proviſion, for Wares ſold on a foreign Accompt, he makes Voyage to ſuch a Place, where the Factor reſides, for Accompt of his Employer, Debtor to Profit, and Loſs, for ſo much as his Proviſion, or Money for his Employment amounts to, as by his Agreement. Then make Profit and Loſs Creditor, by Voyage, to the Place his Factor lives at, for Accompt of his Employer for the ſame Sum.

5. When a Factor receives Advice that his Factor has made Abatement for Defects in Goods, that he formerly ſold, then he makes Voyage to ſuch a Place, for Accompt of his Employer, Debtor to Factor, at ſuch a Place, for Accompt of his Employer, ſo much as abated. And makes Factor, at ſuch a Place, for Accompt of his Employer, at ſuch a Place, Creditor, by Voyage to the Place his Factor lives at, for Accompt of his Employer for the ſame Sum.

Note, That when a Factor cloſes the Accompt of Wares ſold by his Factor, with his Returns, *&c.* for Accompt of his Employer, he muſt make Voyage to his Factor, for Accompt of his Employer, Debtor, to his Employer's Accompt current, for the Ballance thereof. And contrary Creditor by Voyage to ſuch a Place, for Accompt of his Employer, for the ſame Sum. When a Perſon does little in Commiſſion, a ſeparate *Factor-Book* is needleſs.

Book of Account current, is kept in Debtor and Creditor, like the *Ledger*; and ſerves for Accounts ſent to Correſpondents to be regulated in Concert with them, e're they are enter'd in the *Ledger*. This is properly a Duplicate of the Accounts current, kept to have Recourſe to, on Occaſion.

Book of Acceptances, is deſtin'd for the regiſtring all Bills of Exchange, notified by Letters of Advice from Correſpondents; to be able to know, on the Bills being preſented, whether they have Orders to accept them, or not. When they chuſe to decline accepting a Bill, againſt the Article thereof, in the *Book*, they put *P*, *i. e. Proteſt*; that on offering the Bill the Bearer may be told he may proteſt it: On the contrary, if they accept it, they write againſt it an *A*, adding the Date or Day of Acceptance. And this, upon being transferr'd to the *Debt Book*, is cancell'd.

Book of Remittances, ſerves to regiſter Bills of Exchange, or they are remitted by Correſpondents, to require the Payment thereof. If they be proteſted for want of Acceptance, and return'd to thoſe who remitted them, mention is made thereof againſt each Article, by adding a *P* in the Margin, and the Date of the Day when they were return'd, then cancell'd. The *Books* of *Acceptances* and *Remittances* have ſo near a Relation to each other, that many Merchants make but one of the two, which they keep in Debtor and Creditor; putting Acceptances on the Side of Debt, and Remittances to that of Credit.

The *Book of Expences*, is a Detail of the petty Expences, both domeſtick and mercantile; which at the End of each Month are ſumm'd up, and make an Article for the *Caſh-Book*; and to the Profit and Loſs Account in the *Ledger*; which is Debtor to Caſh for it. Thus,

Houſhold Expences, Debtor.

May	1741	*l.*	*s.*	*d.*
9	To Caſh paid *Paul Grove*, for one Quarter's Rent of my Dwelling-Houſe, due at *Midſummer-Day* laſt, in full	40	10	
5	To Caſh for my Pocket Expences	4		
10	To Caſh paid my Wife for Apparel, *&c.*	50	14	
20	To Caſh paid *Abigale Pilfer*, the Houſe-keeper, for this Month	50	4	6
25	To Caſh paid for my Children at School	50		
27	To Caſh paid to my Taylor	15		
30	To Caſh for my Pocket Expences	4		
	Carried to Caſh-Book, Folio 1.	214	8	6

Book of Numero's, or *Wares*, is kept for the eaſy Knowledge of all the *Goods* brought in, lent out, or remaining in a Warehouſe. On the Left Hand Page are enter'd the Quantity, Quality, and Number or Mark of the *Goods* brought in; on the Right, the Diſcharge of the *Goods* out of the Warehouſe, againſt the reſpective Articles of the firſt. Thus,

N° 1.	A Bale of white Paper, weighs	400 l
2.	A Piece of Crimſon Damaſk, Ells	63.

March 1.	Sold to *Joſeph Grove*.	
April 2.	Sent to *Peter Price*.	

Month-Book, is number'd in *Folio's*, like the *Ledger*, and divided into Spaces; on the Top of each of which are the Names of the twelve Months of the Year, *January*, *February*, &c. allowing a whole *Folio*, or what you pleaſe, to each Month; and a different Set of 12 Spaces for every different Year. On the Left Page, enter the Payments to be made to you, in that Month; and on the Right Hand Page the Payments you are to make. Make a Column, likewiſe, on the Left Hand of every Page, in which write the Day of Payment; and after this the Name of the Debtor, or Creditor; and draw the Sum into the Money Columns.

Book of Veſſels, is kept in Debtor and Creditor; a particular Account being kept for each Veſſel. To the Side of Debtor are put Victualling, fitting out, Wages, *&c.* to the Side of Creditor are put every Thing the Veſſel has produc'd, whether by way of Freight, or otherwiſe. Laſtly, the Total of each is enter'd

enter'd in the *Journal*, upon ballancing the Accompts of each *Vessel*.

Book of CARGO, or *Loading*, *Livre de bord*, is kept by a Clerk of a Ship, in *France* call'd the *Escrivain*; wherein are enter'd all the Goods a-board the Vessel, whether those for Freight, or for Sale, or Exchange; the whole according to the Specification in the Master's Bills of *Loading*.

Book of Workmen, is particularly in Use among Manufacturers, who have considerable Works in their Hands. It is kept Debtor and Creditor for each *Workman* employ'd. On the Side of Debt is put the Matters given them to *work*; and on that of Credit, the *Work* they return.

In Cities where there are publick Banks, as at *Venice*, *Amsterdam*, *Hamburgh*, and *London*, there is a *Bank Book*, wherein is kept an Account of the Sums paid to, or receiv'd from the *Bank*.

Book of Rates, is a small Book establish'd by Parliament, declaring at what Value Goods that pay Poundage (or $\frac{1}{20}$ Part of the Value) shall be reckon'd, so that a 20th Part of the Sum found in the Book of *Rates* is taken for the Duty payable by the Acts of Tunnage and Poundage.

Book of Charges on Merchandises, is kept to enter the Charge of Custom, Freight, Warehouse-Room, Postage of Letters, Porterage, Cartage, Wharfage, Books of Accompts, *&c.* and once in a Month the Merchant, or Book-keeper, must make a Sum, and transfer it into the Creditor Side of his *Cash-Book*, making a Reference to the *Folio* of the Book of *Charges on Merchandise*; and also into the Debtor Side of the Account of *Charges on Merchandise* in his *Ledger*. This Book is kept thus:

Charges on Merchandise, Debtor.

		l.	*s.*	*d.*
May	1741			
1	To Cash paid *James Jones*, for a Quarter's Rent of my Ware-House, due at *Midsummer-Day* last, and is in full	10	00	00
5	To Cash paid for Post-Letters	00	10	00
7	To Cash paid for *Ditto*	00	12	4
10	To Cash paid Freight of 8 Chests of Myrrh	70	00	00
	To Cash paid Custom of *Ditto* Myrrh	10	14	00
15	To Cash paid Wharfage, Crainage, *&c.* of *Ditto*, at 5 *d. per* Chest	00	3	4
	To Cash paid, Cartage of *Ditto* from the Key	00	6	00
30	To Cash paid Porterage this Month	00	6	3
	To Cash paid Demurrage	00	4	00
	Entered in *Cash-Book* Folio 1.	92	15	11

Besides these *Books*, a Merchant ought to have a *Book* wherein to enter a Copy of all Letters he sends, or receives, upon Account of Trade. Also, a *Pocket-Book*, to take the Minutes of what Business he transacts Abroad, to ease his Memory, and to avoid Error.

When a Stock is employ'd in common, between several Merchants, in the Way of Trade, and each Partner is to have a Share of the Gain, or bear a Share of the Loss, in Proportion to his Share in the Stock, 'tis call'd *Company Accompts*; which are kept in the following Manner:

1. When Goods are bought, and paid for, by yourself, for Company Account; you are to make Wares in the Company between the Partner and you (naming your several Shares of the Stock) Debtor to Cash for the Value of the Goods, *&c.* and Cash Creditor, by Wares, in Company between Partner and you for the same Sum. Then make your Partner, by Name, his Account current, Debtor to *Ditto* Partner's Account, in Company, for his Share of the Stock; and his Account in Company Creditor by his Account, and current for the same Sum. The Entry is the same, if the Goods are bought in Trust, if instead of Cash you make the Goods Debtor to the Seller, and him Creditor by the same.

2. When you receive your Partner's Share of Cash for the Goods bought in Company, you make Cash Debtor to your Partner his Account current for the Sum he paid you; and his Account current Creditor by Cash for the same Sum.

3. If you have the Management of the Account in Company, and give an Assignment to a Creditor, upon your Partner for his Share of Goods bought in Company, you must make the Receiver Debtor to your Partner, his Account current, for the Sum in the Assignment; and the Partner's Account current Creditor by the Demander for the same Sum.

4. When you receive ready Money for Goods sold in Company, you make Cash Debtor to Wares in Company, (always naming the Wares) between your Partner and you, (naming his Name, and each of your Shares) for such Goods, sold to such Person, for so much. And Wares, in Company between such a one and you Creditor by Cash, for the same Sum. Then you are to make Partner's Account, in Company, Debtor to his Account current, for his Share of the Cash receiv'd; and Partner's Account current Creditor, by his Account, by you in Company, for the same Sum. If these Wares had been sold at Times, the Entry had been much the same, if instead of making Cash Debtor to Wares in Company, you make the Buyer Debtor to the same Wares; and Wares in Company Creditor by the Buyers, *&c.*

5. When Goods are sold in Company, Part for ready Money, and Part at Time, you are to make Cash Debtor to Wares in Company, between your Partner and you, for the Money receiv'd in Part; and the Buyer Debtor to the same Account for the Money left unpaid; then make Wares in Company, between your Partner and you, Creditor, by sundry Accounts, (referring to the *Folio's* of Cash) and the Buyer's Account, for the whole Value of the Goods sold. You must also make your Partner's Account, in Company, Debtor to his Account current, for his Share of the whole Value of the Wares sold; and your Partner's Account current, *&c.* by his Account by you, in Company, for the same Sum.

6. When you bring, into Company, Wares of your own, that are enter'd in your *Ledger*; you make Wares in Company (the Wares nam'd) between your Partner and you, Debtor to Wares, by Name again, in the Sum you bring them into Company for, naming for what Quantity, Price, *&c.* then you are to make Wares, as before enter'd in your *Ledger*, Creditor, by the same Wares in Company, between your Partner and you, for the Quantity brought into Company, at such a Price. And then make Partner his Account current, Debtor to your Partner's Account in Company, for so much Goods brought into Company by you, of which his Share of the Price is so much. Lastly, make Partner his Account in Company Creditor, by his Account current for his said Share.

7. When Wares, bought for Company's Account, and book'd, are shipp'd off to be sold for the same Company's Account, you must make Voyage to the Place whither the Ship is bound, (naming the Factor the Wares are consign'd to) in Company between your Partner and you, Debtor to Goods shipp'd for their Value, to Cash for Charge of shipping, so much as paid for that; then make Wares in Company, between your Partner and you, Creditor by Voyage, in Company between you, for their Value; and Cash Creditor, by Charges of shipping. Then make your Partner his Account current Debtor to his Account in Company, for his Share of the Charges of shipping off; and *Ditto* Partner his Account in Company, Creditor by his Account current, for the same Sum.

8. When Wares are bought, on Company Account, to be paid for at a Time; and are shipp'd off, and Charges paid before Entry, you must make Voyage to such a Place, in Company between your Partner and you, consign'd to your Factor, Debtor to the Seller for the Value of the Wares, and to Cash, for the Charges of shipping; then make the Seller Creditor by Voyage to such a Place, in Company between your Partner and you, consign'd to your Factor, for the Value of the Goods shipp'd; and Cash Creditor, by Voyage, in Company, between your Partner and you,

consign'd to your Factor, at such a Place, for the Charge till on Board. Make, also, Partner his Account current, Debtor to *Ditto* Partner's Accompt in Company, for his Share of the Value of the Wares, and Charges till on Board. And his Accompt in Company, Creditor by his Account current, for the same Share of the Value and Charges of shipping. But if the Wares bought, in this Case, had been paid for in ready Money, the Entry would be the same, with this Difference only, that whereas, first, Voyage in Company, *&c.* is made Debtor to the Seller, and he Creditor by Voyage, *&c.* you must make Voyage, in Company, *&c.* Debtor to Cash for the Value and Charges; and Cash Creditor by Voyage for the same Sum.

9. When you receive Advice that Wares for Company Account are sold by your Factor; you must make Factor at such a Place for Company Account between your Partner (so much of the Stock) and so much you your Accompt current, Debtor to Voyage to such a Place, in Company, between your Partner and you, (naming your Shares) consign'd to *Ditto* Factor, for the neat Produce, as by Advice. And Voyage to such a Place, in Company between your Partner and you, (naming your Shares of the Stock) consign'd to such a Factor, Creditor by Factor, at such a Place, for Company Account between your Partner and you, your Account current for the said neat Produce.

10. When you receive Advice that your Factor has made Abatement for Defect in Goods sold, between your Partner and you, in Company; you are to make Voyage to —— in Company, between your Partner and you, (naming always your Shares after the Name) consign'd to Factor, Debtor. To *Ditto*, Factor, for Company Account, between your Partner and you, for the Defect. Then Factor at such a Place, for Company Account between your Partner and you, (your Account current) Creditor, by Voyage to——in Company between your Partner and you, for the same Sum abated.

11. When Money is remitted to you, by your Factor, for Wares sold, for Account of Company, and by you received, make Cash Debtor to Factor at —— for Company Accompt, between your Partner and you, your Accompt current, for the Money receiv'd by Bill; and Factor for Company Account, between your Partner and you, your Accompt current Creditor by Cash, for the same Sum. Then make your Partner's Accompt in Company Debtor to *Ditto* Partner's Account current for his Share in the Money receiv'd; and your Partner's Accompt current Creditor by Partner's Accompt in Company for the same Sum. But if this Money had been payable by Bill, at single or double Usance, *&c.* then the Entry would differ little; only instead of making Cash Debtor to Factor, *&c.* the Accompt of him that accepts the Bill should be made Debtor to Factor at, *&c.* and *per Contra* Creditor.

12. When you have receiv'd Wares from your Factor, in Return for Wares sold by him for Company Accompt, and pay Charges for Freight, Custom, *&c.* at Receipt thereof make Wares receiv'd Debtor to Factor at —— for Company Accompt, between your Partner and you, your Accompt current, for the Value of the Goods and Charges till on Board, as *per* Advice —— so much; and Factor at, for Company Accompt between, *&c.* our Accompt current Creditor by Wares receiv'd for the same Sum. Then make Wares receiv'd Debtor to Cash, for the Sum paid at the Receipt, for Custom, *&c.* and Cash Creditor by Wares receiv'd for the same Sum. Then make Wares receiv'd Debtor to Cash for the Sum paid at the Receipt for Custom, *&c.* and Cash Creditor by Wares receiv'd, for the same Sum. Then to place the Accompt between your Partner and you, make your Partner's Accompt, in Company, Debtor to his Accompt current for his Share, as *per Envoice* of the Return; deducting his Share of the Money, you pay, at the Receipt; and your Partner's Accompt current Creditor, by his Accompt, by you in Company, for the same Sum.

13. When you receive Advice that your Factor has shipp'd off and consign'd Wares to your Factor in another Country, for Company Accompt; you are to make Voyage to —— (consign'd to your Factor, for Company Account between your Partner and you) Debtor to Factor at —— that shipp'd the Goods; your Accompt current for their Value, and Charges, as *per* Advice of your Factor; and your Factor that shipp'd the Goods at —— your Accompt current Creditor, by Voyage to the Place your Factor resides at, consign'd to your Factor in Company, between your Partner and you, for the same Sum. Then make your Partner's Accompt current Debtor to his Accompt in Company, for his Share of the Value and Charges; and your Partner's Accompt in Company Creditor, by his Accompt current for the same Sum.

14. When Wares are return'd by your Factor to your other Factor in another Country, for Wares sold in Company, Accompt by your said Factor; you must make Voyage, to such a Place, consign'd to your Factor, Debtor to your Factor at —— for Accompt of Company, between your Partner and you, your Accompt current for the Value of the Goods shipp'd; and your Factor at —— for Accompt of Company, between your Partner and you, your Accompt current Creditor by Voyage to such a Place, consign'd to your Factor, for the said Value and Charges. Then make your Partner's Accompt in Company Debtor to his Accompt current for his Proportion, as *per* Advice receiv'd of the Accompt; his Accompt current Creditor, by his Accompt in Company for the same.

14. When your Partner draws a Bill upon you payable at Sight, you are to make Partner, by Name, his Accompt current Debtor to Cash for the Content of the Bill paid; and Cash Creditor by your Partner's Account current, for the same Sum.

15. When you close an Accompt in Company, you are to take Care to make Wares, *&c.* in Company between your Partner, (naming his Share of the Stock) and so much you, Debtor to sundry Accompts, for closing the Accompts, *&c.* to Profit and Loss, for my Share of the Gain by Trading. To *Ditto*, for my Provision, or Employment, at so much *per Cent.* as by Agreement. And Profit and Loss Creditor, by the Sum your Provision, and Share of the Gain amounts to. Then Wares, *&c.* in Company, as before, Debtor to my Partner's Accompt in Company, for his Share of the Gain, and, *&c.* his Accompt in Company Creditor, by Wares in Company for the same Sum.

Company Accompts are generally esteem'd very difficult; but if a Person understands proper Accompts, and Factorage, he will find this very easy, there being little Difference more than this: 1. In the Title of an Accompt in Company, mentioning your Partner's Share of the Stock, and yours. After any Thing is bought, sold, shipp'd off, receiv'd, *&c.* and book'd, as in a proper, or Factorage Accompt, (having Regard to the Title of Company Accompt, as aforesaid) you must take Care to make your Partner, or Partner's Accompt current Debtor to, or Creditor by his Accompt in Company, for what you lay out, or receive for your Partner; in which the foregoing Instructions will be your Guide.

Having thus far proceeded in *Book-keeping*, it remains to shew how to close an Accompt, and ballance our *Books*.

To close an Account, is to make an End, or shut up an Accompt, when you intend to add no more thereto; and is done by ballancing, and drawing a Line, *&c.*

All Accounts are clos'd either with Profit and Loss, or with Ballance, or with Profit and Loss and Ballance, or with Stock.

All Accounts of Goods or Wares, where all that was bought is sold, are clos'd with Profit and Loss; which, if you gain thereby, is enter'd on the Debtor

Side of the Accompt, and on the Creditor if you lose; of which the Account of *Norwich* Wares, *Fol.* 1. is an Example.

All Accompts of Men are clos'd, with Ballance, on the Debtor Side, if you owe to them; or on the Creditor Side, if they were indebted to you.

All Accompts of Wares, where all that are bought are not sold, are clos'd with Profit, and Loss, and Ballance, *i. e.* with Profit and Loss on the Debtor Side, for the Sum gain'd by what is sold; and with Ballance on the Creditor Side, for what, the Goods remaining unsold cost; as in the Accompts of Drugs and Raw Silk.

No Accompts are clos'd with Stock, but with Profit, and Loss, and Ballance.

These Rules carefully observ'd, it will not be difficult to Ballance, either a single Account, or your whole *Ledger*, in order to know how much Cash, Wares, and Debts you have; what Debts you owe, and what you have gain'd by trading since your last general Ballance.

To Ballance any single Accompt, sum up the Debtor and Creditor Sides, and put their Total on a Piece of waste Paper, where take their Difference, which is the Ballance, and must be enter'd on the Debtor or Creditor Side, as is taught in closing an Account; which done, the Sum of the Debtor and Creditor Side shall be equal. But in an Account of Wares, the said Difference is the Profit or Loss, and must be enter'd on that Side whose Sum is least, to make the Sums of Debtor and Creditor Sides equal. And to Ballance your *Ledger*, for the End above-mention'd, take a Sheet of Paper, and on one Side write *Ballance Debtor*; and on the other Side write *per Contra Creditor*, as the Sheet lies extended before you.

To Ballance all your particular Accompts, you must begin with Cash, (except Stock, and Profit, and Loss) which being done throughout your *Ledger*, begin again, at the Account of the Cash, and where an Accompt is clos'd with Ballance, enter the same on the contrary Side of the Account of Ballance in your Paper, as in the Account of Cash above-mention'd, Cash is Creditor by Ballance 2185*l.* 11*s.* 7*d.* therefore Ballance, on your Paper, must be made Debtor to Cash 2185*l.* 11*s.* 7*d.*

Likewise, where an Account is clos'd with Profit and Loss, enter the Ballance Sum on the contrary Side of the Account of Profit and Loss; as in the Account of *Norwich* Wares, which is clos'd Debtor to Profit and Loss 26*l.* 12*s.* Therefore Profit and Loss must be Creditor by *Norwich* Wares. And where you meet with an Accompt clos'd both with Profit and Loss, and Ballance, as is that of Voyage to *Aleppo*, consign'd to *P. Trueman*, because Ballance is on Creditor Side, make Ballance on your Paper Debtor to Voyage to *Aleppo*, &c. 150*l.* 12*s.* 6*d.* and because the said Account of Voyage, *&c.* is Debtor to Profit and Loss, make the Account of Profit and Loss Creditor, for the like Sum of 150*l.* 12*s.* 6*d.* And thus having guided you through the several Cases that may happen, proceed with the rest of the Accounts to the End of your *Ledger*, leaving Profit and Loss unclos'd till you have clos'd and ballanc'd the rest of the Accounts, except Stock. Then close the Account of Profit and Loss, with *Debtor* to, or *Creditor* by Stock, and carry the Foot to the contrary Side of the Account of Stock, as in the Example of the foregoing Account of Profit and Loss clos'd with Debtor to Stock 896*l.* 10*s.* 1*d.* Stock must, therefore, be made Creditor, by Profit and Loss, 896*l.* 10*s.* 1*d.*

With the Difference of Debtor and Creditor Side of Ballance, *i. e.* with *Debtor* to, or *Creditor* by Stock, close the Account of Ballance, and carry the Foot to the Account of Stock, as in the foregoing Account of Ballance, it is so clos'd; *Creditor* by Stock 3546*l.* 0*s.* 0*d.* Therefore Stock must be *Debtor* to Ballance 3546*l.* 0*s.* 0*d.* Then sum up the Debtor and Creditor Sides of the Account of Stock, and if they ballance, or are alike, your *Books* have been kept right, otherwise you have committed some Error.

Take this for a general Rule for Ballance of Accounts, that your present Stock, and what you ow'd when you began the Account now ballanc'd, will be always equal to your Stock, when you began your Accounts, and what you have gain'd since, to the Day the general Ballance is made. The Reason of this is plain; for your former Stock, and what you have gain'd since, must be your present Stock; as in the Example foregoing of Stock, your former neat Stock (Debts deducted) is 2649*l.* 10*s.* 0*d.* and you have gain'd since, as appears by the Account of Profit and Loss, 896*l.* 10*s.* 1*d.* the Sum of which is 3546*l.* 0*s.* 1*d.* = your present Stock; but if you add, as you must, your Gross Stock, when you began Trade, to what you have gain'd since; the same will, consequently, be just so much more than your present neat Stock, as was the Sum you ow'd when you began Trade; which if you therefore add to your present Stock, the Sum must be equal to your former Gross Stock, and the Sum gain'd; which is evident in the Example.

For if 2649*l.* 10*s.* — 510*l.* + 896*l.* 10*s.* 1*d.* be = 3546*l.* 0*s.* 1*d*:

It follows,

That 3159*l.* 10*s.* + 896*l.* 10*s.* 1*d.* is = 3546*l.* 0*s.* 1*d.* + 510*l.*

Note, That (—) is less, (+) more, and (=) equal to.

At present, the most considerable Shop-keepers, who commonly deal in a few different Species of *Goods*, as Drapers, Mercers, *&c.* usually keep a *Ledger* for Persons and Wares distinct, without any formal Connection or Reference of the Accompts in their several Articles; whereby there can no regular Ballance be made. In the Accompts of Persons they use the Formality of a *Debtor* and *Creditor* Style, which is mere Shew, without the real Value of a regular Accompt; there being no opposite corresponding *Debtors* and *Creditors* to be found; for their *Ledger* of Wares, as they call it, contains nothing of this, and is but an imperfect Contrivance, which they satisfy themselves with, to know how much remains; but the worst is, that in allotting Spaces for the Accompt of Wares, they frequently allow no more than they suppose may serve for the Retail of the Quantity first enter'd on that Space for a new Parcel; which, in a quick Trade, is not only troublesome, but confus'd, if there be any of the old Parcels remaining; unless they carry it to the new Accompt.

For petty Traders, who deal in some Hundreds of trifling Wares, and make Sale to the Value of a Farthing, or Halfpenny, they cannot pretend to keep orderly Accounts; the best they can do is, to be careful that Servants do not wrong them; for they have no Accounts of *Goods*; and if they are ask'd what of any Kind remains with them, they must go look, if their Memory fail. These can only have a *Cash Account*, which they are to charge, once a Week, with the Money receiv'd, and discharge for what they give out; it is not convenient that they should touch the *Cash Book*, or *Till*, oftener than once a Week, when it is compleated; but if they do, they must keep a separate Accompt of what they take out, to know what was receiv'd: Besides which, they should have a kind of *Ledger* for the Persons with whom they deal upon Credit; in which they give every *Debtor* or *Creditor* an Accompt, with a Debt and Credit both on one Side, either with a double *Money-Column*, or constant Deductions, as the Debts and Credit succeed one another. They may also, for the Sake of those, have *Memorandums*, or *Day-Books*, wherein all Things of this Nature are writ down, and then carried into the other.

For Artificers, Handicraftsmen, and the like, they may keep Accompt of the Expences of Living; but it will also be necessary to make a distinct Accompt of the

the Charges and Profit of their Business, which may easily be done, by an exact Accompt of all they pay or owe for the Materials and Instruments of their Work, with Servants Wages, and Taxes upon their Trade; and of all they receive; of what is due for their Work. They may conveniently keep Accompt for the Materials of their Work, to satisfy them of the Disposal thereof, and serve as a Check on Servants, who have Access to those Things, and they must keep Accompts for the Persons they deal with, both in buying and selling.

For Gentlemen of landed Estate, the Books necessary to be kept are, 1. A great *Waste Book*, containing a plain Narrative of all Things, as they occur, as Receipts and Payments; every Thing given and received; and, in short, whatever is done relating to any Thing, or Person they are concerned with: Out of which is to be made up, 2. A *Cash Book*, containing in a plain narrative Stile, upon the Debtor-Side, all Receipts of Money; and upon the Creditor-Side all Payments; and though there be several Articles received or paid together, belonging to the same Account, which are entered particularly in the Waste, yet they may be set down here, in a Total Sum; for Example, there is paid 26 *l.* for divers Pieces of Houshold Furniture, all particularly mentioned in the *Waste-Book*, yet in the *Cash Book* there needs no more than to say paid for Houshold Furniture, *&c.* 3. A *Book of Accompts with Tenants*, where, in distinct Places, every one's Charge and Discharge may be fairly written, without any great Formality of Stile, and if it have a Shew of Debtor and Creditor-Side, it will be the more distinct. 4. A *Book of Petty Accompts with Servants and Workmen*, &c. 5. A *Book of real Accompts*; containing an Accompt of Cattle, Corn, and other Stock or Furniture, to know at all Times what you have, and how it is disposed of. If a Gentleman advances no nearer to the artificial Part of Accompting, he must keep an Accompt with every Person, with whom he has Dealings; which may be done in the same Book with his Tenant's Accompts, only allotting distinct Parts for them; the last will take no great Room compared with the other. These Books of Accompts must have Indexes.

For a Person in a single State, who has no Business but the receiving at certain Times in a Year, a Sum of Money, which he lays out again for his private and personal Expences, a Pocket-Book is sufficient.

For one in a married State, whose Fortune consists also of Money, as he has greater Variety of Expences, he must be careful to keep an exact Accompt of what Cash he receives and pays; and to make this Accompt more distinct and orderly, it will be best to keep the Particulars of the Payments in a separate Book, and to bring them into a *Cash Book*, once a Week, in Totals, digested under such Denominations as he thinks fit, as *Bread*, *Beer*, *Flesh*, *Coals*, *Candles*, &c. Things thus brought into the Cash Accompt, may be again drawn into an Abstract, shewing the Total of each Kind of Expences for every Month, by dividing a Page into twelve Columns, with the Names of the twelve Months; and then in so many Articles, on the Margin, setting the Names of the several Heads of Expences, and against each, under the respective Month, the Sum of that Kind of Expences, in that Month; then will the Sum of the Money in the Columns, under each Month, be the total Expence of that Month, and the Aggregate of those Sums the Year's Expences.

For Factors, or Stewards on Land-Estates, a general *Waste-Book* is necessary to contain all Matters transacted, relating to their Master's Concerns, under their Management; out of which let them make a *Cash-Book*, in the Manner above directed; also a Book of real Accompts, that they may know what real Effects, besides Money, they have the Charge of, and how it is disposed of; particularly the Corn Rents, which have been delivered by the Tenants, and put in the Granaries under their Charge, to be disposed, and given out according to Order.

BOOKSELLER.

BOOKSELLER, is a Person, whose chief Employment is to vend and expose to Sale Books of all Kind of Literature, and Learning, whether he prints them himself, or has them printed by others.

The Profession is extremely honourable of itself, and in several Parts of *Europe* is practised but by Men of Judgment, and of a liberal Education; especially in *France*, where, even at this present Time, that Education, and Learning, meet with as little Encouragement in that Country, formerly the Theatre of Learning, and of the learned, as any where else; several *Booksellers* are yet Masters of Arts, and can be chose Rectors of the University; who formerly had the sole Power of creating and appointing *Booksellers*; to which they were to give Security for their good Behaviour, and produce Attestations of their Capacity for the Discharge of their Office: The University also deposed and expelled them at Discretion. They were to appear at all the Assemblies of the University, when summoned; and assist at the publick Processions thereof. They were obliged to lend their Books to be read, or even copied by such as were disposed to borrow, on certain Conditions prescribed by the University. Every *Bookseller* was obliged to have a Catalogue of all his Books, hung up in the Shop, with the Prices, as rated by the University: No *Bookseller* who had not taken the Oath to the University, might sell a Book above ten Sols Value.

These were the Regulations of the Library in *France*, before the Invention of Printing, which even continued in Force (after that Noble Art was found) 'till the End of the fifteenth Century; when the King of *France* began to take Cognizance of them. *Lewis* XI. thought fit to prescribe some new Regulations, in 1467. Under *Francis* I. the *Booksellers* were brought wholly under the Royal Authority; and received State from the King: Thereby they were formed into a Society, or Company; none being allowed to open Shop, for the publick Sale of Books, without being a Member of that Company.

In Process of Time, to secure the Propriety of his Copy to the Author, or to the *Bookseller* he had engaged with, for having it printed, it was ordered that none should be printed, without the King's Privilege, under the Penalty of Confiscation of the *Examplairs*, as they call it, besides a Pecuniary Penalty, and of having their Shop shut up, for a certain Time, according to the Nature of the Offence. All other *Booksellers*, except him who has purchased the Copy, or is to have it printed for the Author, with the Royal Privilege, are forbid to reprint the said Copy, or have it reprinted beyond the Seas, in order to have it afterwards distributed, throughout the Kingdom, under the same Penalties; provided the said Privilege be registered by the *Syndic* of the Company, in their Register; and the *Examplairs*, mentioned in the Privileges, delivered into the King's Library, and into that of the Chancellor of *France*. The said Privilege seldom continues longer than ten Years, which commonly begins when the first Edition is finished printing.

Another Regulation which the *French Booksellers* are subjected to, is, that no Books of Divinity are to be published

publiſhed before it has been reviſed, and approved by the College of *Sorbonne*; nor no other Books, without the Approbation, in Writing, commonly printed at the Beginning of the Book, of the Lord Chancellor, or his Deputy, for *Paris*; or of the Attorney-General, or his *Subſtitute*, as they call it, or Deputy, in the Provinces. Through thoſe means they pretend to prevent the Kingdom from being corrupted by Hereſy or Schiſm; and their Morals from being debauched by vicious and obſcene Books.

In Fact, the Shops of *French Bookſellers* are ſeldom found ſtuffed with thoſe vicious Books, whoſe ſole Frontiſpiece would provoke the Scorn and Indignation, not of a Chriſtian only, but even of an honeſt *Pagan*. If thoſe Sort of Books are ſometimes found in *France*, they are always ſold, *Sous le Manteau*, as contraband Goods. And if the Retailers of ſuch pernicious Commodities are diſcovered, they never eſcape Puniſhment, which is the Impriſonment of the Vender, a Confiſcation of his Books, commonly burned by the common Executioner, and a Fine. No Doubt, but if Obſcenity was as much tolerated there, as it is here, it would be as much encouraged by Youth, and old Fornicators; and *French Bookſellers* would be as eager as ours to purchaſe ſuch Copies, preferable to thoſe written for the Encouragement of Piety, Virtue, and Morality.

It would be a capital Crime there, for a *Bookſeller*, to publiſh or vend any Book, tending towards the entire Ruin of Chriſtianity, by denying, or turning into Ridicule, the greateſt and leſs controverted Myſteries thereof, as the Trinity, the Miracles of Chriſt, *&c.* It is true, that *France* is not a Country of Liberty like ours, and that ſome think it beſt to go free into Hell, than to be forced againſt our natural Inclinations into Heaven; the greateſt Part of our Clergy are themſelves ſo jealous of thoſe Privileges we enjoy as a free People, that their Conduct would, in their Opinion, ſmell too much of Popery and arbitrary Power, if they were to exert themſelves on thoſe Occaſions, by having *Bookſellers*, who ſhould vend any Books capable to debauch our Morals ſeverely puniſhed, and all ſuch Books committed to the Flames. But Indolency in this Caſe, is alſo, I ſuppoſe, a Mark of Liberty.

French Bookſellers, are alſo as cautious in publiſhing Satyrs againſt the Governments, as againſt Religion or Morality, though thoſe Sort of Books are as common there, as they are here; but they are always publiſhed at *Cologne*, by *Pierre Marteau*, or *Jean Le Blanc*, though, at the ſame Time, they came no farther than from the *Rue St. Jaques*, unleſs the Author be pleaſed to diſcover himſelf, and then he is laugh'd at by the Government, or ſent for a few Months to the *Baſtille*, where he is kept at the King's Expence, coming out of it as rich, or as poor as he went in. For the Puniſhment in *France* for Libels, as we call them here, never extend farther, otherwiſe the Nation would appear more fond of ſuch Satyrs, whoſe Reign is always very ſhort, becauſe ſeldom minded by the Government. The greateſt Puniſhment of a *Bookſeller* for ſuch Offence, is a Pecuniary Fine, and having his Shop ſhut up for a few Months. Therefore they never diſcover their Authors, eſpecially when they conſider, that ſuch Diſcovery would not render them leſs guilty; for the *French* Miniſtry make a Difference between the Author and the Printer, or *Bookſeller*. The Printer or *Bookſeller* is not puniſhed there for the Author, nor the Author for the *Bookſeller*. The Author is puniſhed for writing the Book, and the *Bookſellers* for having it printed, and publiſhing it. The *French* Miniſters are very well aſſured, that there would be no Satyr printed or publiſhed, if a Printer would not print it, or a *Bookſeller* was to refuſe to publiſh it; ſince an Author cannot force them to do either. Therefore the moſt guilty muſt be the Printer or *Bookſeller*.

Here our Conduct is quite different, for a Printer may print, and a *Bookſeller* may publiſh what Books he pleaſes, provided he knows his Author, to deliver him up to ſcreen himſelf againſt all Sort of Puniſhment, which in my Opinion, is not an extraordinary good Politick in a Government, and which can by no means anſwer the End propoſed, which is the entire Suppreſſion of thoſe Satyrs. Since it almoſt always happens, that the Authors of thoſe Satyrs are unfortunate Gentlemen, without Fortune or Intereſt, and buried perhaps in the Duſt of a Garret, who having nothing to depend upon for their Subſiſtence, but their Education, are forced to have Recourſe to it, when preſſed too cloſe, by the moſt formidable of our Enemies, Hunger; and as they have had perhaps the Misfortune of being born in an Age, which has no other Taſte but for Satyrs, eſpecially againſt ſuperior Powers, and that they are told by *Bookſellers* that nothing elſe will pleaſe, or to uſe their own Terms, nothing elſe will ſell, and they conſequently will buy or encourage nothing elſe; the *poor Author* ſets himſelf down, and writes, in that pleaſing Style, the better, perhaps, becauſe ſeaſon'd with thoſe ſharp Reflections occaſion'd by the Calamities attending his unhappy Condition. The *Work* done, he carries it to the *Bookſeller*, who, conſcious of his Miſery, purchaſes it at a very *low* Price, ſcarce ſufficient to appeaſe the *loudeſt Clamours* of his domeſtick Enemy. The *Bookſeller* has, perhaps, no ſooner publiſh'd his *Work*, but he is ſeiz'd, by a Couple of Meſſengers, from whoſe Hands he is ſoon deliver'd, by the Diſcovery of the *unhappy Author*, who is ſeiz'd, in his Turn, and perhaps confin'd in a frightful *Dungeon*, no otherwiſe different from *Hell* but in the Duration of the Torments.

What Advantage can accrue to a Government from the Confinement of ſuch a Wretch? None. For the *Bookſeller*, being at Liberty, continues to publiſh his *Book*, which, by the Confinement of the *Author*, proves rather more profitable to him than before; and thereby turns the Chains of his *Author* into *Gold*, and feeds deliciouſly, while the *poor Satyriſt* is denied even the Neceſſaries of Life, and deſerted by the *whole World*, who avoid him as if he was affected with ſome *contagious Diſtemper*. Or if all the *printed Copies* are ſeiz'd, the ſame *Bookſeller* will ſoon find ſome other *neceſſitous Fool*, whom, though he ſhould be wiſer by the late *Misfortune* of his *Brother*, he engages to write on the ſame Subject, and in the ſame Style; and whom he finds the Secret ſoon to ſend to keep Company to the other Satyriſt; and thus *in infinitum*: While, if a *Government* was to puniſh the *Bookſeller*, not by a *corporal Puniſhment*, but by a *pecuniary one*, it would ſoon find the Secret to ſuppreſs all thoſe Satyrs. For as *Bookſellers* print nothing but for the Sake of Lucre, when they ſhould find that their Gain would not anſwer the Charges of a *Proſecution*, they would ſoon deſiſt printing any Thing which could offend; and then what bad Effect could produce a Satyr, which the *Author* would be forced to keep in his Garret, or to ſell to *Cheeſemongers?*

This is not the ſole unfair Dealing of our *Bookſellers*, with reſpect to our *Author*; for they commonly treat him with the greateſt Scorn and Haughtineſs, eſpecially if he be forced to ſet his *Performances* to *Auction*. The firſt Salute he muſt expect from them is, to hear his *Work* under-valued, or even deſpis'd, often by a Perſon, who, far from being a competent Judge, can ſcarcely make a Difference between a plain Sheet of Paper, and a written one. Or if the *Bookſeller* is humble enough to acknowledge his Want of Capacity, the *Author* muſt wait, before he can have a deciſive Anſwer, till his *Work* has undergone the *Inſpection* of *another Perſon*, on whoſe Judgment the *Bookſeller* depends, though often as great a *Noodle* as himſelf; and then if the *ignorant Cenſor* pronounces in Favour of a *Work*, which, but *too often*, he does not better underſtand than the *Alcoran*, the *poor Author* may expect a favourable Anſwer; if not, his *Copy won't do*, and he muſt go to hawk it ſomewhere elſe. If he chance to find a Purchaſer, at laſt, and the *Book* anſwers beyond Expectation; then the firſt it was *offer'd to*, enrag'd with himſelf, for having loſt the *Opportunity* of getting that *Money*, (for Avarice, and

and an extravagant Desire of Gain, seem to be inseparable from that Trade) discharges his Rage upon the *poor Author*; as if, on the contrary, he should not be oblig'd to him for having offer'd him the Preference.

I do not mention here another great Difficulty, or Disadvantage, *Authors* labour under, which is, of being often cheated of their *Copies*, which the *Bookseller* takes Care to have transcrib'd, before he returns it to the *Proprietor*; which is a *Robbery* worse than those committed on the Highway; since it is not reasonable to suppose that Gentlemen, almost all born of very *good Families*, and of an *Education* above the *common People*, would demean themselves so low, as to cringe to Persons often infinitely beneath them, if not *forced* to it by an indispensible Necessity; and to take Advantage of that Necessity, to *rob* them of their *Property*, must be the greatest Piece of Knavery a Man can be guilty of.

Booksellers will answer, perhaps, that they *force no Body* to write; and therefore those who write must subject themselves to all those *Inconveniencies*. 'Tis true, that they can *force no Body* to write, though they would often *force Authors* to write for little or nothing; but if *no Body* was to write, what would become of them? How could some of them get, perhaps, twenty, thirty, or fifty *thousand Pounds*; who, when they began, first, *Bookselling*, were not worth ten, if *no Body* was to write? Are they not indebted to *Authors* for those immense *Fortunes?* And should they not, in Gratitude, use *Authors* civilly, if they will do nothing else?

To remedy these *Inconveniencies*, the Legislature should take under its *Consideration* the unhappy Fate of *Authors*, and that some of them, being as well *born*, and as well *educated*, as those who have the Honour to be related to the best Families of the *Kingdom*; and having no other Disadvantages than those of *Fortune*, which does bestow her Favours on them, but with *Parcimony*; deserve the *Protection* of the *Nation*, since they do as much *Honour* to it, by their Capacity and Genius, as those who represent her in the Senate do her Service. All kind of Obscenity in Writing should be condemn'd as destructive to the Commonwealth, thereby Vice and Debauchery being depriv'd of its *common Food*, (if I may use that Expression) it would be, at last, entirely suppress'd, and *Booksellers* finding no *Encouragement*, in the *Publication* of their *obscene Books*, could not have any Pretext to condemn *poor Authors* to that scandalous Drudgery; and those who should chance to have no other Talent, would be silenced, and *forced to follow some other Employment*, to get a *more honest Livelihood*. *Booksellers* should not be *obliged* to buy *Copies*, which they should not like, and which could not defray all the Charges of Printing, with a reasonable Gain; but they should pay for such as they like, and which they think would answer all those Purposes, what they are worth; otherwise punish'd as *common Oppressors*; and as *common Thieves*, if they were to steal the *Copy*, or when they have it printed, on the *Author's Account*, to have a certain Number of *Books* printed for themselves, which they sell, while they keep those of the *Author unsold*, in their *Shops*; which is but *too often* their *Practice*.

Among all the Vices of our *Booksellers*, (a few excepted) *Monopoly* is their *Favourite*; for though we can judge, from several Instances, that there is no great *Cordiality*, or *Friendship* subsisting between them, they nevertheless all reunite in one, (especially those among them, who by their Wealth have acquir'd the greater *Reputation*) to *oppress* those of their Brethren they have some Pique against, which always proceeds from Self-interest; it seems, because they live in *Splendor* and *Opulence*, as if they were determin'd others should not live at all. I cannot blame them for *opposing* those, who, contrary to all Laws and Equity, *rob* them of their *Property*, on Purpose to under-sell it, and thereby frustrate them of the *Profit* they could reasonably expect from it: But it is equally unjust in them, to attempt to *engross* the *whole Trade* to themselves. What! because they are Masters of a *Copy*, which has prov'd beneficial to them, must others be depriv'd of the same Advantages which they suppose they could make of another such *Copy?* Must no *Author* write, but those who write for them? Or is none capable to write, but those who write for them? Or does the whole Merit of a *Work* consist in their publishing it? Are there none *good* but those which are publish'd by them? Must every Subject be deserted, which has been once treated of for them? Must the Version of the Scripture by St. *Jerome* be despis'd because that of the *Septuagint* was the first, and much esteem'd? Have the Writings of *Tertullian*, *Origen*, and St. *Cyprian*, eclips'd the Lustre of those of St. *Augustine?* Or those of St. *Augustine* prov'd disadvantagious, or detrimental to those of *Tertullian*, *Origen*, St. *Cyprian*, &c. Must any future Poets forbear writing, because Mr. *Pope* has wrote with a general Applause? Why has Mr. *Chambers* compil'd a *Dictionary of Arts and Sciences*, since *Corneille* had done it before him? What, because he has pyrated *Corneille*, and has made a kind of *Dedalus*, which has neither Beginning nor End, with a *monstrous Confusion* of unnecessary and inaccurate References, which puzzle the most judicious Reader; and because our eminent *Booksellers* (as they are pleas'd to call themselves) have publish'd that *Work*, must *no Body* be permitted to write something better, and dispose it in a more instructive and clearer Order?

Most of our *Booksellers* labour under a very great Disadvantage, which is, that very few of them have a liberal Education; therefore, though their *Profession* is one of the most genteel and honourable, and very well becoming a Gentleman; they, nevertheless, have no other Advantage above the meanest Trader, than that of dealing in *Books*, while others deal, perhaps, in *old Books*, *Oysters*, *Apples*, &c. which makes me compare them to a blind Man, introduc'd into a Place adorn'd with some of the inimitable Pieces of *Titian*, *Michael Angelo*, *Raphael*, *Rubens*, *Le Brun*, *Coypel*, *Holdben*, *Vandike*, *Kneller*, &c. For though he be environ'd with some of the most beautiful Pieces of Painting, he is nevertheless an utter Stranger to it, nor can he judge of their Elegance and Beauty. Likewise, our *Booksellers* are, perhaps, every Day amidst the best *Authors* every Age has produc'd, and are, nevertheless, as great Strangers to them, as if they were carried all on a sudden to the Court of *Prester John*, though some of them are very much infatuated with a pretended Merit, which 'tis impossible any Body else should discover but themselves.

I wish our *Booksellers* would follow the Example of those of *Paris*, where there is not one who has not studied, at least, as far as Rhetorick, and consequently understand the *Greek* and *Latin* Tongues; and therefore can read most of their *Authors*, and, if they have any Genius, can likewise understand them: But as the Reading is the Key to it, how can ours pretend to be Judges of a *Work*, when they cannot so much as read it? They trust for it to the Judgment of another; but how can they know if that other judges right, since they know nothing of his Capacity, but by Supposition, or Infatuation? For often, as I have already observ'd, those pretended Judges have themselves so little Discernment, that they cannot be competent Judges; and those who have the least Glimpse of it, are so infatuated with it, that they give their Opinion by Partiality, and often without examining the *Work*. For most of the *Authors*, like the meanest Mechanick, (which is a Scandal to their Profession) very seldom like any Thing else but what comes from their own Pens; and the worst is, the most illiterate are always the readiest to condemn the *Works* of others, and to think themselves a Phœnix of the Age. And who suffers by such ridiculous Infatuation, but the *Booksellers* themselves, who could avoid those great Inconveniencies, so prejudicial to them, and to the learned World, if they would render themselves capable to be Judges of a *Copy*, or of the Capacity of their Judges. What! because an *Author* has wrote once,

once, by pure Chance, a few Sheets, which have an-ſwer'd the Expectation of a *Bookſeller*; muſt he be accounted a competent Judge of all Sorts of *Works*? Muſt a Man who has wrote, perhaps, a bold Satyr, or rather a Piece full of Invectives and Impudence, which has ſuited the deprav'd Taſte of the Times he chanc'd to write it in, be ſuppos'd capable to judge, *en dernier reſſort*, of another Piece of a quite different Taſte? Or can it be expected that he'll have any Taſte for ſuch a Piece? But he writes in the Taſte of the Age, *i. e.* becauſe *Bookſellers* entertain the Age in that Taſte; but let them preſent our Underſtanding with a wholſome Food, and they'll find that our Appetite is not ſo deprav'd as they imagine.

What Judgment will our Poſterity form of the *Bookſellers*, when they find that in their Times they have publiſh'd nothing but Obſcenity and Ribaldry? Muſt they not imagine that their Minds were very much vitiated, or that our Age produc'd nothing elſe but Profligates and Blockheads, utter Strangers to Morality, and true Learning?

'Tis true, that the *Works* of thoſe *Authors* are bought very cheap, conſidering what *Bookſellers* gain by it; but thoſe ſort of *Works* have but what *Bookſellers* themſelves call a Run, and will never bear reading twice; they are like thoſe *Spaniſh olla Podridas*, or *Pots Pouris*, which we have a Fancy to taſte once, but which we ſhould be ſorry to ſee every Day ſerv'd at our Tables, as a common Food; while, on the contrary, thoſe written for our Edification, or Inſtruction, have always their Merit, and are always in Requeſt: And if the *Bookſeller* is longer kept out of his Money, he might, however, conſider it as an Eſtate he has purchaſed, not for himſelf only, but likewiſe for his Poſterity, and which is to bring him ſeveral Times the Intereſt and Principal, without the Fund being ever exhauſted. A deprav'd Taſte is never univerſal, and never reaches the moſt ſenſible Part of a Nation, which has always the Majority on its Side; and far from being hereditary, 'tis ſeldom of a long Duration: Which Conſideration muſt be a very great Inducement to a *Bookſeller* to buy valuable *Copies*.

But thoſe valuable *Copies* are ſo ſcarce, why? Becauſe *Authors* meet with no Encouragement from *Bookſellers*. For, if a *Copy* is valued above twenty or thirty Guineas, 'tis too dear, and a *Bookſeller* does not care to run the Riſque of ſuch a Purchaſe, unleſs the *Author* would have it printed on his own Account. Yes, but who will anſwer to that *Author* for the Probity of the *Bookſeller*? For if the *Author* is obliged to truſt entirely to it, and has not Intereſt enough to diſpoſe of a certain Number of his *Books* ſufficient to defray the Charges, he muſt be at all the Charges for the printing of it, which are always exorbitant enough (for though *Bookſellers* do not pretend to be Apothecaries, they nevertheleſs underſtand how to make an Apothecary's Bill) how can he be certain that the *Bookſeller*, according to Cuſtom, will not, like an able Arithmetician, *ſet down* o, *and retain all*. Therefore is it not better for him to ſtand idle, than to be expos'd to loſe both his Labour and Money? An Inſtance or two will convince the Publick that ſuch a Thing is very poſſible.

An Acquaintance of mine had tranſlated into *Engliſh* a *French* Book, intituled, *The Doctrine of Morality*, written by *Gumberville*, for the Inſtruction of *Lewis* XIV. King of *France*, while yet an Infant: This Book was embelliſh'd with above a hundred Copper Plates, repreſenting the Gallery of *Zeno*, and engrav'd by *Drevet*, the young King's Engraver, and which the Tranſlator had purchas'd from *Drevet's* Executors, for the Sum of fifty Guineas. He had engag'd here for the printing of his Book with a Set of *Bookſellers*, call'd the *Congre*, which really was compos'd, as I believe, of ſome of the moſt honeſt of the whole Trade, who perform'd their Articles, as far as the printing and publiſhing the Number of Books agreed upon by both Parties, which, before it was printed, would, in their Opinion, anſwer both their Expectations, and that of the Tranſlator: But when he came to call them to an Account, their Tune was chang'd, they had moſt of the Books left in their Shops; and whatever the Tranſlator could do, he did not receive from them Money enough to pay for half the Plates; till quite tir'd, at laſt, of their frivolous Evaſions, he offer'd to ſell them his Right to the Book, Plates and all, which was what they wanted, though they affected a very great Indifference in it, till they had brought the poor Tranſlator to their ſcandalous Terms, which were, that he ſhould be contented, for his Property, the Plates, and Books left unſold, with fifteen Guineas; the beſt Terms he could ever be capable to obtain from them; unleſs he had rather chuſe to have nothing at all. This is not a Romance, for I was preſent at all theſe Tranſactions.

The *French Bookſellers* are very ſeldom guilty of ſuch Miſtakes, not to uſe a worſe Expreſſion; they ſupport the Honour of their Profeſſion, and their Credit, by their fair Dealings, which encourages *Authors* to write for them; neither could they, if they would, for the Regulations of the Library keep them in Awe, and an *Author* can always have his Recourſe to the Company, from whom he may expect an ample Satisfaction. He can depend on the true Performance of the Articles he enters into with them, without the leaſt Danger of being cheated of his Property. I mean right *Bookſellers*, for I have too great a Value for the Profeſſion to diſhonour it ſo far, as to rank among them thoſe Publiſhers, and Venders of *Rogatons*, or ſcandalous Sheets, every Nation is peſter'd with, and who are a Scandal to the Trade. People who print ſuch Stuff, which would make that Part of the human Body, they commonly ſerve, in the meaneſt Capacity, bluſh, with Shame, if it was ſuſceptible of it; who diſfigure the beſt Performance, with the ſcandalous View of under-ſelling the fair Trader; whoſe Shops are nothing elſe but a Repoſitory of low and infamous Satyrs, Obſcenity, Immorality, Scandal and Impertinence, and a Receptacle of ſtolen Goods. Theſe Retailers commit the ſame Depredations on a good *Author*'s Work, as an unſkilful Painter does on a good Face.

The Privilege which the *Authors* or *Bookſellers* are oblig'd to obtain in *France*, before they can be permitted to publiſh their *Works*, has very much contributed towards extirpating ſuch Vermin in that Kingdom; and all the ſpurious Copies vended there, are commonly printed in *Holland*, where they have uſurp'd a certain Right of counterfeiting every Thing, Money not excepted. That Privilege has alſo procur'd this other Advantage to the *Republick of Letters*, that all Sorts of Books are printed, in *France*, in good Types, or Characters, and on very good Paper; which are two Conditions mention'd in the Privilege. 'Tis true, that, *Cologne* excepted, no Nation had, for a very conſiderable Time, ſo good Types as the *French*; but ſince we have found the Secret to rival them in that, as we do in ſeveral other Things; and ſince we have a *Caſlon*, who ſurpaſſes *Elzevir*, for the Beauty of his Types, 'tis ſurprizing that our *Bookſellers* do not take greater Care to have their Books better printed.

Bookſellers ſhould alſo take a particular Care to have a good Corrector of their own; a Perſon who ſhould not only be entire Maſter of the *Engliſh* Tongue, but have alſo ſome Tincture of the Science, the Book to be publiſhed treats of; to correct the Slips which the Author may have made through Inadvertency, and the Blunders occaſioned by the Ignorance of the Compoſitor, and the Inſufficiency of the Correctors of the Preſs; who, ſometimes, are but poor ignorant Wretches, who ſeldom underſtand any Thing elſe but their Mother-Tongue, and even that but imperfectly, and whom the Printers employ, becauſe the *Bookſellers* allow them little or nothing for it; for *Bookſellers* muſt be conſcious, that Uncorrectneſs is a very great Diſadvantage to the whole Work. I have found no leſs than 500 ſuch Faults in one of the Volumes of *Cyclopædia*, though I have not examined it narrowly, which Mr. *Chambers* could never be guilty of,

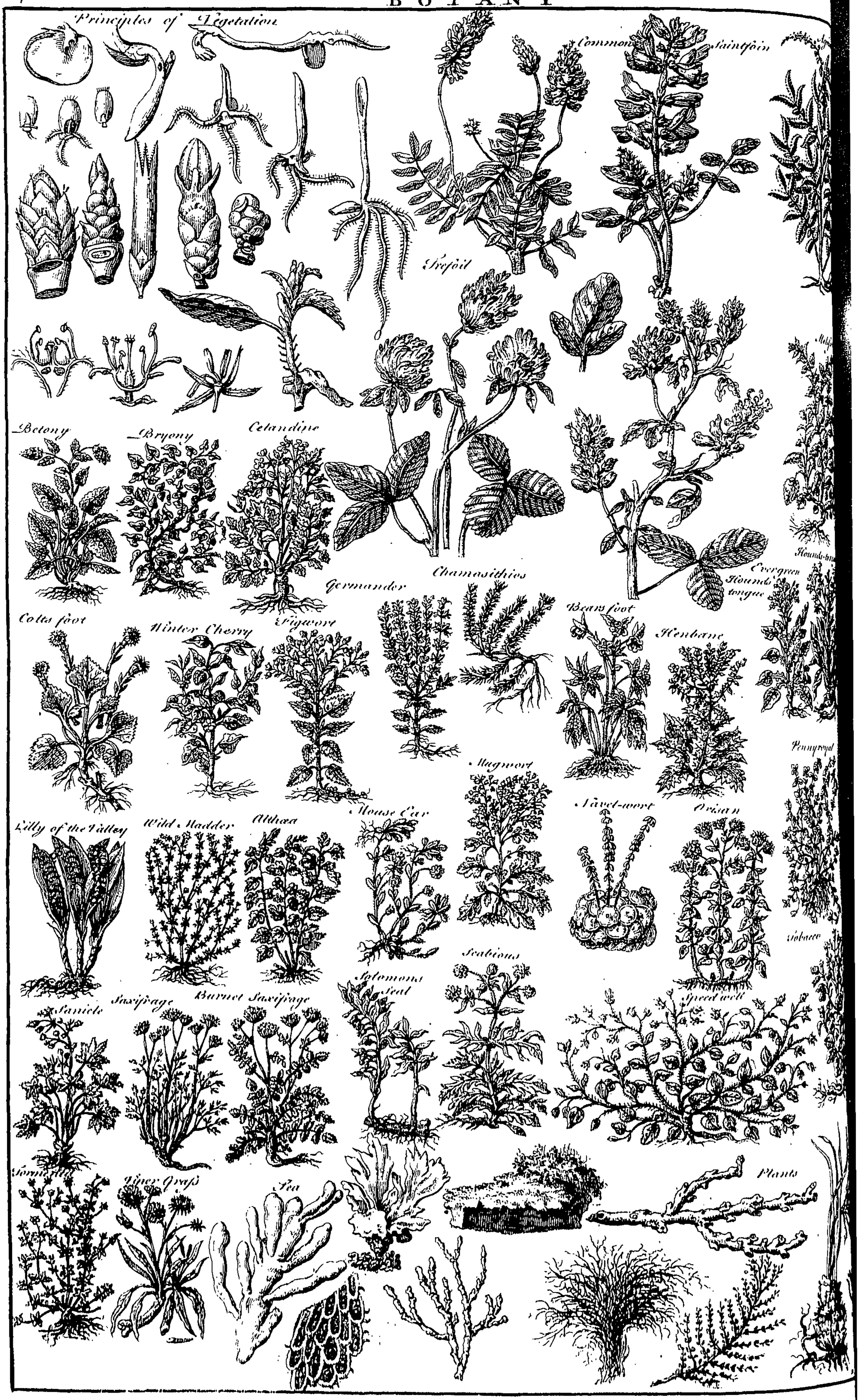
of. Nay he is not even correct in the Quotations he has transcribed Word for Word from other Authors; for he makes them say, what is entirely contrary to the Rules of the Arts they professed. I have this Advantage over him, that my Printer, besides his being very careful, has a just Discernment, and very good Notions of Arts and Sciences, therefore I have no need to fear that my Work should be crowded with such unpardonable Blunders.

Jealousy is a Vice which reigns very much among our *Booksellers*; for if they find that some of their Brethren are in Possession of a Copy which suits the Taste of the Nation, or to use their own Terms, which sells well, they'll set up, if they can, some Rhapsody, under the same Title, in Hope, by imposing on the Publick, to divide the Booty; of which we have had lately an Instance in *Pamela*, for when some *Booksellers*, greedy of Gain, as they are all, perceived that *Pamela* had the Vogue, they set up a *Pamela* likewise, in Opposition to the true *Pamela*, and to the Detriment of its Author; so that for a considerable Time, and even now, the News-Papers are filled with nothing else but *Pamela*, *Anti-Pamela*, *Pamela* in a low Life, *Pamela* in a high Life, and I expect every Day *Pamela* in another Life; for really she cannot very well make any other Figure in this; without considering that those Sort of Subjects, sterile of themselves, when carried beyond a certain Period, must be very insipid, and become tedious. Had *Daniel De Foe* contented himself with the first Volume of his *Crusoe*, he had avoided the bitter Censure, which has been passed upon his Second. What provokes me most, is to see that Filth and Dirt, which Gentlemen of their Profession throw at each other, on those Occasions, which must be very offensive to the most sensible Part of the Nation; though I must say this in Commendation of the Author of the right *Pamela*, with whom I am not particularly acquainted, that he has behaved with a great deal of Prudence and Moderation; and really he could not have done otherwise, considering the general Character he bears of an inoffensive and very honest Man.

It has been a Practice, of late, among our *Booksellers*, to buy Libraries of Persons deceased, and sell them by Auction, and the better to allure the Publick, they advertise those Libraries under a *Latin* Title, *viz. Bibliotheca selectissima Clarissimi Viri*, such-a-one, and continue the rest of the Advertisement in *English*, as if those few *Latin* Words, could be a Recommendation to such a Library, or add something to its Value; for it cannot be reasonably supposed, that it is done with the Design to let the Publick know that some of our *Booksellers* are Masters, at least, of those few *Latin* Words, and no more, which some ill-natur'd Persons would, perhaps, maliciously suppose, under Pretence, that the whole Advertisement could be as well in *English*; unless that Scrap of *Latin* should be added to it, to render the whole ridiculous, and hinder Persons of Sense from reading it, instead of gaining their Attention. But if *Booksellers* imagine that there is some Merit in the *Latin* Tongue, why don't they exert themselves, and endeavour to render themselves Masters of it, or at least understand it; for in Fact it is more universal, and of a far greater Service than the oriental Languages, since we have very few Books written originally in those Languages, which have not been perfectly well translated into *Latin*. Which being not understood by *Booksellers*, renders them guilty of several gross Mistakes, very prejudicial to their Art. For if they meet, among the old Books they buy, with some of the best Editions of the antient Fathers, in that Tongue, as they cannot understand it, they sell them for Waste-Paper; and I have found Cheesemongers Shops flocked with those Sort of Books; which has made me often pity the unhappy Fate of *Tertullian*, *Origen*, *Justinus*, *Augustin*, and of several other of the Fathers, whose inestimable Works, after they have been so long the Admiration of the learned World in general, and of the Christian Church in particular, are become at last the Drudges of Cheesemongers, Grocers, *&c.* and consequently exposed to be subservient to some viler Purposes. The great Veneration I have for those first Defenders of the Christian Religion, against the Impieties of Paganism, and the Devastations and Rage of Heresy, has often made me take Compassion of them, and save them from Contempt. *Toland*'s Christianity, the religious and devout Reflections of *Woolston* on the Miracles of Christ; and the Doctrine of the late B—p of *B——r* on the Trinity, will take Place in a *Bookseller*'s Shop of those divine Writers. Why? because in our Antichristian Age, they are more in Vogue, and encourage Infidelity and Atheism. *Booksellers* themselves will tell you (and I am afraid, will tell Truth) that were they to lay out their Money in those Sort of Books, it would be entirely dead; since they are not asked for such Books, in an Age; that as Piety and Devotion is confined to Persons of a middling Rank, and of as middling a Capacity, who understand nothing else but their Common-Prayer Book, and even but very little of that, the Works of the Fathers would run the Risque of becoming old Shopkeepers; since the Clergy themselves, to whom such Books more properly belong, do not so much as ask if there is such a Thing in Being, as the Works of the Fathers; some of them contenting themselves with crowding their Libraries with Play-Books, and other Romances, for the Amusement of their Wives and Family; therefore we are not to be surprised if Religion is almost out of Date, since it meets with so little Encouragement from those, whose indispensible Duty it is to be the most strenuous Asserters of it. I myself know some Ecclesiasticks, who would rather spend a Guinea at a Tavern, than a Quarter of the Money in a *Bookseller*'s Shop; and who would rather take the Trouble to empty five or six Bottles of Wine, than to turn a Leaf of St. *Augustin de Civitate Dei*. They find more Entertainment in poring over a Bowl, than over the best Book which the Christian Church has ever produced. In former Ages our Clergy were famous for their Capacity, Erudition and Learning, and *Booksellers* were almost fully employed in publishing their Works. At present their Capacity may be the same, and I piously believe it is, but their Inclinations are different; however, I wish, with all my Heart, that for the Benefit of *Booksellers*, and for the Edification of the Christian World, they were changed.

None among us make the Traffick of valuable Books flourish but the Nobility and Gentry; and it seems as if Learning had run for Refuge to those two illustrious Orders of the Republick; and the Palaces of the Great had become a Sanctuary for it; scarce any Book of Consequence is published, but they will have a Copy of it, and none can be long in a *Bookseller*'s Shop, without seeing somebody coming from my Lord, or Sir, or 'Squire such-a-one, for such a Book, which is a very laudable Emulation, and worthy of Imitation.

When *Booksellers* design to publish any Translation, they should be very careful to chuse, for that Purpose, Persons who should very well understand the Beauty of the Language to be translated, and capable to enter into the Sense of the Author; for it is absolutely impossible that a Person who has but an indifferent Knowledge of the Language he is to translate, should make a faithful Translation; the Want of that takes off all the Beauty of the Work, and gives it a hideous Form, which a good Judge cannot bear. Neither are they to have the Work translated by several Hands, let them be ever so good; for the Difference of the Style, and of the Expressions, makes it appear as a patch'd Work, and discredits the whole. In *Rapin*'s History, for Example, publish'd by *Mechell*, the Beginning, translated by Mr. *Kelley*, is beautifully done, and really cannot be better, which exposes the great Inaccuracy of the Middle; therefore I compare it to a cobled Shoe, whose upper Leather is very good, the Heel-piece tolerable, and the Sole extremely bad. The same cannot be said of the Orations of *Cicero*, translated for *Waller*; for the Translator is not only perfect


Principles of Vegetation
Common Saintfoin
Trefoil
Betony
Bryony
Celandine
Chamaithios
Germander
Hounds-tongue
Evergreen Hounds-tongue
Colts foot
Winter Cherry
Figwort
Bears foot
Henbane
Pennyroyal
Mugwort
Lily of the Valley
Wild Madder
Althæa
House Leek
Savel-wort
Origan
Tobacco
Scabious
Solomons Seal
Speedwell
Saxifrage
Burnet Saxifrage
Paniele
Tormentil
Silver Grass
Sea
Plants

perfect Master of the *Latin* Tongue, but has also very well enter'd into the Sense of the inimitable Author, without losing the least of his Beauty. And the Author of one of our publick Papers has shewn his just Discernment, and great Sagacity, in the Judgment he has form'd of that excellent Translation. Party apart which I know to be a very dangerous Point, and which carries us often farther than we can very well go, for the Safety of our Limbs, I admire both Authors, and believe that a *Bookseller*, who consults his Reputation, as well as his Interest, can employ no better.

Mr. *Chambers* finds fault with our *Booksellers* having *Bibliopolium* written over their Doors; and well he may, since we cannot well approve any Thing that's needless, much less what's ridiculous: For, in Fact, what can be more ridiculous, than to have an Inscription which so few People understand, without an Interpreter; for if passing through St. *Paul*'s Churchyard, a Person who does not understand *Latin* was to ask me what signifies *Bibliopolium*, and I was to tell him a *Bookseller*'s Shop, he could very reasonably reply, that the *Bookseller* is a Blockhead for puzzling the Passengers with his *Bibliopolium*, since every Body could very well see at the Appearance, and without the *Bibliopolium*, that it was not a Shoemaker's, or any other Shop, as easily as he could make the Difference between a Man and a Wind-mill. It is not at all surprizing that Stall-men dignify their Stands with the same Title, since the Little have always had an itching Humour to mimick the Great; and that I see no other Difference between a Stall-man and a *Bookseller*, than what the *French* call *du plus au moins*, that a *Bookseller* has perhaps a greater, and more select Collection of Books than Stall-men, who have likewise this other Thing in common with *Booksellers*, that they affect that sullen Air, and Haughtiness, which seems inseparable from the Profession in *England*; nay, even the Venders of Pick and Chuse, in *Moorfields*, mimick it. They sit leaning in their Stalls, adorn'd on one Side with Books, and on the other with some Gingerbread, Nuts, and such other Commodities, with a certain careless, or *non chalant* Air, as if buried in the Depth of their Thought, of which they could give, as I suppose, but a very indifferent Account; and it is not without some Difficulty that their Customers can be favour'd with an Answer. This Distemper reaches no further than *England*; for throughout all the rest of *Europe Booksellers* are generally very polite and complaisant, and treat their Customers, of what Rank soever, with the best Manners, though most of them are in extraordinary good Circumstances, live very elegantly, and keep several Servants in Livery. *Petit*, *Coignard*, *Ourtemel*, *Doury*, and some others, at *Paris*, are Men of Fortune.

Anciently the Traffick of Books was not so very considerable, since *Booksellers* in *England*, *France*, *Spain*, and other Countries, had no Shops, but only Stands, or Stalls, in the Streets, where they expos'd their Wares to Sale, like the *Bibliopolists*, or *Bibliopoles* of *Moorfields*; who therefore can challenge our great *Dons* for Antiquity. During this State, the Civil Magistrate took little Notice of *Booksellers*, leaving the Government of them to the Universities, who accordingly gave them Laws and Regulations, fix'd Prices on their Books, examin'd their Correctness, and punish'd them at Discretion. But when, by the Invention of Printing, Books and *Booksellers* began to multiply, it became a Matter of more Consequence; and Sovereigns, as I have observ'd already, took the Direction of them into their own Hands, giving them new Statutes, appointed Officers to fix Prices, and grant Licenses, Privileges, *&c.*

Formerly the Offices of *Booksellers* and *Printers* were united in the same Person; but of late Days *Booksellers* have drawn their Business into a less Compass, and leaving the Labour of composing Books to one Set of Persons, and that of printing them to another, content themselves with the gainful Part, *i. e.* if the Gain is monstrous; otherwise, they are not contented. They take great Care to give little enough for a manuscript *Copy*, often so little, that nothing but pure Necessity could oblige the *Author* to take it, while they sell their Books at an extravagant Price. This is the general Complaint of *Authors*, which is a very just one. If *Booksellers* had the least Sentiment of Humanity, and the least Principle of Honour, they would consider that *Authors*, bearing the heavier Part of the Burthen, and it being impossible *Booksellers* should subsist without the Assistance of *Authors*, while, on the contrary, *Authors* could very well subsist as they do without the *Booksellers* Assistance, otherwise they should not subsist at all; they would treat them in a less *Turk*-like Manner, and scorn those scandalous Shufflings, which are a Scandal to their Profession, and oppressive to the *Authors*.

BOTANY.

BOTANY, from the *Greek* βοτανη, *Herb*, is a Science which treats of Plants, of their Vegetation, Origin, Parts, Nutrition, and Increase; of their different Kinds, Virtues, Uses, Analysis, and of their Maladies, and Death.

As I design to treat this Subject both as a *Botanist* and a Philosopher, and it would not be answering the End I have propos'd to my self to give an imperfect and slight Idea of Things without tracing them as far as their first Source and Origin, which is the common Practice of Authors, and even of those who treat of any particular Subject. I'll begin this Treatise, by its first Rudiments, which is shewing what's meant by the Soul of Plants, and a vegetative Life.

We have not a more uncertain and *vague* Notion of any Thing, than that of *Soul* and *Life*; since when mention is made of Soul, we most commonly understand it a spiritual Substance, *viz.* the human Soul; as when *Christ* says, Mat. x. 28. *Fear not them which kill the Body, but are not able to kill the Soul*; and also, sometimes, a corporeal one, as *Horace* expresses it, *Lib.* 4. *Ode* 12.

Jam veris Comites, quæ mare temperant,
Impellunt animæ lintea Thraciæ.

These *Thracian Souls* are the *Thracian Winds*, of a thin Matter. Therefore a thin, and active Matter, which can give Motion to another, if contain'd, especially in an organical Body, *i. e.* endu'd with organical Instruments, is commonly dignify'd with the Name of Soul. Hence, the animal Spirits, or the most subtle Particles of the Blood, in Brutes; and the *vegetative Substance*, or Spirits impatient of Rest in Plants, are very justly call'd the Souls of *Brutes*, and of *Plants*.

Therefore the ambiguous Name of Soul could be better divided, than defin'd; nor can it be surprizing, if *Soul* be more obscurely defin'd by *Aristotle*, *Lib. de Anima*, *cap.* 1. *Actus primus corporis Physici organici, potestate vitam habentis*; The first Act of a physical and organical Body, which has Life potentially, *i. e.* the first Perfection, which, in Man, is the Understanding; and some active and vital Principle, *viz.* the most subtle Substance, in the rest of the living Bodies, endu'd with a various Apparatus of Organs, which

which can exert the vital Functions, and exerts them, in Fact, as soon as they are inform'd with a Soul.

Moreover, it does not appear what we are to understand by vital Functions, and we ought to be as cautious to avoid Ambiguity, in the Notion we are to form to our selves of *Life*, as of *Soul*; since the Life of spiritual Substances seems to consist in the sole *Cogitation*; and God, Angels, and human Understanding, are said to live no otherwise than by *Cogitation*: But what have the Lives of *Plants*, and of *Brutes*, common with *Cogitation*, or Thinking? Therefore several complain that this Definition of *Aristotle* is not only very obscure, but does not so much as explain to us the Nature of any certain and determinate Thing; since it regards both corporeal and spiritual Substances.

Every Body is conscious of this Definition of *Aristotle*'s being imperfect, since it is not evident enough that the *Plants* have within them an active Principle of their Motion, or the principal Causes of their Motions, no more than the Flame, which is mov'd within it self, as much as the Plant; since, like the Plant, it wants Aliment, and, like the Plant, increases, when it takes that Aliment; as well as a Coal, which we call alive, when lighted; and a living Fountain, whence Water flows continually; but those Appellations are metaphorical, and we want proper ones.

But, however, this is but the Idea which *Aristotle* gives us of the Soul in general; for when he comes to the *vegetative Soul*, which is our present Subject, he defines it, *Lib.* 2. *de Anim. c.* 4. *Causa cur res augeantur, & aluntur*; a Cause whereby Things are increas'd and nourish'd: Which Cause is nothing else but a certain spirituous and mobile Substance, whereby a Body is inwardly agitated, and the nutritive Juice distributed throughout all the Parts, by means of certain small Pipes, and Ducts, form'd by Nature. In the Schools, the vegetative Soul is commonly defin'd, *Actus primus corporis Physici organici, potestate, vitam vegetantem habentis*; the first Act of a physical and organical Body, which has potentially a vegetative Life.

Those Things have a *vegetative Life*, which are nourish'd, increase, and generate; for by Vegetation this triple Function is understood, *viz.* Nutrition, Increase, and Generation: Therefore a triple Faculty is commonly attributed to the vegetative Soul, *viz.* nourishing, increasing, and generating; we'll begin by the generating Faculty.

We learn from Scripture, *Gen.* i. 11. that the Earth has been endu'd from the Beginning with a certain seminal Virtue to produce *Plants* and *Roots*, which Virtue proceeding from God himself, was not confin'd to the first Production of Things, but extends, likewise, to all future Consequences of Times; for the *divine Word* does not fall like the human Voice, but is eternal, and always subsisting, as we'll shew in our Treatise of Metaphysicks; and the Faculty which the Earth has of producing Herbs, and all Sorts of Plants, from this Commandment, or omnipotent Word of God, *Germinet terra herbam virentem, & facientem semen, & lignum Pomiferum faciens fructum, juxta genus suum, cujus semen in semetipso sit super terram*; Let the Earth bring forth Grass, the Herb yielding Seed, and the Fruit-tree yielding Fruit after his Kind, whose Seed is in it self upon the Earth.

Philosophers ask what can be that Virtue the Earth is said to be endu'd with? If it be only an inherent Quality, whereby it produces naturally all Sorts of *Plants*, and Herbs, without the Concurrence of Seed; or if a seminal Virtue, or Seed must be administer'd to it? Commonly the Schools follow the first Opinion, for this Reason, that Earth dug up very deep, and put into Pots, after a set Time, or Season, produces several Sorts of Herbs of it self, and without Seed. But though this Opinion be approv'd by the Generality, it has not, however, the least Appearance of Probability on its Side; for who, considering with Attention the Progress of Nature, sees the marvellous Mechanism of the Organs of *Plants*, their Fibres, Paranchyma's, Radicles, and the whole Texture of their internal, as well as external Parts, could be persuaded to attribute it to a heavy and indigested Mass of Clay, or Earth? Unless he be pleas'd to attribute it to a Miracle, which would be needless, in this Place.

Therefore it is a great deal better to say that *Plants* have their Origin from Seeds, which being taken from the first Plants, have propagated their Species, by the Creator's Will, as far as our Times, and will continue to do so, to the End of the World: Which Opinion is supported by the above quoted Words of the Scripture, *Germinet Terra herbam virentem, & facientem semen.* Since the Sun, Rain, the Exhalations of the Earth, and the rest of the exterior Causes, are capable to excite a certain Motion, or Fermentation, in the Bosom of the Earth; but unless there be a Seed which contains already the Conformation of the Plant, whose Parts are unfolded by that Fermentation, never such Fermentation or Motion can give Origin to the Plant; therefore *fecit Dominus Deus Cœlum & Terram; & omne virgultum agri, antequam oriretur in terra, omnemque herbam regionis, priusquam germinaret*; The Lord God made the Earth, and the Heavens, and every Plant of the Field, before it was in the Earth, and every Herb of the Field before it grew, *Gen.* ii. 4, 5. which makes me conclude, that all Plants have their Origin from the Seed, and which I prove thus:

All Plants have their Origin from what contains them, actually, or potentially; which must be the Seed, since the first Rudiments of a Plant can be discovered no where else, nor by the naked Eye, nor even by the Help of a Microscope; so that the Seed contains not only the coarser Matter of the Plant, with its organical Parts, which have the Ratio of a Body, but a certain Spirit likewise, *i. e.* an active, mobile, and vegetative Substance, called Soul; which although, in some Manner asleep, in the Grain, or Seed, is nevertheless excited to Motion, by the Heat of the Sun, the Warmth of the Earth, and with the Rain impregnated with Particles of volatile Salts, whereby it unfolds its Parts, and pushes the *Plant* forward. *Ecce enim*, says St. *Augustin*, *Lib.* 3. *de Trinit. c.* 8. *brevissimus Surculus Semen est; nam convenienter mandatus Terræ Arborem facit, hujus autem Surculi subtilius Semen, aliquod ejusdem generis granum est, & hucusque nobis visibile. Jam vero hujus etiam grani Semen, quamvis oculis videre nequeamus, ratione tamen conjicere possumus: quia nisi talis aliqua vis esset in istis Elementis, non plerumque nascerentur ex Terræ quæ ibi seminata non essent.* A short Cion, or Sprig, says he, is a Seed; for it being set at a proper Time, produces a Tree; the smallest Seed of that Cion is a Grain of the same Kind, and hitherto visible to us; and though we cannot discover with the Eye the Seed of that Grain, we nevertheless can form Conjectures of it; for if there was not some Virtue in those Principles, several Things, which are not sow'd, would never grow.

This is confirm'd by *Malpighi*'s Experiment, who having shut up in a glass Vessel some Earth dug up from a very deep Place, and cover'd it with several Cloths, that it might receive the Air and Rain, but not those light Seeds toss'd in the Air; that Earth never produc'd any Grass, or Herbs. Therefore Plants cannot have their Origin from the Earth alone, without the Concurrence of Seed.

If it be objected, that *Plants* grow where no Body has ever throw'd any Seed; I'll answer, that though no Body has ever throw'd any Seed in those Places, nevertheless Seeds might have been carried thither by Nature; *v. gr.* the Glew which grows upon Oak-trees, has a glutinous Seed, which sticks not only to the Bills of Birds, but likewise to their Feet, and in that Manner is carried to other Trees; and being conglutinated to young Branches, rises, at last, into a new Tree. Perhaps the Seed of the Glew is shut up in the Seed of the Oak, and others in other Seeds, where

where they remain hidden, till by the Concurrence of the neceſſary Diſpoſitions they break forth outward.

Beſides, *Seeds* are alſo carried by Winds and Exhalations, not under the ſenſible Form they are commonly ſeen, but a great deal ſmaller, and through their Exiguity or Smallneſs, rendered inſenſible. For as when the Vines or Trees are in Bloſſom, their Perfume is diſperſed afar off, no doubt, but there are likewiſe ſome ſeminal Particles which break forth from *Plants*, or Flowers, and being received into certain Matrices, gives Origin to *Plants* of the ſame Kind.

Laſtly, All Sorts of *Plants* do not grow in thoſe Places, where there has been no Seed ſowed; for Example, there grows in thoſe Places no Wheat, Flax, Hemp, nor great Trees, as Oaks, Elms, Beach, *&c.* but only certain Herbs, whoſe Seeds were aſleep in the Earth, and have been excited, by the Heat of the Sun, or ſome other Cauſes.

We have all the Reaſon imaginable to believe, that by the Fecundity of the Sun, and the Culture of the Earth, Seeds are changed into a better Kind, as the Poet expreſſes it, *Georgic. Lib.* I. in the following Verſes:

Semina vidi equidem, multos medicare Serentes
Et nitro prius, & nigra perfundere Amurca:
Grandior ut Fœtus ſiliquis fallacibus eſſet.

They likewiſe can degenerate, or through the Sterility of the Soil, or the Negligence of the Huſbandman, as the ſame Poet is pleaſed to inform us in the ſame Place.

Vidi lecta diu, & multo ſpectata Labore,
Degenerare tamen, ni Vis humana quotannis
Maxima quæque Manu legeret.

And *Eclog.* 5.

Grandia ſæpe quibus mandavimus hordea Sulcis,
Infelix Lolium, & ſteriles dominantur Avenæ.

It might be objected likewiſe, that ſome *Plants* grow, or from a Sprig or Layer ſet into the Earth, or from a Root or Cion grafted into another *Plant*; and that therefore all *Plants* do not grow from Seed.

The Anſwer to this Objection is, that though *Plants* grow from a Layer, a Root, or a Cion, that Layer, Root, or Cion had their firſt Origin from Seed; and therefore 'tis certain, that from the Creation of the World *Plants* have been propagated, to this Time, by a ſeminal Virtue.

If I be aſked the Definition of this ſeminal or generative Faculty, whereby *Plants* are underſtood to be produced by other *Plants*; I'll anſwer, that this Faculty is defined, a Power of the Vegetative Soul, by which it lives, and produces its Likeneſs for the Preſervation of the Species; but, in my Opinion, that Faculty is not diſcernable, from the Seed itſelf, nor from the Spirit contained therein; for as the Seed is ſaid, in the Schools, to be a Part of ſome Subſtance deſigned for the Production of another Subſtance of the ſame Species, it is not abſolutely neceſſary to diſtinguiſh that prolifick Virtue, nor from the Seed itſelf, nor from the Spirit contained in it. For after the Seed is ſewed and ſoftened by the Warmth and Humidity of the Earth; its *Germ*, wherein the *Plant* is contained, as in an Epitome, is unfolded by a gentle Fermentation, and riſes into a *Plant*.

This *Germ*, according to Dr. *Grew*'s *Anatom. Plant. c.* 1. has two Parts, *viz.* the *Radicle*, which is the Embrio, or Beginning of the Root, and the Plumule, becauſe in the Shape of a ſmall Bundle of Feathers; which in the Vegetation forms the Stalk or Trunk, and the Branches of the *Plant*.

There are beſides in the Body of each Seed two Lobes or Parts, which the Bud is wrapp'd in, and whence it draws its Nutrition, like a Chicken from the Yolk of an Egg, or an Embrio from the *Placenta*.

From the ſofteſt and more ſpongious Part of the Seed, which Dr. *Grew* calls *Parenchyma*, are formed the Marrow and Skin, and from the moſt ſolid and compact Part, the ligneous Body.

Having thus examined the Seed, we'll ſow it and examine the Proceſs of Nature in the Vegetation.

Since vegetable Bodies want Food for their Nutrition, they muſt of Neceſſity have organical Veſſels, or Ducts, to elaborate and perfect that Food, and to percolate it through the whole Subſtance; therefore we muſt endeavour to diſcover the Nature, Texture, and Symetry of thoſe Parts; their Uſes, and reſpective Functions.

To proceed with ſome Order in this curious Diſcovery, we'll begin by giving firſt the Definition of *Vegetation*, which is a Fermentation excited in the Earth, by its Warmth and Humidity, and the Heat of the Sun of different ſaline Particles, proper to unfold the different Parts of the *Plant*, contained in the Seed, as in an Embryo; and by their Rarefaction and Exaltation, form the Juices, which ſerve for the Nutrition and Growth of the *Plant*.

That the Heat of the Sun, and the temperate Warmth and Humidity of the Earth, are the firſt Principles of Vegetation, appears from the Sterility or Fertility of the Soil in thoſe Climates, where thoſe two principal Agents act, or do not act in Concert; ſince in the moſt Northern Countries, where the Humidity of the Soil is exceſſive, and its natural Warmth too much concenter'd, the Fermentation of the *Seed* being made with too much Precipitation, and without that Gradation neceſſary for the eaſy and moſt perfect Exploſion of the different Parts of the *Plant* thereby, they are fruſtrated of that Strength they ſhould have, before they come out of the *Matrix* it has been formed in, to reſiſt the Injuries of the Air; and the Inconſtancy of the Seaſons, it periſhes almoſt as ſoon as it appears on the Surface of the Earth; for though the Earth has in ſome Meaſure, though very imperfectly acted its Part, as it cannot alone, and without the Aſſiſtance of the Sun, carry the *Plant* to its laſt Perfection; that tender Parent of Nature, by the Obliquity of its Situation, being reduced to the Incapacity of darting its Rays as favourably and abundantly in thoſe Climates, as he does in others happier ſituated, cannot either help the Mother Earth in her Pregnancy, nor rectify what ſhe has left imperfect in her Productions, which therefore die almoſt as ſoon as Nature itſelf is appriſed of their Exiſtence.

Likewiſe in thoſe other Climates, ſituated quite oppoſite to theſe, where the Sun by being too profuſe of his Influences, penetrate the inmoſt Parts of the Womb of the Earth, and by its too violent and too often repeated Acts, and exalting its Salts, and evaporating its radical Humidity, cauſes an exceſſive Dilatation of its Pores, a Diſunion, and but too often an entire Laceration of its generative Parts, ſo as to render them quite imbecile, barren, or ſterile, and therefore uncapable to contribute to that Fermentation abſolutely neceſſary for the Production of *Plants*; or if the Earth retains yet ſome Principle of Fecundity, it is ſo very weak, appear rather like Abortions than perfect Fœtus's, and as ſuch, wither, and come to nothing.

On the contrary, in thoſe happy Climates, where the Earth is placed at ſo juſt a Diſtance from the Sun, as to be under his moſt favourable Aſpect, and expoſed to none but his moſt benign Influences, it almoſt always continues in its natural flouriſhing State of Health; ſeldom viſited by the moſt powerful and penetrating Beams of the Sun, but at thoſe regular and periodical Times, appointed by Nature for its Pregnancy, when they are neceſſary, or for to excite her Fecundity, or to help her in her Labour, or to nouriſh and cheriſh her Productions when once brought forth. If by the Rage and Fury of the *Aquilons*, the Inclemency of the Air, or the Inconſtancy of

of the Seasons, the *Plants* while yet young, and consequently more exposed to Dangers, suffer some notable Changes or Alterations; the Sun, like a careful and diligent Physician, runs to their Assistance, administers the necessary Remedies, and restores them, if possible, to their pristine State of Health; he is as careful of the Mother Earth, and as assiduous in assisting her in the different Infirmities she is subject to, applying always the most proper Remedy, which is a graduate Heat, appropriated to the different Symptoms.

We'll suppose, here, our Seed to have been sowed in this last Soil, under that favourable Aspect of the Sun, and favoured with those his most benign Influences. Therefore let's bury ourselves, for a short Time, in that Soil, and examine with Attention the Progress of the Seed in its *Matrix*, and the different Changes it undergoes in the Formation of the *Fœtus*.

The first Thing which presents itself to my Imagination, is the Sun, and Earth, concerting together, the one by his Heat, and the other by her Moisture, how to rid the Embryo of that hard tough Envelope 'tis wrapp'd in, and which is the greatest Obstacle, to the Explosion of its Parts; therefore the Earth, which is the first Agent in this Case, and which is to do the Office of *Incubation*, makes Use, first, of its natural Moisture, to soften the outer Rind or Husk, by having it percolated through the Pores or Pipes of the said Husk, whereby they are so opened and dilated, as to facilitate the Introduction of the different Salts appointed to operate on the whole Substance of the Seed, by unfolding the different Parts it contains, and disposing them severally towards assuming their respective Forms.

It cannot be imagined that the Earth acts alone in this first Operation; that it could direct itself to Action without the Concurrence of the Sun; which on this Occasion excites, by a gentle Warmth, the different Salts, the Moisture of the Earth is impregnated with, that they may be capable to conquer the Stubbornness of the Husk, by forcing themselves, first into its almost imperceptible Pores, conquering all the Obstacles, and raising all the Obstructions, which the several Substances, to be sent from the Womb, for the Nutrition and Increase of the Fœtus, could meet with, to obstruct their Motions.

By this Means a free Passage being opened, for such a Quantity of the Moisture of the *Matrix*, as is necessary to make a due Separation of the Husk from the most essential Part of the Seed, the Salts, employed in that Operation, being volatilized, or already fixed on that essential Part, leave the Husk filled with nothing else but the *Lympha*, which groweth *turgid*, and being deprived of the Nourishment it received, when united to the Substance of the Seed, begins to tend towards its Dissolution.

Most *Botanists* pretend, that this whole Operation is effected the first Day the Seed is put into the Earth, which must be an Absurdity on their Side, since it is impossible to determine, precisely, the Time Nature takes in her several Operations on the Seed; since its Preparation in the Earth is sooner or later accomplished, as the several Agents which are to concur to it, are more or less disposed. 'Tis my Opinion that the Production of the *Plant* can be accelerated or retarded, by Accidents proceeding from the Inconstancy of the Seasons, or the Quality of the Soil; since there are Soils more fertile than others, and again, there are Soils, which are not fit for the *Vegetation* of all Sort of Seeds, indifferently; we know by a continual Experience, that the best Seeds, and the most proper for Vegetation, when sowed into some Soils, either remains buried in the Womb of the Earth, without being sensible of Incubation, or if they are, never come to Perfection. There are some Sort of Soils likewise, which though fertile of themselves, are very tedious in their Productions, and bring forth a great deal later than others; some cannot operate without the Concurrence of the Salts, Rain-Water is impregnated with, and others can. This is interrupted in the Middle of its Operation, either by the Absence of its Associate the Sun, or by an unexpected Frost, or tedious Rains, *&c.* and that, by bleak Winds, or a too scorching Heat, whereby 'tis robb'd of Part of its Moisture. Therefore how can any Body fix a Term for the different Operations of the Earth, so far as to have the Temerity to say, this is the Work of the first Day, that of the second, *&c.* while we must be convinced of the Uncertainty of those Operations. My self have seen Seed, which had been six or seven Days in the Earth, without having undergone the least Change, or Alteration; and some of the same Seed, sow'd in another Place, at the same Time, grown turgid, in the Space of 24 Hours.

The thicker, is the Husk, and the closer the Parts 'tis compos'd of, are coadunated together, the longer Time it takes to be impregnated with the Vapours and Exhalations of the Earth, and the longer it adheres to the *Pulp*, or *Flesh* of the Seed This Coadunation of its Parts retards, likewise, its Laceration, which is of an indispensible Necessity, for the entire Explosion of the first Rudiments of the Plants contain'd in the *Germ*; which Laceration does not happen till the Continuity, which subsisted between the Pipes, or Pores of the Husk, by their being extended, or dilated out of Measure, by the Lympha they are fill'd with, is broken; which *Malpighi* supposes to happen in a Grain of Wheat the first Day 'tis sown, at which Time the *Pulp*, or *Flesh*, swells, and not only the Gem, or Sprout (which is to be the future Stem) opens, and waxes green; but the Roots begin to bunch out, whence the *Placenta*, or Seed-leaf, becoming loose, gapes. Though, in my Opinion, the *Pulp*, or *Flesh* of the Seed, swells, before the Laceration of the Husk; and by its Swelling accelerates that Laceration. For it cannot be suppos'd that the Salts which have penetrated through the Pores of the Husk, to the Pulp of the Seed, and which are design'd for the Separation of the different Parts of the *Plant* contain'd therein, lies idle, till that Laceration has happen'd; else the Pulp would be expos'd to the same Accidents the Husk is expos'd to; and being of a tenderer Substance, would sooner be destroy'd, or annihilated, than the Husk. On the contrary, the Husk, or Rind, never break, than when all the Parts of the *Plant* are unfolded, and the organical Vessels so well form'd and dispos'd, as to be capable to assist each other in their mutual Growth; which is evident, being often brought out of the Earth adhering yet to the *Gem*; as we see a young Chicken newly hatch'd running with the Shell of the Egg sticking yet on his Back.

The Formation of the *Plant* being so far conducted by *Vegetation*, and its Organs dispos'd for their respective Functions, the Sun, by his Heat, impregnates the nutritive Juices, supplied by the Earth, for the Nutrition and Increase of the *Plant*, with a Principle of Life, more perfect still than that it had receiv'd in the Incubation, by exalting and volatilizing their different Salts, whereby they are render'd capable of circulating through all the Parts of the *Plant*, and rid themselves of the terrestrial *Feces*, which could obstruct that Circulation. By the Analogy which subsists between that Principle of Life, and the daily Influence of the Sun, temperated with the radical Humidity of the Juices, the superior Parts are insensibly, and by Degrees carried upwards; while the inferior ones, different from those of the animal Body, adhering still stronger to the Matrix, than when the whole Plant was confin'd in it, supply it with the maternal Aliment, wherewith being fed themselves, after it has been elaborated and perfected by the Circulation, they acquire, like the other Parts, new Strength, till, like the rest, they are arriv'd at their full Growth.

The *Plant* increasing in Bigness, and its Bud, or Stem, becoming taller, from whitish turns greenish; the lateral Roots, also, break forth greenish, and pyramidal, from the gaping Sheath, which adheres closely to the Plant, and the lower Root grows longer, and

and hairy, with many Fibres ſhooting out of the ſame, though there are Hairs hanging all along on all the Roots, except on their Tips, and theſe Fibres are ſeen to wind about the ſaline Particles of the Soil, little Lumps of Earth, *&c.* like Ivy; whence they grow curl'd: About the lateral Root there now breaks out two other little ones, and this *Malpighi* ſays is the Operation of the third Day.

On the fourth, continues he, the Stem mounting upwards, makes a right Angle with the ſeminal Leaf; the laſt Root puts forth more, and the other growing larger, are cloathed with more Hairs, which ſtreightly embrace the Lumps of Earth; and where they meet with any Vacuity, unite into a kind of Net-work. The Conglobate, or Flower-Leaf, is now ſofter; and when bruis'd yields a white ſweetiſh Juice, like Barley Cream. By ſtripping it off, the Root and Stem of the Plant are plainly ſeen, with the intermediate Knot, whoſe outer Part is ſolid, like a Bark, and the inner more ſoft, and medullary.

The fifth Day, in the Opinion of our Author, the Stalk ſtill riſing, puts forth a permanent, or ſtable Leaf, which is green and folded; the Roots grow longer, and there appears a new Tumour of a future Root; the outer, or Sheath-Leaf, is looſen'd, and the Seed-Leaf begins to fade.

The ſixth Day the ſtable Leaf being looſen'd, the Plant mounts upwards, the Sheath-Leaf ſtill cleaving about it, like a Bark. The Seed-Leaf is now ſeen ſinuous, or wrinkled, and faded; and this being cut, or freed from the Secundine, or Huſk, the Fleſh, or *Pericarpium*, is found of a different Texture, the outer Part, whereby the outer Part of the Seed, or Grain, is heav'd up, being more ſolid; but the Inſide veſicular, and fill'd with Humour, eſpecially that Part near the Navel-knot. All the Leaves being pull'd off, the Roots torn, and the Flower-Leaf remov'd, the Trunk appears; wherein, not far from the Roots, the Navel-knot bunches out, which is ſolid, and hard to cut: Above there is the Mark of the Sheath-Leaf, which was pull'd off; and underneath, as in an Arm-pit, where the Gem is often hid. The Hind-part of the Plant ſhews the breaking forth of the Roots, likewiſe the faded *Placenta*, *&c.*

After the eleventh Day, the Seed-Leaf, as yet ſticking to the Plant, is crumpled, and almoſt corrupted; within it is hollow, and about the Secundine, the mucous, and white Subſtance of the Seed, being continu'd to the Navel-knot, forms a Cavity. All the Roots becoming longer, put forth new Branches out of their Sides; the Seed-Leaf withers, and its Veſicles are emptied, the Internodes, or Spaces between the Knots, grow longer, new Gems appear, and the middle Root grows ſeveral Inches long. After a Month, the Roots and Stalk being grown much longer, new Buds break out at the firſt Knot, and little Tumours bunch out, which at length break into Roots.

Thus the *Plant* is hurried in this ſhort Space of Time, by *Malpighi*, through theſe various Changes and Mutations, which though real, and as ſenſible as he is pleas'd to repreſent them, are not accompliſhed with ſuch Celerity in all Sorts of *Plants*, nor even in a Grain of Wheat, which he takes for Example, for the Reaſons above mention'd; though in ſome Sorts of Plants all thoſe Variations happen in a ſhorter Time.

The *Plant* carried thus far, wants Food for the Preſervation of its vegetable Life, which being depriv'd of, it cannot ſubſiſt; of which the Naturaliſts are ſo ſenſible, that their common Opinion is, that Water is the great vegetable Food, which they endeavour to confirm, by often-repeated Experiments, eſpecially by that made on a Sprig of Balm, Mint, or the like Plant; which being ſet in a Phial of pure Water, without any Mixture of Earth, grow, and put forth Roots, Leaves, and Branches; without conſidering that thoſe ſort of Plants being of a ſhort Duration, the Juices, which they have receiv'd from their Mother Earth, in their firſt Formation, circulating through their Veſſels, being continually recruited by the Salts, the Water they are ſet in is impregnated with, together with thoſe they receive continually from the ambient Atmoſphere, are more than ſufficient for the Support of their ſhort Life in the Water, which ſubſiſt no longer than that Water continues to ſupply them with Salts, of which, when once exhauſted, it grows viſcous, obſtructs the Pores of the Veſſels, and hinders thereby the Admiſſion of Salts, even from the Atmoſphere, imbecillitate, by Degrees, the Functions of the vegetative Soul; which being forc'd, for ſome Time, to feed on its own Subſtance, becomes, at laſt, enervated and impotent, whereby the Plant withers and dies for want of Food, unleſs the Water is changed before it comes to the laſt Period; which appears at its growing offenſive to the Smell; even that Precaution becomes uſeleſs, at leaſt for the greateſt Part, thoſe Salts the Water is impregnated with being heterogeneous to thoſe which enter into the Compoſition of the Juices which circulate through the Veſſels of the Plant, have ſoon, by diſordering the whole Frame of that Mechaniſm, procur'd the Extinction of the *Plant*. The great Quantity of the oleaginous Particles thoſe Sorts of Plants are compos'd of, which keep their Pores extreamly dilated, for the Admiſſion of Salts, and other nutritive Particles, contribute much towards the Production of this *Phænomenon*. But in Plants of a cloſer Texture, whoſe Pores are ſo exiguous, as not to be forc'd but by the Impetuoſity of Salts, exalted, and volatiliz'd beſt by the Warmth of the Earth, and the Heat of the Sun, this Experiment is of no Effect. Therefore Water cannot be conſider'd as the great vegetable Food.

However, Dr. *Woodward* endeavours to aſcertain this Point, by the ſame Experiments made with Sprigs of Mint, and other like Plants, nicely weigh'd, and inclos'd in equal glaſs Phials, well cover'd up with Parchment, leaving only Room for the Stem to aſcend through it, and fill'd with Water, ſome with Spring Water, others with Rain Water, and others with *Thames* Water. At the End of 77 Days, he took them all out again, weigh'd them, as alſo the Water left, and computed the Weight of the Water expended on them, and the Proportion of the Increaſe of the Plant, to the Expence of the Water. The next Year he made freſh Experiments, with the ſame Phials, and the ſame Sort of Plants, weigh'd as before, only ſome were fill'd with *Hyde-Park* Conduit Water alone, others with the ſame Water, and a certain Quantity of Garden Earth diſſolv'd in it, and others with the ſame Water diſtill'd: At the End of 56 Days, he weigh'd the Plants, Water, *&c.* and computed what each Plant had gain'd, what Quantity of Water was expended on the Plant, and the Proportion of the Increaſe of the Plant to the Decreaſe of the Water. The Obſervations and Reflections of Dr. *Woodward* in theſe Experiments, do not appear to me very ſatisfactory; but, however, I'll give them, as I have them from himſelf.

The Doctor is not pleas'd to inform us firſt of the different Changes or Alterations that happen'd in his different Phials; but he begins by obſerving, that the leſs Plants of the ſame Kind are in Bulk, the ſmaller Quantity of the fluid Maſs, in which they are ſet, is drawn off; which ſeems plauſible enough of it ſelf, without being ſupported with the Authority of ſo great a Man; ſince it cannot be ſuppos'd that the ſame Quantity of vegetable Matter will equally ſupply the Wants of two vegetable Bodies of a different Size; ſince the organical Veſſels of that of a greater Bulk muſt be more numerous, (the Number of thoſe Veſſels is not determin'd in the vegetable, as they are in the animal Body) or larger, or longer, and make a great many more Circumvolutions, than in that of a ſmaller Bulk. If they be in a greater Number, a greater Quantity of Juice is wanted, that each of them might have its due Portion thereof, in order to have it diſtributed to the ſeveral Parts of the vegetable Body they are aſſign'd to for its Nutrition and Increaſe; and if they are bigger, or longer, they muſt be ſuppos'd

to contain more Matter, and consequently to want a greater Supply of Food, that they might not feed on the first Principle of Vegetation, and thereby disorder the whole Mechanism; without mentioning that by their greater Number, Bulk, and Length, is made a greater Dissipation in the Circulation of the Juices, of the most volatile Particles of the Salts they are impregnated with, occasion'd, or by the long Interval of their periodical Rotation, or by the great Number of their Pores; which is confirm'd by Dr. *Woodward* himself, in his second Reflection upon his Experiments: For he says, that the greater Part of the fluid Mass drawn off by the *Plants*, and convey'd into it, does not settle, or abide there, but passes through their Pores, and exhales up into the Atmosphere. That the Water, in these Experiments, ascended only through the Vessels of the *Plants*, is certain; since some Glasses which had no Plants in them, though dispos'd in like manner as the rest, remain'd, at the End of the Experiment, as at first, without any Diminution of Water; and that the greatest Part flies off from the *Plant* into the Atmosphere, is as certain.

These *Phænomena* are also evident enough of themselves, without being oblig'd to have Recourse to long and tedious Experiments for it; for if it be true that the *Plants* receive their Nutrition and Increase from the Water, there must be a Dissipation made of the different Particles the Water is compos'd of, and that Dissipation must lessen its Quantity more or less, as the Dissipation is greater or lesser. But I cannot be of Dr. *Woodward*'s Opinion, that the fluid Mass ascends up the Vessels of the *Plants*, in much the same Manner as up a Filtre; for I would rather believe, that the saline Particles of the Water, having a natural Analogy with those Juices the *Plants* are impregnated with, and being thrown into a Fermentation by the Corpuscles emitted through the Pores of the Plants, are hook'd in by the said Corpuscles, and carried along with them through the same Pores they had exhal'd from, for to recruit the vegetable Juices; which continual Emission and Intromission, constitute the Atmosphere the Plants is wrapp'd in, and which subsists no longer than the Water can supply the Plants with those saline Particles, of which, when entirely divested, the Atmosphere falls of it self by Degrees, and the vegetable Juices being thereby depriv'd of their necessary Supply, exhaust themselves; and the *Plant* being depriv'd of Food, must die at last. That Part of the fluid Mass left in the Bottles, is nothing else but the most phlegmatick Particles of the whole Mass. 'Tis no Wonder if there happen no sensible Diminution of the Water in the Phials, where there is no *Plant*, since there is, then, no other Dissipation of the Particles, 'tis compos'd of, but the very small, and insensible one, occasion'd by the natural Fermentation of the whole.

Dr. *Woodward* found, that the least Proportion of the Water expended, was to the Augment of the *Plant*, as 46 or 50 to 1; and in some 100, 200, nay, in one, as 700 to 1. But he is not pleas'd to tell us in which of his Phials the greatest Diminution happen'd, which is a very essential Circumstance of the whole Experiment, (or else Mr. *Chambers*, who entertains us with it, has ignorantly omitted it, as he does in a vast Number of other Cases) for we may reasonably suppose that the Doctor made choice of different Sorts of Water with no other Design, than to discover thereby some Difference in their Diminution, or which, of the *Thames*, *Hyde-Park* Conduit, or distill'd Water, could afford more or less Food to the Plants. Therefore I'll take the Liberty to answer this *Quære*, by a Supposition that the Water which was the most impregnated with saline Particles, analogous to those of the Juices of the *Plant*, suffer'd a greater Diminution, and by supplying the *Plant* with a greater Quantity of wholsome Food, kept it longer in a flourishing State of Health, which I suppose to have been the Qualities of the Water of *Hyde-Park* Conduit, exclusively of the two others; since the *Thames* Water being impregnated with a vast Quantity of acrimonious Salts by the ebbing of the Sea, those Salts must lacerate the inner Coat of the organick Vessels, and render the *Plants* cacochimous, and of a short Duration, and shorter still, in the stilled Water, which, being divested of its saline Particles by Distillations, cannot supply the *Plants* but with lymphatick ones, to temperate the too great Rapidity of the vegetable Juices, and which cannot be supposed the necessary Food. Therefore the Diminution must be lesser of the still'd Water, than of the *Thames* Water, and lesser of the *Thames* Water, than of the Water of *Hyde-Park* Conduit.

The same Author says, that Part of the Humidity, which he supposes to ascend up the Vessels of the *Plant*, passes through their Pores, and exhales up into our Atmosphere, and carries with it many Parts of the same Nature, with those whereof the *Plant*, through which it passes, consists; that the grosser indeed are not so easily born up into the Atmosphere, but are usually deposited on the Surface of Leaves, Flowers, and other Parts of the *Plant*; whence our Manna's, our Honeys, and other gummous Exudations of Vegetables; but that the finer and lighter Parts are with greater Ease sent up into the Atmosphere, thence they are conveyed to our Organs of Smell; by the Air we draw in Respiration, and are pleasant or offensive, beneficent, or injurious to us, according to the Nature of the *Plant* from which they arise. And since, concludes he, these owe their Rise to the Water that ascends out of the Earth, through the Bodies of *Plants*; we cannot be far to seek for the Cause why they are more numerous in the Air, and a greater Quantity is found exhaling from Vegetables in warm humid Seasons, than in any others.

I reject this whole Reasoning as entirely contrary to the true Principles of natural Philosophy, for the following Reasons. 1. There is not the least Reason to suppose, that the Humidity, exclusively of all the other Substances the Earth is composed of, ascends up the Vessels of the *Plant* for its Nutrition, since the fluid Mass has no other Power to direct itself to Motion, but what it borrows from the saline Particles it is impregnated with, of which once entirely divested, by Evaporation, it remains an unactive, heavy, and dead Mass; 'till by a new Fermentation in the Earth, or otherwise it be impregnated a-new. 2. That it is not likely Nature should make use of so heavy a Vehicle for to supply the Vegetable Body with Food, while the Earth can furnish her with so many others, and so proper for the Purpose; as are the oleaginous, sulphurous Substances 'tis composed of, and which are so proper for Exaltation, and which once put into a Ferment, by its natural Warmth, assisted therein by the Heat of the Sun, can penetrate the most compact Pores of the *Plants*, and unite themselves to the nutritive Juices, between which and them there is so perfect an Analogy. 3. That it is very likely that those Particles and Salts, in their Sublimation, can carry along with them a sufficient Quantity of the radical Humidity, which is absolutely necessary to temperate the too great Impetuosity of the Juices in their Circulation, but it is absurd to think that the whole Food of the vegetable Body consists in that Humidity, else the *Plant* should be always in a cacochimous Condition, as is evident from the various Accidents of the animal Body, wherein the *Lympha* superabounds, is subject to. 4. Humidity is so far from being capable of the Operations which Dr. *Woodward* is pleased to attribute to it, that when once admitted into the *Plant*, it grows still more imbecile, in being divested by the Circulation, or continual Rotation of the nutritive Juices, of the few elastick Particles, it had brought into it, and remains at last like a Kind of Excrement, or *Caput Mortuum*, which the most volatile Particles usher out, as far as the Bark, where they leave it; and therefore, 5. It is not true, that the Humidity, in its supposed Emission from the *Plant*, carries with it many Parts of the same Nature with those of the *Plant*, through which it passes, consists; since as we have proved already, that Humidity has no

no Elasticity, and if it was even possible it could be emitted from the *Plant*, divested as it must be, then, of its saline Particles, it could not enter into the Composition of our Atmosphere, but must fall of itself, as a dead Weight. Those Parts which Dr. *Woodward* observes deposited on the Surface of the Leaves, Flowers, and other Parts of the *Plants*, which he is pleased to stile the grosser Particles of the Humidity, impregnated with Particles of the same Nature, whereof the *Plants* consist, are nothing else but the oleaginous and sulphureous Particles, which compose the Atmosphere of the *Plant*, and which overburthened with their own Weight, as well as with that of the Particles of the Plant, they have gathered in their Ingress and Regress through it, rest themselves on the outer Parts of the *Plant*; and form our Manna's, Honeys, and other gummous Exudations; which is far more probable than to say, that they consist of humid Particles, impregnated with the Parts of the *Plant*, since most of those Substances are subject to a Liquefaction by Heat. 6. If a greater Quantity of Odours is found exhaling from Vegetables in humid Weather than in any others, 'tis not because the Air is impregnated with the humid Particles, which have passed through the *Plant*, but rather, by the sulphurous ones, which chiefly compose the Atmosphere of the *Plants*, and which strike more powerfully our Organs of Smell in humid Seasons, than in any others, because, then the Atmosphere is more condensated, and consequently are nearer us than in another Season.

Dr. *Woodward* endeavours to support his Sentiment with the Example of Countries covered with Trees, and the larger Vegetables, which are more obnoxious to Damps, great Humidity in the Air, and more frequent Rains than others that are more open and free. The great Moisture in the Air, says he, was a great Inconvenience and Annoyance to those who first settled in *America*, which at that Time was over grown with Woods and Groves; but as these were burned and destroyed, to make Way for Habitations, and Culture of the Earth; the Air mended, changed into a Temper, much more serene and dry than before.

Ay; but by your Leave Dr. *Woodward*, we are not to conclude from thence, that those Damps and Rains proceeded from the Humidity exhaled from the *Plants* or Trees, but rather from the Exhalations of the Earth, which, overshadowed by those thick Forests, impenetrable to the Rays of the Sun, cannot be evaporated by its Heat, but on the contrary, are resolved into Rain by the least Agitation of the Atmosphere.

In the Phial where Dr. *Woodward* had mixed Earth with Water, he found that there was much more of terrestrial Matter, at the End of the Experiment, left in the Water of the Glasses, that had no *Plants* in them, than in those which had *Plants*. That the Garden-mould, dissolved in some of the Glasses, was considerably diminished and carried off, nay that the terrestrial and vegetable Matter was born up in the Tubes filled with Sand, Cotton, *&c.* in that Quantity as to be evident even to Sense; and the Bodies in the Cavities of the other Tubes, that had their lower End immersed in Water, wherein Saffron, Cochineal, *&c.* had been infused; were tinged with Yellow, Purple, *&c.* To look abroad, continues he, a little towards our Shores, and Parts within the Verges of the Sea, these will present us with a large Scene of *Plants*, that, along with the Vegetable, take up into them mere mineral Matter also, in great Abundance; such as our Sea-Purslain, the several Sort of Algas, of Samphires, and other marine *Plants*: Those contain common Sea-Salts, which are the same as the Fossil, in such Plenty, as not only plainly to be distinguished on the Palate, but may be drawn out of them in considerable Quantity; nay, some affirm, there are *Plants* found that will yield Nitre and other mineral Salts?

But what is all this *Galimatias*, as the *French* call it, to the Point in Question? Is not Dr. *Woodward* to prove that the humid Mass is the natural Food of the *Plant*, and not, that it can be impregnated with mineral Particles, which no Body has ever attempted yet to deny? And will proving the Possibility of such Impregnation, elucidate, how the Garden-Mould, dissolved in the Water, has suffered Diminution? Had he not expressed himself in clearer Terms, if he had said, that from the Dissolution of the Mould in the Water a-new, an extraordinary Fermentation of the whole Mixture having ensued, the most volatile Particles, it was impregnated with, had been evaporated; whereby the whole Mass had been considerably diminished; that by that Exaltation, or Evaporation, the less heavy Parts of the Earth had been carried by the most subtil, as far as those subtil Particles could find Obstructions, to be disengaged from them, which happened in their Passage through the Tubes. We have no need to take the Pains to visit our Shores, to be convinced that the Vegetables which grow in those Places contain a great Quantity of common Salts, since it is our Opinion, that Vegetables are fed with the saline Particles of the Vegetable Matter; and as those Shores on which those *Plants* grow are frequently visited by the Sea, which is impregnated with nothing else but mineral and bituminous Salts, no wonder, if the whole Substance of the *Plant*, is loaded with them.

In the following Reflections Dr. *Woodward*, or Mr. *Chambers* for him, destroys his whole System of the vegetable Matter, though founded, as he pretends, on Experiments; for in the preceeding ones he would have us believe, that the Humidity of the Earth is the whole vegetable Matter, and in these he represents it only as a Vehicle to the vegetable Matter; for, says he, the vegetable Matter being very fine and light, is surprisingly apt, and disposed to attend Water in all its Motions, and follow it into each of its Recesses; as appears not only from the Instances above alledged, but many others; he even forewarns us, that if we were to percolate it with ever so much Care, and to filtre it with never so many Filtrations, yet some terrestrial Matter would remain. Himself, says he again, has filtred Water through several Sheets of thick Paper, and after that through a very close fine Cloth, twelve Times double, and this over and over, and yet a considerable Quantity of this Matter discovers itself in the Water after all. Now if it thus passes, concludes he, or his Interpreter for him, Interstices that are so very small and fine, along with the Water, it is the less strange, it should attend it in its Passage through the Ducts and Vessels of *Plants*.

We agree with you, dear Dr. *Woodward*, that the vegetable Matter is found in the Humidity of the Earth, or rather, that that Humidity is impregnated with the Particles which enter into the Composition of the vegetable Matter (which cannot be properly called vegetable Matter, 'till after it has been elaborated and prepared in the Vessels of the *Plant*;) but we deny that the humid Mass serves as a Vehicle to the vegetable Matter; since the vegetable Matter itself is rather a proper Vehicle to the humid Mass, which receives its Motion from the Elasticity of the vegetable Matter. The Experiment of Filtration proves very well that such Matter is contained in Water, and that it never can entirely be seperated from it; and therefore proves nothing against us; but the Conclusion is very lame, that because the most subtil Parts of the vegetable Matter are left in Water, after Filtration, it must be carried up the Vessels of the *Plants* in Vegetation; for those Gentlemen must have the Complaisance to grant us this, that there is some Difference between Gravity and Elasticity; in Filtration, it is not repugnant to Reason or Experience, that Water, by its own Weight, can force its Passage, through the Pores of the Paper, or Cloth, which while the most compact, are nevertheless apparent enough, as to be discernible by the naked Eye, and if they were not at first, they are soon relaxed by the Impression which the Humidity makes on them, so as to give Passage to Particles of a far greater Volume than those of the Water; 'Tis not surprising then, that a Sediment is found at the Bottom of the Vessel, supposed to be

Part of the vegetable Matter; and who knows but those Particles, by the Rapidity of their Motion, do not perforate first the Pores of the Paper, or Cloth, to facilitate a Passage to the rest of the humid Mass; which by the uninterrupted Filtration, not only hinders those Pores from contracting themselves, but dilates them more and more still, even so far, as to procure a Passage to the heavier Particles. But the same cannot be said with Respect to the Nutrition of the *Plant*; for in that Case the Weight, far from being a Help to the Water in its Motion, is rather an almost insuperable Obstacle to it; for then it must ascend, and not descend, and therefore must be disengag'd of all that gives it a Propensity downwards, and makes it inherent to a still heavier Body; unless there can be suppos'd an attractive Faculty in the Juices which circulate already through the *Plant*; which the Doctor is not pleas'd to mention, to support his Sentiment. Neither do we know of any violent Heat, which by rarifying the Atmosphere of the Water in the Earth occasions so violent a Compression, as to force it upwards, which we know, by a daily Experience, cannot be effected but by such violent Means; and then Water, thus rais'd, cannot proceed further, but when left to it self, seeks some Declivity, to follow its natural Propensity downwards, which it does then with Impetuosity, shewing, thereby, that it had been all that while in a violent State.

Water, however, though it cannot be a Vehicle to the vegetable Matter, is, nevertheless, very beneficial to Vegetation, since the aqueous Particles, carried along the vegetable ones into the Plant, moderate the too great Impetuosity of the nutritive Juices, which, otherwise, by their continual Motion, would become adust, and outwardly cool the Pores, which, by their Friction with the saline Particles in their Ingress and Egress through it, could by the Condensation of the most sulphurous and viscous, be obstructed, and thereby the whole vegetable Substance be depriv'd of its Food. Therefore Water is of the same Use in this Case, as in the Refrigeratory of an Alembick, *i.e.* by regulating the Percolation of the nutritive Juices, which otherwise would flow with too great an Impetuosity through the organical Vessels of the Plants, hinder a too copious Exaltation of the volatile Salts they are impregnated with, which otherwise would cause a too great Dissipation of them, and thereby prove very prejudicial to the whole Plant.

The Reason alledg'd by Dr. *Woodward*'s Interpreter for all the terrestrial Matter not ascending into the *Plant*, is, that the mineral Matter makes a great deal of it, which is not only gross and ponderous, but scabrous and inflexible, and so not dispos'd to enter the Pores of the Roots; and that, besides, a great many of the simple vegetable Particles, by Degrees, unite, and form small Clods, or *Moleculæ*, which stick to the Extremities of the Roots of those Plants, that others of them entangled in a looser Manner, form the *Nubeculæ*, or green Bodies, so commonly observ'd in stagnant Water: All which, when thus conjoin'd, are too big to enter the Pores, or ascend up the Vessel of Plants, which singly they might have done.

This appears to me a false Supposition, since, at least in my Opinion, we have no Need to have Recourse to the *Scabrosity* and Inflexibility of the mineral Matter which enters into the Composition of the Earth, to shew why the whole terrestrial Matter, mix'd with the Water, does not ascend into the Plant, when it cannot be reasonably suppos'd that the Earth, being compos'd of several different Substances, which have all their different Qualities, those Substances cannot be all appropriated to the Nutrition of the Plant, nor can all enter into the Composition of the vegetable Matter; the different Productions of the Earth, must convince us that it must have different Food appropriated to those different Productions, that what contributes towards the Nutrition and Increase of a *Fossil*, is not proper, perhaps, for the Nutrition and Increase of a Vegetable, no more than all the same Aliments can serve for Food to Men and Beasts indifferently; therefore if all the terrestrial Matter does not ascend into the Plant, 'tis not because kept from it by the Scabrosity and Inflexibility of the mineral Particles 'tis impregnated with, but because the *Plant* takes none but those with which it has a natural Analogy, and can contribute towards its Nutrition and Increase, without over-burthening it self with crude and indigested Aliments, which being heterogeneous to the vegetable Juices, would cause some very great Disorder in their admirable Symmetry. Nay, even the mineral Matter could not be an Obstacle to its ascending the Body of the *Plant*, no more than all the other Substances the terrestrial Matter is compos'd of, since none of those Substances ascend into the *Plant*, *crude* and *undigested*, as they are originally; and before they have been purg'd of their *Fæces*, by the Fermentation excited in the Earth by its radical Humidity, and the Heat of the Sun; which is apparent enough at the Difference happening in the *Plants* according to the Diversity of the Seasons: For in Winter, when the Fermentation is but weak, and imperfect, and therefore the Exaltation of the saline Particles not so copious as in the Spring, the Plants appear to be but in a weak Condition, as if depriv'd of Part of their Food; which would not happen, if they were to feed on the terrestrial Matter, crude and undigested as it is, without any other Preparation; even the mineral Matter, scabrous and inflexible as it is, is not excluded from the vegetable Matter; for the most subtile Particles of it, exalted as well as the rest by the Fermentation, enter likewise into its Composition, and the small Clods, or *Moleculæ*, which are found sticking at the Extremities of the Roots of the *Plants*, is not the whole mineral Matter, but its *Fæces*, together with those of all the other Substances the Earth is compos'd of, from which the vegetable Substance has been separated, and which have been roll'd to the Roots, in the Efforts the volatile Particles have made to disengage themselves from them. This Reasoning will also convince us, that the Water is not the Vehicle of the vegetable Matter; for if it was, in Winter, when the Humidity is more abundant, and consequently more capable, by its larger Volume, to force it self into the Body of the *Plant*, and to carry a greater Quantity of Food, the *Plants* should appear in a more flourishing State of Health, when a continual Experience convinces us of the contrary; for they appear then drier, and in a more languishing State, than even during the most scorching Days of the Summer; which proves plainly, that though Water enters into the Composition of the *vegetable Matter*, it wants, notwithstanding, another Vehicle to be carried into the *Plant*.

To prove this last Proposition, that those Clods, and *Moleculæ*, found at the Roots, are the mineral Matter, which could not ascend into the *Plants*, our Antagonists have Recourse to the different Operations of Agriculture, as Tilling, Ploughing, Fallowing, Harrowing, *&c.* which is done, say they, to break those Clods, or *Moleculæ*, the better to facilitate, by being thus reduc'd to a lesser Volume, their Entrance into the *Plant*. But they'll give me Leave, I hope, to differ from them in this, as I have done in all the rest; for this Tilling, Ploughing, Harrowing, *&c.* is, in my Opinion, done for no other End, than, by those different Operations, opening and levigating the whole Mass, to facilitate the Fermentation for the Formation of the vegetable Matter, by the Approximation of the several Agents which are to concur in that Operation.

They pretend also, that this Ploughing, Harrowing, *&c.* is nothing else but an Imitation of Nature, and that Sea Salts, Nitre, and other Salts, promote Vegetation in the same Manner, by loosening the Earth, separating the concreted Parts thereof, and by that Means fitting and disposing them to be consum'd by the Water, and carried up into the Seed, or *Plant*, for its Formation and Increase.

Nothing is more certain than the Earth is impregnated with a vast Quantity of nitrous Particles; but

but it is not equally certain, that those nitrous Particles are capable of those Operations attributed to them by our Antagonists; for I believe, on the contrary, that they are far from having Strength enough to operate those *Phænomena* in the Earth; in which, if they were even predominant, (which we have not the least Reason to suppose, since, by the frequent Analysis made of the Earth, we find that it abounds with alkaline Salts) by their continual Friction against the Alkali's, they blunt their Points, and lose almost entirely their dissolving Qualities, and therefore are incapable of operating in that mechanical Manner. For if such a Thing could be suppos'd, and the nitrous Particles were so predominant, and so active, as they must ascend with the rest of the vegetable Matter, into the *Plant*, they would produce such dangerous Effects on the nutritive Juices, by disuniting and lacerating their tender Texture, that we should have very great Reason to despair of ever seeing any Plant carried to its full Growth. Therefore the nitrous Salts, far from being capable of those violent Operations on the whole terrestrial Mass, are in a less Quantity there, than any other Salts of a different Nature; and the more abundant they are in a Soil, the less perfect is the vegetable Matter, and the less Nutrition *Plants* receive from it. For though those nitrous Particles are not quite so pernicious then, as if they had undergone no Alteration or Changes in their Fermentation, they nevertheless retain yet few of their bad Qualities, and rather destroy than nourish the *Plant*.

The more a Soil is impregnated with nitrous Particles, the more Lime is serviceable to Vegetation in that Soil; for the Lime being an Alkali, embarrasses and blunts in the Fermentation, the sharp Points of the nitrous Particles, and renders it less prejudicial to Vegetation; and therefore should be mix'd with those Soils which border on the Sea: For it is serviceable no otherwise, since it doth not contain any Thing in itself, that is of the same Nature with the vegetable Mould, or afford any Matter fit for the Formation of *Plants*.

All our *Naturalists* are pleas'd to consider as inconceivable, how one uniform homogeneous Matter, having its Principles, or organical Parts, of the same Substance, Constitution, Magnitude, Figure, and Gravity, should constitute Bodies so unlike, in almost all Respects, as Vegetables of different Kinds are; nay, even as the different Parts of the same Vegetable; that one should carry a resinous, another a milky, a third a yellow, a fourth a red Juice in its Veins. One affords a fragrant, another an offensive Smell; one sweet to the Taste, another acid, bitter, acerb, austere, *&c.* that one should be nourishing, another poisonous; one purging, another astringent, *&c.*

Therefore I'll beg Leave to attempt, in this Place, what all others before me have left untouch'd, the Explanation of those different *Phænomena*. 1. I cannot grant that the vegetable Matter is of the same Substance, even in the same Spot of Ground; since there is not that Order, Regularity, and exact Symmetry, between the Pores of the Earth, as to render the different Matrices equally well dispos'd for the Formation of the several Substances which enter into the Composition of the whole Mass. Some of those Matrices being situated more advantageously than others, as well with Respect to the radical Humidity of the Earth, and the Temperature of its natural Warmth, which are the two first Agents which put the Matter into a Ferment, and to the Influences of the Sun, which perfects the whole. Some having their Pores too much dilated, and thereby leave a too free Egress to the most volatile Particles, hence ensue a too great Dissipation, and thereby the whole Substance is exhausted. Others having them too compact, whereby the Heat being too much contracted, the Fermentation is made with too much Precipitation, and the fuliginous Vapours or Exhalations finding no Vent, fall back on the whole Matter, embarrasses the different Salts in Ferment, and hinders their Separation. Therefore it cannot be expected that Substances thus imperfectly prepar'd, when they enter into the Composition of the vegetable Matter, can render it as laudable as those form'd in Matrices, more perfectly dispos'd; nor that nutritive Juices extracted from such Matter, should answer all the salutary Ends expected from those which have a Matter of a better Consistence for their Principles. Consequently the Plant fed with two Aliments, so different in their Qualities, must likewise appear stronger or weaker in Proportion; and that fed with those Juices vitiated in their Principles, be subject to the same Accidents the animal Body form'd in a vitiated *Matrix*, and fed, while in it, with corrupted Aliments, is expos'd to. Hence those ill-form'd, and scabious Plants, which cannot be rear'd up but with the greatest Difficulty; and, when rear'd, never appear otherwise than in an ill State of Health, and a decaying Condition, and almost as soon wither'd as they appear. Which Difference happens, as I have observ'd already, in the same Spot of Ground, in a Nursery, for Example, while we find amidst a great Number of wholsome and well-growing Plants several others, which, though from as good a Seed, seem always cacochimous, and never make a wholsome or fine Plant, whatever Pains and Care be taken to rear it up. 2. As for the different Substances contain'd in, or exuded from the Plant, that must be attributed to the predominant Qualities in the Juices percolated through its whole *Parenchyma*, and from the Abundance of homogeneous Particles they have been supplied with by the vegetable Matter; for if those Particles are oleaginous and sulphurous, and the Principle of Nutrition within the Plant of an adust Quality, they are condensated so as to render the whole Substance of the Juices of a more than ordinary thicker Consistence, which being slow in its Motion, and, on the contrary, the volatile Salts exalted from it edg'd by the first adust Principle, flowing with such Precipitation as to force all Obstacles, Part of that Substance is forc'd by them through the Pores of the inner Plant, to the outer. But if, on the contrary, oleaginous, lymphatick, and tartarous Particles are predominant in the Juices, they form, in Concert, that limpid Substance, which we see under different Colours, according to the different Configuration of its Pores. For if they be streight, compact, or closely coadunated together, as they reflect the Light in direct Lines to our Sight, they appear white; if a little more obliquely, and the Pores are not so compact as to admit of an almost insensible Refraction, yellow; if in quite oblique Lines, and the Refraction is yet insensible, though greater, through a greater Dilatation of the Pores, red, *&c.* 3. As for the different Smells, they proceed from the different Shapes or Figures of the Corpuscles which compose the *Atmosphere* the Plant is wrapp'd in, and their different Manner of affecting the olfactory Nerves; for if they be globular, by only tickling it agreeably, they excite a fragrant Smell; but if sharp, and poignant, an offensive one, by wounding the Nerve, and causing in it a Sort of Convulsion. The Difference of the Taste proceeds from the different Qualities predominant in the nutritive Juices; for if oleaginous and sulphurous Particles are predominant, but so as to be very well incorporated together, without the least Predominancy in either, the Plant tastes sweet and pleasant; if, on the contrary, the nutritive Juices are too much impregnated with acid, nitrous, *&c.* Particles, the Taste is bitter and acerb. Too great a Quantity of these Particles, which embarrasses all others, over the whole Substance, whence ensues a too great, and too frequent Exaltation of them, renders, likewise, the Plant poisonous; while, on the contrary, they are but in a very small Quantity, and the whole Substance of the nutritive Juices is almost compos'd of nothing else but oleaginous, sulphurous, and tartarous Particles, continually percolated through the whole vegetable Body, the

Plant is nourishing. As for their Purgative Qualities, they are to be exemplified in our Treatises of Chymistry and Pharmacy.

The more perfect of those Matrices above-mentioned do not continue always in the same State of Perfection, for like all other Agents which have not their Principle of Action of themselves, they are impaired at last, and rendered sterile by a too great Excess of Fecundity. For while a Soil is expected rich and fertile, 'tis work'd off 'till it is entirely exhausted of its most essential Particles, and the Matrices, for want of Matter to work upon, and for having worked beyond their Strength, are rendered useless, which appeared at the Soils becoming sterile from fertile, it was before; but then, by leaving it at Rest for some Time, and afterwards meliorating it, and working it a-new to excite a new Fermentation, it often recovers its former Fecundity; new Matrices are formed by a new Arrangement of the Parts for the Preparations of the Substances, which are to enter into the Composition of the vegetable Matter, provided the Soil has not been entirely exhausted at first of the saline Particles, which is not impossible, for then all the Preparations imaginable could not restore it to its pristine Fecundity; hence those Soils, which have been fertile once, remaining barren and sterile, notwithstanding the Skill, Labour, or Industry of the Husbandman; hence those others, which though they are brought to bear again, can never produce the same *Plants* as before; and hence some, which once almost fertile of themselves, can never produce afterwards any *Plant* whatever, without the Assistance of the Art, and a very assiduous Labour.

There are Soils so fecund, that they continue so for several Ages, supplying always the *Plants* with enough of vegetable Matter, as to keep them always in the same flourishing State of Health, as it happen in Forests, where we see Trees which have stood for a long Series of Years, in the same State, without any visible Alteration; and never change but when their organical Vessels, relaxed, or contracted by Age, are reduced to the Incapacity of performing any longer their natural Functions. 'Tis true, that when a *Plant* is arrived once at its full Growth, it wants then but very little Nutrition; though we see in some other Soils, that *Plants*, which have grown to Perfection, degenerate all on a sudden, and fall to Decay before their Time, which cannot be attributed but to the Earth having enervated itself in supplying them with Aliment; or to the *Plants*, by having been provided thus plentifully, having shot forth too many Branches and Roots, whereby they become at last too chargeable to their Host. Though Husbandmen have found a Remedy against those Evils, and which is retrenching Parts of the Branches, but more especially the Roots, whereby the Earth is eased of Part of its Burthen. But however these Expedients are not always attended with the desired Success; and there is often no other Way left to save the *Plant* than by transplanting it into another Place.

That *Plants*, when arrived at their full Growth, do not want so great a Quantity of vegetable Matter, as when it first begins growing, is evident, from some Soils in which young *Plants* cannot be reared up, even with the greatest Art and Industry, but thrives very well, when once arrived at a certain Degree of Perfection, of which we have an Example in the Soil of the Park of *Versailles*, near *Paris*, which could never bring forth a young *Plant*, but keeps in very good Condition those already grown in another Soil, and transplanted there.

The Earth is also very much assisted in the Vegetation by the Rain-Water, which being nothing else but the Exhalations of the same Earth, condensated in the middle Region of the Air, and afterwards resolved into Water by the Agitation of the Atmosphere, restore to the Earth the most subtil of its sublime Particles the Rays of the Sun had robbed her of. Those Particles having received in that Exhalation a more perfect Rarefaction than those elaborated in the Matrices of the Earth, as having been more immediately under the Influences of the Sun, bring back a new Treasure to their Mother Earth, which enriches it with new Principles of Activity, which are of a great Succour for making her bring forth quicker its Productions, as we see it happen.

Rains are not all equally favourable to the *Plants*, for the Diversity of the Seasons causes a very great Difference in their Qualities, and consequently in the Effects they produce. For in *Autumn*, when the Sun begins to abandon our Hemisphere, and to dart but obliquely its Rays in our Earth, the exalted saline Particles being deprived of that perfect Rarefaction, they used to undergo in the Summer Season, fall, not quite disengaged of the viscous and tenacious *Vascules*, they were exalted with, divested of the greatest Part of the Principles of Activity, they used then to communicate to the Earth, so that destitute of that Succour, and the Departure of the second Agent, the Sun, renders it indolent, and almost inactive; but when by its entire Absence, those Corpuscles return as closely wrapp'd up in their viscous Capsulas, as when they were first exalted, then they make no Impression on the Earth, not so much as to render it sensible of their Return. Though the Matrices continue working, and supply continually the vegetable Matter with new Recruits, but not in so great Abundance, as when assisted in their Operation by those foreign Succours, so that all that the vegetable Matter can do, is to supply the *Plant* with a Kind of Parcimony, with Aliments sufficient to hinder the Dissolution of its whole Mechanism, which would infallibly happen, if the organical Vessels were deprived of a sufficient Quantity of nutritive Juices, and which would occasion a dangerous Contraction of their Membranes.

All *Botanists* are of Opinion that there is a certain Analogy between *Plants* and *Animals*; since *Plants* like *Animals* are composed of certain Parts, moved by a certain vegetative Spirit, and are possessed of a greater *Apparatus* of Organs, for the Performance of their vital Functions.

Two Things are to be carefully considered in *Plants*, *viz.* the sensible and organick Body; and the Spirit or the subtil and vegetative Body, which is the Cause of the whole Motion, and the Principle of all vital Functions.

This Spirit, or active Substance, which obtains the Name of *Soul* in living Bodies, is not even entirely excluded from Things destitute of Life; since the subtil Matter being carried, by a perpetual Motion, runs through the whole corporal Nature; but as it is too much dispersed in the Bodies deprived of Life, nor can find in them Pipes and Receptacles, wherein it could be gathered in a greater Quantity thereby it could expel the Humours it should meet with, and give a stronger Pulsation to the other Parts; it does not produce in them those vital Motions of *Nutrition* and *Acretion*; hence *Fossils* and other inanimated Bodies are of a longer Duration, because not disturbed, or worn out by that vegetative and active Substance. But in *Plants* and *Animals*, the active Spirit, continually agitated by the subtil Matter, runs, without Intermission, throughout the whole Body; and the more or less 'tis agitated, it wants a greater or lesser Quantity of Aliment, to avoid its feeding at last on the Substance of the living Body.

Plants consist of several organical Parts, subservient to this Motion, *viz.* of a *Root*, *Trunk*, *of Branches*, *Leaves*, &c.

The Root is the lower Part of the *Plant*, whereby it adheres to the Earth, whence, by the gentle, inward Heat of the Earth, the vertical Motion of the æthereal Substance, and the Fermentation, it receives its nutritive Juices, which is carried upwards, for its Preservation. Therefore the *Root* must admit into its Composition, of a great Number of Pores, and Ducts, through which the Juices should ascend for the Nutrition of the *Plant*, since it cannot subsist without Aliment; for though some *Plants* have no Branches,

Branches, as Wheat, or no Fruits, as Jessamin; they nevertheless have all *Roots* to supply them with Aliments. This Aliment taken by the *Root*, as by a Mouth, is distributed through the open Pores and Ducts, to all the Parts of the *Plants*. *Boerhaave* considers the *Root* as composed of a Number of absorbent Vessels, analogous to the Lacteal in *Animals*, and M. *Reaumur* takes it to do the Office of all the Parts in the *Abdomen*, which minister to Nutrition; as the Stomach, Intestines, *&c.*

The Marrow, Bark, ligneous Body, and the *Trachea*'s are part in the *Root*, which are equally distributed to the Trunk, and to the Branches; but, as we have already observed, the Marrow and the Bark have the same Origin; for in the lower Part of the *Root*, where the Bark is thicker, there is little or no Marrow; on the contrary, in its superior Part, and in the Trunk, the Bark is thinner, and the Morrow in a greater Abundance.

Boerhaave observes, that the *Root* may have any Situation at Pleasure, with respect to the Body of the *Plant*, nor needs to be either lowest or highest. Accordingly in the Aloe, Coral, Mosses, Fonguses, *&c.* the *Root* is frequently uppermost, and its Growth downwards.

Roots are divided by *Botanists* into *Fibrous*, which send out only small Strings from the Bottom of the *Plant*, distinct from each other. Such are those of most Species of Grass. Thick and gross, on Account of their thick and gross Body, either branched out into Subdivisions, or else sending out Fibres from it all along. These last are either *carnous*, which again are either broad and swelling, or long and slender, which are commonly harder and more woody.

Broad and swelling *Roots* are either *Bulbous*, which consist but of one Globe or Head, and send out Fibres from the Bottom; and are either *Squamous* and Scaly, as Lillies, Martagons, *&c.* *Coated*, which are involved in Skins, or Coats, as *Cepa*, *Hyacinthus*, *Allium*, &c. *Tuberous*, which are of a carnous, solid, and continued Consistence; and these either, *Simple* with but one Globe or Head, as *Rapa*, *Crocus*, &c. *Manifold*, as *Asphodelus*, *Pæonia*, &c.

Long *Roots* are either *Sarmentous*, i.e. twiggy or branching, which shoot or creep out transverse, or in Breadth; of these some are geniculated, knotty or jointy; as Couch-Grass, Mints, *&c.* *Cauliformes*, i.e. stemmy or stalky, which shoot down deep directly, though often sending out Fibres and Strings from the great Stem; which, also, itself is sometimes divided or branching.

As to the Trunk, called also, in Trees, the *Stem*, and which is that Part between the Ground and the Place, where it divides into Branches, is considered as the Body of the *Plant*, which transfers the Humour it receives from the Earth, through the *Roots* to the superior Parts. Outwardly, 'tis covered with Bark, which is as a Skin to it; inwardly, it has Marrow, which, commonly, is called the Heart of a Tree, except when very soft, and fungous. As in the *Elder*. Between the Marrow and the Bark is placed what we call the *Ligneous Body*. And when several Stems, and of the same Equality rise from the same *Roots*, they are called *Shrubs* or *Serments*.

Malpighi, in the Anatomy of *Plants*, distinguishes a double Order of Fibres, or Parts in the Trunk or Stem. 1. There are Fibres or small Pipes collected into Bundles, protracted lengthways; then between them in an almost horizontal Manner is inserted a certain Number of small Buds or Bunches, which are something like the Insertions described by Dr. *Grew* in his Anatomy of *Plants*.

Besides these *Fibres* and *Buds*, *Malpighi* has also found in the Trunk or Stem, larger Vessels disposed in Form of *Lamellæ*, or turned into a Spire, but the Parts they are composed of are so thin, that they might be depressed or dilated at Pleasure; therefore he calls them *Trachæa* and *spiral Vessels*. For he imagines that *Plants* have need of Respiration, and that the Air is carried with the Juice not only through the ligneous Fibres, but likewise throughout the spiral and spiratory Vessels, and maintains no corporeal Substance can live, nor in the Earth, nor in the Water, without Respiration.

The Vessels are common, perhaps, to all Sort of *Plants*; but each Kind has, besides its proper Vessels, appropriated to carry some particular Juice, or Aliment, which are apparent in several, whether they be filled with Turpentine, as the Terebinth; or with Milk, as in the lactiferous; or with Rosin, or other Liquor, which always seems more elaborate than that Juice contained in the ligneous Pipes or the Buds.

The *Marrow* is supposed to be of the same Use in *Plants*, as are the Heart and Brain in *Animals*; and *Malpighi* believes that the transverse Dispositions of *Buds* are designed for the same Use with the Marrow itself; for he conjectures that there is a crude Juice carried upwards through the ligneous Fibres, which gradually falls into the *Buds*, and the Marrow, where by a longer Stay, and the Fermentation, 'tis elaborated and perfected, to be ready at Hand for the Nutrition of the young Buds and Leaves at their Eruption.

The Branches of a Tree proceed from the Trunk, as the Members from the animal Body; and are of the same Nature with the Trunk; for they are likewise covered with Bark, have Marrow, and a ligneous Body. Often the Branches, rise without Order, and, in Confusion, from the Trunk, as in the *Elm*, *Oak*, and others; and sometimes in an elegant Order, as in the Pitch and Firr-trees. The Branches which grew last, especially when the Top is cut off, are called Scions; and those which grow from the *Roots* of the tallest Trees, unprofitable Branches.

Lastly, Every Body knows that the Leaves, Flowers, and Seeds spring like new *Plants* from the principal or Master *Plant*. The Leaves themselves have also their Caulicoles, in which the ligneous Pipes produced from the Trunk, and the Branches are assembled together with the Buds and *Trachæa*'s, and displayed in all the Parts of the Leaves to carry the nutritive Juice. Thus Flowers and Fruits receive their Nutrition from their Stocks; some of which are longer, some shorter; often the Seed is inclosed in the Fruit, in which lies hidden a *Plant* of the same Species.

From this Dissertation we'll proceed to the Œconomy or Use of the Parts of *Plants*, with respect to their Nutrition and Increase.

The *Peripateticians* and *Gallenicks* define the nutritive Power, a Faculty of the vegetative Soul, by which it changes the Aliment into its Substance for its Preservation. Hence its proper Function is called Nutrition, which is defined by them, a Conversion of the Aliment into the Substance of what's fed.

We suppose that Faculty to be nothing else but the vegetative Soul, or the active Substance, which being excited by the Heat of the Sun, as well as by that of the Earth, causes a Fermentation in the nutritive Juice, or which, perhaps, being taken by the vertical Motion of the æthereal Substance, brings up through the Pores of the *Roots*, appropriated to that Use, the vegetable Matter into the Trunk and Branches, and which by a Kind of Circulation, returns again to the inferior Parts. For the *Roots* of the *Plants* dispersed in the Earth, produce certain Filaments, and small Tubes, through which the Exhalations of the Earth, or rather the vegetable Substance, is forced, by the ambient Atmosphere, into the Master *Roots*, whence it ascends through the ligneous Fibres, as 'tis imagined, as far as the upper Extremity of the *Plant*. Then passes afterwards into the Buds, whence after it has been elaborated, and fermented a-new, 'tis distributed to every Part of the *Plant*, for the Nutrition and Increase of the whole vegetable Body; for it is impossible that a crude and undigested Juice could nourish the *Plant*; therefore when it ascends upwards, if it happens that some Parts are more elaborated than others, they serve for the Nutrition of the upper Parts of

of the *Plant*; and those which are superfluous, and more crude, after they have been prepar'd by a new Coction, in the Buds of the other Parts of the *Plants*, and even in the Marrow, they return to the inferior for their Nourishment likewise.

Therefore as the Blood, in Animals, flows through the Arteries, from the Heart to the Extremities, and returns through the Veins from the Extremities to the Heart; likewise the nutritive Juice in Plants ascends from the Roots to the upper Parts, and descends back again, from the Top, or upper Parts, to the Roots. Which Doctrine is not mere Conjecture, since confirm'd by a vast Number of Experiments.

Botanists have not agreed among themselves on the Manner this mysterious Motion, or rather Circulation, is accomplish'd; and seem to be unacquainted, yet, with the Roads which the nutritive Juice follows in that Circulation; though it appears very probable, to several of them, that the most subtil Portion of the Aliment, being rais'd up by the vertical Motion of the æthereal Substance, is carried upwards, through the ligneous Fibres, the æthereal Substance being assisted therein, by the Elasticity of both the Air mix'd with the Juice, and of that contain'd in the *Trachæa's* and spiral Vessels; and that the grosser Parts are forc'd into the Buds, transversly dispos'd, and extended from the Bark to the Marrow; whence, after they have been mix'd, and fermented with what's left of the Suc, or rather the Leaven, they are carried back to the inferior Parts, for their Nutrition.

Therefore they imagine that the Air, as well that inclos'd in the *Trachæa's*, as that mix'd in the ligneous Fibres, in the nutritive Juice, (whether that Air exalted from the Earth ascends into the Fibres and *Trachæa's*, or is brought in through the Pores of the Bark, together with the nitrous Spirits) they imagine, say I, that the Air, while rarify'd, by the diurnal Heat of the Sun, accelerate the Ascent of the nutritive Juice; for if the Air contain'd in the *Trachæa's* be expanded by the Heat of the Sun, it presses the ligneous Fibres, and forces the nutritive Juice contain'd in them, on that Side, where there is least Resistance, *viz.* towards the upper Parts of the Plant; towards which Motion the Air mix'd with the Juice does not contribute a little. Whence we are to imagine a certain mechanical Structure of the Parts, in the ligneous Pipes, which can facilitate the Ascent of the Juice, and render its Descent difficult; whether some small Fibres be plac'd so as to have a Communication from the inferior Part of the Plant to the Top; or whether we imagine some other Disposition of the Parts, which could supply the Place of Valvules in the Veins of Animals. Though 'tis inferr'd from a Branch of a Tree, planted upside-down, shooting forth other Branches, that there are no Valvules in the ligneous Pipes; but no Body questions, at present, either the Respiration, or the Circulation of the nutritive Juices in the Plants. Therefore Plants have their Manner of Respiration, which I prove thus:

Those Bodies have their Manner of Respiration, in which the Air has its Ingress and Regress. That the Air has its Ingress into the *Plant*, is evident, from what we have said already, that it being dilated by the Heat of the Sun, and mix'd with the nutritive Juice, it ascends the ligneous Fibres of the *Plants*, which it unfolds; and that it being receiv'd into the *Trachæa's*, it dilates them into a larger Volume, that they might press the ligneous Fibres, for the easier carrying upward the nutritive Juice. Which Air is expell'd from the Plant, by the Contraction of the ligneous Pipes, and spiral Vessels; therefore Plants have their Manner of Respiration.

Likewise, there is a continual Circulation of the nutritive Juice through the whole Substance of the *Plant*, which is also prov'd in the following Manner:

There is a continual Circulation of the nutritive Juice, if that Juice, lifted up by the vertical Motion of the æthereal Substance, and by the Impulsion of the Air, is carried from the inferior Parts of the *Plant* to the superior, and brought back, through the Buds, from the superior to the inferior; which must be a true Supposition, since, 1. Such Circulation is common to all Sorts of living Bodies, which want Aliment, as well for their Nutrition, as to repair their exhausted Substance. Since the Parts of the living Bodies can receive no Nourishment till that Portion of the Aliment, which is well elaborated, be separated from what's crude and indigested, which must undergo another Coction; whence the Roots cannot receive any Nourishment from the indigested Juice, which they receive immediately from the Earth: Therefore a Juice, far better elaborated, must be brought back to them from the superior Part of the *Plant*, for their Nourishment.

2. Some Trees die when they are divested of their Leaves, as it happens to Mulberry-trees, whose Leaves are often torn off to feed Silkworms, which seems to proceed from the Impossibility the nutritive Juice is then in of being percolated in the Leaves, and of being depurated from the crude Particles, that when carried back to the Roots, it might be a Food for them.

3. If the Vine be divested of its Leaves during the Summer, the Grapes are never brought to Maturity, because depriv'd of the Juice which should have been elaborated in the Leaves, and brought back to them for their Aliment.

4. When the lacteal *Plants* are ty'd in the Middle of the Stem, it swells above the *Ligature*, which could not happen, was not the nutritive Juice stopp'd by the *Ligature*, in its Descent from the upper Parts of the *Plant* to the Roots.

5. A curious Person selected once two Carpine Trees from a long Row of the same, whose Trunks adher'd to one another; he took the Pains to cut one of them cross-wise, with a Saw, very near Half a Foot under the Cohesion, and inserted a very smooth Stone between the divided Parts, to stop all Communication between them. The following Year he found that small Branches had budded between the Cohesion and the Section, which young Branches must have receiv'd their Aliment from the Juice coming back from the upper Parts of the Tree, since they could be supplied from no where else.

Therefore it is plainly evident, that the nutritive Juice not only ascends from the Roots to the upper Parts of the *Plants*, but likewise descends from the upper to the inferior Parts; and, consequently, that both the *nutritive* and *augmentative* Faculties of the *Plants* are contain'd in that Motion. For the *augmentative Faculty* is defin'd, in the Schools, *Facultas animæ vegetantis, qua vivens, suscepto intus alimento, & in suam substantiam converso, ad debitam staturam se promovet*; a Faculty of the vegetative Soul, whereby it lives, by taking inwardly the Aliment, and by changing it into its Substance, acquires its right Form and Proportions. Which Faculty we must not imagine, with the *Arabs*, as a certain Entity distinct from the Parts of the living Body, dispos'd in a certain Manner to receive and contain the Aliment; since it is nothing else, either in *Plants*, or Animals, but those Parts, so far as they contain the nutritive Juice, for the Explication and Extension of the living Body. Therefore that Faculty is improperly said to change entirely the Aliment into the Substance of the *Plant*; since the Parts of the living Body are but *Patients*, and not *Agents*, while the nutritive Juice ferments in them.

But, however, there is a proper Function attributed to the *augmentative* Power, or Faculty, which is commonly call'd *Augmentation*, and defin'd in the Schools, *Operatio vitalis, per quam Corpus vivens, suscepto intus alimento, eoque in suam substantiam converso, ad debitam magnitudinem tendit*; a vital Operation, whereby the living Body takes the Aliment inwardly, and changes it into its Substance, to promote its Growth.

They distinguish this vital from the not vital Augmentation, in that the vital Augmentation proceeds from

from the inner Suſception of the Aliment, *i. e.* taking inwardly the Aliment, and diſtributing it, in a juſt Proportion, by means of ſome inner Pipes, or Ducts, to every Part of the Body, as it happens in Trees, Beaſts, and Men. As for the *Augmentation*, call'd *non vitalis*, or *not vital*, 'tis perform'd by *Juxta-poſition*, *i. e.* by the Poſition of the Parts of one Body, againſt the exterior Parts of another Body. In this Manner Stones are augmented, or grow in their Quarries.

Therefore *Plants* are augmented as often as they are ſupply'd with a greater Quantity of Corpuſcles of the nutritive Juice; whence thoſe Trees, whoſe Parts are harder, and have their Pores more compact, or leſs dilated, as the Oak, and Pine tree, are a great deal longer to be brought to Perfection, than thoſe which have their Parts ſofter, and their Pores more open; for ſome of theſe are preſently brought to Perfection, as the Poplar, *&c.* 'Tis for the ſame Reaſon that Trees don't grow, or at leaſt but very little, in Winter; for their Veſſels, Ducts, Pipes, *&c.* being contracted by Cold, and their Heat, or Ferment, greatly diminiſh'd, they receive, at that Time, little or no Nouriſhment; ſome *Botaniſts* being of Opinion, that the nutritive Juice is then congeal'd into the Conſiſtence of a Gum, and ſtagnated in the Veſſels; in which State it remains till the freſh Warmth of the ſucceeding Spring puts it in Motion again; upon which it renews its former Vigour, puſhes forth Branches, Leaves, *&c.*

Malpighi is alſo of Opinion, that the Motion of the nutritious Juices of *Plants* is produc'd much like that of the Blood in Animals, by the Action of the Air; and, with us, admits ſomething equivalent to Reſpiration throughout the whole *Plant*. He will have that by the Expulſion of the *Trachæa*, which he conſiders as Air-veſſels, and within which he pretends all the Series of arterial and venal Veſſels heretofore mention'd are contain'd; theſe Veſſels are preſs'd, and by that Means the Juice contain'd is continually propell'd, and accelerated; by which ſame Propulſion the Juice is continually comminuted, or render'd more and more ſubtil, and ſo enabled to enter Veſſels ſtill finer and finer; the thickeſt Part of it being, at the ſame Time, ſecreted, or depoſited into the lateral Cells, or *Loculi*, of the Bark, to defend the *Plants* from Cold, and other Injuries. The Juice having thus gone its Stage from the Roots to the remote Branches, and even the Flower; and having in every Part of its Progreſs depoſited ſomething both for Aliment and Defence; what is redundant paſſes out into the Bark, the Veſſels whereof are inoſculated with thoſe wherein the Sap mounted; and through this, it re-deſcends to the Root, and thence to the Earth again.

I cannot be of *Malpighi*'s Sentiment in this laſt Particular; for I do not believe that the vegetable Matter once uſher'd into the *Plant*, returns, after it has accompliſh'd its Circulation, into the Earth again: For though exhauſted of its moſt volatile Particles, in the Circulation, as well by its having ſupply'd the ſeveral Parts of the *Plants* with Food, for their Nutrition and Increaſe, as by Evaporation and Tranſpiration, the Reſidue is carried back to the Roots, by the ligneous Veins; for having been impregnated, in the Circulation, with the firſt Principle of Life, it retains yet a greater Degree of Perfection than the Matter uſher'd a new into the *Plant*; for then it is diſembarraſs'd, and purg'd of all thoſe *Fæces* and Impurities brought into the *Plant*, together with the new vegetable Matter; and therefore inſtead of returning into the Earth, 'tis rather probable, that when come back to the Roots, it is diſembogu'd into the Arteries through Inoſculation, which might be as reaſonably ſuppos'd to be at their inferior Extremities, as at their upper, between the Arteries and the Veins, (diſpos'd in ſuch a Manner, as to admit of the Ingreſs of the Reſidue of the vegetable Matter, and obſtruct the Egreſs of the freſh Aliment uſher'd into the *Plant*) that thereby mixing with the freſh Particles, it recovers its former Strength, and re-aſcend along with them into the *Plant*; to which Particles, this *Reſidue*, by its having been already impregnated with a more perfect Principle of Activity, than theirs can be expected to be, yet they are of a very great Uſe in aſſiſting them to eaſe themſelves, with a greater Facility, of their *Fæces* and Impurities; and, conſequently, I ſee no greater Likelihood for the vegetable Matter, after the whole Circulation is accompliſh'd, returning into its firſt Principle the Earth, than for our Blood returning after the Circulation into the Aliments, whence it has been extracted.

If it be objected, that if this Theory was true, there would happen, in Proceſs of Time, Repletion in the Veſſels; I'll anſwer, that this Accident is not to be fear'd more in the *Plant* than in the animal Body; ſince the nutritious Juices undergo, in Proportion, the ſame Changes and Mutations in the vegetable Body, as the Blood does in the animal Body, and what remains of them, after the Circulation, is ſo little, that it cannot produce *Phænomena* of that Kind. Beſides, Nature is ſo judicious in its Operations, that the more of that rarify'd Matter enters the Arteries, the leſs of the new Matter is uſher'd into them; ſo that when both are mix'd together, they make but a proportionable Quantity for a regular Circulation.

It is this *Reſidue* of the vegetable Matter, thus perfected, and inſpir'd with a new Principle of Activity, which helps towards uſhering a freſh Food into the *Plants*, aſſiſted therein by the Compreſſion of the Atmoſphere; for by the Activity of its Particles, it excites Fermentation in the new Maſs, whereby its moſt ſubtil Corpuſcles are exalted, with which mixing themſelves, they, in Concert, by their Elaſticity, begin their Courſe through the organical Veſſels, and hooking in the heavieſt, uſher them along with them; but as they would run the Riſque, through ſo long a Courſe, and charg'd with ſuch a Load, to fall back before they have half accompliſh'd their Period; the *Atmoſphere*, which environs the *Plant*, by the Rarefaction of the Corpuſcles 'tis compos'd of, ſends forth ſmall Columns, through the Pores of the *Plant*, of thoſe Corpuſcles, to accompany the vegetable Matter during the whole Circulation, by which 'tis either lifted up, or ſupported, as Occaſion requires. This is evident, by the different Changes happening in the vegetable Body, according to the Difference of the Seaſons; for in Summer, when the Rarefaction of the *Atmoſphere* is greater, by the Heat of the Sun being more intenſe and powerful, the Circulation is quicker; on the contrary, in Winter, when there is none, or very little Rarefaction of the *Atmoſphere*, through the Abſence of the Sun, the Circulation is ſo ſlow, as to be almoſt inſenſible. For if the *Atmoſphere* had no Part in the Circulation, and it depended only on ſome particular Vehicle, appointed by Nature, to the vegetable Matter; why ſhould that Circulation be ſubject to ſo great an Alteration, ſince there is no Vehicle to be met with in the Subſtance of the Earth, which is not as perfect and powerful in Winter, as it is in any other Seaſon. Water, for Example, which is eſteem'd by almoſt all *Botaniſts* the propereſt, is far more abundant in Winter, than in any other Seaſon; though at that Time *Plants* ſeem to be entirely deſtitute of Food.

Though *Plants* are almoſt all generated in the ſame Manner, and all compos'd of the ſame organick and other Parts, have all the ſame vegetable Matter for their Subſiſtence, *&c.* there is, nevertheleſs, the ſame Difference between them, as there is between Animals; ſince there is among them, as among theſe, a Diſtinction both of Sex and Species: And they are not only diſtinguiſh'd with regard to their Species, into *terreſtrial*, *aquatick*, *amphibious*, *annual*, *biſannual*, and *perennial*; but likewiſe into *male* and *female*.

All *Plants* which bear no Fruits or Seeds, and have only the Organ of Generation, are conſider'd as *Males*; and thoſe which bear Fruit, as *Females*. If we want to be inform'd what's meant by *Organ of Generation*, in a vegetable Body, which, by what we have obſerv'd already,

already, can be so easily generated, without such an *Organ*; or if we believe that it is either a Folly, or imposing on our too great Credulity, even to suppose the Existence of such Organ, with no other Design than to render, what's evident enough of it self, more confus'd and incomprehensible, some of our most famous *Botanists* are of a contrary Opinion, and pretend, that after the most curious Researches, and Observations, they have found, at last, that prolifick Organ in both *Sexes*. The sole Difficulty remaining is, that they do not all agree on the Quiddity of that Organ; nor in what Manner both *Sexes* join in their Copulation. But to be better Judges of their different Sentiments on this curious Subject, we must previously observe, that the Flower of the *Plant*, both *male* and *female*, is suppos'd by them to contain those Instruments of *Generation*, either in the *Pistil*, or *Stamina*. That the *Pistil* is a little upright Part in the Middle of the *Calix*, or the Leaves of Flowers, which arises from the *Pedicle* of the Flower, or the Center of the *Calix*, and at length become the young Fruit, which is sometimes hid in the *Calix*, and sometimes quite out; which *Pistils* are not of the same Figure in all Flowers; for in some, the *Pistil* is nothing but a little Stalk, which enlarges at the two Ends like a Pestle; sometimes 'tis a mere *Stamen*, or Thread; sometimes it is round, sometimes square, triangular, oval, *&c.* though almost all *Pistils* square in this, that they are furnish'd a-top, either with fine Hairs, which make a kind of *Velveting*, or with little Filaments dispos'd in *Plumes*; or are beset with little *Vesicles* full of a glutinous Juice.

These *Pistils*, whatever Form they be in, have certain Apertures at their Tops, or certain Clefts continu'd the whole Length, to the Base or Embryo of the Fruit. This is very visible in the Lilly, Daffadil, and Melon, by cleaving the *Pistils* length-wise, or cutting them transversly. By opening the *Pistils* in their different States of Growth, it appears evident, that they form the young Fruits, and contain within them the Embryo's of the *Seeds*; whether those *Seeds* be diffus'd through the whole Length of the *Pistil*, or whether they be all inclos'd in its Base; and that they are always open a-top, and perforated, either more or less, sensibly to the Bottom; though this Cavity is frequently effac'd, as the young Fruit grows; and sometimes a Part of the *Pistil*, which *Malpighi* calls the *Style*, or Bodkin, dries, and falls off.

This *Pistil* is represented by all *Botanists*, (for in this they all agree) as the *Womb* of the *female Plant*; and this *Womb*, or *Matrix*, is divided by them into two Parts; the Base, which does the Office of the *Uterus* in Women; and the Length that of the *Vagina*.

This *Pistil* is encompass'd with the *Stamina*, which are those fine Threads, or Capillaments, growing up within the Flowers, call'd also *Chives*, on the Tops whereof grow those little *Capsulæ*, or Knobs, call'd *Apices*; which M. *Tournefort* makes essential to the *Stamina*, though M. *Reaumur* is of a contrary Opinion, founded on his having discover'd no *Apices* on the Threads of the *Fucus marinus*; though he supposes, at the same Time, that the *Apices* fall as soon as the Threads, or *Stamina*, begin to be unfolded.

M. *Geoffrey* has made these Observations on the *Stamina*, that they are exceedingly short in some tubular Flowers, as the *Narcissus*, *Digitalis*, &c. and that in some others (as in the long *Aristolochia*, wherein the *Apices* are immediately fasten'd to the *Capsula*, which incloses the Fruit) there are no *Stamina* at all. He further observes, that in several Flowers, as those of Thistles, Lettuce, Chicory, *&c.* the *Apices* are inclos'd in the *Stamina*, several of which uniting, form a little Tube, in the Shape of a Scabbard, in the Inside whereof are the *Apices*, with their *Farinæ*, the rest of the Cavity being taken up by the *Pistil*, which is a little Thread plac'd on the *Embryo* of the *Seed*.

These *Stamina* are a kind of Stumbling-block to our *Botanists*, for they cannot agree among themselves on their Use. M. *Tournefort* is of Opinion, that the *Stamen* is nothing else but an Aggregation, or Assemblage, as it were, of so many excretory Canals, for discharging the growing Embryo of its redundant Juices; and of the Excrements he takes, that *Farina*, or Dust, found in the *Apices*, to be formed. But Mess. *Geoffrey*, *Bradley*, and others, both antient and modern *Botanists*, maintain the Use of the *Stamina* to be to secrete, in their fine Capillary Canals, a Juice, which being collected, hardened, and formed into a *Farina*, or Dust, in the Tips or *Apices*, is thence, when the *Plant* arrives at Maturity, discharged by the Bursting of the *Apices*, upon the Top of the *Pistil*, whence is a Passage for it to descend into the *Uterus*, where being received, it impregnates and fecundifies the *Plant*. Whence it might be inferred that the same Flower contains both Sexes; which contribute both their Parts to the Generation: That the *Stamina* are the Male Part, and the *Farina*, which is always found of an oily glutinous Nature the seminal Liquor; the *Pistil* being, as we have observed already, the Female Part, which conducts the *Semen* to the *Ova* or Embryo; which being thereby fecundated, is fed in the *Uterus* with a fine Juice, secreted by the *Petula*, grows, expands, and forms a new Fruit.

Those Gentlemen pretend that the Disposition of the *Pistil*, and the *Apices* about it is always such, as that the *Farina* may fall on its Orifice. That it is usually lower than the *Apices*; and that when we observe it to be grown higher, we may conjecture the Fruit has begun to form itself, and has no farther Occasion for the Male Dust. That as soon as the Work of Generation is over, the Male Parts, together with the Leaves fall off, and the Tube leading to the *Uterus* begins to shrink, adding withal that the Top of the *Pistil* is always covered with a Sort of Velvet Tunicle, or emits a gummy Liquor, the better to catch the Dust of the *Apices*. *Lastly*, That in Flowers that turn down, as the *Achanthus*, *Ciclamen*, and the *Imperial Crown*, the *Pistil* is much longer than the *Stamen*; that the Dust, or *Farina* may fall from their *Apices* in sufficient Quantity on the *Pistil*.

But what can be that *Farina*, so often mentioned already, for to have so prolifick a Virtue?

The FARINA is a fine Dust, formed and secreted in the *Apices* or Tops of *Stamina*, where, when it becomes mature and copious enough, bursting its *Capsula*, it is spilt on the Head of the *Pistil*, and when deposited in the Utricle of the Female, draws the Nourishment from the other Parts of the *Plant* into the Rudiments of the Fruits, and makes them swell. The Reality of this Virtue, which Mr. *Bradley* calls magnetick, is argued from the same being found in Wax, which is chiefly or wholly gathered hence by the Bees.

The *Farinæ* are not of the same Size, Figure, and Colour in all Sorts of *Plants* indifferently; for some are transparent as crystal, as those of the *Maple*, *Borrage*, and *Hemlock*; others are white, as those of *Henbane* and *Balsamins*; others blue, as those of *Flax*; others purple, as of some *Tulips*; others Flesh-coloured, as some Species of *Lychnis*; and others red, as those of the *Gum*. Even this is not an infallible Rule for the different Colours of *Farinæ*; for some vary in the same Species, according to the Colour of the Flower; and even sometimes the *Farina* of the same Flower is of different Colours, as is easily observed in the *Caryophilus Arvensis*.

The most general Figure of the *Farinæ* is the oval, more or less sharp at the Ends, with one or more Channels or Furrows, running length-ways; so that through a Microscope they look not unlike the Stone of a Date, as a Grain of *Wheat*, a *Coffee-Berry*, or an *Olive*; such are those of the *Polygonatum*, *Bugle*, *Briony*, *Tithimal*, *&c.* Those of the *Melilot* are *Cylinders*; those of the *Pansy* are Prisms, with four irregular Sides; those of the great *Consolida* represent two crystal Globules, closely fastened to each other; those of the *Sycamore* represent two Cylinders placed a-cross; those of the *Junquille* are in Form of a Kidney; those of

of the *Campanula*, *Passion Flower*, &c. are nearly round, but unequal in their Surfaces; those of the *Caryophillus Sylvestris* are round, and cut in Fascets; those of the *Geranium*, and some other Species are round, with a Kind of Umbilicus, or Indenture, as in an *Apple*. Mr. *Bradley* says they are perforated quite through, like the Bead of a Necklace; those of *Calika*, *Corona Solis*, &c. are little Globes, set with Prickles, *&c.*

Of these *Farinæ*, some are very hard, others soft, and easily broke. They all contain a deal of sulphurous Matter, more than the other Parts; whence they are very odorous. Those of the Lilly are so full of Oil, that they grease the Paper they are put upon, as if it had been oiled. The *Farinæ* of most aromatick *Plants* swim in an essential Oil, or Sort of liquid Turpentine; others are involved in a dry Resin, as those of the *Lycopodium*, or *Muscus Terrestris Clavatus*. Others, as those of *Fumitary*, are inclosed in a little viscid, mucilaginous Matter; and all in Effect have something so glutinous, that they stick to any Thing that touches them, so that 'tis difficult to seperate them from each other. Some have imagined that the *Farinæ* were only Particles of Wax, or Resin; but the contrary is easily proved; for they neither dissolve in Water nor Spirit, nor Oils, even assisted with Fire.

For the Manner wherein the *Farina* fecundifies, Mr. *Geoffrey* advances two Opinions. 1. That the *Farina* being of a sulphurous Composition, and full of subtil penetrating Parts, (as appears from its sprightly Odour) falling on the *Pistils* of the Flowers, there resolves, and the subtillest of its Parts penetrating the Substance of the Pistil, and the young Fruit, excite a Fermentation sufficient to open and unfold the young *Plant* inclosed in the Embryo of the Seed. In this Hypothesis the Seed is supposed to contain the *Plant* in Miniature, and only to want a proper Juice to unfold its Parts, and make them grow. The 2d Opinion is, that the *Farina* is the first *Germ*, or Bud of the new *Plant*, and needs nothing to unfold it, and enable it to grow, but the Juice it finds prepared in the Embryo of the Seed.

This Author takes the proper Seed to be in the *Farina*, inasmuch as the best Microscopes do not discover the least Appearance of any Bud in the little Embryo of the Grains, when examined before the *Apices* have shed their Dust. He imagines in leguminous *Plants* if the Leaves and *Stamina* be removed, and the Pistil, or that Part which becomes the Pod, be viewed with the Microscope, ere yet the Flower be opened, the little green transparent *Vesiculæ*, which are to become the Grains, will appear in their natural Order; but still shewing nothing else but the mere Coat or Skin of the Grain. That if the Observation be continued for several Days successively, in other Flowers as they advance, the *Vesiculæ* will be found to swell, and by Degrees to become replete with limpid Liquor; wherein when the *Farina* comes to be shed, and the Leaves of the Flower to fall, we observe a little greenish Speck, or Globule, floating about at large. That there is not any Appearance, at first, of Organization in this little Body; but in Time, as it grows, we begin to distinguish two little Leaves like two Horns. That the Liquor diminishes insensibly, as the little Body grows, 'till at length the Grain becomes quite opake; when upon opening it, we find its Cavity filled with a young *Plant* in Miniature, consisting of a little *Germ*, or *Plumula*, a little *Root*, and the Lobes of the Bean or Pea. He supposes that, besides that the Cavity of the *Pistil* reaches from the Top to the Embryo's of the Grains, those Grains or *Vesiculæ* have a little Aperture corresponding to the Extremity of the Cavity of the *Pistil*, and that it is through this Aperture the *Farina* falls in the Mouth of the *Vesicula*, which is the Embryo of the Grain. That this Cavity or Cicatricula, is much the same in most Grains, and is easily observed in *Pease*, *Beans*, &c. without the Microscope. The *Root* of the little *Germ* being just against the Aperture, thro' which it passes out when the little Grain comes to germinate.

This System seems well enough adapted to those *Plants* called *Hermaphrodites*, and which have both Male and Female Parts, *i. e.* the *Farina*, and *Pistil*; but it is not so easily reconciled to a Species of *Plants* which bears Flowers without Fruits, and therefore distinguished into Male and Female; of which Kind are the *Palm-Tree*, *Poplar*, *Hemp*, *Hops*, &c. For how should the *Farina* of the Male, here, come to impregnate the Seed of the Female? Mr. *Geoffrey* is pleased to answer, that the Wind, doing the Office of a Vehicle, brings the *Farina* of the Males to the Females. I must confess that Mr. *Geoffrey* does a great deal of Honour to the Wind, to invest it with so much Knowledge, Prudence, and Discretion; for to effect this, it must know when that Transmigration is most proper to be made; as when the *Farina* is disposed for Copulation; it must know likewise the Difference of the Sexes of the *Plants*, and the different Species of those Sexes, lest he should make some Mistake, and carry the *Farina* of one Species to the Pistil of another Species, and by such Mistake occasion the Production of Monsters in the vegetable World. It must know likewise the Situation of both Sexes, for both Sexes in the vegetable Race, are as often asunder, as in the human Race; and Divorce and Separation are as frequent among them as among us, nay the Female *Plants* go as often a Whoring as Wives, and what's the most monstrous, are often found in the same Bed with the Male of another Species; therefore the Wind must know all these Tricks before it can be supposed qualified for a faithful *Mercury*, unless they be all as dexterous as that mentioned by *Jovinianus Pontanus*, which, sensible of a poor Female Palm-Tree, which had lived in a State of Celibacy in the Wood of *Otrant*, very much against her Will, as might be supposed, brought her at last, that precious Jewel, the Instrument of Generation of a Male Palm-Tree, cultivated at *Brendisi*, 15 Leagues distant from *Otranto:* What's the more surprising to me is, that Mr. *Geoffrey* seems to believe that monstrous Romance, and to make Use of it to support his System.

M. *Tournefort*, sensible, as I suppose, of the Ridicule of it, imagines, that without that mysterious *Farina*, the fine *Filaments*, *Tormentum*, or *Down*, always found on the Fruits of the *Plants*, may do the Office of Impregnation.

When I reflect seriously on these different Sentiments, which in other Men would be considered as a Piece of the greatest Extravagancy and Folly, and deserving, at least, *Bedlam*, or the *Petites Maisons*; I cannot but admire the ridiculous Vanity of Mankind, in attempting not only to penetrate into the inmost Secrets of Nature itself, but even to force her to act contrary to those irrevocable Orders and Regulations, established from the Beginning by the Author of all Things: Why should we search the Principles of Generation in Vegetables any where else but where they are to be found? Why should we have the Barbarity to lead our Fellow-Creatures through so many intricate and difficult Passes, to attain to an End, which, with the least Reflection, is so easily obtained? Why should we make a Distinction of Sexes in the *Plants*, where there is none? To what End? For the Generation of the *Plants*; have they not that Principle of Generation within themselves, from that very Moment the Crearor commanded the Earth *to bring forth Grass, the Herb yielding Seed, and the Fruit-Tree yielding Fruit after its Kind, whose Seed is in itself upon the Earth.* Gen. i. 11. Is not this better understood, and more agreeable to Reason, than to have Recourse to Impossibilities for the Generation of *Plants*? Is it not more evident, and easier to be demonstrated, that the Seed has in itself the first Principle of the vegetable Life, which lay dormant in the Seed, 'till by its being put into the Earth, and excited by Fermentation, they become active, and apply themselves to the admirable Mechanism of the *Plant*, on which they work without Intermission, 'till they have brought it

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to its Perfection, or are forced to desist, by meeting with some insuperable Obstacles; than to say, that an insignificant Excrement of the *Plant*, which we are pleased to dignify with some particular Title, and whose Effects we explain by some problematick Terms, which we do not so much as understand ourselves, has that Faculty of fecundating the Seed? The Difference of Sentiments in *Botanists* on that Subject, and even of the most learned among them, is sufficient to convince us, that they speak of a Thing which they know nothing of themselves; and that they would, if they could, render problematick, what's apparent enough of itself; for in Fact the Seed, without the Concurrence of any other Causes, has its Fecundity in itself, which wants no other Assistance, for to unfold its first Principles, than of a Fermentation in the Earth, or in some other Place, fit to excite its Activity.

From this difficult Point we'll proceed to the other Distinction we have made of *Plants*; into *Terrestrial*, which are those that live only on Land, as *Oak*, *Beech*, *&c.* *Aquatick*, which live either in Rivers, as the *Water-Lilly*, *Water-Plantin*, &c. or in the Sea, as the *Fucus*, *Coral*, *Coralline*, &c. *Amphibious*, which live indifferently either in Land or Water, as the *Willow*, *Alder*, *Mints*, &c. *Annual*, which are those, whose *Root* is formed and dies the same Year, such are the leguminous *Plants*, *Wheat*, *Rye*, &c. *Bisannuals*, which only produce Flowers and Seeds the second, or even third Year after their being raised, and then die; such are *Fennel*, *Mint*, &c. *Perennial*, which never die after they have once born Seed. Of those, some are Ever-greens, as the *Asarabacca*, *Violet*, &c. others loose their Leaves one Part of the Year, as *Fern*, *Coltsfoot*, &c. *Note*, That this Distinction is not made with Regard to their Species, but only to their Age and Period.

Plants are also distinguished, with regard to their Magnitude, into Trees, Shrubs, and Herbs. *Trees*, are the *Oak*, *Pine*, *Fir*, *Elm*, *Sycamore*, &c. *Shrubs*, are the *Holly*, *Box*, *Ivy*, *Juniper*, &c. And *Herbs*, are *Mint*, *Sage*, *Sorrel*, *Thyme*, &c.

Mr. *Ray* distinguishes the Trees and Shrubs of *English* Growth into *nuciferous Trees*, which are those which have their Flower disjoined and remote from the Fruit, or bears Nuts; as the *Walnut-Tree*, the *Hazle-Nut-Tree*, the *Beech*, the *Chesnut*, and the common *Oak*. *Coniferous*, or such as bear a squammous or scaly Fruit, of a conical Figure, and a woody or hard Substance, in which are many Seeds; which, when they are ripe, the Cone opens or gapes in all its several Cells or Partitions, and lets them drop out. Of this Kind are the *Scotch* Firs, Male and Female; the Pine which in our Gardens is called the *Scotch Fir*, the common *Alder Tree* and the *Birch-Tree*. *Bacciferous*, or such as bear Berries, *i. e.* Fruit covered with a thin Membrane, wherein is contained a Pulp, which grows soft, and moist when ripe, and encloses the Seed within its Substance, which Trees Mr. *Ray* divides into four Kinds. 1. Such as bear a Caliculate, or naked Berry; the Flower and Calix both falling off together, and leaving the Berry bare, as the *Sassafras-Tree*. 2. Such as have a monopynereous Fruit, that is, containing in it only one Seed, as the *Arbutus*, *Terebinthus*, *Lentiscus*, &c. 3. Such as have a naked but polypyreneous Fruit, that is, containing two or more Kernels or Seeds within it, as the *Jasminum*, *Ligustrum*, &c. 4. Such as have their Fruit composed of many Acini, or round soft Balls set close together like a Bunch of Grapes, as the *Uva Marina*, *Rubus vulgaris*, *Rubusidæus*, and the *Rubus minor fructu Caruleo*.

There are, also, *lanigerous Trees*, or such as bear a woolly, downy Substance; as the black, white, and trembling Poplar, Willows, and Osiers of all Kinds. *Trees* that bear their Seeds (having an imperfect Flower) in leafy Membranes and Cases, as the Hornbeam, or Hardbeam, call'd in some Places the Hornbeech. Such as have their Fruits and Flowers contiguous, which are either with the Flower plac'd on the Top of the Fruit, or adhering to the Base, or Bottom of the Fruit. Of the former Kind, some are pomiferous, as Apples and Pears; and some bacciferous, as the Sorb, or Service Tree, the White, or Haw-thorn, the Wild Rose, Sweet-brier, Currants, the Great Bilberry-bush, Honey-suckle, Ivy, &c. The latter Kind are either such as have their Fruit soft, and moist, when ripe; as, 1. *Pruniferous* ones, whose Fruit is pretty large and soft, with a Stone in the Middle, as the Black-thorn, or Sloe-tree, the Black and White Bullace-tree, the common wild Cherry, the Black Cherry, *&c.* 2. *Bacciferous Trees*, as the Strawberry tree in the West of *Ireland*, Mistletoe, Water-Elder, the Dwarf or large Laurel, the *Viburnum*, or Way-faring Tree, the Dog-berry Tree, the Sea Black-thorn, the Berry-bearing Elder, the Privet, Barberry, Common Bramble, and the Spindle-tree, or Prick-wood.

Also such as have their Fruit dry, when ripe; as the Bladder-nut Tree, the Box-tree, the Common Elm, and Ash, the Maple, the Gaule, or Sweet Willow, Common Heath-broom, Dyer's Weed, Furze, or Gorse, and Lime-tree.

Shrubs, are nothing else but little, low Dwarf-trees, or woody *Plants*, of a Size less than a Tree; and which, besides their principal Stems and Branches, frequently from the same Root put forth several other considerable Sets, or Stems. Such are the Privet, Phyllirea, Holly, Box, Honey-suckle, *&c.* *Shrubs* are distinguish'd, by some, from *Sufrutices*, or *Under Shrubs*, which are low Bushes, that do not put forth, in Autumn, like *Trees* and *Shrubs*, a Kind of Buttons, or Gems, in the Axis of the Leaves; such are Lavender, Rue, Sage, *&c.*

Botanists divide, likewise, the Vegetable World into *Genera* and *Species*; though they do not all agree upon, from what Consideration the Division into *Genera* is best taken. *Tournefort*, one of the latest and best Writers, after a long and accurate Discussion, has chose, in Imitation of *Gesner* and *Columna*, to regulate them by the Flowers and Fruit consider'd together; so that all *Plants* which bear a Resemblance in those two Respects, are of the same *Genus*, (*i. e.* that they all agree in some one common Character, in Respect of the Structure of certain Parts, whereby they are distinguish'd from all other *Plants*) after which, the respective Differences, as to Root, Stem, or Leaves, make the different Species or Subdivisions. He pretends, contrary to Mr. *Ray*'s Opinion, that he has never hitherto met but with fourteen different Figures of Flowers, which are to regulate entirely the *Genus* or Class of *Plants*, and which is all that's to be retain'd in the Memory, to be capable to descend to six hundred and seventy-three *Genera*, which comprehend 8846 Species of *Plants*; which is the Number of those yet known by Land and Sea.

Since M. *Tournefort* is of Opinion that the different Figures of Flowers are to regulate entirely the *Genera*, or Classes of *Plants*; it will not be improper to examine, in this Place, and previously to the Distinction of *Plants* made by Mr. *Ray*, not only those different Figures of Flowers, but also inform our selves, in a more particular Manner than we have done yet, of the Structure of those Flowers, and first of the Definition of Flowers.

FLOWER, is defin'd, by *Botanists*, that Part of a *Plant* which contains the Organs of *Generation*, or the Parts necessary for the Propagation of the Kind.

Dr. *Grew* divides the *Flower* into three Parts, which are the *Empalement*, *Foliation*, and *Attire*.

He calls *Empalement*, or *Calix*, the outer Part of the *Flower*, which environs the two others, which is either of a whole Piece, or continu'd; as in Pinks and Carnations; or divided into several, as in Roses. When divided, it resembles small Leonies, as it appears in the *Flowers* of the Quince-tree, or of Primroses. The *Empalement*, or *Calix* of *Flowers*, is compos'd of the same essential Parts which form the *Plant*, *viz.* of the Skin, or *Cortex*, *Parenchyma*, and *ligneous* Body; as is evident in the *Artichoke*, which is but a *Flower*, of which, what's vulgarly call'd the

Leaves, are the *Empalement*, or *Calix*. It even appears that the Skin which covers those *Leaves* are all of a Piece, from the inner, which are lesser, to the outer *Leaves*, which are the greater; so that what we take to be different *Leaves*, is only the same *Empalement*, or *Calix*, which has several *Plits*.

The Use of the *Calix* is, to support and cover the other Parts of the Flowers; it covers them while they are yet in Buds, and thereby defends them against the Injuries of an excessive Cold, or of an extreme Heat; and supports them in such a Manner, as to keep them always in the most advantagious Situation. 'Tis for this Reason that *Empalements*, or *Calices*, are different, and more or less strong, according to the Diversity of Flowers. There are some Flowers which have no *Empalement*, or *Calix*, as Tulips; because their Leaves being thick and strong, and each resting on its proper Basis, they want no *Calix* for their Support. On the contrary, Carnations and Pinks have a *Calix*, which, to be stronger, is all of a Piece; otherwise their Leaves, whose Foot is very long and slim, would part from each other, and deviate from their natural Situation, or Place. This *Calix* is *dentated* atop, that it may the easier shut, and cover the Leaves, while yet too tender; and afterwards open, and spread it self a little under the same Leaves, to support them, when the Flower is entirely blown. Lastly, There are Flowers whose Leaves being very long, and very tender, have *Calices* compos'd of several Pieces, the one plac'd above the other, almost like the Scales of a Fish, being thereby more proper to support and preserve those Flowers; as is plainly seen in *Jacees*, and other like Flowers.

The Leaves of the Flower are also compos'd of the same essential Parts with the green Leaves; for their Membranes, Pulps, and Fibres, are nothing else but the Skin, *Parenchyma*, and *Ligneous* Body, which have spread to form them.

The Leaves of the Flowers, like the green Leaves, have several different Dispositions; among which, the following ones are the most common: In Roses, and several other double Flowers, the Leaves are only a little leaning upon one another, and still more in the Flowers of *Blattaria*. Sometimes they are folded in, as are some Leaves of the Flowers of Pease, and the Leaves of Coriander-flowers; and those *Plits* are as simple as in these here mention'd; or double, as in the *Jacees*, &c.

There are Flowers whose Leaves are at the same Time folded, and leaning over one another; as the *Marigold*, *Daisies*, and other like Flowers; for when they begin to open, their Leaves are seen leaning over one another; and when those Leaves are grown bigger, 'tis easily discover'd that each make two *Plits*. There are Flowers whose Leaves are roll'd up; for Example, in those of *Clematis*, the Top of the Leaves are roll'd in. In some others, the Leaves form a kind of Vyce, or spiral Line; as the Flowers of Mallow, and others. Lastly, Some are plitted, which, notwithstanding, are dispos'd into Spirals, because the whole Body of those Flowers being all of a Piece, there are only Plits which reign in a spiral Line, from the Top to the Bottom.

It is easily understood why there are so many different Dispositions in *Flowers*; for the Bigness and Figure of their Leaves are so unequal, that it is impossible they should be otherwise dispos'd. Dr. *Grew* says, that he has never seen the Leaves of Flowers roll'd outward, as are sometimes the green Leaves; and gives for Reason of this Difference between both, 1. That the Fibres are not rais'd on the Back of the Leaves of the Flowers, as they are on the Back of other Leaves. And, 2. Because the Leaves of the Flowers serve to shut up, and preserve the *Heart*, which they could not do, if they were roll'd outward.

Besides the green Leaves, and *Empalement*, or *Calix*, which serve as *Wrappers* to Flowers; some have other Parts to defend them against the Injuries of the Air, as the Spring-Saffron; for its Flowers having no *Calix*, and coming out of the Earth before the green Leaves, *i. e.* at the very Beginning of the Spring, Nature has supply'd them with a double Veil, to shelter them.

There are various *Flowers* in which the Basis of the Leaves is cover'd with a kind of Down, which fills up the whole Extent of the *Calix*, that thereby those Leaves which are very tender might be kept always in a moderate Warmth necessary to them; and though the Leaves themselves be not cover'd with those small Hairs, however, there are some, which, in some Places, feel like Sattin, or very soft Velvet; because those Places being contiguous to the Heart of the Flower, which is very tender, and touching it often, they must be soft, and warm, to preserve it. 'Tis for this Reason that in the Flowers of *Clematis* those Parts of the Leaves which are roll'd in, and contiguous to the Heart, are like Velvet, while the other Parts are even, and shine as if they were glaz'd. The same Thing is observ'd in the Flowers of Pease, Hemp, and the like; for the Leaves contiguous to the Heart of those Flowers, are always a little like Velvet.

The Leaves serve to cover the Heart of the Flower, and the Fruit; so that as the *Calix*, being harder, and coarser, is their outer *Envelope*; the Leaves being tenderer, is the inner one, and both of an equal Utility.

The different Situation of these Leaves, and of the Fruit, in various *Plants*, evidences this Truth; for Apples, Pears, and other Fruits, whose *Parenchyma*, or Pulp, have a competent Solidity, are situated behind, or above the Flowers; whereas Cherries, Apricots, and other like Fruits, are shut within the Flowers; because beginning to be form'd in the Beginning of the Spring, which is often pretty cold, and their *Parenchyma*, or Pulp, being very tender, they would infallibly perish, if they were not wrapp'd up in the Flowers which preserve them. But the Preservation of the Fruit is not the only Use of the Flowers; for they contribute, besides, towards making it grow, while yet but in Embryo; and 'tis for this Reason that Flowers are more or less large in Proportion, as the Fruit requires more or less Juice for its Nutrition. For unless a young Fruit was of a Consistence solid enough, as Apples, Pears, *&c.* the Suc could not enter it abundantly enough, if the Flower, which is above, was not to contribute towards it, in the same Manner the green Leaves contribute to the Ascent of the Juices into the Branches; so that the young Fruit would die, or at least never be brought to Maturity, or Perfection. On the contrary, if the Flowers were too large, in Proportion to the Fruit, they would exhaust and intercept all the Juices. Therefore the Pulp of Quinces being more solid than that of Apples or Pears, their Flowers are also larger, and even the *Calices* of those Flowers grow, and remain green long after the Flowers are fallen, till the Fruit has no longer Need of them.

The Prune, whose Pulp is tenderer than those of Apples or Pears, have their Flowers smaller, though their *Calices* are as large. The Gooseberry and Currant, whose Pulp is tender, have likewise their *Flowers* smaller yet: And, lastly, the Pulp of Currants being the tendereſt of all, and nourish'd with a Juice more volatile than the others, and which, consequently, ascends with more Ease, or Facility, the Vine which bears them produces no *Flowers*, but only some small Parts which supply the Place of *Flowers*, and which falls off as soon as the Fruit is form'd.

Mr. *Ray* divides *Flowers* into *perfect* and *imperfect*, and subdivides the *perfect* (which, in his Opinion, are all those which have the *Petala*, though they want the *Stamina*) into *simple* and *compounded*. The *simple* are those which are not compos'd of other small ones, and, usually, have but one single Style; and the *compounded* have many *Foſculi*, all making but one *Flower*.

Single Flowers are either *monopetalous*, or *polypetalous*. The *monopetalous* have the Body of the *Flower* all of an entire Leaf, though sometimes cut, or divi-

ded a little Way, into many seeming *Petala's*, or *Leaves*; as in Burrage, Buglofs, &c. The *polypetalous* are those which have distinct *Petala*, and those falling off singly, and not altogether; as the seeming *Petala* of the *monopetalous Flowers* always do.

Both these are further divided into *uniform* and *difform Flowers*. The *uniform* have their Right and Left Hand Parts, and the forward and backward Parts, all alike. But the *difform* have no such Regularity; as in the *Flowers* of Sage, Dead-nettle, &c.

Note, That PETALA are the colour'd Leaves of a *Flower*.

Monopetalous difform Flowers are, likewise, further divided into *semi fistular*, *labiate*, and *corniculate Flowers*. The *semi-fistular Flowers* are those whose upper Parts resemble a Pipe cut off obliquely; as in the *Aristolochia*. The *labiate*, those either with one Lip only, as in the *Acanthium* and *Scordium*; or with two Lips, as in the far greater Part of the *labiate Flowers*. And here the upper Lip is sometimes turn'd upwards, and so turns the convex Part downward; as in the *Chamæcissus*, &c. but most usually the upper Lip is convex above, and turns the hollow Part down to its Fellow below, and so represents a kind of Helmet, or Monk's Hood; such are the *Flowers* of the *Lamium*, and most *verticillate Plants*. Sometimes, also, the *Labium* is entire; and sometimes jagged and divided. The *corniculate* are those hollow *Flowers* which have on their upper Part a kind of Spur, or little Horn; as in the *Linaria*, *Delphinum*, &c. and the *Corniculum*, or *Calcar*, is always impervious at the Tip, or Point.

Compound Flowers, are either *discous*, *planifolicus*, or *fistular*. The *discous*, or *discoidal*, are those whose *Flosculi* are set together so close, thick, and even, as to make the Surface of the *Flower* plain and flat; which therefore, because of its round Form, will be like a *Discus*, which is sometimes radiated, when there is a Row of *Petala* standing round in the Disk, like the Points of a Star; as in the *Matricaria*, *Chamæmelum*, &c. and sometimes naked, having no such radiating Leaves round the Limb of its Disk; as in the *Tanacetum*. The *planifolious* are those compos'd of plain *Flowers*, set together in circular Rows round the Center, and whose Face is usually indented, notch'd, uneven, and jagged; as the *Hierachia*, *Sonchi*, &c. The *fistular* are those which are compos'd of many long, hollow, little *Flowers*, like Pipes, all divided into large Jags at the Ends.

Imperfect Flowers are such as want the *Petala*, and are call'd, likewise, *stamineous*, *apetalous*, and *capillaceous Flowers*. *Tournefort* calls *amentacious* those *Flowers* which hang pendulously by fine Threads, like the *Juli*; we call them *Cat's tails*.

The other Divisions of *Flowers* are into *campaniform*, *cruciform*, *infundibuliform*, *cucurbitaceous*, *stamineous*, *leguminous*, *papilionaceous*, *umbelliform*, and *verticallate Flowers*. The *campaniform* are those in Shape of a Bell. *Cruciform*, those consisting of four *Petala*, or *Leaves*, the *Calix*, also, containing four *Leaves*; and the Pistil always producing a Fruit: Such are those of the Clove-tree, Cabbage-tree, &c. *Infundibuliform*, are such as resemble the Figure of a Funnel, *i. e.* are broad and ample a top, and contracted into a Neck at Bottom: Such is that of the Bear's Ear. *Cucurbitaceous* are such as resemble the *Flower* of the Gourd, or have the same Conformation therewith. *Stamineous* are such as have no *Petala*, but consist wholly of *Stamina*, or Threads, with *Apices* a-top. The *Leaves* plac'd round these *Stamina*, are not to be esteem'd as *Petala*, but a *Calix*, in regard they afterwards become a *Capsula*, or Cover, including the Seed; which is the Office of the *Calix* alone. The *leguminous* are those of *leguminous Plants*; they bear some Resemblance to a flying Butterfly; for which Reason they are also call'd *papilionaceous*, which consist of four or five *Leaves*, whereof the uppermost is call'd *Vexillum*, or Standard; and the lowest *Carina*, as resembling the Bottom, or Keel of a Boat: Those between the two are call'd *lateral Leaves*, or *Alæ*; from the Bottom of the *Calix* arises a Pistil, which is encompass'd with a Sheath, or Cover, fring'd with *Stamina*; this Pistil always becomes the Fruit, and is usually call'd the Pod, in *Latin Siliqua*. *Umbelliform*, are those with several *Leaves* double, and dispos'd in manner of a Rose, and whose *Calix* essentially becomes a Fruit of two *Seeds*, join'd before they come to Maturity; but afterwards easily separated again. They are thus call'd, because they are usually sustain'd by a Number of Threads, which proceeding from the same Center, are branch'd all round, like the Sticks of an *Umbrello*; of this Kind are the *Flowers* of *Fennel*, *Angelica*, &c. And the *verticillate* are those rang'd, as it were, in Stories, Rings, or Rays, along the Stems; such are those of Horehound, Clary, &c.

From the *Flowers* we'll pass to the *Fruits*, which are compos'd of the same essential Parts describ'd already in the other Parts of the *Plants*; that is to say, of the Skins, or Membranes; of the Pulps, or *Parenchyma*; and of the *Fibres*, or *ligneous Body*. However, as the various Dispositions and Preparations of those Parts make a very great Quantity of different Fruits, Dr. *Grew* contents himself with describing the most common, and principal, to which all others might be reduc'd; which are Apples, Pears, Prunes, Filberds, and Blackberries.

Apples are compos'd of four Parts, which are the Skin, the Pulp, the *Fibres*, and the *Capsula*, which contain the *Seed*. The Skin is but a Continuation of that of the Branch extended as far as the *Fruit*. The *Pulp* is likewise nothing else but the *Parenchyma* of the *Tree*, which extends it self, and swells, which appears manifestly, when we examine an Apple, yet very small, and newly form'd; and that Pulp, hard, and of a coarse Juice, at first, becomes, in Process of Time, tender, delicate, and grateful to the Taste, the same as the Marrow, which is commonly pretty hard, and of an acerb Taste, becomes tender and sweet in some Roots, as in Parsnips, Turnips, Carrots, and others.

The *Fibres* are but the *Ramifications* of the *ligneous* Body, which penetrate the *Parenchyma*, and whose bigger joins together, as in the *Leaves*, by the interwoving of the smaller. There are commonly in Apples fifteen large *Fibres*, ten of which are distributed throughout the whole Substance of the Pulp, and at last join together towards the *Umbillic*, or the Eye of the Apple; and the five others pass in a right Line through the *Pedicle*, as far as the said Eye of the Apple, where meeting with the first ten, they mix, and unite with them: These last five have their Origin from a single one, which having extended it self all along the *Center* of the *Pedicle*, and even in one Part of the Pulp, is divided, at last, into five Branches, to which are ty'd the *Kernels* of the Apple. Therefore though originally those *Fibres* cross in a right Line the whole Pulp of the *Fruit*, and penetrate as far as to the *Flower*, to which they carry the Sap which makes it grow; nevertheless, in Process of Time, the *Fruit*, which grows bigger, drawing to it self all the Juice which passes in those *Fibres*, the *Flower* withers, and falls, and those five *Fibres* are no longer of Use, but to the *Fruit*. Whence it may be concluded, that of the fifteen large *Fibres* discernable in the Apple, ten serve to carry the Sap into the Pulp, or *Parenchyma*; and five are destin'd for the Nutrition of the *Kernel* or *Seed*.

The *Capsula* proceeds from the Marrow; for as soon as the Pulp begins to grow big, the Juice, finding Room enough, enters into it, and quits the Marrow, which withers, and thus forms the *Capsula*.

Pears are compos'd of five Parts, which are the Skin, or *Cortex*, *Parenchyma*, Ramification, Stone, and *Acetarium*. The three first are very near like those of Apples, with this single Difference, that the *Fibres*

Fibres which run in a right Line in the *Pear*, and serve for the Nutrition of the *Kernels*, are in greater Number; for commonly there are found ten.

The *Stone* observ'd chiefly in choaky Pears, is not an essential and vital Part like the others, but is only a Congeries of stony Corpuscles, dispers'd throughout the whole *Parenchyma*, but in the greatest Plenty, and closest together, about the *Center*, or *Acetarium*. It is form'd of the stony, or calculous Parts of the nutritious Juice of the *Parenchyma* extravasated in Masses.

The *Acetarium* is a Substance of a tart, acid Taste, of a globular Figure, inclos'd in an Assemblage of several of the stony Parts above-mention'd. 'Tis of the same Substance with the *Parenchyma* and the Marrow, though 'tis almost impossible to determine from which of those two Parts it proceeds immediately.

As for the Origin of the *Stone*, the various stony Corpuscles 'tis compos'd of are nothing else but several Parts of the Juice, indurated, and coagulated, by Precipitation, like those we see often in the *Sediment* of *Urine*, in *Wine Casks*, &c.

In the Plumb, Cherry, *&c.* there are four Parts, *viz.* a Coat, *Parenchyma*, Ramification, and Stone, or *Nucleus*. The Coat, *Parenchyma*, and *Fibres*, have the same Origin, and are form'd in the same Manner, as in Apples and Pears; but the *Fibres* have a different Disposition. There are in all Sorts of Plumbs five large *Fibres* extended over the Surface of the Stone, from the Base to the Point; four on one Side, and one on the other. The same Number is found in Apricots, with this Difference, that the *Fibre* which is single on one Side, is not extended on the Surface of the Stone as in Plumbs, but penetrate into the Stone. On the other Side there are likewise found between the four large *Fibres* heretofore mention'd, two or three smaller *Fibres*, which, after having, like the others, a little extended themselves on the Surface of the Stone, penetrate into the Pulp, and are dispers'd therein. Lastly, there are in all the Parts of *Peaches* a very great Number of these small *Fibres*.

But notwithstanding the different Disposition of these *Fibres*, observ'd in the *Fruits* here mention'd, that which is single is dispos'd in the same Manner in all, *i.e.* that it enters the Stone, at the Base, and after it has extended it self in the very Substance of the Stone, it enters the middle Cavity, through the Point, where the *Kernel* is suspended by its *Envelope*.

The Stone is a compos'd Body, though at first it appears simple. Its inner Part is the thinnest, and is also whiter, denser, and more polish'd than the rest. It derives from the *Medulla*, and the Manner 'tis form'd is very curious, but not easily observ'd. For as the *Fibre* of the *Seed* does not penetrate it directly through the Base, but only through the Point, it carries along with it a considerable Part of the *Medulla*, which gathers round it, and forms a kind of *Parenchyma*; so that penetrating into the Cavity of the Stone through the Point, that *Medulla*, or *Parenchyma*, which surrounds it, enters likewise, and being there coagulated, forms in the whole Extent of that Cavity a kind of white Lining, hard, and polish'd.

The external Part of the Stone, which is the thickest, is compos'd of several Parts, which are precipitated and coagulated, as in Pears; with this Difference only, that in Plumbs, and other such *Fruits*, the precipitated Parts are still nearer to one another, and are not only contiguous, but form, likewise, a continu'd Stone, and all of a Piece. It is so very true that the *Stones* are form'd thus, that even in Pears the *Stone* is the same, especially toward the Eye of the Pear; and it is also in the same Manner that in Animals some Parts of the *Urine* which are precipitated, form a Gravel, and afterward Stones. But we must observe, that as in the Stones of Pears there is a *Parenchyma* mix'd with the stony Corpuscles; there is one, likewise, in the Stones of Plumbs, mix'd with the precipitated and coagulated Parts. 'Tis true, that the Stone being form'd, those Parts are not so easily distinguish'd; but, notwithstanding, the Foundation of all Stones is nothing else but a perfect *Parenchyma*, which by those Precipitations and Coagulations which gather round it, suffers such Alteration, as to become dry and hard; so that it is impossible to distinguish it from those Parts which are coagulated.

The *Nut*, analogous to which is the *Acorn*, consists of a Shell, *Cortex*, and *Medulla*. The Shell consists of a Coat and *Parenchyma*, deriv'd from the Bark and Wood of the *Tree*. The *Cortex* is also a Body compos'd of several different Substances; its Surface is a Duplicature of the inner Tunick of the Shell, which, towards the Base, folds it self, and extends on the *Cortex*, which it covers almost entirely; of which we are easily convinc'd, when we examine it. For we see then that the Base of the *Cortex* is continu'd with the *Parenchyma* of the Coat, from which it is not separated by the Skin. Whence it ensues, that the superficial Part which covers almost the whole *Cortex*, and which is but a Continuation of the Skin of the Coat, is not found in the Base, whereby the *Cortex* and Coat are join'd. The inner Part of the *Cortex*, which is the thickest, is not a *Parenchyma* semblable to the Coat, but mix'd with several precipitated and coagulated Parts; as in the Stones I have describ'd already, and are even intermix'd with several *Fibres*, or Branches of the *ligneous* Body; with this Difference, that in the *Cortex* the *external Fibres*, which are not appointed to nourish the *Seed* or *Kernel*, are in a considerable Number, coming from the *Parenchyma* of the Coat, to enter into the *Cortex* through the Base, are separated in round like the Threads of a Puff, and thus extend themselves on the *Circumference* of the *Cortex*, as far as the Point, between the Skin and the inner Part of that *Cortex*, which is nothing else but a coagulated *Parenchyma*. As for the *inner Fibre*, which serves to nourish the *Seed*, 'tis always single, and coming from the *Coat* between the two others, it enters thro' the Base of the *Cortex*, and is not extended in the Body of that *Cortex*, as in the Body of the Stones of Plumbs, to go and unite it self to the *Kernel* by the Point, but passes directly through the *Center* of the Base, into the *Medulla*, which it penetrates and runs throughout its whole Length, as far as the Point of the *Cortex*, to which the Skin of the *Kernel*, or *Seed*, adhere. But whether the *Medulla*, or Pulp of the *Kernel*, arises from the Pith of the *Tree*, or the cortical Part of the *Fruit*, is not agreed.

Berries, as *Grapes*, &c. are compos'd of three Parts, besides Grains of a stony Nature, *viz.* the Coat, *Parenchyma*, and *Fibres*.

The Origin of the Coat is the same, as in the other *Fruits* heretofore mention'd; but there are found in these, two Sorts of *Parenchyma:* The first, call'd *external Parenchyma*, is adherent to the Coat; and as it is of an extreme Acidity, 'tis commonly spit out, when those *Fruits* are eaten. It derives from the *Parenchyma* of the *Cortex* of the Branch, and the Pores of both, as well as of the *Medulla*, are visibly dispos'd in the same Manner. The other, call'd the *inner Parenchyma*, is that which is commonly eaten; its Taste is so grateful, and it self so tender and delicate, that it seems but as a thicken'd Juice, though it be a true *Parenchyma*, whose Pores are very large, and full of Liquor, like those of Oranges and Lemons.

There are also in these *Fruits*, like in the others, two Sorts of *Fibres*. The *external* ones are extended in curve Lines, between the Coat and *external Parenchyma*, from the *Pedicle* to the Base of the Flower; and though they be not always in the same Number towards the *Pedicle*; however, there are ten found towards the Base of the Flower, five of which serve to the five Leaves of the Flower, and the five others to the Leaves of the *Calyx*. As for the inner Fibres two are commonly found diametrically opposite to each other, which, towards the Base of the Flower, are mixed with those already mentioned, and being divided afterwards into several smaller, each of these small Fibres has a Grain tied to it, into whose Coat it enters by two Filaments, one whereof answers to the Base,

Base, and the other to the Point of the Grain. Those Fibres are all white and big enough for us to see easily; when cut obliquely, they are hollow, and true spermatick Vessels, since they have very near the same Figure, and the same Use as those of Animals.

From this necessary and accurate Examen of the *Flowers*, and Fruits of *Plants*, which, I hope, will flatter agreeably the Curiosity of the Reader; I'll proceed to the Distribution of *Plants* by Mr. *Ray*, into 25 *Genera*, or Classes, under the following Denominations; and from that to their Analysis and Virtues.

The first Class contains *imperfect Plants*, such as appear to want the Flower and Seed, as *Corals*, *Sponges*, *Truffles*, *Moss*. The 2d produce *Plants* of an imperfect Flower, and whose Seed is too small to be discerned by the naked Eye; such are *Fern*, *Polypody*, *&c.* The 3d, those whose Flowers want *Petala*, as *Hops*, *Hemp*, *Nettles*, *Docks*, &c. 4th, Those with a compound Flower, and which emit a milky Juice, when cut, or broke, as *Lettuce*, *Dandelion*, *Succory*, &c. 5th, Those of a compound Flower of a discous Form, and whose Seed is winged with Down, as *Coltsfoot*, *Flea-bane*, &c.

Note, that winged Seed are such as have Down or Hairs on them, whereby the Wind taking hold, blows them to a Distance.

The 6th contains *Herbæ Capitalæ*, or those whose Flower is composed of long fistulous Flowers gathered into a round Head, and covered with a scaly Coat, as the *Thistle*, *great Burdock*, *Blue Bottle*, &c. 7th, *Corymbyferous Plants*, with a discous Flower, but no Down, as the *Daisy*, *Yarrow*, *Corn-Marygold*, &c.

Note, That *Corymbus*, among the antient *Botanists*, was particularly used to express the Bunches, or Clusters of Ivy-berries. Some also call the Top of the Stalk of a *Plant*, when so subdivided, and adorned with Flowers, or Fruits, as to make a round spherical Figure, by this Name; as the Tops of *Leeks*, *Onions*, and the like; and others confound the Word with *Umbrella*, which expresses the flowery Tops of such *Plants* as have their Branches and Flowers spread round, into the Form of an *Umbrella*. But among the modern *Botanists*, *Corymbus* is chiefly, for a compound discous Flower, whose Seeds are not pappous, *i. e.* do not fly away in Down, nor blown any where about with the Wind.

The 8th contains *Plants* with a perfect Flower, but only one Seed to each Flower, as *Valerian*, *Agrimony*, *Brunet*, &c. 9th, *Umbelliferous*, or those of five *Petala*, spread out like an *Umbrella*, and two Seeds to each Flower. This is a very large Genus of *Plants*, and are distinguished by the same Author into seven Species, *viz.* those with a broad flat Seed, like a Leaf, as wild Garden *Parsnips*; with a longish and larger Seed swelling in the Middle, as *Cow Weed*, and *wild Chervil*; with a shorter Seed, as *Angelica*; with the tuberous *Root*, as the *Earth-nut*; with a small straited *Seed*, as *Caraways*, *Saxifrage*, and *Brunet*; with a rough hairy *Seed*, as *Parsly* and *wild Carrot*; with entire Leaves subdivided into *Jags*, as *Sanicle*, and *Thorough-Wax*. The 10th contains *Stellate Plants*, whose Leaves grow round the Stalks at certain Intervals in Form of Stars, as *Mug-weed*, *wild Madder*, *Cross-wort*, *Mollugo*, *Asperula*, or *Woodruff*, *Gallium*, or *Ladies Bed Straw*, *Aparine*, or *Cleavers*, *Rubia Tinctorum*, or *Dyer's Madder*; to which may be added, as a kin to this Genus, the *Nasturtium indicum*, *Indian Cress*, or *Yellow Lark Spur*. The 11th, *Rough leav'd Plants*, which have their Leaves placed alternately, or in no certain Order along the Stalks, as *Hound's-Tongue*, *Mouse-Ear*, &c. 12th, *Suffrutices*, or *verticillate Plants*, whose Leaves grow by Pairs on their Stalks, one Leaf right against another, the Flower being monopetalous, and usually in Form of a Helmet. The same Author makes two Species of these *verticillate Plants*. 1. The *Fruticosæ*, of such whose Superficies is perennial; these again have either a plain Flower, as the *Chamædrys vulgaris*, *Thucrium*, and the *Marum Syriacum*, or a Flower with a Lip, called *labiated Flower*; or one something in the Form of a Helmet, called *Galeated*, as the *Sacria Stæchos*, *Hyssopus*, *Rosmarinus*, *Satureia*, *Marum vulgare*, *Thymum vulgare*, and the *Polium Montanum*. 2. The *Herbaceæ*, or such, whose Stalks are not perennial; these are the *Menthæ*, *Verbena*, *Dictamnus*, *Creticus*, *Origanum*, *Majorana*, *Ocimum*, *Horminum*, *Galeopsis*, *Nepeta*, *Betonica*, *Prunella*, *Stachys*, *Clinopodium vulgare*, *Lamium*, *Molucca*, *Hedra Terrestris*, *Galericulata*, *Calamintha*, *Melissa*, *Marrubium commune*, *nigrum*, *& aquaticum*, *Chamæpitys*, *Scarodonia*, *Scordium*, *Bugula*, *Syderitis*, *Cardiaca*.

The 13th contains the *Polyspermous Plants*, which are those which have more than four Seeds succeeding each Flower, without any certain Order or Number. These are also subdivided into 1. Such as have a *Calyx* or *Perianthium*, consisting either, first of three Leaves, and the Flower *Tripetalous*, as *Plantana Aquatica*, and the *Sagittaria*, both Water-Plants, or the Flower *Polypetalous*, and the *Calyx* falling with it, as the *Chelidonium minus*, or remaining after the Flower is dropped, as in the *Hepatica mobilis*. *Secondly*, Of five Leaves, in some deciduous with the Flower, as in the *Ranunculus*; in others *Perennial*, as in the *Helleborus niger ferulaceus*; or *Annual*, as in the *Flos Adonis*. *Thirdly*, Of eight Leaves, as the *Malva* and *Alcea*. *Fourthly*, Of ten Leaves, as the *Caryophylla*, *Fragaria*, *Pentaphyllum*, *Tormentilla*, *Argentina*, *Althæa*, and *Pentaphylloide*.

2. Such as have no *Calyx*, or *Perianthium*, as the *Clematitis*, *Filipendula*, *Ulmaria*, *Anemone-Nemorum*, *Pulsatilla*, &c.

In the fourteenth, are the Bacciferous *Plants*, or such as bear Berries, as *Briony*, *Honey-Suckle*, *Solomon-Seal*, *Lilly of the Valley*, *Nightshade*, *Asparagus*, &c. The 15th contains the *Multisiliquous*, or *Corniculate Plants*, which after each Flower, produce several long, slender *Siliquæ*, or Cases, wherein their Seed is contained, as *Orpine*, *Navel-wort*, *Bears-Foot*, *Columbines*, &c. The 16th, *Vasculiferous Plants*, with a *Monopetalous* Flower, and which after each Flower, have a Vessel besides the *Calyx*, containing the Seed; which is sometimes divided into Cells. They have their *Monopetalous* Flower, either uniform, or difform. The former have all their Seeds divided. 1. Into two Partitions, as the *Hyoscyamus*, *Incotiana*, *Priapeia*, and the *Gentiana*. 2. Into three Partitions, as the *Convolvulus*, *Speculum Veneris*, *Trachelium*, *Repunculus*, or *Campanula*, *Repunculus Corniculatus*, &c. 3. Into four Partitions, as the *Stramonium*. Those of the latter Kind, which have a difform *Menopotalous* Flower, as the *Linaria Pinguicula*, *Antirrhinum*, *Aristolochia*, *Scrophularia*, *Digitalis*, *Pedicularis*, *Melampyrum*, *Euphrasia*, &c. Mr. *Ray* makes three Classes of this *vasculiferous Plants*, which I have reduced here into one; and therefore proceed to the 20th, which contains the *leguminous Plants*, or such as bear Pulse, with a papilionaceous Flower, consisting of four Parts, joined at the Edges, as *Pease*, *Beans*, *Vetches*, *Tares*, *Lentil*, *Liquorice*, *Trefoil*, &c. The 21st, *Plants* with a true *Bulbose Root*, as *Garlick*, *Daffodil*, *Hyacinth*, *Saffron*, &c. The 22d, those whose *Roots* approached nearly to the *Bulbose* Form, as *Flower-de-lis*, *Cuckow-Pint*, *Bastard Hellebore*, &c. The 23d, *Culmiferous Plants*, with a grassy Leaf, and an imperfect Flower, having a smooth, hollow-jointed Stalk, with a long, sharp-pointed Leaf at each Joint, and the Seeds contained in a chaffy Husk, as *Wheat*, *Barley*, *Rye*, *Oats*, and most Kinds of *Grass*. The 24th, *Plants* with a grassy Leaf, but not *culmiferous*, with an imperfect or stamineous Flower, as *Rushes*, *Cats-Tail*, &c. And in the 25th are contained *Plants*, whose Place of Growth is uncertain, chiefly *Water-Plants*, as the *Water-Lilly*, *Milk Wort*, *Mouse-tail*, &c.

It has been the Opinion of ſome among the ancient *Botaniſts*, that *Plants* uſed to degenerate, *i.e.* that a *Plant* of one Kind was often changed into that of another viler Kind. Thus, ſaid they, *Wheat* degenerated into *Darnel*, *Barley* into *Oats*, *Ocimum* into *Serpyllum*, *Syſymbrium* into *Mint*, *Caulis* into *Rapa*, &c. The *Plantule* or *Stamen* of the future Vegetable, they hold to exiſt in the Seed; ſo that to produce ſuch a *Plexus*, or Organiſm, a Matter ſo and ſo prepared is required; and added that the Matter in the Soil, where the Seed is lodged, being ſuch as is incapable of producing the ſaid *Plexus*, it muſt neceſſarily change into another of a different Nature from that of the Seed required, though in ſome Reſpects alike, and approaching thereto: Thus *Darnel* and *Wheat* in many Reſpects agree; ſo alſo *Serpyllum* and *Ocimum*, &c. They allowed, however, that there was no Degeneration in the *Root*, but only in the Seed, inaſmuch as the Root already ſuppoſes a perfect Organization. But our lateſt and beſt *Botaniſts* maintain ſuch a Degeneration, or Tranſmutation, to be a Chimera; not, but they allow that a *Plant*, by being tranſplanted to an improper Soil, or Sun, may be depraved; ſo as a *Dutch* Roſe of an hundred Leaves may only produce another Roſe far ſhort thereof in Number of Leaves, Colour, Smell, *&c.* Such a Depravation is poſſible, and frequently happens; but a ſpecifick Transformation ſeems out of the Power of Nature; a new Form ever ſuppoſing a new Generation, which again ſuppoſes a Corruption of the former Kind, founded on this Axioma, *Corruptio unius, eſt Generatio alterius.*

Before we attempt to enumerate, to make the *Analyſis*, and diſcover the Virtues of the *Plants*, contained in the ſeveral Claſſes, or *Genera* abovementioned, which M. *Tournefort* reduces to fourteen, as leſs burthenſome to the Memory, it is proper to define certain Terms, which are to be uſed in the Sequel, and inform the Reader of the Rule obſerved in the Diſcovery of theſe ſeveral Things.

By the Chymical *Analyſis* of *Plants* is underſtood the Separation of their Principles, by Fire and convenient Veſſels, to effect which, freſh *Plants* are diſtilled in Alembicks, in *Balneo Mariæ*; or elſe before they are diſtilled, they are put into Fermentation or Digeſtion for ſome Time, according to the Nature of the *Plants*, and the Deſigns of the Artiſt. The Subſtances extracted from them are to be divided into Portions, of five or ſix Ounces each. That their reſpective Character may be examined ſeparately; by that Means, are extracted, their Flegma, ſpirituous Water, or *ardent Spirit* of *Plants*. When the Diſtillation is ended, the Grounds left are put into a *Cornue*, whence by a graduate Fire, are extracted from almoſt all *Plants* an urinous Spirit, a concrete volatile Salt, and a *fœtid Oil*. From the *Caput Mortuum* lixiviated, is ſeparated by Filtration and Evaporation, the Salt which was mixed with the Earth. Without this Operation it would be impoſſible to diſcover which Sort of Salts are contained in *Plants*, and which Salt is predominant; which muſt be as neceſſarily known, to diſcover the Virtues of *Plants*, and before they can be employed with any Appearance of Succeſs in Medicine.

To proceed with ſome Order in that Diſcovery, we muſt previouſly know what's underſtood by the different Salts found in *Plants*, ſince they all contain ſome of thoſe Salts, more or leſs; therefore,

1. By *Alkaly* and *acid Salt*, are underſtood thoſe two Sorts of Salts, to which our modern Phyſicians and Chymiſts have given thoſe Names; and which are eaſier underſtood than defined.

2. By *eſſential Salt* is underſtood that formed by the Cryſtalliſation of the Juice of *Plants*.

3. By *volatile Salt* is underſtood the Salt, which by the Diſtillation through the *Cornue*, adheres at the Top of the Veſſel.

4. By the *fixed* or *fixt Salt*, is underſtood the *Salt* extracted by Elixiviation, from the Aſhes of burnt *Plants*, or from the *Caput Mortuum*, of thoſe which are analyſed.

This, 'tis true, informs us of the Difference of thoſe ſeveral Salts; but how ſhall we know if they are all contained in the *Plant*, or only in Part; or which is the Predominant? By the following Means.

1. The *acid Salt* is diſcovered, by being mixed with Salt of *Tartar*, or Spirit of *Sal-Armoniack*, or like Matters, with which Acids ferment commonly. The Acids are alſo diſcovered by the blue Paper, which they change red by Degrees, from a very pale red to a very high one.

2. The Spirit of *Nitre*, of *Salt*, of *Sulphur*, of *Vitriol*, and other *Acids*, are employed with Succeſs, to diſcover the *Salt Alkaly*; for thoſe Acids ferment with the *Alkaly*.

3. As the *Sal-Armoniack* is eaſily diſcovered, by its urinous volatile Salt, *Botaniſts* and Chymiſts make Uſe of the Oil of *Tartar* to diſcover if there is any armoniack Salt in *Plants*, for then they exhale an urinous Spirit, like to that exhaled from Urine, or the armoniack Salt itſelf.

4. As the Character of *Nitre* is diſcovered by *Detonation*, 'tis thought, that the ſureſt Expedient to know nitrous Subſtances, is by throwing them upon burning Coals.

5. Every Body knows that the chief Quality of Vitriol is to turn Black the Infuſion of Galls, therefore the Matters under Examination are to be mixed with that Infuſion.

6. To know if there is any Sulphur in ſome Matter, that Matter muſt be put into Digeſtion, in a very ſtrong Spirit of Wine. If the ſame Matter burn eaſily, 'tis a certain Sign that they contain abundance of ſulphureous Particles. The *Elaterium*, when dry, burns at the Candle, and the *Sedum majus vulgare* of *C. Bohinus*, does not burn, therefore the former contains a ſulphurous Matter, not to be met with in the latter oleaginous Subſtances, when mixed, makes a Ladder when with Oil of Tartar.

With the Aſſiſtance of theſe Elucidations, we'll proceed to the Enumeration of the Plants, and to the Diſcovery of their ſeveral Qualities and Virtues, in an alphabetical Order, as the moſt agreeable to our Work, contenting our ſelves with the Deſcription of thoſe which are better known, and more uſeful; for we cannot undertake in this Treatiſe to examine all the Particularities of the *Vegetable World*, which have been the Subject of ſeveral very large Volumes: Though what we have ſaid already of *Botany*, is ſufficient for a whole *Treatiſe*. But as I deſign to oblige our *Readers* as far as the Limits I have preſcrib'd to my ſelf will admit; I cannot help giving them the following ſhort *Herboriſation*.

ACETOSA PRATENSIS, or *Sorrel*, with long *Leaves*. The Root of this Plant is not ſour, as *Matthiolus* believ'd it, but, on the contrary, very bitter, very aſtringent, and changes but very little blue Paper into red; while, on the contrary, the *Leaves* change it as much as *Allum* does. The red of the *Leaves* keeps on, and that of the *Root* diſappears. The *eſſential Salt* of *Sorrel* is a Mixture of *Sal Ammoniac* and of *Nitre*. In the Roots thoſe two Sorts of Salts are united with a ſmall Quantity of fœtid Oil, and with much Earth; and in the Leaves they are diſſolv'd in a very great Quantity of Phlegm. There is no Vitriol in *Sorrel*.

The Virtues of the Parts of *Sorrel* are different: The *Roots*, wherein *Sal Ammoniac*, Sulphur, and Earth are predominant, carries off the Digues which obſtruct the Circulation of the Blood in the *Viſcera*; they are preſcrib'd in Decoctions, aperitive Diet-Drinks, *&c.* The *Leaves*, on the contrary, which are very ſour, are cooling, and hinder the too great *Fermentation* of the Blood, and the too great *Effervescence* of the Bile. The Uſe of the *Roots* and *Leaves* of this Plant are a good *Remedy* for the Scurvy.

ALTHÆA, *Maſhmallow*. *Moriſon* and Mr. *Ray* have

have taken the Flower of this Plant to be of five *Leaves*, though M. *Tournefort* says, that it is all of a Piece. The *Leaves* of *Mashmallows* are glutinous, insipid, and do not change the *blue* Paper. The *Roots* have the same Taste, but change a little the *blue* Paper. The glutinous Juice of this Plant appears to be a Mixture of a great deal of Phlegm, of a considerable Portion of Earth, Acid, and Sulphur.

All Authors agree that this Plant sweetens the Blood, and is *emollient*. It not only blunts the corrosive Salts, but likewise softens the *Fibres*, when too much strain'd, and restores them to their natural Motion, and thereby appeases Pain. In Diet-Drinks, or *Tisanes*, they are an excellent *Remedy* for a violent Cough; and in the *Nephritick* for the *Retention* of Urine, attended with Inflammation. 'Tis also administer'd, for the same Maladies, in Syrups, Tablettes, or Lozenges; in Lohoch in Clysters for the Inflammations of the Abdomen; in *Unguentum* for the Sciatick and Rheumatism; to resolve Tumours with Inflammation; in Poultices with Milk, to bring those Tumours to Suppuration when the Matter is dispos'd for it, *&c.*

ASTER, *palustris luteus, folio longiori, lanuginoso, Star-wort*, or *Cole-wort*. This Plant is very common, though known but to very few; its Root is an Assemblage of several white Fibres, waving, of four or five Inches long, of half a Line thick, tied to the Head, whence issues some Filaments or Threads, which running between two Earths, serves to the Multiplication of that *Plant*; its Stalks grow three or four together, of a Foot and a half, or two high; they are sometimes purple towards the Bottom, one and a half, or two Lines thick, branched a-top, full of *Medulla*, and covered with Down, or short Hairs; the lower Leaves are half a Foot long, and an Inch, or an Inch and a half broad, piked at both Ends, a little waved, or watered on the Edges, covered with Hairs, like to those of the Stalks, but sometimes longer, raised with a thick, whitish, or purple Rib, a little round underneath; this Rib sprouts forth some Fibres, which extend obliquely on the Edges. The Leaves which accompany the Stalks are alternate, of three or four Inches long; they sometimes grow higher towards the Top, where they seize half the Stalk, by a round Base, of very near an Inch broad; the Branches are close enough towards the Stalk, and are divided into three Twigs, each of which supports a radiate, yellow Flower, of an Inch, or an Inch and a half broad. The Disk of the Flower is composed of very near 350 other small Flowers, of three Lines high, and divided into five Points, with a very short and forked Filament; the Crown is of 50 or 60 small Flowers of the same Colour, which have very near ten Lines in length, or half a Line in breadth. The Embrio's of the Grains, which support the small Flowers, and half small Flowers, are white, fine, and of a Line high; in Process of Time they grow bigger and brown, and their Acgreet, which is white, is very near three Lines high. The Root of this *Plant* is very bitter, acerb, and oily, it smells like Hay overheaten; its Leaves are bitter, likewise, but without Astriction. It delights in humid Places, blows in *July*, *August*, and *September*, and towards the latter End of *August* its Grains ripen. Its *Root* is far better drawn in the *Memoirs* of *Pena* and *Lobel*, than in the History of the Plants of *Lions*.

AGRIMONIA, *Agrimony*, is of a stiptick Taste, a little salt, and mix'd with some Acrimony, and changes a little *blue* Paper; which makes one believe that it contains a Salt which approaches very near the vitriolated Tartar, or the Salt of Coral made with Spirit of *Verdigrease*. This Salt in *Agrimony* is mix'd with a great deal of Sulphur, and with much Earth; therefore 'tis *astringent*, *detersive*, *vulnerary*, and *aperitive*. *Agrimony* is very good in chronick Maladies; for it absorbs and incises the thicken'd *Lympha* which occasions them. 'Tis us'd in Diet Drinks, Decoctions, and in aperitive, cooling, and vulnerary Draughts, or Juleps. This is of a very great Succour in the spitting of Blood, in the Bloody Flux, and in the Inflammation of the Liver. Apply'd *externally*, 'tis vulnerary, and proper to resolve the Tumours of the *Scrotum*, or Purse; and of all other Parts where there is Inflammation. *Targus* assures us, 'tis boil'd in *Lees* of Wine, with Bran of Wheat, and apply'd on the Part.

ALCHIMILLA MONTANA, *Persepier*. Mr. *Ray* assures us, that the Flower of this Plant is compos'd of four *Leaves*; but M. *Tournefort* says, that it is *stamineous*, and that Mr. *Ray* has mistook the *Calix* for the *Flower*, which is all of one Piece. *J. Baubin* will have its Root black and hollow; in *France* 'tis solid, and yellowish: The whole Plant, there, is very insipid; but here, Mr. *Ray* and *Lobel* say, that it is acerb. *Fabius Columna*, who gives an excellent Figure of it, and to whose Description nothing is wanting but that of the *Flower*, observes, that the Figure of *Pena* and *Lobel*, of the *English Persepier*, is very bad; that of *Taberna Montanus*, who calls it *Scandix minor*, is not better; and that of *Parkinson* worse.

ALCHIMILLA SUPINA, *Knawel*. *Tournefort* says, that Mr. *Ray* is in the right to place this Plant among the *stamineous*, but that he has varied in the Description of its *Flower*, by pretending that it is of five small *greenish Leaves*, than agree that that Part should be rather call'd the *Calix*, and that the *Seed* supported that *Calix*. *Tournefort* gives this Description of the Parts of that Plant: The *Flowers* grow in small Bunches, in the Arm-pits of the *Leaves*, and at the Extremities of the *Branches*; they are of five very short *Stamina*, which grow from the Bottom of the *Calix* with yellow Tops; the *Calix* is of a whole Piece, of two Lines long, *greenish*, open'd a-top, and divided into five Points, diminishing toward the Bottom, in the Form of a Pipe, a little swell'd; after the *Stamina* are wither'd, the Pistil plac'd at the Bottom of the Pipe becomes a Grain, somewhat oval, whitish, and of a Line long; and then the *Calix* grows hard, and yellowish.

ALKEKENGI, *Winter Cherry*. Its *Leaves* are acerb, and bitter; they do not change the *blue* Paper, but the Fruit changes it very much. It appears, at first, sourish, and afterwards bitter; which makes one conjecture, that in the Fruit of that Plant there is a Salt approaching very near the *Oxysal angeli sale*, mix'd with a small Quantity of fœtid Oil. In the *Leaves* that Salt is too well wrapp'd up in sulphurous and terrestrial Particles to be felt. The *Alkekengi* is very *aperitive* and *diuretick*. *Dioscorides* us'd to give it for the *Green Sickness*, and *Retention* of *Urine*. *Arnaud de Villeneuve*, and *Cesalpinus*, advis'd the Dropsical, and those who had a *Retention* of *Urine*, to drink Wine wherein had been bruis'd three or four Fruits of this Plant. The Fruit of *Alkekengi* is prepar'd into *Troches*.

ALYSSON, *incanum luteum*. The Figure of *Clusius* is good, but he has mistook in the Description of the *Flower*, which is not of four *Leaves*, nor of five, as he pretends.

AMARANTHUS, *Silvestris, & vulgaris*. The *Root* of the *Amaranth* we speak of, is whitish, sometimes purple, of very near half a Foot long, divided into hairy *Fibres*, the Stems lie on the Ground, branch'd, of very near a Foot long, of two or three Lines thick, reddish, full of Juice, garnish'd with *alternate Flowers*, like those of the Parietary, of very near two Inches long, the Tail included, which is very fine, and almost as long as the rest of the Leaf, which is of a *pale green*, sometimes, with purple Borders, of seven or eight Lines broad, divided into two equal Parts by a Rib, which extends from one End to the other. The Arm-pits are fill'd with several *Flowers* heap'd upon one another, like Clusters of Grapes; each *Flower* has commonly *three Leaves*, very narrow, and very picked, plaited like a Spout, of a Line long, whitish, and the Back greenish: From the Middle of the *Flower* rises an oval and pointed Pistil, environ'd with three very fine *Stamina*, scarce a Line in Length, each supporting a yellowish Top: That Pistil becomes,

comes, in Time, a *Capsula* of a Line long, oval, flat, membranous, and terminated by a small Fillet; 'tis compos'd of two Pieces which carry one upon the other. In each *Capsula* is found a *Seed*, almost round, black, shining, polish'd, and which has the Form of a *Lentil*. This Plant is found during the whole Summer, and Autumn, in Gardens, in the Yards of Houses, &c.

ANACAMPSEROS, *Orpin*. This Plant analiz'd, gives a great deal of Acid, some Earth and Oil, a sufficient Quantity of volatile concrete Salt; so that there is Room to believe that it contains an aluminous Salt mix'd with *Sal Ammoniac*, wrapp'd up in a small Quantity of Sulphur. 'Tis *detersive*, *astringent*, and *vulnerary*. Apply'd *externally*, it hastens the Suppuration of Tumours.

ANAGALIS, *Flore cæruleo*, *Calves-Snout*, in *French Mouron*. Its *Flower* is divided into five Quarters, and its *Fruit*, which is spherical, loses half its Coat when the *Seeds* are ripe. *Tragus* says, that a Glass of Wine in which the *Anagalis* has been boil'd for a very short Time, is a good *Remedy* against the Plague, provided the Patient keeps his *Bed*, not to interrupt the Sweat which that Liquor provokes. He orders the same *Remedy* to those who have been bit by a *Viper*, or by a *mad Dog*; and advises them to wash the Wound with it, and to apply the *Herb* to it. *Hartman*, *Mynsicht*, *Rolfinsius*, *Michael*, *Willis*, and several others, prize much the Use of this Plant in the *Mania*; and even when those afflicted with a continual *Fever* are *delirious*, or *light-headed*, if the *Anagalis* be taken in *Decoction*, or *steep'd* in Spirit of Wine. The Extract has the same *Virtues*. *Simon Pauli* speaks of a *Cataplasma*, or Poultice, of *Anagalis* boil'd in *Urine*, as of a *Remedy* us'd in his Country.

ANONIS, *Rest-horrow*. Its Flowers are dispos'd *three* and *three*, and purple; its *Leaves* have a leguminous Taste, and stink. The *Anonis* is very *aperitive* and *diuretick*; the *Roots* are prescrib'd in Diet-Drinks and Apozems; the Water of the whole Plant is distill'd while in Flower. All these Preparations are very good for the *yellow Jaundice*, for the *Calculus*, for the Suppression of the *Menses*, and for the Piles, when they are inflam'd. The Decoction of this Plant is very *detersive*, and us'd with Success in the Scurvy to wash the Mouth, and clean the Gums.

APARINE, *vulgaris*, *Goose-grass*, in *French Grateron*, or *Rieble*. *Pauli* assures us, that in *Denmark* they use the Water distill'd from this Plant in the Pains of the *Breast*; some drink it for the Pleurisy.

APIUM, *palustre*, *Smallage*, in *French Ache*. *Cardus* says, that the *Apium Sativum*, which is our *Celery*, differs in nothing from the *Smallage*, or *Ache*, but in the Culture. This Plant is bitter, acerb, and aromatick. It contains a great deal of oily volatile Salt, by which the *ammoniac* Salt is not entirely discompos'd; but dissolv'd into a great deal of Phlegm, and united to a great deal of Earth. By a chymical Analysis, the *Apium*, or *Smallage*, gives a great deal of Sulphur and Earth, a reasonable Quantity of urinous Spirit, and a little of *concreted volatile Salt*; therefore 'tis not surprizing if it be *aperitive*, *diuretick*, *sudorifick*, *febrifuge*, and *vulnerary*. In an *intermitting Fever*, six Ounces of the Juice of this Plant are given at the Beginning of the Paroxism, or of the cold Fit; then the Patient must be well cover'd, which commonly makes him sweat. A Drachm of the Extract of the *Leaves*, mix'd with two Drachms of *Kinkina*, is an infallible *Febrifuge* in a quartan Ague; and in all other Fevers, when there are Obstructions in the Abdomen. In the Scurvy it strengthens the Gums, and cleanses the Ulceries of the Mouth. The *Root* is employ'd in Diet-Drink, Apozems, and Syrups prepar'd for the Desopiation of the Parts. 'Tis one of the five *aperitive Roots*; and the *Seed* is one of the five small *hot Seeds*. To dissipate the Milk in the Breast, when no longer wanted, or troublesome, there must be boil'd equal Parts of the Leaves of *Smallage* and Mint, in *Lard*; which being strain'd through a Sieve, are afterward powder'd over with the *Seeds* pounded, and apply'd to the Breasts.

AQUIFOLIUM, or *Agrifolium*, *Holly*, in *French Houx*. *Cesalpinus* and *Dodoneus* have observ'd, that old *Holly* lose insensibly their Thorns, and produce *Leaves* like those of *Laurel*. There is a tall *Holly* in the Royal *Garden* of Plants at *Paris*, and another in the *Cloysters* of the Monks of the Abby of St. *Dennis*, on which there are seen yet some thorny *Leaves*; but most of the others are without Thorns. *Gesner* has observ'd such another in the *Garden* of St. *Genevieve*. *Ruel* assures us, that with the Bark of this *Tree* can be made *Bird-lime*. Mr. *Ray* has describ'd the Manner how they make *Bird lime* in *England* of the Bark of *Holly*. *Dodonée* affirms, that ten or twelve *Berries* of *Holly* swallow'd cure the Cholick; and Mr. *Ray* says, that he has known a Lady, who after she had try'd in vain all other *Remedies*, was cur'd by drinking *Milk* and *Beer* in which the Tops of the *Leaves* of *Holly* had been boil'd. *Matthiolus* pretends, that its *Roots* are very *emollient*, and *resolutive*.

AQUILEGIA, *Sylvestris*, *Celandine*, in *French Ancholie*. *Dodoneus* has far better known the Structure of the *Flower* of this Plant, than *Columna* and *Cesalpinus*; for these two Authors speak only of the Pipes 'tis compos'd of; but *Dodoneus*, beside the Pipes, describes the flat *Leaves* dispos'd *alternately* among the Pipes. The *Celandine* is *aperitive*, *diuretick*, and *sudorifick*. *Tragus* assures us, that a Drachm of the Powder of the *Root* taken in *Wine*, cures the Cholick. *Camerarius* relates, that in *Spain* they eat every Morning, for the *Calculus*, a small Quantity of that *Root*. For the *Angina*, and the *Ulceries* in the Throat, *Pena* and *Lobel* prize Gargarisms made with the *Seeds* of this Plant; some use it in the Scurvy. Some pretend, that taken in Wine it *accelerates* the Birth. *Pauli* us'd to give Half a Drachm, or a Drachm of it, in a Glass of Water of *Fumiterre*, or of *Cardus Benedictus*, for the Small-Pox and Measles.

ARISTOLOCHIA, *Clematitis recta*, *Aristolochi*. *Fuschius* and *Dodonee* agree that this Sort of *Aristoloch* may be us'd in lieu of the others, since it wants not *Bitterness* nor *Acrimony*. *Anguillaria* has even observ'd, that the *Root* of this *Species* was more aromatick; and *Bauhin* supposes that it is the same *Andromachus* and *Galen* us'd in the *Theriack* under the Name of *Aristolochia tenuis*. However, the *Leaves* of this are very bitter, and do not change the *blue* Paper; the *Roots* change it a little. 'Tis aromatick, and very bitter. By the Analysis of this Plant it gives a great deal of an acid Liquor, a great deal of Oil and Earth, a small Quantity of urinous Spirit, and no concrete volatile Salt. Its fix'd Salt does not change *yellow* the Solution of Sublimy; whence 'tis concluded that the Salt of *Aristoloch* approaches very near the Nature of the Salt of Coral, such as that Salt would be if more Acid was pour'd over it than is wanted to quench the Coral. This Plant is *aperitive*, *sudorifick*, *detersive*, and *vulnerary*; its great *Bitterness* hinders it from being employ'd in *Juleps*; the *Powder* is given from one Scruple to a Drachm, for the *Hysterick*, *Green-Sickness*, *Asthma*, and *intermitting Fevers*; the *Root* is us'd in *Lotions* and *vulnerary Tinctures*.

ARTEMISIA, *vulgaris*, *Mugwort*, or *Motherwort*, in *French Armoise*. The *Mugwort* has a small Taste of Salt, and changes a little the *blue* Paper; which makes one believe that its Salt has something of the Nature of *Sal Ammoniac*, but united with a great deal of Sulphur and Earth. All its Principles render the Plant very *aperitive*, and proper to regulate and provoke the natural Evacuations in Women. For the Vapours, the *Leaves* and *Flowers* of *Mugwort* are taken, instead of *Tea*.

ARUM, *Folefoot*, or *Wild Spikenard*, in *French Cabaret*. The *Leaves* of this Plant are very *bitter*, and change much the *blue* Paper, as well as the *Roots*. It contains a great deal of oily, aromatick, volatile Salt, loaded with much Sulphur, acid, and *terrestrial Particles*. By the Analysis are extracted from this Plant,

Plant, much Oil and Earth, a ſmall Quantity of urinous Spirit, no concrete volatile Salt, and ſeveral acid Liquors. *Dioſcorides* aſſures us, that the Maceration of ſix Drachms of *Folefoot*, or *Aſarum*, purge as much as the *Hellebore*, and provoke the *Menſes*. He agrees that the ſame *Roots* are *Diureticks*, and proper for the Dropſy, and for the Sciatica. They purge both Ways, without the Patient being fatigu'd thereby. The Patient is made to drink a Glaſs of Wine wherein has been infus'd, for a whole Night, Half an Ounce of *Folefoot Roots*. This *Emetick* is good in *intermitting Fevers*, in the Dropſy, in the Gout and Sciatica, and particularly in *Diarrhœa's* and the Bloody Flux.

Betonica, *Betony*, in *French Betoine*. The *Leaves* of this Plant have the Taſte of Herbs, a little ſalt, are a little aromatick, and do not change the *blue* Paper. The *Flowers* change it a little, as well as the *Roots*, which, beſides, are very bitter. The *Betony* is full of Sulphur, mix'd with a ſmall Quantity of oily, volatile Salt, and ſome Earth. By the Analyſis are extracted from this Plant a great deal of Oil, a little Earth and fix'd Salt, no concreted volatile Salt, but a ſmall Quantity of urinous Spirit. *Betony* is *vulnerary*, *aperitive*, *diuretick*, proper for the Maladies of the Head, and of the Abdomen. They are us'd in lieu of *Tea*, for the Vapours, Sciatica, the Gout, Head-ach, Jaundice, and for the Palſy. The Diet-Drink made of *Betony-Leaves*, the Water it has been macerated in, the Conſerve of its *Flowers* and *Leaves*; the Juice and Extract of its Parts, have the ſame Virtues. Theſe *Remedies* procure the Expectoration of purulent Matter; they conſolidate the inward Ulcers, reſtore the Functions of the *Viſcera*, promote the Urine, and carry off the Obſtructions of the *Viſcera*. Of the *Leaves* of *Betony* is made a Plaiſter, and particularly thoſe of the Head. The *Roots* have not the ſame Virtues.

Brunella *major*, *Folio non Diſſecto*, *Brunelle*; *Bauhin* miſtakes *Prunela Bugle* for the *Brunelle*; its Leaves are like to thoſe of ſweet *Baſilick*, it changes the blue Paper, it has the Herb Taſte, ſtiptick, and a little bitter; whence it is conjectured that the Acidity of the natural Salt of the Earth has diſembarraſſed itſelf in that *Plant* of Part of its Acrimony, and that being mixed with much Earth and Sulphur, it has produced a Kind of aluminous Salt. This Mixture of Principles renders the *Brunella* vulnerary, aſtringent, and deterſive. In enters into the Arquebuſade-Water, and into vulnerary Juleps. *Bauhin* eſteems its Lotion very proper for Wounds made with Fire-Arms; 'tis ordered in Diet-Drink, and in Apozems for the Spitting of Blood; for Urines tinged with Blood, for the immoderate Flux of *Menſes*, and for a Bloody-Flux, and for all Sorts of Hemorrhages. 'Tis uſed in Injection for deep Wounds, and in Clyſters in the Bloody-Flux.

Bryonia *Aſpera*, *ſive Alba*, *Baccis Rubris*, *Bryony*, *Hip*, *White Vine*, in *French*, *Coleuvree*, *Vigne Blanche*. The Leaves of this *Plant* are inſipid, glutinous, and do not change the blue Paper; the Root changes it much, 'tis bitter, and of a bad Smell; whence 'tis conjectured that the Acid of ammoniack Salt, which is predominant in that *Plant*, is more unfolded in the Root than in the Leaves, where it is wrapp'd up in a great deal of Sulphur. By the Analyſis theſe Roots give a great deal of acid Liquor, and a conſiderable Quantity of concreted volatile Salt. The Root, Tops, and Seeds of *Bryony*, are a ſtrong Purgative, and carry off the moſt obſtinate Obſtructions; therefore this *Plant* is of great Service in the Dropſy, Gout, Epilepſy, Aſthma; in the Vapours, Palſy, Vertiges, and in the moſt tedious Maladies. The Root is given in Powder, from one Scruple to two; the Juice is given to drink, from a Drachm to half an Ounce; and the Decoction from half an Ounce to an Ounce, and an Ounce and a half. But in whatever Manner this Root is uſed, it muſt be corrected with Cream of Tartar, or vegetal Salt.

Buglossum *Anguſtifolium majus*, *Bugloſſe*, in *French Bugloſe*. *Tragus* gives a very good Figure of this *Plant*. Its Roots are glutinous, and changes much the blue Paper, the Flowers change it a little, and the Leaves very little or not at all; whence we conjecture that the Ammoniack Salt is wrapt up in a glutinous Juice, where the Earth and Sulphur are predominant. The *Bugloſſe* cools, and eaſes the Melancholick. 'Tis proper to diſſipate the Fluxions of the Breaſt, and obſtinate Coughs. Its Juice is taken from three Ounces to ſix; the Diet-Drink in large Glaſſes. This *Plant* reſtores the Motion of the Blood in cooling it, and facilitates its Circulation. The Flowers are uſed, as in the Manner of Tea; they are prepared into Conſerve; they are ranked among the Cardiac Flowers.

Bugula, *Bugle*; This *Plant* is bitter, deterſive, and changes a little the blue Paper. 'Tis employed in vulnerary Juleps, Diet-Drink, and Apozems, ordered for the Spitting of Blood, the Bloody-Flux, the white Flowers, ſore Throat, Ulcers, and for the Aphtha in the Mouth. The Juice of *Bugle*, clarified, has the ſame Virtues. 'Tis uſed in Plaiſters. It contains ſome ammoniack Salt wrapp'd up in Sulphur.

Bursa, *Paſtoris major*, *Folio Sinuato*, the *Shepherds-Purſe*, or *Pouch*, in *French*, *Mallet a Berger*, or *Tabouret*; it taſtes a little Salt, and is deterſive; the Juice of theſe Leaves changes a little the blue Paper; whence 'tis conjectured, that in that *Plant* the Ammoniack Salt, which is in the natural Salt of the Earth, predominates the other Principles. This Ammoniack Salt is diſſolved into a conſiderable Portion of Phlegm, and is temperated by much Earth and little Sulphur. This *Plant* gives no Acid by the chymical Analyſis, and all extracted from it is almoſt Alkaly. Very few *Plants* give ſo much concreted volatile Salt, more Lixivial fixed, and more Earth. Theſe Principles mixed render the *Burſa* proper to melt the Blood, when too much thickened by heterogeneous Acids, which obſtruct the Circulation. The Juice of its Leaves drank from four Ounces to ſix, is of a great Help in Loſſes of Blood, and even in Fluxions, accompanied with Inflammation. Its Water diſtilled has little or no Virtue, 'tis only the Phlegm ſeparated from the other Principles. This *Plant* is found during the whole Year, becauſe it ſows itſelf towards the End of the Summer.

Buscus *Arboreſcens*, *Box-Tree*, or *Box-Wood*, in *French*, *Bouis*, or *Buis*. *Ceſalpinus*, *Bauhinus*, and Mr. *Ray*, have imagined, that the Fruit of this *Plant* ſucceeded to the Flower; but *Tournefort* ſays that they grow in different Places, though on the ſame Stem. The Leaves of *Box* are bitter, of an ungrateful Smell, and change but little the blue Paper. From the Wood of this Tree are extracted an acid Spirit, and a fetid Oil. *Quercetanus* eſteems much this Oil for the Epilepſy, for the Vapours, and for the Tooth-ach; rarified and circulated afterwards, 'tis very ſweetning and aperitive. The Doſe is 15 or 20 Drops, mixed with Sugar; when not rectified, 'tis mixed with melted Butter, to greaſe the Cancer.

Calamintha, *Humilior*, *Folio rotundiori*, *Ground-Ivy*, in *French*, *Lierre Terreſtre*. *Cardus* has deſcribed this *Plant* under the Name of *Chamæcluna*. Its Leaves are very bitter, a little Aromatick, and ſcarce change the blue Paper. By the Analyſis this *Plant* gives no concrete volatile Salt, but a ſmall Quantity of urinous Spirit; all the reſt is Acid, Alkaly, Oil, and Earth; and theſe two laſt Parts are found, in it, in a reaſonable Quantity. The *Ground-Ivy* is very aperitive, deterſive, and vulnerary. *Camerarius* and *Ceſalpinus* eſteem it much to provoke the Urine, and force the *Calculus*. *Lobel* uſed it, in the Gout, by Way of Prevention.

Caltha *Arvenſis*, *Wild Marygold*, in *French Sauy Sauvage*. The Leaves of *Wild Marygold* are ſtinking, bitter, and, burned at the Candle, make a Sort of Detonation, like to that of Nitre; which makes one believe that the natural Salt of the Earth is paſſed into it without any other Mutation than that of being united with a great deal of ſtinking Sulphur, and a great deal of Earth. Some prefer the Uſe of *Wild*

Wild Marygold to that of *Garden Marygold.* The Juice of this Plant is given from one Ounce to four. The Infusion of the *Leaves* and *Flowers* in White Wine, is taken from three Ounces to six; the Extract and Conserve from one Drachm to two. All these Preparations are very good for the Jaundice, the Palsy, Dropsy, Small-Pox, malignant Fevers, and for the Green-Sickness.

CAMPANULLA, *vulgatior, foliis urticæ, vel major, & asperior. Tragus* says, that the Stalks of this Plant are square, but *Tournefort* represents them angulous. *Cesalpinus, Dodoneus,* and almost all Authors, assure us, that it is vulnerary, and proper to cure the Ulcers and Tumours in the Throat; whence call'd *Cervicaria & uvularia.*

CAPRIFOLIUM, *Germanicum Dodon, Wood-bine,* or *Honey-suckle,* in *French Chevre-feuille.* The *Leaves* of this Plant are insipid, stiptick, and change a little the blue Paper; the *Root* changes it more: The *Bark* is acerb, salt, and stiptick. The Salt of the *Wood-bine* approaches near *Sal Ammoniac,* but is mix'd with fetid Oil and Earth. The Decoction of the *Leaves* is *vulnerary* and *detersive,* proper for sore Throats, and Wounds in the Legs. The *Leaves* pounded cure the *cutaneous Maladies.* The Water distill'd from the *Flowers* appeases the Inflammation of the Eyes, and strengthens Women in Labour; to whom three Ounces of that Water is administer'd, with an Ounce of Water of Orange-flowers.

CARDUUS STELLATUS, *Starry Thistle,* in *French Chardon Etoillé.* We have no good Figure of this Plant. Its *Leaves* are very bitter, and the *Root* tastes of *Artichoke.* It contains a Salt which approaches very near the natural Salt of the Earth; for its Solution is very bitter, and loaded with *Sal Ammoniac* and *Nitre.* The *Carduus* is *febrifuge, vulnerary,* and *aperitive.* In an *intermittent Fever* five or six Ounces of the Juice of this Plant is given at the Beginning of the Paroxism. The same Juice carries off the Spots in the Eyes, and cures the Wounds. M. *De Lamoignon,* Intendant of *Languedoc* in *France,* has communicated to the Publick a *Remedy* which had cur'd him of a violent *Nephritick*; which *Remedy* is as follows:

The 28th Day of the Moon, in every Month, the Patient must drink early in the Morning a large Glass full of very good White Wine, in which has been macerated a Drachm of the first Bark of the Root of *Carduus,* gather'd toward the End of *September,* and dry'd from the Sun, and powder'd very fine. This Bark is a very small and thin Skin, brown outwardly, and white inwardly. The Day this *Remedy* has been taken, must be put towards the Evening into Half a Pint of Water, a Handful of Parietary, a Drachm of Saffafras, as much Anniseed, and Half a Drachm of Cinnamon, in Powder: The whole is boil'd on a clear Fire for the Space of half a Quarter of an Hour. The Vessel is taken off the Fire, and plac'd, closely cover'd, on the hot Embers; the next Day 'tis put again on a clear Fire, that it may boil for another half Quarter of an Hour; after which, the Liquor is pour'd over two Ounces of powder'd Sugar-candy put into a Porrenger, or other such Vessel; the Infusion strain'd through a Linnen Cloth, with Expression of the Ground. When the Sugar is melted, the Patient drinks it as hot as he can, and must take nothing else for three Hours after, no more than when he has took the first *Remedy.*

CARYOPHILLATA, *vulgaris, Wicker,* or *Osier Rod,* in *French Herbe benoite,* or *Recise.* The *Flowers* of this Plant are of five *Leaves*; it is bitter, stiptick, and changes much the blue Paper. Its *Root* smells of Cloves; its Salt approaches near *Sal Ammoniac,* but is much loaded with Acid, and wrapp'd up in much of essential Oil and Earth. The Wine wherein the *Root* has been macerated, is *vulnerary,* and *detersive.* The Extract of the Plant has the same Virtues; 'tis prescrib'd in Rheumatisms.

CENTAURIUM, *minus, flore purpureo, Centory;* in *French Centaurée,* or *Fiel de Terre.* M. *Tournefort* says, that the Figure *Matthiolus* gives us of this Plant is excellent. Its *Leaves* and *Flowers* are of an excessive Bitterness, and nevertheless change much the blue Paper; which makes us believe that its Salt is not very different from the natural Salt of the Earth, which is very bitter: There is even some Appearance that the Salt of *Centory* is mix'd with a considerable Portion of Sulphur and Earth; but in such a Manner, that the *Sal Ammoniac* is more disengag'd than the other Principles. 'Tis not then surprizing if the *Centory* be *febrifuge, laxative,* and *aperitive,* kills the Worms, and restores the natural Functions. A Handful of the Summits, or Tops of this Plant, is macerated into a Glass of White Wine; but as the Infusion is very bitter, 'tis better to make the Extract of *Centory,* and to give a Drachm of it, or to mix it with as much Kinkina, in Powder, especially in *intermittent Fevers,* when there are Obstructions in the *Viscera*; for then the Patient is cur'd without Fear of a Return. The Infusion, or Decoction of *Centory,* is *vulnerary, detersive,* and *resolutive,* when apply'd outwardly.

CHAMÆDRIS *minor, repens, Germander*; in *French Germandrée.* The *Leaves* of the *Germander* are bitter and aromatick, and do not change the blue Paper; which shews that it contains Principles different from those of the *Centorie.* Its Salt does not differ from the natural Salt of the Earth, which is a Mixture of Sea Salt, Nitre, and *Sal Ammoniac.* 'Tis acerb, very bitter, and very aperitive. There is an Appearance that that found in this Plant has lost its Acrimony by the Mixture of a great deal of essential Oil, which renders the *Germander* aromatick. 'Tis *febrifuge, stomachick, aperitive,* and *diaphoretick.* A Handful of its *Leaves* are macerated for a whole Night, from the Fire, in a Glass of Wine, together with a Drachm of vegetable Salt, which must be drank fasting, for the Green-Sickness. A Drachm of the Extract made with its *Leaves* and *Flowers,* with two Drops of Oil of Cinnamon, is prescrib'd for the same Malady; its *Leaves* are used in Infusion, in the Manner of those of Tea, for the Gout and Sciatica.

CHAMÆMELUM, *vulgare Leachantemum, Camomile,* in *French Camomille.* This Plant is bitter, aromatick, and changes much the blue Paper. It seems that it contains a *Sal Ammoniac* loaded with a great deal of Acid, and wrapp'd up in a great Quantity of Sulphur and Earth. The *Camomile* is *aperitive, diuretick,* and *febrifuge.* In *Dioscorides*'s Time, the Powder of *Camomile Flowers* was used in *intermittent Fevers. Rivierus* prescribes it on the same Occasion. The Infusion of the Summits, or Tops of *Camomile,* and of Melilot, give Ease to those troubled with the *Nephritick,* and with a *Retention* of *Urine.* It appeases the Gripes, which often happen after a Delivery. *Pauli* prizes much the Wine in which *Camomile Flowers* have been macerated, for the Pleurisy; but there must be applied, at the same Time, on the Part where the Pain is felt, Bladders fill'd with the Decoction of the same Plant, heating the Decoction, from Time to Time. 'Tis employ'd likewise in Clysters, Fomentations, Cataplasms, and in the half Baths, for the Gout, Sciatica, and Hemorrhoids, or Piles. Its Oil is very useful on the same Occasion. For the Rheumatism 'tis mix'd with equal Parts of Oil of *St. John's-wort,* and of camphorated Spirit of Wine, for a Liniment, cover'd afterwards with a hot Cloth.

CHELIDONIUM, *majus vulgare, Celandine,* in *French Chelidoine, Eclaire. Dioscorides* relates, that it was believ'd, in his Time, that the Swallows used to restore the Sight to their young, after they had been made blind, by the Application of this Herb. *Aristotle* believ'd it, but *Celsus* has very justly refuted that Error. The *Celandine* is bitter, acerb, and burning, especially the Root, which gives more Orange-colour'd Juice than the other Parts of the Plant. It changes but very little the blue Paper, and smells like rotten Eggs; which makes me believe that its Juice is, as it were, phagenedical, semblable in some Man-

ner to the Liquor which results from a Mixture of Solution of corrosive Sublimate, and of Lime-water. The *Celandine*, by the Analysis, gives enough of that Salt fix'd, as well as volatile; but 'tis wrapp'd up in a great deal of Sulphur and Earth. This Plant taken inwardly, is very *aperitive*; for the Dropsy, an Ounce of its Root, and Half an Ounce of Tincture of *Mars*, are infus'd, or macerated, during four and twenty Hours, in a Pint of White Wine; the Infusion is strain'd through a Cloth, two Ounces of which are taken twice a Day. The following Preparation is very good for the Vapours, and for the Consumption. There must be put in Digestion, during eight Days, twelve Pounds of the whole Plant slightly pounded, three Dozen of Craw-fishes cut in Pieces, and two Pounds of Honey; then the Alembick must be luted, and the Matters contain'd in it distill'd in *Balneo mariæ*. The distill'd Water is very good for the Vapours drank from two Ounces to four. It carries off the Inflammation of the Eyes, and dries up the Ulceries of those Parts. The Herbs pounded cure the Wounds of Horses.

CICHORIUM, *silvestre*, *Succory*; in *French Chicorée Sauvage*. The Roots and Leaves of this Plant are very bitter, full of Milk, and change a little the blue Paper; the Flowers change it more, are less bitter, and of a glutinous Taste. The Salt which is in the Succory does not seem to be very different from the natural Salt of the Earth, but is join'd with a considerable Portion of Sulphur and terrestrial Particles. This Plant analysed gives a great deal of Oil and Earth, some acid Liquors, a small Quantity of urinous Spirit, and of concrete volatile Salt. The Roots and Leaves of Succory are aperitive, diuretick, and cooling. There is Appearance that they do not cool but by carrying off the Obstructions. The Leaves and Roots are prescrib'd in Broths, Diet-Drinks, Apozems, and Clysters. The Juice of *Succory* helps the Expectoration, or Spitting, in Fluxions of the Breast. The Extract has the same Virtues, and purifies the Blood. The Syrup, simple and composed, is a very good Desopilative, especially when mix'd with two Drachms, or Half an Ounce of Tincture of *Mars*. The Conserve of the Flowers is employ'd for the same Uses, in Bolus's, and in aperitive Opiates. These Opiates are of Service in the Cachexy, Dropsy, and hypochondriacal Affections; in intermittent Fevers, the Gout, and the excessive Heat of the Abdomen.

CICUTA, *major*, an Herb much like our *Hemlock*, in *French Cigue*. This Plant has a salt Taste, it smells of fetid Oil, and changes but very little the blue Paper; which is a Sign that it contains a Salt like the *Sal Ammoniac*, wrapp'd up in a great deal of Oil and Earth. Its Principles are very near found in *Opium*. The Leaves of this Plant are resolutive; boil'd in Milk they are applied, with great Success, on the Hemorrhoides, or Piles; and on the Parts where the Gout is felt. The Cataplasm of its Leaves pounded with Snails, and mix'd with the four resolutive *Farinæ*, is excellent for the Inflammation of the *Scrotum*, for the Gout, and for the *Sciatica*. The *Hemlock* is employ'd in the *Diabotanum* of M. *Blondel*, which is a very good Plaister to resolve all the scrophulous Tumours.

CLYMENUM, *Parisiense flore Cæruleo*. *Bauhin* has confounded this Plant with the *Lathyrus latifolius Pin*. This has but two very large Leaves on each Pedicle; whereas the Species we speak of has two or three Pair on the same Pedicle; and those Leaves are but three or four Lines broad, and very near an Inch and a half long. Its Flowers are also a great deal smaller than those of the *Lathyrus latifolius*. Mr. *Ray* speaks of it under the *Lathyrus viciformis*.

COFFEE, is the Fruit of a Plant very common in *Arabia Felix*. That of the *Levant* is most esteem'd, being greener, heavier, and appearing riper than that from *Mocha*, which is larger, lighter, and whiter.

This is what *Dominicus de Farcy*, Doctor in Physick of the Faculty of *Paris*, says of *Coffee*, in a Thesis held in the College of Physicians of that Metropolis, *Anno* 1695. *Volatile Sal, quo turget semen* CAFE, *Spiritus agitat, quorum pernicitas, vigiliam inducit; adustæ præterea particulæ, quarum in Cafe magna quantitas, olfactu gustuque Judicibus, insinuantque in sanguinem, primo, tum in Nerveum laticem, quibus per in concinnitatem suæ figuræ, per assiduæ mobilitatis importunitatem, stimulos addunt efficaces, unde spiritus ad solita munia, reseratis cerebri ductibus, excitentur. Ab eorundem salium abundantia, cruor intra pulmones implicatus visco; bronchiorum vesiculæ sordibus irritatæ, vindicantur in Libertatem; portio tandem non exigua sanguinis solvitur in Serum, quod renum cribro purgatum, illabitur in vesicam*, i. e. The volatile Salt with which the *Coffee* Berry abounds, agitates the Spirits, whose Velocity hinders Sleep; besides the adust Particles, of which there is a great Quantity in the *Coffee*, as we may judge by the Smell and Taste, insinuate themselves first into the Blood, then into the Texture of the Nerves, to which, by the Disproportion of their Figure, and their continual Motion, they add a Stimulation; whence the Spirits are forwarded in the latent Ducts of the Brain, in their usual Operations. From the abundance of these Salts the Blood is freed from the viscous Humour 'tis wrapp'd up in within the Substance of the Lungs, as well as the Bronchia, of their Sordes. However, a considerable Quantity of the Blood is resolv'd into a Serosity, which being filtrated through the Reins, fall into the Bladder.

Coffee produces these Effects, particularly with People of a pretty corpulent Habit; being found hurtful to those who are thin, lean, dry, and of a bilious Temperament, as it dries up the Nerves, and inclines them to Tremors. It is said to be prejudicial, likewise, to those who digest too fast, where the Circulation is too quick, or where there is a spitting of Blood arising from the Mouths of any of the Veins, and Arteries being too open, or the Blood too thin and sharp.

The oily Matter which separates from the *Coffee*, and appears on its Surface when roasted, and its particular Smell which distinguishes it from Pease, Beans, Rye, *&c.* which some substitute in lieu of *Coffee*, are to be the real Indications of its Effects. If consider'd with Regard to the Oil drawn with the Retort, this, as well as that, contains volatile Principles, as we have already observ'd, both saline and sulphurous. It is to the Dissolution of its Salt, and the Mixture of its Sulphur in the Blood, that its chief Faculty of promoting Watchfulness is to be attributed; hence also its Property of promoting Digestion, of precipitating Foods, of preventing Eructations, and correcting Acrimonies of the Stomach, when taken after Meals. Hence also that Fermentation in the Blood serviceable to corpulent People; hence also its diuretick Virtue. By Experience it is found of Service to drink a Glass of Water before *Coffee*, to render it laxative; to mix it with Milk, or Cream, to extinguish its Sulphur, embarrass its saline Principles, and render it nourishing.

Simon Pauli maintains, that it enervates Men, and renders them incapable of Generation; and it is certain the *Turks* attribute the same Effects to it; and from the immoderate Use hereof account for that Thinness of the Inhabitants found in Provinces formerly the best peopled: But this Opinion is refuted by *Du Four*. Father *Malbranche* gave the Royal Academy of Sciences an Account of a Person cur'd of an Apoplexy by means of several Clysters of *Coffee*.

The Tree that produces the *Coffee* is a kind of *Arabick* Jessamine; the Berry, when ripe, is as hard as Horn; which gave Occasion to an Opinion that the Inhabitants of the Kingdom of *Yemen*, in *Arabia Felix*, where it is cultivated, steep'd in boiling Water, or bak'd in a Furnace, all the *Coffee* they sold abroad, to prevent its growing any where else.

Its Original is not well known; some ascribe it to the Prior of a Monastery, who being inform'd by a Goatherd that his Cattle sometimes browzing on the Tree

Tree would wake and caper all Night; became curious to prove its Virtues: Accordingly, he first tried it on his Monks, to prevent their sleeping at Mattins. Others from *Schehabeddin* refer the Invention of *Coffee* to the *Persians*, from whom it was learn'd in the fifteenth Century by *Gemaloddin*, Mufti of *Aden*, a City near the Mouth of the Red Sea; and who having try'd its Virtues himself, and found that it dissipated the Fumes which oppressed the Head, inspir'd Joy, open'd the Bowels, and prevented Sleep, without being incommoded by it; recommended it first to his Dervises, with whom he used to spend the Night in Prayer. This Example brought *Coffee* in Vogue at *Aden*; the Professors of the Law, for Study; Artisans, to work; Travellers, to walk in the Night; in fine, every Body at *Aden* drank *Coffee*. Hence it passed to *Mecca*, where first the Devotees, then the rest of the People took it. From *Arabia Felix* it passed to *Cairo*.

In 1511. *Khaic Beg* prohibited it, from a Persuasion that it inebriated, and that it inclin'd to Things forbidden; but Sultan *Caussou* immediately after took off the Prohibition, and *Coffee* advanc'd from *Egypt* to *Syria* and *Constantinople*. The Dervises declaim'd against it from the *Alcoran*, which declares that Coal is not of the Number of Things created by God for Food. Accordingly, the Mufti order'd the *Coffee-Houses* to be shut; but his Successor declaring *Coffee* not to be Coal, they were open'd again.

During the War in *Candia*, the Assemblies of Newsmongers making too free with State-Affairs, the Grand Vizier *Cuproli* suppressed the *Coffee-Houses* at *Constantinople*; which Suppression, though still on Foot, does not prevent the publick Use of the Liquor there. *Thevenot* the Traveller was the first who brought it into *France*; and a *Greek* Servant, call'd *Pasqua*, brought into *England* by M. *Dan. Edwards*, a *Turkey* Merchant, in 1652, to make his *Coffee*, first set up the Profession of *Coffee-man*, and introduc'd the Drink among us; though some say Dr. *Harvey* had used it before.

The *Mahometans* distinguish three Kinds of *Cahuah*; the first is Wine, or any Liquor that inebriates; the second is made of the Pods that contain the *Coffee-Berry*; this they call the *Sultana's Coffee*, from their having first introduc'd it, on Account of its heating less than the Berry, as well as its keeping the Bowels open; the third is that made with the Berry itself, which alone is used in *Europe*, the Pods being found improper for Transportation. Some *Europeans*, who imported the Pods, call'd them the *Flower of the Coffee Tree*.

The Preparation of *Coffee* consists in roasting, or giving it a just Degree of Torrefaction, on an earthen or metalline Plate, till it has acquir'd a brownish Hue, equally deep on all Sides; it is then ground in a Mill, as much as serves the present Occasion; a proper Quantity of Water is next boil'd, and the ground *Coffee* put in it; after it has just boil'd, it is taken from the Fire, and the Decoction having stood a while to settle and fine, they pour and decant it into Dishes.

The Custom is to drink *Coffee* as hot as possible, with Sugar; though the *Turks* do not trouble themselves to take off its Bitterness with any Sugar. Their Grandees add to each Dish a Drop of Essence of Amber; others boil it with a Couple of Cloves; others with a little *Indian* Anise; others with Cacouleh, or the Grain of the *Cardamum minus*. *Coffee* is one of the Necessaries which the *Turks* are oblig'd to furnish their Wives with.

It is said it yields a Revenue of upwards of five Millions *per Annum*; nor will that appear any Wonder, when we consider that in *London* alone, besides the Consumption in private Houses, some have computed 3000 *Coffee-Houses*. In the three Kingdoms are yearly expended 100 Tuns of *Coffee Berries*; in *England* alone 70; which at 300 *l.* *per* Tun, a moderate Price, amounts to 21000 Pounds Sterling.

CORAL is a Production of the Sea, usually rank'd among the Number of *Marine Plants*; though the Antients took it, without Hesitation, for a Stone; most of the Moderns hold it a Vegetable; of late Days one maintains it partly a Plant, partly Stone; while another curious and able Naturalist, who has much studied the Production of the Sea, almost ranks it in the Number of Animals; as imagining it the Work of certain Sea Insects. This Opinion is now so well establish'd, that all other Sentiments seem almost precluded. Father *Kircher* supposes entire Forests of it at the Bottom of the Sea; and M. *Tournefort*, that able *Botanist*, maintains, that it evidently multiplies by Seed, though neither its Flower nor Seed be known. However, the Count *De Marsigli* has discover'd some Parts therein which seem to serve the Purpose of Seeds and Flowers.

Coral, then, being establish'd a Plant, has, in that Quality, Roots, wherewith it is fasten'd to the Rock wherein it grows: These Roots are cover'd with a Bark beset with starry Pores, which traverse them from Top to Bottom. Above the Root is the ligneous, or woody Part of the Plant, if we may call a Substance so, that rather seems to resemble Stone than Wood. It is divided into Branches like other Plants, having white Streaks therein, which seem to represent a kind of Fibres. The Extremities of the Plant are soft, and rounded with little Bowls, ordinarily divided into six Cells, fill'd with a Humour somewhat like Milk, fatty, sharp, and astringent. Lastly, that nothing may be wanting to constitute a real Tree, these Bowls are esteem'd a kind of Pods, or *Capsulæ*, containing the Seed of the *Coral*; it is even said, that in what Place, or on what Matter soever this Juice be shed, it carries Fecundity with it, and produces a Plant of *Coral*; whence it is that in the Cabinets of the Curious we find some of it on dead Men's Skulls, Pieces of earthen Ware, and other Kinds of solid Bodies, which Chance, and the working of the Sea, have thrown into some of Father *Kircher*'s Forests. *Coral*, the Count *De Marsigli* observes, grows chiefly in Grotto's, whose Mouth or Aperture is towards the South, and their Vault, or concave Arch, nearly parallel to the Surface of the Earth. For its Growth, it is necessary the Sea be as quiet as a Pond: It vegetates the contrary Way to all other Plants; its Foot adhering to the Top of the Grotto, and its Branches shooting downwards. The Foot takes the exact Form of the Solid it grows to, and even covers it like a Plate, to a certain Extent; which Monsieur *De Marsigli* thinks a Proof that its Substance was originally fluid: And what confirms the Thought is, that the same Substance shall sometimes line the Inside of a Shell, which it could never have enter'd but in Form of a Fluid.

Upon a nice Examen of the several Parts of *Coral*, M. *De Marsigli* gathers, that all its Organism, with Regard to Vegetation, consists in its Rind; that the Tubules of this Rind filtrate a Juice which fills the Cellules, and runs along the Canals as far as the Extremities of the Branches, and that this Juice being petrified, both in the Cells encompassing the *Coralline* Substance, and in those of the Extremities of the Branches, whose Substance is not yet form'd, makes the Plant grow, both in Height and Bulk.

The Antients believ'd that the *Coral* was soft while it continu'd at the Bottom of the Water; and that it only became hard and solid by the Impression of the Air; but the Moderns are convinced of the contrary from Experience, and know that there was more of Imagination than Truth in the Name *Gorgonium*, which they gave it to shew that *Medusa*'s Head did not convert Objects into Stone, more surely than *Coral* became petrified as soon as it appear'd in the Air.

There are properly but three Kinds of *Coral*, *red*, *white*, and *black*: The white is the rarest and most esteemed; but it is the red is ordinarily used in Medicine. It must be chosen thick, smooth, and shining, and of a beautiful red, not covered with any Tartarous Matter. There is a Kind of *white Coral* pierced full of Holes; and a *black Coral*, named *Antipates*; appearing of a different Nature from the rest; but these are of no Use. The Chymists draw a Magi-

Magisterial Tincture from *Coral*, and a Salt. It gives Title to an officinal Composition, called Syrup of *Coral*, sometimes prescribed by Physicians; as is likewise the Powder of *Coral*, finely ground, and afterwards levigated on a Marble, and made up into a proper Form; but there are few, except those who are fond of Medicines, with Pearls in them that make use hereof; by means of its exceeding Hardness, it is suspected to take away with it a great deal of the levigating Stone.

The Virtues attributed to *Coral*, and its Preparations are, that it is Cardiack, and therefore of Use in Diarrhœas, too large Fluxes of the *Menstrua*, and Flooding; of Service in the *Fluor albus*, and to prevent Miscarriages; besides its Use in common as a testaceous Powder, in Children's Diseases, *&c.* Some also attribute to *Coral* the immediate stopping of Blood; the securing of Houses from Thunder-bolts; the keeping away of evil Spirits, and the promoting of Dentition. It is added that *Coral* appears redder wore on a Man than on a Woman; that it becomes pale and livid, when worn by a sick Person; and that the Changes in the *Plant* correspond with those in the Disease. But these Fancies, and many more of the same Kind, are not at all founded on Experience. Its chief and only Use is in Chaplets, Beads, and other Toys.

The Time for gathering this *Plant* (for we must continue to speak like *Botanists*) is from *April* to *July*; the Places are the *Persian Gulf*, *Red Sea*, Coast of *Africa*, towards the Bastion of *France*; the Isles of *Majorca* and *Corsica*; and the Coast of *Provence* and *Catalonia*. The Method of gathering *Coral*, is nearly the same in all Places; that used at the Bastion of *France*, where there is an established Fishery, under the Direction of a Company at *Marseilles*, is as follows.

Seven or eight Men go in a Boat, commanded by the Patron or Proprietor; the Caster throws his Net, if we may so call the Machine wherewith he uses to tear up the *Coral* from the Bottom of the Sea; and the other six manage the Boat. The Net is composed of two Beams tied a-Cross, with a leaden Weight, to press them down: To the Beam is fastened a great Quantity of Hemp loosely twisted round, among which they mix some strong Nets. In this Condition the Machine is let down into the Sea; and when the *Coral* is pretty strongly embarrassed, in the Hemp, and the Net, they draw it out by a Rope; which they unwind according to the Depth, and which sometimes requires half a Dozen Boats to draw; if the Rope happen to break, the Fishermen are in great Danger of Drowning. Before the Fishermen go out, they agree on the Price of the *Coral*, which is ordinarily, at the Rate of 4*s.* 6*d. per lb.* When the Fishery is over, which in a Season usually amounts to 25 Quintals of *Coral*, each Boat; it is divided into 13 Parts; the Patron whereof, or Master-*Coraller*, has four, the Caster two, and each of the six Companions one, the 13th being reserved for the Company, *&c.*

CARNUS *Hortensis*, the *Dog-Tree*, in *French Carnouiller*. The Flowers of *Carnouiller* are of four Leaves, and sometimes of five. The Leaves are very bitter, the Fruit sour, stiptick, and changes the blue Paper as much as Alum does it; whence 'tis concluded that the Fruit contains a Salt analogous to it; therefore it is not surprising if *Hippocrates*, *Dioscorides*, and *Pliny* have judged this Fruit proper to stop Diarrhœas. *Ruel* says, That for that Malady 'tis preserved in Bottles, filled with Honey and Syrup. For the Bloody-Flux, and to excite the Appetite, an Electuary is prepared of the Pulp of the Fruit of *Carnus*.

CASCUTA *Minor*, a Kind of *Bindweed*; in *French* called *Cascute*. The *Cascute* is found, almost, on all *Plants*; it cannot live without their Succours; for its Roots perish sometimes after the Seed has risen; and then that *Plant* which is nothing else but a Bunch of reddish Hairs, which nourishes itself by running round the neighbouring *Plants*; those Hairs not only embarrass them, by small *Mamemlons*, rang'd in Form of Beads, but penetrate, by their Points, into the Pores of the Bark, break the Texture of their Vessels, and receive the nutritious Juice. Each Flower of the *Cuscute* is of very near two Lines perforated at the Bottom, divided into four or five Points, and garnished with some very short *Stamina*, with yellow Tops. The Calyx is divided like the Flowers, and throws forth a *Pistil*, which enters the Hole of the Flower, and becomes afterwards a membranous Fruit, almost round, with two or three Ribs. That Fruit is perforated at the Bottom, and placed on a little *Capsula*, which is at the Bottom of the *Calyx*, which wraps up the Bottom of the same Fruit it contains; it contains some small brown Seeds. The *Cuscute* of these Countries is not used in Medicine. That brought from the *Levant*, under the Name of *Epithim* of *Venice*, is not purgative. 'Tis rather Cardiack and Aperitive.

CYNOGLOSSUM *Vulgare Majus*, *Dog's-Tongue*; in *French*, *Langue de Chien*. The Leaves of this *Plant* are white and silky; its Flowers are, at first, purple, which become blue afterwards. The Bark of its Root is a little bitter, salt, stiptick, and glutinous; it changes the blue Paper. It appears that the *Sal. Ammoniack*, which is in the natural Salt of the Earth, is predominant in the *Cynoglossum*, where it is temperated by much Phlegm, Earth, and fœtid Oil. Therefore its Root is proper to stop all Sorts of Fluxions, and sweeten the Acrimony of the Humours. Its Leaves are vulnerary and detersive.

DENS LEONIS *Latiore Folio*; *Dent de Lion*. The Leaves of this *Plant* are very bitter, and change little the blue Paper. The Roots change it a great deal more, they are bitter, stiptick, detersive. The whole *Plant* is aperitive, diuretick, vulnerary, and febrifuge. *Targus* prescribes the Water of *Dent de Lion*, in the internal Inflammations. *Barbet* advises to take the Juice; it purifies the Blood by Urine, to appease an excessive Cough, and cure a Cold; a Quarter of a Pint of Milk is drank at Night, with which is mixed, boiling hot, as much of the Decoction of *Dent de Lion*; adding to it a small Quantity of Sugar candied. The Extract of this *Plant* is given from half a Drachm to a Drachm and a half.

DIGITALIS *Minima*; *Bell-Flower*, or *Fox-Glove*; in *French*, *Glatiole*. *Cordus* has took the Flower of the *Gratiol* for a Flower with five Leaves, though it be all of a-Piece. The *Fox-glove*, analysed, gives no volatile Salt, but a great deal of acid Oil and Earth. *Pena* and *Lobel* assure us that this *Plant* is both a strong Emetick and Cathartick. Therefore it is prescribed in the Dropsy and Cachexy, to those who have an intermitting Fever, or are subject to the Gout and Sciatica. *Camerarius* says, that the Extract of this *Plant* must be mixed with the Powder of *Cinnamon* in the Dropsy.

ECHIUM *Vulgare*, *Wild Burrage*, or *Buglose*; in *French Viperine*, *Herbe aux Vipers*. Mr. *Ray*, and all the learned *English Botanists* agree, that *Lobel* has mistook the *Echium*, with the *Lycopsis* of *Languedoc*.

ERICA, *Vulgaris*, the *Sweet Broom*, or *Heath*; in *French Bruyere*, or *Petrole*. *Clusius* and *Baubin* have took the Flower of *Heath* for a Flower with five Leaves, though it be of a whole Piece; but its Calyx imposes often for the Flower. The Decoction of *Bruyere* is Diuretick. *Tabernæmontanus* assures us, that the Fomentation of Flowers of *Heath* appease the Pains of the Gout. For the same Distemper a vaporous Bath is prepared with the Leaves and Flowers of this *Plant*.

ERYNGIUM *Vulgare*, a Kind of *Thistles*; in *French*, *Chardon Roland*. The Flowers of *Eryngium* are of five whitish Leaves. By the *Analysis*, are extracted from this *Plant* a mediocre Quantity of concert volatile Salt, a great deal of Oil, and of Earth. Its Roots are aperitive and diuretick; they are employed in Diet-Drinks and Apozems, but there should be added to it some Fruits of *Alkikengi*. The Water distilled from the *Eryngium* alone, or mixed with

with half of Walnut-Water, is a Febrifuge, and purifies the Blood.

Evonymus *Vulgaris*, the *Spine-tree*, or *Prick-Timber*, in *French*, *Bonnet de Prestre*. 'Tis assured that the Fruit of this *Plant* is both Emetick and Cathartick; reduced into Powder, or by washing the Hairs with its Decoctions, it kills the Lice.

Eupatorium *Cannabinum*, a Kind of *Agrimony*; in *French Eupatoire*. The Juice of the Leaves of this *Plant*, or a Drachm of its Extract, and the Diet-Drinks prepared of it, drank by Glasses, are very proper to carry off the Obstructions of the *Viscera*, especially those which succeed to intermitting Fevers; the Use of its Leaves, in Infusion, in the Manner of Tea, relieve the Dropsicals; it must be prescribed after the Punction, or Tapping, and the Legs must be fomented with the Decoction. For the Green-Sickness, for the Itch, and all other cutaneous Distempers, 'tis mixed with the Fumiterre in Whey, or Diet-Drinks. The Summities loaded with Flowers are very vulnerary. The Roots are both Emetick and Cathartick.

Euphrasia *Oficinarum*, *Eye Bright*; in *French Eufraise*. It melts the Humours, and renders them proper to circulate, and to carry off the Matters which cause the Obstructions. 'Tis a common Opinion that it clears, strengthens, and even restores the Sight. The Powder is prescribed from a Drachm to three, in a Glass of Fennel-Water. There might be a Conserve made of it, or it must be mixed with that of Leaves of *Wormwood*.

Fraxinus, an *Ash-Tree*, in *French*, *Frêne*. The Leaves of this Tree, by the Analysis, gives a great deal of acid Liquors, a small Quantity of urinous Spirit, a great deal of Earth, and a mediocre Quantity of fixed Salt. Therefore this *Plant* is aperitive, diuretick, and sudorifick. In the Small-Pox and Measles, *Simon Pauli* praises the Use of the Salt of *Ash-Tree*, taken in the Water of *Carduus Benedictus*, mixed with some Syrrup of Rasberries. The Ashes of the Bark of *Ash-Tree* are a very good Caustick. *Lobel* says, that the Perfume of the Leaves, Bark, or Seeds of this Tree cures Deafness. 'Tis certain that this Perfume is resolutive. The Bark of the Roots of *Ash-Tree* is prescribed for the Dropsy, Rheumatism, Sciatick, and for all Maladies, where all Superfluities are to be evacuated.

Fumaria *Officinarum*, & *Dioscoridis*, *Fumitory*; in *French Fumeterre*. This *Plant*, though very bitter, changes nevertheless the blue Paper; therefore, 'tis conjectured that it contains a Salt like the natural Salt of the Earth; but in which the *Sal-Ammoniack* predominates the nitre and marine Salt; besides the Salt of *Fumitory* is joined with a great deal of Sulphur and Earth dissolved in a considerable Quantity of Phlegm. By the Analysis the Fumitory gives a great deal of concreted volatile Salt, a great deal of fixed Salt, very lixivial, and a great deal of a very thick Oil. All these Principles render this Plant laxative, diuretick, proper to purify the Blood, and for the Desopilation of the Parts. 'Tis esteemed a Specifick in all cutaneous Distempers; in the Hypochondriacal Melancholy; in the Cachexy and Dropsy. Its Juice is administer'd from two Ounces to six. The Infusion in Whey from six Ounces to ten or twelve. The distilled Water from a Glass to two. The simple Syrup, two or three Ounces in a Diet-Drink; the composed Syrup from one Ounce to two, if the Patient is to be purged. The Water of *Fumitory* is also detersive, and proper to dry the Ulcers of the Mouth.

Geranium, *Storksbill*; in *French*, *Herb a Robert*. This *Plant* is stiptick, salt, and sowerish, it smells of *Bitumen*, and changes the blue Paper. There is some Appearance that it contains a Salt like the Alum, mixed with a small Quantity of fœtid Oil, and a very little of *Sal-Armoniack*. By the Analysis it gives a great deal of Acid, very little of Oil, no concreted volatile Salt, but a small Quantity of urinous Spirit. The *Geranium* is very astringent, and very vulnerary; the Wine wherein the Leaves bruised have macerated for a whole Night, stops all Sort of Hemorrhages.

Gramen *caninum arvense*, in *French Chiendent*. The Roots of *Chiendent* are of great Use in all Diet-Drinks. 'Tis assur'd, that the Water distill'd from it kills the Worms. The Roots are aperitive, but temperate, and unstop the *Viscera*, without causing any Accident. By the Analysis they give a great deal of Oil, Earth, and several acid Liquors, with a small Quantity of fix'd Salt, and no volatile.

Herba Paris. *Sardus* and *Cesalpinus* have assur'd, that the *Herba Paris* is very good for the *Mania*. The first prescrib'd Half a Spoonful of the Powder of this Herb taken fasting, for twenty Days successively. *Tragus* says, that the *Herba Paris* pounded, and applied in Cataplasms, appease the Inflammation, and resolve the Tumours of the *Scrotum*. 'Tis a sovereign *Remedy* for the *Panaris*, or Whitlow. The Water distill'd from this Plant cures the Inflammation of the Eyes.

Hyoscyamus *vulgaris*, *Henbane*, or *Jusquiame*. The *Leaves* of this Plant are insipid, and of an ill Smell; it tastes of Artichoke. 'Tis conjectur'd that the *Sal Ammoniac* which is in it is wrapp'd up in a great deal of Sulphur and Earth; for by the Analysis its *Leaves* give a concrete volatile Salt, and a great deal of Oil. The *Henbane* is soporiferous, resolutive, and sweetening; 'tis seldom us'd in internal *Remedies*. *Helidæus* valu'd much its *Seeds*, which he mix'd with Conserve of Roses, for the spitting of Blood. *Tragus* assures, that the Juice of *Henbane*, or the Oil made by the Infusion of its *Seeds*, cur'd the Pains in the Ears, by syringing it into those Parts. The *Henbane* is employ'd in anodyne Cataplasms, to resolve the Tumours. For Example; Two Handfuls of *Leaves* of *Henbane*, as much of those of *Mendragora*, and an Ounce of *Seeds* of *Henbane*, and of Poppies, are boil'd in a certain Quantity of Milk; the Whole is strain'd through a Cloth. There must be added to it the Yolk of an Egg, and some Saffron. Some content themselves with boiling only the *Leaves* of *Henbane* in Milk, and apply them on the Places where the Gout is felt. Others soften the *Leaves* of *Henbane* under the hot Embers, and apply them on the Breasts to expel the Milk from them, or to dissipate it when knotted. *Tabernæ Montanus* says, that he had the *Seeds* pounded with Wine, and applied as a Cataplasm on the Breasts of Women newly deliver'd. The Oil of these *Seeds*, made by Expression, has the same Virtues. For Chilblains, they are exposed over the Smoak of *Seeds* of *Henbane*, burn'd on the Coals.

Jacobæa *vulgaris*, *St. James-wort*, in *French Herbe*, *ou Fleur St. Jacques*. The *Leaves* of this Plant are bitter, aromatick, and a little astringent. They contain a great deal of Oil and terrestrial Particles. *Dodoneus* says, that *St. James-wort* is vulnerary, detersive, and proper for sore Throats.

Juniperus *vulgaris*, the *Juniper-Tree*, in *French Genievre*. By the Analysis are extracted from this Plant several acid Liquors, a small Quantity of fix'd Salt, but no volatile. We must observe, that the Salt of this Plant is wrapp'd up in a very great Quantity of Sulphur, and some terrestrial Particles. The Wood of *Juniper*, besides an æthereal Oil, gives a great deal of thick Oil, in the Consistence of a Syrup. The Berries give a great deal more, and the Summits a little less. All these Principles render the *Juniper* proper to restore the Functions of the Stomach, to dissipate the Wind, and griping Matters, to free the Lungs, and disengage them of that thick *Lympha* which often obstructs the Respiration. This Plant is, besides, sudorifick, cephalick, and hysterick. It provokes the *Menses*, carries off the Obstructions of the *Viscera*, restores their Springs, and helps the Evacuation of Urine. Use is made of the Wood, Summits, and Berries. The Decoction of the Wood volatilizes the Blood, and purifies it by the insensible Perspiration. A half Bath is prepar'd with this Wood, which proves very beneficial to those who have the Gout. The Wine in which the Summits of *Juniper* are boil'd is very diuretick. *Tragus*, *Matthiolus*, *Hartman*, and *Simon Pauli*, assure us, that they have cur'd some

dropsical Persons with this Sort of Wine. *Tournefort* says, that he has seen several Persons very much eased by the Pills made of two Parts of Aloes, and one of *Juniper-Berries*. From these Berries are extracted an ardent Spirit, a Tincture, an Elixir, and an Extract; and of them are prepar'd a *Ratafia*, and a Sort of Honey. The Tincture is made by macerating the Berries in their ardent Spirit; the Infusion of the same Berries in their Spirit, or in common Water evaporated to the Consistence of Honey, is call'd Elixir, or Extract of *Juniper*. The Honey of *Juniper* is nothing else but common Honey boil'd with *Juniper-Berries*. 'Tis good in Clysters, in the *Dysenteria*, and *Tenesma*. The *Ratafia* of *Juniper* is made by macerating its Fruit in Brandy, or Champaign Wine, adding to it some Sugar and Cinnamon. The Pulp of *Juniper-Berries*, freed from its Grains, and mix'd with Sugar, makes a Conserve which has all the Virtues of those Preparations heretofore mention'd. Lastly, the Fruit is burn'd to expel the bad Air, and macerated in Vinegar, in Time of the Plague, to wash Letters, Linnen, and even Plates.

LEUCANTHEMUM *vulgare*, *Daisies*, in *French Marguerite*. The *Daisies*, by the Analysis, give no volatile Salt, but only a fix'd one, and very lixivial, several acid Liquors, and a great deal of Oil and Earth; therefore 'tis very aperitive and detersive. A Diet-Drink made of them is prescrib'd to those who spit purulent Matter.

LIGUSTRUM, *Privet*, in *French Trêne*. The Flowers of this Plant are of a single Piece; the Leaves are astringent and bitter; therefore there must be in it an aluminous Salt wrapp'd up in a great deal of Sulphur; but the same Salt is much disengag'd in the Flowers and Fruit. The Plant gives by the Distillation a great Quantity of Oil and acid Liquor, with a little of urinous Spirit. All these Principles mix'd together, render the *Privet* very detersive. The Gargarisms made with the Juice, or the Water distill'd from that Plant, are proper for the Maladies of the Throat. They dry up Ulcers, appease the Inflammation of the Eyes, stop the spitting of Blood, and the Hemorrhages.

LINARIA, *Wild Flax*, in *French Velvote*. The *Leaves* of this Plant are very bitter, a little stiptick, and of an oily Smell. They do not change the blue Paper, therefore 'tis conjectur'd that their Salt is very near like the natural Salt of the Earth, but mix'd with much Sulphur and terrestrial Particles. The *Linaria* is vulnerary and detersive; it purifies the Blood, and restores the Balsam of Life, which consists in a Sulphur modified with an acerb Salt. *Cesalpinus* esteem'd this Plant for the scrophulous Tumours, and the *Lepra*. *Pina* and *Lobel* relate, that a Barber cur'd with it a carcinomatous Ulcer, which devour'd the Nose of a Person, after several Physicians had resolv'd it should be cut off. For the Cancer, Gout, and Dropsy, two Ounces of the Juice, or six of the Water distill'd from this Plant, are drank twice a Day. The following *Unguentum* is good for Ulcers, for the Piles, King's Evil, and all cutaneous Distempers. Let the *Leaves* of this Plant be macerated in as much White Wine as will cover them, for the Space of four and twenty Hours; the Juice must be strain'd, and afterwards boil'd to the Diminution of a third Part, adding to it as much Lard as is necessary to give it the Consistence of *Unguentum*.

LUPULUS, *fœmina*, *Hop*, in *French Houblon*. *Cesalpinus* has observ'd, that the Stalks of *Hops* which bear Flowers, bear no *Seeds*; and those which bear *Seeds*, bear no Flowers. *Tragus* and *Dodoneus* believ'd that the Fruits succeeded the Flowers. The *Hop* is bitter, detersive, and does not change the blue Paper. By the Analysis is extracted from this Plant very little Acid, a reasonable Quantity of Oil, and of concreted volatile Salt; which is an Indication that it contains an *Ammoniac Salt*, mix'd with Sulphur and Earth. For the hypochondriacal Affections, and Melancholy, Juleps and Apozems are prepar'd with *Hops*; to each Dose are added two Drachms of *Tinctura Martis*. The Syrup made with the Juice of this Plant has the same Virtues.

MELILOTUS, *Melilot*. This Plant is acerb, bitter, stiptick, and odoriferous; whence 'tis conjectur'd, that its Salt is much like the natural Salt of the Earth, but mix'd with much essential Oil, and terrestrial Particles; for by the Analysis the *Melilot*, besides much acid Phlegm, gives also a great deal of Oil and Earth, enough of urinous Spirit, of volatile concrete Salt, and of very lixivial Salt; therefore that Plant is diuretick, resolutive, and sweetening. The Diet-Drink made with its Summits, and those of Camomile, is excellent in the Inflammations of the Abdomen, the Cholick, and in the Retention of Urine, in the Rheumatism, and generally in all Occasions where the Course of Humours is to be facilitated. The Water distill'd from the Flowers of *Melilot* is of a grateful Smell. The *Melilot* is used in the carminative Clysters, and in the resolutive Cataplasms. For Clysters, the Flowers of *Melilot*, and those of Camomile, are boil'd in Tripe's Broth, and to the Decoction, after it has been strain'd through a Cloth, are added some Drops of Oil of Aniseed. For Cataplasms, two Roots of Lillies are boil'd with Half a Handful of Flowers of *Melilot*, and two Handfuls of Leaves of Henbane; the whole is strain'd through a Sieve, to which are added some Drops of fetid Oil of Tartar. The Juice of the Flowers of *Melilot*, or the Infusion of its Parts in boiling Water, appease the Inflammation of the Eyes; especially if after 'tis taken off the Fire there be added to it some camphorated Spirit of Wine; the whole being strain'd through a Cloth, to separate the needless Camphire.

MILLEFOLIUM, *vulgare*, *Yarrow*, in *French Millefeuille*. This Plant is acerb, bitter, and aromatick, and changes much the blue Paper. It appears that the acid Part of the natural Salt of the Earth unloads it self of the other Principles through the Texture of this Plant, forms in it an aluminous Salt united with a small Quantity of aromatick essential Oil. By the Analysis, several acid Liquors are extracted from the *Yarrow*, much Earth, no concreted volatile Salt, and very little of urinous Spirit; therefore this Plant is vulnerary, resolutive, and astringent. 'Tis used in Diet-Drinks, and in Infusion, in the Manner of Tea. The Juice is prescrib'd for the immoderate Flux of the Piles, from three Ounces to six; the Powder from Half a Drachm to Half an Ounce. 'Tis also mix'd with Paste, to make astringent Biskets. *Tabernemontanus* says, that the Water of *Yarrow* is good for the Epilepsy; and that the Wine, or Hidromel, made with this Plant, stops all Sorts of immoderate Fluxes.

NYMPHÆA ALBA, *Water Lilly*, in *French Nenufar*. The Root of this Plant is a little glutinous, bitter, and changes very much the blue Paper. By the Analysis it gives a great deal of Acid and Oil, and very little of volatile concreted Salt; therefore 'tis not surprizing if it be sweetening. The Flowers are distill'd, and made into Syrups and Conserves. Its Roots are commonly employ'd in cooling Diet-Drink for the Heat of Urine, the Inflammation of the Reins, and of the other *Viscera*. Its Syrup is a little soporiferous, and the Dose is an Ounce.

OPHYOGLOSSUM *vulgatum*, *Serpent's Tongue*, in *French Langue de Serpent*. The Leaves of this Plant are almost round; the Tongue, whence it takes its Name, comes out of the Pedicle of the Leaves, as by a kind of Insertion; 'tis of very near two Inches and a Half in Length, and two Lines broad, flat, polish'd, and bright; its Edges are raised, rounded, of a Line and a Half thick, and divided into transversal Partitions; these Partitions grow a little yellow when the Seeds begin to ripen; they are seen to burst at that Time, and the Seeds to fall as a kind of fine Dust. All Authors agree that this Plant is vulnerary, either used internally or externally. *Baptista Sardus* pretended to cure all Sorts of Wounds with its Oil, made by Infusion.

ORIGANUM *vulgare*, *spontaneum*, *Origan*. The

Origan is acerb, aromatick, deterſive, and changes but little the blue Paper; whence 'tis conjectur'd that it is full of volatile, aromatick, and oily Salt, which is not entirely free from Acidity. This Plant contains, beſides, a great Quantity of terreſtrial Particles. The *Origan* is diuretick, diaphoretick, proper to help Expectoration, and to provoke the Menſes. It muſt be uſed in the Manner of Tea, in the Aſthma, violent Cough, Indigeſtions, and the Pleuriſy. For a Cold, and the Rheumatiſm in the Neck, the *Origan* is dried at the Fire, and wrapp'd up very hot in a Cloth, with which the Head muſt be very well cover'd.

PAPAVER, *Erraticum majus*, *Poppy*, in *French Coquelicoc*. The Flower of this Plant, which is the principal Part employ'd in Medicine, is glutinous, and changes a little the blue Paper, like the Solution of *Opium*; whence 'tis believ'd that it has a Salt analogous to it. But in the *Opium*, that Salt, which approaches near the *Sal Ammoniac*, is mix'd with a great deal of fetid Oil, whereas in the *Poppy* there is a great deal leſs of Oil, and much more viſcous Phlegm; ſo that the Flowers of this Plant are ſweetening, and proper to help ſpitting in the Fluxions of the Breaſt, in Colds, and in dry Coughs. They ſtop the Hemorrhages, and are a little ſudorifick. The Water diſtill'd from the Flowers of *Poppies*, is preſcrib'd from three Ounces to ſix; the Tincture is taken by Glaſſes, in the Fluxions of the Breaſt. The following Diet-Drink is excellent for a dry Cough: You muſt boil three Ounces of Roots of *Bugloſs*, and as much of thoſe of *Gramen*, or *Graſs*, in two Pints of Water, and pour the boiling Decoction upon an Ounce of Flowers of *Poppies*, and upon three Heads of *White Poppies*, cut ſmall, and ty'd up in a little Sack. The dry'd Flowers of *Poppies* are uſed like Tea. A Conſerve and a Syrup is made of them.

PARIETARIA *Officinarum*, *Parietary*, in *French Parietaire*. By the Analyſis the *Parietary* gives enough Oil, much fix'd Salt, much Earth, and ſeveral Liquors, ſome of which are very acerb, and the others acid. As for volatile Salt, there's no concrete extracted from this Plant; but it gives an urinous Spirit. *Dioſcorides* aſſures us, that this Plant is reſolutive, and proper to ſtop the *ambulant* Ulcers. It was apply'd, in his Time, on the Parts where the Gout is felt, and its Juice was drank for old Coughs, and uſed in Gargariſms for ſore Throats. *Ceſalpinus* ſays, that the ſame Juice is diuretick, and unſtops entirely the Reins. *Tragus* prizes much the Decoction of *Parietary*, to carry off all the Obſtructions of the Abdomen. He had it apply'd in a Cataplaſm on the Region of the Bladder, for the Retention of Urine; but there was added to that Cataplaſm, Wine and Water-creſſes; the whole was fry'd, and apply'd as hot as the Patient could bear it. *Dodoneus* had that Cataplaſm made with only the *Parietary* and Oil of ſweet Almonds. For the Ruptures which cauſe exceſſive Pains in the *Scrotum*, *Camerarius* had it apply'd very hot on thoſe Parts, after it had been pounded with Vinegar. This Plant is at preſent uſed in all Decoctions, Clyſters, and deterſive Half-Baths. The Syrup of *Parietary* gives Eaſe to the Dropſical.

PERSICARIA, *Arſmat*, in *French Perſicaire*. This Plant changes the blue Paper; whence 'tis conjectur'd that its Salt approaches near the *Sal Ammoniac*, loaded with a great Quantity of Earth, and join'd to a little Sulphur; therefore 'tis aſtringent, vulnerary, and deterſive. It gives, by the Analyſis, a ſmall Quantity of concrete volatile Salt; the Decoction of the whole Plant is good for the *Diarrhœa*, and for cutaneous Diſtempers.

PLANTAGO, *Plantain*. The Leaves of this Plant are bitter, aſtringent, and change a little the blue Paper; the Roots change it more, and are only aſtringent; which ſhews, that in the Leaves the *Sal Ammoniac*, and the terreſtrial Particles of that Plant, are embarraſs'd with a great deal of Sulphur. Therefore the *Plantain* is vulnerary, reſolutive, and febrifuge. *Tragus* eſteems it much for the Phthiſick. Two Drachms of the Extract of this Plant, or a Drachm of its Seed in Powder, ſtops the *Diarrhœa*, and all Sorts of Hemorrhages. The Diet-Drink made of it, and the Water diſtill'd from it, have the ſame Virtues. They are preſcrib'd in the *Dyſenteria*, ſpitting of Blood, immoderate Fluxes of the Piles, or of the Menſes; in a Word, this Plant is uſed in all vulnerary and deterſive Potions. In the Inflammation of the Eyes *Camerarius* had a Collyrium made with the Juice of the Leaves, and of the Root, mix'd with Roſe-water and Sugar. *Simon Pauli* uſed the Extract of *Plantain*, and of the Decoction of *Sarſaparilla*, to cure a young Man who piſſed Blood after a *Gonorrhœa*. A Gargariſm of *Plantain* is excellent for a ſore Throat.

POLYPODIUM *vulgare*, *Oke-forme*, in *French Polipode*. The Root of this Plant analiz'd gives ſeveral acid Liquors, a ſmall Quantity of urinous Spirit, no concrete volatile Salt, a great deal of Oil, and ſome Earth. The Antients believ'd this Root purgative. *Menardus* is the firſt, among the Moderns, who diſcover'd that it purges but ſlightly; and *Dodoneus* confeſſes that it does not purge at all, unleſs it be boil'd in the Broth made of an old Cock, with Mallows and Leeks. The *Oke-forme* ſweetens the Blood, and carries off the Obſtructions of the *Viſcera*. It muſt be uſed for a dry Cough, when the *Saliva* is ſalt; in the Aſthma, Scurvy, and hypochondriacal Affections.

PRIMULA VERIS, *odorata*, *flore luteo*, *ſimplici*, *Primroſe*, in *French Primevere*. The Flowers of this Plant analiz'd give a great deal of Acid, very little urinous Spirit, no concreted volatile Salt, ſome Oil and Earth. The Flowers have an aromatick and oily volatile Salt; they are very aperitive, and very proper to reſtore the Courſe of the Spirits. *Tragus* preſcrib'd the Conſerve, or the diſtill'd Water of theſe Flowers, in the Apoplexy and Palſy. The Leaves and Roots of this Plant are aperitive and vulnerary.

PRUNUS *ſilveſtris*, *Wild Plum Tree*, in *French Prunier Sauvage*. The Leaves of this Plant are bitter, a little ſtiptick, glutinous, and change a little the blue Paper; but the Fruit changes it as much as Allum does. It is a little ſouriſh, and very ſtiptick; therefore there is an Appearance that the natural Salt of the Earth is predominant in the Leaves, where 'tis mix'd with a ſmall Quantity of fetid Oil; but the Acid of the ſame Salt diſengaging it ſelf in the Fruits, unites with Earth, and forms a Salt like Allum. *Tragus* has found, by Experience, that Water diſtill'd from the Flowers of *Wild Plum-Tree* is a ſovereign Remedy for the Pleuriſy, and the Oppreſſion of the Breaſt. When he had not the diſtill'd Water, he preſcrib'd the Wine wherein thoſe Flowers had macerated. He aſſures us, that the Fruits preſerv'd in Honey, or Sugar, are very good for all Sorts of *Diarrhœa's*. The Wine of *Wild Plums* has the ſame Virtues. *Matthiolus* uſed the Decoction of the Fruits and Roots for the Ulcers of the Mouth and Throat. The Juice of the Fruit appeaſes the Inflammation of the Eyes. *Wittichius* preſcribes, as a good Purgative, the Syrup made with ſeveral Infuſions of the Flowers of this Tree; they may be macerated in Whey. *Etmuller* ſays, that of the Juice of theſe Fruits, yet green, might be extracted by Diſtillation *in Balneo mariæ*, a very ſtrong Vinegar.

PULEGIUM *latifolium*, *Penny-Royal*, in *French Pouliot*. This Plant is very bitter, very acerb, of a penetrating Smell, and changes much the blue Paper; whence 'tis conjectur'd that it has an aromatick and oily volatile Salt, yet loaded with Acid; whereas in the artificial volatile Salt this Acid is ſtopp'd by the Salt of Tartar; therefore this Plant is aperitive, hyſterick, proper for the Maladies of the Stomach, and thoſe of the Breaſt, when 'tis wanting to diſſipate thoſe glutinous Matters which obſtruct the *Bronchia*, and *Veſicles* of the Lungs; eſpecially when boil'd with Honey and Alloes: For then, as *Dioſcorides* obſerves, it purges, and helps the Expectoration. *Tragus* ſays, that the Juice of this Plant clears the Sight, and carries off the Rheum. For the Diſtempers of the Eyes, *Montanus* preſcrib'd the Powder of *Penny-Royal* mix'd with equal Parts of Vinegar, Honey, and Water.

The Conserve of the Flowers and Leaves of this Plant is good for dropsical Persons, and for those who have the Yellow Jaundice. Mr. *Ray* assures us, after Mr. *Boyle*, that a Spoonful of the Juice of *Penny-royal* is a good Remedy to appease the convulsive Cough of Children. *Chesneau* prescrib'd a Glass of the Decoction of this Plant for Hoarseness, and advised to take it at Night, going to Bed.

PULMONARIA, *rubro flore*, *Lung-wort*, in *French Pulmonaire*. This Plant has a salt and glutinous Taste, and changes the blue Paper. It is employ'd in Diet Drinks, or in Broth made with Calves Lights, for the Distempers of the Lungs.

QUINQUEFOLIUM, *majus repens*, *Cinquefoil*, in *French Quintefeuille*. Mr. *Ray* has very well describ'd the Fruit of this Plant. The Taste of its *Leaves* has something glutinous, they change a little the blue Paper, but the Roots change it more; they have some Acidity, and are stiptick, which makes us believe, that amidst a great deal of Earth and Sulphur, they contain an aluminous Salt modified with a small Quantity of *Sal Ammoniac*, which, in the *Leaves*, is very much embarrassed in a viscous Phlegm. This Plant is vulnerary, and astringent. By the Analysis it gives a small Quantity of concreted volatile Salt. Beside the Extract prepar'd of the Roots, they are also successfully employ'd in Diet-Drinks, and in the astringent Broths, for the spitting of Blood, the hemorrhoidal Flux, for the Heat of Urine, and for all sorts of Hemorrhages. The Gargarism made with the Decoction of this Plant, cures the Ulcers of the Mouth, and sore Throats. It is assur'd, that a Drachm of the Powder of the same Root taken in a Glass of Water, before the Paroxysm, carries off intermittent Fevers.

ROSA *silvestris vulgaris*, *Wild Rose*, in *French Eglantier*. The Conserve of the Fruit of this Plant is cooling, sweetening, and diuretick. It is known under the Name of Conserve of *Cynorrhodon*.

RUBUS *silvestris*, the *Blackberry-Bush*, in *French Ronce*. The Leaves of this Plant are stiptick, and of an earthly Taste; they change the blue Paper into a dark red; the Fruit changes it more. The Fruit is vinous, and of a pleasant Smell, on some Bushes, tho' very insipid and ungrateful on others; there is a very great Likelihood that the Acidity of the natural Salt of the Earth, which, in the *Leaves*, is but slightly disengag'd from the other Principles, is almost entirely free of them in the *Fruits*, and produces there, with the terrestrial Particles, a Salt very near like Allum. The *Rubus* is astringent, detersive, and absorbent. *Dioscorides* says, with Reason, that it stops the *Diarrhœa's*; the *Leaves* chew'd, clean the Ulcers of the Gums, and of the Mouth; pounded, and apply'd, they mortify and cure the Piles. Its Decoction is employ'd for the Wounds in the Legs. *Tabernæmontanus* says, that to stop the Flux of the Piles, there must be thrust into the Fundament a Rag dipp'd in the Juice of *Rubus*. Mr. *Ray* relates that Dr. *Needham* had a vast Opinion of the Syrup made of the Fruits of this *Plant*, in the Heat of Urine.

RUSCUS *Myrtifolius*, *Butcher's-Broom*; in *French Petit-Houx*. The Root of this *Plant* is one of the five common aperitive Roots, proper to carry off the Obstructions of the *Viscera*, and to accelerate the Passage of Urine. For the Dropsy, Cachexy, Jaundice, Calculus, and the Retention of Urine; 'tis prescribed in Broth, Diet-Drinks, and Apozems; for scrophulous Tumours half a Pint of White Wine, in which has been macerated a Drachm of the Powder of the Roots of *Ruscus*, with equal Quantity of those of *Scrophularia*, and *Filipendula*, must be drank for several Days successively. The Conserve of the Berries of *Ruscus* is very good for the excessive Heat of Urine. The Seeds of *Ruscus* are employed in the Composition called *Benedicta Laxativa*.

SALIX *Vulgaris*, *Willow*; in *French*, *Saulx*, or *Saule*. The *Willow* which bears Flowers bears no Seeds, and that which bears Seeds, no Flowers. The Decoction of the Leaves of *Willow* is good for the Spitting of Blood; 'tis given in Clysters for the Diarrhœa.

SAMBUCUS, *Fructu in Umbella nigro*, *Elder-Tree*, in *French Sureau*. The Leaves of this *Plant* have at first a salt Taste; and, afterwards, they are bitter. The Fruit is sweetish.

By the Analysis the Leaves, besides several acid and alkaline Liquors, give a concrete volatile Salt, much Oil, and much Earth. Therefore there is Appearance, that this *Plant* operates by a *Sal Armoniack* more loaded with Acidity than common; and mixed with a great deal of fœtid Oil and Earth. The Salt, which is in the Fruit of *Elder*, approaches nearer the *Alum* than the *Sal-Ammoniack*. There is but a very small Quantity of urinous Spirit extracted from its Parts, but much of Acidity, Oil, and Earth. *Bauhin*, and Mr. *Ray* have took the Flower of this *Plant* for a Flower of five Leaves, though *Tournefort* has found it of a single Piece. *Hippocrates* used the *Elder* to purge, and to help the Evacuation of Urine. *Dioscorides* says, that the Decoction of its Summities purges the Serosities, and ease the Dropsicals, as well as the Wine, in which the Roots have been boiled. These Parts, according to the same Author, are good for the Bite of Vipers, and for the hysterick Passion, as well as the Fruit drank in Wine. *Dioscorides* adds, that the Leaves of *Elder* appease the Inflammation, cure the burnt Ulcers, the Bite of a mad Dog, and the Gout. *Tragus* and *Dodoneus* ordered to drink the Juice of the middle Bark of *Elder*, to purge the Bile, and the Serosities, or had it macerated in Wine or Milk, after it had been pounded. *Gesner* prescribed the Decoction of that Bark, for an excellent Sudorifick in the Plague. *J. Bauhin* ordered the Dropsicals to drink three Times a Day, an Ounce and a half of the Water of the middle Bark of *Elder*, *viz.* the first in the Morning, the second at Noon, and the last at Night. The Flowers of this Tree fried with Eggs, purge well enough, but they must be fresh gathered, for they loose their Virtue in drying. The Whey wherein those dry'd Flowers have been macerated, are of a great Succour to those who have the Small-Pox and the Erefipele. They must drink a Glass of it Morning and Night, and have their Face washed with two Parts of the Water of the Flowers of *Elder*, and a Part of good *Spirit of Wine*. A Conserve and a Syrup are made of those Flowers. They are put in Vinegar, and boiled slightly with Honey, to be used in Clysters. Of *Elder-Berries* are prepared the Rob, Extract, Spirit, Wine, Syrup and Oil. For the Rob a Pound of the Juice of *Elder-Berries*, with half a Pound of Sugar, is thickened on a slow Fire. The Extract, according to *Quercetan*, is made in the following Manner. The Fruits of *Elder*, dried from the Sun, must be put into a Matrass, pouring over it the best *Spirit of Wine*, which must rise about five Fingers breadth above the Fruit, adding to it some Spirit of Sulphur, and leaving the whole in Digestion during five or six Days; which expired, the Tincture must be filtrated, which is very good for the hysterick: The Dose is half a Spoonful, or a Spoonful. To make the Extract, the *Spirit of Wine* is drawn off by Distillation, and the Extract remains at the Bottom of the Cucurbit. The Dose is a Scruple, or even a Drachm, for the same Distemper, and for the Diarrhœa. The ardent Spirit of *Elder-Berries* is a very great Sudorifick, as well as the Juice of those Berries, which is easily preserved, or with Oil, or mixing with it one Third of the best *Spirit of Wine*. Of the Grains of those Berries is extracted an Oil, which appeases the Gout. For the same Malady another Sort of Oil is used, made by the Resolution of the Leaves of *Elder*, whose Ribs are bruised, and afterwards put into an earthen Pot, which being very closely luted, with Plaister, is buried very low in the Ground; at the End of a Year is found in the Bottom of that Pot a Sort of Oil, very good for the Gout. The Leaves of *Elder* boiled in strong Wine are very resolutive; they carry off the Swelling of the Legs of the Dropsicals,

Dropsicals, especially if a vaporous Bath be made of them, or frequent Fomentations, and the Leaves are applied in Cataplasms, 'tis proper to mix with it the Leaves and Flowers of Tansy. *Mathiole* gives the Description of an excellent *Unguentum* for a Burn. He will have a Pound of the middle Bark of *Elder* boiled into two Pounds of Oil of Olive; the Oil is strained through a Cloth; when the Bark is become black, and seems to be done enough, there are added to it two Ounces of new Wax, and as much of the Juice of the tendereſt Branches of *Elder*, which is boiled to the Consumption of the Juice. This done, the Vessel is taken off the Fire. Then must be added to it two Ounces of *Turpentine*, four Ounces of *Olibanum*, and two hard Yolks of Eggs. The *Unguentum* is preserved in an earthen Pot for the Gout, for the Inflammation of the Piles, and for Burns. It suffices to boil the middle Bark of the Branches of *Elder* in Oil of *Olives*, or in that of *Walnuts*, and to give it the Consistence of *Unguentum*, with a sufficient Quantity of new Wax, and Yolks of Eggs; nothing can ease more those who have been burnt with Gun-Powder, than to apply immediately on the burnt Part the common Honey, and afterwards the Oil of *Walnuts*, with which has been boiled the *Elder*.

SAXIFRAGE *Rotundifolia*, *Saxifrage*. This *Plant* is esteemed a very grand Diuretick The Infusion of its Roots in *white Wine*, or in *Cinnamon-Water*, is its usual Preparation. *Fachius* assures us that it provokes the *Menses*, and that it purges the Lungs of that thick *Lympha* which hinders its Motion.

SCABIOSA *Pratensis Hirsuta quæ Officinarum*, *Scabious*; in *French Scabieuse*. The Figure which *Tabernæmontanus* gives of this *Plant* is very good. The *Scabious* is bitter, and changes, a little, the blue Paper; whence 'tis conjectured that it contains a Salt which approaches near the *Sal-Armoniack*, mixed with great Quantity of fœtid Oil and Earth; for by the Analysis, besides several acid Liquors, there are extracted from this *Plant* much Sulphur and Earth, a small Quantity of urinous Spirit, and of a concrete volatile Salt. The *Scabious* is sudorifick, aperitive, detersive, vulnerary, proper to help the Expectoration, when the *Brunchia*, and the Vesicles of the Lungs are stuffed with a thick and glutinous Phlegm. The Juice of this *Plant* is prescribed from three Ounces to six, in which is dissolved a Drachm of *Teriake*, and ten Grains of Camphire, when the Patient must be sweated. This Remedy is good in malignant Fevers, in the Small-Pox, the Measles, and the Pleurisy, after the Use of the antimonial Remedies. The Water of *Scabious*, and that of *Carduus Benedictus*, are commonly mixed in expectorative and sudorifick Juleps. A Syrup is made of the Juice extracted from the whole *Plant*, which is very proper for all cutaneous Distempers. But, mean while, the Parts must be washed with the Decoction of *Scabious*; with every Pint of that Decoction are mixed three Spoonfuls of camphorated Brandy; the whole is strained through a Cloth, to separate the Camphire chilled on the Decoction, drank by Spoonfuls, 'tis good for the Vapours. *Tabernæmontanus* says, that the Juice of *Scabious*, mixed with some *Borax* and *Camphire*, carries off those Spots seen often on the *Cornea*.

SCROPHULARIA *nodosa fœtida*, *Blind Nettle*; in *French*, *Scrofulaire*. The Leaves of the *Blind-Nettle* are very bitter, of a very ill Smell, and change very little the blue Paper; the Root changes it more. Therefore 'tis believed that the *Sal-Ammoniack*, which is in the natural Salt of the Earth, is predominant in this *Plant*, where 'tis mixed with a great Quantity of fœtid Oil. By the Analysis are extracted from the *Blind-Nettle*, much volatile concrete Salt, and much Oil; therefore 'tis resolutive and emollient; these are the essential Qualities of the Remedies proper to resolve the Humours accompanied with Inflammation, and those called cold. The Juice of this *Plant* is used to clean the most dirty Ulcers; the *Unguentum* made with the Roots of this *Plant* is used to resolve the scrophulous Tumours, and to abate the Inflammation of the Piles.

SERPILLUM, *Wild Betony*; in *French Serpolet*; there are different Species of this *Plant*, but they all become alike by the Culture. *Wild Betony* is a little bitter, acerb, stiptick, odoriferous, and changes the blue Paper. There is Appearance that it abounds with aromatick and oily volatile Salt; but this Salt retains yet Part of the Acidity of the *Sal Ammoniac* of the Earth, when as in the artificial oily and aromatick volatile Salt, the acid Part of the *Sal Ammoniac*, has been stopt by the Salt of Tartar, therefore the *Wild Betony* is cephalick, stomachal, and proper for the Vapours. It destroys the explosive Matter which causes the convulsive Motions. It furnishes the Blood with spirituous Particles, it restores the natural Functions, and carries off the Obstructions. The Spirit of this *Plant* and the Water distill'd from it, are very proper for soporous Affections, and for the Vapours. Its essential Oil, or the Water extracted from its Flowers, macerated in Brandy, and distilled afterwards, are esteem'd for the Epilepsy. For a Cold, or an old Cough, two large Handfuls of *Wild Betony*, are thrown into a Pint of boiling Water. Then the Pot is taken off the Fire, and cover'd, afterwards two Spoonfuls of white Honey are dissolv'd in the Infusion: Which the Patient must drink, very hot, at Night in going to Bed. The Conserve made of the Flowers of this *Plant*, is a Remedy for the Epilepsy.

SENAPI, *Rapi Folio*, *Mustard*; in *French*, *Moutarde*. The Seed of *Mustard*, by the Analysis, gives more Signs of an acrimonious, than of an acid Salt; but there are extracted from it a very considerable Quantity of Oil, very little Salt fixt; much Earth, a small Quantity of urinous Spirit, and no volatile concrete Salt. This Seed is stomachal, diaphoretick, antiscorbutick. It is good for the hypochondriacal Affection, for the Green-sickness, the Cachexy, and the soporous Affections. The Seed of *Mustard* is order'd to be chewed in the Morning fasting, by those who are threaten'd with the Apoplexy. The following Cataplasm is good for the Rheumatism in the Breast: Leeks cut small, must be fry'd with a little Vinegar, till they be done, then they are powder'd over with pounded Mustard-seed. This Cataplasm is apply'd on the Part where the Pain is felt; 'tis very resolutive.

SYMPHYTUM, *Consolida Major*, *Walwort*; in *French Consoude*. The Leaves of *Walwort* are insipid, glutinous, and change but little the blue Paper. This *Plant* contains a Salt very like that of Coral, dissolv'd in a very glutinous Phlegm, in which there is a little Sulphur, and very little *Sal Ammoniac*; for by the Analysis the *Walwort* gives several acid Liquors, much Earth, very little Sulphur, no concrete volatile Salt, but some urinous Spirit. As for the Salt fix'd, 'tis found in it to some Quantity. There is Appearance that this *Plant* operates, chiefly by its glutinous Juice, which the Fire destroys. *Dioscorides* assures that its Roots are vulnerary; that their Juice is good for the spitting of Blood, and for Ruptures. The Moderns use it in Hemorrhages, occasion'd by the Acrimony of the Salts, which renders the Blood too fluid; and in the Fluxions of the Breast caused by salt, and corrosive Serosities. The Roots are preserv'd in Sugar, and are also made into Lozenges. The Syrup of *Walwort* prepar'd according to *Fernel*'s Prescription, is much composed; that of *Dodoneus* as much. The Roots of *Walwort* pounded and apply'd in Cataplasms, appease the Gout, and stop ambulant Ulcers. M. *Tournefort* used to have some Drops of the fetid Oil mix'd with the Root of *Walwort* well pounded, and apply'd on the Part where the Gout was felt.

TABACUM, *Tobacco*, in *French Tabac*; is a Plant which was first brought into *Europe* by the *Portugueze*, from the Island *Tabaco*. It is also call'd by the *French Nicotiana*, because first sent into *France* by *John Nicot*, Author of the Dictionary which bears his

Name, while he was Ambassador from *Francis* II, King of *France*, to *Sebastian* King of *Portugal*, in 1560. This is the Sentiment of *Guido Crescentius Fagon*, (first Physician and State-Counsellor to the late King of *France*, *Lewis* XIV, in a Thesis held publickly in the Schools of Medicine at *Paris*, the 24th Day of *March*, 1699.) of the Virtues of that Plant. That learned Man expressed himself in the following Terms:

Si recto & moderato administretur usu (Nicotiana) primas inter optima medicinæ instrumenta partes obtinet. Naribus scilicet, cum opus est, excepta, vel integra, vel trita in pulverem, membranam stimulat, quæ nasi, & ossium quibus extruitur recessus varios convestit; illa vero contracta papillos, & glandulas, quibus est intexta, constringit, atque ex his, velut ex spongiis manu compressis, mucum exprimit; quo quidem expurgato, serosi latices motum eundem secuti, non secus ac aqua Siphonibus elicita, e vasis & glandulis vicinis continenter evocantur. Nec instigatione dissimili, sive Tabaci frustulum ore contineatur: Sive fumus a fistulis hauriatur; glandulæ maxillis appositæ, & salivæ ductus stimulati, contractione repetita Salivæ vim maximam evomunt, qua fluxionum materia derivatur, & successiva membranarum vellicatione, pulmo viscosa pituita expeditus, ab asthmate, tussi, Catharro, & aliis periculosis affectibus liberatur; nec modo crudelis dentium dolor ejus Sulphure consopitur: Quinetiam sephentis Homerici vires gerit, sollicitæque inducit oblivia vitæ; contracta facit in paupertate beatum, & cum spe divite manat in venas, animumque juvat: Imo & quibus res est angusta Domi, annonæ penuriam fallit, & defluentis in ventriculum pituitæ copia, tolerandam præbet inediam, aut stupefacto nervorum sensu, dissimula a fame latrantem Stomachum lenit; nec solum internis medetur incommodis; sed externa quoque depascentia curat ulcera, & quæ plurium vim medicamentorum eluserant, putridis absumptis carnibus, ducet ad cicatricem. Sed quanto potentius tot præstat admiranda, tanto certius constat, quam multa sint a Nicotianæ abusu pertimescenda, cum enim Caustici vim exerit, qua & sordida mundat Ulcera, & ad vivam usque carnem cadaveroso, & quasi carneos extuberantes processus exedit; quos hoc adurente sale, tumultus excitabit, si frequentiore consuetudine naribus admota, vel excepta fumo, teneras membranas offendens, gutturis & ventriculi nervos, in spasmos egerit, cumque illis nervorum genus omne commoverit? Quid damni non afferet Saliva si eo sale imbuta, in ventriculum impluens, alimentis admissis, & mox in Chylum versis, cum sanguine in totum corpus deportandis, acrimoniæ hujus Semina insperserit, &c. i. e. If *Tobacco* be used with Judgment and Moderation, it may justly claim the Precedency of all other Remedies; for if thrust whole, or in Powder, into the Nose, when Necessity requires it, it pricks the Membrane which lines the innermost Parts of the Nose, and the Bones which enter into its Composition; that Membrane being thereby contracted, presses the *Papillæ*, and small Glands found in its Texture, and from them, as from Sponges squeez'd with the Hands, forces out the Snot, which being purg'd, Streams of Serosities following the same Motion, like Water running through a Cock, are continually flowing from the adjacent Vessels and Glands. A like Thing happens when *Tobacco* is chew'd or smoak'd; for the maxillary Glands, and salivary Ducts, being likewise thereby irritated by a repeated Contraction, discharge a considerable Quantity of that *Saliva* which causes the Fluxions; and by the successive Contraction and Extension of the Membranes, the Lungs, purg'd of a viscous *Pituita*, are free from Asthma, Cough, Catarrh, and other dangerous Affections. *Tobacco* appeases, likewise, by its Sulphur, the excruciating Pain of the Teeth; nay, it has even the excellent Qualities of the *Nepenthes* of *Homer*: For it makes us forget the Cares of this Life, renders us happy in the most extream Poverty, carries along with it, into our Veins, the most flattering Hope; eases our Mind, and even supplies the Want of Victuals: For by its Means, an abundance of *Pituita* falls into the Stomach, which renders Hunger supportable, and having stupified the Sense of the Nerves, appeases the craving Stomach. *Tobacco* is not only a Remedy to our internal Indispositions, but cures, likewise, gnawing Ulcers, and by eating the putrid and fungous Flesh, cicatrizes those which have render'd abortive the Virtues of the best Remedies. But as much as *Tobacco* is capable to produce all these salutary Effects, it is as certain, that it can also be attended with very dangerous Consequences, when taken to Excess, or without Judgment: For as it has a corrosive Faculty, whereby it mundifies the most filthy Ulcers, and corrodates the swelling and cadaverous Processes, to the quick Flesh; what dangerous Effects will it not produce, by its burning Salt, if too often taken in Snuff, or smoak'd; for then, wounding the tendereſt Membranes, it renders the Nerves of the Throat and Stomach convulsive, and throws the whole nervous Mechanism into Disorder. Of what Detriment must be the *Saliva*, if falling into the Stomach, impregnated with that Salt, it communicates to the Aliments, already chang'd into Chyle, that dangerous Acrimony, to have it carry'd through the whole Body by means of the Circulation of the Blood? *&c.*

TEA. M. *De Farcy* speaks thus of *Tea*: *Pretiosum istud folium duplici Substantia constat; fixa, terrestrique altera, sed paucula, quam subamarus sapor palam facit; altera volatili Sale fœta, & uberrimo, cujus argumentum suavissimus odor liquorem, in quo Tea leniter admodum ebullierit, abunde saturaturus. Decoctum, itaque, tot opibus affluens. Cerebrum impletis somni vicibus, animabit ad vigilias, veterno detentum excitabit, crapula grave confestim expediet, imbecilliori ventriculo robur adjiciet incredibile, spurcissimum Lienem expurgabit, molliet Colicos dolores, Scabros illuvie renes abstergit, Rheumaticos Arthriticosve cruciatus venientes arcebit procul, exin forte non redituros. i.e.* This precious Leaf, TEA, contains two Substances, one fix'd, and the other terrestrial, which render its Infusion bitter; but the other abounding with volatile Salt, communicates a grateful Smell to the same Infusion, which Infusion produces the following good Effects: It dissipates soporous Affections, and keeps one awake; it cures Ebriety, or excessive Drinking, and strengthens the Stomach; it raises the Obstructions of the Spleen, or Milt, cures the Cholick, and cleanses the Reins of a viscous *Lympha*; it appeases the excruciating Torments of the Rheumatism and Gout, and perhaps might render the Cure perfect.

TORMENTILLA, *sylvestris*, *Tormentille*. The Flower of this Plant is of four Leaves. The Root of *Tormentille* is styptick, very bitter, and changes a little the blue Paper; the Leaves change it less; they have a glutinous Taste. By the Analysis, this Plant gives only an urinous Spirit, no volatile concrete Salt, much Acid, Oil, and Earth; therefore there is Appearance that it contains an aluminous Salt, wrapp'd up in a great deal of Sulphur, and mix'd with very little *Sal Ammoniac*. This Plant is vulnerary, astringent, and detersive.

TUSSILAGO *vulgaris*, *Fole-foot*, *Colts-foot*, *Horse-foot*; in *French Tussilage*, *Pas Dasne*, *Pas de Cheval*. The Leaves of this Plant are green a-top, lanuginous, and white underneath; they are bitter, glutinous, a little styptick; they taste of Artichoke, and change very little the blue Paper. It seems as if there was in this Plant a Salt like that of Coral, wrapp'd up in Sulphur, and much viscous Phlegm. The Leaves and Flowers of *Colts-foot* are sweetening, moderately aperitive, and dedicated (if I may use the Expression) to the Maladies of the Breast, caused by acrimonious and salt Serosities. Asthmaticks are order'd to smoak the Leaves, instead of Tobacco. Mr. *Boyle* advises to mix the Flowers of Brimstone with those of *Colts-foot*, and assures us, that it has cur'd several Phthisicks. In *Dioscorides*'s Time, those sort of Patients were made to receive, by the Mouth, the Smoak of the Leaves of *Colts-foot*. The Leaves and Flowers are used in pectoral Decoctions, and in the Loches proper to facilitate Expectoration; a Syrup and a Conserve are made of those Flowers. The following

Diet-

Diet-Drink is very good for a dry Cough: Four Pints of boiling Water are pour'd over four Handfuls of the Leaves of *Colts-foot*, and Half a Handful of its Flowers, Half a Handful of the Summits of Hyssop, an Ounce of dry'd Raisins, and three Spoonfuls of the best Honey; the whole is left to boil for the Space of two Minutes, then it must be taken off the Fire, and cover'd, and the Diet-Drink strain'd, when 'tis cold.

VALERIANA *silvestris*, *Valerian*, or *Setwal*; in *French*, *Valeriane Sauvage*. The Leaves of this Plant have no Smell, but they have a Taste of Salt Herb, bitter, and change the blue Paper; the Roots change it but little; they are bitter, styptick, of an aromatick Smell, but penetrating, and which has something unpleasant. This Plant has an aromatick and oily volatile Salt, loaded with Part of the Acid of the *Sal Ammoniac*, whereas in the artificial oily volatile Salt that Acid has been stopp'd by the Salt of Tartar. Therefore the *Valerian* is anti-epileptick, sudorifick, hysterick, and proper to provoke the Menses. It eases much the Asthmaticks, and those who are subject to Vapours. *Camerarius* esteems it for the Jaundice, and *Columna* for the Epilepsy. This Author pretends to have cur'd Epilepsies in using these Roots. He advises, to gather it before it shoots forth the Stems, to reduce it into Powder, and take Half a Spoonful of it in Wine, Water, Milk, or other Liquor. It may be given to Children, and to all those who are subject to Convulsions. For the Hysterick, and the most violent Paroxysms of the Asthma, a Pint of boiling Water must be pour'd over an Ounce of the Roots of this Plant, and the Vessel being taken off the Fire, and cover'd, the Infusion is taken by Glasses. The Extract of these Roots is good for the same Maladies. The Dose is a Scruple, with a Grain of Laudanum, or the Laudanum is mix'd with the Powder.

VERONICA *mas*, *supina*, *& vulgatissima*, *Veronick*. The Leaves of *Veronica* are bitter, and change the blue Paper; whence 'tis conjectur'd, that they have a Salt which approaches very near the Salt of Coral, besides 'tis mix'd with much Sulphur; for by the Analysis are extracted from this Plant much Earth, much Acid, and much Oil. These Principles render the *Veronica* sudorifick, vulnerary, detersive, diuretick, and proper to free the Lungs from glutinous and purulent Matters. *Tragus* assures us, that in a malignant Fever, two Ounces of the Spirit of *Veronica*, mix'd with some Theriac, is a very good Sudorifick. The Water distill'd from this Plant is excellent for the Ulcers of the Lungs, for the Calculus, and the Vapours; especially if in two Ounces and a Half of that Water be macerated a Drachm of the Leaves of the same Plant, and as much of the middle Bark of Night-shade. The Syrup and Extract of *Veronica* purify the Blood, and are proper for the cutaneous Distempers; but the Parts must be wash'd, at the same Time, with the Water of *Veronica*, in which has been dissolv'd some Vitriol. Clysters made with a Pound of the Decoction of this Plant, an Ounce of Butter, and as much Sugar, are much valu'd for the Cholick. Some have the *Veronica* and Camomil boil'd in Milk, and add Sugar to it. The *Veronica* is often used in the Manner of Tea; 'tis also mix'd with the vulnerary Plants, in Potions, and Diet-Drinks.

VIOLA *martia*, *purpurea*, *flore simplici*, in *English* and *French Violet*. The Root of this Plant is a little salt, glutinous, and detersive; it does not change the blue Paper, no more than the Leaves, which are insipid, and more glutinous. The fresh Seeds change it a little, and are salter than the Roots. There is in the *Violet* a glutinous Sap, which wraps up the other Principles, and stops their Activity; for by the Analysis are extracted from this Plant several acid Liquors, much Oil, a sufficient Quantity of concrete volatile Salt, enough lixivial fix'd Salt; but 'tis not surprizing if it be sweeten'd by its Phlegm, and its Oil, and if it is diuretick, and laxative by the Mixture of the other Principles. The Salt of the *Violet* participates of the *Sal Ammoniac*, since 'tis composed of an urinous Part. The Infusion of two Ounces of the Roots of this Plant, is both emetick and cathartick; the Leaves are emollient and laxative, they are employ'd every Day in Clysters, Fomentations, and Cataplasms; the Flowers are loosening. *Poterius* assures us, that a Drachm of their Powder purges well enough. Of them are prepar'd three Sorts of Syrup; the simple, whose Colour is very beautiful, provided it be not boil'd; the compound, which is the Invention of *Chesve*; and the purgative, of which *Lemery* gives the Description. The simple, and the compound, are very proper for the Maladies of the Breast, caused by acrimonious and salt Humours; those Syrups are cooling. The purgative Syrup is proper for the same Distempers, when a Purgative is wanted; for the Seeds and *Calices* of the Flowers used in that Syrup, purge very well, the Roots could very well be added to it. *Etmuller* relates, that *Timæus* used to prepare a very good laxative Conserve of the Flowers of *Violets*, by giving to *Manna* the Consistence of Conserve, with the Juice of these Flowers; that Conserve kept the Body open. The Dose was from a Drachm to Half an Ounce. A sort of *Ratafia* is prepar'd in the following Manner, for those who are costive: In six Pounds of the Juice of the Flowers of *Violets* must be dissolv'd, on a clear and gentle Fire, a Pound and a Half of *Manna*, the whole to be strain'd through a Cloth, adding to it a Pint of very good Spirit of Wine. A Spoonful or two of this *Ratafia* must be taken, if necessary, Morning and Night. For the Nephritick, and the Retention of Urine, the following Emulsions are prepar'd: Let an Ounce, or an Ounce and a Half of Seeds of *Violets* be pounded in a stone or marble Mortar, adding to it six Ounces of the Water of *Gramen*; strain the Emulsion through a Cloth, and mix with it an Ounce of Syrup of *Violets*.

VIRGA AUREA, *vulgaris*, *latifolia*, *Golden Rod*; in *French Verge dorée*, or *Verge d'Or*. The *Golden Rod* is styptick, bitter, and does not change the blue Paper; there is Appearance that its Salt is very near like the natural Salt of the Earth, but that it is mix'd with much Oil and terrestrial Particles; therefore this Plant is vulnerary, and diuretick. It is prescrib'd in Diet-Drinks for the *Dysenteria*, and for all Sorts of *Hemorrhages*. The Water distill'd from its Summits, and the Extract of the whole Plant, have the same Virtues; the Flowers and Leaves of the *Golden Rod* are used like Tea; 'tis employ'd in the *Arquebusade* Water, and in vulnerary Potions.

VISCUM *baccis albis*, *Misletoe*, in *French Gui*. This Plant is never found on the Earth, but it grows on the Oak, Plane-tree, Apple-tree, Pear-tree, and on several others. The *Misletoe* occupies the foundest Branches of the Tree, and on those Branches there is neither Earth found, nor any other Matter, which could appear proper for the Vegetation of the Seed of that Plant; there is only a Tumour on the Places where the Foot of the *Misletoe* is ty'd. Its Flowers grow three and three, like the *Trifolium*, in the Division, and at the Extremities of the Branches. Each Flower is yellowish, and of near three Lines in Diameter, thick as *Morocco* Leather; they are fill'd with a Dust semblable to the Flower of Brimstone, though those Flowers produce nothing; for the Fruit of this Plant grows on Branches different from those which bear the Flowers; those Branches are found, sometimes, on the same Stalk with those which bear the Flowers; and sometimes, also, on Stalks which only bear Fruit. Each Fruit begins by a small oval Embryo, environ'd with four thick yellowish Leaves, Half a Line long, pointed, and which fall easily; this Embryo grows insensibly, and becomes an oval Berry, of three Lines long, like a small Pearl, fill'd with a flat Seed, in Form of a Heart, and wrapp'd up in a whitish and sweetish Glue, in which the Seed vegetates naturally. There is Appearance that this Seed produces the young Plants of *Misletoe* seen on the Branches of Trees. However, it cannot be said that this Seed passes

passes through the Root of the Oak, or of the other Trees, that it ascends into the Branches, by the Vessels, which carry the nutritious Juice; since each Seed has two Lines of Diameter, and the Texture of those Vessels unperceptible; therefore this Seed must be applied to the Bark of the Branches of the Tree, by some external Cause. Those Causes may be reduced to two principals.

1. To the Birds, which, perhaps, bruising those Berries with their Feet, or with their Bills, occasion their fastening by their Glue to the Branches; hence we see that *Magpies* and *Jays* contribute to the Multiplication of several *Plants*, by transporting and burying their Seeds. It might likewise happen that the Birds which have swallowed the Berries of *Misseltoe*, void them on the Branches of the Trees.

2. It might happen also that those Berries falling of themselves, or by the Violence of the Winds, stick sometimes against the Branches of the neighbouring Trees, especially if they are applied to it on that lacerated Side, they were tied to the Branches of the *Misseltoe*; for that lacerated Side fixes itself easily to the Bodies on which it falls; but in whatever Manner those Berries fix themselves, we may suppose that the Glue they are filled with, softens insensibly the Bark; and then the Seed which has budded in the Berry, perforates it easily by its Radicle; perhaps the Glue, though ever so insipid, ferments with the nutritious Juice of the Tree, and lacerates the Fibres of the Bark 'tis found in, whereby is facilitated the Passage of the Fibres of the Radicle; thus the Eggs of the Female, says *Tournefort*, falling into the Body of the *Matrix*, fix themselves to it by Means of the *Placenta*, whose Juice fermenting with that of the Glands of the Bottom of the *Matrix*, causes a small Inflammation, by means whereof those two Bodies unite together.

The Radicle of the Seed of *Misseltoe*, finding a Facility to penetrate into the Bark of the Branches extends itself into greenish Fibres, which run at first into the Substance of the Bark, and perforating afterwards the ligneous Body, intermix with the Fibres of the Branches, and penetrate into their Vesicles, whence they draw a Juice proper for their Nutrition. 'Tis not surprising, says again *Tournefort*, that the Place, where they insinuate themselves, grows bigger; since they increase its Volume, and that those Roots, besides, by increasing, press the Vessels of the Branches in some Places, strangle and lacerate them in others; which causes the Interception and Extravasation of the Juices they contained.

The *Misseltoe* cannot live but on Trees, because, perhaps, its Radicle having no Structure to separate from the Earth, and to prepare the necessary Nutrition for the Vegetation of the *Plant*; 'tis necessary that Preparation should be made, in the Root of another *Plant* which might serve as a Nurse to it.

URTICA *urens*, *minor*, a *Nettle*; in *French Ortie Griesh*. The Leaves of all the Species of *Nettle* have an insipid and glutinous Taste, and do not change the blue Paper; the Roots change it a little; they are also insipid and a little stiptick; whence 'tis conjectured that the Species of *Nettle* have a Salt, very near like the natural Salt of the Earth; *i. e.* composed of *Sal-Ammoniack*, Nitre and marine Salt. But in this *Plant* that Salt is embarrassed in much glutinous Phlegm, and united with a great deal of Sulphur and terrestrial Particles; for by the Analysis, are extracted from *Nettles*, a concrete volatile Salt, much Sulphur and Earth, with several Liquors, which gives great Indications of acrimonious and acid Salt; therefore there is Appearance that the Phlegm of these Herbs is more thickened by the terrestrial Particles, than by the acid. But that thickened Phlegm, which is in a considerable Quantity, is entirely destroyed by the Fire. Nevertheless, 'tis not surprising, if the *Nettles* be detersive, diuretick, and proper to restore the Motion of the Liquors; for the glutinous Phlegm only moderates the too great Activity of the acrimonious Salt. The Juice of *Nettles* depurated, or by itself, or by a gentle Ebullition, stops the Spitting of Blood, and the Flux of the Piles; 'tis also very good for the Dysentery, and other immoderate Fluxes. The Cataplasm of *Nettles* is emollient, and resolutive; and therefore very proper to melt the Humours, accompanied with Inflammation. It eases the Gout, and dissipates sometimes the cold Tumours. For the *Calculus* and the Gravel, the Leaves of the *Nettles* are used in the Manner of Tea; or macerated in Wine. The Roots of *Nettles* preserved in Sugar are very good to facilitate the Expectoration, in an old Cough, in the Asthma, and in the Pleurisy; especially if the Leaves are applied in Cataplasms, on the Side, where the Patient feels the Pain. Some prescribe the Juice of the *Plant* for the same Maladies, the Conserve of the Grapes of *Nettles*, and the Extract of the whole *Plant* purify the Blood. The Diet-Drink of *Nettles* is very good in malignant Fevers, in the Small Pox, and Measles. Emulsions might be made with the Water and Seeds of this *Plant*.

XANTHIUM, *Lesse-barre*. The Leaves of this *Plant* are bitter, astringent, and do not change the blue Paper. 'Tis assured that the Use of it cures the King's-Evil, and purifies the Blood. The Patient must drink six Ounces of the Juice, or take a Drachm of the Extract. The Leaves pounded, are applied on scrophulous Tumours.

Though *Plants* are enriched with all the different Virtues, heretofore enumerated, they nevertheless are like to a strong Box, which contains an immense Treasure, from which, nevertheless, it cannot reap the least Advantage. All those Remedies, proper for all Sorts of Maladies, contained in the *Plants*, cannot cure their own. For Vegetables, like animal Bodies, are subject to an infinite Number of Distempers, proceeding likewise from internal or external Causes.

Among the exterior Causes of the Maladies of *Plants*, Blasting deserves the first Place, which proceeding from a Sort of viscous Humour corrupts the Substance of the *Plants*, especially the Legums and Corns, in which 'tis found. Hence, *Virgil, Lib.* I. *Georgic.*

Mox & Frumentis Labor additus, ut mala Culmos,
esset Rubigo.

The Vines are also subject to this Malady.

Next to *Blasting* is the Dew; when by a too great Abundance of Rain, the Flowers of the Vines are beat down, as well as young *Plants*, which have not yet shot forth Roots strong enough to shelter them from such Accidents.

Then follows the cold Blast, of which *Pliny*, *lib.* 18. *Nat. Hist. c.* 28. speaks thus, *Carbunculare*, says he, *Vites dicuntur, ut quodam Uredinis Carbone exustæ*; for *Plants* are imagined burnt, or when the Phlegm, by the cold Nights, is contracted in the Bud of the Vine; or when, by the excessive Heat of the Sun, the Fibres of the Leaves, and of the Clusters of Grapes, are torrified, and thereby obstruct the Circulation of the nutritious Juice. These, and other-like Maladies, which proceed from the Air, are called *Syderation*.

Vermiculation, which *Pliny* mentions, *lib.* 17. *c.* 24. is nothing else than an Irruption of Worms into Trees, by whom they are corroded, especially those which bear the sweetest Fruits, as *Apples*, *Pears*, &c. for the Acerbs, if the Oil be excepted, are not so much exposed to this Malady.

Plants are subject to several other Distempers, proceeding from external Causes, *viz.* Scabs, Ring-worms, and Decortication, occasioned by a certain acrimonious Humour, intercepted between the Bark and the ligneous Body, which divests Trees of their Bark, especially in the *Spring*.

Trees can also be wounded, but their Wounds are not all mortal; for the *Pine*, the *Fir-Tree*, and the *Terebinth*, are eased by their Wounds, which procure the Evacuation of Part of their Fat, which otherwise would be very troublesome to them. Others, especially young *Plants*, die, not only by *Section* and *Tere-*

rebration, but likewise by Contusion and Convulsion, whereby the Texture of the Fibres is lacerated, and therefore the Circulation of the nutritious Juice intercepted, also by the Bite of Animals, which affects the same nutritious Juice. This is called a violent Death.

Plants suffer likewise, and sometimes die, through too great a Heat, or an excessive Cold.

There is, almost, but one sole internal Cause of the Maladies of *Plants*, *viz.* when Trees, worn out with Age, are deprived of Aliment, by their Vessels being contracted, or when they cannot retain it, nor distribute it to the several Parts they are composed of, through the Imbecillity of their Organs, which is an infallible Prognostick of their approaching Death.

BREWING.

BREWING is the Art of preparing Beer and Ale from Malt, which is a Barley cured or prepared to fit it for making those Liquors; therefore, before we proceed further, on the Manner of *Brewing* those different potable Liquors, it is fit we should inform our Readers, how *Malt*, which is the chief Ingredient thereof, is to be prepared.

Sir *Robert Murray* will have six *English* Quarters of good Barley newly threshed, put in a stone Trough full of Water, that it swims two or three Inches above the Corn, and 'till the Water be of a bright reddish Colour; which will be in about three Days, more or less, according to the Moisture or Dryness, Smallness or Bigness of the Grain, the Season of the Year, or the Temperature of the Weather; for some Corn will infuse, and work more kindly than others. Smooth, plump, weighty Grain does best, and will imbibe, or receive the Water more aptly than a hungry, lean, flinty, thin Barley, which must be left to the Judgment of the Workman.

As for the Seasons of the Year, the *Spring* and *Autumn* are the best for making of Malt; for in the *Summer* it never makes well, and in the *Winter* it requires longer steeping; for, then, five or six Days will do it no Harm; when as in warm Weather, three or four Days and three Nights suffice, and in moderate Weather three Days and three Nights.

It may be known, when it is steeped enough, by other Marks, besides the Colour of the Water, as by the excessive Swelling of the Grain, if it be over-steeped, and by too much Softness, being, when it is in a right Temper, like the Barley, prepared to make Broth of; which may be easily known, by taking the Grain end-ways between the Finger, and gently bruising or crushing it, for if it is found equally mellow, and that the Husk opens or starts a little from the Body of the Grain, it is enough. But if the Barley be grown, or any Wet has injured it, it must not be steeped too much, otherwise the Liquor made thereof would have an ill flat Taste, and would not keep long without growing sour and dead; for the long keeping of Beer or Ale depends as much on the Goodness of the Malt as *Brewing*.

When it is sufficiently steeped, it must be taken out of the Trough, and laid on Heaps, to let the Water drain from it, for the better the Water is drained from it, the more equal it will grow or come. If the Quantity of the Grain be large, and the Weather warm, it must be laid into two Heaps, but if cold, into one; taking Care, after two or three Hours, to turn it over with a Scoop, and to lay it afterwards in a new Heap, about 20 or 24 Inches deep. This is called the coming Heap, in the right Management whereof lies the principal Skill. In this Heap it may lie forty Hours, more or less, (according to the aforementioned Qualities of the Grain, and the Temperature of the Weather) before it comes to the right Temper of Malt. While it lies in this Heap, it must be carefully looked to, after the first fifteen or sixteen Hours; for about that Time the Grains begin to put forth Roots, which they do sooner in the *Spring*, which when they have fully and equally done, the Malt must, within an Hour after, be turned over with a Scoop, otherwise the Grains will begin to put forth the Blade or Spire also, which must, by all Means be prevented.

If all the Malt do not come equally, but that which lies in the middle comes the soonest, it must be turned so as the outmost may lie inmost, and thus it's to be managed 'till it be all alike. As soon as the Malt is sufficiently come, it must be turned over, and spread out; beginning, and turning it over and over again, three or four Times. Afterwards, it must be turned over, in like manner, once in four or five Hours, making the Heap deeper by Degrees: Continuing so to do, for the Space of Forty-eight Hours at least. This frequent turning it over, cools, dries, and deadens the Grain, whereby it becomes mellow; melts easily in *Brewing*, and separates entirely from the Husk.

Some will have it afterwards thrown into a Heap, as high as can be, where it should lie 'till it grows as hot as the Hand can endure it; which usually comes to pass in about thirty Hours Space; pretending that it perfects the Sweetness and Mellowness of the Malt. Others are of Opinion, that by throwing it thus into a Heap, does in some Degrees suffocate and flatten the Virtues of the Grain, gives to the Liquors made thereof too high a Colour, and impregnates it with Qualities prejudicial to Health, by intoxicating those who drink it, over-heating their Blood, and causing the Gravel and Stone, *&c.*

Those who are for heating it, will have it, after 'tis sufficiently heated, thrown abroad to cool, and turned over-again, about six or eight Hours after.

'Tis pretended by some, that the Preparation of Malt, from the Trough to the Kiln, is uncertain, and must be managed according to the Season of the Year, and the Goodness of the Grain; that in moderate Seasons it will come to the Kiln in three Weeks, or thereabouts; but in cold Weather it may be four or five. The Manner of putting it to the Kiln (which is done on Hair-Cloth, or Wire spread under it) varies according to the different Countries; for some will put it from seven to ten, or 12 Inches thick, which others suppose to be an ill Custom, and that it never fails to injure the Malt, since the strong Fire, which must be kept to dry it, is apt to burn that which lies next the Cloth, while that which is uppermost, is neither hot nor cold, which must flatten its Virtues; that it is impossible besides to dry it equally, and that its Thickness occasions it to send forth a moist and gross excrementitious Vapour or Steam, which often re-enters the Malt, gives an ill Taste to it, and to the Liquor made thereof. Those Persons would not have the Malt lie on the Kiln thicker than three, four, or five Inches; and a graduate Fire, neither too fierce, nor too slow, but indifferent brisk; for, say they, when the Fire is too slow, it weakens the Malt, and when too fierce, it fires and stagnates its Virtues. The best Fuel is Peat, or Turf; the next Charcoal; and if there be not enough of one Kind, the best must be burnt first, for that gives the strongest Impression.

Malt, while on the Kiln, must be turned every two, three, or four Hours, and the Cloth kept clear. The Kiln ought to have convenient Windows for the Evacuation of the gross Steams, fulsome Damps; and stupifying Vapours. Though the best Method and most natural Manner of drying Malt, is in the Sun, in the Months of *April* and *May*; for thus dried, it yields the palest, the most wholesome, and the finest Liquor. However this be, Care must be taken, that the

the Malt be not ſmoaked in the Drying. As to the complexing or colouring of Malt, white is accounted the beſt, becauſe the moſt natural.

From the different Manners of preparing *Malt*, and from its being more or leſs dry'd on the Kiln, Liquors borrow their different Names; for hence they are diſtinguiſh'd into *pale* and *brown*. That which is the ſlendereſt dry'd, tinging the Liquor leaſt, in *Brewing*, is call'd *pale*; and that higher dry'd, and, as it were, roaſted, *brown Malt*. A Mixture of both, makes an Amber Colour. It is certain, that *pale Malt* has more of the natural Grain in it, and is therefore the moſt nouriſhing; but, for the ſame Reaſon, it requires a ſtronger Conſtitution to digeſt it. Thoſe who drink of it are uſually fat, and ſleek in their Bloom; but are often cut off with ſudden Fevers; or if they avoid this, fall early into a diſtemper'd old Age. The *brown Malt* makes a Drink much leſs viſcid, and fitter to paſs the ſeveral Strainers of the Body; but if very ſtrong, may lead on to the ſame Inconveniencies with the *pale*, though a ſingle Debauch wears off much more eaſily in the *brown*. The North Country *Malts*, from *Nottinghamſhire*, *Derbyſhire*, *Leiceſterſhire*, *Cheſhire*, *Lancaſhire*, &c. are the beſt, eſpecially for Ale, but are generally too ſlack dry'd for *March* or *October* Beer, which is to be kept, at leaſt, Half a Year, before it be drank.

The next Ingredient is Water, and he that will *brew* well, cannot be too careful in the Choice of his Water. Sir *J. Moor* ſays, that Pond, and other ſtanding Waters, in fat Ground, if clear and ſweet, make a ſtronger Drink, with leſs *Malt*, than Well, Pump, or Conduit Waters; though any of theſe that are not hungry, and will bear Soap, and lather without breaking, are good. That *Rain* Water, which lathers the beſt of any, if ſav'd from Lead, or where it brings no Salt from the Mortar, over which it may paſs, is good to brew Ale to be drank new, but is not proper for Drinks to be kept long, it being very apt to change, and unleſs kept cool, and in great Quantities, as in the leaden Ciſterns in Cellars, at *Amſterdam*, will corrupt and putrify the ſooneſt of any Water. He ſays, that *Thames* Water, taken up about *Greenwich*, at low Water, where it is free from all Brackiſhneſs of the Sea, and has in it all the Fat and Sullage from *London*, makes very ſtrong Drink; that it will of it ſelf, alone, being carried to Sea, ferment wonderfully, and after its due Purgations, and three Times ſtinking, (after which it continues ſweet) it will be ſo ſtrong, that ſeveral Sea Commanders have told him it would burn, and had often fuddled their Sailors: But I hope he was not ſimple enough to believe them. Though, at the ſame Time, he thinks *Thames* Water by no Means fit to *brew* ſtrong Beer to keep, becauſe he had found the Drink *brew'd* of it, though never ſo clear, apt, on any conſiderable and ſudden Change of Weather, to ferment, and grow ſoul; taking it for a Rule, that no Malt Drink is truly good, which is not perfectly fine. However, he concludes, that the beſt Liquor to *brew* with, is that taken from a ſmall clear Rivulet, or Brook, undiſturb'd by Navigation, or Fording, and taken up in dry Weather, when no Rain has lately waſh'd the Banks; adding, that his two firſt *Brewings* were made of ſuch Water, which, with all his Care and Experience, he could never equal ſince, though he had been very nice, and had ſent ſome Miles for his Water. He pretends, that the beſt Water in *England* is that at *Caſtleton* in *Derbyſhire*, commonly call'd the *Devil's Arſe*, &c. which ouzes from a great Rock cover'd over with ſhallow Earth, and ſhort Graſs a-top. He is alſo of Opinion, that there is ſome Water which will never make good *Ale*, or *ſtrong Beer*.

Dr. *Quincy* obſerves, on the contrary, that the beſt *pale Malt Liquors* are thoſe *brew'd* with hard Waters; as thoſe of Springs, and Wells; in regard the mineral Particles, wherewith theſe Waters are impregnated, help to prevent the Coheſions of thoſe drawn from the Grain, and enable them to paſs the proper Secretions the better; as the viſcid Particles of the Grain do likewiſe defend theſe from doing the Miſchief they might otherwiſe occaſion. Though the Doctor agrees with Sir *J. Moor* in this, that Rain and River Waters ſeem beſt ſuited to draw out the Subſtance of high-dry'd *Malts*, which retain many fiery Particles in their Contexture, and are therefore beſt loſt in a ſmooth Vehicle.

The third Ingredient is *Hop*, which Sir *J. Moor* thinks beſt when about a Year old. In the Uſe of *Hops* conſiſt chiefly the Differences of *Malt Liquors*; for thoſe *hopp'd* are call'd *Beer*, and thoſe *unhopp'd* *Ale*. The Difference made by *Hop* is beſt diſcover'd, from the Nature and Qualities of the *Hops* themſelves; theſe are known to be a ſubtile grateful Bitter, in their Compoſition therefore with this Liquor, they add ſomewhat of an alkaline Nature, *i. e.* Particles which are active, ſublime, and rigid; by which Means the ropy, viſcid Parts of the Malt are more divided, and ſubtiliz'd; and are, therefore, not only render'd more eaſy of Digeſtion and Secretion in the Body; but alſo, while in the Liquor, prevent it from running into ſuch Coheſions as would make it ropy, vapid, and ſour. For want of this, in *unhopp'd Drinks*, that clammy Sweetneſs which they retain after working, ſoon turns them acid, and unfit for Uſe; which happens ſooner or later, in Proportion to the Strength they receive from the *Malt*, and the Comminution it has undergone by Fermentation.

The Proportion of *Hops* may be Half a Pound to an Hogſhead, of ſtrong Ale; one Pound to a Hogſhead, of ordinary ſtrong Beer, to be ſoon drank out; and two Pounds to a Hogſhead, of *March*, or *October* Beer; and for the After-worts, which are not to be kept long, what comes from the firſt Wort, will ſerve well enough to boil again with them. If a greater Proportion of *Hops* be put into the firſt Wort, and are boil'd all the while the Wort boils, it will make it bitter; but Sir *J. Moor* thinks it beſt to double the Proportion, by taking out the firſt Parcel, when the Wort has boil'd Half the Time 'tis deſign'd it ſhould, and then adding the ſame Quantity of freſh *Hops*, to continue boiling till the Wort be taken out of the *Copper*. This will ſomewhat increaſe the Charge, which will be very inconſiderable, if the *Hops* are bought in a cheap Year.

Five Gallons of Drink muſt be proportion'd to every Buſhel of *Malt*, *i. e.* (avoiding Fractions) eleven Buſhels of *Malt*, to every Hogſhead of *Ale* or *Beer*. But it muſt be obſerv'd, that in ſo great a Diſproportion of *Malt-Drink*, as eight to five, almoſt a Third of the Liquor, in the firſt Wort, will be abſorb'd by the *Malt*, never to be return'd; and that an Allowance is to be made of about a ſixth Part, to *evaporate* in boiling: So that if it be expected to clear a Hogſhead of Drink, that is, fifty-four Gallons, from the firſt Wort, there muſt be put into the *Maſh-Tub* near ninety Gallons of Liquor; but for the ſecond and third Wort, the Goods being wet before, no more Liquor is wanted, but what's intended to make Drink, except an Allowance of about a tenth Part for Waſte, this not boiling ſo long as the firſt Wort; and of this ſecond Wort may be made a Hogſhead of good middle *Beer* or *Ale*, as ſtrong as the common Ale-houſe Drink in *London*. The third Wort will make one Hogſhead of good *Small Beer*. In ordinary *Brewing*, ſix or ſeven Buſhels of *Malt* will make one Hogſhead of good ſtrong, and another of *Small Beer*; and in ſuch Caſe, two *Moakſes* will as well take out the Strength of the *Malt*, as three in the other.

Having thus provided all the neceſſary Ingredients for *Brewing*, diſcover'd their different Qualities and Quantities; we ſhould go to work, which cannot be done before we have provided our ſelves with the neceſſary Utenſils; which conſiſt in a *Copper*, *Maſh-fat*, *Receiver*, or *Under-back*, *Rudder*, *Lead*, or *Pump*, *Hand-jet*, in *Coolers*, or *Cool-Backs*; *Tubs*, *Tuns*, &c.

All theſe Utenſils ſhould always be kept very clean, eſpecially the *Maſh-fat*, *Coolers*, *Tuns*, *Tubs*, &c. and waſh'd well with cold Water, which is better than hot;

hot; for boiling Water drives back into the Wood a certain sour, fulsome Quality, which the former Wort has left behind; which Sourness communicates it self to the next Wort, and impregnates it with that sharp Quality call'd *Pricks*, which is often the Occasion why Brewers *Ale*, in hot Seasons, will not keep above four or five Days, or thereabouts; which Inconveniency could be easily prevented, by keeping the Vessels clean. Those that *brew* only for their own private Family, should have their *Mash-fat*, and *Coolers*, *copper'd* or *tinn'd* over; which, in some Measure, would prevent the souring or *pricking* of their *Ale*, in Summer.

For *March*, or *October Beer*, it is adviseable to have large Vessels bound with *Iron Hoops*, containing two, three, or four Hogsheads, according to the Quantity intended to be made, putting all into one Vessel; that sort of Drink digesting, and mellowing best, in the largest Quantities. If the Vessels were not *iron hoop'd*, the *March Beer* would be in Danger to be lost, or spoil'd.

At present, that we are provided with all the Implements necessary for *Brewing*, we'll begin the Operation by putting our Liquor into our *Copper*; which done, we'll strew a Handful or two of Bran, or Meal, upon it, not so much to strengthen our Liquor, as to make it heat quickly; for simple Water, alone, is long ere it boils. As soon as we perceive the Liquor simmer, (to avoid a needless Expence of Fuel and Time, first to make it too hot, and after to stay till 'tis cooler again) we'll take it out of the *Copper*; for we must by no Means mix our *Malt* with boiling-hot Liquor, which would make the *Malt* clot, and cake together, and the most flow'ry Parts of it run whitish, glewy, and fizy, like Sadlers Paste; so that it would never mix kindly, nor give out its Strength equally to the Liquor.

Others give for Reason of not mixing the *Malt* with boiling-hot Liquor, that Boiling *evaporates* the natural Spirit of the Water, renders it harsh and hard, and thereby not capable to extract the Goodness of the *Malt*.

Some put their *Malt* first in the *Mash-fat*, and then pour in their Liquor for the first Wort; but as we are resolv'd to follow Sir *J. Moor*, we'll pour in our Liquor first, for our first Wort, for these Reasons: Because we could never otherwise guess when our Liquor is cool enough to be mingled with our *Malt*; but in this we have a Rule to guide our selves by, which is that we must let our Liquor remain in the *Mash-fat* till the Vapour from it be so far spent, that we may see our Face in the Liquor; and then pouring the *Malt* upon it; we have this further Advantage, that we can keep our Liquor longer hot, and it will sink gradually, distributing its Strength to the Liquor equally, without matting; and if it does not descend fast enough of it self, we'll press it down with our Hands, or *Rudder*, with which we use to stir our *Moaks*. This must be done by Degrees, always remembering that we shake our Sacks before we remove them, over the Sides of the *Mash-fat*, to get out the Flower of the *Malt* which sticks to them. And after all the *Malt* is settled, and the Liquor appears above it, we must put into the *Mash-fat* as much more hot Water out of the *Copper*, as will make in all ninety Gallons for one Hogshead; then we'll stir it, almost without ceasing, till it has been in the *Mash-fat* about two Hours from the first putting up the *Malt*, in which our Servants may help, and relieve one another.

After this, we'll pull out the Rudder, and putting a little dry *Malt* a-top, we'll cover it close, and leave it to stand Half an Hour undisturb'd, that it may run off clear, and the *Malt* being sunk to the Bottom, the Liquor a-top will run through it all again, and bring away the Strength of it. After this, we must lift up our *Tap-staff*, and let out about a Gallon; not into the Tub underneath, or under Back, which is to receive the Wort, but into the Long-handle Jet, and put it back again, stopping the *Tap-hole*: We'll do this two or three Times, till we find it runs clear, which it will not do at first, though our *Tap-hole* is never so well adjusted. Through the whole Course of the *Brewing*, we'll be very careful to do all we can to *promote* the Fineness and Clearness of the Drink. In the *North* of *England*, where much the best *Malt-Drink* is made, they are so careful of making their Drink fine, that they let their first *Wort* stand in the Receivers till it is very clear, all the gross Parts being sunk to the Bottom; this they continue to do about three Hours in Summer, and ten or twelve Hours in the Winter, as Occasion requires, which they call *blinking*; after which, leaving the Sediment behind, they only lade out the Sediment into the *Copper*; which Custom is peculiar to the *North*, and wholly unpractised in other Parts.

When all is run out into the Receivers, or Under-back, we'll lade, or pump out our second Liquor, order'd so as to be just then ready to boil, on our *Moaks*; and putting the first Wort into the *Copper* again, we'll let it boil reasonably fast (which Boiling will be accelerated by the *Hops* put on it) for about an Hour and a Half, for *March*, or *October* Beer, to be kept long; and an Hour for strong *Ale* to be drank new. But *Wort* must rather boil reasonably fast, than to stand long to simmer; because common Experience shews, it wastes less, and ferments better, after so long boiling, than simmering.

Our first Wort being thus boil'd, must be *pump'd*, or laded off into one or more *Coolers*, or *Cool-backs*, in which we'll leave the Sullage behind, and let it run off fine; the more *Coolers*, and the thinner it stands, and the sooner it cools, (especially in hot Weather) the better. We'll let it run from the *Cool-backs* into the *Tun*, very cool, and will not set it there to work, in Summer, till 'tis as cool as Water; in Winter it must be near Blood-warm; at least the Bowl, in which we put the Yeast, to set the rest on working, must have a Mixture of Wort hot enough to make it all ferment. When we find that it begins to work up thick to a Yeast, we'll mix it again with our *Hand-jet*, and when it has work'd it self a second Time to a Yeast, (if we design it for *Ale*, and speedy Drink, and *hop* it accordingly) we'll beat in the Yeast every five Hours, for two Days together, in Summer, or more, according as the Weather is; and for three or four Days, in Winter; covering the *Fat* close, that it falls not into the working Tun. When the Yeast begins to work sad, and upon turning the Concave of the Bowl downward, sticks fast to the Inside, skimming off, then, the Yeast first, we must clean the rest into the Vessel, leaving all the Dregs in the Bottom of the Tun, and putting only the clean up. After it has a little fermented in the Vessel, we'll find it, in a few Days, fine, and fit to drink; though, according to the Quantity of the *Hops*, we may proportion it for longer keeping. If we *brew* in *March*, or *October*, and have *hopp'd* it for long keeping, we must then, upon its second working to a Yeast, (after once beating in) cleanse it into the Vessel with the Yeast in it, filling it still, as it works over, and leaving, when we stop it up, a good thick Head of Yeast to keep it.

Some make their first Wort in this Manner: They make their Liquor near boiling-hot, as above mention'd, then pour just so much into their *Mash-fat* as will wet their *Malt*, which they stir, and let stand Half an Hour, which they pretend prepares the *Malt* the better to communicate its Strength to the Liquor; they afterwards pour the whole Quantity of Liquor over the *Malt*, and let it stand an Hour and a Half, or two Hours, if they want to have their first Wort very strong, and the Season be not too hot: Then they put what Quantity of *Hops* they think proper into their Receivers, and let their Wort run to them; and after their *Hops* have infused an Hour and a Half in their Wort, they strain it off into the *Coolers*, and thus pretend to have perfected their first Wort. Then they put upon the *Malt* their second Liquor, near as hot as the first, rather cooler, if there be any Difference, which they let stand on the *Malt* no longer than an

an Hour, at moſt; then take what Qcantity they pleaſe of freſh *Hops*, which they put into their Receivers as before, and let the ſecond Wort run to them; then take both ſecond Wort, and *Hops* together, and put it into the *Copper*, where they let them infuſe till the Wort is near boiling, and then ſtrain this, alſo, into the *Coolers*.

Others boil a Quantity of Water, which is left to cool till the Height of the Steam be over; then pour ſo much to a Quantity of *Malt* in the *Maſhing-Tub*, as makes it of a Conſiſtence ſtiff enough to be juſt well rowed up: After ſtanding thus a Quarter of an Hour, a ſecond Quantity of the Water is added, and rowed up, as before. Laſtly, the full Quantity of Water is added, and that in Proportion as the Liquor is intended to be ſtrong, or weak. This Part of the Operation they call *maſhing*. The whole now ſtands two or three Hours, more or leſs, according to the Strength of the Wort, or the Difference of Weather, and is then drawn off into a Receiver, and the Maſhing repeated for a ſecond Wort, in the ſame Manner as for the firſt; only the Water to be cooler than before, and not to ſtand above Half the Time.

They then mix the two Worts, add the intended Quantity of *Hops*, and cover the Liquor cloſe, boiling it in a *Copper* for the Space of an Hour, or two; then they let it into the Receiver, and the *Hops* ſtrain'd from it into the Coolers; when cold, they apply the Yeaſt, or Barm, and leave it to work, or ferment, till it be fit to tun up.

It is pretended, that *March* is the beſt Month for *Brewing*, and the Water, then, better than in *October*; but Sir *J. Moor* ſays, that he has always found, that the *October Beer*, having ſo many cold Months to digeſt in, proves the better Drink by much; and requires not ſuch watching, and tending, as the *March Beer* does, by being oblig'd to open and ſtop the Hole on every Change of Weather. The ſame Gentleman has no very great Opinion of thoſe *ſtale Beers* which are kept, as pretended, five, ten, or more Years; though he believes that more *Malt* and *Hops*, than he propoſes, will keep Drink longer than he uſed to do; but he believes, alſo, that ſuch *Beer* will not exceed his in any good Qualities. He ſays, again, that he always broach'd his at about nine Months End; his *March Beer* at *Chriſtmas*, and his *October* at *Midſummer*; at which Time he ſuppoſes it generally the beſt; and likewiſe, that it would keep very well in Bottles a Year or two more.

The Veſſel, where the *Beer* is kept in, muſt be ſtopp'd cloſe with Cork, not Clay; and there muſt be manag'd near the Bung-hole a little Vent-hole, ſtopp'd with a Spile, which is never to be pull'd out till we bottle or draw off a great Quantity together; by which Means it is kept ſo cloſe ſtopp'd, that it fluſhes violently out of the Cock, for about a Quart, and then ſtops on a ſudden, and perles, and ſmiles in a Glaſs like any *bottled Beer*, though in Winter; but if once the Vent-peg is pull'd out to draw a Quantity at once, it will ſenſibly loſe this Briſkneſs, and be ſome Time before it recovers it.

For *ſmall Beer*, there is a third *Maſhing*, with the Water near cold, and not left to ſtand above three Quarters of an Hour, to be *hopp'd* and *boil'd* at Diſcretion; though the beſt *Gourmets*, in *Malt-Drink*, conſider this third Liquor as pernicious to Health; for the two firſt having extracted the whole Strength and good Qualities of the *Malt*, there remains nothing but a dull, heavy, and groſs Phlegm, of a tart, ſour Nature, which impregnates the Liquor, and gives it (if any Taſte at all) a very ill, and unpalatable Taſte; which bad Qualities are heighten'd, by boiling it ſtoutly with the Dregs of the *Hops*, for the boiling of *Hops* entirely ſuffocates and deſtroys the few good remaining Qualities of the *Malt*, and there remains nothing after ſuch boiling, but a harſh, bitter Aſtringent, which ſuch ſmall Wort extracts in the boiling.

Therefore the beſt *Small*, or *Table Beer*, is made by adding a larger Proportion of Liquor to the *Malt*, (according as one would have it) and then mixing the firſt and ſecond Wort equally together.

I have read a *Chymical Brewer*, who will not have the Wort boil'd after drawn off the *Malt*; pretending, that it is not Boiling, but a due Fermentation, that makes good Liquor; comparing *Beer* to Wine and *Cyder*, which are made without Boiling: But this Compariſon is ſo very lame, and his Reaſons ſo frivolous, that I'll forbear teazing my Readers with them; though he pretends to have made excellent *Beer*, and which has kept good for a whole Year, though it had never boil'd.

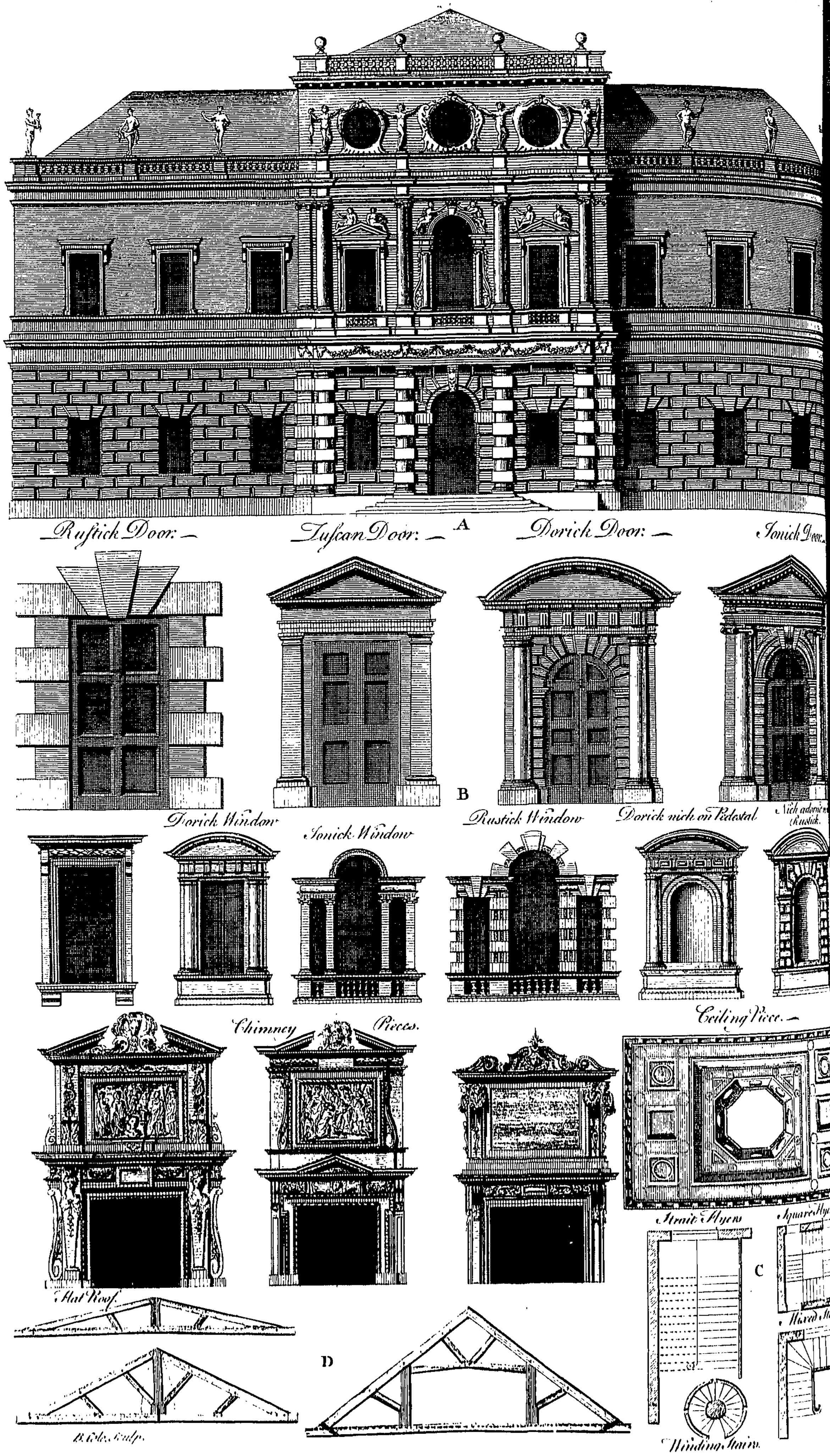
Sir *J. Moor* ſays, that the Reaſon why publick and common *Brewers* ſeldom or never *brew* good Drink is, that they wet more *Malt* at once than 'tis poſſible they can have Veſſels and Servants enough to work, and ſet it cool enough to ferment kindly; and withal *brew* ſo often, that they cannot ſufficiently, between one *Brewing* and another, cleanſe and ſcald their *Brewing-Veſſels*, and Barrels, giving them due Time to dry; but that they will retain ſuch a Ruſt (as I have obſerv'd already) as will always *char* and *ſour* their Liquor. My *Brewers*, ſays he, have been ſo cautious in this Particular, that if any Servants had, by Accident, made Uſe of any *Long-handed Jet*, *Hand-Jet*, or *Pail*, waſh'd with cold Water, during the *Brewing*, they would ſcald it a-new, and let it dry, before they would uſe it again.

Malt-Liquors have different Qualities, or Virtues, according to their different Preparations. For Example, It is a common Opinion, that *Ale* is more diuretick than *Beer*; that is, *unhopp'd* Liquor, more than that with *Hops* in it; which may hold in ſome Conſtitutions, in regard *Ale* being more ſmooth, ſoftening, and relaxing, where Urine is to be promoted by enlarging the Paſſage, as in thin dry Conſtitutions, this is the moſt likely to effect it. But where the promoting of Urine is to be done by attenuating and breaking Juices, to render them more fluid, it is certainly beſt anſwer'd by thoſe Drinks which are well *hopp'd*.

Dr. *Quincy* is of Opinion, that there is little Reaſon to think (though 'tis the common Belief) that *Hops* tend to breed the Stone; and, in the general, makes no Scruple to ſay, that for one Conſtitution damag'd by *Beer*, there are Numbers ſpoil'd by *Ale*; for this laſt manifeſtly fouls the Glands, ſtuffs the Veſſels with Slime and Viſcidity, makes the Body unweildy, and corpulent, and paves the Way for Cachexies, Jaundice, Aſthma's, and, at laſt, incurable Dropſies. The urinary Paſſages, alſo, which it is ſuppos'd to clear, will, in Time, be fill'd with Slough, and Matter, of as ill Conſequence as Gravel.

The different Strength of Malt-Liquors makes alſo their Effects different. The ſtronger they are, the more viſcid Parts they carry into the Blood, and tho' the ſpirituous Parts make theſe imperceptible at firſt; yet when theſe are evaporated, which will be in a few Hours, the others will be ſenſibly felt by Pains in the Head, Nauſeouſneſs in the Stomach, and Laſſitude, or Liſtleſneſs to Motion. This, thoſe are the moſt ſenſible of, who have experienced the Extremes of drinking thoſe Liquors, and Wine; for a Debauch of Wine they find much ſooner wore off, and they are much more lively and briſk afterward, than after fuddling Malt-Liquors, whoſe viſcid Remains will be long e'er they are ſhook off. Malt-Liquors, therefore, are more wholeſome for being ſmall; *i. e.* of ſuch a Strength as is able to carry a ſmall Degree of Warmth into the Stomach, but not ſo great as to prevent their being proper Diluters of the neceſſary Food. Indeed, in robuſt People, or thoſe who labour hard, the Viſcidities of the Drink may be broke into convenient Nouriſhment; but in Perſons of another Habit, and Way of Living, they ſerve rather to promote Obſtruction, and ill Humours.

The Age of Malt-Liquors is the laſt Thing by which they are rendered more or leſs wholeſome.


Rustick Door:
Tuscan Door:
A
Dorick Door:
Ionick Door.
Dorick Window
Ionick Window
B
Rustick Window
Dorick nich on Pedastal
Nich adorned Rustick.
Chimney Pieces.
Ceiling Piece.
Strait Flyers
Square Flyers
C
Winding Stairs
Flat Roof.
D

Age seems to do nearly the same Thing as Hops; for those Liquors which are longest kept, are certainly least viscid: Age breaking the viscid Parts, and by Degrees rendering them smaller and fitter for Secretion. But this is always determined according to their Strength; in Proportion to which, they will sooner or later come to their full Perfection, as well as Decay; for when Ale or Beer is kept 'till its Particles are broke, and comminuted as far as they are capable, then it is that they are best; and beyond this they will be continually on the Decay, 'till the finer Spirits are entirely escaped, and the Remainder becomes vapid and sour. The Vulgar are little or nothing sensible of all the fatal Consequences attending the excessive Drinking of Malt-Liquors; else they would never spend the Substance of their Family, in impairing their Health, and often entirely ruinating their whole Constitution in an Alehouse, where they spend in few Hours of Guzzling, what they have work'd for, like Slaves, during a whole Week, often when innocent Babes, and a disconsolate Wife, are starving at Home; who are not only robbed of their daily Subsistence, by such Spunges, but are also exposed to the imminent Danger of being forced, at last, to find a Remedy, for what has been the Cause of their Ruin, and to have the Displeasure to see always a perfidious Wretch deprived of his Reason, or of his Health, or rather never reasonable, but when his Reason can be but of very little Service to him, or to any Body else. What surprizes me most is, that Persons, who call themselves Gentlemen, are addicted to that scandalous Vice, of losing often their Reason in a Pot of strong Beer. Even our Brethren Authors (I mean those of an inferior Class) are not free of it; and I know some, who are never better pleased, but while they have a Pot at their Nose, and would almost think it a Crime to pass an Alehouse without calling; which, in my Opinion, is a very great Scandal to the Profession; 'tis through that the Pleasure of haranguing the Mob, in a Dialect, which often, neither the Orator, nor Auditor understand, is a great Inticement to it.

BUILDING.

BUILDING, in the Sense we take it here, is the Art, or Act of constructing an Edifice; in which Sense it comprehends as well the Expences, as the Intention, and Execution of the Design thereof.

Vitruvius tells us, that in every Fabrick three Things are requisite; *viz. Conveniency*, *Strength*, and *Beauty*; for without them no Building can merit our Esteem or Approbation. 1. That Edifice which is defective in Strength, though made never so commodious; or which is never so strong and commodious, if it wants Beauty, cannot justly be called perfect. It will be commodious, if every Member, or Part of it, stands in its proper Place, a due Regard being had to Dignity and Use; as for Example, when the Galleries, Hall, Chambers, Cellars and Garrets, are artfully disposed.

2. The Strength consists, 1. In carrying up all the Walls directly regular, which will be done, by making them thicker below than above; and their Foundations firm and solid. 2. By taking Care to fix the upper Columns directly perpendicular over those below; and to make all the Openings, as Doors, and Windows, exactly over one another, so that the solid may be directly over the solid, and the void over the void.

3. The Beauty will arise from the Harmony and Correspondence between the whole, and its various Parts; and of the various Parts between themselves; for then the Building will appear one compleat and perfect Body, in which one Member answers to another; and altogether to the whole; so that it may seem absolutely necessary to its Existance.

Upon a due Examination of all these Particulars, upon the Model or Draught (Sir *H. Wotton*, being of Opinion, that a Model, made of Pasteboard, or Wood, as plain and unadorned as possible, to prevent the Eye's being imposed on, is best, and the bigger this Model, the better) an exact Computation must be made of the whole Charge; and a timely Provision made of the respective Materials which are requisite; which Materials are Stones and Wood; Lead, Bricks, or Slates, for the Covering; Lime, Sands, Plaister, *&c.* The Stones, are Marble, Free-Stones, Bricks for the Walls, *&c.* The Wood, are Firr, Cypress, Cedar, *&c.* For Posts and Pillars of upright Use; Oak for Beams, Summers, and Joining and Connection. With these necessary Precautions, a Building will be carried on with Vigour; for if the Materials are got in due Time, the Building will deserve Commendation; and the Walls being thereby worked up equally, and without Interruption, will settle in the like Proportion, and without those Crannies which are found in Edifices built only by Fits and Starts.

But as there is some Art in the Choice of the Materials above-mentioned, and that, of their Goodness, depends in Part the Decoration of the whole Fabrick, as well as its Elegance; it will not be improper to instruct here, our Pupil Architect, how to make that Choice; beginning by the Stones, as the principal Material, and which we have divided into Marble, Free-stone, Bricks, *&c.*

MARBLE is a precious Kind of Stone, found in great Masses, dug out of Pits and Quarries, being of a Constitution so hard and compact, and again so fine, as readily to take a beautiful Polish; much us'd in Ornaments of Buildings, as Columns, Chimney-Pieces, Tables, *&c.*

The Goodness of *Marble*, and its Beauty, proceeds chiefly from the different Quarries 'tis dug out of.

The general Division of *Marbles* is into antient and modern *Marbles*. Antient *Marbles*, which were certainly the best, are those whose Quarries are lost, and whereof we have only some Pieces remaining. The Modern are those, whose Quarries are still open, and out of which Blocks continue to be dug; and of these there are several Sorts, all different in Beauty and Goodness; between which an able Architect should know how to make the Difference. The best we have, at present, is imported from *Italy*; for the Quarries of *Parian Marble*, so much celebrated in Authors, and which the greatest Part of the *Grecian* Statues were made of, are lost.

Among those imported from *Italy*, those from the State of *Genoa* deserve the Preference; though, even of them, there are several Sorts, *viz. Marble of Carrara*, which is very white. *White veined Marble*, which has large Veins, with grey and blue Stains on a white Ground. *Blue Turquin Marble*, mixed with a dirty Kind of white. *Modern green Marble*, improperly called *Egyptian*, of a deep green, spotted with grey. These three Sorts come from *Carrara*, on the Coast of *Genoa*, and are very good.

The other *Marbles* from *Italy* are, the *Marble* of *Porta Santa*, called, at *Rome*, *Serna*; which is mingled with large Clouds, and Veins of red, yellow, and grey. *Marble* of *Bress*, yellow with white Spots. *Portor Marble*, which has a black Ground, with Clouds, and Veins of yellow. *Marble fior di Persica*, which consists of white and red Stains, somewhat yellowish. *Marble Ochio di Pavone*, or *Peacock's-Eye*, mingled with red, white, and blueish Clouds, somewhat resembling the Eyes at the End of the Peacock's Tail.

Tail. *Marble of Sicily*, which is a brownish red, stained with oblong Squares, of white, and *Isabella*, like striped Taffaty. *Marble* of *Savoy*, which is a deep red, mixed with other Colours; each Piece whereof seems cemented on the rest. *Cypollino*, or *Cipollin Marble*, of a Sea-green Colour, mixed with large Waves, or Clouds of white or pale green. *Scamozzi* takes this to be the same with that which the Antients called *Augustum & Tiberium Marmor*; because discovered in *Egypt* in the Time of *Augustus* and *Tiberius*.

Spain produces likewise some very good *Marbles*, viz. the *Brocatella Marble*, which is mingled with little Shades of *Isabella*, yellow, pale, and grey; and comes from *Tortosa*, where it is dug out of an antient Quarry. *Marble* of *Signam*, in the *Pyreneans*, of a greenish brown, with red Stains; though this is somewhat various in its Colours. *White Marble*, that dug out of the *Pyreneans* on the Side of *Bayonne*.

The *French* have also Quarries of *Marble* in several of their Provinces, as in *Auvergne*, which produces a pale red Marble, mingled with violet, green, and yellow. *Languedoc*, which produces *Marble* of a vivid red, with large white Veins, or Stains; there is some borders pretty much on the blue, but this is of less Value. The *Marble* of *Barbançon*, in *Hainault*, is black, veined with white. That of *Dinom*, near *Liege*, is of a pure black, very beautiful, and very common. That of *Namur* is black, likewise, but less beautiful, as inclining a little to the blue, and traversed with little Streaks of grey; this is very common, and frequently used in Paving. The *Marble* of *Guachenet*, near *Dinant*, is of a reddish brown, with white Spots and Veins. That of *Rance*, in *Hainault*, is of a dirty red, mixed with blue and white Clouds, and Veins; this is pretty common, but is different in Degree of Beauty.

We have, in *England*, *English white Marble*, veined with red. *Derbyshire Marble*, variously clouded, and diversified, with brown, red, yellow, *&c.*

Lastly, *Marbles* are divided into *rigid*, *fibrous*, *brittle*, and *terracy Marbles*.

The *rigid Marble* is that, which being too hard, works with Difficulty, and is liable to splinter, as the black of *Namur*. The *fibrous* is that full of Threads or Filaments. The *brittle*, that which crumbles under the Instrument; and the *Terracy Marble*, that with soft Places in it, which must be filled up with Cement. These two last Kinds are not to be chosen where others can be had, no more than those *Marbles* which have the Grain too coarse, nor those full of Nails, which answers to the Knots in Wood; or with *Emeril*, which is a Mixture of Copper, or other Metals, forming black Stains in the *Marble*, and rendering it disagreeable to the Eye, especially white *Marble*, to which the *Emeril* is peculiar. The Nails augment the Difficulty in cutting and polishing the *Marble*.

For STONE, here, in *England*, that dug in the *Peninsula* of *Portland*, and thence called *Portland-Stone*, is much used, being softer, and whiter than *Purbeck Stone*, and is commonly raised out of the Quarries in bigger Blocks than that. The *Ryegate Stone*, called also *Fire-Stone*, is good, and much used for Chimneys, Hearths, Ovens, and Stoves.

Bricks, among us acquire various Names, according to their Form, Dimensions, Uses, Method of making, *&c.* The Principal are compass *Bricks*, of a circular Form, used in fleening of Walls. *Concave*, or *hollow Bricks*, on one Side flat, like a common *Brick*, on the other hollowed; used for conveying Water under-ground. *Cogging-Bricks*, used for making the indented Works under the Coping of Walls, built with great *Bricks*. *Coping Bricks*, formed on Purpose, for coping of Walls. *Dutch* or *Flemish Bricks*, used to pave Yards and Stables, and for Soap-boilers Vats and Cisterns. *Clinkers*, such *Bricks* as are glazed by the Heat of the Fire in making. *Feather-edg'd Bricks*, like the common Statute *Bricks*, only thinner on one Edge than on the other, and used to pen up the Brick-Pannels in Timber Buildings. *Great Bricks*, are those which are twelve Inches long, six broad, and three thick: The Weight of one being about 15 Pounds, so that 100 weigh 1500, and 1000 of them 15000 Pounds: Their Use is to build Fence-Walls, together with *Pilasters*, or *Buttress Bricks*, which are of the same Dimensions with the great *Bricks*, only they have a Notch at one End, half the Breadth of the *Brick*; their Use is to bind the Work at the *Pilasters* of Fence-Walls, which are built of great *Bricks*. *Paving-Bricks* or *Tiles*, are of several Sizes in several Countries and Places. *Place-Bricks*, such as are made in a Place on Purpose for them, near the *Building* they are to be used in. *Statute* or *small common Bricks*, when burnt, ought to be nine Inches long, four and a Quarter broad, and two and a half thick. 100 of these usually weigh about 550 Pounds, and 1000 5500 Pounds; about 407 makes a Ton Weight. These are commonly used in paving Cellars, Hearths, Sinks, *&c.* 30, or 32, if true Measure, will pave a Yard Square, and 330 will pave a Square of 100 Foot laid flat; but if laid Edge-ways, there must be near double the Number. *Stock-Bricks* are to be of the same Dimensions, only $\frac{1}{8}$ of an Inch thicker.

Barbaro, in his Commentary on *Vitruvius*, recommends another Form of *Bricks*, *viz.* Triangular ones, every Side a Foot long, and only an Inch and half Thick. These, he observes, would have many Conveniencies above others, as being more commodious in the Management, of less Expence, and of fairer Shew; adding much Beauty and Strength to the Mural Angles, where they fall gracefully into an indented Work. Sir *H. Wotton* wonders they have never been taken into Use; being recommended by so great an Authority.

The *Bricks* used by the *Greeks* were principally of three Kinds, the first called διδωρον, *i.e.* of two Palms; the second τετραδωρον, of four Palms; and the third πενταδωρον, of five Palms. They had other *Bricks*, just half each of these, which they joined together to render their Work more solid, as well as more agreeable to the Eye, by the Diversity of Figures, and Sizes of the *Bricks*.

The MATERIAL, which comes next under the Consideration of our Architect, is *Lime*, which is a white, soft, friable Substance, prepared of *Stone*, *Marble*, *Free-Stone*, *Chalk*, or other stony Substance, by burning in a Kiln. That which is such as it comes from the Kiln or Furnace, is called *Quick-Lime*; and that diluted, or drenched in Water, *slack'd Lime*.

Palladio says, that the best *Lime* is made of the hardest, soundest, and whitest Stone, and which remains a third Part lighter after 'tis burnt than the Stones 'twas made of. He observes also, that Stones collected up and down, and which have been exposed a long Time to the Injuries of the Weather, are not so proper to make Lime with, as those which are newly dug out of the Quarry; nor those taken from a dry Pit, so good as those from a moist and shady one. That such Pebbles as are found in Rivers and rapid Streams are excellent for Lime, and make very white, neat, and smooth Work; on which Account it is principally used in the rough Casting of Walls. That all Stones, whether those taken from the Hills, or from the Rivers, burn faster or slower, in Proportion to the Fire, which is given them; but that for the Generality, they are burnt in threescore Hours.

Dieussant recommends *Lime* made of Sea-Shells as the best; but *Goldman* finds Fault with it, as being impatient of Moisture, and therefore easily peeling off from the Outside of Walls.

Good *Lime* may also be made of Mill-stone, not coarse, and sandy, but fine, and greasy; and Sir *H. Wotton* finds Fault with the *English* for making *Lime* as they do, of Refuse and Stuff without any Choice; whereas the *Italians*, at this Day, and much more the Antients, burnt the firmest Stones, and even Fragments of Marble, where it was plentiful; which in Time became Marble again for its Hardness; as appears in their standing Theatres, *&c.* We have two Kinds of *Lime* in common Use in *England*, the one made

made of hard Stone, the other of a soft, calcarious, or chalky Stone; whereof the former is much the strongest. That made of soft Stones, or Chalk, is fittest for plaistering of Cielings and Walls within Doors; and that made of hard Stones, for Buildings, and for plaistering without Doors.

Before the Stones be thrown into the Kiln, they are to be broke in Pieces, otherwise the Air contain'd in their Cavities, too much expanded by the Heat, makes them fly with so much Violence, as to damage the Kiln. According to *Alberti*, and *Palladio*, *Lime* will not be sufficiently burnt in less than sixty Hours intense Heat. The Marks of a well-burnt *Lime*, according to *Alberti*, is, that its Weight be to that of the Stone, in a sesquialterate Proportion; that it be white, light, and sonorous; that when slacken it sticks to the Sides of the Vessel: To which *Boekler* adds, that when slacken it sends forth a copious thick Smoak; and *Dieussant*, that it needs a great deal of Water to slack it; but it must not be wetted all at once, but only by slow Degrees, to prevent its burning before it be duly temper'd. When slack'd, it may be kept several Years, by letting it pass through a Hole open at the Bottom of the Vessel, into a Pit dug under Ground, and as soon as it is full, covering it with Sand, to prevent its drying. *Boekler* gives another Method. He will have a *Stratum* of *Lime* cover'd, two or three Foot high, with another of Sand of the like Height, and then Water enough pour'd on to slack the *Lime*, but not to reduce it to Dust after slacking. If the Sand cleave into Chinks, as the Smoak ascends, they must be cover'd up, so as no Vent may be given thereto. This *Lime*, he adds, kept ten or twelve Years, will be like Glue, and will, further, be of particular Use in painting Walls, as being no ways prejudicial to the Colours.

But we must likewise have our Provision of SAND, which is a fine, hard, gravelly Sort of Earth, or rather Stones divided into small Grains; of great Use in *Building*.

There are three Sorts of *Sand* proper to be employ'd in *Building*, *viz.* Pit-Sand, River-Sand, and Sea-Sand. The first is the best, and is either of a black, white, red, or ash Colour; which last is a sort of Earth burnt by Fire inclosed in the Cavities of Mountains. Among the various Kinds of Pit-Sand, the white is found by Experience to be the worst; and of River-Sand, the best is that which is found in rapid Streams, and under Water-falls; because it is most purg'd. Sea-Sand is the worst; but if us'd, it must be that which is of a blackish Colour, and shines like Glass; but that whose Particles are biggest, and lies nearest the Shore, is better than any other Sort.

Pit-Sand, as it is of a fatter Substance than the rest, makes a more tenacious Cement; and though it is apt to crack, is frequently made Use of in *building* long Vaults, or raising Walls. *River-Sand* is proper enough for rough-casting of Walls. *Sea-Sand* being soon wet, and soon dry, and of a saline Quality, which soon melts away, is very improper to sustain any considerable Weight.

That *Sand* is good in its Kind, which, when squeezed and handled, crackles; and if being put on a white Cloth, neither stains, nor makes it foul. That *Sand* is naught, which, mix'd with Water, makes it dirty and muddy, and which has been long in the Air; for such will retain much Earth, and rotten Humour. Hence some Masons wash their *Sand*, e're they use it.

De Lorme observes, after *Vitruvius*, that the *Sand* of the *Terra de Lavoro*, in the Territories of *Baia* and *Cuma*, call'd by *Vitruvius Pozollana*, is the best in the World, especially for maritime *Buildings*; for being thrown into Water, it cements immediately, and makes excellent Mortar.

Our TIMBER, which is one of the principal, and of the most expensive Articles, must consist, 1. Of *Oak*, for Posts, Rails, Boards, *&c.* 2. *Elm*, for Dressers, *&c.* 3. *Beech*, which can supply the Want of *Oak*. 4. *Ash*, which is of a general Use in *Building*, especially where it may lie dry. 5. *Fir*, commonly known by the Name of *Deal*; for Floors, Stairs, Wainscot, and most Works of Ornament. 6. *Walnut-tree*, is us'd within Doors, being of a more curious brown Colour than *Beach*, and less subject to the Worms. 7. *Service tree*, as yielding Beams of a considerable Bigness. 8. *Chesnut-tree*, which is the most lasting, next to *Oak*. And, 9. *Alder*, much used for Sewers, and Pipes to convey Water: When always wet, it grows hard like a Stone; but where sometimes wet, and sometimes dry, it rots presently.

The Opinions and Practices of Authors are very different, as to the best Seasons for felling *Timber*. *Vitruvius* tells us, in the ninth Chapter of his second Book, that *Timber* ought to be fell'd in Autumn, and during all the Winter Season; for then the Trees have a Strength and Vigour convey'd to them from the Roots, which in Spring and Summer was dispers'd among the Leaves and Fruits. In Effect, though *Timber* unbark'd be most obnoxious to Worms, yet we find the *Wild Oak*, and many other Kinds, if fell'd too late, when the Sap begins to be proud, to be very subject to Worms; whereas about Mid-winter it neither casts, rifts, nor twines. The same Author will also have *Timber* fell'd in the Moon's Decrease; for then, says he, a certain Moisture, which is very apt to engender Worms, and rot *Timber*, is spent, and dry'd up.

Palladio's Sentiment is, that *Timber* ought, at first, to be cut no further than the Pith, when it must be left till it be perfectly dry; for then the Moisture will all sweat away, which engenders Putrefaction.

Pliny orders it to be fell'd in the very Article of the Change of the Moon, which happening on the last Day of the Winter Solstice, the *Timber*, says he, will be immortal. *Columella* says, from the 20th to the 28th Day. *Cæto*, four Days after the Full. *Vegetius*, from the 15th to the 25th, for *Ship Timber*.

Some even have Regard to the Temper, and Time of the Day; the Wind to be low, neither East nor West, neither in frosty, wet, nor dewy Weather; and therefore never in the Forenoon.

When *Timber* is cut down, *Palladio* will have it stor'd up in some Place where it may not be expos'd to the Heat of the Sun, or to the Injuries of the Weather; particularly such Trees as rise out of the Ground without being planted; and be daub'd over with Cow-Dung, to prevent its splitting. It is not to stand upright, but to lie all along, one Piece over another, only kept apart by short Blocks interpos'd, to prevent a certain Mouldiness which they are apt to contract in sweating on one another; from which frequently arises a sort of Fungus, especially if there be any sappy Parts remaining. Others advise Boards, Planks, *&c.* to be laid in some Pool, or running Stream, for a few Days, to extract the Sap from them, and afterwards to dry them in the Sun or Air. By this Means, it is said, they will be prevented from either chapping, casting, or cleaving; but against shrinking there is no Remedy. Mr. *Evelyn* particularly recommends this Method for *Fir*. Others, again, are for burying them in the Earth, others in Wet, and others for scorching and seasoning them in Fire; especially Piles, Posts, *&c.* that are to stand either in Water, or Earth. Sir *Hugh Plat* informs us, that the *Venetians* burn and scorch their *Timber* in the flaming Fire, continually turning it round with an Engine, till it has got a hard, black, crusty Coal upon it.

Timber must never be drawn in the Morning, whilst the Dew falls, but in the Afternoon; neither must it be work'd if it is very wet, or very dry; for in one Case it will be liable to rot, and in the other will make but very awkward Work: Neither will it be dry enough to be work'd into Planks, Doors, and Windows, in less than three Years. But as all Architects do not, or cannot take this last Precaution, and consequently *Timber* is but too often liable to Chops or Clefts, by its having been work'd too green, which is a very great Eye-sore in many fine Buildings; those Chops or Clefts are clos'd by anointing, suppling, and soaking

ſoaking it with the Fat of powder'd Beef-Broth, twice or thrice repeated. Some Carpenters uſe Greaſe and Saw-duſt mingled, for the ſame Purpoſe; but the former Method is excellent, only it is not to be us'd while the *Timber* is green.

We muſt alſo provide our ſelves with IRON, for Cramps, Nails, Hinges, Bolts, Gates, Bars, and ſuch like Work.

One diſtinguiſhing Mark of the Goodneſs of *Iron* is, when its Veins are found to run ſtrait, and unbroken, after it is work'd into Bars, and when the two Extremes of the Bar are clean, and without Foulneſs; for theſe Veins are an Indication that the *Iron* is free from Knots and Flaws; and by the Extremes we may judge of the Goodneſs of the Middle. If its Sides are found to be ſtrait after it is wrought into Plates, or into any other Form whatever, we may pronounce it equally good in all its Parts, as it has endur'd the Hammer in equal Proportion.

We may cover our Building either with LEAD, (which is alſo us'd for Pipes and Gutters to convey Water, and in faſtening all Sorts of Iron-work in Stone) or with *Copper*, *Slate*, or *Tyles*.

There are three Kinds of *Lead*, *viz.* white, black, and of a Colour between both, commonly call'd Aſh Colour. The white and aſh-colour'd *Leads* are more perfect and valuable than the black, though not really black, but only has a few black Spots in it. *Lead*, for our Uſe, is either caſt into Sheets in a Mould, or mill'd; which laſt, ſome have pretended, is leaſt ſerviceable, not only on account of its Thinneſs, but alſo becauſe it is ſo exceedingly ſtretch'd in milling, that when it comes to lie in the hot Sun, it is apt to ſhrink and crack, and conſequently will not keep out the Water: But this appears to be a Suggeſtion, without Ground.

COPPER is at preſent but ſeldom employ'd in covering any Kind of Edifices, not even publick ones; as being too expenſive, and too heavy, except in *Sweden*, where it is very common. The Antients us'd to make a kind of Cramps, or Hooks, with it, which being fix'd in the Stones, bind them faſt, ſo that they never looſen: By means of theſe Cramps, a Building, which muſt neceſſarily conſiſt of a great Number of Stones, is ſo join'd and fix'd together, that it appears to be but one entire Piece; and therefore is much ſtronger, and more laſting. Theſe Cramps, or Hooks, are now made of Iron; but the Antients choſe rather to make them, for the moſt Part, of *Copper*; becauſe as that Metal is not apt to ruſt, it is therefore more durable. This Metal, likewiſe, was uſed in making Letters for Inſcriptions that were plac'd in the Friezes of Buildings; and Hiſtorians aſſure us, that the hundred Gates of *Babylon*, ſo much taken Notice of, were all of *Copper*; as alſo the two Pillars of *Hercules*, which were eight Cubits high, in the Iſland of *Gades*.

The beſt *Copper* is that, which, when drawn out of the Mine, and purify'd by Fire, is of a reddiſh Colour, but ſomewhat inclining to a yellow, and full of Pores. It may be heated like Iron, and liquify'd, and therefore capable of being caſt; and though hard, may be render'd ſo ſoft and pliant, as to be wrought into very thin Leaves. When mix'd with Tin, Lead, or Latten, which laſt is another Sort of *Copper*, but colour'd with *Lapis Calaminaris*, it makes a Metal call'd *Braſs*, which is often made Uſe of by *Architects* in making of Baſes, Columns, Capitals, Statues, and ſuch like Decorations.

SLATE is a blue ſiſſil Stone, very ſoft when dug out of the Quarry, and on that Account eaſily cut, or ſaw'd into thin long Squares, or Eſcallops, to ſerve in lieu of Tiles for the covering of Houſes; ſometimes, alſo, to make Tables of, and cover withal.

The *blue Slate* is a very light, laſting, and beautiful Covering, but chargeable withal, in regard the Roof muſt be leated over with thin Laths, of about two Inches broad, and two Foot and a Half long, plac'd cloſe to one another, and each *Slate* requiring a Peg, and a Nail, at leaſt; though in ſome Countries *Slaters*, or Coverers, put the Nails in their Pockets, if not narrowly watch'd by the Architect, and content themſelves with a Couple of Pegs, ſometimes with but one; from which they reap a double Advantage, firſt, in pocketing the Nails; and, ſecondly, being in Hope of being wanted ſoon to repair the Damages which the Slightneſs of their Work will occaſion. I do not ſpeak in this Place by way of Prevention, ſince before I had qualify'd my ſelf for an Author, I have been often put to thoſe unneceſſary Charges. For in *Britanny* to uſe Mortar in *Slater*'s Covering, is alſo a Cheat of the Coverers; beſides, it is impoſſible the Covering ſhould be ſo neat, and ſo agreeable to the Eye, with Mortar, let it be ever ſo thin, as without. We have no other Covering, eſpecially in what's call'd *Baſſe Bretaigne*, or *Low Britanny*, than that of *blue Slates*, which are very common in that Country, and ſeldom ſold dearer than fifty Sols, or three Livres a thouſand.

Here in *England* beſides blue, we have likewiſe grey Slates, called *Horſham-Stones*, from a Town, in *Suſſex*, of that Name, where the greateſt Quantities of it are found; and which is chiefly uſed in the Covering of Churches, Chapels, Chancels, *&c.*

The Timber of the *Roof* need be very ſtrong for theſe grey *Slates*, it being almoſt double the Weight of Tiles.

Mr. *Coleprefs* informs us, in the *Philoſophical Tranſactions*, that to judge of the Goodneſs of *Slate*, it muſt be knock'd againſt any hard Body, to make it yield a Sound; for if the Sound be good and clear, the *Slate* is firm and good, otherwiſe 'tis crazy. Moſt of the Coverers in *Slates* know that, without having Recourſe to the *Philoſophical Tranſactions*; for when they perforate the *Slate*, in order to place the Nails and Pegs, no crazy *Slate* will undergo the Operation, without breaking. *Slates* which are ſcaly, like Fiſhes, are not good. Theſe two Methods are the ſureſt to diſcover the Goodneſs of *Slate*, and all others propos'd by our Naturaliſts are too tedious, and very uncertain, eſpecially that of weighing it, and letting it lie afterwards ſix or eight Hours under Water, under Pretence that if after it has been wip'd clean it weighs more than it did before, it is of that Kind that ſoaks in Water, and therefore will not long endure without rotting the Lath or Timber; ſince in a Thouſand *Slates* there are, perhaps, three or four different Sorts, though taken from the ſame Quarry. Another Method propos'd for the Trial of *Slates*, is by placing one Half a Day in a Veſſel of Water, ſo as to reach a conſiderable Height above the Level thereof; if the *Slate* be firm and cloſe, then it will not draw Water, that is, the Water will not have aſcended above Half an Inch above the Level of that in the Veſſel, nor that, perhaps, any where but at the Edges, the Texture whereof might be looſen'd by hewing; but a bad Stone will draw the Water to the very Top, be it as high as it will. Which Method is alſo very precarious, unleſs it was poſſible to make the Experiment on every individual Stone; and who would take that Trouble? Beſides, I know, by Experience, that very few *Slates*, let them be ever ſo good, will draw the Water, unleſs they be wetted before; for then, by the Analogy between the aqueous Particles the *Slate* is impregnated with, and thoſe in the Veſſel, agitated by the ambient Atmoſphere, the *Phænomenon* will happen on bad *Slates*, as well as good ones.

Our moſt common Covering in *England* is made of TYLES, which are a Sort of thin, fictitious, laminated Stones; or, more properly, a fat clayey Earth, knodden and moulded of a juſt Thickneſs, dry'd, and burnt in a Kiln, like a Brick.

All Sorts of *Tyles* are not employ'd in Covering, nor proper for it, but only thoſe call'd *plain*, or *thack Tyles*, ſqueez'd flat, while yet ſoft, in a Mould, of an *oblong* Figure, and which, by Stat. 17 *Ed.* 4. *c.* 4. are to be 10½ Inches long, 6¼ broad, and Half an Inch and Half a Quarter thick.

Among theſe may be rank'd, 1. *Ridge*, *Roof*, or *Creaſe-Tyles*, made circular, breadth-wiſe, like a half Cy-

Cylinder, and us'd to cover the Ridges of *Houses*; by the *Statute* they are to be 13 Inches long, and of the same Thickness with the *plain Tyles*. 2. *Hip*, or *Corner Tyles*, which lie on the Hips or Corners of *Roofs*. They are flat, like *plain Tyles*, but of a quadrangular Figure, whose two Sides are right Lines, and two Ends Arches of Circles; one End being a little concave, and the other convex; the convex End to be about seven Times as broad as the concave; so that they would be triangular, but that one Corner is taken off: Then, before they are burnt, they are bent on a Mould breadth-wise, like *Ridge-Tyles*. They have a Hole at their narrow End, to nail them on by; and are laid with their narrow End upward. By the *Statute* they are to be 10½ Inches long, and of a convenient Breadth and Thickness. 3. *Gutter Tyles*, which lie in Gutters, or Valleys, in cross Buildings. They are made like *Corner-Tyles*, only the Corner of the broad End are turn'd back again with two Wings. They have no Holes in them, but are laid with the broad End upwards, without any Nailing. They are made in the same Mould as *Corner-Tyles*, and have the same Dimensions of the convex Side. Their Wings are each four Inches broad, and eight Inches long. 4. *Pan*, *Crooked*, or *Flemish-Tyles*, us'd in covering of Sheds, Lean-to's, and all Kinds of *flat-roof'd* Buildings; they are, like *Plain-Tyles*, in the Form of an *oblong Parallelogram*, but are bent breadth-wise, forwards and backwards, in Form of an S, only one of the Arches is at least three Times as big as the other; which biggest Arch is always laid uppermost, and the lesser Arch of another *Tyle* lies over the Edge of the great Arch of the former. They have no *Holes* for Pins, but hang on the Laths by a Knot of their own Earth; they are usually 14½ Inches long, and 10½ broad. By 12 *G.* 1. *c.* 25. they are to be, when burnt, no less than 13½ Inches long, 9½ wide, and ½ an Inch thick. 5. *Dormar*, or *Dorman-Tyles*, which consist of a *Plain Tyle*, and a triangular Piece of a *Plain Tyle*, and swept with an Arch of a Circle from the other End, which End terminates in a Point. Of these *Tyles* there are two Kinds, the triangular Piece, in some, standing on the right, in others on the left Side of the *Plain Tyle*; and of each of these, again, there are two Kinds, some having a whole *Plain Tyle*, others but Half a *Plain Tyle*: But in them all the *Plain Tyle* has two *Holes* for the Pin, at the End where the broad End of the triangular Piece stands. Their Use is to be laid in the Gutters, betwixt the *Roof* and Cheeks, or Sides of the *Dormars*, the plain Part lying on the *Roof*, and the triangular Part standing perpendicularly by the Cheek of the *Dormar*. They are excellent to keep out the Wet in those Places, and yet are not known, perhaps, any where, but in *Sussex*. The Dimensions of the *Plain Tyle*'s Parts, are the same as those of a *Plain Tyle*; and the triangular Part is of the same Length, and its Breadth at one End 7 Inches, and at the other nothing. 6. *Scallop*, or *Astragal-Tyles*, which are in all Respects like *Plain-Tyles*, only their lower Ends are in Form of an *Astragal*, *viz.* a Semicircle, with a Square on each Side. They are us'd in some Places for *Weather-Tyling*. And, 7. *Traverse-Tyles*, a kind of irregular *Plain-Tyles*, having the *Pin-holes* broke out, or one of the *lower Corners* broke off. These are laid with the *broken End* upwards, upon Rafters, where pinn'd *Tyles* cannot hang.

All these Kinds of *Tyles* are laid either dry, as they come from the Kiln, without *Mortar*, or any Thing else; or in a kind of *Mortar* made of *Loam* and *Horse-Dung*. In some Parts of *Kent* they lay them in *Moss*.

According to *Stat.* 17 *Ed.* 4. the Earth for *Tyles* should be cast up before the first of *November*, shired, and turned, before the first of *February*; and not made into *Tyles* before the first of *March*; and should likewise be try'd, and sever'd from Stones, Marle, and Chalk.

We must also provide our selves with *Flemish*, or *Dutch Tyles*, for Jambs of Chimneys, instead of Chimney Corner-Stones; for they divert agreeably the Sight by the Variety of the Figures painted on them. The antient *Dutch Tyles*, which are not so beautiful as the modern ones, are seven Inches and a Quarter square, and about three Quarters of an Inch thick; the modern are six Inches and a Half square, and three Quarters of an Inch thick.

Having thus provided our selves with all the Materials necessary for *building*, we must, in the next Place, make Choice of the best Artists, in order that the *Work* may be well pursu'd under their Direction; and who should have under them *Workmen* not only entire Masters of their Art, or Profession, but likewise truly *honest*, and who should make a Point of *Conscience* to be paid without *working*; not those *Thieves*, and *lazy Fellows*, who don't care how little they *work*, provided they be sure to be well paid at the latter End of the *Week*; who are an *Hour* in moving, or placing a Stone, which a Child would do in Half the Time; who are three or four in carrying, or lifting up one, of perhaps thirty or fifty Pounds Weight, and then rest themselves, by Intervals, as if they were overburthen'd; who saw another with the same Heaviness and Indolence as if they had taken a Dose of Opium, or were resolv'd to communicate some of their *narcotick Vapours* to the Passengers; and who seem'd to have enter'd, at that Time, into a Sort of *Convention* with all their Relations and Acquaintance, that they should come to disturb them from their *Work*. To remedy these Disorders, we'll have under us some Persons of *Probity*, to watch narrowly the *Conduct* of such *Robbers*, and to have those dismiss'd who shall be found guilty.

Those Artists are to be *Masons*, *Stone-cutters*, *Carpenters*, *Joiners*, *Plumbers*, *Plaisterers*, *Glasiers*, &c.

My mentioning *Glasiers*, puts me in Mind, that I had *forgot* to *provide* my self with *Glass* for the *Windows*; of which there are *various Sorts*. 1. *Crown Glass*; of which, says *Neve*, there are two Kinds, distinguish'd by the Places where they are *work'd*, *viz. Ratcliff Crown Glass*, which is the best, and cleanest, and was first made at the *Bear-Garden* on the *Bank-Side*, *Southwark*; but since at *Ratcliff*: Of this there are twenty-four Tables to the Case, the Tables being of a circular *Form*, about three Foot six Inches in Diameter. *Lambeth Crown Glass*, which is of a darker *Colour* than the former, and more inclining to green.

2. *Newcastle Glass*, which is that most us'd in *England*, is of an Ash *Colour*, and subject to Specks, Streaks, and other Blemishes; and, besides, is frequently warp'd. *Leybourn* says, there are forty-five Tables to the Case, each containing five superficial Feet; some say, there are but thirty-five Tables, and six Foot in each Table.

At present, we'll put on our *leather Apron*, and go to *work*; beginning with making our *Mortar*, since we have already slacken our *Lime*; but we must say, first, that MORTAR, or *Morter*, is a *Composition* of *Lime*, *Sand*, &c. mix'd up with Water, serving as a Cement to bind the Stones, *&c.* of a *Building*.

De Lorme observes, that the best *Mortar* is that made of *Pazzalana*, for Sand; adding, that it penetrates black Flints, and turns them white. Mr. *Worledge* is of Opinion, that the rounder Sand makes the strongest *Mortar*; and that fine Sand makes it weak: He therefore advises, to have the Sand wash'd, e're mix'd; and adds, that dirty Water weakens the *Mortar* considerably. *Wolfius* will have the Sand dry and sharp, so as to prick the Hands, when rubb'd; yet not earthy, so as to foul the Water it is wash'd in. *Palladio* takes Notice, that of all Sands, white ones are the worst; that if we make our *Mortar* with Pit Sand, we must take three Parts of it, and mix it with one of Lime; but if we make Use of River, or Sea Sand, our Proportion must be two Parts of Sand only, and one of Lime. About *London*, the Proportion of Sand to Quick Lime is as 36 to 25; in some Parts they use an equal Quantity of each.

M. *Felibien* observes, that the antient *Masons* were so very

very ſcrupulous in mixing and blending of *Mortar*, that the *Greeks* kept ten Men *conſtantly employ'd*, for a long Space of Time, to each *Baſon*, which render'd the *Mortar* of ſuch a *prodigious Hardneſs*, that *Vitruvius* tells us the Pieces of Plaiſter falling off from old Walls, ſerv'd to make Tables. *Felibien* adds, it is a Maxim among old *Maſons* to their Labourers, that they ſhould dilute with the Sweat of their *Brow*, *i. e.* labour it a long Time, inſtead of drowning it with Water, to have done the *ſooner*.

There are two other Sorts of *Mortar* employ'd in *Building*, *viz. white Mortar*, made of Ox-hairs, mix'd with Lime and Water, without any Sand, us'd in plaiſtering the Walls and Cielings; and a hard *Mortar* made of Lime and Hog's Greaſe, ſometimes mix'd with the Juice of Figs, and ſometimes with liquid Pitch, employ'd in making of Water-Courſes, Ciſterns, *&c.* This, after Application, is waſh'd over with Linſeed Oil.

While our Labourers are employ'd in making the firſt Kind of *Mortar*, which is that we want firſt, we'll examine the Qualities of the Ground on which the *Foundation* of our Edifice is to be laid: But we muſt know, firſt, that FOUNDATION, in this Caſe, is that Part of a Building which is *under Ground*, and ſuſtains the whole Edifice; or upon which the Walls of the Superſtructure are rais'd.

Palladio obſerves, that of all the *Errors* in *Building*, thoſe are the moſt fatal that are committed in the *Foundation*; becauſe they at once endanger the whole Structure: Nor can it be rectify'd, but with the utmoſt Difficulty. That therefore the *Architect* muſt take great Care to make Choice of a *good Foundation*.

That we may *found* our *Habitation* firmly, ſays Sir *H. Wotton*, we muſt firſt examine the Bed of Earth upon which we are to build.

The *Foundations* of *Buildings* are either *natural*, or *artificial*. A *natural Foundation* is when the *Soil* is *rocky*, or conſiſts of a ſoft ſandy *Stone*, or *Gravel*, which is a Sort of Earth inclining to be *rocky*; for without digging, or any other Aſſiſtance from Art, theſe *Foundations* are ſtrong of themſelves, and capable of ſuſtaining the moſt cumbrous Structure, either on Land or Water. *Artificial Foundation*, is where the *Ground* is ſandy, or marſhy, or have lately been dug.

But how ſhall we be able to make the Difference between a *ſolid* and *rocky*, and a *ſandy* or *marſhy* Earth? *Palladio* informs us, that ſuch Difference can eaſily be made, and the *Solidity* of the *Ground* known, by the following *Indications*. 1. By digging of Wells, Ciſterns, and the like. 2. By the Herbs that grow upon it, if they are ſuch as ſpring up only in a firm and *ſolid Soil*. 3. If when any Thing *ponderous* is thrown upon it, it neither ſhakes, nor reſounds, which may alſo eaſily be obſerv'd by the Aſſiſtance of a Drum, if when 'tis ſet upon the *Ground*, and gently touch'd, it does not *reſound*, nor *ſhake* the Water in a Veſſel that ſtands hard by. 4. By the *Solidity* of the Earth in the Places adjacent.

If the Earth be *ſolid*, the *Architect* muſt adjuſt the Depth of the *Foundation* by the Height, Weight, *&c.* of the *Building*; a ſixth Part of the whole Height, where there are to be no Cellars, nor other Offices, *under Ground*, is look'd on as a Medium; and as to Thickneſs, double that of the Width of the Wall, is a good Rate.

But if it be a *gravelly*, or *ſandy Spot*, not to be truſted, particular Care is to be taken, whether it be on Land, or in the Water; for if it be on Land, the *Obſervation* of what has been already mention'd, concerning *firm Ground*, will be ſufficient; if we build in the Water, the Sand and Gravel will be of no manner of Service; for the Water, by reaſon of its continual Current and Flood, is ever varying its Bed. We muſt therefore dig till we find a *ſolid Bottom*; or, if this can't be effected with Eaſe, we muſt then dig a little into the Sand and Gravel, and driving in Piles of Oak, till the Ends reach the *good Ground*, and on theſe we may build. This Operation is call'd *Paliſſication*. But if we are oblig'd to build upon *moſſy* and *looſe Earth*, we muſt then dig till we find *ſound Ground*, and that in *Proportion* to the Thickneſs of the Walls, and the Bulk of the Structure.

This *firm* and *ſolid Ground*, fit to *ſupport* a *Building*, is of various Kinds: For, as *Alberti* juſtly obſerves, in ſome Places it is ſo hard, that Iron can ſcarcely penetrate it, and ſometimes harder than Iron it ſelf. In ſome Places it is of a blackiſh, and in others of a whitiſh Caſt, which is deem'd the weakeſt. In ſome it is like Chalk, and in others ſoft and ſandy.

Of theſe various Kinds, that is the beſt which is cut with moſt Difficulty; or, when wet, does not diſſolve away in Mud and Dirt. An *old Foundation* muſt never be built upon before we know its Depth, and are well aſſur'd that it is able to ſuſtain the Fabrick.

But if the Earth, we *build* upon, be very *ſoft*, as in *marſhy Ground*, we muſt ſtrengthen it with Piles, whoſe Length muſt be the eighth Part of the Height of the Walls, and their Diameter the twelfth Part of their Length. Theſe Piles muſt be drove in ſo *contiguous* to one another, that no others can be ſet between them; and particular Care muſt be taken to ram them in, with gentle Blows often repeated, rather than with Violence; for the Earth will *conſolidate* better the one Way, than the other. Piles muſt be drove, not only under the Walls, but alſo under the inner, or Partition-walls; for if the *Foundations* of the inner Walls are weaker than thoſe of the outer Walls, when we come to lay the Girders, and Joiſts, we'll find by Experience, that inward Walls will ſink, while thoſe on the Out-ſide will ſtand firm, becauſe they were rais'd on Piles; then all the Walls will crack, and deſtroy the whole Structure; beſides, theſe Creviſſes ſtrike the Eye very diſagreeably. As, therefore, the Expence for Piles will be of leſs Importance than the endangering of the whole Fabrick, we muſt not be too ſaving, but diſtribute them according to the *Proportion* of the Walls, and take Care that thoſe within are plac'd ſomewhat thinner than thoſe on the Out-ſide of the *Building*.

In ſome Places they *found* the Peers of Bridges, and other *Buildings* near the Water, on Sacks of *Wool*, laid like Matraſſes; which, being well preſs'd, and greaſy, will never give way, nor *rot* in Water.

The *Foundation* is properly ſo much of the *Maſonry* as reaches as high as the Surface of the *Ground*. Sometimes it is maſſive, and continu'd under the whole *Building*; as in the antique Arches, and Aquæducts, and ſome Amphitheatres: More uſually it is only in Spaces, or Intervals, either to avoid Expence, or becauſe the Vacuities are at too great a Diſtance; in which latter Caſe they make Uſe of inſulated Pillars, bound together by Arches.

For our Part, we ſuppoſe to have found a *rocky* and *ſolid Foundation*, very well ſituated, for the Salubrity of the Air, the Conveniency of Water, Fuel, Carriage, *&c.* and the Agreeableneſs of the Proſpect; which are all Circumſtances to be conſider'd, as near as poſſible, for the Erection of a compleat Edifice.

Having thus fix'd on the *Ground-Plot* for our *Building*, and ſuppoſing that we have *Room* enough to make it anſwer all the Purpoſes above-mention'd, we'll make *Draughts* of the *Ichnography*, or *Ground-Plot* of each *Floor*, or *Story*; which *Ichnography* is a tranſverſe Section of a *Building*, exhibiting the Circumference of the whole Edifice, and of the ſeveral Rooms and Apartments in the given Story, together with the Thickneſs of the Walls and Partitions, the Dimenſions of the Doors, Windows, and Chimneys; the Projectures of the Columns, and Peers, with every Thing viſible in ſuch Section. Therefore on this Draught of the *Ichnography* depends the *Form* or *Diſpoſition* of our *Building*, which muſt be either *ſimple* or *mix'd*.

The *ſimple Forms* are either *circular*, or *angular*; and the *circular* ones either *compleat*, as *juſt Spheres*; or *deficient*, as *Ovals*.

The *circular Form* is very commodious, of the greatest Capacity of any; strong, durable beyond the rest, and very beautiful: But then it is found of all others the most chargeable; much *Room* is lost in the bending of the Walls, when it comes to be divided; besides an ill Distribution of Light, except from the Center of the Roof. It was on this Consideration that the Antients only us'd the *circular Form* in Temples and Amphitheatres, which needed no Compartition. *Oval Forms* have the same Inconveniencies, without the same Conveniencies, being of less Capacity.

For *angular Figures*, Sir *Henry Wotton* observes, that *Buildings* neither love many, nor few *Angles*: The *Triangle*, *v. gr.* is condemn'd above all others, as wanting Capacity and Firmness; as also because irresolvable into any other regular Figure, in the inward Partitions, besides its own. For Figures of five, six, seven, or more *Angles*, they are fitter for *Fortifications* than *Civil Buildings*. There is, indeed, a celebrated *Building* of *Vignola*, at *Caprarola*, in Form of a Pentagon; but the *Architect* had prodigious Difficulties to grapple with, in disposing the Lights, and saving the Vacuities. Such *Building*, then, seems rather for Curiosity, than Conveniency, and for this Reason Rectangles are pitch'd on, as being a Medium between the two Extremes. But, again, whether the Rectangle is to be just a Square, or an Oblong, is disputed. Sir *Henry Wotton* prefers the latter, provided the Length do not exceed the Breadth by above one Third. Mix'd Figures, partly circular, and partly angular, may be judg'd of from the Rules of the simple ones; only they have this particular Defect, that they offend against Uniformity. Indeed, Uniformity, and Variety, may seem to be opposite to each other; but Sir *Henry Wotton* observes, they may be reconcil'd; and for an Instance mentions the Structure of the human Body, where both meet.

Having thus taken a cursory View of the several Forms and Dispositions of a *Building*, as Money is always very flush with us Authors, and that five hundred or a thousand Pounds more, or less, can't much impair our Finances, especially when 'tis employ'd to build for our selves a commodious and beautiful Mansion, which we seldom meet with; this we are going to erect is to be of a *circular Form*, according to the *Ichnography*. Therefore we'll begin to work at the *Foundation*, which must be as thick again as the Wall intended to be rais'd upon it. The Plan of the Trench must be exactly level, that the Weight may press equally in all Parts, and not lean more to one Side, than the other, which occasions the cracking and dividing of the Walls. The Antients, therefore, us'd to pave the Plan with Tivertine. The *Foundations* must always slope, that is to say, they must diminish in Proportion as they rise, yet so as that there may be as much left on one Side as on the other, and so as the middle Wall above may be directly perpendicular over the Middle of that below; which must be also particularly regarded in the diminishing of Walls above Ground; for this will make the Fabrick much stronger than if the Diminutions were made any other Way.

Some will have the Materials, or Stones, laid in the *Foundation*, just as they grew in the Quarry, as supposing them to have the greatest Strength in their natural Posture. *De Lorme* observes, that the breaking, or yielding of a Stone in this Part, but the Breadth of the Back of a Knife, will make a Cleft of above Half a Foot in the Fabrick above. *Palladio* is of Opinion, that in large *Buildings* it is very proper to make Vents, or Holes, through the Body of the Walls, from the very *Foundations* to the *Roof*, in order to let out the Winds and Vapours, which are very prejudicial to the Fabrick, diminish the Expence, and will likewise be found extremely convenient in case winding Stairs are to be made from the Bottom to the Top.

The Foundations being thus laid, we are now to work towards the Erection of our Walls. The Antients made six Kinds of Walls. The first were called *Reticolata*, or *Net-Work*; the second were composed of Quadrels, or Bricks; the third of Cement, consisting of Cement or Pebbles; the fourth of irregular and various Stones, and called *Rustick*; the fifth of Free-Stone; and the sixth of *Riemputa*, or Coffer-work. They generally made the Angles, or Corners, of the Building of Bricks, and laid between every two Foot and a half, three Courses of Bricks, which serve as a Kind of Band to the whole Work.

The Moderns distinguish *Walls* into *Plaister'd* or *Mud-Walls*, *Brick Walls*, *Stone-Walls*, *Flints*, or *Boulder-Walls*, and *Boarder-Walls*.

Mud and *Plaistered-Walls* are chiefly in ordinary Timber *Buildings*. These *Walls*, being quartered and lathed between the Timber, or sometimes lathed over all, are plaistered with Lome, which being almost dry, is plaistered over-again with white Mortar.

Brick Walls are the most important and usual among us. In these, particular Care is to be taken about the Laying of the Bricks, *viz.* That in Summer they be laid as wet, and in Winter as dry as possible, to make them bind the better with Mortar: That in Summer, as fast as they are laid they be covered up, to prevent the Mortar, *&c.* from drying too fast: That in Winter they be covered well, to protect them from Rain, Snow, and Frost, which are all Enemies to the Mortar: That they be laid Joint on Joint, in the Middle of the Walls, as seldom as may be, but good Bond made there, as well as on the Out Sides. Care is also to be taken that the Angles be firmly bound: In order to which, in working up the Angles of a Building, it is not advisable to raise any *Wall* above three Feet high, ere the next adjoining *Wall* be wrought up to it. That good Binding may be made in the Progress of the Work.

Palladio's Sentiment is, that *Brick-Walls*, intended for any great Building, ought to be faced on both Sides, with Brick, and the Middle filled with Cement, rammed close together with Brickbats; and that to every three Feet in Height, there ought to be three Courses of *Bricks* of a larger Size than the others to bend the whole Breadth of the Wall. That the first Course should be laid, so that the lesser Side of the *Brick* may be outward; the second Lengthways, that is to say, with its larger Side on the Outside, and the third as the first.

Flint, or *Boulder-Walls* are usually raised by a Right and Left-handed Man, who has had a Hod of Mortar poured down on the Work, which they part betwixt them; each spreading it towards himself, and so they lay in the Flints. The Mortar for this Work is to be very stiff. These *Walls* are used for Fence-Walls, a-round Courts, Gardens and Outhouses.

The *Cement Walls* of the Antients were made so, as there should be three Courses of Bricks, and disposed as above, to every two Foot at the least. In erecting their *Rustick-Walls*, made of irregular Stones, they used a leaden Rule, which being bent, according to the Place, where the Stone was to be set, demonstrated how it was to be squared; so that when it was once cut, they immediately fixed it in its Place. Their *Walls*, called *Coffer-Work*, were made by taking Planks laid Edge-way, according to the Thickness of the *Walls*, filling the Void with Cement, and all Sorts of Stones mingled together, and continued, after this Manner, from Course to Course.

Note, That *Course* denotes a continued Range of Stones, level, or of the same Height, throughout the whole Length of the *Building*, and not interrupted by any Aperture.

Walls as they advance, must diminish proportionably in their Thickness, and such as appear aboveground must be half as thick as those in the Foundations. Those of the second Story must be half a Brick thinner than those of the first, and in like manner to the Top of the Fabrick: Due Care, however, must be taken, not to make the upper Part too weak. The Middle of the *Wall* above must be exactly perpendicular over the Middle of those below; which will

will give the whole *Wall* a Pyramidical Form. Moreover, if we be forced to make the Superficies of the upper *Wall*, exactly over that beneath, it must be done inwardly; for the Floors, the Beams, the Vaults, and other Supports of the Edifice, will keep the *Walls* from falling inward. The set-off, or discharged Parts, on the Outside, must be covered with a *Fascia* and a Cornice, which surrounding the whole Fabrick, will bind as well as beautify it. As the Angles of an Edifice are common, to two Sides or Faces to keep them upright, and fast together, we must take Care to make them very strong and substantial, and to hold them with long and hard Stones, as it were with Arms. The Windows, therefore, and other Openings, ought to be as far distant from the Angles as possible; or, at least, so much Space ought to be left, as is the Breadth of the said Opening.

It is not entirely left to our Option in *England*, especially in *London*, to build our Houses in the Manner we please, particularly as to the Brick Work; for this is regulated, as well as the other Parts, Proportions, *&c.* by a Statute made for rebuilding the City after the Fire; by this it is enacted, that in all Houses of two Stories, besides Cellars and Garrets, and fronting bye Streets, and Lanes, the *Walls* in front and rear, as high as the first Story, shall be full the Thickness of the Length of two Bricks; and thence upwards to the Garret of the Thickness of one Brick and an half; and that the Thickness of the Garret *Walls*, on the back Part, be left to the Discretion of the Builder; so that the same be not less than one Brick in Length; and that the Thickness of the *Party-Wall*, in the Garret, be of the Thickness of the Length of one Brick, at least. That in Houses of three Stories high, besides Cellars and Garrets, the *Walls* in the front and rear, as high as the first Story, be two Bricks and a Half thick; and from thence upward, to the Garret Floor, of one Brick and an Half thick; and the Thickness of the Garret *Walls*, on the back Part, be left to the Discretion of the *Builder*, so that the same may not be less than one Brick thick; and also that the Thickness of the *Party-Walls*, between every House of this second and larger Sort of *Building*, be two Bricks thick, as high as the first Story, and thence upwards to the Garret of the Thickness of one Brick and an Half. That Houses of four Stories high, besides Cellars and Garrets; the *Walls* in front and rear as high as the first Story, be two Bricks and an Half in Thickness, and from thence upwards to the Garret Floor, of the Thickness of one Brick and an Half; and that the Thickness of the Garret *Walls*, on the back Part, be not less than one Brick: And also that the *Party-Walls* between every House of this third, and larger Sort of *Building*, be two Bricks thick, as high as the first Floor, and thence upwards to the Garret Floor, one Brick and an Half.

But in our present Undertaking, we are not under those narrow Regulations, since the conducting of Mansion-Houses, or the like large Edifices, as ours is to be, which are not to front the Streets, or Lanes, is left to the Discretion of the Architect, so as not to exceed five Stories. Therefore having finished our *Walls*, we'll proceed to the Intermissions, which are either Columns, or Pillars.

We have observed in our Treatise of *Architecture*, that there are five Orders of those Columns, *viz. Tuscan*, *Doric*, *Ionic*, *Corinthian*, and *Composite*; in our Edifice we must take Care, says *Palladio*, that the strongest and most substantial of those Orders, which is the *Tuscan*, may lay undermost; though this Order, on Reason of its Plainness and Simplicity, be seldom used above Ground, except in Fabricks where one Order only is employed, never, therefore, in regular, and sumptuous Edifices, especially Houses, in which the *Doric* supplies its Place, as next to it for Simplicity. In the same Treatise we have plainly demonstrated how those Columns must diminish in Proportion to their Length; and what Care is to be taken to keep a due Proportion and Harmony between the Intercolumnations, or Distances, and the Columns; because if small Columns are made with large Intercolumnations, it will very much diminish the Beauty of the former; for the too great Quantity of Air, in the void Spaces, will lessen their Thickness very much; and that if, on the contrary, we make large Columns and little Intercolumnations, the too small Vacuity, will make them appear heavy, thick, and disagreeable.

We'll also take the same Care, to have our Columns, in the Front, even with respect to their Number; that there may be an Opening in the Middle, which should be larger than the other Intercolumnations, for the Doors and Entries; which Subject has been amply canvassed in our said Treatise of *Architecture*. From this we'll pass to Apertures, which are either Gates, Doors, Windows, Stair-Cases, Chimneys, or Conduits for the Sullage, *&c.*

Palladio pretends, that no settled and determinate Directions can be given for the Altitude, and Breadth of the *Gates* of spacious Edifices; nor for the Doors and Windows of Rooms; and gives this for Reason, that when an Architect makes any Gates, he is forced to adapt them to the Largeness of the Fabrick; to the Dignity of a Person who employs him, and the Conveniency of whatever goes backwards and forwards, either to and from the same; though the Method he likes best is to divide the Space from the Ground to the Superficies of the Joists into three Parts and a Half; two whereof must be allow'd to the Altitude of the Void, or Opening, and one and a Half to the Breadth.

Some will have *Gates*, through which Coaches, *&c.* are to pass, not less than seven Feet Broad, nor more than twelve; the Height to be one and a Half the Breadth.

The *Gates* and principal Doors must be ordered in such a Position that an easy Access from all Parts of the House may be had to them. The Doors of Rooms must not exceed three Foot wide, and six and a half high; nor be less than two Foot wide, and five Foot high. They ought to be as few in Number, and as moderate in Dimensions as possible, since all Openings are Weakenings; though by turning Arches over them, they are discharged, in some Measure, of the super-incumbent Weight. They are not to approach too near the Angles of the Walls; it being a glaring Solecism to weaken that Part which must weaken all the rest. They should be, if possible, right over one another; that Void may be over Void; and Full over Full; and also opposite to each other, so as that one may see from one End of the House to another; which will not only be graceful, but also convenient; as it affords a Means of cooling the House in Summer, by letting in Air; and of keeping out the Wind in Winter, which Way soever it sits.

In small *Buildings*, the Breadth of the *Door* of the Entry should be four Foot, or four and a half; and the Breadth of the *Doors* of the Chambers 3 $\frac{1}{2}$, 3$\frac{3}{4}$, or 4. In middling *Buildings* the Breadth of the Entry *Door* ought to be 5 or 6 Foot; and that of the Chamber *Doors* 4, or 4 $\frac{1}{2}$.

There are *Gates*, A, and *Doors* of the five Orders, *viz. Tuscan*, *Dorick*, *Ionick*, *Corinthian*, and *Composite Doors*.

Gates and *Doors* have their Heads generally Square, and sometimes Circular, which last must not be used, if the Impost be not above the Height of a Man.

Note, That *Imposts*, in Architecture, are the Capitals of Pillars or Pilasters, which support Arches. An *Impost*, sometimes also called *Chaptrel*, is a Sort of *Plinth*, or little Cornice, which crowns a Peer, and supports the first Stone, whence an Arch or Vault commences. *Imposts* conform to their proper Order. The *Tuscan* is a *Plinth* only; the *Dorick* has two Faces crowned; the *Ionick* a Larmier over the two Faces, and its Moulding may be carved; the *Corinthian* and *Composite* have a Larmier, Freeze, and other Mouldings,

Mouldings. The Projecture of the *Impost* must not exceed the Naked of the Pilaster. Sometimes the Entablature of the Order serves for the Impost of the Arch; and this looks very Grand and Stately. The Impost is a Thing essential to an Ordonnance; in as much as without it, in the Place where the curve Line of the Arch meets with the perpendicular Line of the Pillar, there always seems a Kind of Elbow.

Palladio gives the following Rules for the Decorations of *Doors*, which Decorations consist of the *Architrave*, *Freeze*, and *Cornice*. 1. That the *Architrave* should turn about the *Door*, and be as thick as the Jambs or Pilasters, which must not be less than a sixth Part of the Breadth of the Opening, nor more than a fifth. 2. The Thickness of the *Freeze* and *Cornice* is to be taken from the same Opening. 3. The *Architrave* must be divided into four Parts, three of which are to be for the Altitude of the *Freeze*, and five for that of the *Cornice*. 4. The *Architrave* must be again divided into four Parts; three whereof go to the first *Fascia*, four to the second, and the other three are subdivided into five Parts; two whereof are for the *Regolo*, or *Orlo*, and the other three are for the *Cima reversa*, otherwise call'd *Cymatium*. Its Projecture is equal to its Altitude, and the Fillet projects less than Half its Thickness. 5. To design the *Cymatium*, we must draw a right Line from below the Fillet to the upper Part of the second *Fascia*, which Line is to be divided into two equal Parts, each whereof is made the Base of an isoceles Triangle, or which has two Sides equal; then the Place of the fix'd Foot of our Compass must be plac'd in the Angle over-against the Base, by which we'll draw the curve Lines which give the *Cymatium*.

The *Freeze* ought to be three Fourths of the *Architrave*, and form'd by the Segment of a Circle, less than a Semicircle, and its Convexity, or Swelling, is to be perpendicular to the *Cymatium* of the *Architrave*.

The five Parts to be given to the *Cornice*, must be thus distributed to its Members; one to be for the *Cavetto*, with its *Listella*, which is the fifth Part of the *Cavetto*, the Projecture whereof is two Thirds of its Altitude; and an isoceles Triangle must be drawn to design it, so that the *Cavetto* will be the Base of the Triangle. Another of the said five Parts must be allow'd to the *Ovolo*, the Projecture whereof shall be two Thirds of its Altitude, and is form'd by drawing an isoceles Triangle. The other three to be subdivided into seventeen Parts, eight whereof we'll allow to the *Corona* with its *Listella's*, of which that above takes one of the said eight Parts, and that below, which makes the Hollow of the *Corona*, must have but a sixth Part of the *Ovolo*. The other nine will be given to the *Cima recta* and its *Fillet*, which will be one Third of the said *Cima*.

Note, That DECORATION, in *Architecture*, is any Thing that adorns and enriches a *Building*. The Orders of *Architecture* contribute greatly to the *Decoration*, but then the several Parts of those Orders must have their just Proportions, Characters, and Ornaments; otherwise the finest Order will bring Confusion, rather than Richness.

As for our other Apertures, which are *Windows*, (*B*) we must observe the following Rules: 1. That they be as few in Number, and as moderate in Dimensions, as may consist with other Respects; inasmuch, as we have already observ'd, all Openings are Weakenings. 2. That they be plac'd at a convenient Distance from the Angles, or Corners of the *Building*; because that Part ought not to be open'd, and infeebled, whose Office is to support and fasten all the rest of the *Building*. 3. Care must be taken that the *Windows* be also equal one with another, in their Rank and Order; so that those on the right Hand may answer to those on the left; and those above be right above those below; for this Situation of *Windows* will not only be handsome and uniform, but also the Void being upon the Void, and the Full upon the Full, it will be a strengthening to the whole Fabrick.

As to their Dimensions, Care is to be us'd, neither to give them more or less Light than is needful; therefore Regard is to be had to the Bigness of the Rooms which are to receive the Light, since it is evident that a great Room needs more Light, and consequently a greater *Window* than a little Room, and *è contra*.

The Apertures of *Windows*, in middle-siz'd Houses, may be four and a Half, or five Feet between the Jambs; and in the greater *Buildings* six and a Half, or seven Feet; and their Height may be double of the Length, at least; but in high Rooms, or larger *Buildings*, their Height may be a Third, a Fourth, or Half their Breadth, more than double their Length.

Such are the Proportions for *Windows* of the first Story; and according to these must those in the upper Stories be for Breadth; but as to Height, they must diminish; the second Story may be one third Part lower than the first, and the third Story one fourth Part lower than the second.

There are different Sorts of *Windows*, viz. *Architrave Windows*, *Dormer Windows*, or *Luthern*, and *Transom Windows*.

Architrave Windows of Timber, are commonly an *Ogee* rais'd out of the solid Timber with a List over it; though sometimes the Mouldings are struck, and laid on, and sometimes are cut in Brick. *Dormer Windows*, or *Luthern*, are a Kind of *Window* over the *Cornice*, in the Roof of a *Building*, standing perpendicularly over the naked Part of the Walls, and serving to illuminate the upper Story. The *French Architects* distinguish these, according to their various Forms; as *square*, *semicircular*, *Bull's Eyes*, *flat Arches*, *Flemish Lutherns*, &c. *Transom Window* is a Double-light *Window*, so call'd from the Piece that is fram'd a-cross it.

Windows, like Doors, vary likewise with respect to the different Orders of *Architecture*, and have their various Decorations in common with Doors.

Windows and Doors are also often adorn'd with *Balconies*, which are a Jutty, or Projecture, in the Front of a House, supported by Pillars, or Consoles, and encompass'd with a Balluftrade; which is an Assemblage of one or more Rows of Ballusters, high enough to rest the Elbow on.

The next Apertures which fall under our Consideration, are the *Chimneys*.

Chimney, from the *French Cheminee*, is that Part of the House where the Fire is made. The *Chimney* is compos'd of Jambs, or Sides, of the Back or Wood; the Mantle-tree resting on the Jambs; the Tube, or Funnel, which conveys away the Smoak; the Chimney-piece, or Moulding, on the Fore-side of the Jambs over the Mantle-tree, and the Hearth, or Fire-Place. But as we are yet on the Out-side of the House, we'll consider first the Funnel, or Tube, which, according to *Palladio*, must never be made too wide, or too narrow; for in the former Case the Wind having too much Room, will drive the Smoak downward, and not let it ascend, or go freely out; and in the latter Case the Smoak, for want of a free Vent, will fly back again. Therefore in the *Chimneys* of Rooms the Funnels must not be narrower than Half a Foot, nor wider than nine Inches, nor above two Foot and a Half in Length. The Mouth of the Pyramid, where it joins to the Funnel, must be made somewhat narrower, that the Smoak driving downward, it may keep it from going into the Room. Some make the Funnels crooked, that by their winding, and the Strength of the Fire, which forces it upward, they may prevent the Smoak from flying back into the Room. The Funnels, or Openings a-top, says the same learned Author, through which the Smoak should be convey'd, ought to be wide, and set at a Distance from any Substance that is apt to take Fire.

According

According to *Wolfius*, the Breadth of the Aperture at Bottom ought to be to the Height, as three to two; to the Depth, as four to two. In ſmall Apartments the Breadth is three Foot, in larger five. In Bed-Chambers four. In ſmall Banquetting-Rooms five and a Half, in large ſix; but the Height never to exceed two and a Half, leſt there be too much Room for the Air and Wind to drive the Smoak into the Room. Nor muſt the Height be too little, leſt the Smoak miſs its Way, and be check'd at firſt ſetting out. The ſame Author adviſes, to have an Aperture thro' which the external Air may, on Occaſion, be let into the Flame, to drive up the Smoak, which the internal Air would otherwiſe be unable to do.

Felibien orders the Mouth of the Tube, or that Part join'd to the *Chimney*-Back, to be a little narrower than the reſt, that the Smoak coming to be repell'd downwards, meeting with this Obſtacle, may be prevented from getting into the Room.

To prevent *ſmoaking Chimneys*, Mr. *Lucar* adviſes two Holes, or two Pipes, one over the other, to be left on each Side of the *Chimney*, one ſloping upwards, the other downwards: Through one of theſe, ſays he, the Smoak will paſs in any Poſition. *De Lorme* will have a braſs Ball full of Water, with a ſmall Aperture, to be hung up in the *Chimney*, at a Height a little above the greateſt Flame: Here, as the Water grows hot, it will rarefy, and drive through the Aperture in a vapoury Stream, which will drive up the Smoak that would otherwiſe linger in the Funnel. Others place a kind of moveable Vane, or Weather-Cock, a-top of the *Chimney*; ſo that what Way ſoever the Wind comes, the Aperture of the *Chimney* will be ſkreen'd, and the Smoak have free Egreſs. Indeed the beſt Prevention of a *ſmoaking Chimney* ſeems to lie in the proper Situation of the Doors of the Room, and the apt falling back of the Back, and convenient gathering of the Wings and Breaſt of the *Chimney*.

Chimneys are made in the Thickneſs of the Wall, and Care muſt be taken that no Timber be laid within twelve Inches of the Fore-ſide of the *Chimney* Jambs, that all Joiſts, on the Back of the *Chimney*, be laid with a Trimmer, at ſix Inches Diſtance from the Back; and that no Timber be laid within the Funnel.

The Antients, in order to heat their Apartments, built their *Chimneys* in the Middle, with Columns, or Conſoles, to uphold the *Architraves*, over which they fix'd the pyramidal Funnel, through which the Smoak was convey'd; though the Obſcurity of the Rules given by *Vitruvius*, on that Head, would make one conclude, that the Antients had no *Chimneys*, but only Stoves, whereof they had entire Apartments. Tho' *Octavio Ferrary* endeavours to prove *Chimneys* in Uſe among them; to this End, he cites the Authority of *Virgil*:

Et jam ſumma procul villarum culmina fumant.

And that of *Apian*, who ſays, that of thoſe Perſons proſcrib'd by the *Triumvirate*, ſome hid themſelves in Wells, and common-Shores; ſome in the Tops of Houſes and *Chimneys*: For ſo he underſtands κατωνωδεις υπωροφιας, *fumaria ſub tecto poſita*. *Ariſtophanes* ſeems to be of the ſame Sentiment in one of his Comedies, wherein he introduces his old Man *Polycleon* ſhut up in a Chamber; whence he endeavours to make his Eſcape by the *Chimney*.

Palladio pretends, that the Stoves of the Antients, us'd inſtead of *Chimneys*, conſiſted of certain Tubes, or Pipes, in the Thickneſs of the Wall, through which the Heat of the Fires, which were made under thoſe Chambers, aſcended, and iſſued out through certain Vents, or Mouths, at the Top of the ſaid Tubes, or Funnels.

In the Year 1713, was publiſh'd a *French* Book, intituled, *La Mechanique du feu*, or The Art of augmenting the Effects, and diminiſhing the Expence of Fire, by M. *Gauger*; ſince tranſlated into *Engliſh*, by the celebrated Dr. *Deſaguliers*. Wherein the Author examines what Diſpoſition of *Chimnies* is moſt proper to augment the Heat, and proves geometrically, that the Diſpoſition of parallel Jambs, with the Back inclin'd, as in the common *Chimneys*, is leſs fitted for reflecting Heat into the Room, than parabolical Jambs, with the Bottom of the Tablette horizontal. He gives ſeveral new Conſtructions of his new *Chimneys*, and the Manner of executing them.

Note, That CHIMNEY-JAMBS are the Sides of a *Chimney* uſually ſtanding out perpendicularly, ſometimes circularly from the Back; on the Extremities whereof the Mantle-tree reſts.

Having finiſh'd our *Chimney*, we'll paſs to one of the moſt conſiderable of our Apertures, which is the STAIR-CASE, (*C*) defin'd an Aſcent inclos'd between Walls, or a Baluſtrade, conſiſting of Stairs, or Steps, with Landing-places, and Rails; ſerving to make a Communication between the ſeveral Stories of a Houſe.

We muſt be very curious in placing our *Stair-Caſe*, ſince it is difficult to find a convenient Place for it, which, at the ſame Time, will no ways damage the reſt of the Fabrick. A proper Situation, therefore, muſt be aſſign'd to it, that it may not interfere with any other Parts of the Houſe, nor receive any Inconvenience from them.

The common Rules to be obſerv'd in *Stair-Caſes*, are as follow: 1. They muſt have three Openings; the firſt of which is the Door by which we go up to them, which the leſs it is conceal'd from ſuch as enter the Houſe, the more ornamental it will appear; and, in *Palladio*'s Opinion, it ſhould be plac'd in ſuch a Manner, that before we come at it we may have a Sight of the beſt Part of the Houſe; for then the Edifice, though little in Reality, will appear large; for which Reaſon, it muſt be obvious, and eaſy to be found. The ſecond Opening is the Windows requiſite to light the *Stair-Caſe*, and which muſt be ſituated in the Middle, and made high, by which Means they will diffuſe the Light in equal Proportion. The third Opening is the Landing-place, through which we enter into the Rooms of the firſt Story, and muſt lead into the moſt handſome, ſpacious, and beſt furniſh'd Rooms of the Houſe.

2. *Stair-Caſes* muſt be made ſpacious in Proportion to the Bigneſs and Quality of the Building, and never narrower than four Foot, that when two Perſons meet, they may have Room enough to paſs. They will be commodious, with reſpect to the whole Fabrick, ſays *Palladio*, if Arches large enough to hold Goods, *&c.* be made under the Steps; and if they be made wide, and of an eaſy Aſcent, it will be more commodious to thoſe who go up and down; their Tread therefore muſt be double their Height.

3. The Steps muſt be no more than ſix Inches ſteep, and if they ſhould be leſs, eſpecially if the *Stair-Caſes* are long, and have no Landing-places, it will make them ſtill more convenient, and leſs tireſome, by not obliging People to lift their Feet ſo high; but then they muſt be four Inches ſteep, at leaſt. The Breadth of the Steps muſt not be more than one Foot and a Half, nor leſs than a Foot.

The Antients, in the Steps of their *Stair-Caſes*, took particular Care to make their Number odd, that when they began to go up with the right Foot, the ſame might be uppermoſt when they came to the Top, which they imagin'd was a propitious Omen, and a Teſtimony of more religious Awe and Reverence, when they enter'd their Temples. However, *Palladio* is of Opinion, that eleven, or thirteen Steps, at moſt, are enough for a Flight; and that in caſe, when we are got ſo high, we muſt ſtill go further, then a Landing-place ought to be made, that ſuch Perſons as may be over-weary, or tir'd, may reſt themſelves; and that when any Thing happens to fall from above, it may thereby be ſtopp'd, and prevented from rolling any lower.

The

The Kinds of *Stair-Cases* are various; for in some the *Stairs* are straight, in others winding; in others both Ways, or mixt: Again, of straight *Stair-Cases*, called also, *Flyers*, some fly directly forwards; others are square; others triangular; and others are called *French-Flights*.

For the making of straight *Stair-Cases*, the whole Space must be divided into four Parts; two whereof must be allowed to the Steps, and the other two to the Void in the Middle; whence the *Stair-Case*, in Case it were left open, will receive the Light. They may be made with the Wall inward, and then the Wall itself, is inclosed in the two Parts, which are allowed to the Steps; though there be no absolute Occasion for this.

Direct-Flyers, or *Plain-Flyers*, are those which proceed directly from one *Floor* to another, without turning either to the Right or Left; seldom used, except for Garret, or Cellar *Stairs*. Square *Flyers*, are those which fly round the Sides of a square Newel, either solid or open; having at every Corner of the Newel, a Square half Step, taking up one fourth of a Circle, so that they fly from one half Step to another; and the Length of the *Stairs*, is perpendicular to the Side of the Newel. *French-Flyers*, fly, first directly forwards, 'till they come within the Length of a *Stair*, of the Wall; and then have a Square half Pace, from which you immediately ascend to another half Pace; from which the *Stairs* fly directly back again, parallel to their first Flight.

Of *Winding-Stairs*, called also *Spiral-Stairs*; some are Square, some Circular, and some Eliptical: And these again, are various, some winding round a Solid, and others an open Newel.

There are four Kinds of Circular *Winding-Stairs*, viz. such as wind about a solid Newel; the Fore-edge of each being in a right Line, pointing to the Centre of a Newel; commonly used in Church Steeples, and great old Houses. Such as wind round an open Newel, the Fore-side of each being in a right Line, pointing to the Centre of the Newel; as those in the Monument of *London*. Such as wind round a solid Newel, only the Fore-side of each, an Arch of a Circle; either Concave, or Convex, pointing near to the Circumference of the Newel. And such as resemble the Last, in all other Respects, save that they have an open Newel. Any of these *Winding-Stairs*, take up less room than other Kinds.

When a *Stair-Case* winds round a solid Newel, or a Column, *Palladio* will have it made in the Manner following: The Diameter being divided into three Parts, two must be for the Steps and one for the Newel; or the Diameter shall be divided into seven Parts, three of which are to be allowed to the Newel, and the four others to the Steps; and in Case the *Stair-Cases* be made circular, they will appear very ornamental, and be longer, than if they had been made straight. But in open *Stair Cases*, the same celebrated *Architect*, divides the Diameter into four Parts, two of which he gives to the Steps, and two to the Void in the Middle.

He divides *Eliptical*, and Circular *Stair-cases*, in one and the same Manner, and judges them very handsome, and agreeable, all the Windows and Doors being at the Head, and in the Middle of the *Elipsis*. There is at *Chambor* near *Blois* in *France*, a Winding *Stair-Case*, made by the Direction of *Francis* I. King of *France*, consisting of four *Stair-Cases*, carried up together, having each its several Entrance, and going up one over another, in such Manner, as that being in the Middle of the *Building*, the four serve to lead to four Apartments, so that the People of the one, needs not go up and down the *Stairs* of the other; yet being opened in the Middle, they all see each other.

Palladio mentions another Kind of *Stair-Cases*, in the Portico of *Pompey* at *Rome*, in the Way that leads to the Quarter of the *Jews*; which consists of three Winding *Stairs*, of a very pretty and artful Invention; for being placed in the Middle of the *Building*, whence they could receive no Light but from above; they were set upon Columns, to the End that the Light might be equally diffused; in Imitation whereof *Bramante*, a celebrated *Architect* in his Time, made one in the *Belvidera*, but without Steps; and composed it of the four Orders following, *viz.* the *Dorick*, *Ionick*, *Corinthian*, and *Composite*. This Kind of *Stair-Case*, is made, by dividing the Square into four Parts; two of which are given to the Void in the Middle, and one to each Side of the Steps, or Columns.

Mixt-Stairs, are such as partly fly, and partly wind; whence some call them *Flyers*, and *Winders*: Of these are several Kinds; as, *Doglegged-Stairs*, which, first, fly directly forwards, then wind a Semicircle; and then fly directly backwards, parallel to that. *Square-Flyers* and *Winders*, which have a square Newel, either solid, or open, and fly by the Sides of the Newel; winding a Quadrant of a Circle, at each Corner. *Solid* and *open Newelled-Flyers*, and *Winders*, which are of two Kinds; the one winds a Quadrant of a Circle of about a solid Newel, then flies by the Side of a Square open Newel; then winds again, by the Side of a solid Newel; then flies again, and so alternately. The other flies first, then winds, and then flies again alternately.

Several Modern *Architects*, especially the *French*, have introduced *Twisted-Rails*, in many of their *Stair-Cases*; which are formed in the following Manner:

When we have made our Plan, and thereby found the Breadth, or Tread of the Steps, and have also fixed on the Bigness of the intended *Rail*, with the Form and Projection of the Mouldings; then the Front of the second Step, must be continued out farther, and thereon a Circle described, touching the Inside of the *Rail*, and whose Diameter must be equal to the Breadth of two Steps, which we'll divide into eight equal Parts; then we'll describe on the Centre of the said Circle, another Circle, equal to the Bigness of the *Rail*, and also another Circle to the Extremities of the Mouldings.

If we draw a diagonal Line, and describe the Part of a Circle, and, dividing it into eight equal Parts, continue it from the Center to the Line, we have the diminishing Scale for the Formation of the *Scroll*. Then transferring the respective Distances, within the great Circle, on each eighth Part thereof, and finding the Center of the Eye, or Block, for the first eighth Part of the *Scroll*, and proceeding from thence to all the Distances, we have the whole *Scroll* compleated, and finishing in the Block, at one *Revolution* of a Circle. But here it is to be observ'd, that the in-side *Scroll*, though drawn from the same Centers, must not meet on the aforesaid eight Parts of the great Circle, but a Line drawn from the outer *Scroll* to each Center respectively.

For forming the Scroll of the first *Step*, the same Method is to be us'd as above; observing, only, that as it begins to be circular from the second eighth Part, the Distance to the *Rail* must be divided into seven Parts, and gathering in, one at a Time, it will be compleated.

Should it be requir'd to make the *Scroll* of a larger *Revolution*, we must describe a Circle whose Diameter is equal to three *Steps*, and divide the diminishing Scale into twelve Parts; and by proceeding, as before, to strike one Eighth of the great Circle at a Time, we have the *Scroll* at one *Revolution* and a Half of a Circle. But wanting it still larger, we'll make a Circle whose Diameter is equal to the Breadth of four *Steps*, and the diminishing Scale divided into sixteen Parts, the *Scroll* will be form'd at two *Revolutions* of the Circle.

Having carried the Walls as high as we are determin'd they shall go, having made the Vaults, laid the Joists of the Floors, (which *Joists* are those Pieces of Timber fram'd into the Girders and Summers, on which the Boards of the Floor are laid) brought up the *Stair Cases*, &c. in the next Place we must raise the

the *Roof*, (*D*), which, as it embraces all the Parts of the Fabrick, and preſſes the Walls thereof equally with its Weight, is, by that Means, a kind of Bandage to the whole, and ſerves not only to ſhelter ſuch as live in the Houſe from Rain, Snow, the Sun's burning Rays, and the Vapours which riſe in the Night; but is alſo of great Service to the whole Edifice, as it carries off the Rain from the Walls, which although it be imagin'd of but ſmall Detriment to the Fabrick, will, notwithſtanding, in Proceſs of Time, be found to be very prejudicial to it.

Note, That the JOISTS are from ſix to eight Inches ſquare, and ought ſeldom to lie at a greater Diſtance from each other than ten Inches, never twelve; nor ought they ever to bear at a greater Length than ten Foot, or to lie leſs into the Wall than eight Inches. Sometimes Carpenters furr their *Joiſts*, as they call it; that is, lay two Rows of *Joiſts* one over the other. *Summer* is a large Stone, the firſt that is laid over Columns and Pilaſters, in beginning to make a croſs Vault; or it is the Stone which being laid over a *Piedroit*, or Column, is hollow'd to receive the firſt Haunce of a Plat-band. *Girders* are the largeſt Pieces of Timber in a *Floor*; their Ends are uſually faſten'd into the *Summers*, or *Breaſt-Summers*; and the *Joiſts* are fram'd in at one End to the *Girders*. By the *Statute* for rebuilding *London*, no *Girder* is to lie leſs than ten Inches into the Walls; and their Ends to be always laid in Loam, *&c.*

Palladio will have *Roofs* made more or leſs ſhelving, according as the Climate is either hot or cold; for which Reaſon, in *Germany*, ſays he, where the Snow falls in great Quantity, the *Roofs* are made very ſharp, and are cover'd with Shingles, or little thin Pieces of Wood, or elſe with very thin Tiles; for otherwiſe the Weight of the Snow would cruſh them. But thoſe who live in gentle and moderate Climates ſhould raiſe their *Roofs* with Grace and Politeneſs, and to ſuch an Altitude, as that the Rain may eaſily roll off. Therefore the Breadth of the Plate to be *roof'd*, continues he, muſt be divided into nine Parts; two whereof ſhall be the Pitch; for if it were made of one Fourth of the Breadth, the *Roof* would be too ſharp, ſo that the Tiles would ſcarce cleave; and if they were made but of a fifth Part, the *Roof* would be too flat, whereby the ſuperincumbent Weight of the Tiles, Shingles, and Snows, would preſs too much upon it. He concludes, by obſerving, that Gutters are uſually made all round the Houſe, into which the Water which falls from the Tiles is convey'd away, by Spouts, at a conſiderable Diſtance from the Walls. That the Gutters muſt have a Foot and a Half of Wall over them, which will not only keep them in much ſtronger, but likewiſe preſerve the Timber in the *Roof* from any Damage which the Rains might otherwiſe occaſion.

When the *Roof* is *pointed*, its moſt beautiful Proportion is, to have its Profile an equilateral Triangle; when *ſquare*, that is, when the Pitch, or Angle of the Ridge, is a right Angle, it muſt be conſider'd as a mean Proportion between the pointed and the flat Form. A *flat Roof* is that in the Form and Proportions of a triangular Pediment. Sometimes the *Roof* is in the Pinnacle Form; ſometimes it has a double Ridge; ſometimes it is cut, or mutilated, that is, conſiſts of a true and a falſe *Roof* laid over the former; ſometimes it is truncated, that is, inſtead of terminating in a Ridge, or Angle, it is cut ſquare off at a certain Height, and cover'd with a Terraſs, and ſometimes, alſo, encompaſs'd with a Balluſtrade. Sometimes it is in Manner of a Dome, that is, its Plan is ſquare, and the Contour circular; ſometimes it is round, that is, the Plan is round, or oval, and the Profile ſpherical. Sometimes the Baſe being very large, it is cut off to diminiſh its Height, and cover'd with a Terraſs of Lead, rais'd a little in the Middle with Sky-lights, from Space to Space, to give Light to ſome Corridore, or other intermediate Piece, which without ſuch an Expedient would be too dark.

There is alſo the *Hip Roof*, which is a *Roof* which has neither Gable-Head, nor Shread-Head, nor Jirkin-Head; which laſt are both gable and hip at the ſame End. A *Hip-Roof* has Rafters as long, and with the Angles at the Foot, *&c.* at the End of *Buildings*, as it has at the Sides; and the Feet of the Rafters on the End of ſuch *Buildings* as have *Hip Roofs*, ſtand on the ſame Plan, *viz.* parallel with the Horizon, and at the ſame Height from the Foundation with Rafters on the Sides of the *Roof*.

All Kinds of *Roofs* are compos'd of *Beams*, *Rafters*, *Hips*, &c. A *Beam* is the largeſt Piece of Wood in a *Building*, being laid a-croſs the Walls, and ſerving to ſupport the principal *Rafters* of the *Roof*. No Houſe has leſs than two of theſe *Beams*, *viz.* one at each Head: Into theſe the Girders of the Garret-Floor are alſo fram'd; and if the *Building* be Timber, the Teazle-tenons of the Poſts.

The Proportions of *Beams*, near *London*, are fix'd by Statute as follows: A *Beam* 15 Foot long muſt be ſeven Inches on one Side its Square, and five on the other; if it be 16 Foot long, one Side muſt be eight Inches, the other ſix; if 17 Foot long, one Side muſt be ten Inches, the other ſix. In the Country they uſually make them ſtronger. Sir *H. Wotton* adviſes theſe to be of the ſtrongeſt, and moſt durable Timber.

The *French*, under *Poutre*, *Beam*, take in not only the Pieces which ſupport the Rafters, but alſo thoſe which ſuſtain the Joiſts for the Cieling. Some of their beſt Authors have conſider'd the Force, or Strength of *Beams*, and brought their Reſiſtance to a preciſe Calculation; particularly M. *Varignon*, and M. *Parent*. The Syſtem of the latter is as follows:

When in a *Beam* breaking parallel to its Baſe, which is ſuppos'd to be a Parallelogram, two Plans of Fibres, which were before contiguous, are ſeparated, there is nothing to be conſider'd in thoſe Fibres, but their Number, Bigneſs, Tenſion before they broke, and the Lever by which they act; all theſe together making the Strength or Reſiſtance of the *Beam* to be broke. Suppoſe, then, another *Beam* of the ſame Wood, where the Baſe is likewiſe a Parallelogram, and of any Bigneſs, with regard to the other, at Pleaſure; the Height, or Thickneſs of each of theſe, when laid horizontal, being divided into an indefinite Number of equal Parts, and their Breadth into the ſame Number, in each of their Baſes, will be found an equal Number of little quadrangular Cells, proportional to the Baſes whereof they are Parts. Theſe, then, will repreſent little Baſes, or, which is the ſame Thing, the Thickneſs of the Fibres to be ſeparated for the Fracture of each *Beam*; and ſince the Number of Cells is equal in each, the *Ratio* of the Baſes of both *Beams* will be that of the Reſiſtance of their Fibres, both with regard to Number and Thickneſs. Now the two *Beams* being ſuppos'd of the ſame Wood, the Fibres moſt remote from the Points of Support, which are thoſe which break the firſt, muſt be equally ſtretch'd when they break. Thus the Fibres, *v. gr.* of the tenth Diviſion, are equally ſtretch'd in each Caſe, when they firſt break; and in whatever Proportion the Tenſion be ſuppos'd, it will be ſtill the ſame in both Caſes; ſo that the Doctrine is entirely free, and unembarraſs'd with any phyſical Syſtem.

Laſtly, It is evident, the Levers whereby the Fibres of the two *Beams* act, are repreſented by the Height or Depth of their Baſes; and, of Conſequence, the whole Reſiſtance of each *Beam* is the Product of its Baſe by its Height; or, which is the ſame Thing, the Square of the Height multiplied by the Breadth: Which holds, not only in caſe of parallelogrammatick, but alſo in elliptick Baſes. Hence if the Baſes of two *Beams* be equal, though both their Heights and Breadths be unequal, their Reſiſtance will be as the Heights alone; and, by Conſequence, one and the ſame *Beam*, laid on the ſmalleſt Side of its Baſe will

will resist more than when laid flat, in Proportion as the first Situation gives it a greater Height than the second: And thus an elliptick Base will resist more, when laid on its greatest Axis, than on its smallest.

Since in *Beams*, equally long, it is the Bases that determine the Proportion of their Weights, or Solidities; and since their Bases being equal, their Heights may be different; two *Beams*, of the same Weight, may have Resistances differing to Infinity. Thus if in the one the Height of the Base be conceiv'd infinitely great, and the Breadth infinitely small, while in the others the Dimensions of the Base are infinite, the Resistance of the first will be infinitely greater than that of the second, though their Solidity and Weight be the same. If, therefore, all requir'd in *Architecture* were to have *Beams* capable of supporting vast Loads, and, at the same Time, be of the least Weight possible, it is plain they must be cut thin as Laths, and laid edge-wise. If the Bases of two *Beams* be suppos'd unequal, but the Sum of the Sides of the two Bases equal, *v. gr.* if they be either 12 and 12, or 11 and 13, or 10 and 14, *&c.* so that they always make 24; and further, if they be suppos'd to be laid edge-wise; pursuing the Series, it will appear, that in the *Beam* of 12 and 12, the Resistance will be 1728, and the Solidity, or Weight, 144; and that in the last, or 1 and 23, the Resistance will be 529, and the Weight 23. The first, therefore, which is square, will have less than Half the Strength of the last, with regard to its Weight.

Hence M. *Parent* remarks, that the common Practice of cutting the *Beams* out of Trees, as square as possible, is ill Husbandry; and hence takes Occasion to determine geometrically what Dimensions the Base of a *Beam*, to be cut out of any Tree propos'd, shall have, in order to its being of the greatest possible Strength; or, which is the same Thing, a circular Base being given, he determines the *Rectangle* of the *greatest Resistance* that can be inscrib'd, and finds, that the Sides must be nearly as 7 to 5, which agrees with Observation. Hitherto the Length of the *Beam* has been suppos'd equal; if it be unequal, the Bases will resist so much the less, as the *Beams* are longer.

To this it may be added, that a *Beam* sustain'd at each End, breaking by a Weight suspended from its Middle, does not only break at the Middle, but also at each Extreme; or if it does not actually break there, at least immediately before the Moment of Fracture, which is that of the Equilibrium between the *Resistance* and the *Weight*, its *Fibres* are as much stretch'd at the *Extremes*, as in the *Middle*. So that of the Weight sustain'd by the *Middle*, there is but one third Part which acts at the *Middle* to make the Fracture; the other two only acting to induce a Fracture in the two *Extremes*. A *Beam* may be suppos'd loaden only with its own Weight, or with other foreign Weights apply'd at any Distance, or only with those foreign Weights; since, according to M. *Parent*, the Weight of a *Beam* is not ordinarily above a 70th Part of the Load given it to sustain, it is evident that in considering the several Weights, they must all be reduc'd, by the common Rules, to one common *Center* of *Gravity*. M. *Parent* has calculated *Tables* of the *Weights* that will be sustain'd in the *Middle*, in *Beams* of various *Bases* and *Lengths*, fitted at each End into Walls, on a Supposition that a *Piece* of *Oak* of an Inch square, and a Foot long, retain'd horizontally by the two *Extremes*, will sustain 315 Pounds in its *Middle* before it breaks, which it is found, by *Experience*, it will.

Rafters are Pieces of *Timber*, which standing by Pairs upon the Reason, meet in an Angle at the Top, and form the Roof. No *Rafters* should stand farther than 12 Inches from one another. For the Sizes, or Scantlings of *Rafters*, it is provided, by Act of Parliament, that *principal Rafters*, from 12 Foot 6 Inches, to 14 Foot 6 Inches long, be 5 Inches broad a-top, and 8 at the Bottom, and 6 Inches thick; those from 14 Foot 6 Inches, to 18 Foot 6 Inches long, to be 9 Inches broad at the Foot, 7 at the Top, and 7 thick; and those from 18 Foot 6 Inches, to 21 Foot 6 Inches, to be 10 Inches broad at the Foot, 8 at the Top, and 8 thick. *Single Rafters* 6 Foot 6 Inches long, to be 4 Foot, and 3 Inches, in their Square; those 8 Foot long, must be $4\frac{1}{2}$, and $3\frac{3}{4}$ Inches Square.

The *Hips* are those Pieces of *Timber*, plac'd at the Corners of the Roof. The *Hips* are much longer than the *Rafters*, by reason of their oblique Position, and are plac'd not with a right or square Angle, but a very oblique one; and, by Consequence, are not, at least ought not to be square at any Angle, (as *Rafters* are at all) but *bevel* at every one of them; and, which is yet more, as *Rafters* have but four Plains, these commonly have five. *Hips* are call'd by Country Workmen *Corners*; some call them *principal Rafters*, and others *Sleepers*. Indeed *Hips* and *Sleepers* are much the same, only the *Sleepers* lie in the Vallies, and join a-top with the *Hips*; but those Surfaces, or Plains, which make the Back of the *Hips*, are the under Sides of the *Sleeper*. The *Backs* of a Heap, are those two *Superficies*, or Plains, on the Out-side of the *Hips*, which lie parallel, both in Respect of their *Length*, and *Breadth*, with the *Superficies* of the adjoining Sides, and End of the Roof.

The highest Part of the Roof, or rather the Piece of Wood wherein the *Rafters* meet, is call'd the *Ridge* of the Roof.

Having thus accomplish'd the outward Case of our whole *Edifice*, the next Thing we are to do, is, to distribute our Ground-Plot into Apartments; in which Distribution Regard must be had to *Gracefulness*, and *Usefulness*, for Rooms of *Office*, and *Entertainment*, as far as the Capacity thereof, and the Nature of the Country, will allow.

The *Gracefulness* consists in a double *Analogy*, or *Correspondency*, first, between the Parts of the whole, whereby a large Fabrick should have large Partitions, Entrances, Doors, Columns, and, in brief, all the *Members* large; the second between the Parts themselves, with Regard to *Length*, *Breadth*, and *Height*.

Palladio will have a *Building* dispos'd and order'd in such a Manner, as that the most noble and beautiful Parts of it be the most expos'd to all Spectators, and the less agreeable thrown into By-places, and remov'd, as much as possible, from publick View; because the Refuse of the House, or whatever may produce any ill Effect, or Incumbrance, ought to be carried thither; and for this Reason the Cellars, Wood-houses, Pantries, Kitchen, Servants Hall, Laundries, Ovens, and other Offices, which are for ever in Use, should, in his Opinion, be plac'd in the lower Part of the Edifice, and which, for the Generality, should be order'd a little under Ground. He says, that there are two Advantages attending this Distribution: The first is, that the Apartment above is altogether free from the Embarrasments and Incumbrances before-mention'd; and the second, which is of equal Importance with the former, is, that the said Apartment is thereby much more wholsome, the Floor thereof being free from the Moisture of the Ground, besides that its being high, renders it more beautiful, and contributes towards a more agreeable Prospect.

The *Usefulness* consists in having a considerable Number of Rooms of all Kinds, with Entries, Halls, and light Stair Cases, which must be made spacious, and easy, as we have already observ'd, to go up and down; and the *meanest*, and *less graceful* of them, situated advantagiously, to serve the other more spacious Apartments. The Rooms must be large, moderate, or middle-siz'd, and small, and all contiguous to one another. *Convenient Partitions* must be likewise contriv'd for *Closets*, *Libraries*, *Horse Furniture*, and other Things which are in daily Use, and which would appear *very indecent* in a *Bed-Chamber*, *Dining-Room*, or other Place set a part for the *Reception* of *Strangers*.

Palladio orders the *Summer Rooms* to be spacious, and open to the *North*; and the *Winter* ones small, and expos'd to the *South*, and *West*; because in *Summer*,

mer, ſays he, the Air and Shade is *very agreeable*; and in *Winter* the Sun: Beſides, little Rooms are eaſier warm'd than large ones. But the Rooms intended for *Spring* and *Autumn*, ought to be towards the *Eaſt*, and have their *Proſpect* towards *Greens* and *Gardens*. *Studies* and *Cloſets* ſhould likewiſe have the ſame *Proſpect*, becauſe the Morning is the *beſt Time* for *Amuſement* in ſuch Places. But, concludes he, becauſe it generally happens that in Cities either the Party-Walls, the Streets, or publick Places, *confine* and *reſtrain* an *Architect* within certain Limits, beyond which he has no *Power* to go; *Neceſſity*, therefore, obliges him to ſuit himſelf according to the Situation of the Place.

In the Partition, an Architect has often Occaſion for ſeveral Shifts; through which, his own Sagacity, more than any Rules, muſt conduct him. Thus he is frequently put to ſtruggle with Scarcity of Ground; ſometimes to damn one Room, for the Benefit of the reſt; as to hide a Buttery under a *Stair-Caſe*, &c. at other Times, to make thoſe the moſt beautiful, which are moſt in Sight; and to leave the reſt, like a Painter in the Shadow, *&c.*

Since the *Hall*, or, *Salle*, is properly the Firſt, and fineſt Partition of an Apartment, and is placed at the Entrance of a fine Houſe, Palace, or the like; it therefore deſerves, firſt, our Attention.

Vitruvius mentions three Sorts of *Halls*: The *Tetraſtyle*, which has four Columns ſupporting the Plat-form, or Cieling: The *Corinthian*, which has Columns all around, let into the Wall, and is vaulted over; and the *Egyptian*, which had a Periſtyle of inſulated *Corinthian* Columns, bearing a ſecond Order with a Cieling. Theſe were called *Occi*.

To make a *Tetraſtyle* Hall, according to *Palladio*'s Deſign; its Length ſhould be divided into five equal Parts, three thereof muſt be allowed to the Breadth. The Wings (that is, the Space between the Wall and the Pillars, or Columns, which is not included in the Breadth of the Hall) have in Breadth a fifth Part of the Altitude of the Columns. The Columns, of what Order, pleaſe moſt the Architect, and which he thinks moſt proper for the Ornament and Magnificence of the *Hall*; which, commonly is the *Corinthian*. The Diameter of thoſe Columns, ought to be equal to the Breadth of one half of the Wings: The Opening above, one third Part of the Breadth of the *Hall*.

The Length of a *Corinthian-Hall*, ſhould be the Diagonal of its Square; and the Wings have in Breadth, two ſevenths of the Length of the *Hall*, that is, one for every Wing; the Diameter, and Height of the Columns, in Proportion; as well as the Opening in the Middle.

The *Egyptian-Halls*, are very much like *Baſilicas*, or the Courts of Juſtice of the Antients; becauſe they have a Portico, in which the Columns are diſtant from the Wall, like in the *Baſilicas*; and upon theſe Columns, are placed the Architrave, Freeze, and Cornice. The Space, or Diſtance between the Columns and the Wall, is covered with a Platform, ſurrounded by a Corridor with Rails, and Balluſters. Above the ſaid Pillars there is a continued Wall, with half Columns, on the Inſide of it, one fourth Part leſs than the lower Ones. The Windows which give Light to the *Hall*, and through which, when laid open, ſuch as are on the Platform, can look into it, are placed between the ſaid half Columns.

The Antients had another Sort of *Hall*, called *Teſtitudinated*; that is, made in a Form of a *Tortoiſe*. The Length of a *Teſtitudinated-Hall*, is equal to the Diagonal of its Square, and has its full Breadth in Height; which reaches as far as the Summer, or Architrave of the Roof. The Rooms on the Side are ſix Foot leſs in Height; and above the Walls, which ſeparate them from the *Hall*, there are Columns, which bear the Roofs of the ſaid *Hall*. Between theſe Columns, there are ſome Apertures, or Windows, which give Light to the *Hall*. A little farther are the *Periſtylos*, about which are Piazzas, that are the Height of the Columns. The Chambers are of the ſame Breadth, and their Height to the Impoſts of the Arches, is equal to their Breadth; as the Arches have in Height the third Part of their Diameter.

Halls are proper for the Solemnizations of Weddings, Balls, Banquets, Plays, *&c.* for which reaſon they muſt be made much larger than any other Apartments; and be contrived, that a numerous Company may, without Inconvenience, be entertained in them, and be Spectators of all that paſſes. The Length of *Halls* ſhould never exceed twice their Breadth; but the nearer they are to a Square, the more uniform and commodious they will be.

We muſt not confound *Halls*, with *Entries*, tho' we often give to *Entries*, the Name of *Halls*; though *Entries* be in the lower Parts of the Houſe, and *Halls* in the upper. *Entries* are but a Sort of Landing-place, with which all the other principal Parts of the Houſe have a Communication, and where Perſons wait till the Maſter of the Houſe appears; and after the *Galleries*, are the firſt Places that preſent themſelves to ſuch as enter the Houſe.

The *Galleries*, are covered Places in a Houſe, much longer than broad; which ſerve to walk in. If there be but one, 'tis uſually made in the fore, or back Front of an Edifice; if two, in the Wings. They are either large, or ſmall, as Conveniency, and the Quality of the *Building*, may require; but they ſhould never be above twenty Foot broad; or leſs than ten. The *Galleries* of the *Louvre* are magnificent.

Note, *Favot*, in his *Architecture*, derives the Word GALLERY, from *Gaul*, ſuppoſing the Antient *Gauls*, to have been the Firſt who uſed them. *Nicod* fetches it from the *French*, *Aller*, to go. Others bring it from *Galere*, *Galley*, by reaſon it bears ſome Reſemblance thereto, in Reſpect of Length. In the corrupt *Latin* we meet with *Galilæa*, for the *Gallery* of a Monaſtery.

The *Rooms* muſt be diſtributed equally, on each Side of the *Entry*, and the *Hall*; and Care muſt be taken that thoſe on the right Hand, anſwer to, and be of an equal Largeneſs, with thoſe on the left, whereby there will be a juſt Harmony, and Proportion in the ſeveral Parts of the Edifice; and the Wall will be in equal Proportion preſſed by the Roof: For if the Apartments are bigger on one Side the Edifice, than on the other; in the former Caſe they will reſiſt the Weight with Eaſe, becauſe of the Solidity, and Thickneſs of the Walls; but in the latter they will be too weak, which will create great Inconveniencies, and at laſt, deſtroy the whole Structure.

Palladio ſays, that in the Deſigning of *Rooms*, there are ſeven beautiful Proportions; for either they are made round or ſquare; but that the former is now entirely neglected, and laid aſide; or their Length is the Diagonal of their Square; or of one Square, and a Third; or a Square, and a Half; or a Square, and two Thirds; or laſtly, of two Squares.

For the Altitude of *Rooms*, it muſt be taken from the different Form of the Cieling; which is either arched or flat. If flat, the Altitude from the *Floor* to the *Joiſts*, muſt be in equal Proportion to their Breadth; and the *Rooms* over them, muſt be a ſixth Part lower than thoſe beneath. If arched, as they uſually are in the firſt Story (for this gives them a Grace and Beauty, and renders them leſs liable to Fire) their Altitude, in ſquare *Rooms*, is a third Part more than the Breadth of the *Rooms*. But in thoſe, where the Length exceeds the Breadth; an Altitude muſt be ſought equal to their Length, and Breadth; and dividing the whole into two equal Parts, one of which will be the exact Altitude of the Arch. Or if the Chambers, to be arched, be twelve Foot in Length, and ſix in Breadth, we muſt add the two Numbers together, and the Sum is eighteen, which divided by two, gives nine, and this is the Altitude of the Arch required.

Another Method of finding the Altitude of a *Room* by Numbers, is, by finding (after the Length, and

Breadth of the Room has been given) a Number that bears the same Proportion to the Breadth, as the Length does to it; which is performed by multiplying the lesser Extreme by the greater, and the square Root of the Product, will be the Height. For Example, suppose the Place to be arched be nine Foot long, and five Foot broad, the Altitude of the Arch will be six Foot; and the same Proportion that nine has to six, six has to four. But however we must observe, that this Altitude cannot always be found by Numbers.

To find in Numbers, another Altitude, which though it be less, will still be in Proportion to the *Room*; we must first have found by the Length and Breadth of the Chamber, its Altitude, according to the first Rule; which in the foregoing Instance was nine, and having added the Length, Breadth, and Altitude together, we'll multiply the nine by twelve, and afterwards by six; setting the Product, made by twelve, under twelve, and the Product made by six, under six; when this is perform'd, we'll multiply six by twelve, and set the Product thereof, which is 72, under 9; lastly, having found a Number, that multiplied by 9, produces 72, which in this Instance will be eight; eight Foot must be the Altitude of the Arch. These several Altitudes have this Relation between themselves, *viz.* that the First exceed the Second, in the same *Ratio*, or Proportion, as the Second exceeds the Third. Each of these Altitudes may then be used, acccording to the Conveniency which they give for Contrivance; that various *Rooms* of several Dimensions may be so made, as to have all their Arches of an equal Altitude; and be at the same Time exactly proportionate: By this Means the Chamber will look agreeable, and be very convenient for the *Floor* above, which will be upon a Level. There are other Proportions for the Altitude of Arches, which do not come under any particular Rules; and are therefore left to the *Architect*, to use them as Necessity requires.

For our private *Buildings*, here in *London*, the Parliament, after the Conflagration, thought proper to determine the several Proportions of the Apartments, according to the Bigness of the House, *viz.* in Houses fronting By-streets or Lanes, of two Stories high, besides Cellars and Garrets; the Cellars ought to be six Foot and a half high, if the Spring of Water hinder not; and the first Story, nine Foot from the *Floor* to the *Cieling*, and the second Story as much. That in Houses fronting Streets or Lanes of Note, and the River of *Thames*; which ought to be three Stories high, besides Cellars and Garrets; the Cellars should be six Foot and half high, if the Springs hinder not; the first Story, full ten Foot from the *Floor* to the *Cieling*; the Second ten Foot; the Third nine Foot. That in Houses fronting the high, and principal Streets, which shall be of four Stories high, besides Cellars and Garrets; the first Story be full ten Foot in Height, from the *Floor* to the *Cieling*; the Second ten Foot and an half, and the Third nine Foot; the Fourth eight Foot and an half.

In large *Buildings*, and sumptuous Edifices, the *Rooms* are arched. *Palladio* reckons six Kinds of Arches adapted to that Purpose, *viz.* crossed, fasciated, flat, circular, grinded, and Shell-like; all which are in Altitude one third of the Breadth of the *Room*. The four first were used by the Antients, and the two last are of the Invention of the Moderns, who divide Arches, into *Circular*, *Elliptical*, or *Strait*; and subdivide the *Circular*, into *Semicircular*, *Scheme*, and *Arches of the third and fourth Point*.

Semicircular-Arches, are those which make an exact *Semicircle*, and have their Center in the Middle of the Chord of the Arch; called also by the *French* Builders, *Perfect-Arches*, and Arches *en plaine Cinture*. *Scheme-Arches* are those which are less than a *Semicircle*, and consequently are flatter Arches; containing some 90 Degrees, others 70, and others 60: Called also *Imperfect-Arches*. *Arches of the third and fourth Point*, consist of two *Arches* of a Circle, meeting in an Angle at the Top, and are drawn from the Division of the Chords, into three or four Parts at Pleasure. Of this Kind, there are many in old *Gothick Buildings*; but on Account of their Weakness and Unsightliness, they ought, according to Sir *Henry Wotton*, to be for ever excluded out of all *Buildings*.

Elliptical-Arches consist of a *Semi-Ellipsis*; and were formerly much used, instead of *Mantle-Trees*, in *Chimneys*. These have commonly a Key-stone, and Chaptrels or Imposts. *Strait-Arches* are those whose upper and under Edges are *Strait*; as in the others they are curved; and those two Edges also parallel, and the Ends and Joints, all pointing towards a Centre. These are principally used over Windows, Doors, *&c.*

Circular-Arches, are made in square Chambers, and, according to *Palladio*, raised in this Manner: In the Angles of the *Room*, are left certain *Mutules*, or *Modillions*, which sustain the *Semi-circle* of the Arch; which is flat in the Middle, but more *circular* the nearer it approaches the Angles.

As for the *Cielings* of our *Rooms*, there are different Methods of making them; for some People are very curious to have them of beautiful and well wrought *Joists*; in which Case particular Care must be taken, that the Distance between the *Joists*, be once the Thickness and a half of the said *Joists*; for that Distribution will make the *Cieling* very agreeable, and so much of the Wall will be left between the Ends of the *Joists*, as will suffice to support the Weight over it; but in Case they are made at a greater Distance, they will look very unhandsome; and if at a lesser, they will divide as it were the upper Wall from the lower; and if the *Joists* should prove rotten, or by any Casuality be set on Fire; the upper Wall must fall of course. Others are fond of Compartments made of *Stucco-Work*, or of Timber; these they fill with Pictures, so that they may be variously decorated, and therefore no fixed and positive Precepts, can be prescribed upon this Topick. Though those which are to have a Picture in the Middle, are commonly divided into square Pannels in the Corners, and a large Circle in the Middle proper for Painting; the Borders or Margin, being ornamented with *Frets* and *Guilochis*.

Note, That FRET in *Architecture*, is a Kind of Knot, or Ornament; consisting of two Lists, or Fillets, variously interlaced, or woven; and running at parallel Distances, equal to their Breadth. A necessary Condition of these *Frets*, is, that every Return, and Intersection, be at right Angles. This is so indispensible, that they have no Beauty without it; but become perfectly *Gothick*. Sometimes the *Fret* consists but of a single *Fillet*; which if well managed, may be made to fill its Space exceedingly well. The Antients made great Use of these *Frets*; the Places they were chiefly applied on, were even, flat Members, or parts of *Buildings*, as the Faces of the Corona, and Eaves of Cornices; under the Roofs, Soffits, *&c.* on the Plinths of Bases, *&c.* The Appellation was occasioned hence, that the *French* Word *Frette*, litterally signified the Timber-work of a Roof, which consists chiefly of Beams, Rafters, *&c.* laid a-cross each other and as it were *fretted*. *Frets* and *Guilochis* are synonimous. These Ornaments, though small, if they be well adjusted, are very pleasing. They are frequently used in Picture-frames, Soffits, of Arches, and on Architraves, and sometimes on *Fascia's*, and the Plinths of Bases, if the other Members be carved.

As we have left our *Chimneys* without *Ornaments*, we'll return to them, and have them *decorated*, each with its *Chimney-Piece*; which is a Composition of certain

certain Mouldings, of Wood or Stone, ſtanding on the *Foreſide* of the Jambs, and coming over the *Mantle-tree.*

Chimney-Pieces muſt be made *larger*, or *ſmaller*, in Proportion to the *Size* of the *Rooms* where they are intended. As for the various *Ornaments* of *Chimney-Pieces*, they are at the *Diſcretion* of the *Architect*, provided they prove anſwerable to the other *Ornaments* of the *Rooms.*

Our *Floors* are to be of Earth, Bricks, Stones, or Timber. *Palladio* obſerves, that Brick *Pavements* are very *ornamental*, and ſtrike the Eye *agreeably*, as well on account of the Variety of Colours which they borrow from the various Sorts of Earth of which they are compos'd, as from the various Forms which may be given them. He obſerves, further, that the *Floors* of Chambers are but ſeldom made of *natural Stones*, ſince they are too cold in *Winter*; but that they are *agreeable* enough in *Galleries*, and Apartments for publick *Entertainments.*

Carpenters never *floor* their Rooms with Boards till the Carcaſe is ſet up, and alſo inclos'd with Walls, leſt the *Weather* ſhould wrong the *Flooring*; yet they generally rough plane their Boards for the *Flooring*, before they begin any Thing elſe about the *Building*, that they may ſet them by to dry, and ſeaſon; which is done in the moſt careful Manner.

It muſt be obſerv'd, that ſuch Chambers as are upon the ſame *Story*, muſt have their *Pavements level*, and ſo as that the *Threſholds* of the *Doors* may be no higher than the reſt of the Plan of the *Rooms*; and if any little *Room*, or *Cloſet*, ſhould not riſe to that Height, the Remainder muſt be ſupply'd with a *Mezarin*, or *falſe Cieling.*

Leaving the reſt of the Work of the Houſe, which is not properly the *Province* of an *Architect*, to *Plaiſterers*, *Carpenters*, *Joiners*, &c. we'll go from our Houſe in *Town*, into the *Country*, to chuſe, on the *Eſtate* we have lately purchas'd, ſome pleaſing, healthful, and commodious *Situation*, to build a *Country-Houſe*; which muſt be, as near as poſſible, towards the *Center* of our *Eſtate*, that but with a moderate Fatigue we may view the whole, whenever we think proper, (which, conſidering the *Extent* of an *Author's Eſtate*, will not be very difficult) and make *Improvements* round about it; as alſo, that the *Tenants* and *Labourers* may bring the *Growth* of it to our own Houſe with the greater Facility, in which they have been, hitherto, *very negligent.* If the *Houſe* can be *built* near a *River*, it will contribute greatly to its *Beauty* and *Conveniency*; becauſe, by that Means, not only the Product of the Land can be the more eaſily convey'd, at all Times, by *Water*, to the City, and that the *Water* it ſelf will ſerve the Purpoſes of the *Houſe* and *Cattle*; but it will render the Proſpect much more *agreeable*, mightily refreſh the Air in *Summer*, and with great *Advantage*, as well as *Ornament*, *water* the *Fields*, *Gardens*, &c. But in caſe the *Situation* cannot be near a *navigable River*, yet let it be near ſome *Brook*, or other *running Water*, and as diſtant as conveniently can be from *dead* and *ſtagnant Waters*; becauſe theſe are environ'd with a turbid, thick, and heavy *Atmoſphere*, which renders the Place *unhealthy*; which can be eaſily avoided in *elevated* and *agreeable Places*, where the Air, being free, is in a *perpetual Motion*; and the Earth, through its Declivity, purg'd from all *Damps*, and *noxious Vapours.*

It is not adviſeable to *build* in *Valleys* inclos'd by *Mountains*; becauſe *Houſes* will lie conceal'd in ſuch Places, beſides the Diſadvantage of their having no diſtant *Proſpects*, and not being conſpicuous to the Eyes of others; by which means, all their *Beauty* is loſt, beſides their being, in all Reſpects, prejudicial to *Health.* Being then determin'd to *build* upon an *Eminence*, we'll chuſe ſuch a *Situation* as is expos'd to the moſt *temperate Region* of the Air, and is neither always *over ſhadow'd* by higher Hills, nor *ſcorch'd*, as it were, with two Suns, by the Reflection of the real one from ſome adjacent Rock; for in either of theſe Caſes it becomes an *incommodious Habitation.* But if we cannot avoid *building* on *low Ground*, we muſt ſet the firſt *Floor* above the *Ground* the higher, to ſupply what we want to ſink in our *Cellar* in the Ground; for in ſuch *low*, and *moiſt Grounds*, it conduces much to the *Dryneſs* and *Healthineſs* of the Air, to have *Cellars* under the *Houſe*, ſo that the *Floors* be good, and ciel'd underneath. *Houſes* built *too high*, in Places obvious to the Winds, and not well *defended* by *Hills*, or *Trees*, require more Materials to build them, and alſo more Reparations to maintain them; and are not ſo *commodious* to the Inhabitants as thoſe which have thoſe *Advantages.*

As for the Diſtribution of the Apartments, in *Country Houſes*, 'tis made in the ſame Manner as in *City Houſes*, *i. e.* according to the Quality of the *Maſter*, the numerous Companies he is to *entertain*, and the Number of his *Servants.* On both Sides of the *Court* (the *Houſe* being in the *Front*) may be *built*, the *Stables*, *Cellars*, *Granaries*, and ſuch other *commodious Places*, for the *Service* of the *Houſe.*

Palladio gives us the Deſcription of a *Seat* which himſelf calls *beautiful*, erected by *Marco Zeno*, at *Caſalto*, in the *Trivigian*; which I propoſe as a *Model* to my *Readers.* It ſtands upon a *Baſement*, which ſurrounds the whole *Edifice*, equal with the *Floors* of the *Rooms*, which are all arch'd. The Arches of the *ſquare Rooms* are grinded in the Angles about the *Windows*; thoſe of the *Cloſets*, or *Rooms* near the *Galleries*, as well as thoſe of the *Hall*, are *faſciated.* The *Hall* and *Galleries* are arch'd of an equal Altitude, and are likewiſe, both of them, higher than the *Rooms.* The ſame celebrated *Architect* gives us, likewiſe, this other *Deſcription* of another *Villa*, or *Seat*, ſituate at *Bagnolo* in the *Vicentine*, and which I would take for the *Model* of mine. On both Sides of the *Court* are the *Stables*, *Cellars*, *Granaries*, &c. the Columns of the *Portico's* are of the *Dorick* Order, (tho' I would have mine of the *Corinthian*, as more *magnificent*, and not appearing ſo heavy) the *Floor* of the firſt *Chamber* is rais'd ſeven Foot above the Ground, under which is the *Kitchen*, and other Places which belong to the Servants. The *Hall* is *arch'd*, its Altitude being equal to its Breadth, and one Half more, the *Arches* of the *Galleries* have alſo the ſame Proportion. The *Chambers* are ciel'd, and as *high* as they are *broad*; the largeſt are a Square, and two Thirds long; the others are but a Square and a Half.

The principal Care of the *Architect*, in this *Edifice*, which is but of one *Story*, was to have the Stairs which lead to it very commodiouſly plac'd; as for the Back-Stairs, and thoſe which ſerve only for the Offices underneath, or for the Granaries, and other ſuch Places above, they are not ſo carefully adapted for the Reception of a clearer Light; as being not reckon'd among the principal Stories; for if they were, Care ſhould alſo be taken to manage them ſo as to be very *lightſome*, and in convenient Places.

An *Architect* is often ſo much confin'd by the Difficulty, and Irregularity of the *Situation*, that he has not free *Room* to *build* with that *Regularity* and *Elegance* he could wiſh, and is forc'd to deviate from the common Rules, and form to himſelf new ones, to render his *Edifice commodious* and *agreeable*, notwithſtanding the Scantineſs of the Ground, and the Irregularity of the *Situation.* *Palladio*, who was not a Stranger to thoſe Sort of Difficulties, preſents us with ſome Deſigns of his own *Invention*, which can be a very great Help to *Architects*, on ſuch Occaſions.

The firſt is of a *Building* in the Form of a *Pyramid*; the Baſis thereof makes the principal *Front* of the *Houſe*, which has three Orders of Pillars, *Dorick*, *Ionick*, and *Corinthian.* The *Veſtibule* is ſquare, and the *Arch* thereof, whoſe *Height* and *Breadth* is equal, is ſupported by four Pillars; on each Side are two *Chambers*, the *Length* whereof is a Square and two Thirds; each of them has a *Cloſet*, and a ſmall *Stair-Caſe*, to go up to the *Mezaninos.* He places two *Chambers*, a Square and a Half long, at the End of the Entry, with two *Cloſets*, contiguous to them, of the

the same Proportion, with their *Stairs* to the *Mezaninos*. He contrives a *Hall* a Square and two Thirds long, with Columns equal to those of the *Vestibule*. Near to this is a *Gallery*, on both Sides whereof he places two *Out-Stairs*, and at some Distance a *Yard*, in one Side of which is the *Kitchen*. The *Chambers* in the second *Story* are to be twenty Foot *high*, and those in the third eighteen; each of the *Halls* to be as *high* as the *Roof*, and level with the *Chambers* of the second *Story*; the *Halls* with some *Balconies*, or *Corridors*, for the Accommodation of the Company, at publick *Feasts*, or *Entertainments*.

The second is for a *House* in *Venice*, the principal *Front* whereof has three Orders of Pillars, the *Ionick*, the *Corinthian*, and the *Composite*. The *Vestibule* projects a little outwards, and is adorn'd with four Pillars, equal to, and like those of the *Front*. The *Chambers*, which are on the Wings, are *arch'd*, after his first Manner: Besides these, there are other smaller *Chambers*, and *Closets*, with *Stairs* to go up to the *Mezaninos*: At the End of the Entry there is a Passage into a second *Hall*, which has a little *Court* on one Side, by which it receives its *Light*; and the principal *Stair-Case*, on an elliptical Form on the other, and open in the Middle, with Pillars all round, that support the *Steps*. At some Distance there is another Passage for an Entrance into a *Gallery*, the Pillars whereof are *Ionick*, and equal to those of the *Vestibule*. There is an Apartment, like those at the Entry, on each Side of this *Gallery*, but that Apartment which is on the left Hand is in a Place which contracts it a little more. There is likewise a *Court* hard by, adorn'd quite round with Pillars, forming a *Corridor*, which serves for the Apartment of the Women, in which they *cook*, and which, for that Reason, ought to be backwards. The upper Part is like the lower one, the *Hall* excepted, which is above the Entry, has no Pillars, and is rais'd to the *Roof*, having a *Corridor* that is level to the *Chambers* in the third *Story*; and might, likewise, serve the upper Windows, this *Hall* having two Rows of them. The *Floor* of the lesser *Hall* is of the same Height with the *Arches* of the second *Chambers*, those being 23 Foot *high*. The Doors and Windows directly perpendicular over one another, and the Wall bearing its Proportion of the *Weight*. The *Cellars*, *Laundries*, and other *Offices*, to be under Ground.

The same celebrated *Architect* has several other *Draughts* of the same Kind, which, for Brevity Sake, I forbear mentioning, these two being sufficient to give an *Insight* into those Sorts of *Buildings* wherein an *Architect* is confin'd to the *Situation*, and wants *Room* for a *regular Edifice*.

As the *building* of *Houses*, and Places to shelter Mankind against the Injuries of the Seasons, and the Inclemency of the Air, is of a far greater Antiquity than the *building* of *Temples*, and *Churches*, since in the World's Infancy, and a long while afterwards, and even now, among several *eastern* and *western* Nations, the Divinity is ador'd in open Fields, and the religious Worship is not confin'd within the narrow Limits of scanty Walls, since our *new Apostles* seem inclinable to revive that antient Manner of *religious Worship*; it cannot appear surprizing, that we have taken Care to lodge our selves, and *build* our own *Houses*, before those which among us *Christians* are consecrated to the Service of the *true God*; of which, notwithstanding, we are a going to give the several *Dimensions*.

Those Sort of *Edifices* have alternately been call'd *Temples*, or *Churches*, but most commonly *Churches*, among us *Christians*.

A Church is defin'd, by *Daviler*, a large *oblong Edifice*, in Form of a *Ship*, with *Nave*, *Choir*, *Isles*, *Chappels*, *Belfries*, &c.

Palladio is of Opinion, that the most agreeable, and most regular Forms a *Church* can be made in, are the round, and the triangular; and, again, of these two he chuses the round Form as the most perfect, for the following Reasons: 1. Because, says he, the round Form alone, among all Figures, is simple, uniform, equal, strong, and most capacious; and therefore can contain a greater Multitude of People. 2. That its being included in a Circle, wherein neither End nor Beginning can be found; having all its Parts alike, and each of them partaking of the Figure of the *whole*, and the Extream in every Part being equally distant from the *Center*; it is therefore the most proper Figure to denote the Unity, Essence, Uniformity and Justice of *God*.

Churches, according to the same *Author*, should have large *Portico's*, with greater *Columns* than are requisite in common *Buildings*. The Orders of the *Columns* should be as beautiful as possible, and each Order ought to have its own proper and convenient Decoration. *Churches* should also be made of the choicest, and most valuable Materials, that the Divinity may be *honour'd* with the Forms, Decorations, and Materials, as much as possible. White, of all Colours, continues *Palladio*, is the most suitable to *Temples*; because the Purity of it, express'd in the Purity of Life, is *highly acceptable* to the *Almighty*. But in case they must be painted, there ought to be no Pictures in them that may, in the least, tend to the Alienation of Man's Mind from the Contemplation of the Divinity.

These are *Palladio*'s general Observations on the Structure of *Temples*, from which he enters into Particulars, with regard to the Compartments of *Churches*, considering that it is absolutely necessary that all their Parts should correspond together, and have such a Proportion, that there be none of them by which the whole may not be measur'd, as well as every individual Part. But, however, as he supposes the round and quadrangular Forms the two most regular, he confines himself to give us the necessary Directions and Rules follow'd by the Antients in the *building* of those two Kinds of *Temples*.

The Diameter of the whole Space which the *Temple* was to take up, is divided into three equal Parts; one whereof is given to the Steps, that is, the Ascent of the *Floor*; and two remain'd for the *Temple* it self, and the Columns, which are plac'd upon Pedestals, and with their Bases and Capitals, are as *high* as the Diameter of the least Course of the Steps, and a tenth Part as *thick* as they are *high*. The Architraves, Freezes, and other Decorations, are made according to the Rules given in our Treatise of *Architecture*.

But such *Temples* as are made with a *Nave*, are either wing'd round, or made with a *Portico* only in the Front. The Compartments of such as are wing'd round, are as follows:

Two Courses of Steps are made quite round, and the Pedestals are set upon them, and upon these the Columns. The Wings are a fifth Part of the Diameter of the *Temple*, taking the Diameter from the inner Part of the Pedestals. The Columns are as long as the Cell is large, being a tenth Part as thick as they are long. The *Cupola* is to be rais'd above the Architrave, Freeze, and Cornice of the Wings, proportionable to the Half of the whole Work. The Columns, which begin from the Floor, and consequently are without Pedestals, render the *Temple* more pompous and majestick; Pedestals, besides, obstructing the going into the *Temple*. If a *Portico* be erected in the Front only of a round *Temple*, it must be made as long as the *Nave* is large, or an *eighth Part* less; and tho' it may be made shorter, yet it must, however, never be shorter than *three Quarters* of the *Breadth* of the *Church*; nor must it ever be made broader than a *third Part* of its *Length*.

In quadrangular *Temples*, the *Portico's* in the Front are to be made as long as the *Temple* is broad, and if the Manner be *Eustylos*, (*i. e.* whose Columns have proper and convenient Intervals) which is the most elegant and beautiful, the Compartments must be made in this Manner: If the Prospect be of four Columns, the whole Front of the *Temple* (omitting the Projecture of the Bases of the Columns in the Corners) must be divided into eleven Parts and a Half; one whereof

whereof might be call'd a *Module*, or the Standard whereby the other Parts are to be measur'd; four whereof are to be given to the Columns, if they be one *Module* thick; three to the middle Intercolumnation; and four and a Half to the other two; that is, two and a Quarter to each. But in case the Front has six Columns, it must be then divided into eighteen Parts; if eight, into twenty-four and a Half; and if ten, into thirty-one; giving always one of these Parts to the Thickness of the Columns, three to the middle Void, and two and a Half to each of the other. The Height of the Columns must be manag'd according as they are either *Ionick* or *Corinthian*.

The *Ante-Temple* was beyond the *Portico*, and the *Nave* after the former. The Breadth was divided into four Parts, and the Length of the *Temple* consisted of eight such; five whereof were given to the Length of the *Nave*, including the Wall wherein the Door is; and the other three remain'd to the *Ante-Temple*, which has two Wings of Walls on its Side, continu'd to the Wall of the Cell. At the End of these are made two *Ante's*, that is, two Pilasters as *thick* as the Columns of the *Portico's*; and since between these Wings there may be a greater or less Space, if the larger be twenty Foot, there ought to be two Columns put between the said Pilasters, nay, more, if there should be Occasion, directly opposite to the Columns of the *Portico*. The Use of them is to separate the *Ante-Temple* from the *Portico*; and the three, or more Voids, that will be between the Pilasters, must be clos'd with Pannels of Wood, or Marble; the necessary Opening, however, must be left for entering into the *Ante-Temple*. But if the *Breadth* exceeds forty Foot, there must be other Columns plac'd within, over-against those between the Pilasters; and they must be made as *high* as those without, tho' not quite so *thick*; for the open Air will take away from the *Thickness* of those without, and the Inclosure will not let the Smalness of those within be seen, so that they will appear equal.

Thus the Antients (according to *Vitruvius*) order'd the Compartments of their *Temples*, which had always *Portico's* to them, to shelter the People, who waited for the Hour of the Sacrifice, against the Injuries of the *Weather*. But we *Christians*, not regarding whether the *Portico* surrounds the *Temple*, or not, *build* our *Churches* much like the antient *Basilica's*, or Court of Justice, with *Portico's* within; the Reason whereof is, (as I have observ'd in my Treatise of *Architecture*) that the first who embrac'd the *Christian* Religion us'd to meet for Fear of the *Gentiles*, in the *Basilica's* of private Persons; and observing, afterwards, that this Form was very convenient, because the Altar could be plac'd in the Room of the Tribunal to great Advantage, and that the Choir could stand round the Altar in good Order, while the remaining Part might hold the People, they have not thought proper to alter it since.

Some *Authors* pretend, that the *Choir*, in the *Christian Churches*, was not separated from the *Nave* till the Time of *Constantine*; that from that Time the *Choir* was rail'd in with a Ballustrade, with Curtains drawn over, not to be open'd till after the Consecration. That in the 12th Century they began to inclose the *Choir* with Walls, but the antient Ballustrades have been since restor'd, out of a View to the Beauty of *Architecture*. In Nunneries, the *Choir* is a large Hall, adjoining to the Body of the *Church*, separated by a Grate, where the Religious sign the Office.

Most of the Christian Churches have been made, for a considerable Number of Centuries, in the Form of a Cross; because in that Form they represent to Passengers, that Wood on which our Blessed Saviour was crucified. In that Part which makes the Foot of the Cross, is the Entrance over-against the great Altar, and the Choir; and in the two Isles extending like Arms on each Sides, are two other Entrances, or two Altars. *Palladio*, though not a very great Admirer of Churches, in the Form of a Cross, has, notwithstanding, built that of St. *George*, at *Venice*, in that Form.

There are Churches in a *Greek-Cross*; and others in a *Latin-Cross*. Churches in a *Greek-Cross*, are those where the Length of the Transverse part, is equal to that of the Nave; so called, because most of the great Churches are built in this Form. Churches in a *Latin-Cross*, are those whose Nave are longer than the *Cross* Part, as most of our antient Churches.

There are also Churches in *Rotundo*, which are those, whose Plan is a perfect Circle; and which in *Palladio's* Opinion, are the more beautiful, commodious, and regular. In all these different Sorts of Churches; the Dimensions, with Respect to their Breadth, Length, the Heighth, and Bigness of the Pillars; their different Orders, *&c.* should be observed as above prescribed; avoiding as much as possible, their having too great a Number of monstrous Columns in the Nave; which is a choaking Imperfection, in our Church of St. *Paul's* in *London*.

The Form of the antient *Greek* Churches, when they had all their Parts, was as follows: First was a Porch, or Portico, called the *Vaunt-Nave*, προναος, adorned with Columns on the Outside, and on the Inside surrounded with a Wall; in the Middle whereof was a Door, through which they passed into a second Portico. The First of these Portico's was designed for the *Energumeni*, and Penitents in the first Stage of their Repentance. The Second was much longer, designed for Penitents of the second Class, and the *Catechumens*; and hence called ναρθηξ, *Ferula*, because those placed in it, began to be subject to the Discipline of the Church: These two Portico's took up about one third of the Space of the Church. From the second Portico, they passed into the *Nave*, ναος, which took up near another third of the Church. In the middle, or at one Side of the *Nave*, was the *Ambo*; where the Deacons, and Priests, read the Gospel, and preached. The *Nave* was designed for the Reception of the People, who here assisted at the *Liturgy*. Near the Entrance of this, was the Baptistery, or Font. Beyond the *Nave* was the Choir χορος, set with Seats, and round; the first Seat, on the Right, next the Sanctuary, being for the *Chantor*, or *Choragus*. From the Choir, they ascended by Steps to the Sanctuary; which was entered at three Doors. The Sanctuary had three Apsides in its Length; a great one in the Middle; under which was the Altar, covered with a Baldachin supported by four Columns. Under each of the small Apsides, was a Kind of Table, or Cupboard, in Manner of a Buffet; at this present Time, in the *Roman* Catholick Churches, called *Tabernaculum*, Tabernacle.

Note, That Ambo, or *Ambon*, was a Kind of Pulpit, or Desk, in the antient Churches, and is yet so in the *Roman* Catholick; ascended to, by several Steps, where the Subdeacon reads, or sings the Epistles, and the Deacon the Gospel; with this Difference, that the Gospel is read at the Top of the *Ambo*, and the Epistle, a Step lower. Some Authors take the *Apsis*, to have been that part of the Church, wherein the Clergy sate, and the Altar was placed; that it was of an hemispherical Figure, and consisted of two Parts, the Choir, and the Sanctuary. That the former had Seats, or Stalls placed around it; wherein the Ecclesiasticks were disposed. That in the Middle or fartherst Part, was the Bishop's Throne; and that the Sanctuary was the opposite End, next the *Nave*; from which it was separated by a Grate. Others pretend that the *Apsis*, is more particularly used for the Bishops-Seat, or Throne, in antient Churches: This was most particularly called *Apsis Gradata*, because raised on Steps above the ordinary Stalls. *Baldachin*, was a Piece of *Architecture*, in form of a Canopy, supported with Columns, and serving as a Crown or Covering to the Altar.

There is a Place added to our *Churches*, which is separated

separated from the rest, called the *Sacristy*, or *Vestry*; where the Vestments belonging to the Priests, are deposited; as also the Vessels, the Sacred Books, and such other Things, as are made use of in divine Service; the Priests likewise, dressing themselves there. *Towers* and *Steeples* are also raised; wherein Bells are hung, to summon People to their publick Devotions; or in *England*, to divert a Set of idle Fellows.

Palladio gives us the Description of a *Church*, called *the Baptism of Constantine*, and which is at *St. John de Lateran*, at *Rome*; which he supposes to have been built of the Spoils, and Ruins of antient Fabricks: As learned Authors believe the Design beautiful, and the Decorations very well carved; I'll insert it here, for the Benefit of *Architects*, who have not *Palladio*'s Works. The Columns are of *Porphyry*, and of the *Composite* Order: The Base is a Compound of the *Attick*, and *Ionick*, but instead of two Astragals, which are made between the Scotias in the *Ionick*; this has one only, which takes up the Room of two: All these Members are beautifully carved, and have fine Intaglias. The Bases of the Columns, in the Portico, are embellish'd with Leaves, running up along the Shaft of the Column; and though the Shaft of the Columns, are not so long as they should be, yet by this Management the Work is not robbed in the least, of its Beauty and Majesty. The Capitals are compounded of *Ionick* and *Corinthian*, with *Acanthus* Leaves. The Architrave is very well carved, its Cimase having a Fusarole, and above half an Ovolo; instead of a Gula-inversa, the Freeze is plain. The Cornice has two Gula-rectas, one above the other, which is a Thing which very seldom happens: Since two Members of the very same Sort, should be put over each other, without some other intermediate Member besides the Listel. Over these Gula-rectas or Cimatiums, is a Dentil, and then the Corona with its Ogee, and last of all a Gula-recta, or another Cimase; so that the *Architect* in this Cornice, has, by making Dentils, avoided Modillions.

Vitruvius had distinguished *Temples*, with regard to their Construction, into various Kinds; as, *Temple in Antæ*, *ædes in Antis*, which were the most simple of all *Temples*; having only angular Pilasters, called *Antæ*, or *Parastatæ*, at the Corners; and two *Tuscan* Columns on each Side the Doors. *Tetrastyle*, which was a *Temple* which had four Columns in Front, and as many behind. *Prostyle*, which had only Columns on its Front, or Fore-side. *Amphiprostyle*, which had Columns both before and behind; and which was also *Tetrastyle*. *Pireptere*, which had four Rows of insulated Columns around, and was *Hexastyle*; that is, had six Columns in Front. *Dioptere*, which had two Wings, and two Rows of Columns around, and was also *Octastyle*, or had eight Columns in Front.

There were also *Pseudodiptere Temples*, which had eight Columns in Front, and a little Row of Columns all around; by which it was distinguished from the *Dioptere*, which had two Rows of Columns all around. *Hypæthros*, which had no Roof, or Covering. *Monopiere*, which was round and without Walls, having its Dome supported by Columns.

From the *Building* of *Churches*, we'll pass to the Erection of *Bridges*, which are Edifices either of Stone or Timber, consisting of one or more Arches; erected over a River, Canal, or the like, for the Conveniency of crossing, or passing over from one Side to the other.

Bridges should be always well designed, commodious, durable, and well decorated. The Peers of Stone are to be equal in Number, that there may be one Arch in the Middle, where commonly the Current is strongest. Their Thickness not to be less than a sixth Part of the Span of the Arch, nor more than a Fourth. They are commonly guarded in Front with an angular Starling, or Spur, to break the Force of the Current; though this Defence is sometimes also turned *semicircularly*; in the antient *Bridges*, it is always a right Angle; which has the Advantage of being stronger, and more durable than acute ones. The strongest Arches are those whose Sweep is a whole *Semicircle*.

The Breadth of a *Bridge* according to *Baptista Alberti*, ought to be the same as that of the Highway which abuts on it: The Breadth of the Peers is to be one third of the Apertures of the Arches; the Starling to be one half the Breadth of the Peers, and to rise above the greatest Height, to which the Water ever mounts.

Palladio says, that four Things are to be considered in the Erection of *Stone-Bridges*, viz. the Heads which are made at the Banks; the Piles, or Pilasters, which are fixed in the River; the Arches which these Pilasters support; and the Pavement which is made over the Arches.

He observes, that the Heads of these *Bridges*, should be made as firm and substantial as possibly can be; because they not only serve to support the Weight of the Arches as the other Pilasters do, but they likewise keep the whole *Bridge* together, and the Arches from cracking or opening. That they are made, therefore, where the Banks are of Stone, or at least of solid Earth; and that no Bank of Earth being naturally solid enough for this Occasion, Art must be used to make them firm and strong, and other Arches and Buttresses must be added; that if the Water should happen to destroy the Bank, yet the Way to the *Bridge* might still be preserved. That the Pilasters which are to be made in Proportion to the Largeness of the River, should always be even in regard to their Number; not only the better to support the Weight, but that they should likewise strike the Eye agreeably, and render the Work more substantial, since the Current of the River in the Middle (where it is naturally more rapid, as being more distant from the Banks) is thus free, and does not prejudice the Pilasters by perpetually shaking them. For this Reason the Pilasters ought to be so comparted, as to fall in that Part of the River where the Course is least rapid. That the Foundation of *Bridges* ought to be made at that Time of the Year when the Waters are lowest, which is in *Autumn*; and in Case the Bottom of the River be of Stone or Gravel-stone, or any soft Stone whatsoever, which is a Kind of Earth which is partly Stone; the Foundations are already made without any Trouble of digging, because these are naturally the best Foundations; but in Case the Bottom of the River be of Sand or Gravel, it must be digged therein till the Workman come to the solid Ground; or if that should prove too laborious or impracticable, he must dig moderately deep in the Sand or Gravel, and then drive in Oaken Piles, which will reach the solid and firm Ground, with the Iron by which their Points are to be armed. That to lay the Foundation of the Pilasters, only one Part of the Bed of the River must be enclosed from the Water, and then build there, that the other Part being left open, the Water may have its free Current; and so to go on from Part to Part. That the Pilasters must not be less in Dimension, than the sixth Part of the Breadth of the Arch; nor generally speaking larger than a fourth. That they should be made of great Stones joined together with Cramps, and Bars of Iron, fastened with Lead, that they may be as it were, all of one Piece by such Ligaments. That the Fronts of the Pilasters, or that Side which faces the Stream, should be made angular; that is, ending in a right Angle; and sometimes, they are made circular (as we have already observed) in order to divide or break the Water; and that those Things which are impetuously brought down the River, when they strike against them, may be shoved from the Pilasters, and pass through the Middle of the Arch. That the Arches too, should be made very strong and substantial, and with great Stones, well united together, the better to resist the constant passing of Carriages, or any other Weight that shall happen to come over them; which Arches are the strongest, when they consist of a Semicircle, because they entirely rest upon the Pilasters, and never press upon each other: But, that if by the Nature of the Situa-

tion and Disposition of the Pilasters, a perfect Semicircle should not be commodious, as rendering the Ascent and Descent difficult, a lesser Section must be then made use of, and such Arches should be made as rise only the third Part of the Diameter; and in this Case, the Foundations must be made extreamly strong upon the Banks. Lastly, that the Pavement of these *Bridges*, ought to be made exactly like those of Ways and Streets. These are *Palladio*'s Instructions and Rules, for the Erection of *Bridges*.

Notwithstanding all these Rules given by *Palladio*, and other eminent *Architects*, as *Alberti*, *Scammozzi*, *Goldman*, *Hawksmoor*, and *Gautier*, who has a Piece express on *Bridges*, antient and modern, *viz. Traité des Ponts*, *Paris*, 1716, 12*mo*. Complaints are still made, that no demonstrative Reasons are given, of the several Proportions of the most essential Parts of *Bridges*; much of which is still left to the Discretion of the *Builder*, to be regulated according to the Circumstances, Design, Place, Magnitude, *&c.* of the design'd Edifice. M. *Gautier* wishes that some Mathematicians would take the Structure and Proportions of *Bridges* into their Consideration, in order to bring the Thing to more Certainty, and Precision, founded on invariable geometrical Truth. Something of which Kind has been attempted by M. *De la Hire*, in the *Memoirs* of the *Royal Academy of Sciences*, *Anno* 1712, p. 70. and the Marquis *De l'Hôpital*, in *Act. Erud. Lips.* 1695, p. 56.

In Fact, there are few *Bridges*, especially those of any Note, which do not differ in their Proportions and Dimensions, and which have not something remarkable and particular, by which they are distinguishable from each other. For Example, the famous *Bridge* at *Venice*, call'd the *Rialto*, consists but of a single flat, or low *Arch*, whose Spawn is 98 Feet and a Half, and its Height above the Water only 23 Feet. Those of St. *Esprit*, *Avignon*, and *Lyons*, are not streight, especially the two former, but bent, having an Angle whose Convexity is turn'd towards the Stream, to break the Force thereof. Dr. *Robinson* observes, that the *Pont St. Esprit* is bow'd in many Places, making unequal Angles, especially in those Parts where the Stream is strongest. This *Bridge* is built over the *Rhone*, which is a very rapid River.

The Current of a River is sometimes diminish'd, to secure the Piers of the *Bridge* which are *building* over it; which is done either by lengthening its Course, by making it more winding, or by stopping its Bottom with Rows of Banks, Stakes, or Piles, which break the Current. The Piers always diminish the Current of a River: Suppose this Diminution one fifth Part, it will follow, that in case of Inundations, the Bed must be sunk, or hollow'd one fifth Part more than before, since the Waters gain in *Depth* what they have lost in *Breadth*. Add, as the Quantity of the Water remains still the same, it will pass with greater Velocity, by one fifth Part, in the Place where such Contraction is; all which conduces to wash away the Foundation. The Stream thus augmented in Velocity, will carry away Flints and Stones, which, before, it could not stir.

Palladio gives us the *Draught* of a *Bridge* of his own Invention, which was to be *built* over a very rapid River, one hundred and eighty Feet broad. The whole *Breadth* of the *Bridge* is divided into three *Arches*, that of the Middle to be sixty Feet *broad*, and the other two forty-eight each. The Pillars for the Support of the *Arches* were twelve Feet *thick*, being, thereby, a fifth Part of the middle *Arch*, and a fourth Part of the lesser ones; which tho' deviating from the common Measures of *Pilasters*, were made so *thick* on purpose that they might project very far from the Body of the *Bridge*, in order to resist the Rapidity of the Current, and oppose the Stones and Trees which fall down with the Stream. The *Arches* were to have been a Portion of a Circle less than a Semicircle, that the *Ascent* and *Descent* of the *Bridge* might be plain and easy. The *Archivolte* of the *Arches* to have been made a 17*th* Part of the Void of the middle *Arch*, and a 14*th* Part of the other two. Over the *Pilasters* were to have been *Niches*, and *Statues*, and a *Cornice*, on both Sides, the *whole Length* of the *Bridge*.

Bridges are also often made of Wood, and consist of Beams and Joists sustain'd by Punchions, well cramp'd, and bound together. The *Latins* call'd this Sort of *Bridges*, *Pontes Sublicii*; on the Structure whereof, *Sturmius* has an express Dissertation.

Palladio pretends, that the Particulars for the Erection of *wooden Bridges* being innumerable, no certain or determinate Rules can be given about them; but, however, he presents us with some *Draughts* of several *Bridges* of that Kind, and by particularizing their several Proportions, believes, that an *Architect* who has the least Genius, can hence take its Measures for the Erection of *wooden Bridges*. Among his several *Draughts*, he proposes that of the *wooden Bridge* built over the *Cismone*, a River which falls from the Mountains that divide *Italy* from *Germany*, and enters into the *Buenta* a little above *Bassano*, as the most substantial, beautiful, and commodious. The River over which this *Bridge* stands, is a hundred Foot broad, which *Breadth* is divided into six equal Parts, and at the End of each Part (except at the Banks, which are strengthen'd with two solid Butments of Stone) are plac'd the Beams which constitute the Bed, and *Breadth* of the *Bridge*. Over these, directly with the first, are plac'd the *Colonelli*, or little Pillars, on each Side; these Pillars are fasten'd to the Beams, (which make the *Breadth* of the *Bridge*) with iron Cramps, contriv'd to pass thro' a Hole, made for that Purpose, in the Heads of the said Beams, in that Part which advances beyond those Pieces which constitute the Sides. These Cramps being in the upper Part, along the said strait and plain Pillars, perforated in divers Places, and in the under Part, near to those thick Beams beforemention'd, and with a moderately big Hole, went into the Pillars, and fasten'd again below with little Bars, or Pins of Iron, made for that Purpose. Hence the whole Work becomes, as it were, united; so that the Beams, which make the *Breadth* of the *Bridge*, and those of the Sides, are, in a Manner, one Piece with the Pillars; which thus come to support the Beams which make the *Breadth*, as these are again supported by the Arms which extend from one Pillar to the other. Thus all the Parts mutually support each other, and their Disposition is such, that the greater *Weight* there is on the *Bridge*, so much the faster do they close together, and corroborate the Work. All those Arms, and other Pieces of Timber, which make up the Body of the *Bridge*, are but a *Foot* in *Breadth*, and *three Fourths* in *Thickness*; but those Pieces which make the Bed of the *Bridge*, that is to say, those laid *length-wise*, are considerably smaller.

The same learned *Author* assures us, that *wooden Bridges* may be made without any Posts in the Water, in the following Manner: The Banks having been strengthen'd with Butments, as far as it is convenient, one of the Beams which make the *Breadth* of the *Bridge*, must be laid at a small Distance from them, and then the Beams, which make the Sides, dispos'd upon it, which, with one of their Heads, are to lay upon the Bank, and to be fasten'd to it; then upon these, direct with the Beam laid for the *Breadth*, the *Colonelli*, or Pillars, must be plac'd, which are to be fasten'd into the said Beams with iron Cramps, and supported by the Braces well fix'd in the Head of the *Bridge*; that is to say, in the Beams which make the Sides upon the Bank. Afterwards, leaving as much Space as shall be left by the said Beam for the *Breadth* to the Bank, the other Beam must be laid for the *Breadth*, which shall be, in like manner, fasten'd to the Beams, which are to be laid over it *length-wise*, and to the Pillars likewise, as they will be supported by their Braces. And thus must it be done from one End to the other, or as far as it will be requisite, always observing, in such *Bridges*, that in the Middle of the *Breadth* there be a Pillar, the Braces whereof shall meet over-against one another, and in the upper

Parts other Beams muſt be put, which extending from one Pillar to another, will keep them united, and (together with the Braces plac'd in the Head of the *Bridge*) they will make a Portion of a Circle leſs than a Semicircle. Thus making every Brace ſupport its Pillar, and every Pillar the croſs Beam, and thoſe that make the Sides, every Part ſupports its own *Weight*. Such *Bridges* are large at their Heads, and grow narrow near the Middle of their *Length*. They are called *Pendant*, or *Hanging*, or *Philoſophical Bridges*.

Dr. *Wallis* gives the Deſign of a *Timber Bridge*, ſeventy Foot long, without any Pillars; and Dr. *Plot* aſſures us, that there was formerly a large *Bridge* over the Caſtle Ditch of *Tutbury* in *Staffordſhire*, made of Pieces of Timber, not much above a Yard long, and yet not ſupported underneath, either with Pillars, or *Arch-work*, or any other Sort of Prop whatever.

Note, That BUTMENTS, in this Place, are thoſe Supporters, or Props, on, or againſt which, the Feet of *Arches* reſt. *Cramps*, are Pieces of Iron bent at each Extreme, ſerving to bind together Pieces of Wood, Stones, or other Things. *Brace*, a Piece of Timber fram'd in with Bevel-joints; ſerving to keep the *Building* from ſwerving either Way.

There are, alſo, *Ruſhen-Bridges*, *Ponts de Jonc*, made of large Sheaves of Ruſhes growing in marſhy Grounds; which they cover over with Boards, or Planks. They ſerve for croſſing Ground that is boggy, miry, or rotten.

As for the other Sorts of *Bridges*, as *Draw-Bridges*, *Flying-Bridges*, *Bridges of Boats*, &c. which properly belong to *Fortification*; we'll defer treating of them till we come to our Treatiſe of *Fortification*, under the Letter *F*.

As there is alſo an Art in judging of *Buildings*, as well as in erecting them, Sir *Henry Wotton* has been ſo kind to lay down, for that Purpoſe, the following Rules: That before fixing any Judgment a Perſon ought to be inform'd of its Age, ſince if apparent Decay be found to exceed the Proportion of Time, it may be concluded, without further Inquiſition, either that the Situation is naught, or the Materials, or Workmanſhip, too ſlight. If it be found to bear its Years well, we muſt run back from the Ornaments, and Things which ſtrike the Eye firſt, to the more eſſential Members; till we be able to form a Concluſion that the Work is commodious, firm, and delightful; the three Conditions, in a good *Building*, laid down at firſt, and agreed on by all *Authors*.

Vaſſari propoſes another, *viz.* by paſſing a running Examination over the whole *Edifice*, compar'd to the Structure of a well-made Man; as whether the Walls ſtand upright on a clean Footing and Foundation; whether the *Building* be of a beautiful Stature; whether for the Breadth it appears well burniſh'd; whether the principal Entrance be on the middle Line of the Front, or Face, like our Mouths; the Windows as our Eyes, ſet in equal Number and Diſtance on both Sides; the Offices, like the Veins, uſefully diſtributed, *&c.*

Vitruvius gives a third Method of judging; ſumming up the whole Art under theſe ſix Heads: *Ordination*, or ſetling the Model, and Scale of the Work; *Diſpoſition*, the juſt Expreſſion of the firſt Deſign thereof; (which two, Sir *H. Wotton* thinks he might have ſpar'd, as belonging rather to the *Artificer*, than the *Cenſurer*;) *Eurythmy*, the agreeable Harmony between the *Length*, *Breadth*, and *Height* of the ſeveral *Rooms*, &c. *Symmetry*, or the Agreement between the Parts and the whole; *Decor*, the due Relation between the *Building* and the Inhabitant; whence *Palladio* concludes, the principal Entrance ought never to be limited by any Rule, but the Dignity and Generoſity of the Maſter; and, laſtly, *Diſtribution*, the uſeful caſting of the ſeveral Rooms for Offices, Entertainment, or Pleaſure. Theſe laſt four are ever to be run over, as a Man paſſes any determinate Cenſure; and theſe alone, Sir *Henry* obſerves, are ſufficient to condemn or acquit any *Building* whatever.

Dr. *Fuller* gives us two or three good *Aphoriſms* in *Building*; as, 1. Let not the common Rooms be ſeveral, nor the ſeveral Rooms common; *i. e.* the common Rooms not to be private, or retired, as the *Hall*, *Galleries*, &c. which are to be open; and the *Chambers*, &c. to be retir'd. 2. A Houſe had better be too little for a Day, than too big for a Year; Houſes, therefore, ought to be proportion'd to ordinary Occaſions, not extraordinary. 3. Country Houſes muſt be Subſtantives, able to ſtand of themſelves; not like City *Buildings*, ſupported and ſhelter'd, on each Side, by their Neighbours. 4. Let not the Front look aſquint on a Stranger, but accoſt him right, at his Entrance. 5. Let the Offices keep their due Diſtance from the Manſion-houſe; thoſe are too familiar which are of the ſame Pile with it.

Palladio gives us general Directions for *Building*; ſome of which are, in my Opinion, almoſt impracticable; as this, that a due Regard muſt be had to the Dignity and Diſtinction of the Perſon who *builds*, more than to his Fortune; and his Houſe muſt be made ſuitable to his Rank and Degree; which cannot be done, unleſs the Perſon who *builds* has likewiſe a Fortune agreeable to his Rank, to enable him to defray the Expences of ſuch a *Building*; otherwiſe *Palladio* muſt excuſe a Brother *Architect*, if he be forc'd to deviate from this Rule, by *building* a Palace for a rich Scoundrel, and but too often a Hutt for a Perſon of the moſt illuſtrious Birth, and who could reckon more Heroes among his Anceſtors, than Acres of Land in his Eſtate; which is the Cauſe why we ſo often ſee a Muſhroom, ſprung from a Dunghil, and rear'd up in its Filth, brought into a ſumptuous Palace, where Nature and Art have rivall'd each other; while a Perſon of Merit and Birth is confin'd within the ſcanty Walls of a private and mean Edifice.

The ſame *Palladio* ſays, that the Houſes of Judges, Counſellors, *&c.* ſhould have commodious Places to walk in, and where their Clients may wait, without being reſtleſs and impatient; which, in ſome Reſpect, is alſo almoſt impoſſible; for it is true, that conſidering the immenſe Wealth of a vaſt Number of Gentlemen of that Profeſſion, which in this Country is a Kind of *Peru*, an *Architect* may eaſily *build*, in the Palaces of our Judges, and the magnificent Houſes of ſome of our Counſellors, thoſe Sorts of convenient Places; but I defy him, let them be ever ſo commodious, to make Clients wait there, without being reſtleſs, and impatient. He directs, alſo, that Merchants Houſes ſhould have Warehouſes, and other Apartments, expos'd to the North, wherein their Goods, and other Commodities, may be commodiouſly kept; and that thoſe Places muſt be ſo order'd, that the Maſters may have no Occaſion to apprehend any Danger from the Inſults of Robbers.

BULLS.

BULL, (from the *Latin Bulla*, a Seal; or the *Greek* βουλη, Council) is properly, and most commonly, an Instrument dispatch'd out of the *Roman Chancery*, seal'd with Lead; answering to the Edicts, Letters Patents, and Provisions of secular Princes.

A *Bull* is no otherwise distinguish'd from a Rescript, or simple Signature, but by its being written on Parchment; while a *Rescript*, or *simple Signature*, is only on Paper: Therefore, as the *Bull* is not to take in more Matter than a *Signature*, and only exemplifies and dilates what the *Signature* comprehends in a few Words, it may be properly consider'd as a *Signature* enlarg'd.

If the *Bulls* be Letters of Grace, the Lead is hung on silken Threads; if they be Letters of Justice, and executory, the Lead is hung by a hempen Cord. They are all wrote in an old *Roman Gothick* Letter.

The *Bull*, in the Form wherein it is to be dispatch'd, is divided into five Parts, *viz.* the Narrative of the Fact; the Conception; the Clause; the Date; and the Salutation; in which the *Pope* calls himself *Servus Servorum Dei*, Servant of the Servants of God. Properly speaking, it is the Seal, or pendant Lead alone, that is the *Bull*, it being that which gives it both the Title, and Authority. The Seal presents, on one Side, the Heads of St. *Peter*, and St. *Paul*; on the other, the Name of the *Pope*, and the Year of his Pontificate. *Bulls* borrow always their Name from the Words they begin by; as the *Bull in Cœnâ Domini*, the *Bull Unigenitus Dei Filius*, *&c.*

Bulls are dispatch'd for the Publication of Jubilees, to authorize *Roman Catholick* Princes, to raise Taxes on their Clergy, *&c.* to excommunicate them; for the Convocation of general, national, or provincial Councils; to return Thanks, or compliment Princes, or other eminent Persons, for some signal Services they have done to the *Church*, (as that of *Leo* X. to *Henry* VIII. King of *England*, to thank him for the Book he had wrote against that of *Luther*, of the *Babylonish Captivity*, and in which the *Pope* gives to that Prince the Title of DEFENDER OF THE FAITH, which the Kings of *England* have retain'd to this Day) for the Publication of Indulgences, the Condemnation of Books; in *Spain*, for holding any Kinds of Benefices; and in *France*, for Bishopricks, Abbies, Dignities, and Priories conventual, which are not elective.

According to the Laws of the *Roman Chancery*, no *Benefice*, exceeding twenty-four Ducats *per Annum*, should be conferr'd without *Bulls*; but the *French* would never submit to this Rule, except for such *Benefices* as are tax'd in the Apostolical Chamber: For the rest, they reserve the Right of dissembling the Value, expressing it in general Terms: *Cujus & illi forsan annexorum fructus* 24 *Ducatorum auri, de Camera, secundum communem æstimationem, valorem annuum non excedunt.*

By the *Concordat*, or Agreement concluded at *Bologna* in 1516, between *Leo* X. and *Francis* I. King of *France*, (*Chambers* says *Leo* I. which is a Fault of *Chronology*, with the small Difference of 1066 Years, since *Leo* I. succeeded *Sixtus* III. in the *See* of *Rome* *Anno* 440.) it was stipulated, that the King should have the Nomination of all the Bishopricks, Abbies, *&c.* of his Kingdom, but that no Bishops should be consecrated, Abbots introniz'd, *&c.* before they had obtain'd the *Pope's Bull*, for that Effect; for which they are to pay the *Annates*, or whole Year's *Revenue* of their *Benefice*, as rated in the *Apostolical Chamber* at the Time of the *Concordat*; which is not a Quarter of the yearly *Revenue* of those *Benefices*, as it stands at present. The *Pope* is sometimes pleas'd to *exempt* the Person, nominated to such a *Benefice*, from paying those *Annates*, or to oblige the King, or the Person promoted, and always grants his *Bulls gratis*, to those of the regular Clergy promoted to a Bishoprick, an Abby, Priory, *&c.* on this Consideration, that they were ordain'd Priests *sub Titulo paupertatis*, and consequently, having no other *Revenue*, are not in a Condition to advance a Year's Income of their *Benefice.*

Note, That the first *Pope* who impos'd *Annates*, in *England*, seems to have been *Clement* V. who, according to *Matthew* of *Westminster*, exacted *Annates* of all the vacant *Benefices* in the Kingdom for the Space of two Years; or, according to *Walsingham*, for three Years. His Successor, *John* XXII. introduc'd the like in *France*. Yet *Polydore Virgil*, and some others, take *Annates* to be of a much older standing, and to have obtain'd long before they were paid to the *Pope*. 'Tis certain, at least, that from the twelfth Century there were Bishops and Abbots, who by some peculiar Custom, or Privilege, took *Annates* of the *Benefices* depending on their Diocese, or Abby. *Matthew Paris*, in his History of *England*, for the Year 746, relates, that the Archbishop of *Canterbury*, in Virtue of a Grant, or Concession of a *Pope*, receiv'd *Annates* of all the *Benefices* that became vacant in *England*. But in After-times the *holy See* thought fit to take them away from the Bishops and Archbishops, and appropriate them to themselves. And from the *Pope*, the Parliament under *Henry* VIII. took them, and gave them to the Crown, 25 *H.* 8. *c.* 20. Queen *Anne* restor'd them to the *Church*, by appropriating them to the Augmentation of poor Livings.

M. *Anthony Godeau*, Bishop of *Vence* in *France*, exclaim'd loudly, in his Ecclesiastical History, against the Extortions of the Court of *Rome* for the granting of *Bulls* for *Benefices*, which, he says, exceeds often the *Revenue* of those *Benefices*. Which may be probable enough, that some of their Bishopricks in *France*, were, at the Time they were first rated, of a far greater Extent, and consequently of a far greater *Revenue* than they are at present, two Bishopricks having been made of one, and some dismember'd to increase the *Revenue* of others; which the *Apostolical Chamber* do not think proper, nor much to its Advantage, to take into Consideration; believing, on the contrary, that *Messieurs* the *French* Bishops are very well off, considering the voracious Appetite of the Court of *Rome*, that she takes no Notice that the *Annates* fall often very short of the *Revenue* of the *Benefice*. Therefore a lean *Benefice* must pay for the Indulgence granted to a fat one. But, however, the good Bishop of *Vence* would be willing enough to stile those Exactions for *Bulls*, a *pure*, and *natural Simony*; and pretends, that under what Name soever 'tis palliated, 'tis very difficult to wash off that *dirty Spot*; and that it is a monstrous, and scandalous Disorder to be complain'd of, but never to be remedied.

According to the Privileges of the *Gallican Church*, no *Bull*, but these, can be of any Force in *France*, but on the following Conditions:

1. It must have been granted at the Desire of the King himself. 2. After it has been granted, it is sent, by the King's Orders, to the *Sorbonne*, to be carefully examin'd, in order to discover if it contains nothing contrary to the Liberties of the *Gallican Church*, which the Court of *Rome* has often attempted to oppress, but in vain; for the Kings of *France* themselves are as jealous of those Liberties, as they are of the glorious Title, of PRIMOGENITUS ECCLESIÆ, the *First-born of the Church*. 3. It must be receiv'd by

by the Majority of the *French* Clergy; which last Condition is but a simple Ceremony; for the Clergy there (I mean the superior Clergy) are so much influenc'd by the Court, that it suffices the King to ask for a *Bull*, for it to be receiv'd by almost the unanimous Consent of the Clergy, who are always of the Prince's Religion, because acting otherwise, would prove prejudicial to their private Interest. 4. No Money is granted for the Impetration of such *Bulls*.

That all these Conditions are requisite for the Validity of a *Pope's Bull* in *France*, is evident, from what has happen'd in our Days, in the Affair of the famous *Bull* UNIGENITUS, for the Condemnation of the *French* Version of the *New Testament* by *Quesnel*, F. of the *Oratory*; and as this Affair has been carried to a very great Height by the two contending Parties, and is not yet happily terminated, it will not be improper to entertain my Readers, in this Place, with a concise, and true historical Account of it, since it has been represented under so many different Shapes, and with so much Partiality, by those who have treated that Subject, that, at this very Time, there are but very few Persons in *Europe* who know the real Truth of that intricate Affair; of which I can speak pertinently, since I was intimately acquainted with the first Promoter of that *Bull*, who, from my very Infancy, had taken a particular Care of my Education, and to whom I had the Honour of being related.

This illustrious Person was *Francis de L'Escure*, Bishop of *Luçon* in the Province of *Poitou*, of whom it was said in *France*, *Noble comme le Roy*, *sçavant comme Saint Augustin*, *& pauvre comme Job*; *i. e.* As noble as the King, as learned as St. *Augustine*, and poor as *Job*: For in Fact he had no other *Revenue* than that of his Bishoprick, which was not above 1000 Pounds *Sterling*.

As this honest Bishop, contrary to the scandalous Practice of the greatest Part of his *Brethren*, who are oftner seen at Court, than in their *Diocese*, spent his whole Time in his, and has never been seen at *Versailles*, ever since he was made Bishop of *Luçon*, he judiciously us'd to give to an indefatigable Study the Hours which his pastoral Sollicitude allow'd him. In one of those Hours, which prov'd fatal to *Quesnel*, his new Version of the *New Testament* fell into the *honest* Bishop's Hand. The Beauty, and Fluidity of the Style, the Sublimity of the Thought, the Energy, and Strength of the Expressions, and the profound Learning which is conspicuous throughout the whole Version, attracted the whole Attention of M. *De l'Escure*; who having acquir'd, while in *Sorbonne*, (whence he was taken to be made a Bishop, with no other Recommendation than that of his particular Merit) the Reputation of the most profound *Theologian* of his Time, thought he could discover in that Book a Venom hidden under the pompous Appearance of an orthodox and solid Doctrine; the more dangerous, because the most artfully disguis'd. But as the Principles of a truly *Christian* Charity were almost natural to him, and he was too timorous, and too jealous of the Reputation of all the different Orders of the Clergy, to attempt to blast it on his own private Judgment; he took the Pains to extract from the whole Version some Propositions, which, among an infinite Number of others, he thought to be the most *heterodox*; and sent them to the Bishops of *Rochelle*, and *Gap*, for their Sentiments, and on whose Judgment he entirely depended.

These Bishops, having compar'd this Extract with the whole *New Testament* of *Quesnel*, confirm'd by their Condemnation of the whole, in their respective Dioceses, the Judgment the Bishop of *Luçon* had form'd of it; who immediately after follow'd their Example, and condemn'd, likewise, by a pastoral Instruction to his Diocesans, the *New Testament* of *Quesnel*.

Lewis Antony de Noailles, Archbishop of *Paris*, a Prelate of signal Piety, and profound Learning, had approv'd the *new Version*, when first publish'd, which *Approbation* was printed at the Beginning of the Book; and therefore took as an Affront the Condemnation by the three Bishops, since thereby they reproach'd him tacitly, with having been capable of countenancing an *heterodox Doctrine*; tho' the Bishops had acted in that Case with all the Precaution and Respect due to the Archbishop of the *Metropolis* of the Kingdom; who was, besides, Duke and Peer of *France*, Commander of the Order of the *Holy Ghost*, Cardinal, *&c.* by intreating him, before they attempted to condemn the Book, to revoke the *Approbation* he had honour'd it with; which is an undeniable Fact, since I was at the Bishop of *Luçon*'s Palace, in the Country, when the Letters were wrote to that Effect; which, however, had not the desir'd Success, since the Archbishop of *Paris*, by the Advice of his Council, (by whom he was entirely govern'd, and which was then compos'd, among the rest, of the *Prior* of the *Benedictine Monks* of the Abby of St. *Germain des Pres*, at *Paris*, of Father *La Tour*, General of the *Oratory*, of the Abbot *Gontau de Biron*, Dean of the Chapter of our Lady at *Paris*, of the Abbot *Goet*, and several other Ecclesiasticks, eminent for their Learning, and great Piety, but all suspected of *Jansenism*) rejected the Request of the three Bishops, as injurious to him, since in an *Approbation* of that Consequence, never to be granted, but after a mature Deliberation, *non est sapientis dicere non putabam*; the Archbishop went even farther; for, to shew his Resentment to the Bishop of *Luçon* in particular, whom he knew to have stirr'd up the Ashes, and kindled the Fire, he refus'd to ordain Priest the Abbot *De L'Escure*, who was then a Student in *Sorbonne*.

The good old Bishop, who though very Apostolical, had not attained yet that Degree of Perfection, as, when smitten on one Cheek to present the other, and had a small Portion of levitical Blood in his Veins, resented the Affront; and in Consequence thereof, wrote to *Lewis* XIV. then King of *France*, a very bitter Letter against the Archbishop of *Paris*; accusing him of countenancing *Jansenism*, which had always been represented as a very hideous Monster to the King; and complaining of the Injustice lately done his Nephew, for no other Reason, than because he, his Uncle, had condemned in his Diocese a dangerous Book, which the Archbishop of *Paris*, had been persuaded, by the *Jansenists* he was environed with, to approve.

The King, who always had a very great Esteem for the illustrious House of *Noailles*, and for the Cardinal in particular, could by no Means approve the Letter of the Bishop of *Luçon*; therefore having him reprimanded, for some Expressions little becoming the Respect he ought to have for his Cousin the Cardinal *de Noailles*, commanded *L'Escure* to write to his Eminence, a Letter of Excuse. *L'Escure*, who saw the Cardinal in another Light, and consider'd his Eminence with Respect to him, but as *Primus inter Pares*, made several Attempts to disculpate himself from this Injunction, as far as to interpose the Credit of Father *le Tellier* the King's Confessor, and therefore much in Favour with his sacred Person; but all his Efforts proved vain, for the King was resolved the Bishop of *Luçon* should excuse himself to the Cardinal, who was forced at last to do it.

This Submission of the Bishop of *Luçon* pleased the King, and dispos'd him to listen to the Proposal, made to him by Father *le Tellier*, at the Intreaties of the three Bishops; that the Affair of the New Testament of *Quesnel*, which began already to make much Noise in the Kingdom, should be sent to the Court of *Rome*; there to be examined, and if the Book was so dangerous, as represented by the Bishops (as there was very great Reason to suppose it was,) his Majesty would be pleased to ask a *Bull* for its Condemnation.

The King who was not willing to condemn the Archbishop of *Paris*, unheard, sent for him; and his Majesty, who had already been perswaded by the Party of the *Jesuits*, whom the three Bishops had found the Secret to engage in their Quarrel the easier, because, there has been always some Jealousy between the

Company of *Jesus*, and the Congregation of the Oratory, who were always endeavouring to rival each other, would have engaged the Cardinal to condemn himself, *Quesnel*'s Testament, by revoking his Approbation; which the Archbishop eluded, by asking Time to think about it, which the King was graciously pleased to grant him. But his Antagonists fully determined on the Condemnation of *Quesnel*, and thought that Delays in those Affairs were of a dangerous Consequence; plaid their Part so well, and obseded the King so close, representing to his Majesty that the Catholick Religion, while *Quesnel* continued in the Hands of his Subjects, was in the greatest Danger; that without waiting for the Determination of the Archbishop of *Paris*, who in fact was a long while about it; *Quesnel* was sent to the *Barre* of the Congregation of the *Holy Office*. *Clement* XI. called, while yet but Cardinal, *Francis Albano*, seated then on the Chair of St. *Peter*; who, at *Lewis* XIV. Request, appointed a select Number of Cardinals and Theologians, to examine carefully the Testament of *Quesnel*; from which they extracted at last 101 Propositions, some of which were qualified by the Congregation of the *Holy Office*, heretical, some schismatical, others tending to Heresy, Schism, *&c.* In Consequence of this Judgment, the Pope issued out a *Bull*, for the Condemnation of the said Propositions, together with the whole Testament of *Quesnel*; which *Bull* begins *Unigenitus Dei Filius*, &c.

This *Bull* was brought from *Rome* to the King of *France*, by a *Capuchin* Fryar, one Father *Timothy de la Fleche*, in *Anjou*, who was then at *Rome*, and much in Favour with *Clement* XI. The King sent it to the *Sorbonne* to be examined, who finding nothing in it contrary to the Liberties of the *Gallican-Church*, it was presented by the King's Order to the *French* Clergy, to have it accepted by them; who always very unwilling to disoblige the King, accepted that famous *Bull*, without Restriction or Reservation; fourteen Bishops excepted, who finding the *Bull* conceived in Terms too general, and believing several of the 101 Propositions not at all deserving the Qualifications they were stigmatised with, refused the accepting it 'till the Pope would be pleased to explain himself in clearer Terms, and to give some Reasons for having condemned several Propositions, whose *obvious* Sense was Orthodox; and to which, in their humble Opinion, it was almost impossible to give an Heterodox one.

The King was not at all pleased at this Refusal of the fourteen Bishops; being persuaded by the prevailing Faction, that their Obstinacy would perhaps occasion a Schism in the *Gallican Church*, and therefore he should exert his Authority, to bring them to a Compliance; but as some of those Bishops were nearly related to some of the Favourites at Court, particularly that of St. *Malo* in *Britanny*, who was Brother to *des Marests*, Secretary of State; the King contented himself, considering their Obstinacy (as it was called then, and that the *Bull* had a vast Majority on its Side) to command those Bishops to depart for their Dioceses, and not to appear at Court till they were determined to accept the *Bull*. What's the most surprising in this Affair, is, that the *Cardinal de Noailles*, who had always refused to revoke his Approbation of the Version of *Quesnel*, was one of the first who signed the *Bull*, without the least Difficulty; and went even so far, as to have a pastoral Instruction publish'd for its Acceptance, throughout his whole Diocese.

The *Bull*, *Unigenitus*, having met with so great Success in *France*, to the general Satisfaction of its Partisans, and of my Friend the Bishop of *Luçon* in particular; was registered in the Parliament of *Paris*, and sent to all the other Parliaments of the Kingdom, to be registered likewise; though it met with a very great Opposition in the Parliament of *Britanny*, thro' the Means of the Attorney General of that Parliament, who declared himself an *Anticonstitutionaire*, as they have been called since, under the Supposition, that the *Jesuits* whom he hated mortally, had ushered it into *France*.

In Consequence of this Acceptation of the *Bull*, the *Constitutionairs* Bishops (a Title given to those who had accepted it, in Contradiction to the Opponents) published in their respective Dioceses, Mandements and pastoral Instructions, wherein they did what others refused to do; the explaining the several Propositions condemned by the *Bull*, and giving them what Sense they pleased. Then the greatest Part of the Kingdom was *Constitutionair*, why? because it pleased the King, who was one himself; but his Death happening soon after the Birth of the *Bull* (for if I am not mistaken, the *Bull* was brought into *France* towards the latter End of 1713, and the King died 1715,) the Affair of the *Bull* changed Face all on a sudden; for the *Sorbonne* first, who had accepted, *Purement & Simpliment*, i. e. without Restriction, began to sing the Palidony, and to revoke its Acceptation, alledging for Reason of so unexpected a Change, that they had accepted it only to please the King (a very good Reason for a learned Society, on whose Decisions depends in some Measure the Faith of the whole Kingdom!) most of the heretofore *Constitutionair* Bishops, and the Cardinal *de Noailles*, among the rest, followed the Example of the *Sorbonne*, and became *Anticonstitutionairs*, because that Party was very likely to be no longer the prevailing one at Court; from whence Father *le Tellier*, and his Protectress *Maintenon*, had been already banished.

However the *Sorbonne*, being reproached with its scandalous Recantation, which was a convincing Proof of her Ignorance, or want of Zeal for the Religion she professed, or of Pusillanimity; alledged for Excuse, that she had not entirely rejected the *Bull*, but on the contrary, was ready to accept it as soon as the Pope would give the Explanations required; for which they sent to *Rome*, *Chevalier*, one of the Archbishop of *Paris* Secretary, but all to no Purpose: For the Court of *Rome*, instead of granting their Request, treated them all as they really deserved, *i. e.* as a Pack of Ignorants, or of Knaves, or of Pusillanimous, not fit to be intrusted with the Conduct of Christ's Flock; and insisted that they should stand by their former Acceptation; and then the Pope would oblige them perhaps, with an Explanation of the *Bull*; which Difficulties started on both Sides, could never be surmounted; for the Court of *Rome* insisted on a blind Obedience, and the *French* Clergy wanted to see clear. Then the Party of the *Anticonstitutionairs* grew every Day more formidable, by the Acquisition of a vast Number of Proselytes of Distinction and Merit. The Party of the Cardinal, who then having nothing to fear from the Court, too much employed otherways for to interfere in religious Matters; throw'd off the Mask, and declared openly against the *Bull*; and the *Oratorians* took place of the *Jesuits*, who were interdicted throughout the whole Diocese of *Paris*, from Preaching and hearing the Confessions. Though a Paper-war was conducted on both Sides, with a great deal of Zeal, and very little of Christian Charity; the Dispute grew so warm, and the Books published by each Party so common, that there was scarce a Person in the whole Kingdom, who pretended to an Education above the common, who did not espouse the Party, which he thought suited himself; even the *fair Sex* signalized themselves on that Occasion; there were few Ladies of Distinction and Merit, who did not declare *Pro* or *Con*, and few who had not learned from St. *Augustin*, whom they were often found reading; how to explain the Propositions of *Quesnel*.

His Royal Highness the Regent, a Prince as much versed in Theology, as he was in all the Arts and Sciences, so much thought those religious Quarrels beneath his Notice, that he was resolved to leave those Affairs to the sole Determination of the Clergy, whom they most properly belong to, and took very little or no Cognizance of it, 'till the Court of *Rome* provoked out of Measure, at the pretended Revolt of the Cardinal *de Noailles*, whom she thought obliged

obliged by his Rank in the Church, to support her Interest, threatened him with the Thunder of the *Vatican*, if he continued in so flagrant a Revolt against the *Holy See*; and finding him inflexible, passed at last from the Menaces to the Effects, by sending to his Eminence a *Brief*, which suspended him of his Functions, and which was to be the Forerunner of a *Bull* of Excommunication; at which the Cardinal being alarmed, he went to carry the *Brief* to the *Regent*, complaining to him at the same Time of the excessive Rigour of the Court of *Rome*. His Royal Highness, promised him, that he would order the King's Minister at *Rome*, to appease the *Pope*, and stop farther Proceeding against his Eminence; bidding him at the same Time, to continue in the Exercise of his Pastoral Functions; but however, if the Regent had forgot his Promises, or, if the Court of *Rome* was tired of the tedious Procrastinations of the Bishop of *Paris*; the thundering *Bull*, so much dreaded by the Cardinal, came at last to the *Pope*'s Nuncio at *Paris*, who took Care to have it immediately carried to his Eminence, who had no sooner received it, but he went to carry it to the Regent, as to his last Refuge; in order to consult with him, what Measures to take to extricate himself out of the Labyrinth he was engaged in. His Royal Highness, who in all Appearance, was not that Day in his best Humour, heard the Complaints of the Cardinal with some Impatience, and for Conclusion told him, That he could not help what the Court of *Rome* had done against him; That if he had been afraid of her Procedures, he should have forbore offending her; and that he would be much obliged to him, if he would forbear likewise, troubling him for the future, with his Differences with the *Holy See*, since he had something else of a far greater Consequence to mind; promising him however, that he would hinder the Fulmination of the *Bull*, and let the *Pope* know, that in that Case he had exceeded his Jurisdiction; having none over the King's Subjects, not even a Cardinal, while in the King's Dominions. If the Regent then, was so good as his Word, or not, the Truth is, that the *Bull* was concealed, and never made publick; and what I know of it, I learned it from a Relation of mine, who had then the Confidence of his Royal Highness; who was pleased to tell him, That if he was to give Ear to that Priest, he would be more troublesome to him than the Government of the whole Kingdom. I regaled the Bishop of *Luçon* with this News (for I was then at *Paris*,) which I knew would be very agreeable to him; and his whole Answer to it, was, *Rira bien, qui rira le Dernier*, he who shall laugh last, will laugh in Reality; so much as to say, that he expected to see his Party the prevailing one at last.

Very near the same Time, *i. e.* toward the latter End of 1719; a very bitter Satyr was published against the *Sorbonne*, in form of a Letter, which should have been written by the Doctors of *Geneva*; in which that learned Society was complimented, for having espoused the Defence of *Calvin*'s Doctrine. What pleased me most during that Controversy, is, that the Books which were published by the *Anti-constitutionairs*, which were all very well wrote, were given *gratis*, to those who had any Friend in that Party; so that in a short Time, I found myself provided at that cheap Rate, with almost a whole Library. The sole Advantage the Kingdom of *France* reaped from those Disputes, was, that the inferior Clergy, applied themselves more seriously than they had done before, to the Study of the *Sacred Letters*; and that there have been seldom found since in Country Parishes, those illiterate Priests who thought themselves sufficiently learned if they could understand *Latin*.

At last the *Anti-constitutionairs* grew so formidable, as to see themselves in a Condition to defy all the Attempts of the Court of *Rome* against them; the *Vatican* could have then thunder'd, as often, and as long as he pleas'd, the Archbishop of *Paris* had *Iron* to oppose to it; his Eminence us'd to retire, every *Saturday*, to his Country-Seat at *Conflans*, near *Paris*, where he was met by the most considerable of his Party, where Measures were concerted, as well to strengthen themselves, as to weaken their Enemies. At that Time several *Monks* and *Fryers*, tir'd of the *monastick* Life, became *Anti constitutionairs*, on Purpose to have some plausible Reasons to quit their Solitude; among whom there were several *Monks*, of the famous Abbey of *la Trape* in *Normandy*, who all came to put themselves under the Cardinal's Protection; whence the *Constitutionairs* took Occasion, to reproach his Eminence with being the Refuge of *Apostates*.

The Court of *Rome* seeing herself thus braved by potent Enemies, and afraid that if she continued to act with that despotick Power, she had 'till then affected in this Affair; the *Gallican Church* would be glad perhaps of a favourable Opportunity of shaking off the *Roman* Yoke, by the Election of a Patriarch, which would be a great Check to the *Pope*'s Treasury, considering the immense Sums, sent from *France* to *Rome*, for *Bulls*; began to desist from Part of their high Pretensions; and offered, that if the *Anticonstitutionairs* would accept the *Bull*, even under the Restriction of an Explanation, she would give that Explanation. But the *Anti-constitutionairs*, who were grown too potent, and had gained too much Ground to enter into a Capitulation with their Enemies, insisted on that Explanation, previously to the Acceptation of the *Bull*; pretending that they could not accept it before they knew what they were to accept, nor condemn Propositions as *heretical*, *schismatical*, &c. before they could be perswaded that they were such; that Christ himself, whose Vicar upon Earth the *Pope* stiled himself, did never refuse to explain to his Disciples the Parables he proposed to them, when they did not understand them; that acting otherwise was enslaving, and tyrannizing a Christian Conscience; that his Holiness, whose Judgment in that Affair had been pronounced but *ex Cathedrâ*, which Judgment he knew himself, was not considered as infallible by the *Gallican Church*; could have been mistaken in the Condemnation of *Quesnel*, or deceived by those who had examined his Book. That though they would not pretend to justify all the 101 Propositions extracted from it; there were nevertheless a vast Number of them which had a great Air of Orthodoxy, and appeared as such to the whole *Gallican Church*; and therefore 'till these were explain'd, they could not find it agreeable to their Conscience, to condemn the others, much less to condemn the whole.

But, however, these Reasons, in all Appearance very just, and very agreeable to the Practice of the Primitive Church, and of Christ himself; could not persuade the Court of *Rome* to that Compliance, seemingly so necessary to re-establish the Peace of the *Gallican Church*; she thought then, that she had already gone too far, and that her too great Condescension had rendered her Enemies more daring, and more insolent; therefore re-assuming her former Haughtiness (as the *Anti-constitutionairs* called it) and her former imperious Tone, she renewed her Menaces against the Cardinal, and his Party; and even excommunicated some of the most considerable of the *Anti-constitutionairs*; who appealing from that Excommunication to the future Council, continued their Functions. Neither do I believe if even *Clement* XI. had granted the Explanation so warmly, and so obstinately insisted upon by the *Anti-constitutionairs*, that such Condescension, had much contributed towards restoring the Peace of the *Gallican Church*; and if they had not started some other Difficulties, on Purpose to have some specious Pretext, to continue in their Opposition; for a *Party* has so many alluring Charms, that those who are once engaged in it, can scarcely be persuaded to leave it: That of the *Anti-constitutionairs*, had all that could the most flatter our natural Inclinations, in all Ranks and Professions. The Learned,

 who

who were ambitious to appear publickly as ſuch, met among them with the greateſt Encouragement, and were furniſh'd with frequent Occaſions of exerciſing their Talent. A great many of the Clergy, who had till then been bury'd in the Duſt of the Church, began to be taken Notice of, if it was but by their being only accounted *Anti-conſtitutionairs*; thoſe of more Merit found the Secret by the ſame Means, and under the ſame Name, to introduce themſelves into the Palaces of the Great, and the moſt ſelect Companies of the Party, whence, without it, they had been, perhaps, for ever excluded. Their Directors were intruſted with the Direction of the Conſcience of ſeveral Ladies of the firſt Quality, who provided profuſely to the daily Subſiſtence of their Father Confeſſor, whoſe *Confeſſional* made always a very ſplendid Appearance, while thoſe of the *Conſtitutionairs* were cover'd with Duſt, and Cobwebs; for that other Party, pretending to have the Truth on its Side, which they thought every true *Chriſtian* was oblig'd to follow, they us'd to take no Pains, nor to put themſelves to any Inconvenience, to gain *Proſelytes*; beſides, as that Party was chiefly govern'd by *Jeſuits*, who do not like to part with much *Money*, there was little or none *expended* for the Cauſe. The pooreſt *Eccleſiaſticks*, who for ſeveral Years had been oblig'd to live on the *Retribution* of their Maſs, which, in ſome Places, is but 10 *Sols*, beſides what they could get by their daily Aſſiſtance at their *parochial Church*, were ſeen, all on a ſudden, to change a ſcanty and thread-bare *Soutane*, or Gown, which had ſeen many *Luſtres*, for the gay Apparel, *d'un Abbé Coquet de Paris*, of a *Pariſian Abbot*; and with no other Toils, then declaring himſelf *Anti-conſtitutionair*, could find the *Philoſopher's Stone*. The Ladies were ſo elevated at their being tantaliz'd with the Notion, that by reciting with the Prieſt, the *Canon of the Maſs*, (which, to render it eaſy to them, the Prieſt was to ſpeak with a loud Voice, contrary to the Rubrick of the *Roman Church*) they could not only ſay the Maſs, but likewiſe conſecrate the Euchariſt, as well as the *Pope* himſelf, that they ſpar'd nothing to gratify thoſe who had granted them that *ineſtimable Privilege*, of which they were ſo fond, that ſome Ladies, who before could ſcarcely have been perſuaded to hear Maſs once a Week, and then it muſt have been a very ſhort one, elſe they had fainted away; were ſeen every Morning at Church, to ſay two or three Maſſes, while a Prieſt, tho' he had no other Livelyhood, could ſay but one. There was this other very remarkable *Difference*, that they were allow'd to ſay it in *French*, while the Prieſt was not permitted yet to ſay it otherwiſe than in *Latin*; ſo that the *Anti-conſtitutionairs* had found a Secret which had not been imagin'd ever ſince the Extinction of *Paganiſm*, to eſtabliſh among themſelves *Women Sacrificators*. Another ſignal Advantage for the poor Brothers *Anti-conſtitutionairs*, was, that, like *Capuchin Fryars*, they could have travell'd throughout the whole Kingdom without *Money*, and nevertheleſs wanted for nothing; for they were ſure of being kindly receiv'd, and very well entertain'd, by the moſt wealthy among them, on that ſingle *Ticket*, ANTI-CONSTITUTIONAIRS.

The religious Orders eſpous'd each their Party, the *Benedictins*, and almoſt all the other *Monks* who had any *Revenues*, declar'd againſt the *Bull*; and all the *Fryars*, eſpecially thoſe of the Order of St. *Francis*, for the *Bull*; and among theſe the *Capuchin Fryars*, call'd, in *France*, *les Valets de Pied des Jeſuites*, the Running-Footmen of the *Jeſuits*, were the moſt zealous *Conſtitutionairs*. Tho' among them all, there were ſome Convents *mi-partite*, *i. e.* that in thoſe Convents there were ſome *Conſtitutionairs*, and ſome *Anti-conſtitutionairs*, which ſometimes caus'd a great Confuſion among them; even the *Monaſteries* of *Nuns* were not free from it; for as they had alſo took Party in the Cauſe, there happen'd often ſuch warm Diſputes among them, that they ſometimes ended in an open Rupture, attended with Blows, leaving in the Field of Battle a vaſt Number of torn Veils, and ſome bloody Noſes; and then thoſe among them who were more tir'd of their Confinement than they were good Partiſans, apply'd to the General of the Order, or to the *Dioceſan*, if they were under his Juriſdiction, and knew him of the ſame Party, for Leave to quit their *Cloyſter*, where they could live no longer with a *ſafe Conſcience*.

Things continu'd in this Fluctuation in the *Gallican Church*, during the whole Regency of the late Duke of *Orleans*, and even for ſome Time after; till the late Duke of *Bourbon*, who, at the Regent's Deceaſe, had taken the Reins of the Government, and who was influenc'd by M. *Chauvelin*, who had always been for the *Bull*, took Cognizance of that Affair, and made the *Conſtitutionairs* breed a-new, by taking the *Jeſuits* into his Favour, and Meaſures to have the *Bull Unigenitus* receiv'd throughout the whole Kingdom, baniſhing thoſe who prov'd refractory. In this Turn of Fortune, the Archbiſhop of *Paris* appear'd again wavering, and a ſecond Acceptation of the *Bull* could have been expected from him, had not his Council repreſented to him, that by ſhewing ſo much Inſtability in his Sentiments, he would prepare Matter of Laughter to his Enemies, and be deſpis'd by both Parties; that his Eminence had put himſelf entirely out of Power of ever recanting with the leaſt Appearance of Honour, by having publiſh'd ſo many *paſtoral Inſtructions*, in Defence of its former Retractation. His Eminence yielded to theſe Perſuaſions, which were, without doubt, very reaſonable, and continu'd, at leaſt in Appearance, a very good *Anti-conſtitutionair*.

To provide for the Relief of thoſe of their Brethren who during this new Storm were ſent to Exile, the *Anti-conſtitutionairs* appointed truſty Queſtmen, who were to go, among the Party, to collect the charitable Gifts which every individual Member (in a Condition to do it) was to contribute towards this Relief; by which Means, they gather'd immenſe Sums of Money, which they diſtributed to thoſe in Affliction, with a great deal of Generoſity, Compaſſion, and Œconomy; entruſting with the Money none but thoſe on whoſe Probity, Prudence, and Secreſy, they could entirely rely; I myſelf have travell'd from *Paris* to *Lyons*, in my Journey to *Italy*, at the latter End of 1725, with one of theſe truſty Friends and Œconomiſts, who was going to viſit thoſe of his Brethren who were baniſh'd into the *Sennonois*, *Auxerois*, *Burgundy* and *Lionnois*; and as I have never been ſuſpected by either Party, becauſe I eſpous'd none, tho' very well known to both, he made no Scruple to introduce me to thoſe of his Friends he viſited on the Road; complimenting me often, that I could be of very great Service to them, would I but declare in their Favour, which I have always thought fit to decline, tho', in a great many Particulars, I approve their Conduct, and blame it in ſome others: For their Requeſt to the *Pope* was certainly very juſt, if founded on juſt Principles, at leaſt in outward Appearance it was very agreeable to the Practice of the primitive Church, which has never exacted that paſſive Obedience from the *Fideles*, as we'll ſhew, in our Treatiſe of the *Church*, under the Letter *C*. There reign'd among them a very great Unanimity, Diſintereſtedneſs, and unfeigned Charity; and the vaſt Number of very learned Men, of all Orders, that Party was compos'd of, could have render'd it reſpectful to a Perſon who had been neither for or againſt the *Bull Unigenitus*. Very few of them were guilty of Diſſimulation or Hypocriſy, and their Converſation was open, mild, and agreeable; free from thoſe extraordinary Heats, and Invectives, which, in other Caſes, ſeem inſeparable from the Spirit of Party; as often as I have been among them, (and I was once a whole Summer at the *Bergeries*, a Country Seat of the Abbot *De Caumartin*, then Biſhop of *Vann* in *Britanny*, among ſeveral of the moſt conſiderable of that Party) and all that while never heard any of them ſpeak the leaſt diſreſpectfully of their Adverſaries; and when the bitterest Satire written against them

them, was brought to them, I have always heard them admire it, if it was wrote with Judgment, Spirit, and Erudition; and if not, they said nothing: As they fear'd nothing, they were not afraid to speak before any Body; or rather, they had all too much of a *Christian* Courage, and Intrepidity, to be afraid of any Thing; for I have seen them receive the News of the greatest *Disappointments* with that Tranquillity and Calmness, which had been admir'd in the *Christians* of the primitive Church, while conducted to the *Scaffold*. The *Books* in their *Defence*, were written in so florid, elegant, tho' fluid and easy Style, that I have read them over several Times, and always with the same indicible Pleasure. When they could grant any *Favour*, they did it with that Chearfulness and Satisfaction, as if they had receiv'd it themselves; and when they could not, they seem'd really sorry, and vex'd.

As for the *Constitutionairs*, they had very little other Merit than that of their Cause. There were certainly, among them, as among their *Antagonists*, a vast Number of Persons eminent for their Birth, Learning, Piety, and Virtue; but, for the Generality, they were not so moderate, so disinterested, nor so charitable, as the others; Self-interest was the *predominant Passion* among them, and they always spoke with that Caution, even before their most sincere Friends, as if they were afraid of their own *Shadow*; trusting more to the *Authority* and *Power* of the *Prince*, than to the *Equity* of their *Cause*. The Bishop of *Luçon* himself, certainly, one of the best among them, could not help expressing his Uneasiness about it; and he has often complain'd, in my Hearing, of the Unworthiness of those who pretended to be the most *zealous Asserters* of the *Power* and *Authority* of the *Roman Church*; he us'd to blame highly the loud *Clamours*, and bitter *Invectives* of the *Fryars*, and other Understrappers *Constitutionairs*, whom he always look'd upon with the greatest *Scorn* and *Contempt*; saying, that the Cause of the Church was not to be defended with such *weak Weapons*, and in so scandalous a Manner. But, however, with all these seeming Disadvantages, and according to his *Prophecy*, (*rira bien qui rira le dernier*) that Party gain'd once more the upper Hand; and the late Pope *Benedict* XIII, who wish'd for nothing more than to see all those Disputes in the *Gallican Church* terminated in an amicable Manner; gave, at last, some Satisfaction to the Archbishop of *Paris*, that, thro' the Intreaties of that *excellent Minister*, Cardinal *De Fleury*, he re-accepted, in a Manner, before his Death, the *Bull Unigenitus*; tho' we have not been capable yet to know what Sort of *Temperament* was us'd by *Benedict* XIII. to engage him to it; for that *Pope* (one of the best who was ever seated in the *Roman* Chair) had a secret Abhorrence of the *despotick Power*, several of his *Predecessors* had usurp'd; and it is very certain, that he blamed, in a great many Respects, the *too severe Conduct* of the Court of *Rome*, in the Affair of the *Bull*, for which he could not escape being accus'd, during his *Pontificate*, of being too indulgent to the *Jansenists*, as if he had been one himself. 'Tis true, that he found so great a *Contradiction* between the Humility of *Christ*, of whom he thought himself to be the Vicar on Earth, and the Pomp of the Court of *Rome*, that he would, when he could, despise the one to practise the other.

The Example of the Cardinal *De Noailles*, as to his new Acceptation of the *Bull*, was follow'd but by very few of his Partisans; and as his *Eminence* surviv'd but a few Months to that Acceptation, I have not heard how far his Inconstancy in this Affair affected his *Reputation*; for it is not the Practice in *France* to rake the Ashes of the Dead, hence to have Occasion to asperse their *Reputation*; all I know, is, that the Party of the *Anti-constitutionairs* is yet almost as *potent* as ever, tho' very silent.

In past Ages the *Bulls* of *Popes* were of a greater Weight in *France*, and far more respected, than they have been ever since, under *Philip the Fair*. *Boniface* VIII. having first but threaten'd to *excommunicate* that great Prince, for raising the current Coin of his Kingdom a little above its intrinsick Value, (forc'd to it by the urging *Necessities* of the *State*) *Philip* began to open his Eyes, and perceiv'd (but not too late) that the Court of *Rome*, who should have contented her self with the fishing of *Souls*, have too long fish'd in the *Temporality* of Princes, and usurp'd a Power even above that which Sovereigns have receiv'd immediately from *God*. Therefore he thought fit to pare *Boniface*'s Nails, and to let him know, that tho' the next Day after his *Intronization* he had appear'd with a *Sword* by his Side, as if he had both the spiritual and temporal Power, and flatter'd himself that he had in his Hand the *universal Monarchy*, and could depose Princes at Pleasure; he nevertheless was nothing else but what those Princes had been pleas'd to make him, and what he should cease to be, whenever they pleas'd. This Hint of *Philip* procur'd the *Fulmination* of a *Bull* of *Excommunication* from *Boniface*, who therein put his whole Kingdom under an *Interdict*, absolved his Subjects from their Oath of Allegiance, and gave the Kingdom of *France* to the first who would invade it. *Philip* appeal'd from this *Bull*, as of an Abuse, to the future Council, and sent *Philip* of *Nogaret* in Ambassy to *Boniface*, then at *Avignon*; who hearing *Boniface* speak in an arrogant Manner of the King his Master, struck the *Pope* in the Face with his Hand arm'd with an iron *Gantlet*, for *Philip* was then arm'd *cap-a-pee*. This Presumption of *Philip* was punish'd by another *Bull* of *Boniface*, full of Scurrilities and Invectives against the King of *France*, whom he threatens *to govern with an iron Rod, and to break as an earthen Vessel*. But this *Bull* was as little minded by the King, as the former; and seeing that *Boniface* was *incorrigible*, he found himself oblig'd, at last, to send the same *Nogaret*, at the Head of an Army, who besieg'd *Avignon*, took it by Storm, seiz'd the *Pope*, and had him led thro' the Streets, mounted on an Ass, his Face towards the Tail, and afterwards confin'd Prisoner. *Boniface* died in his Confinement, three Days after this Mock-triumph, while he was writing another *Bull* against *Philip the Fair*.

Ever since this fatal *Epocha*, the Court of *Rome* has lost a great deal of Ground in *France*; and the *French*, at present, hear the Vatican Thunder, with as much Indifference as the other *Roman Catholick* Countries are frighted at it.

Nor do the *Spaniards* admit the Pope's *Bulls* implicitly; but having been examin'd by the King's Council, if there appear any Reason for not executing them, Notice thereof is given to the *Pope* by a Supplication; and the *Bull*, by this Means, remains without Effect.

To fulminate *Bulls*, is to make Publication thereof by one of the three Commissaries, to whom they are directed; whether he be the Bishop, or Official. This Publication is sometimes oppos'd; but when it is, the Fault is not charg'd on the *Pope* who issu'd the *Bull*, but an Appeal is brought to him against the Person who is suppos'd to make it.

The *Bull in Cœnâ Domini*, is a *Bull* read every Year on *Maunday-Thursday*, in the *Pope*'s Presence; containing various *Excommunications* against *Hereticks*, those who disobey the *See*, who disturb or oppose the Exercise of Ecclesiastical Jurisdiction, *&c.* *Leo* X. caus'd *Luther* to be *excommunicated* in it, by Name; which *Bull* is but a pure Formality, and a vain Ceremony.

After the Death of the *Pope*, no *Bulls* are dispatch'd during the Vacancy of the See; to prevent any Abuses thereof, as soon as the *Pope* is dead, the Vice-Chancellor of the *Roman* Church takes the Seal of the *Bulls*, and, in the Presence of several Persons, orders the Name of the deceas'd *Pope* to be eras'd, and covers the Out side, on which are the Heads of St. *Peter* and St. *Paul*, with a linnen Cloth, sealing it up with his own Seal, and giving it, thus cover'd, to the Cham-

Chamberlain, to be preserv'd, that no *Bulls* may be seal'd with it in the mean Time.

There are other *Bulls*, besides those of the *Pope*, and, among the rest, the GOLDEN BULL, (thus called from a golden Seal fix'd to it, such as were us'd by the Emperors of *Constantinople*, annex'd to their Edicts. This Denomination was peculiarly given to an Ordinance, or Statute, made by the Emperor *Charles* IV. in 1356, said to have been drawn up by that celebrated Lawyer *Bartoli*, and still reputed the *Magna Charta* of the Empire. Till the Publication of the *Golden Bull*, the Form and Ceremonies of the Election of an Emperor were dubious, and undetermin'd; and the Number of Electors not fix'd. This solemn Edict regulated the Functions, Rights, Privileges, and Pre-eminencies of the Electors. The Original, which is in *Latin*, is kept at *Frankfort*, where the Election of the Emperor is to be made. On the Backside are several Knots of black and yellow Silk; to which hangs a *Bull*, or Seal of Gold. This Ordinance, containing thirty Articles, was approv'd of by all the Princes of the Empire, and remains still in Force. The Election of the Emperor is by it declar'd to belong to seven Electors; three of them *Ecclesiasticks*, *viz.* the Archbishop of *Mentz*, *Treves*, and *Cologne*; and four *Seculars*, *viz.* the King of *Bohemia*, Prince *Palatine*, Duke of *Saxony*, and Marquis of *Brandenburg*.

CALENDAR.

CALENDAR, (from *Calendæ*, a Word antiently wrote in large Characters, at the Head of each Month) is a Distribution of Time, accommodated to the Uses of Life; or (as defin'd in the Schools) *Dierum ac Mensium, ex quibus annus constat, omniumque, quæ Diebus, ac Mensibus adjuncta sunt, Ordinatio:* An Order of the Days and Months which compose the Year, and of all that's added to those Days and Months. Therefore we must consider, in the *Calendar*, the Day, the Week, the Month, the Year, the Bissext, the Cycle, both Solar and Lunar, and all that has any Relation to the Doctrine of Time. We'll begin with the *Day*.

The DAY is a Division of Time drawn from the Appearance and Disappearance of the Sun. The *Day* is of two Kinds, *artificial*, and *natural*.

Artificial Day, is the Stay of the Sun above the Horizon, in Opposition to which, the Time of Darkness, or the Sun's Stay below the Horizon, from setting to rising again, is call'd *Night*.

Natural Day, call'd also *civil Day*, is the entire Revolution of the Sun from East to West, whereby it returns to the same Point of the *Heavens* whence it had departed; or the Time wherein the Earth makes a Rotation on its Axis.

This Revolution of the Sun is commonly divided into twenty-four equal Parts, call'd *Hours*; each *Hour* into sixty *Minutes*; each *Minute* into sixty *Seconds*; each *Second* into sixty *Thirds*, &c.

There are divers Kinds of *Hours*, us'd by Chronologers, Astronomers, Dialists, &c. Sometimes *Hours* are divided into *equal* and *unequal*.

Equal Hour, is the twenty-fourth Part of a Day and Night precisely; that is, the Time wherein fifteen Degrees of the Equator mount above the Horizon; these are also call'd *equinoctial Hours*, because measur'd on the *Equinoctial*; and *astronomical*, because us'd by Astronomers. They are also differently denominated, according to the Manner of accounting them in different Countries.

Astronomical Hours, are *equal Hours*, reckon'd from Noon, or Mid-day, in a continu'd Series of twenty-four. *Babylonish Hours*, are *equal Hours*, reckon'd from Sun-rise, in a continu'd Series of twenty-four. *European Hours*, are *equal Hours*, reckon'd from Midnight; twelve from thence to Noon, and from Noon to Midnight twelve more. *Jewish* and *Turkish*, or *planetary*, or *antient Hours*, are twelfth Parts of the *artificial Day* and *Night*; hence, as it is only in the Time of the *Equinoxes* that the *artificial Day* is equal to the *Night*; it is then, only, that the *Hours* of the *Day* are *equal* to those of the *Night*; at other Times they will be always either *increasing*, or *decreasing*. They are call'd *antient*, or *Jewish Hours*, because us'd by the *Antients*, and still among the *Jews*. They are call'd *planetary Hours*, by reason the Astrologers pretend that a *new Planet* comes to predominate every *Hour*; and that the *Day* takes its Denomination from that which predominates the first *Hour* thereof; as Morning from the *Moon*, &c.

We must observe here, that among the *Jews* there were four *Hours* of the Day especially appointed for their Prayers, *viz. prima, tertia, sexta*, and *nona*. *Prima, prime*, or the *first Hour*, began at Sun-rising. *Tertia, tierce*, or the *second Hour*, answer'd to our Nine in the Morning. *Sexta, sext*, or the *third Hour*, to our Twelve, or Noon. And *Nona, none*, or the *fourth Hour*, to our Three in the Afternoon. The whole Interval of *three Hours*, allow'd to two of these *Hours* of Prayers, *viz.* between *tertia* and *sexta*, retain'd the Name of *first Hour*, *viz.* between *tertia* and *sexta:* As when, for Example, 'tis mention'd Mark xv. 25. *And it was the third Hour, and they crucify'd him.* And John xix. 14, 16. *Christ* is said to have been, *about the sixth Hour*, deliver'd to the *Jews* to be crucify'd. Which two Passages, tho' implying an apparent Contradiction, can be reconcil'd in this Manner, *viz.* that *Christ* had been deliver'd to the *Jews*, by *Pilate*, in the *third Hour*, if the *Hour* be taken for the Interval between *tertia* and *sexta*; and about the *sixth Hour*, if it be taken for the *Hour* of *Prayers*, which was then very near.

Unequal, or *temporary Hours*, are twelfth Parts of the *artificial Day* and *Night*. The *Obliquity* of the *Sphere* renders these more or less unequal at different Times; so that they only agree with the *equal Hours* at the Time of the *Equinoxes*.

The *Days* compose the WEEK, which is a continual Succession of *seven Days*.

The Origin of this Division of *Weeks*, or of computing Time by *Sevenths*, is greatly controverted. Some will have it to take its Rise from the four Quarters, or Intervals of the *Moon*, between her Changes or *Phases*; which being about seven Days distant, gave Occasion to the Division. Be this as it will, the Division is certainly very antient. The *Syrians*, *Egyptians*, and most of the oriental Nations, appear to have us'd it from all Antiquity, tho' it did not get Footing in the West till *Christianity* brought it in. The *Romans* reckon'd their Days, not by *Sevenths*, but by *Ninths*; and the antient *Greeks* by *Decades*, or *Tenths*.

But, however, the Division of the *Week* into seven Days, is, in my Opinion so antient, that it ought to be attributed to God; who rested himself from his Work the seventh Day. Hence the *Jews* took Occasion, to appoint that same Day for a Day of Rest, which they called *Sabbath*; and which Christians have transferred to *Sunday*, in Honour of Christ's Resurrection. The *Jews* used also to give the Name of *Sabbath* to the whole *Week*: Hence this of the *Pharisee*, Luke xviii. 12. *Jejuno bis in Sabbato*, I fast twice in the *Sabbath*, or *Week*: Hence also, *Matt.* 21. *v.* 1. and elsewhere, the first of the *Sabbath*, is the first Day of the *Week*. But in the *ecclesiastical Rite*, the first Day of the *Sabbath*, or *Sunday*, is

is called *feria prima*, the *first feria*, to which succeeds the *second feria*, &c. So that as among the *Jews*, the sixth Day of the *Week* was *Parasceve*, or the Preparation to the *Sabbath*; likewise the *Sabbath* of the *Jews*, is among the *Christians*, the *Parasceve*, or Preparation for *Sunday*.

Some Authors will have the Use of the *Weeks*, among the other eastern Nations, to have proceeded from the *Jews*; but with little Appearance of Probability. It is with better Reason, that others suppose the Use of *Weeks* among the Heathens of the East, to be a Remain of the Tradition of the Creation, which they had still retained with divers others. This is the Opinion of *Grotius*, *de verit. Relig. Christ. Lib.* 1. who likewise proves, that not only throughout the East, but even among the *Greeks*, *Italians*, *Celtæ*, *Sclavous*, and even the *Romans* themselves, the Days were divided into *Weeks*; and that the seventh Day was in extraordinary Veneration.

Hence *Sunday*, among the Heathens, is the *Day of the Sun*, which is followed by the *Day of the Moon*, &c. each Day having its Appellation from a Planet, which they imagined, presided to it; hence if *Saturn* was imagined to preside to the first Hour of *Saturday*, *Jupiter* was likewise supposed to preside, or influence the second Hour; *Mars* the third, *Sol* the fourth, *Venus* the fifth, *Mercury* the sixth, the *Moon* the seventh; and again, *Saturn* the eighth, the fifteenth, and twenty-second; *Jupiter* the 23d; *Mars* the 24th: So that *Sol* presided to the first Hour of *Sunday*, *Venus* to the second, *Mercury* the third, the *Moon* the fourth, *Saturn* the fifth, *Jupiter* the sixth, *Mars* the seventh, and *Sol* again the eighth, the 15th, the 22d; *Venus* the 23d, *Mercury* the 24th Hour: So that the *Moon* should influence the first Hour of the following Day; and thus of all the other Planets and Days of the *Week*. Hence it happened that the Day of *Saturn*, or *Saturday*, is succeeded by that of *Sol* which we call *Sunday*, and which is the first Day of the *Week*; this is followed by the second, which is the Day of the *Moon*; the third of *Mars*, the fourth of *Mercury*, the fifth of *Jupiter*, the sixth of *Venus*; and the seventh of *Saturn*, called *Sabbath* by the *Jews*.

Dion Cassius gives for Reason of this Denomination, that it being observed that the Harmony of the Diatessaron, which consists in the Ratio of 4 to 3, is of great Force and Effect in Musick; it was judged meet to proceed directly from *Saturn* to the *Sun*, because there are three Planets between *Saturn* and the *Sun*, and four from the *Sun* to the *Moon*.

From the *Week*, we'll pass to the *Month*, which is a twelfth Part of the Year; or the Space of thirty Days, or thereabouts, which the *Moon* takes to accomplish its Course. The Days of the *Month* among the *Romans*, to whom, as well as to the *Greeks* (the Use of *Weeks* seem to have been utterly unknown, before the Establishment of the Christian Religion) took their Denomination from the *Calends*, *Nones*, and *Ides*; which Manner of computing, is still practised in the Court of *Rome*.

The *Calends* happen the first Day of each *Month*. Their Appellation is derived from the *Greek*, καλεω, *Voco*, I call; because that Day the People of *Rome* assembled at the Capitol, to learn from the *Pontiffs*, what was to be done during the whole Month, with regard to divine and human Affairs.

The *Greeks* had another Manner of computing their *Months*, viz. from *Neomenia*, or the New *Moon*, for they had no *Calends*; whence, *Suetonius* says, in the Life of *Augustus*, c. 8. That when that Emperor, was pleased to mention something which he thought would never be accomplished; he used to say, that they would be accomplished at the *Greek Calends*.

The *Nones* which happened the fifth of the seventh Day of the Month, were thus called, either from the Negation *Non*, *no*, because no Divinity was worshiped in the *Nones*; or as *New*, since in those Days the Laws were to be confirmed by a new Promulgation, or, which is more likely, because the *Nones* happened nine Days before the *Ides*.

The *Ides* fall the thirteenth or fifteenth Day of the *Month*, i. e. eight Days after the *Nones*. They are called *Ides*, from the obsolete Word *Iduare*, i. e. *dividere*, to divide, for they divide the *Month* into almost two equal Parts; whence *Horace*, *L.* 4. *Ode* 11.

Idus tibi sunt agendæ
Qui dies mensem veneris marinæ,
Findit Aprilem.

All which the better to inculcate into our Memory, the Schools have composed the following *Tetrastich*.

Maius sex nonas, October, Julius & Mars:
Quatuor at Reliqui: dabit idus quilibet octo,
Unde dies alios omnes dic ante Calendas,
Quas retro numerans, sumes a mense sequenti.

i. e. The *Month* of *May*, as well as *October*, *July*, and *March*, have six Days before the *Nones*; in which, what's done the first Day, is said to be done in the *Calends*; what's done the second, is said to be done the sixth of the *Nones*, then the fifth, fourth, third, and *Pridie Nonas*, or the Day before the *Nones*; lastly, what's done the seventh Day, is said to be done in the *Nones*. The other *Months*, reckon but four Days before the *Nones*; so that what's done the first Day of those *Months*, is said to be done in the *Calends*. Then follows *Quarto Nonas*, or the fourth of the *Nones*, the third, the *Pridie Nonas*, or Day before the *Nones*, and then *Nonis*, or the *Nones*. In each *Month*, the eight Days after the *Nones* are numbered, or called *ante idus*, or before the *Ides*; so that those *Months* which have the *Nones* the fifth Day, have the *Ides* the thirteenth Day; and those which have the *Nones* the seventh, have the *Ides* the fifteenth. In those which have the *Nones* the fifth Day, the sixth Day is called *octavo idus*, or before the *Ides*; and in the others which have the *Nones*, the seventh Day, the eighth, is also called *octavo idus*, or before the *Ides*.

The other Days after the *Ides*, take their Denomination from the *Calends* of the *Month* following; so that if something be done the sixteenth of *March*, 'tis said to be done the seventeenth of the *Calends*, or before the *Calends* of *April*; for in that Number must be included, and the very Day of the *Calends*, and the Day in which something is said to be done; whence the sixteenth of *April*, is called the sixteenth of the *Calends* of *May*, because *April* has but thirty Days, but *March* thirty one. Therefore to understand well this Manner of reckoning the *Months* by *Calends*, *Nones* and *Ides*; we must know which *Months* have thirty one Days, and which have but thirty; which can be easily retained in our Memory, if we be pleased to learn the following Verses:

April ter denos, Jun, Septemberque, November;
Uno plus Reliqui: viginti Februus octo,
Sed si bissextus fuerit, superadditur unus.

i. e. *April*, *June*, *September*, and *November*, have thirty Days, and other *Months* thirty-one, *February* excepted; which, in the common Years, has but eight and twenty, and nine and twenty in the *Bissextile* Year.

MONTHS are divided into *Solar* and *Lunar Months*: A *Solar Month*, is the Space of Time, wherein the *Sun* moves through one entire Sign of the *Ecliptick*; hence if Regard be had to the *Sun's* true Motion, the *Solar Months* will be unequal; since the *Sun* is longer in passing through the Winter Signs, than thro' those of the Summer: But as he constantly travels through all the twelve in 365 Days, 5 Hours, and 49 Minutes; the Quantity of a mean *Month* will be had by dividng the Number by 12; on this Principle the Quantity of a *Solar Month*, will be found 30 Days, 10 Hours, 29 Minutes, 5 Seconds.

Lunar Months, are either *Synodical*, *Periodical*, or *illuminative*. *Lunar Synodical Month*, called

alſo abſolutely *Lunar Month*, and *Lunation* is the ſpace of Time between two Conjunctions of the *Moon* with the *Sun*; or between two new *Moons*. The Quantity of the *Synodical Month* is 29 Days, 12 Hours, 44′ 3″ 11‴. *Lunar Periodical Month*, is the Space of Time wherein the *Moon* makes her Round through the *Zodiack*; or wherein ſhe returns to the ſame Point. The Quantity of this *Month* is 27 Days, 7 Hours, 43′ 8″. The antient *Romans* made uſe of *Lunar Months*, and made them alternately of 29 and 30 Days; and, as we have obſerved already, marked the Days of each *Month* by three Terms, viz. *Calends*, *Nones*, and *Ides*. *Lunar illuminative Months*, is the Space from the firſt Time of her Appearance after New *Moon*, to her firſt Appearance after the New *Moon* following. Hence as the *Moon* appears ſometimes ſooner after the New *Moon*, and ſometimes later; the Quantity of the *illuminative Month* is not always the ſame. By this *Month* the *Turks* and *Arabs* go.

There is alſo *Aſtronomical Month*, which is that meaſured by ſome exact Interval, correſponding to the Motion of the *Sun* or *Moon*. Such are the *Solar* and *Lunar Months* abovementioned: But theſe *Months* can be of no uſe in civil Life; where it is required that the *Months* begin and end on ſome certain Day; for this Reaſon Recourſe is had to another Form of *Months*, called *Civil* or *common Months*; which is an Interval of a certain Number of whole Days, approaching nearly to the Quantity of ſome *Aſtronomical*, either *Lunar*, or *Solar Months*. *Civil Months* are various according to the *Aſtronomical Months*, they are accommodated to. For *Civil Lunar Months* are to conſiſt alternately of 29 and 30 Days. Thus will two *Civil Months* be equal to two *Aſtronomical* ones, abating for the odd Minutes; and conſequently the New *Moon* will be hereby kept to the firſt Day of each ſuch *Civil Month*, for a long Time together. However, to make them keep conſtant Pace with the *Civil Months*; at the End of each 948 *Months*, a *Month* of 29 Days muſt be added; or elſe every thirty-third *Month*, muſt conſiſt of 30 Days. This was the *Month* in *Civil*, or common Uſe among the *Jews*, *Greeks*, and *Romans*, till the Time of *Julius Cæſar*. *Civil Solar Months*, are to conſiſt alternately of 30 and 31 Days; excepting one *Month* of the twelve, which for every fourth Year ſhould conſiſt of thirty Days, and the other Years of twenty-nine. This Form of *Civil Months* was introduced by *Julius Cæſar*.

Under *Auguſtus* the ſixth *Month*, till then from its Place called *Sextilis*, was denominated *Auguſtus*, in honour of that Prince, and to make the Compliment yet greater, a Day was added to it. So that it now conſiſted of 31 Days, though till then, it had only contained 30, to make up for which a Day was taken from *February*; ſo that hence forward it only conſiſted of 28 Days, and every third Year of 29; though before it had ordinarily conſiſted of 29 Days, *&c.* and ſuch are the *Civil*, or *Calendar Months* abovementioned, and which now obtain through *Europe*.

Of this Form of *Months* the *Year* is compoſed; and which is a *Cycle* of ſeveral *Months*; uſually twelve.

YEAR, is more properly defined the Space of Time wherein the *Sun* moves, through the twelve Signs of the *Ecliptick*; and produces by its Acceſs to or Receſs from each of the *Tropics*, the annual Variety of the Seaſons, *viz.* the *Spring*, *Summer*, *Autumn*, and *Winter*. This by the Obſervations of *Caſſini*, *Bianchini*, and *de la Hire*, contains 365 Days, 5 Hours, and 49 Minutes; which is the Quantity of the *Year* aſſumed by the Authors of the *Gregorian Calendar*. So that the *Sun* moves every Day, through 59 Minutes and 8 Seconds of a Degree.

But in the *Civil* or *Popular* Account, this *Year* only contains 365 Days; except every fourth, which contains 366. This *Year* is called *Solar*, which is either *Aſtronomical* or *Civil*.

The *Solar Aſtronomical Year* is determined preciſely by the Obſervations of *Aſtronomy*, and is of two Kinds, *Tropical*, and *Siderial* or *Aſtral*. The *Tropical* or *natural Year* is the Time, as before obſerved, which the *Sun* employs in paſſing through the *Zodiack*. *Siderial*, or *Aſtral Year*, is the Space of Time wherein the *Sun*, going from any fixed *Star*, returns to the ſame. This conſiſts of 365 Days, 6 Hours, 10 Minutes.

Civil Year, is that Form of *Year* which each Nation has contrived to compute Time by; or the *Civil* is the *Tropical Year*, conſidered as only conſiſting of a certain Number of whole Days; the odd Hours and Minutes being ſet aſide, to render the Computation of Time in the common Occaſions of Life more eaſy. Hence as the *Tropical Year* is 365 Days, 5 Hours, 49 Minutes, the *Civil Year* is 365 Days. And hence alſo as it is neceſſary to keep Pace with the Heavens, it is required that every fourth *Year* conſiſts of 366 Days; which makes the *Civil Year* to be either *Common*, or *Biſſextile*.

The *Common Civil Year*, is that conſiſting of 365 Days; and the *Biſſextile*, or *Leap Year*, that of 366 Days; or which has a Day extraordinary, which Day is called *intercalary*, or *Biſſextile* Day. *Julius Cæſar* to make the *Civil Year* keep Pace with the *Tropical* one, was the firſt who appointed this *intercalary* Day, by contriving that the ſix Hours which the former came ſhort of the latter, ſhould in four *Years*, make a whole Day, and be added after the twenty fourth of *February*, which was their ſixth of the *Calends* of *March*. Hence as in that *Year*, they reckoned this Day twice over, or had *bis ſexto Calendas*, the *Year* itſelf came to be called *biſſextus*, and *Biſſextile*. The *intercalary* Day, however, among us, is not got in by telling the twenty fourth of *February* twice over; but by adding a Day after the twenty-eighth of *February*, which *Month*, that *Year*, comes to contain twenty-nine Days.

The *Lunar Year*, is a Syſtem of twelve *Lunar Months*; hence from two Kinds of *Synodical Lunar Months*, there ariſe two Kinds of *Lunar Years*; the one *Aſtronomical*, the other *Civil*. The *Lunar Aſtronomical Year*, conſiſts of twelve *Lunar Synodical Months*; and therefore contains 354 Days, 8 Hours, 48 Minutes, 38 Seconds, 12 Thirds. *Lunar Civil Year* is either *Common* or *Emboliſmick*. The *Common* conſiſts of twelve *Lunar Civil Months*; and therefore contains 354 Days. The *Emboliſmick*, or *intercalary*, conſiſts of thirteen *Lunar Civil Months*.

Note, As the Difference between the *Common Lunar Civil* YEAR, and the *Tropical Year* is 11 Days, 5 Hours, and 49 Minutes; to have the former keep Pace with the latter, there are 34 Months of thirty Days, and four Months of 31 Days each, to be inſerted in every *Lunar Year*; which ſtill leave behind them an Appendix of 4 Hours, 21 Minutes; which in ſix Centuries make nearly a Day more.

Thus far we have conſidered *Years*, with a View to the Principles of *Aſtronomy*, whereon the Diviſion is founded. By this the various Forms of *Civil Years*, that have antiently obtained, or ſtill do obtain, in divers Nations, are to be examined; beginning by the antient *Roman Year*, which was a *Lunar Year*; and which, as firſt ſettled by *Romulus*, only conſiſted of ten Months; viz. *March*, the firſt, containing 31 Days; *April* 30, *May* 31, *June* 30. *Quintilis* 31. *Sextilis* 30. *September* 30, *October* 31, *November* 30, *December* 30; in all 304 Days; which came ſhort of the true *Lunar Year* by 50 Days, and of the *Solar*, by 61 Days. Hence the Beginning of *Romulus's Year* was vague and unfixed to any preciſe Seaſon; which Inconvenience to remove, that Prince ordered ſo many Days to be added yearly, as would make the State of the Heavens correſpond to the firſt Month, without incorporating theſe additional Days, or calling them by the Name of any Month. He conſecrated the firſt of his ten Months to *Mars*, whence its Appel-

Appellation *March*, the second to *Venus*, &c. as we learn it from *Ovid*, *Lib.* 1. *Fast.* in the following Verses:

Martis erat primus mensis, Venerisque secundus.
Hæc generis Princeps; ipsius ille Pater.
Tertius à senibus; Juvenum de nomine quartus;
Quæ sequitur numero turba notata suo est.

Numa Pompilius corrected this irregular Constitution of the *Year* by *Romulus*, and compos'd two new Months, *January* and *February*, of the Days that were us'd to be added to the former *Year*; the first was instituted in Honour of *Janus*, and the second in Honour of *Februus*, the God of Lustration. Hence *Ovid*, in the Book abovementioned,

At Numa nec Janum, nec avitas præterit umbras;
Mensibus antiquis, præposuit que duos.

Thus *Numa*'s *Year* consisted of 12 Solar Months, which he adjusted to so many Lunar Months; 6 of them being of 30 Days, and the other 6 of 29 Days, in all 354 Days.

But as in this Number of Days the entire Revolution of the Sun could not be accomplish'd, *Julius Cæsar* thought proper to have 11 Days and 6 Hours added to it, and thereby made the *Year* to consist of 365 Days, and 6 Hours, beginning it at the Month of *March*; which *Year* was call'd, from his Name, *Julian Year*. The Months thereof stood thus, *January*, 31 Days; *February*, 28; *March*, 31; *April*, 30; *May*, 31; *June*, 30; *July*, (call'd before *Quintilis*, because the 5*th* Month; but at that Time of the Reformation of the *Calendar* by *Julius Cæsar* call'd *Julius*, by a Law made under the Consulship of *Mark Anthony*) 31; *August*, 31; *September*, 30; *October*, 31; *November*, 30; *December*, 31.

Julius Cæsar was assisted in the Contrivance of this Form of *Year*, by *Sosigenes*, a famous Mathematician, call'd over from *Egypt* for this very Purpose; who, to supply the Defect of 67 Days, which had been lost thro' the Fault of the *Pontifices*, and to fix the Beginning of the *Year* to the *Winter Solstice*, made that *Year* to consist of 15 Months, or 445 Days; which, for that Reason, is us'd to be call'd *Annus Confusionis*, the *Year of Confusion*.

The *Egyptians* had also their *Year* call'd *Nabonassar*, and which is a *Solar Year* of 365 Days divided into 12 Months, of 30 Days each, besides five intercalary Days added at the End. The Names of those Months are, 1. *Thot*; 2. *Paophi*; 3. *Athyr*; 4. *Chojac*; 5. *Tybi*; 6. *Mecheir*; 7. *Phamenoth*; 8. *Pharmuthi*; 9. *Pachon*; 10. *Pauni*; 11. *Epiphi*; 12. *Mesori*; besides the ημεραι επαγομεναι. Hence, as the *Egyptian Year*, in every four Years, loses a whole Day of the *Julian Year*, its Beginning, in the Space of 460 *Years*, runs thro' every Part of the *Julian Year*; which Space elaps'd, they meet again. This *Year* is us'd by *Ptolemy* in his *Almagest*; so that the Knowledge thereof is of Use in Astronomy, for comparing the antient Observations with the modern.

Diodorus Siculus, *Lib.* 1. *Plutarch*, in the Life of *Numa*, and *Pliny*, *Lib.* 7. *c.* 48. informs us, that the antient *Egyptians* measur'd their *Years* by the Course of the *Moon*. At first they were only one Month, then three, then four, like that of the *Arcadians*; and then six, like that of the People of *Acarnania*. Those Authors add, that it is on this Account they reckon such a vast Number of *Years* from the Beginning of the World; and that in the History of their Kings we meet with some who liv'd 1000, or 1200 *Years*. But *Herodotus* is silent on this Point; he only observes, that the *Egyptian Year* consisted of 12 Months, as we have above represented it. Besides, we learn from Scripture, that from the Time of the Flood, the *Year* was compos'd of 12 Months; *Cham*, consequently, and his Son *Misraim*, the Founder of the *Egyptian Monarchy*, must have had that Custom; and it is no way probable his Descendants should alter it. Add, that *Plutarch* speaks of it with a deal of Uncertainty, and as no more than a Report; and *Diodorus Siculus* as only a Conjecture of I know not what Author's, whom he does not name; and who, in all Probability, might have fram'd this *Hypothesis* to reconcile the *Egyptian* Chronology with that of some other Nations. F. *Kircher*, however, maintains, that, besides the *Solar Year*, there were some of the Names or Cantons of *Egypt*, who us'd a *Lunar* one; and that in the remotest Ages there were some who took a Revolution of the Moon, that is, a Month for a *Year*; and others, who finding the *Year* too short, made it two Months, others three, others four, *&c.*

A late Author observes, that *Varro* has affirm'd of all Nations what we have here quoted of the *Egyptians*; and adds, that *Lactantius* takes him to Task on that Subject. We do not know in what Places of *Varro*, or of *Lactantius*, he has seen this; all we can say, is, that *Lactantius*, *Divin. Inst. Lib.* 2. *c.* 13. where he gives *Varro*'s Opinion, only represents him as speaking of the *Egyptians*. However, St. *Augustine*, *De Civit. Dei*, *Lib.* 15. *c.* 14. shews, that the *Years* of the Patriarchs, mention'd in Scripture, are like ours, and not one of ours equal to ten of theirs, as it appears had been the Opinion of some People.

Upon the *Egyptians* being subdu'd by the *Romans*, they receiv'd the *Julian Year*, tho' with some Alteration; for they still retain'd their antient Months, with the five ημεραι επαγομεναι, and every fourth *Year* answer'd to the 29*th* of *August* of the *Julian Year*. This *Year*, thus reform'd, was call'd *Annus Actiacus*, as being instituted before the Battle of *Actium*.

The *Year* of the antient *Greeks* was *Lunar*, consisting of 12 Months, which at first were 30 Days apiece; then alternately 30 and 29 Days, computed from the first Appearance of the *New Moon*, with the Addition of the *embolismick Month* of 30 Days, every 3*d*, 5*th*, 8*th*, 11*th*, 14*th*, 16*th* and 19*th Year* of a Cycle of 19 *Years*; in order to keep the *New* and *Full Moons* to the same Term of Seasons of the *Year*. Their *Year* commenc'd at the *Full Moon* next after the *Summer Solstice*; the Order, *&c.* of their Months, was thus: 1. Εκατομβαιων, containing 29 Days. 2. Μεταγειτνιων, 30. 3. Βοηδρομιων, 29. 4. Μαιμακτηριων, 30. 5. Πυανεψιων, 29. 6. Ποσειδεων, 30. 7. Γαμηλιων, 9. 8. Ανθεστηριων, 30. 9. Ελαφηβολιων, 29. 10. Μουνυχιων, 30. 11. Θαργηλιων, 29. 12. Σκιροφοριων, 30.

The *Macedonians* had other Names for their Months, so had the *Syro-Macedonians*, *Smyrnæans* and *Tyrians*; so also the *Cypriots*, *Paphians*, and so the *Bithynians*, &c.

The *Macedonian Year* is divided into *antient* and *modern*. The *antient Macedonian Year* is a *Lunar Year*, only differing from the *Attic*, in the Names and Order of the Months; the first *Macedonian* Month agreeing with the *Attic Mæmacterion*. The *modern Macedonian Year* is a *Solar Year*, whose Beginning is fix'd to the first of *January* of the *Julian Year*, with which it perfectly agrees. This *Year* was particularly call'd the *Attic Year*.

The *Jewish Year* is also divided into *antient* and *modern*. The *antient Jewish Year* is a *Lunar Year*, consisting commonly of 11 Months, which alternately contain 30 and 29 Days. It was made to agree with the *Solar Year*, either by the adding of 11, and sometimes 12 Days, at the End of the *Year*, or by an *embolismick* Month. The Names and Quantities of the Months stand thus: 1. *Nisan*, or *Abib*, 30 Days. 2. *Jiar*, or *Zius*, 29. 3. *Siban*, or *Scivan*, 30. 4. *Thamuz*, or *Tamuz*, 29. 5. *Ab*, 30. 6. *Elul*, 29. 7. *Tisri*, or *Ethanim*, 30. 8. *Marchesvam*, or *Bul*, 29. 9. *Cisleu*, 30. 10. *Tebeth*, 29. 11. *Sabat*, or *Schebeth*, 30. 12. *Adar*, in the *embolismick Year*, 30. *Adar*, in the common *Year*, was but 29.

Note, That in the *defective Year* CISLEU was only 29 Days; and in the *redundant Year* MARCHESVAM was 30.

The

The *modern Jewish Year* is likewise *Lunar*, consisting in common *Years* of 12 Months, but of 13 in *embolismick Years*, which in a Cycle of 19 *Years* are the 3*d*, 6*th*, 8*th*, 11*th*, 14*th*, 17*th* and 19*th*. Its Beginning is fix'd to the *New Moon* next after the *autumnal Equinox*. The Names, *&c.* of the Months, are, 1. *Tisri*, containing 30 Days. 2. *Marchesvam*, 29. 3. *Cisleu*, 30. 4. *Tebeth*, 29. 5. *Shebeth*, 30. 6. *Adar*, 29. 7. *Veadar*, in the *embolismick Year* 30. 8. *Nisan*, 30. 9. *Jiar*, 29. 10. *Sivan*, 30. 11. *Thamuz*, 29. 12. *Ab*, 30. 13. *Elul*, 29.

The *Syrian Year* is a *Solar Year*, having its Beginning fix'd to the Beginning of *October* in the *Julian Year*, from which it only differs in the Name of the Months, the Quantities being the same as follows: 1. *Tishrim*, answering to our *October*, and containing 31 Days. 2. *Latter Tishrim*, containing, like our *November*, 30. 3. *Canun*, 31. 4. *Latter Canun*, 31. 5. *Shabat*, 28. 6. *Adar*, 31. 7. *Nisan*, 30. 8. *Ayiar*, 31. 9. *Haziram*, 30. 10. *Tamuz*, 30. 11. *Ab*, 31. 12. *Elul*, 30.

The *Persian Year* is likewise a *Solar Year*, of 365 Days, consisting of 12 Months of 30 Days each, with 5 intercalary Days added at the End. The Months are as follows: 1. *Asrudia Meh.* 2. *Ardihascht Meh.* 3. *Cardi Meh.* 4. *Thir Meh.* 5. *Merded Meh.* 6. *Schabarir Meh.* 7. *Mehar Meh.* 8. *Aben Meh.* 9. *Adar Meh.* 10. *Di Meh.* 11. *Behen Meh.* 12. *Affirer Meh.* This *Year* is call'd the *Yezdegerdick Year*, to distinguish it from the fix'd *Soler Year* call'd the *Galalean Year*, which the *Persians* began to use in the *Year* 1079, and which was form'd by an Intercalation made six or seven Times in four *Years*, and then once every fifth *Year*. It may be observ'd, that the *yezdegerdick Year* is the same with *Nabonassar's Year*. As to the *Galalean Year*, it is absolutely the best, and justest, of all the *civil Years* yet invented, as being found by Calculation to keep the *Solstices* and *Equinoxes* precisely to the same Days, and answering very accurately to the *Solar* Motions.

The *Arabick* and *Turkish Year* is a *Lunar Year*, consisting of 12 Months, which contain, alternately, 30 and 29 Days; tho' sometimes it contains 13 Months; the Names, *&c.* whereof are as follows: 1. *Muharram*, containing 30 Days. 2. *Saphar*, 29. 3. *Rabia*, 30. 4. *Latter Rabia*, 29. 5. *Jomada*, 30. 6. *Latter Jomada*, 29. 7. *Rajub*, 30. 8. *Shaaban*, 29. 9. *Samadan*, 30. 10. *Shawal*, 29. 11. *Dulkaadah*, 30. 12. *Dulheggia*, 29; and in the *embolismick Year* 30. An intercalary Day is added every 2*d*, 5*th*, 7*th*, 10*th*, 13*th*, 15*th*, 18*th*, 21*st*, 24*th*, 26*th* and 29*th*, in a Cycle of 29 *Years*.

The *Ethiopick Year* is a *Solar Year*, perfectly agreeing with the *Actiack*, except in this, that the Names of the Months are different. It commences with the *Egyptian Year*, on the 29*th* of *August* of the *Julian Year*. Its Months are, 1. *Mascaram.* 2. *Tykympt.* 3. *Hydar.* 4. *Tyshas.* 5. *Tyr.* 6. *Jacatit.* 7. *Magabit.* 8. *Migaria.* 9. *Ginbat.* 10. *Syne.* 11. *Humle.* 12. *Habase.* Intercalary Days 5.

The *Jews* us'd to give to one of their *Years* the Name *Sabbatic*, *Annus Sabbaticus*, which was every 7*th Year*; during which, they let their Land lie at Rest. Every 7*th Sabbatic Year*, *i. e.* every 49*th Year*, was call'd the *Year* of *Jubilee*, and was held with extraordinary Solemnity.

The Day wherein the *Year* commences, has been as different, in the different Nations above-mention'd, as the *Year* it self; and yet, in all, held in great Veneration.

The *Romans*, as we have observ'd already, began their *Year* at the Month of *March*, and consecrated the first and last Day of the *Year* to *Janus*; for which Reason, they represented him with two Faces. From them we have learn'd the Ceremony of wishing a *happy New Year*; for, before the last Day was spent, they not only visited and complimented each other, but also presented *Strenæ*, in *French Estrenes*, or *New-Year's Gifts*, and offer'd Vows to the Gods for the Preservation of each other. *Lucian* represents it as a Practice of a very antient Standing, even in his Time, and refers it to *Numa*. The antient Lawyers derive the Word hence, that these Presents were only given *viris strenuis*; *Symmachus* adds, that the Use hereof was first introduc'd by King *Tatius*, *Romulus*'s Collegue, who receiv'd Branches of Vervain, gather'd in the sacred Grove of the Goddess *Strenia*, as a happy Presage of the Beginning of the *Year*.

Antiently a Pound of Gold was given to the Emperors every *New-Year's Day*, by way of *Strena*. *Du Cange* observes, that *Strina*, or *Strinna*, denoted a Kind of Tribute which the People of *Dalmatia*, or *Croatia*, paid to the *Venetians*, or to the Kings of *Hungary*, whom they obey'd voluntarily.

The *Jews*, as most of the other Nations of the East, had a *Civil Year*, which commenc'd with the *New Moon* in *September*; and an *Ecclesiastical Year*, which commenc'd from the *New Moon* in *March*.

The *French Year*, during the Reigns of the *Merovingians*, or first Race of their Kings, began on the Day wherein the Troops were review'd, which was the first Day of *March*. Under the *Carlovingians*, or second Race, it began on *Christmas-Day*. And under the *Capetians*, or third Race, (which is the present Race) on *Easter-Day*; which, therefore, varied between the 22*d* of *March*, and the 25*th* of *April*; and this is still the Beginning of the *French Ecclesiastical Year*. But for the *Civil*, *Charles* IX. appointed, in 1564, that, for the future, it should commence on the first Day of *January*.

The *Civil*, or *Legal Year*, in *England*, commences on the Day of the Annunciation, *i. e.* on the 25*th* Day of *March*; tho' the *Historical Year* begins on the Day of the Circumcision, *i. e.* the first of *January*; on which Day the *German* and *Italian Year* also begins. *Stow* observes, that *William the Conqueror* having been crown'd the first of *January*, it thenceforth became the first Day of the *Year* for Historians, *&c.* tho' in all civil Affairs they retain'd the antient Manner of accounting, which began with the 25*th* of *March*. The Part of the *Year*, between those Terms, is usually express'd both Ways, as 174-$\frac{1}{2}$. Since the Conqueror, the King's Patents, Charters, Proclamations, *&c.* are usually dated by the *Year* of the King's Reign. The Church, as to her solemn Service, begins the *Year* on the first *Sunday* in *Advent*, which is always that next St. *Andrew*'s Day, or the 30*th* of *November*.

The *Mahometans* begin their *Year* the Minute the Sun enters *Aries*; the *Persians*, in the Month answering to our *June*; the *Chinese*, and most of the *Indians*, begin it with the first Moon in *March*; the *Brachmans* begin it with the New Moon in *April*, on which Day they hold a Feast call'd *Samwat Saradi pauduga*, *q. d.* Feast of *New-Year's Day*. The *Mexicans*, according to *D'Acosta*, begin the *Year* on our 23*d* of *February*, when the Leaves begin to grow green. Their *Year* consists of 18 Months, 20 Days each; which making 360 Days, the remaining five Days are spent in Mirth, and no Business suffer'd to be done, nor even any Service at the Temples. *Alvarez* relates almost the same of the *Abyssinians*, who begin their *Year* on the 26*th* of *August*, and have five idle Days at the End, which they call *Pagomen*. The *Greeks* begin their *Year* of the World from the first of *September*.

As we have heretofore observ'd that the *Julian Year* consists of 365 Days, and 6 Hours, and the *Bissextile* of 366; hence it follows, that the *common Year* consists of 52 Weeks, and 1 Day, and the *Bissextile* of 52 Weeks, and 2 Days: Therefore if the *common Year* begins on *Sunday*, the Beginning of the following *Year* will fall on a *Monday*; but if the *Year* be *Bissextile*, the Beginning of the following *Year* will fall on a *Tuesday*: Therefore if the seven Days of the Week be mark'd, in the *Calendar*, with the Letters *A*, *B*, *C*, *D*, *E*, *F*, *G*, and the Letter *A* indicates the first Day of *January*, as it really does; the same Letter will not every *Year* indicate *Sunday*. However, if *A* be the *Dominical Letter* of some common *Year*,

Year, *i.e.* if the first Day of *January* of that *Year* be a *Sunday*, because, the *Year* following, *January* will begin on *Monday*; the Letter *A*, which is always affix'd to the first Day of *January*, will that *Year* indicate *Monday*, and consequently the Letter *B Tuesday*, *C Wednesday*, &c. so far as the Letter *G*, which will be the *Dominical Letter*, then *F*, &c. so that by a retrograde Order, or going backward, after seven *Years* it will happen again to be the Turn of the Letter *A*; only this Cycle be otherwise interrupted. But because from the Time of the *Julian* Correction there is an *Intercalation* every 4*th* Year, nor the Order of the Letters can entirely happen the same before the *Bissextile* has fell on every Letter; hence, a *Cycle of the Sun*, or *Solar Cycle*, or a Revolution of 28 *Years*, beginning with 1, and ending with 28; which Number proceeds from 7 Times 4; for in the *Bissextile* there are two *Dominical Letters* of the same Year, the first from the *Calends* of *January* to the Feast of St. *Matthias*, which happens the 25*th* of *February*; the other from that same Feast to the End of the *Year*.

That Space of 28 *Years*, as well in the *Julian* as in the *Gregorian Calendar*, is call'd the *Solar Cycle*, because *Sunday*, design'd by the *Dominical Letter*, was antiently call'd the Day of *Sol*, or of the Sun, and not with Regard to the Sun's Course, which has nothing to do herein.

Therefore to find the *Dominical Letter* for every *Year*, in the Tables computed for that Purpose, there must be found, first, the *Solar Cycle*, adapted to that *Year*, and from the Place of that Number in the Tables there will occur the *Dominical Letter*.

To find the *Cycle of the Sun* for any *Year* given, we must add 9 to the Number given, and divide the Sum by 28; the Number remaining will be the Number of the *Cycle*, and the Quotient the Number of Revolutions since *Christ*. If there be no Remainder, it will be the 28*th*, or last *Year* of the *Cycle*.

Junge annis Domini tres Ternos, perque vigenti
Octo seca summam; Cyclus Solaris habetur.

For Example; if 9 be added to the *Year* 1700, 'twill make 1709; which Sum being divided by 28, will give in the Quotient 61, and the Remainder will be 1; whence the *Year* 1700 is the first of the *Solar Cycle*.

CYCLE *of the* Sun *in* Julian Years.															
1	G F	5	B A	9	D C	13	F E	17	A G	21	C B	25	E D
2	E	6	G	10	B	14	D	18	F	22	A	26	C
3	D	7	F	11	A	15	C	19	E	23	G	27	B
4	C	8	E	12	G	16	B	20	D	24	F	28	A

CYCLE *of the* Sun *from the* Gregorian Year 1700, *to the* Year 1800.															
1	D C	5	F E	9	A G	13	C B	17	E D	21	G F	25	B A
2	B	6	D	10	F	14	A	18	C	22	E	26	G
3	A	7	C	11	E	15	G	19	B	23	D	27	F
4	G	8	B	12	D	16	F	20	A	24	C	28	E

But as the Tables of the *Calendar* are often erroneous, there is another Method of finding the *Dominical Letter*, *viz.* by an artificial Distich, each Diction whereof answers to each Month of the Year, and to their initial Letters, denoting the Letters by which each Month begins; and which is as follows:

Astra dabit Dominus, gratisq; beabit Egenos,
Gratia Christicolæ feret aurea dona fideli.

The Expression *Astra*, which begins with *A*, denotes that the first Day of the first Month, or of *January*, is also to be design'd by the Letter *A*; therefore the second is mark'd with the Letter *B*, the third with *C*, &c. in that Manner as *A* returns to the 8*th* Day, as also to the 15*th*, 22*d*, 29*th*; therefore the 30*th* is mark'd with the Letter *B*, and the 31*st* with the Letter *B*; whence the Letter *D* will be affix'd to the first Day of *February*, which is to answer the Word *dabit*; and thus of the others.

There are two other *Cycles*, besides the *Solar*, *viz.* the *Lunar Cycle*, and the *Cycle of Indictions*.

The LUNAR CYCLE, or *Cycle of the Moon*, (called also the *Golden Number*, because antiently painted in golden Characters) is a Period of 19 Solar Years, equivalent to 19 Lunar Years, and 7 intercalary Months; in which Time the New and Full Moons are suppos'd to return to the same Day of the *Julian* Year.

But this Equation cannot be very well understood without observing, first, that as the Sun takes a whole Year to accomplish his Course in the Zodiack; the Moon, on the contrary, perfects her's in a Month. Tho', as we have heretofore observ'd, there be two Sorts of Lunar Months, *viz.* a *periodical* one, in which the Moon returns to the same Point of the Zodiack whence she had parted; and the other *synodical*, in which she returns from one Conjunction with the Sun to the other. The first is said to consist of 27 Days, 7 Hours, and 43 Minutes; and the last, which is a great deal better adapted to the different Phases of the Moon, and which is the common Lunar Month, contains 29 Days, 12 Hours, 44 Minutes, 3 Seconds, &c.

But this *synodical Month* is also divided into two; one call'd *astronomical*, and which, as we have said already, consists of 29 Days, 12 Hours, 44 Minutes, and 3 Seconds; and which is the only one to be us'd in astronomical Calculations, *v. gr.* to discover the New Moons, Full Moons, and Eclipses; and the other civil, commonly us'd in the civil Life, and which, without any Regard to Fractions, or Minutes, is not compos'd of 29 Days, and 12 Hours, but of whole Days, so as to consist alternately of 29 and 30 Days; therefore those 12 Hours remaining, in each *Lunation*, or the monthly Period of the Moon, make up a whole Day, in two *Lunations*. One of these *Lunations* is call'd *plain*, because consisting of 30 Days; and the other *cava*, or *hollow*, because but of 29 Days; and both *Lunations* together contain 59 Days.

But as there are 44 Minutes, or almost three Quarters of an Hour, remaining in each Lunation, they can be thus collected, as to make up a Day within 32 Lunations; which Day must be added to the *cava*, or *hollow*, or 29 Days Lunation, which will make the civil Lunations agree with the astronomical.

Of these Lunations, or Lunar Months, may be compos'd entire Lunar Years, such as those in Use among the *Turks*, or mix'd with Solar Years, as invented by *Meton* the *Athenian*; whose Hypothesis, or Lunar Cycle, we'll explain in the following Manner:

If we admit each Year to consist of 365 Days, nineteen Years must contain 6935 Days; but as within 19 Years there happens but four of them Bissextile, and three Times six Hours, there must be contain'd in the Course of those Years, 6939 Days, and 18 Hours.

Besides, there are but twelve Lunar Months in each Lunar Year, six of which are *plain*, and contain 30 Days;

Days; and ſix *hollow*, which contain but 29 Days, and which added together, make up, every Year, 354 Days.

There remain, beſides, every Year, 11 Days, which, at the End of three Years, produce 33 Days, and conſequently form a Month of 30 Days, with 3 Days more; whence there are in that Year 13 *Lunations*, *viz.* 12 common, and 1 *emboliſmick*, or intercalary; and that Year is call'd *emboliſmick Year*.

Therefore, if 354 be taken 19 Times, they'll give 6726 Days; likewiſe, 19 Times 11, will give 209, there are, beſides, 4 *biſſextile* Days, and 18 Hours, which Sums, 6726, 209, 4 Days, 18 Hours, being added together, will produce the Sum 6939 Days, and 18 Hours; which Number is found in 19 Solar *Julian Years*.

The firſt Sum, 6726, is divided into 228 common Months, *viz.* 114 *full* Months, and 114 *hollow* Months. The ſecond Sum, 209, will give 7 *emboliſmick* Months; the firſt 6 whereof will be of 30, and the *7th* of 29 Days: Moreover, the 4 *biſſextile* Days are inſerted in their proper Places, in the Lunar, as in the Solar Years, and in both the Lunar and Solar there remain 18 Hours; whence, in the Space of 19 Years, there happen 235 *Lunations*, which contain as many Days as there are in 19 Solar Years, according to the *Julian Hypotheſis*, and the *Metonick Equation*.

Altho' the *Metonick* Cycle, when firſt render'd publick by its Author, was found agreeable to the Doctrine of Time, and for that Reaſon was inſerted into the antient *Calendar*, (a little after the Celebration of the Council of *Nice*) to indicate the *New* and *Full Moons*; it was, notwithſtanding, afterwards found erroneous, and that it wanted to be corrected.

But, however, as the Beginning of that *Cycle* had been arbitrary, if we reckon backward every *19th* Period, we'll find, that the firſt Year of the *Chriſtian Æra* will fall in the ſecond Year of the Cycle of 19 Years; therefore if 1 be added to the Year of the *Chriſtian Æra*, and the Sum be divided afterwards by 19, the Remainder will ſhew the Number of the Lunar Cycle for that Year. For Example, if 1 be added to the Year 1700, we have 1701; which Sum, if divided by 19, will produce in the *Quotient*, or *Exponent*, 89, and 10 will remain; whereby the Year 1700 will appear to be the *10th* of the Cycle.

Unum addes annis Domini, ſummamque novenis
Et deris tribues, numerus tibi ut aureus adſit.

The *Cycle of Indictions* is a Series of 15 Years, returning conſtantly round, like the other Cycles, and commencing from the *3d* Year before *Chriſt*. When this *Cycle of Indictions* was firſt ſet on Foot among the *Romans*, and for what End, is much controverted among Chronologers. *Petavius* leaves it as a Thing not to be aſcertain'd. The moſt probable Opinion is, that it was receiv'd about the Year 312, after the Time of *Conſtantine*.

To find the *Cycle of Indictions* for any Year given; add 3 to the given Year, and divide the Sum by 15, the Remainder is the *Cycle of Indictions*. If there be no Remainder, the *Indiction* is 15.

Si tribus adjunctis Domini diviſeris annos
Ter tibi per quinos, Indictio certa patebit.

The Origin of *Cycles* was thus: The apparent Revolution of the Sun round the Earth has been divided arbitrarily into 24 Hours; the Baſis, or Foundation of all our Menſuration of Time. Civil Uſe knows none but Hours, or rather Multiples of Hours, as Days and Years; but neither the annual Motion of the Sun, nor that of the other heavenly Bodies, can be meaſur'd exactly, and without any Remainder, by Hours, or their Multiples: That of the Sun, *v. gr.* is 365 Days, 5 Hours, 49 Minutes, nearly; that of the Moon 29 Days, 12 Hours, 44 Minutes: Hence, to ſwallow up theſe Fractions in whole Numbers, and yet in Numbers which only expreſs Days and Years, *Cycles* have been invented; which comprehending ſeveral Revolutions of the ſame Body, re-place it, after a certain Number of Years, in the ſame Point of the Heavens whence it firſt departed; or, which is the ſame Thing, in the ſame Place of the *civil Calendar*.

Of the three *Cycles*, Solar, Lunar, and of Indiction, abovemention'd and explain'd, was form'd that famous Period, commonly call'd the *Julian Period*, becauſe adapted by its Author, *Joſeph Scaliger*, *Julius*'s Son, to the Method and *Cycles* of the *Julian* Year. For if you carry the Solar *Cycle* 28, into the Lunar *Cycle* 19, the Product will be 532, which is the *Victorian Period*, thus call'd from one *Victor*, its Author, born in *Aquitain*, and which was compos'd at the Intreaties of Pope *Hilary*, and afterwards made Uſe of by *Dionyſius Exiguus* to reconcile the *Chriſtians* of the Weſt with thoſe of *Alexandria*, with Regard to the Celebration of the Feaſt of *Eaſter*, which, towards the Beginning of the *6th* Century, had occaſion'd a very great Difference between them: Which *Victorian Period* was afterwards receiv'd by the unanimous Conſent of both Churches, till the Reformation made under Pope *Gregory* XIII.

If the *Victorian*, or *Dionyſian Period*, 532, be again multiplied by the *Cycle* of *Indiction*, 15, they'll produce 7980; ſo that if that Number be divided by 28, by 19, or by 15, there will be no Remainder after the Diviſion. This Period has this peculiar to itſelf, that within 7980 Years there could not be found two Years which ſhould chance to have theſe three Cycles ſemblable; ſo that if our Annaliſts had took the Pains to mark the Cycles of every Year, they had avoided that Ambiguity in the Chronology which renders it confus'd, and often unintelligible.

But as theſe Cycles were not known before the Birth of *Chriſt*, hence it happens, that the *Julian Period* has not produc'd thoſe ſignal Advantages which otherwiſe could have been expected from it. It has, however, this great one, of being the common Meaſure of Time, the leaſt controverted which can be made Uſe of by Chronologers, of what Denomination or Opinion ſoever; which can be evidenc'd by a ſingle Example: *V. gr.* Almoſt all Chronologers diſagree, with reſpect to the Beginning of the World; for ſome of them will have it to have been form'd 4000 Years before the Birth of *Chriſt*, others more, and others leſs; whence, tho' they all agree in the Enumeration of the ſubſequent Years, there is a Difference which proceeds from the Beginning, and which could never be yet terminated among them: Therefore it was very reaſonable to endeavour to find out a *Period*, which, being confin'd to no Circumſtances, could be adapted to every Hypotheſis, or Syſtem of Chronologers.

Thus they all agree, with reſpect to the *Chriſtian Æra*, and all confeſs that the Year of the *Gregorian* Reformation is 1582 of the common *Æra*; but if the firſt Year of the *Chriſtian Æra* be the next following Year after that in which *Chriſt* was born, or if it be rather the fifth Year after the Birth of *Chriſt*, is what they ſeem to be dubious of.

However, it appears, by a retrograde Numeration, that the tenth Year of the Solar Cycle, the ſecond of the Lunar, or of the Golden Number, and the fourth of the Indiction, are to be attributed to the firſt Year of the *Chriſtian Æra*. Therefore, if in the *Julian Period* of 7980 Years, we deſire to know to which the Solar Cycle 10, the Golden Number 2, and the Indiction 4, might be more properly adapted, none will be found but 4714; becauſe that ſole Number, diſtributed in the whole *Period* by 28, without minding the Quotient, leaves 10; divided by 19, leaves 2; and by 15, leaves 4: Therefore the firſt Year of the *Chriſtian Æra* anſwers to the Year 4714 of the *Julian Period*, and conſequently the Year of *Chriſt* 1700, is 6413 of the *Julian Period*; and the firſt Year of the World will fall on the Year 710 of the ſame

same *Period*. If then, which is the more certain Opinion, the Day of *Christ*'s Nativity be referr'd to the latter End of the 4000*th* Year of the World, and precedes by four Years the Beginning of the common *Æra*; likewise, if to the Number 4713 of the *Julian Period*, by which is denoted the Year next preceding the Beginning of the *Christian Æra*, we add the Year 1700 of that *Æra*, which begins from the Year 4714 of the same *Period*, we perfect the Sum 6413; but if we take off 4004 Years of the World from the Number 4714 of the *Julian Period*, both which Numbers, *viz.* of the World 4004, and of the *Julian Period* 4714, agree with the first Year of the *Christian Æra*, there will be left the Sum 710; which Sum, if divided by 28, without any Regard to the Quotient, 10 will be left for the Solar Cycle; if by 19, 7 will be left for the Lunar Cycle, or the Golden Number; if by 15, there will remain 5, for the Indiction. Likewise, if the Sum 6413, which answers to the Year of *Christ* 1700, be divided by 28, without minding the Quotient, 1 will remain for the Solar Cycle; if by 19, there remains 10 for the Lunar Cycle, or Golden Number; if by 15, 8 will be left for the Indiction. Therefore having thus found the Year of the *Julian Period* which answers to every Year before or after the Beginning of the *Christian Æra*, we'll find with it the Solar Cycle, the Golden Number, and the Indiction, agreeable to that Year.

Neither is it surprizing that the *Julian Period* is said to precede the Creation of the World by 709 Years, since it results from the Multiplication of their Cycles, which have not been all invented together; neither can they run together by a common Beginning, but within the Space of 7980 Years. This *Period* agrees with the *Constantinopolitan Epocha*, or *Period* us'd by the *Greeks*, except in this, that the Cycles of the Sun, Moon, and Indiction, are reckon'd differently; and in that the first Year of the *Constantinopolitan Period* differs from that of the *Julian Period*.

Hipparchus's *Period* is a Series of 304 Solar Years, returning in a constant Round, and restoring the New and Full Moons to the same Day of the Solar Year.

This *Period* arises by multiplying the *Calippick Period* by 4. *Hipparchus* assum'd the Quantity of the Solar Year to be 365 Days, 5 Hours, 55 Minutes, and 12 Seconds; and hence concluded, that in 104 Years *Calippus*'s *Period* would err a whole Day. He therefore multiplied the *Period* by 4, and from the Product cast away an entire Day; tho' he could not thereby restore the New and Full Moons to the same Days throughout the whole *Period*, but they are sometimes anticipated 1 Day, 8 Hours, 23 Minutes, 29 Seconds, and 20 Thirds.

Since we have mention'd the *Calippick Period*, we must say that it is a Series of 76 Years, returning in a perpetual Circle, which elaps'd, the New and Full Moons are suppos'd to return to the same Day of the Solar Year. The *Calippick Period* is an Improvement of the *Metonick* of 19 Years; which proving inaccurate, *Calippus* the *Athenian* multiplied it by 4, and thus arose the *Calippick Period*.

Note, That PERIOD, in this Place, *i. e.* in Chronology, denotes an *Epocha*, or Interval of Time, by which the Years are accounted; or a Series of Years, whereby, in different Nations, and on different Occasions, Time is measur'd. *Cycle*, in Chronology, is a certain Period, or Series of Numbers, proceeding orderly from first to last, and recurring again from last to first, successively, and without Interruption. *Indiction* (from *indictio*, which signifies Establishment, Order, or Denunciation) is us'd in Chronology for a Kind of *Epocha*, or Manner of accounting Time among the *Romans*. *Petavius* says, that there is nothing in Chronology less known than the *Roman Indiction*; he means, then, its Origin and Commencement. It is the general Opinion, that it was instituted in the Time of *Constantine*, but it is a mere Guess; there were *Indictions* in the Time of the Emperor *Constantius*, as appears from the *Theodosian* Code. The Learned hold, that *Indictions* were originally no other than certain annual Taxes, the Tariffs whereof were publish'd every Year: But why they were so call'd, why confin'd to a Cycle of 15 Years, when, and on what Occasion instituted, is not known. We find three Kinds of *Indictions* mention'd in Authors; the *Indiction* of *Constantinople*, beginning on the first of *September*; the *Imperial*, or *Cæsarial Indiction*, on the 14*th* of *September*; and the *Roman Indiction*, which is that us'd in the Pope's Bulls, begins on the first of *January*.

The next Things to be consider'd, in our *Calendar*, are the EPOCHA's, from the *Greek* εποχη, *Inhibition*; or εποχειν, to *sustain*, *stop*, by reason *Epocha's* are a Term, or fix'd Point of Time, whence the Years are number'd, or accounted. They are also call'd *Æræ*; as we'll explain it afterwards.

There are two Sorts of *Epocha's*, the one sacred, taken from the sacred Books; and the other profane, taken from profane Authors. We'll begin with the *sacred Epocha's*.

The first, among the *sacred Epocha's*, from which the first Age of the World begins, takes its Beginning from the Creation; which, according to *Lancelot*'s Calculation, is to be fix'd at the Beginning of the Night preceding *Sunday October* 23, of the *Julian* Period 710; and ends at the Year of the World 1656, and almost two Months of the Year 1657.

The same *Epocha*, according to the Computation of the *Jews*, call'd also the *Jewish Epocha*, is the Year of the *Julian* Period 953, answering to the Year before *Christ* 3761; and commencing on the 7*th* Day of *October*. Hence substracting 952 Years from any given Year of the *Julian* Period, the Remainder is the Year of the *Jewish Epocha* corresponding thereto. This *Epocha* is still in Use among the *Jews*.

The *Epocha* of the Creation, us'd by the *Greek* Historians, is the Year before the *Julian* Period 787; answering to the Year before *Christ* 5500. Hence, to any given Year of the *Julian* Period adding 787, the Sum gives the Year of this *Epocha*. The Author of this *Epocha* is *Julius Africanus*, who collected it from the Historians. But when it came to be admitted into civil Use, 8 Years were added to it; that so every Year thereof divided by 15, might exhibit the Indiction which the eastern Emperors us'd in their Charters and *Diploma's*.

The *Epocha* of the Creation us'd by the later *Greeks* and *Russians*, is the Year 795 before the *Julian* Period; or the Year 5509 before *Christ*, commencing from the first Day of *September*; tho' the *Russians*, having lately admitted the *Julian Calendar*, begin their Year from the first of *January*. Hence, adding 795 to the Year of the *Julian* Period, the Sum gives the Year of this *Epocha*. This *Æra* was us'd by the Emperors of the East in their *Diplomata*, &c. and thence also call'd the civil *Æra* of the *Greeks*. In Reality, it is the same with the *Epocha* of the *Constantinopolitan* Period; whence some call it the *Epocha* of the Period of *Constantinople*.

The *Alexandrian Epocha* of the Creation, is the Year 780 before the *Julian* Period; answering to the Year before *Christ* 5497; and commencing on the 29*th* of *August*. Hence, adding 5493 to the present Year of *Christ* 1741, the Sum, 7234, gives the present Year of this *Epocha*, or Years elaps'd since the Creation, according to this Computation. This *Epocha* was first concerted by *Panodorus*, a Monk of *Egypt*, to facilitate the Computation of *Easter*; whence some call it the *Greek Ecclesiastical Epocha*.

The *Eusebian Epocha* of the Creation, is the Year of the *Julian* Period 486, answering to the Year before *Christ* 4228, and commencing in Autumn. Hence, adding 4228 to the present Year of *Christ* 1741,

1741, the Result, 5969, is the present Year of this *Epocha*; which is us'd in *Eusebius*'s *Chronicon*, and the *Roman Martyrology*.

The second *sacred Epocha* is reckon'd from the End of the *Deluge*, or the Beginning of the Year of the World 1657, (in the 27*th* of the second Month thereof; which answers to the 18*th* of our *December*, *Noah* came out of the Ark) and ends at the Vocation and Peregrination of *Abraham*, which happen'd in the Year of the World 2083; the 15*th* of the Month *Abib*, which answers to the 4*th* of our *May*; and therefore contains 426 Years, 4 Months, and 17 Days.

The *third sacred Epocha* is from the Vocation and Departure of *Abraham* from *Haran* in *Mesopotamia*, for the Land of *Canaan*; and is continu'd to the Departure of the *Israelites* from *Egypt*, i. e. to the Year of the *World* 2513, and therefore contains 430 Years accomplished.

The 4*th sacred Epocha*, begins at the Departure of the *Israelites* from *Egypt* (which happened the 15*th* Day of the Month *Abib*, *Exod.* ix.) and ends at the Time when the *Jews* first began to build the Temple of *Jerusalem*, i. e. at the 4*th* Year of *Solomon*'s Reign; which corresponds to the Year of the *World* 2992; and thus comprehends 479 Years, and 15 Days.

The 5*th sacred Epocha*, begins from the Foundation of the *Temple*, and ends with the *Babylonish Captivity*; and contains 456 Years; *Cyrus* having given Leave to the *Jews* to return to *Jerusalem*, in the Year of the *World* 3468, of the *Julian Perod* 4178.

The 6*th* begins from the Time of *Cyrus* granting that Liberty to the *Jews*, and ends at *Christ*'s Nativity, or at the Year of the *World* 4000, of the *Julian Period* 4739, which is, in *Lancelot*'s Opinion, 532 Years.

The 7*th sacred Epocha* begins at our Saviour's Birth, and is to continue to the later End of the World. And this *Epocha*, is either true, *i. e.* has its Beginning from the very Moment of that divine Birth, of which Chronologers do not agree among themselves; or is *vulgar*, or commonly received in the Christian Church. According to *Dionysius Exiguus*, and some other Chronologers of his Time (who do not very well agree together) this *Epocha* begins from the first Day of *January*, the *Julian Year* 46; which Year agrees with the Year 4714, of the *Julian Period*; so that in their System, *Christ*'s Nativity is fixed to the 25*th* of *December*, of the *Julian Year* 45, and of the *Julian Period* 4713.

But the most exact Chronologers shew with *Lancelot* (from whom we have extracted these) that *Christ* was born four Years before this *Dionysian Epocha*, i. e. the 25*th* of *December*, of the *Julian Year* 41, of the *Julian Period* 4709, of the *World* 4000; the fourth Year of the 193 *Olympiad*; of the Foundation of *Rome* 749; the 40*th* Year of the Empire of *Augustus*, reckoning from the Death of *Julius Cæsar*; and from the Battle of *Actium*, after which he had no Competitor, 27; the 36*th* of the Reign of *Herod the Great*.

However, it is certain, that *Christ*'s Nativity happened before *Herod*'s Death, as we learn from *Matt.* ii. For *Herod* died, after he had reigned 37 Years, since he had been saluted King by the *Romans*; or 34 after he had murthered *Antigonus* (according to *Josephus*, *Lib.* 17. of the *Antiquities* of the *Jews*, *c.* 10. and *Lib. Bell. Judaic.* c. *ultim.*) for he received the Kingdom from the *Romans*, towards the *Autumn* of the sixth *Julian Year*; he killed *Antigonus* the ninth *Julian Year*. Moreover, the 6th *Julian Year* is the same with the Year of the *World* 3964, of the *Julian Period* 4674, of the Empire of *Augustus*, from the Death of *Julius Cæsar*, the fifth, and of his first Consul-ship, the fourth.

All Chronologers agree, that *Herod* was saluted King by the *Romans*, in the 6*th Julian Year*; so that after he had reigned 37 Years from that Time, or 34 from the Murder of *Antigonus*; he died in the 42d *Julian Year*, towards the 25th of *November*. Therefore it can easily be proved, as well from the Collation of the Times, in which his Successors have reigned; as from the Eclipse of the *Moon*, which *Josephus* *Lib.* 17. of the *Antiquities* of the *Jews*, c. 8. mentioned to have happened during that Prince's last Sickness; for it appears in the Astronomical Tables, that the *Moon* suffered an Eclipse the 13*th* of *March*, of the *Julian Year* 42, towards three in the Afternoon: From which Time *Herod* continued in a languishing Condition to the 25*th* of *November*, when he died.

Therefore *Christ* being born towards the Middle of the Night, wherein the 25th of *December* begins, as we learn it from the Churches Tradition; his Nativity cannot be put farther back than the Beginning of the *Julian Year* 41, which is the 40*th* of the Empire of *Augustus*, from *Julius Cæsar*'s Death; the 4709, of the *Julian Period*, and 4000 from the Creation of the World: And thus, *Christ*'s Nativity precedes the common Christian *Æra*, by four whole Years; which common *Æra* begins, the 46*th Julian Year*, the 45*th* of the Empire of *Augustus*, from *Julius Cæsar*'s Death, of the *Julian Period* 4714, of the *World* 4004. The first Year of the 195 *Olympiad*, of the Foundation of *Rome* 754, from the Battle of *Actium* 32.

But as we are to mark the Beginning of *Tiberius*'s Empire at the Death of *Augustus*, which happened in the *sextile Month*, of the *Julian Year* 59, of the *Julian Period* 4727, of the *World* 4017, of Christ 18, of the common Christian *Æra* 14; consequently the 15*th* Year of his Empire, must have begun, in the Month of *August* in the *Julian Year* 73, of Christ 32, of the Christian *Æra* 28, of the *Julian Period* 4741, of the *World* 4031; in which Year, *John*, *Christ*'s Precursor, began to preach the Baptism of Repentance, and that in all Appearance, in the 7*th* Month which was a penitential Month among the *Jews*, and which answers in a great Part, to our *October*.

Christ having been baptized the 6*th* of *January*, according to the Tradition of the oriental, as well as of the occidental Church; and *John*, before *Christ* came to be baptized, having *fulfilled his Course*, Acts xiii. 25. which could not be shorter than a whole Year, especially if we consider that he had gained already so great an Authority, that the Publicans and Soldiers resorted to him, and were baptized by him; therefore it does not seem probable, that the Baptism of *Christ*, ought to be referred to the next Year following, the Vocation of *John*, i. e. to the *Julian Year* 74, and of the Vulgar *Æra* 29, but to the 6*th* of *January* of the other, *viz.* the *Julian Year* 75, of the Vulgar *Æra* 30, of the *World* 4033; in which *Christ* accomplished the 33d Year of his Age, and began the 34*th*.

Christ, after his Baptism solemnized four *Easters*. In the first he drove all the Venders and Buyers out of the Temple, *John* ii. 15. In the second he cured a Man who had been sick 38 Years, *John* v. In the third he fed five thousand Men with five Loaves, *John* vi. In the last (which according to the Astronomical Tables happened the third of *April*, the sixth *Feria* of the *Julian Year* 78, of the Christian *Æra* 33) he was crucified by the *Jews*; the divine Redeemer of the human Race, being then not 34, according to the vulgar Opinion, but in reality 37 Years of Age. So that if we'll speak accurately, *Christ* lived upon Earth, and among us Men, 36 Years, three Months, nine Days, and 15 Hours, *i. e.* from the Middle of the Night; which began the 25th Day of *December*, of the *Julian Year* 41, to the 9*th* Hour, according to the *Jews* Manner of reckoning, or three in the Afternoon according to ours, of the third of *April* of the *Julian Year* 78.

But to return to the Vulgar, or most commonly received *Æra* of the Christians, as that first Year followed the *Bissextile Julian Year*; it happened from thence, that from the Time of the Institution of that *Epocha*, to this our present Time, every fourth Year, has been *Bissextile*, in the *Julian Calendar*; as

as settled by *Dionysius Exiguus*, by Nation a *Scythian*; who flourished under *Justinian*, about the Year 507: Though *Dionysius* borrowed the Hint from *Panodorus* an *Egyptian* Monk. 'Till his Time the Generality of Christians computed their Years, either from the Building of *Rome*, or according to the Order of the Emperors and Consuls, or even from the Persecution of *Diocleſian*; which some Authors mark, at the Year of the common *Æra* 302, and others at the Year 303.

This Diversity occasioning a great Distraction between the Churches of the *East* and *West*; *Dionysius* to compose the same, first proposed a new Form of the Year, with a new general *Æra*; which, in a few Years time, was generally admitted. *Dionysius* began his Account, from the Conception, or Incarnation, properly called *Lady-Day*, or the *Annunciation*: Which Method still obtains in the Dominions of *Great-Britain*, and there only; so that the *Dionysian*, and *English Epocha*, is the same. In the other Countries of *Europe*, they reckon from the first of *January*; except in the Court of *Rome*, where the *Epocha* of the Incarnation still obtains for the Date of their *Bulls*.

It must be added that this *Epocha* of *Dionysius*, is charged with a Mistake; the common Opinion is, as we have observed, that it places our Saviour's Nativity a Year too late; or that he was born the Winter preceding the Time prescribed by *Dionysius* for his Conception. But *Petavius* pretends, that the Fault lies on *Beda*, who misinterpreted *Dionysius*, and whose Interpretation is followed in *England*. For *Dionysius* began his Cycle from the Year of the *Julian Period* 4712; but his *Epocha*, from the Year 4713, wherein the Vulgar *Æra*, supposes *Christ* to have been incarnate. The Year therefore, which according to the Vulgar *Epocha*, is the first Year of *Christ*; according to *Dionysius*'s *Æra*, is the second. So that the present Year, which we call 1741, should, in Justice, be 1742. Though some Chronologers, instead of one Year, will have the Error two. To this Vulgar *Æra*, as a sure fixed Point, Chronologers used to reduce all the other *Epocha's*; though there is not one of them, but what is controverted; so much Uncertainty there is in the Doctrine of Time.

Besides as there are two different Opinions, concerning the Number of Years elapsed from the Creation of the World, to the Birth of our Saviour; one, supported by the Authority of the *Hebrew* Text, which reckons 4000 Years between the Creation of the World, and *Christ*'s Nativity; and the other deducted from the Computation of the *Septuagint*, and the Historian *Josephus*; and which makes the Duration of the World to *Christ's* Nativity, 5971 Years; which Difference could never be composed yet; we'll follow the first Opinion, as the most probable; suspending, however, our Judgment, concerning the last, which has been followed by several of the antient Fathers of the Church. But that Difference of Computation extends no farther than the *Old Testament*, and has no Report to the Christian *Æra*.

There are likewise several *Prophane Epocha's*. The first, which was in use among the *Greeks*, is that of the *Olympiads*; and had its Origin from the *Olympick* Games, celebrated at the Beginning of every fifth Year, near the City *Olympia* in *Peloponnesus*. The *Olympiads* were also called *Anni Iphiti*, from *Iphitus*, who instituted, or at least renewed the Solemnity of the *Olympick* Games.

The first *Olympiad* commenced, according to some, in the Year 3938, of the *Julian Period*; the Year from the Creation 3174; the Year before *Christ* 774; and 24 Years before the Foundation of *Rome*: Or rather, as others will have it, in the Year of the *World* 3251; the Year of the *Julian Period* 3941; and 23 Years before the Building of *Rome*. The *Peloponnesian* War began on the first Year of the 87*th Olympiad*. *Alexander* the Great died the first Year of the 114*th*; and *Jesus Christ* was born the first Year of the 195*th Olympiad*.

The second *Prophane Epocha*, which was properly that of the *Romans* begun at the Building of *Rome*, U. C. which was built according to *Varro*'s Computation, towards the End of the third Year of the sixth *Olympiad*, which is the Year of the *Julian Period* 3961, of the *World* 3251, before the Christian *Æra* 753: Or 3962, according to the *Fasti Capitolini*, which is a Year later, than the *Varroniam* Computation. As the *Greeks* used to reckon by *Olympiads*, or four Years, the *Romans* likewise reckoned by *Lustra*, or five Years, in Respect to the censorial Dignity, which was quinquennial; because the Censors, every fifth Year, which was the last of their Magistracy, exacted the Census, or Tribute, imposed by them on the People. 'Tis said, that the *Lustra* were changed in *Constantine*'s Time, into Indictions, which compreheded the Space of three *Lustra*, or 15 Years.

If the Years of this *Epocha* be fewer than 754, substracting them from 754, or 753; you have the Year before *Christ*, and on the contrary, if they be more than 745, adding them to the same, the Sum is the Number of Years since *Christ*. Lastly, adding the Year before *Christ*, to 753, or 752; the Sum will give the Year of this *Epocha*, or the Time since the Building of *Rome*, thus, *e. g.* the present Year 1741, according to *Varro*, is the Year of *Rome* 2054.

The third *Prophane Epocha*, is that of *Nabonassar*, King of *Babylon*, and its Beginning is marked at the 26*th* of *February*, of the Year of the *Julian Period* 3967, of the *World* 3257, before the Christian *Æra* 747, when *Nabonassar*, or *Belesis*, Governor of *Babylon*, who seems to be the same as *Baladan*, *Lib.* 4. *Kings* xx. 12. and *Isaiah* xxxix. 1. who having entered into an Alliance with *Arbaces*, General of the *Medes*, gained the Kingdom of *Babylon*; and *Arbaces* having besieged *Nineveh*, restored the *Medes* to their antient Liberty; and thereby obliged *Sardanapalus* to burn himself, with his Capital and his Riches. Whence the Empire of the *Assyrians*, who from *Ninus* had subsisted for the Space of 520 Years, and included all the superior *Asia*, was then divided between the *Assyrians* themselves, the *Medes*, and the *Babylonians*.

This *Epocha* of *Nabonassar*, is used by *Ptolemy* in his Astronomical Observations, by *Censorinus* and others, and is composed of *Egyptian Years*.

The fourth *Prophane Epocha*, is that of the *Hegira*, or *Mahometan Epocha*, whose Beginning is taken from *Mahomet*'s Flight; which the *Mahometans* called *Hegira*, or Persecution, because *Mahomet* had been in some Dangers occasioned by the Novelty of his Doctrine. This Flight happened in the Year 5335, of the *Julian Period*, answering to the Year of *Christ* 622. This *Epocha* commences on the 16*th* of *July*, on a *Friday*, which since has been a Holy-day among the *Mussulmen*.

The fifth is the *Spanish Epocha*; for the *Spaniards* having begun to reckon their Years, from the Beginning of *Augustus*'s Reign, *ab Exordio Regni Augusti*, and marked it in their *Calendars*, by the Initial Letters of those Words *A. E. R. A.* it occasioned the giving to it the Name of *Æra*; for *Augustus* began to reign over *Spain*, after the Partition of the Empire between him and *Antony*, i. e. the eighth *Julian Year*; the 38*th* Year before the common *Æra*, and the Year of the *Julian Period* 4676.

The sixth is the *Jerdegerdick*, or *Persian Epocha*, which is the Year of the *Julian Period* 5345; answering to the Year of *Christ* 632, and commencing on the 16*th* of *June*.

Hitherto we have been no further than the *Julian Calendar*, which the Fathers of the Council of *Nice*, *Dionysius Exiguus*, and others have followed, in regulating the Solemnization of the Feast of *Easter*; but it has been found since, to contain two very great Errors.

The first Error is that of *Julius Cæsar*, that the Year is defined, or accomplished, in the Course of 365 Days, and six whole Hours; whereas those six Hours are not entire, but want very near eleven Minutes. Therefore the very next Year after the Institution of the

Julian Calendar, the Spring anticipated its Place, in the Revolution of the Seasons, by those 11 Minutes; which, in the Space of four Years, increas'd to almost three Quarters of an Hour; and in that of 131 Years made up a whole Day; and therefore, within 400 Years, the vernal Equinox happen'd three Days sooner than it should; by which continual Anticipation, it came to pass, that towards the Year 1582, the vernal Equinox had anticipated by almost ten Days the Place it had in the Time of *Julius Cæsar*, and was reduc'd from the 21*st* Day of *March* to the 11*th*.

The second Error of the *Julian Calendar*, consists in this, that its Author had fix'd the Cycle of nineteen Years, or Golden Number, to be subject to no Changes; and that every 19*th* Year the New and Full Moons should always return on the same Days, the same Hours, and the same Minutes; whereas they anticipate an Hour, and very near 30 Minutes: So that after 312 Days and a Half, according to *Clavius*, or 310, according to others, they should happen one Day sooner.

Therefore as the Council of *Nice* decreed that *Easter* should be, for ever, held on the *Sunday* which falls upon, or next after the Full Moon next after the twenty-first of *March*; *i. e.* the *Sunday* which falls upon, or next after the first Full Moon after the vernal Equinox; and that within almost 300 Years from the Council of *Nice* the New and Full Moons happen'd four Days, and more, sooner than indicated by the Cycle of 19 Years, or the Golden Number; and what was taken for the 14*th* Moon, was in Reality the 18*th*; *Easter* was then no longer celebrated from the 15*th* Moon to the 21*st*; but from the 19*th* to the 25*th*, inclusively.

To reform, or correct those Errors, Pope *Gregory* XIII, with the Advice of *Aloysius Lilius*, *Clavius*, *Ciaconius*, and other famous Astronomers, by throwing ten Days out of the Month of *October*, to restore the Equinox to its Place, *viz.* the twenty-first of *March*; and lest the vernal Equinox should return from the twenty-first of *March* to the Middle of the same Month, a Subtraction was made of three bissextile Days in the Space of four Centuries: Therefore as the Year 1600 had been Bissextile, and the Years 1700, 1800, and 1900, should be Bissextile, according to the *Julian Calendar*; they were made common Years, and without the Addition of the intercalary or bissextile Day. Whence the following Distich;

Bissextilis adest annus quicumque quaternus,
Centenus tollet, quadringentesimus addet.

The Error which perplex'd most the Astronomers employ'd by the Pope to the Reformation of the *Calendar*, was that found in the Lunar Cycle, or Golden Number; this they consider'd as an almost insuperable Difficulty, till the Pope was presented with a Book written by *Aloysius*, a *Roman* Physician, and Astronomer; which contain'd a Cycle of Epacts, to supply the Place, in the *Calendar*, of the Golden Number. The *Gregorian Calendar*, therefore, differs from the *Julian*, both in the Form of the Year, and in that Epacts are substituted in lieu of Golden Numbers; which we'll speak of after we have observ'd, *en passant*, that tho' the *Gregorian Calendar* be preferable to the *Julian*, yet is it not without its Defects, (perhaps, as *Tycho Brahe* and *Cassini* imagine, it is impossible ever to bring the Thing to a perfect Justness) for, first, the *Gregorian* Intercalation does not hinder but that the Equinox sometimes lags behind the 21*st* of *March*, as far as the 23*d*; and sometimes anticipates it, falling on the 19*th*; and the Full Moon which falls on the 20*th* of *March* is sometimes the Paschal, but not so accounted by the *Gregorians*. On the other Hand, the *Gregorians* account the Full Moon of the 22*d* of *March* the Paschal, which yet falling before the Equinox, is not Paschal.

In the first Case, therefore, *Easter* is celebrated in an irregular Month; in the latter, there are two *Easters* in the same ecclesiastical Year.

In like manner, the cyclical Computation being founded on mean Full Moons, which yet may precede or follow the true ones by some Hours; the Paschal Full Moon may fall on *Saturday*, which is yet referr'd by the Cycle to *Sunday*; whence, in the first Case, *Easter* is celebrated 8 Days later than it should be; in the other it is celebrated on the very Day of the Full Moon with the *Jews* and *quartodeciman Hereticks*; contrary to the Decree of the Council of *Nice*.

Scaliger and *Clavisius* shew other Faults in the *Gregorian Calendar*, arising from the Negligence and Inadvertency of the Authors; notwithstanding which, 'tis follow'd by all Nations of the *Roman* Church, and by most of the *Protestants*; tho' the *Julian Calendar* is still retain'd in *England*, without the *Gregorian* Correction, or even that introduc'd among some of the *Protestant* States of *Germany*, in the Year 1700, when 11 Days were at once thrown out of the Month of *February*; so that in 1700, *February* had but 18 Days: By this Means, the corrected Stile agrees with the *Gregorian*. This Alteration, in the Form of the Year, they admitted for a Time, in Expectation that the real Quantity of the Tropical Year being at length more accurately determin'd by Observation, the *Roman Catholicks* would agree with them on some more convenient Intercalation. This corrected *Calendar*, setting aside all Apparatus of Golden Numbers, Epacts, and Dominical Letters, determines the Equinox, with the Paschal Full Moon, and the moveable Feasts depending thereon, by astronomical Computation, according to the *Rudolphine* Tables. At present, for the *Epacts*.

EPACTS, in Chronology, are the Excesses of the Solar Month above the Lunar Synodical Month; and of the Solar Year above the Lunar Year of 12 Synodical Months; or of several Solar Months above as many Synodical Months; and several Solar Years above as many Dozens of Synodical Months. The *Epacts*, then, are either *annual*, or *menstruual*.

Menstrual Epacts, are the Excesses of the Civil, or *Calendar* Month, above the Lunar Month. Suppose, *E. gr.* it were New Moon on the first Day of *January*; since the Lunar Month is 29 Days, 12 Hours, 44 Minutes, and 3 Seconds, and the Month of *January* contains 31 Days; the *menstrual Epact* is 1 Day, 11 Hours, 15 Minutes, and 57 Seconds.

Annual Epacts are the Excess of the Solar Year above the Lunar. Hence, as the common Solar Year is 365 Days, and the Lunar only 354; there is, therefore, between them, a Difference of 11 Days. And as the Course of the Solar and Lunar Years is continual, the latter Differences must be continually added to the former, throwing 30 out of the whole as often as possible.

Therefore the first *Epact* is 11, the second 22, the third 3; and by adding the three Differences, they make up 33, from which, if 30 are substracted, there will remain 3; the fourth *Epact* will be 14, *i. e.* by adding 11 and 3; the fifth *Epact* will be 25, adding the other 11; the sixth *Epact* will be 6, and by adding 11 and 25, the Sum will be 36; from which Sum, 30 being subtracted, there will remain 6, *&c.*

The 30 are rejected, that hence might be form'd *emboliſmick* Moons, which are all full, or of 30 Days, the last excepted; as we have observ'd, speaking of the Golden Number. Therefore if all the *Epacts* be augmented, by the perpetual Addition of 11 Days, till the last Number 19 happens; they will make up 19 Times 11 Days, or 209; which might be divided into 7 *emboliſmick* Months, the first six whereof will be of 30 Days each, 29 Days, only, remaining for the 7*th* Month: Therefore 39 Days, only, should be thrown out that Year, tho' 30 are thrown out to render the *Ratio* of the *Calculus* every Way uniform. Tho', at the same Time, no Error ensues from it, and if it did, it could soon be rectify'd; for if 30 Days be assign'd to that Moon which should have but 29, 12 Days are given to the following *Epact*, which ought to have but 11. Whence, Compensation is made, and the *Epact* of 12 Days cut short of one Day of the preceding

preceding Lunation; as if the Moon had omitted that Day, or leap'd over it; whence that *Elision* is commonly call'd a *Leap of the Moon*.

Because *Epacts* are to be thus compos'd, by the continual Addition of 11 Days, and the Rejection of 30, that they may expire with the Lunar Cycle of 19 Years, and begin again with the same; there are to be as many *Epacts* as there are Golden Numbers; as in the following Table.

Golden Number	Epacts	Golden Number	Epacts	Golden Number	Epacts
1	XI	7	XVII	13	XXIII
2	XXII	8	XXVIII	14	IV
3	III	9	IX	15	XV
4	XIV	10	XX	16	XXVI
5	XXV	11	I	17	VII
6	VI	12	XII	18	XVIII
				19	XXIX

This Order of the Golden Numbers, and of the *Epacts*, had been perpetual, and never subject to any Variation, if the Intercalation was never to be left out, which must be done thrice in 400 Years; and if the New and Full Moons were never after the Course of 19 Years to anticipate their Place. But as often as an Intercalation is omitted in a Year, which, according to the *Julian Calendar*, should be Bissextile, (for we follow in this Place the *Gregorian* Reformation) *viz.* 1800, or 1900, then the Day which, in the old *Calendar* should have been call'd the 29*th* of *February*, is the 1*st* Day of *March* after the Reformation; because the Intercalation being omitted, *February* has only 28, and not 29 Days. Therefore if the New Moon should have fell on the first Day of *March*, in the old *Calendar*, it pertains to the second in the new, and happens a Day later. This Stay of the Moon is call'd *Metemptosis*.

Moreover, as the New Moons, after 19 Years, anticipate their Place by one Hour, and very near thirty Minutes; hence it happens, that after twelve Years and a Half they return sooner by a whole Day to their Place; and this Anticipation is call'd *Proemptosis*. Therefore, in order that the Golden Number, and the 19 *Epacts* answering to it, may, after the *Peremptosis*, indicate the New Moon; each Number should be carried back to the preceding Place, towards the Beginning of the Year; and even should change Place, as often as the *Proemptosis* or *Metemptosis* should happen, *i. e.* when the Solar or Lunar Equation is to be added.

But as that Equation could successively fall in every Day of each Month, there would be wanted as many *Calendars* as there are Days in the Month exhibited in those *Calendars*, the *Golden Numbers*, as well as the *Epacts* answering to them. For all the *Epacts* are not always in Use, but only nineteen, which are us'd till they are render'd useless by a too great Increase of the Difference between the Lunar Cycle and the Civil Year; for then they are succeeded by nineteen other *Epacts*.

However, *Lilius*, by finding the Secret to propagate the Golden Number into 30 *Epacts*, has eas'd us of that monstrous Heap of *Calendars*; for these Numbers being affix'd to every Day of the Month, without Exception, it is very easy, when the Equation of the Moon, or of the Sun, happens to change the Cycle. For if the New Moon anticipates the Place by one Day, because of the *Proemptosis*, the Cycle ascends to the next superior *Epact*, which exceeds by one that which, without the *Proemptosis*, must have been us'd. But if, on the contrary, the New Moons happen later by a Day, the *Epact* descends, because of the *Metemptosis*, to the next inferior Place, which is lesser by one than that which had been us'd if there had been no *Metemptosis*. If it ever happen'd that the Difference should be of two, or more Days, the Cycle will ascend or descend as many Degrees, at the Beginning or End of the Months; but in order that these Rules may be still more obvious to my Reader, I have plac'd here the four first Columns of the Tables of the Months. In the first Column are the *Epacts*, in *Roman* Figures; in the second the *Dominical Letters*; in the third the *Calends* and *Nones*; and in the fourth the Days of the Months, mark'd with *Arabick* Characters.

JANUARY.			
Cycle of Epacts.	D. L.	Calends	Days
*	A		1
XXIX	b	IV	2
XXVIII	c	III	3
XXVII	d	prid.	4
XXVI	e	non.	5
25. XXV	f	VIII	6
XXIV	g	VII	7
XXIII	A	VI	8
XXII	b	V	9
XXI	c	IV	10
XX	d	III	11
XIX	e	prid.	12
XVIII	f	Ides.	13
XVII	g	XIX	14
XVI	A	XVIII	15
XV	b	XVII	16
XIV	c	XVI	17
XIII	d	XV	18
XII	e	XIV	19
XI	f	XIII	20
X	g	XII	21
IX	A	XI	22
VIII	b	X	23
VII	c	IX	24
VI	d	VIII	25
V	e	VII	26
IV	f	VI	27
III	g	V	28
II	A	IV	29
I	b	III	30
*	c	prid.	31

FEBRUARY.			
Cycle of Epacts.	D. L.	Calends	Days
XXIX	d		1
XXVIII	e	IV	2
XXVII	f	III	3
25. XXVI	g	prid.	4
XXV. XXIV	A	Non.	5
XXIII	b	VIII	6
XXII	c	VII	7
XXI	d	VI	8
XX	e	V	9
XIX	f	IV	10
XVIII		III	11
XVII	A	prid.	12
XVI	b	Ides.	13
XV	c	XVI	14
XIV	d	XV	15
XIII	e	XIV	16
XII	f	XIII	17
XI	g	XII	18
X	A	XI	19
IX	b	X	20
VIII	c	IX	21
VII	d	VIII	22
VI	e	VII	23
V	f	VI	24
IV	g	V	25
III	A	IV	26
II	b	III	27
I	c	prid.	28

MARCH.			
Cycle of Epacts.	D L.	Calends	Days
*	d		1
XXIX	e	VI	2
XXVIII	f	V	3
XXVII	g	IV	4
XXVI	A	III	5
25. XXV	b	prid.	6
XXIV	c	Non.	7
XXIII	d	VIII	8
XXII	e	VII	9
XXI	f	VI	10
XX	g	V	11
XIX	A	IV	12
XVIII	b	III	13
XVII	c	prid.	14
XVI	d	Ides.	15
XV	e	XVII	16
XIV	f	XVI	17
XIII	g	XV	18
XII	A	XIV	19
XI	b	XIII	20
X	c	XII	21
IX	d	XI	22
VIII	e	X	23
VII	f	IX	24
VI	g	VIII	25
V	A	VII	26
IV	b	VI	27
III	c	V	28
II	d	IV	29
I	e	III	30
*	f	prid.	31

APRIL.			
Cycle of Epacts.	D. L.	Calends	Days
XXIX	g		1
XXVIII	A	IV	2
XXVII	b	III	3
XXVI	c	prid.	4
XXV-XXIV	d	Non.	5
XXIII	e	VIII	6
XXII	f	VII	7
XXI	g	VI	8
XX	A	V	9
XIX	b	IV	10
XVIII	c	III	11
XVII	d	prid.	12
XVI	e	Ides.	13
XV	f	XVIII	14
XIV	g	XVII	15
XIII	A	XVI	16
XII	b	XV	17
XI	c	XIV	18
X	d	XIII	19
IX	e	XII	20
VIII	f	XI	21
VII	g	X	22
VI	A	IX	23
V	b	VIII	24
IV	c	VII	25
III	d	VI	26
II	e	V	27
I	f	IV	28
*	g	III	29
XXIX	A	prid.	30

May.			
Cycle of Epacts.	D. L.	Calends	Days
XXVIII	b		1
XXVII	c	VI	2
XXVI	d	V	3
25. XXV	e	IV	4
XXIV	f	III	5
XXIII	g	prid.	6
XXII	A	Non.	7
XXI	b	VIII	8
XX	c	VII	9
XIX	d	VI	10
XVIII	e	V	11
XVII	f	IV	12
XVI	g	III	13
XV	A	prid.	14
XIV	b	Ides.	15
XIII	c	XVII	16
XII	d	XVI	17
XI	e	XV	18
X	f	XIV	19
IX	g	XIII	20
VIII	A	XII	21
VII	b	XI	22
VI	c	X	23
V	d	IX	24
IV	e	VIII	25
III	f	VII	26
II	g	VI	27
I	A	V	28
*	b	IV	29
XXIX	c	III	30
XXVIII	d	prid.	31

June.			
Cycle of Epacts.	D. L.	Calends	Days
XXVII	e		1
25. XXVI	f	IV	2
XXV. XXIV	g	III	3
XXIII	A	prid.	4
XXII	b	Non.	5
XXI	c	VIII	6
XX	d	VII	7
XIX	e	VI	8
XVIII	f	V	9
XVII	g	IV	10
XVI	A	III	11
XV	b	prid.	12
XIV	c	Ides.	13
XIII	d	XVIII	14
XII	e	XVII	15
XI	f	XVI	16
X	g	XV	17
IX	A	XIV	18
VIII	b	XIII	19
VII	c	XII	20
VI	d	XI	21
V	e	X	22
IV	f	IX	23
III	g	VIII	24
II	A	VII	25
I	b	VI	26
*	c	V	27
XXIX	d	IV	28
XXVIII	e	III	29
XXVII	f	prid.	30

July.			
Cycle of Epacts.	D. L.	Calends	Days
XXVI	g		1
25. XXV	A	VI	2
XXIV	b	V	3
XXIII	c	IV	4
XXII	d	III	5
XXI	e	prid.	6
XX	f	Non.	7
XIX	g	VIII	8
XVIII	A	VII	9
XVII	b	VI	10
XVI	c	V	11
XV	d	IV	12
XIV	e	III	13
XIII	f	prid.	14
XII	g	Ides.	15
XI	A	XVII	16
X	b	XVI	17
IX	c	XV	18
VIII	d	XIV	19
VII	e	XIII	20
VI	f	XII	21
V	g	XI	22
IV	A	X	23
III	b	IX	24
II	c	VIII	25
I	d	VII	26
*	e	VI	27
XXIX	f	V	28
XXVIII	g	IV	29
XXVII	A	III	30
25. XXVI	b	prid.	31

August.			
Cycle of Epacts.	D. L.	Calends	Days
XXV. XXIV	c		1
XXIII	d	IV	2
XXII	e	III	3
XXI	f	prid.	4
XX	g	Non.	5
XIX	A	VIII	6
XVIII	b	VII	7
XVII	c	VI	8
XVI	d	V	9
XV	e	IV	10
XIV	f	III	11
XIII	g	prid.	12
XII	A	Ides.	13
XI	b	XIX	14
X	c	XVIII	15
IX	d	XVII	16
VIII	e	XVI	17
VII	f	XV	18
VI	g	XIV	19
V	A	XIII	20
IV	b	XII	21
III	c	XI	22
II	d	X	23
I	e	IX	24
*	f	VIII	25
XXIX	g	VII	26
XXVIII	A	VI	27
XXVII	b	V	28
XXVI	c	IV	29
25. XXV	d	III	30
XXIV	e	prid.	31

September.			
Cycle of Epacts.	D. L.	Calends	Days
XXIII	f		1
XXII	g	IV	2
XXI	A	III	3
XX	b	prid.	4
XIX	c	Non.	5
XVIII	d	VIII	6
XVII	e	VII	7
XVI	f	VI	8
XV	g	V	9
XIV	A	IV	10
XIII	b	III	11
XII	c	prid.	12
XI	d	Ides.	13
X	e	XVIII	14
IX	f	XVII	15
VIII	g	XVI	16
VII	A	XV	17
VI	b	XIV	18
V	c	XIII	19
IV	d	XII	20
III	e	XI	21
II	f	X	22
I	g	IX	23
*	A	VIII	24
XXIX	b	VII	25
XXVIII	c	VI	26
XXVII	d	V	27
25. XXVI	e	IV	28
XXV. XXIV	f	III	29
XXIII	g	prid.	30

October.			
Cycle of Epacts.	D. L.	Calends	Days
XXII	A		1
XXI	b	VI	2
XX	c	V	3
XIX	d	IV	4
XVIII	e	III	5
XVII	f	prid.	6
XVI	g	Non.	7
XV	A	VIII	8
XIV	b	VII	9
XIII	c	VI	10
XII	d	V	11
XI	e	IV	12
X	f	III	13
IX	g	prid.	14
VIII	A	Ides.	15
VII	b	XVII	16
VI	c	XVI	17
V	d	XV	18
IV	e	XIV	19
III	f	XIII	20
II	g	XII	21
I	A	XI	22
*	b	X	23
XXIX	c	IX	24
XXVIII	d	VIII	25
XXVII	e	VII	26
XXVI	f	VI	27
25. XXV	g	V	28
XXIV	A	IV	29
XXIII	b	III	30
XXII	c	prid.	31

November.			
Cycle of Epacts.	D. L	Calends	Days
XXI	d		1
XX	e	IV	2
XIX	f	III	3
XVIII	g	prid.	4
XVII	A	Non.	5
XVI	b	VIII	6
XV	c	VII	7
XIV	d	VI	8
XIII	e	V	9
XII	f	IV	10
XI	g	III	11
X	A	prid.	12
IX	b	Ides.	13
VIII	c	XVIII	14
VII	d	XVII	15
VI	e	XVI	16
V	f	XV	17
IV	g	XIV	18
III	A	XIII	19
II	b	XII	20
I	c	XI	21
*	d	X	22
XXIX	e	IX	23
XXVIII	f	VIII	24
XXVII	g	VII	25
25. XXVI	A	VI	26
XXV. XXIV	b	V	27
XXIII	c	IV	28
XXII	d	III	29
XXI	e	prid.	30

December.			
Cycle of Epacts.	D. L.	Calends	Days
XX	f		1
XIX	g	IV	2
XVIII	A	III	3
XVII	b	prid.	4
XVI	c	Non.	5
XV	d	VIII	6
XIV	e	VII	7
XIII	f	VI	8
XII	g	V	9
XI	A	IV	10
X	b	III	11
IX	c	prid.	12
VIII	d	Ides.	13
VII	e	XIX	14
VI	f	XVIII	15
V	g	XVII	16
IV	A	XVI	17
III	b	XV	18
II	c	XIV	19
I	d	XIII	20
*	e	XII	21
XXIX	f	XI	22
XXVIII	g	X	23
XXVII	A	IX	24
XXVI	b	VIII	25
25. XXV	c	VII	26
XXIV	d	VI	27
XXIII	e	V	28
XXII	f	IV	29
XXI	g	III	30
19. XIX	A	prid.	31

In the first Column opposite to the first Day of *January*, is placed the *Asterisk* * ; opposite to the second Day, the Number XXIX ; and opposite to the third Day the Number XXVIII, *&c.* in Order that Number I, may fall on the 30*th* Day of *January:* Then again, a small Star is placed to the 31*st* of *January*; and Number XXIX to the first of *February*; and thus, by Retrogradation is made a Progress throughout every Day of the Year.

But because the *Lunar Months* are alternately full, and *Cavi*, or deficient; there have been invented six Interruptions, by taking two *Epacts* into one, and the same Place, *viz.* XXIV and XXV, and that in six Places of the *Calendar*, *viz.* in *February*, *April*, *June*, *August*, *September*, and *November*. For this Reason it happen'd that all the Paschal Lunations, the last excepted, are all *Cava*, or imperfect, as they were in the Time of the Council of *Nice*, whereby the 14 *full Moons* are demonstrated with more Accuracy; for if each of the twelve Lunations were of 30 Days, they altogether would make up 360 Days, but as by those six *Interruptions*, six Days are retrenched, they then produce only, 354 Days; so that the common *Solar Year* of 365 Days, exceeds always the *Lunar Year* by eleven Days, and therefore the twelfth Lunation is terminated at the 20*th* Day of *December*; wherefore eleven *Epacts* are to be fetched from the 21*st* of *December* to the 31*st*, *viz.* * XXIX, XXVIII. *&c.*

If I be asked, why I place the *Asterisk* *, opposite to the first Day of *January*, and not rather the *Epact* XXX ? I'll answer, that my Reason for acting thus, is, That as it happens often, that two Lunations end in the Month of *December*; one, for Example, the first Day of that Month, in which Case there remain 30 Days; and the other the last Day of the same Month, in which Case it remains, 0, or nothing: But as the *Epact* denotes the Number of Days remaining

maining after the Lunation ended in the Month of *December*, certainly the *Epact* XXX, or o, or both, should be affixed to the first of *January*; but as that would be ambiguous and troublesome, I judge it more proper to mark it, with an indifferent Sign, such as the *Asterisk* *.

It might be ask'd, secondly, why the *Epact* XXIX, be affixed to be the second Day of *January*; the *Epact* XXVIII to the third Day, and thus all the rest by Retrogradation.

To which I answer, that the *Epact* XXIX is thus affixed to the second Day of *January*, because supposing the last Lunation of the preceding Year, had ended the second of *December*, there will remain 29 Days of the same Month; and therefore the *Epact* of the following Year is XXIX. For as the *Epact* belonging to each Year, denotes in their proper Place, the Days, in which the New *Moons* happen, throughout the Course of that Year, it is necessary the *Epact* XXIX be placed opposite to the second Day of *January*; for from the Supposition, or Hypothesis, that there is such a Thing as *Epact* XXIX, the first Day of *January* must be the thirtieth, or last Day of the preceding Lunation; and thus the New *Moon* will happen the second Day of *January*, to which will be affixed the *Epact* of that Year XXIX.

In the same Manner, opposite to the third of *January*, is placed the *Epact* XXVIII, because after the Lunation ended the third Day of *December*, there remain 28 *Epactal* Days, of which, by adding the first and second Day of *January*, will be made a whole Lunation of 30 Days; and therefore the New *Moon* will fall on the third Day of the same *Month*.

The rest of the *Epacts* proceed in the same Order, till we come to the 30*th* of *January*, when the proposed *Epact* I, is found; because after the Lunation ended the 30*th* of *December*, there remains only one Day of *Epact*, viz. the 31st Day of *December*; so that the first Day of *January* is the first Day of the Lunation which begins the 31st of *December*, and ends the 29*th* of *January*, that *Epact* I, affix'd to the 30*th*, may indicate the New *Moon*.

It might be ask'd, 3*dly*, why, in those Months wherein there is made an Interruption of six Days, in the same Place, with the *Epact* XXVI, is plac'd in a different Character, the *Epact* 25? And why, likewise, in other Months, the same *Epact* 25, is plac'd with the *Epact* XXV?

I answer, that this is done because within the Space of 19 Years, the New Moons are not to fall twice in the same Day, according to the Rules of the *Metonick* Cycle of nineteen Years; whence, if within the same Cycle of nineteen Years the *Epacts* XXIV and XXV happen, for XXV must be taken, mark'd in another Character, as plac'd first; without there could be any Danger of the New Moon falling twice in the same Day; because if the *Epacts* XXIV and 25 are found in one Cycle, the *Epact* XXVI, which is in the same Place with 25, will have no Place in that Cycle.

It is ask'd, 4*thly*, why opposite to the 31*st* Day of *December*, besides the *Epact* XX, be added, the *Epact* 19 in other Characters?

I answer, that the *Epact* 19 is but very seldom us'd, and only when the *Golden Number* 19 concurs with the *Epact* XIX; for while the *Golden Number* 19 is running, the last Lunar Month, which is *embolismick*, contains only, as we have already observ'd, 29 Days, tho' 30 be attributed to it; but because of the Equation, XII Days are given to the following *Epact*, in lieu of XI that it should have.

Therefore if XII be added to *Epact* XIX, they'll make up XXXI; whence XXX being thrown out, there will remain I, and the *Epact* of the following Year will be I; but the *Epact* I, answers to the 30*th* of *January*; wherefore, as the *Epact* XXIX pertains only to the 2*d* Day of *December*, and not to any other Day of the same Month; and as the *Epact* of the following Year will be I, which is affix'd to the 30*th* of *January*: Hence it would follow, that there could be no New Moon indicated between the 2*d* Day of *December* and the 30*th* of *January*; *i. e.* within 59 Days, tho' a New Moon happens the 31*st* of *December* of the same Year. Hence it happens, that to that same Day, besides *Epact* XX, is ascrib'd another, in another Character, *viz.* 19, which is the only one useful, the *Golden Number* 19, and the *Epact* XIX, concurring together no otherwise.

This is the Disposition of the *Roman Calendar* after the Correction of Pope *Gregory* XIII; whence it happen'd, that the Connexion of the *Golden Numbers*, and of *Epacts*, is not perpetual, but is to be chang'd as often as a Lunar or Solar Equation is requisite. For Example, the *Golden Number* 6, which answer'd to the Year 1582, being connected with the *Epact* VI, that *Epact* VI, is the *Epact* of the Year 1582 in the old *Calendar*; but after ten Days have been retrench'd, by the *Gregorian* Reformation, the *Epact* must be taken ten Degrees lower, in the Columns of the Months, under the *Golden Number* 6, *viz. Epact* XXVI, which *Epact* is to be join'd with the *Golden Number* 6; as in the following Table.

Golden Number	Epacts	Golden Number	Epacts	Golden Number	Epacts
6	XXVI	11	XXI	17	XXVII
7	VII	12	II	18	VIII
8	XVIII	13	XIII	19	XIX
9	XXIX	14	XXIV	1	I
10	X	15	V	2	XII
		16	XVI	3	XXIII
				4	IV
				5	XV

Therefore to the Year 1582 must have been given the first Place, in which is the Number 6, and the *Epact* XXVI; to the Year 1583 the second, in which is the *Golden Number* 7, and the *Epact* VII, and so of the following Numbers and *Epacts*: So that the Year 1600 must answer in the old *Calendar* to the last Place, in which is the *Golden Number* 5, and the *Epact* XV; and the Year 1601 returns to the first Place, the Year 1602 to the second, *&c.*

But because in the Year 1700 there was omitted a bissextile, or intercalary Day, the New Moons happen'd later; therefore, to make up the Equation, the Cycle of the *Epacts* must have descended a Degree lower towards the End of the Months; and whereas the last Moon of the Year 1700 should have ended the twenty-first of *December*, so that there had remain'd ten Days of *Epacts*, and the New Moon had happen'd the twenty-second; by the Omission of the intercalary Day, the last Moon ended only the twenty-second, and the New Moon happen'd the twenty-third of the same Month; whence the *Epact* was IX, not X; but as the *Golden Number* 10 was appropriated to that Year, a new Series of *Epacts* was instituted.

In the Year 1800 will be omitted, likewise, an intercalary Day, and every 300 Years the Moon is to anticipate the *Epacts* by one Day; therefore by that Compensation made, there will be an Equation, tho' the same Cycle remains. This is the *Canon* of the *Epacts* from the Year 1700, inclusively, to the Year 1900, inclusively; which Canon answers to the Index *C* in the general Table of the *Epacts*.

To the Year 1700 is to be attributed the first Place, in which is the *Golden Number* 10, and the *Epact* IX; to the Year 1701 belong the second, *&c.* so as for the Year 1718 to fall in the last, in which is the *Golden Number* 9, and the *Epact* XXVIII; and for the Year 1719 to return to the first, and thus successively to the Year 1900, exclusively; thereby the *Golden Number* will be easily found, as well as the *Epact* of every Year propos'd, from the Year 1700, inclusively, to the Year 1900, exclusively.

Golden Number	Epacts	Golden Number	Epacts	Golden Number	Epacts
10	IX	17	XXVI	3	XXII
11	XX	18	VII	4	III
12	I	19	XVIII	5	XIV
13	XII	1	*	6	XXV
14	XXIII	2	XI	7	VI
15	IV			8	XVII
16	XV			9	XXVIII

In the Year 1900 there will be omitted an Intercalation, therefore it will descend to the Series of the Letter *B*. In the Year 2000, and 2100, the same Series will be continu'd. In the Year 2200 it will descend to the Series of the Index *A*. In the Year 2300 the Descent will be to the Series of the Index *V*. In the Year 2400 it will ascend to the Letter *A*. In the Year 2500 it will descend back again to *V*, *&c.*

In all these there are three Rules to be observ'd: The first, that when an Intercalation is omitted, and there is no Anticipation of the Moon, there must be a Descent to the lower Series. The second, that when an Anticipation of the Moon happens, and there is no Intercalation omitted, there must be an Ascent to the superior Series. The third, that when the Omission of the Intercalation, and the Anticipation of the Moon, concur together, there is a Compensation made, and the same Series continues.

From this Theory of the *Calendar*, we'll proceed to its Use. The principal Use of the *Calendar*, is, that the moveable Feasts may be referr'd, every Year, to their proper Time, and especially *Easter*, on which all the others depend; but *Easter* depends on the XIV*th* Moon of the first Lunar Month, and the XIV*th* Moon is to be known by the *Epact*; therefore we'll include the Use of the *Calendar* in two Problems.

Prob. I. To find on any Day the Age of the Moon.

1. The *Epact* of the current Year must be found, by means of the preceding Canon, in Use from the Year 1700, inclusively, to the Year 1900, exclusively; for afterwards we shall be oblig'd to use the other Canons, or Series, taken from the general Table of *Epacts*. Having found the *Epact*, it will indicate, in the *Calendar*, every Day of the Year in which the New Moons are to happen; whence the New Moons, and Quadratures, will be known. For Example, the *Epact* for the Year 1700 was IX, therefore wherever, in the monthly Tables, this Number IX occurr'd, there was indicated the Beginning of the Lunations of that Year, *viz.* at the 22*d* of *January*, at the 20*th* of *February*, &c. The same is to be observ'd in the other Years.

What I say of the Days of the New Moons being indicated by the *Epact*, I would not have it understood that it can be done with the same Accuracy as by the astronomical *Calculus*; for the Moon which, in the Style of the *Calendar*, is call'd the XIV*th*, is oftner the XV*th*, and the Equinox later design'd than it should be; but the Church likes best to recede a little from the true Equinox, than to anticipate it; lest *Easter* should be celebrated on the Day of the Equinox, or even before the Equinox.

Therefore the Church uses, in its *Calendar*, a political *Calculus*, adapted to the Manner of reckoning of the People, and not of an accurate and astronomical one; and as we have not always a *Calendar* in Hand, another Method, still less accurate, has been invented, to find, at any Time, the Age of the Moon.

The *Epact* of each Year, is the Number of Days of the Moon left of the preceding Year, or the Age of the Moon at the first Day of *January*; which if found for any Year given, it will be found for the next following, and all other Years, by the continual Addition of XI Days, throwing out XXX, every Time they occur, till the *Golden Number* 19 happens; at which Time, the *Epact* XII must be taken, by reason of the *Leap* of the Moon.

Therefore where the *Epact* happens to be mark'd, so many Days must be added to it as the Month, in which the Age of the Moon is search'd, or look'd for, is distant, in Number, from the Month of *March*, reckoning *March* it self; for by such Addition, there will be had the Age of the Moon for the first Day of that Month: Therefore, if to that Number be added, besides, the Number of Days already elaps'd of that said Month, those 3 Numbers, *viz.* the *Epact*, the Number of Months from *March*, and the Number of Days of the Month propos'd, which being collected together, will exceed XXX, or not; if they don't exceed XXX, they'll indicate the Age of the Moon; but if they exceed XXX, the XXX are to be thrown out, and the Number left will indicate the Age of the Moon. *V. gr.* If we would know the Age of the Moon for the 17*th* of *November* for the Year 1700; the *Epact* IX, which is adapted to that Year, must be taken, then the Number of the Days of the Month, *viz.* 17; and the Number of Months from *March* to *November*, *viz.* 9; which Numbers being added together, will give 35: Whence, if XXX be substracted, there will remain V; which indicates the Age of the Moon for that Day.

If it be ask'd why the Computation begins at *March*, and not at *January?* I answer, that the Month of *January* consists of 31 Days, and the Moon answering to it of 30; but that the Month of *February* has but only 28 Days, and the Moon 29; whence, after those two Months a Compensation is made; so that the Solar Year in no manner exceeds the Lunar one, at the Beginning of *March:* Therefore the XI Days, by which the Solar Year exceeds the Lunar one, are distributed throughout the other Months: Consequently the Computation must begin from the Month of *March*. Tho', as we have already observ'd, this Method is erroneous; neither can the Solar Months be always adapted to the Lunar Months answering to them; but there is no such accurate *Calculus* requir'd in common Use.

Prob. II. To find the moveable Feasts every Year. The other Feasts depend on *Easter*, and have their defin'd Intervals from *Easter:* For if in the Tables of the Months we mark *Easter* Day, and we go from it six Weeks towards the Beginning of the Year, we shall have the first *Sunday* of *Lent*. Therefore the *Wednesday* antecedent to it will be *Ash-Wednesday*, which is preceded by the *Sunday* of *Quinquagesima*; the *Quinquagesima* by the *Sexagesima*; and the *Sexagesima* by the *Septuagesima*: For the Denomination of these *Sundays* is taken from the *denary Progression* observ'd in Arithmetick, tho' there be but 7 Days between them. The *Septuagesima* being known, it is easy to find how many *Sundays* there are between *Septuagesima* and the Feast of the *Epiphany*, which Feast is fix'd immoveable, at the 6*th* Day of *January*.

If we reckon 7 Weeks after *Easter*, in which are contain'd 49 Days, we shall find, at the End of those 7 Weeks, the Feast of *Pentecost*, or the 50*th* Day after *Easter*, which was a solemn Day in the Old Testament, and much more so in the New, by the coming of the *Holy Ghost*.

At present, we must find the Number of Weeks between the Feast of *Pentecost* to the 25*th* of *December*, on which Day falls the Feast of *Christ*'s Nativity. The 4*th Sunday* before that Feast, is the first *Sunday* in *Advent*; therefore the Number of *Sundays* between *Pentecost* and the first *Sunday* in *Advent*, is conspicuous enough; and therefore *Easter* once found, it is very easy to find all the other moveable Feasts.

Easter, by a Decree of the Council of *Nice*, is to be celebrated the *Sunday* next after the XIV*th* Moon of the first Lunar Month. The Reason of this Institution is taken from *Exod.* xii. where the *Jews* are commanded to celebrate the *Passover* in the XIV*th* Moon of the first Month; that they might preserve the Memory of that fortunate Day when they were deliver'd from the Captivity of *Egypt*, and recover'd their

their Liberty. Therefore the *Christians* must celebrate the Feast of the *Resurrection* the next *Sunday* following the XIV*th* Moon, on which Day, *Christ*, by rising from the Dead, deliver'd us from the Tyranny of the Devil.

Therefore the Month whose XIV*th* Moon falls on the vernal Equinox, or is the first from it, that Month is by divine Institution the first Lunar Month. Whence four Things are to be observ'd in this Place, 1. The *Spring*. 2. The *New Moon*. 3. The XIV*th Moon*. 4. The *next Sunday* following the XIV*th Moon*.

The *Spring*, or vernal Equinox, is commonly referr'd to the 21*st* of *March*, tho' it sometimes precedes that Day, as it happen'd towards the End of the 17*th* Century; but by the Omission of the bissextile Day, the Equinox was restor'd, in 1700, to the 21*st* of *March*. The *New Moon* is the first Day of the Lunar Month. The XIV*th Moon* is the 14*th* Day of the Lunar Month. The *Sunday* next to the XIV*th Month*, is that *Sunday* which follows immediately after.

Therefore if the New Moon happen'd the 8*th* of *March*, the 14*th* Day of that Moon would fall on the 21*st* Day of the same Month, or on the Equinox; for the Church always refers the Equinox to the 21*st* of *March*: Therefore if that 21*st* Day happen'd to be a *Saturday*, *Easter* will be celebrated the next Day following, *i. e.* the 22*d* of *March*, and the 15*th* of the first Moon, as it was celebrated in the Year 1693. But if the 21*st* Day be a *Sunday*, *Easter* is not to be celebrated till the *Sunday* following, which is to be the 28*th* of *March*, and the 21*st* of the first Moon, or Lunar Month; in which Lunar Month there are 7 Days, which serve alternately to the Solemnity of *Easter*, *viz.* from the XV*th* to the XXI*st*.

But if the New Moon happen'd before the 8*th* of *March*, *v. gr.* if it happen'd the 7*th*, then the XIV*th* Moon would fall on the 20*th* of *March*; and therefore by its having preceded the Equinox, could not be the *first*, or *Paschal Moon*, at least as decreed by the Church, but the Solemnity would be deferr'd to the next, which begins the 5*th* of *April*.

Therefore the New Moons, whose XIV*th* Moon falls on the vernal Equinox, or follows it next, are in Number 29, *viz.* from the 8*th* of *March*, inclusively, to the 5*th* of *April*, also, inclusively, but the XIV*th* Moon of the first New Moon falls on the vernal Equinox, and those of the other Moons, in their Order, after the Equinox; therefore the Solemnity of *Easter* runs thro' 35 Days, from the 22*d* of *March*, inclusively, to the 25*th* of *April*, inclusively; *i. e.* it can fall on any of those 35 Days. For if the New Moon happens on the 8*th* of *March*, and the XIV*th* Moon falls on the 21*st* Day of *March*, perhaps a *Saturday*, the *Feast of the Resurrection* will be celebrated the next Day, *viz.* the 22*d* of *March*, and the XV*th* Moon. But if the New Moon happens the 5*th* of *April*, and the XIV*th* Moon falls on the 18*th* of the same Month, perhaps a *Sunday*, *Easter* will not be celebrated the same Day, lest the *Christians* should appear to concur with the *Jews*, or *Quartodecimains*; but must be deferr'd to the *Sunday* following, *viz.* the 25*th* of *April*, and the XXI*st* Moon.

Easter Day will be found, for any Year, by the *Epact* current, and observing in the *Calendar* to which Day it is prefix'd, from the 8*th* of *March*, inclusively, to the 5*th* of *April*, also, inclusively. Since that *Epact* indicates the New Moon for that whole Year, if 14 Moons, or 14 Lunar Days, be reckon'd from it, and the following *Sunday* be known by the *Dominical Letter*, the Feast of *Easter* will be found. *V. gr.* In the Year 1693, the *Epact* was XXIII, which was that opposite to the 8*th* of *March*; therefore the Days, or 14 Moons, must have been reckon'd from the 8*th* Day of *March*, and the 14*th* must have fell on the 21*st* of the same Month, to which answer'd the Letter *C*, which that Year indicated *Saturday*; therefore there must have been a Descent to the Letter *D*, which was the *Dominical*, and which answer'd to the following Day, the 22*d*; on which Day *Easter* was, that Year, celebrated. In the Year 1700, the *Epact* was IX, which was prefix'd to the 22*d* of *March*; from that Day, in which the New Moon happen'd, must have been reckon'd 14 Days, and the 14*th* fell on the 4*th* of *April*, which was a *Sunday*, because mark'd with the Letter *C*, which, that Year, was the *Dominical Letter*; therefore the Celebration of *Easter* was deferr'd to the *Sunday* following, which was the 11*th* of *April*.

But *Easter-Day* can be found, with less Difficulty, in the *Perpetual Paschal Table reform'd*. In that Table there are four Columns: The first contains the *Golden Numbers*; the second all the *Paschal Epacts*, viz. from the 8*th* of *March*, inclusively, to the 5*th* of *April*, also, inclusively; which are us'd, instead of *Golden Numbers*, in the new *Calendar*. The third, the *Dominical Letters*, from the 22*d* of *March*, inclusively, to the 25*th* of *April*, likewise inclusively. The fourth, the Days of those Months in which *Easter* is to be celebrated; if there be more in that Column, they pertain to the other *moveable Feasts*.

Therefore, the *Epact* being known, we must look for the *Dominical Letter* next following, and we shall find it opposite to the Day of the Month on which *Easter* falls. *V. gr.* In the Year 1699 the *Epact* was XXIX, and the *Dominical Letter D*; therefore I search the *Epact* XXIX, in the Table of the *Epacts*, and under it the *Dominical Letter D*, next following, which answers to the 19*th* of *April*; whence I infer, that *Easter* happen'd, in 1699, on the 19*th* of *April*.

The antient PASCHAL TABLE *reform'd.*

Golden Number	Cycle of Epacts	Dom. Let.	Easter
XVI	XXIII	c	
V	XXII	d	*March* 22
	XXI	e	23
XIII	XX	f	24
II	XIX	g	25
	XVIII	A	26
X	XVII	b	27
	XVI	c	28
XVIII	XV	d	29
VII	XIV	e	30
	XIII	f	31
XV	XII	g	*April* 1
IV	XI	A	2
	X	b	3
XII	IX	c	4
I	VIII	d	5
	VII	e	6
IX	VI	f	7
	V	g	8
XVII	IV	A	9
VI	III	b	10
	II	c	11
XIV	I	d	12
III	*	e	13
	XXIX	f	14
XI	XXVIII	g	15
	XXVII	A	16
XIX	25.XXVI	b	17
VIII	XXV.XXIV	c	18
		d	19
		e	20
		f	21
		g	22
		A	23
		b	24
		c	25

The Use of the new *Paschal Table* seems yet a great deal easier. In its first Column are plac'd the seven *Dominical Letters*; in the second all the *Epacts* which occur; then opposite to the *Epacts* are mark'd, in the other Columns, not *Easter* only, but also all the other moveable Feasts. For Example,

In the Year 1707, the *Dominical Letter* was *B*, and the *Epact* XXVI; therefore if you search the Letter

B, in the first Column of the Table, and the *Epact* 26, after the Letter *B*, in the second Column, you'll find, opposite to that *Epact*, that the *Septuagesima* happen'd, that Year, on the 20*th* of *February*, *Easter* the 24*th* of *April*, and the first *Sunday* in *Advent* the 27*th* of *November*.

In the Bissextile Years, the moveable Feasts are found by the *Dominical Letter* current, after the Feast of St. *Matthias*; so that one Day must be added to the *Septuagesima*, and to *Ash-Wednesday*. Thus, in the Year 1712, *B* was the *Dominical Letter* current after the Feast of St. *Matthias*; therefore opposite to the *Epact* 22 current for the same Year, will be found the *Septuagesima*, mark'd the 23*d* of *January*, and *Ash-Wednesday* the 9*th* of *February*; whence you'll conclude, that the *Septuagesima* happen'd that Year on the 24*th* of *January*, and *Ash Wednesday* on the 10*th* of *February*. Nothing should be added, if *Ash-Wednesday* was to happen in *March*.

In the *Julian* Way of computing, no Full Moon is Paschal, but that immediately after the 21*st* of *March*; therefore *Easter* can never happen earlier than the 22*d* of *March*. Now by finding the Full Moons next after the 21*st* of *March*, for the several *Golden Numbers*, or Years of the Lunar Cycle, we shall have a Table for the finding of *Easter* for ever. Such Table being of considerable Use in the *Julian* Computation, we shall here subjoin it.

Golden Number	Full Moons next after the Vernal Equinox		Golden Number	Full Moons next afte the Vernal Equinox	
I	5 *April*	D	XI	15 *April*	G
II	25 *March*	G	XII	4 *April*	C
III	13 *April*	E	XIII	24 *March*	F
IV	2 *April*	A	XIV	12 *April*	D
V	22 *March*	D	XV	1 *April*	G
VI	10 *April*	B	XVI	21 *March*	C
VII	30 *March*	E	XVII	9 *April*	A
VIII	18 *April*	C	XVIII	29 *March*	D
IX	7 *April*	F	XIX	17 *April*	B
X	27 *March*	B			

Now to find *Easter* for any given Year, find the *Dominical Letter*, and the *Golden Number* of the given Year, as heretofore directed; then in the Table seeking the *Dominical Letter*, with the Day of the Paschal Full Moon, and the *Sunday* Letter annex'd thereto; compare this Letter with the *Dominical Letter* of the given Year, that it may appear how many Days are to be added to the Day of the Paschal Full Moon.

But in this Computation, the vernal Equinox is suppos'd affix'd to the 21*st* of *March*, and the Cycle of 19 Years, or *Golden Numbers*, is suppos'd to point out the Places of the New and Full Moons exactly; both which are erroneous: Whence it follows, that the *Julian Easter* never happens at its due Time, unless by Accident.

Calendar, is also us'd for the Catalogue, or *Fasti*, antiently kept in each Church of the Saints, both universal, and those particularly honour'd in each Church, with their Bishops, Martyrs, *&c.* The *Calendars* are not to be confounded with Martyrologies, for each Church had its peculiar *Calendar*; whereas the Martyrologies regarded the whole Church in general, containing the Martyrs and Confessors of all the Churches. From all the several *Calendars* was form'd one Martyrology, so that Martyrologies are posterior to *Calendars*.

There are still some of these *Calendars* extant, particularly a very antient one of the Church of *Rome*, made about the Middle of the 4*th* Century; comprehending, also, the Festivals both of the *Heathens* and *Christians*, which were then very few in Number. F. *Mabillon* has also printed the *Calendar* of the Church of *Carthage*, made about the Year 483. The *Calendar* of the Church of *Æthiopia*, and that of the *Cophtæ*, publish'd by *Ludolphus*, seem to have been made after the Year 760. The *Calendar* of the *Syrians*, printed by *Genebrard*, is very imperfect; that of the *Muscovites*, publish'd by F. *Papebroch*, in most Respects agrees with that of the *Greeks*, publish'd by *Genebrard*. The *Calendar* publish'd by *Dom. D'Achery*, under the Title of the *Solar Year*, is no more than the *Calendar* of the Church of *Arras*. The *Calendar* publish'd in 1687, at *Augsbourg*, by *Beckius*, is apparently that of the antient Church of *Augsbourg*, or rather *Strasbourg*, wrote towards the Close of the 10*th* Century. The *Mosarabick Calendar*, still us'd in the five Churches of *Toledo*; the *Ambrosian* of *Milan*, and those of *England* before the Reformation, have nothing in them but what's found in those of the other western Churches.

CALVINISM.

CALVINISM, is the Doctrine of *Luther* and *Zuingle*, modeliz'd by *Calvin*, and by him adapted to his own Sentiments; but as *Calvinism* owes its Origin to *Zuingle*, rather than to *Luther*, from whose Doctrine it differs in several essential Articles, as we'll see in the Sequel of this historical Account of *Calvinism*, we must, previously to it, inform our selves who was *Zuingle*, of his Doctrine, and how it was first establish'd.

Haudry Zuingle was a young Man, endu'd with extraordinary good natural Parts, and of a fiery Temper, who from the Army, where he had serv'd with some Reputation, retir'd into the Sanctuary, and became Prebend of the Church of *Constance*, which he quitted also, to follow *Luther*, who then began to preach his Doctrine.

Zuingle was sent, by his new Master, *Luther*, to *Zurich* in *Switzerland*, where he contented himself, at first, to preach against the Indulgences which a *Milanese Cordelier*, or grey Fryar, was come to publish at *Zurich*, and against the Tyranny of the Popes, especially with regard to the Celibacy of the Clergy, which *Zuingle* had already condemn'd by his Example, by changing his Prebend for a Wife; but considering afterwards that he had as much Right to make himself the Chief of a new Church in *Switzerland*, as *Luther* had done in *Germany*, he took, on the other most essential Articles, a Road quite contrary to that of *Luther*; for *Luther* makes our Salvation to depend entirely on the Grace of God, and leaves nothing to the Free-will; while, on the contrary, *Zuingle* turn'd *Pelagian*, gives all to the Free-will, pretending, *Lib. De Provid. c.* 6. that we can operate our Salvation by our natural Strength; and believing, *in Expos. Fid. Christ.* that *Cato*, *Socrates*, *Scipio*, *Seneca*, and even *Hercules* and *Theseus*, and the other like Heroes of *Paganism*, had merited Heaven by their heroical Actions. *Luther* has always believ'd the real

Presence of *Christ*, in the Eucharist, but not the Transubstantiation; *i. e.* he would have the Body of *Christ* to be really present in the Sacrament, without any Change, or Alteration, in the Substance of the Bread and Wine; but *Zuingle*, *Lib. De Eucharist.* maintain'd, that nothing was receiv'd in the Sacrament but the Bread and Wine, which signified, and represented the Body of *Christ*, to which he that receiv'd was spiritually united by Faith.

Zuingle, having already form'd to himself a most powerful Party in *Zurich*, which the *Catholicks*, and particularly the Religious of the Order of St. *Dominick*, oppos'd strenuously: An Assembly was convok'd by the Senate of that City, to hear both Parties, in a regular Dispute, and to judge sovereignly afterwards, by the *Word of God*, of their Differences.

The Bishop of *Constance*, in whose Diocese *Zurich* was, frighted at this Enterprize, which he thought unwarrantable, as being without Precedent; sent his *grand Vicar*, *John Faber*, to forbid them to proceed farther, and remonstrate to them how monstrous it was, and contrary to the antient Practice of the *Church*, for an Assembly of Laymen to usurp the Authority of a Council, for the Decision of Points of Doctrine relating to Faith. But *Zuingle*'s Partisans, who were much more in Number, answer'd, that as they had a greater Interest than any Body else in their own Salvation, they had also a greater Right than any others to enquire after the Truth; and the Question being put to the Vote, the Doctrine of *Zuingle* was approv'd, and receiv'd by a great Majority, in the Canton of *Zurich*; and notwithstanding the Remonstrances of the Canton of *Lucerne*, the Images and Altars were soon after thrown down, which was follow'd by a publick Renunciation of the Communion of the *Roman Church*.

The Bishops of *Basil*, of *Constance*, and of *Lauzane*, surpriz'd at this Change, says *Sleidan*, *lib. 6.* which was follow'd by that of *Schaphouse*, and which happen'd in 1525, prevail'd, by their frequent Intreaties, that a general Assembly, of all the Cantons, should meet at *Basil*, in 1526, where the famous Dr. *Eskius*, having refuted all that *Œcolampadius* could say in Defence of the Doctrine of his Master *Zuingle*, who had sent him to that Assembly, where he would not appear himself; that Doctrine was condemn'd by a solemn Decree, in the Name of the whole *Helvetick* Body. But those of *Bern* having refus'd to receive that Decree, they convok'd another Assembly, where the *Roman Catholicks* refusing to appear, because that Affair had been already decided; and therefore *Zuingle* and his Partisans, finding themselves the strongest, the same Thing was done in that Assembly, with Regard to the Doctrine of the *Church* of *Rome*, which was done at *Basil*, with Regard to that of *Zuingle*. Some Time afterwards, those of *Basil*, persuaded by *Œcolampadius*, follow'd that Example, and enter'd into a League with those of *Zurich*, *Berne*, and *Schaphouse*.

It is impossible that the Diversity of Religion could not produce soon a Division in the Hearts. Those of *Zurich*, confiding in their Strength, far greater than that of their Neighbours, provok'd so often those among them who refus'd to espouse their Party, that the five Cantons, of *Lucerne*, *Zug*, *Uri*, *Underwald*, and *Shwitz*, to obtain Satisfaction for the many repeated Insults they thought to have receiv'd from those of *Zurich*, invaded their Territories; whence ensu'd a Battle, (continues *Sleidan*, *l.* 8.) which prov'd fatal to those of *Zurich*, since their whole Army was cut in Pieces; and *Zuingle* himself, who was as brave a Soldier as eloquent Preacher, fighting gallantly at the Head of a Battalion, was kill'd on the Spot. The *Roman Catholicks* obtain'd over them several Advantages, in four or five other Combats; after which, a Peace was concluded, each enjoying the free Exercise of his Religion in the same Manner they enjoy it at this Day; with this Difference, that the *Zuinglian* Cantons, having associated themselves, since, with those of *Geneva*, are become *Calvinists*. Such was *Zuingle*, of whose Doctrine in Part, and that of *Luther*, has been form'd the *Calvinism*.

These two Reformers, who could never agree in their Sentiments, or rather Opinions; agreed, however, without having consulted together, in the Design of gaining *Francis* I, King of *France*, to their Party. That Prince, call'd since *Le Pere des Lettres*, the Father of Learning, had lately invited the Learned from all Parts of *Europe*, into his Dominions. Therefore *Luther* wrote to him several Letters, in which he protested, that he had nothing else in View, but to purge the Church of the Abuses which had been introduc'd into it, as so many dark Spots, which had eclips'd its Lustre and Beauty, which he was determin'd to restore. He even engag'd *Frederick*, Elector of *Saxony*, to write to *Francis* in his Favour. He sent him some of his Books, of those which had a greater Appearance of Piety; and as he knew that the King receiv'd most graciously all the Learned, he took great Care, with *Philip Melancthon*, to send into *France* the most learned young Men they had among them. *Zuingle*, on his Side, did the same Thing, and even went further, by dedicating to the King his Book of the true and false Religion.

The *Rendezvous* of those Learned, of both *Sects*, was at *Strasburg*, near *Martin Bucer*, who was uncertain yet which of the two Opinions, of *Luther*, or *Zuingle*, he should espouse. But, however, he found the Secret to persuade his Guests to forget, while in *France*, the Differences subsisting between them, and even appear there, the better to gain their End, under the Name of *Catholicks*. Therefore, in a very short Time, the University of *Paris* was fill'd with those Foreigners, who soon acquir'd the Reputation, by speaking *Greek* and *Hebrew*, of learned Men, and found the Secret to introduce themselves into the Houses of Persons of Quality, who, by the King's Example, had a great Value for the Learned; and where they began to interpret the Bible, in a Manner different from the *Roman* Church, as more agreeable, in their Opinion, to the *Greek* and *Hebrew* Text.

Florimon de Remond, *l.* 7. and the Historian of the reform'd Churches, says, that the *Sorbon*, allarm'd at their Proceedings, sent a Deputation of Doctors to the King, to remonstrate to him, that *it was very much to be fear'd, that those Grammarians came lately from a Country infected with Heresy; would bring that Infection into* France, *by attempting, above their Profession, to interpret the Bible as they pleas'd, under Pretence that they thought themselves learned in* Greek *and* Hebrew. But the King, who then consider'd in them but the valuable Quality of learned Men, far from minding those Remonstrances, forbad they should be disturb'd in the least, for fear that it should deter other learned Men from resorting into *France*.

Therefore finding the King so well dispos'd in their Favour, they began to publish their Doctrine, (then call'd the Sentiments of the *Beaux Esprits*, and Learned) with a far greater Liberty than they had heretofore done. The Bishop of *Meaux* was their first Proselyte, of any Note; that Prelate was *William Brissonet*, a Man of Quality, of Merit, and of an exemplary Life; and who, like the King, was very well dispos'd in Favour of those Doctors newly come from *Germany*, and who spoke of nothing else but of Reformation, of *Greek* and *Hebrew*, call'd near his Person those among them who had acquir'd the greatest Reputation, to govern his Diocese under him. The principal among these, and who can be justly consider'd as the Precursors of *Calvin*, were, says *Florimond de Remond*, *lib.* 7. *c.* 3. *William Farel*, of *Dauphiné*, *James Fabri*, or *Le Fevre*, *Arnaud*, and *Gerard Roussel*, of *Picardy*; all four Masters of Arts, and had all four been Professors in the University. These four Philosophers, under the Authority of their illustrious Protector, began to reform several Practices of Piety, which they represented as Abuses; and to explain, in their own Manner, the sacred Mysteries of the *Christian*

ſtian Religion, throwing then the Foundations on that ſingle Dioceſe, of that Doctrine, which afterwards did ſpread all over the Kingdom of *France*.

In 1523, the Parliament of *Paris*, being inform'd of the Proceedings of theſe Reformers, which they thought highly prejudicial to the antient Religion, eſtabliſh'd in the Kingdom ever ſince the firſt *Chriſtian* King *Clovis*, appointed Commiſſaries, to inform againſt thoſe ſuppos'd Authors of the new Doctrine, which that auguſt Aſſembly ſtil'd, ſays M. *Maimbourg*, a Crime of high Treaſon againſt God, *Crimen læſæ Majeſtatis Divinæ*. This Arreſt of the Parliament, continues the ſame Author, was a Clap of Thunder, which frighten'd ſo much theſe new Miniſters of the Goſpel, that, inſtead of expoſing themſelves, like good Shepherds, for their ſmall Flock, and of pretending to the Glory of having been the firſt Martyrs of their new Sect; they all fled into *Germany*, leaving their Protector in the Lurch; who, to ſhelter himſelf againſt the Tempeſt which he ſaw hanging over his Head, condemn'd, in a Synod, the Books of *Luther*, and made ſeveral Regulations, to maintain the antient Practices of the Church in his Dioceſe. For my Part, I am ſurpriz'd that I do not find in the Critick of *Maimbourg*'s Hiſtory of *Calviniſm*, that the Author endeavours to excuſe that precipitated Flight of thoſe four Miniſters; which, in my Opinion, is a moſt eſſential Point: For Puſillanimity has never been conſider'd as an apoſtolical Characteriſtick; and a becoming Intrepidity on that Occaſion had ſtrengthen'd their new Proſelytes in their Faith, and perhaps hinder'd the Parliament of *Paris* from purſuing them, *vi & armis*, and their Protector among the reſt, who, notwithſtanding his Recantation, was by an Arreſt of that auguſt Aſſembly, iſſu'd the 3*d* of *October*, 1525, *order'd to be examin'd, and interrogated by Meſſieurs* James Meſnager, *and* Andre Verjus, *Counſellors of the Court, on the Facts contain'd in the Informations, which will be put before the Judges appointed by the holy See for the Trial of thoſe nam'd in the Arreſt*. Regiſt. du Parliam. Proofs of the Liberty of the *Gallick Church*, c. 35.

This *Arreſt* was confirm'd by another of the 25*th* of the ſame Month; and tho' the Biſhop had pray'd the Court that he might be heard, all the *Chambers aſſembled*, he was oblig'd to undergo the *Interrogatory*, in which, 'tis certain, that he very well juſtified himſelf of all that had been imputed to him, and eſpecially of having granted his Protection to *Hereticks*.

But, however, all theſe *Arreſts* of the Parliament of *Paris* could not hinder the new Doctrine from making vaſt Progreſs, eſpecially under the powerful Protection of the Dutcheſs of *Alençon*, *Marguerite of Valois*, the King's Siſter, who was then but 27 Years of Age, tho' Widow of the laſt Duke of *Alençon*, kill'd at the Battle of *Pavia*, where he commanded the Rear Guard. This young Princeſs had an excellent Genius, a great Soul, a ſolid and clear Judgment, a Dexterity above her Sex, for the Management of the moſt intricate Affairs; a great deal of natural Beauty, which made her belov'd by every Body, eſpecially the King her Brother, who had always for her all the Tenderneſs, and Conſideration, that a Brother could have for ſo accompliſh'd a Siſter, by whom he was perfectly belov'd. She had, beſides, a very great Curioſity, natural to her Sex, to know the Secrets of the new Doctrine, which made her eaſily prevail'd upon to hear favourably the new Miniſters, whoſe Writings ſhe had read already with ſome Satisfaction. She commended, then, their Zeal and Piety, and approv'd of their Conduct; and had ſoon, according to their Advice, her Prayer-Book tranſlated into *French*, by the Biſhop of *Saulis*, the King's Confeſſor.

While *Marguerite* was in this Diſpoſition, ſays the Author of the Hiſtory of *Navarre*, c. 13. the King gave her in Marriage to *Henry D'Albert*, King of *Navarre*, whom he promis'd, in Favour of this Marriage, to aſſiſt in the Recovery of his Kingdom uſurp'd by the *Spaniard*, under the ſcandalous Pretence that it had been given him by Pope *Julius* II, declar'd Enemy of *France*, who had excommunicated *John of Albert*, King of *Navarre*, and given his Kingdom to *Ferdinand of Arragon*, becauſe *John* had enter'd into an Alliance with *Lewis* XII, King of *France*, and refus'd Paſſage thro' *Navarre* to the *Arragonois*, to invade *France*; which monſtrouſly ſcandalous *Bull* of Excommunication was always conſider'd as abuſive, in *France*, and contributed much toward engaging *Henry*, Son of *John*, who had been depriv'd of his Kingdom in Conſequence of that villainous *Bull* of Tyranny and Uſurpation, to grant his Protection to the new Reformers, who attack'd, in a particular Manner, the Power and Authority of the Popes.

Therefore the Queen of *Navarre* being departed with her Huſband, for *Bearn*, a few Days after the Celebration of her Nuptials at St. *Germain en Laye*, in 1527; receiv'd ſeveral of them at her Court, and, in particular, *James Fabri*, and *Gerard Ruſſel*. As *Ruſſel* had a great deal of Wit and Dexterity, his Conduct was very regular, and he us'd to preach with much Piety and Devotion, and was, beſides, very charitable to the Poor; being follow'd always by a vaſt Number of them, who call'd him their Father; he was ſoon conſider'd and reſpected as a *Saint*, and knew ſo well how to inſinuate himſelf into the Queen's Favour, ſays *Florimon de Remond*, that ſhe took him for her Director, gave him the Abby of *Clairac*, and made him Biſhop of *Oleron*. He us'd to preach three Times in one Day, but preach'd a Doctrine different, in ſeveral Points, from that of the *Roman* Church, tho' he was, properly ſpeaking, nor *Lutheran*, nor *Zuinglian*; he aſſiſted regularly to all the *canonical Hours*, and ſaid Maſs. But he would have always that Part of the People ſhould take the Sacrament with him, under both Kinds. He us'd to teach the People, expoſing to them, before the Communion, the Myſtery of the *Euchariſt*; that *Chriſt* is preſent in that Sacrament, which is contrary to *Zuingle*'s Opinion; but he ſaid, alſo, that he was only preſent there in a certain Body, which he imagin'd of a Nature between the ſpiritual and material, without Bones and Fleſh; which is a Doctrine different from that of the *Catholicks* and *Lutherans*, who confeſs, in that Sacrament, the ſame Body which *Chriſt* had upon Earth. He had gain'd ſo great an Aſcendant over the Queen, that he perſuaded her to read the Bible in *French*, and eſpecially the New Teſtament, which, ſay the *Roman Catholicks*, was falſified by an unfaithful Traduction, in which ſhe took ſo much Pleaſure, that ſhe made it the Subject of ſome dramatick Pieces, which ſhe had repreſented before the whole Court by Comedians, who, to pleaſe her, us'd to intermix them with ſome Satires and Farces, againſt the Eccleſiaſticks and Monks, and particularly againſt the Popes; which oblig'd, at laſt, the Cardinals of *Foix*, and of *Grammont*, who could no longer ſtay at the Court with Honour, to leave it.

This Princeſs being, as we have already obſerv'd, tenderly belov'd by the King of *France*, her Brother, undertook to gain him in Favour of her new Miniſters; whom ſhe us'd continually to praiſe before him, as honeſt, learned, and quiet Men, who had no other Intereſt than that of the Truth, and of God's Glory, which they were endeavouring to promote, by the Reformation of Manners, and the Suppreſſion of ſeveral Abuſes and Superſtitions, which had been introduc'd into the Church. She was ſeconded, in this Undertaking, by ſome Ladies of the *French* Court, particularly by the *Dutcheſs of Eſtampes*, who was then the King's Favourite, and perhaps ſomething more. Theſe Ladies us'd to vaunt to the King certain Preachers of *Paris*, who, for their florid Eloquence, and profound Erudition, were always follow'd by a vaſt Concourſe of People, and, in particular, one *Le Coq*, or *Cock*, Curate of St. *Euſtach*, who us'd to diſclaim continually againſt *Luther*, blaming him for having caus'd a Schiſm in the Church, between whoſe Members, he pretended, there ought to be always a perfect Union;

Union; hoping thereby, says *Maimbourg*, to preserve the Reputation of zealous *Catholick*, and to be more at Liberty to preach his new Doctrine, which he call'd the Doctrine of the Church.

This the King consented to hear, who having been inform'd of the Honour he was to have of preaching before the King, and the whole Court, took for the Text of his Sermon, this Passage of St. *Paul* to the *Colossians*, c. iii. v. 1, 2. *If ye then be risen with Christ, seek those Things which are above, where Christ sitteth on the right Hand of God. Set your Affection on Things above, not on Things on the Earth.* Concluding from thence, that *Christians* ought not to mind what's on the Altar at the Time of the Celebration of the Mass, but rather raise their Thoughts to Heaven by Faith, to find there the Son of God, who was to be met with no where else; which *Opinion*, he thought he could confirm, by these Words of the Priest, in the Preface, *Sursum Corda*, lift up your Hearts; and the People answering, *habemus ad Dominum*, we lift them up unto the Lord; and on that, thinking to have prov'd very well, that there was nothing upon the Altar after the Consecration worthy our Attention, he cried with all his Might, several Times, addressing his Discourse to the King, *Sursum Corda*, Sir, *sursum Corda*. 'Tis true, says *Maimbourg*, that the Curate preach'd then, clearly enough, the Dogma's of *Zuingle*; but as he forbore expressing himself in formal Terms, the King could not discover the Venom hidden under his pompous Expressions; Means were even found, that his Majesty, the better to be inform'd of the Truth, should hear him in his Closet, where the Curate said a great deal more to him than he had done in his Sermon; so that the King, who thought him a good *Catholick*, and a very learned Man, began to be uncertain of what he ought to believe. But the Cardinals *John of Lorrain*, Brother of *Claudius*, Duke of *Guise*, and *Francis of Tournon*, both very far in the King's Confidence; having discover'd the private Audiences the Curate had had of the King, found efficacious Means to ruin at once his Designs, and to confirm the King in the antient Belief of the Church; for they engag'd *Le Coq* to enter into a Conference with some of the most learned Doctors of *Paris*, who oblig'd him to confess that he had been deceiv'd, and to condemn publickly, in his Pulpit, the new Doctrine he had preach'd. Which had the Effect those two Cardinals expected, on the King's Mind.

But, however, this Disappointment of the Queen of *Navarre*, occasion'd by the publick Recantation of the Curate of St. *Eustache*, had no other Effect upon her, than to engage her to take other Measures to gain the King to the new Religion; she knew that his Majesty wish'd for nothing more passionately, than the Peace of the Church: Therefore she took him on that Side, and began by praising to him a very honest Man, said she, call'd *Philip Melanchthon*, whom she represented to him as the most learned Man of his Time; who, tho' he condemn'd certain Abuses which had been introduc'd in the Doctrine, Manners, and Discipline among the *Christians* of the latter Centuries; detested, however, the Schism occasion'd thereby in *Germany*, which he had put all in Use to extinguish. She protested that he was a pacifick Man, of a sweet Temper, having nothing of the violent and impetuous Genius of *Luther* and *Zuingle*, whom he had always endeavour'd to reconcile, with themselves, and with the *Catholicks*, the better to restore Peace and Unity in the Church, which he desir'd passionately; that she made no Doubt but that if so learned, and so holy a Man, could enter into a Conference with the Doctors of *Sorbonne*, who thirsted, likewise, after Peace, they would find some Means to procure it to the Church, and to abolish a Schism which could extend itself from *Germany* into *France*, and cause in his Kingdom the same Troubles and Disorders which were seen in *Germany*.

This Discourse prov'd so persuasive, that the King was thereby prevail'd upon to write himself to *Melanchthon*, to invite him to come to *Paris* to work in Concert with the *French* Theologians, to the Re-establishment of the antient Discipline in the Church. This Letter of *Francis* I. is found in *Florimond de Remond*, *l.* 7. *c.* 4.

This Step of the King caus'd an inexpressible Joy throughout the whole Party, who expected that *Melanchthon*, by his Learning, his Dexterity, his insinuating Manners, and his Eloquence, could not miss gaining entirely the King to their Party. *Clement Marot*, who was then the Poet of the Court, wrote on that Subject some Verses, wherein, insulting to the *Sorbonne*, he says boldly, in his diverting, and easy Stile, that none of those *Messieurs nos Maitres* would dare to encounter with that Doctor, who knew a great deal more than they. But the Cardinal of *Tournon*, Archbishop of *Lyons*, who had already disconcerted their first Measures, frustrated again their Hopes in this second Occasion; for entering, one Morning, the King's Chamber, with a Book in his Hand, which he seem'd to read with great Attention; the King, surpriz'd at that Novelty, ask'd the Cardinal what *fine Book he was reading? It is, in Fact, Sir*, answer'd the Cardinal, *a very fine Book, since it is written by one of the first Apostles of* France, *the glorious Martyr St.* Irenæus, *who govern'd in the second Century my Church of* Lyons, *and whom several of the most antient, and most learned Fathers of the Church have respected as their Master. Therefore I was reading that fine Passage of his third Book, where he says, that he had learned from his Master, St.* Polycarp, *Disciple of St.* John *the Evangelist, that the holy Apostle being ready to enter the publick Baths, and hearing that the Heretick* Cerinthus *was there, retreated suddenly, saying, with some Emotion, to his Disciples,* Let's fly, my dear Children, and fly quickly, for Fear we should be destroy'd, with that Enemy of *Christ*; *so much were the Hereticks abhorr'd by the Apostles. This is what I was reading with Pleasure. But your Majesty will give me Leave to say, that it is with the greatest Sorrow that I hear that you, who, as the first-born of the Church, are its first Protector, have, nevertheless, call'd near your sacred Person the most famous of* Luther's *Disciples, that implacable Enemy of the* Catholick *Church, whose Doctrine and Conduct he condemns with so much Scandal, and with the Loss of so many Souls, which he has perverted.* And continuing his Discourse, he so well convinc'd the King, says *Maimbourg*, that his eternal Salvation, the Interest of his Kingdom, and his Reputation among foreign Princes, were at Stake, on that Occasion, that the King revok'd, at that very Instant, the Leave he had granted to *Philip Melanchthon*; protesting then, with an Oath, that he would never deviate from the Belief of the antient Church; commanding, at the same Time, that the Hereticks, a they were call'd, should be prosecuted, and punish'd according to the Rigour of the *Ordinances*.

The Party was so irritated at this sudden, and unexpected Resolution of the King, that they abandon'd themselves to those Excesses which their most passionate Historians were forc'd to condemn; for not contented then, as they had been, with publishing some *French* and *Latin* Books, in Defence of their Doctrine, they had a prodigious Number of Libels, printed in *Switzerland*, full of Invectives and Menaces, against the King, which they had affix'd, not only in the publick Places, and at the Church-Doors, but likewise to the Gates of the *Louvre*, and even to the Door of the King's Chamber, in his Absence, while he was at *Blois*. That great Prince, being inform'd of these Disorders, return'd quickly to *Paris*, where he had the Authors, and Accomplices of that criminal and sacrilegious Attempt on the Royal Majesty, apprehended, and prosecuted; and having, a few Days after his Return, assembled the Clergy in the great Hall of the episcopal Palace, where, being gone himself, accompanied by his whole Court, and follow'd by the chief Magistrates, he made, from a Throne erected for that Purpose, so pathetick a Discourse, that it drew Tears from the Eyes of all the Assistants. He exhorted the whole Assembly to maintain always against the Hereticks,

ticks, (as he call'd them) the antient and true Religion of the moſt *Chriſtian* Kings, which Religion had ſupported for ſo many Centuries the *French* Monarchy, which could never be deſtroy'd but by Hereſy; proteſting, before God, that if he knew that one of his Arms ſhould be infected with that Plague, he would have it cut off; and that if one of his Children was ſo unfortunate as to fall into that Impiety, he would himſelf ſacrifice him to the divine Juſtice, and to his own.

This Diſcourſe, pronounc'd with an incredible Force, by a King who was naturally eloquent, was receiv'd with repeated Acclamations of the whole Aſſembly, who all proteſted that they would live and die in the *Catholick* Religion. From that Time, the King would never hear thoſe new Doctors mention'd; and the Queen of *Navarre*, his Siſter, who had ſo publickly declar'd herſelf their Protectreſs, reflecting ſeriouſly on the Exceſſes they had committed, which ſhe thought could not proceed from an apoſtolical Zeal, nor from a ſincere Deſire of a *Chriſtian* Reformation, which muſt be conducted with Meekneſs, Moderation, and Patience, died, 12 Years after, in the Boſom of the *Roman Catholick* Church, ſays *Florimon de Remond*, which, ſhe proteſted, ſhe had never pretended to renounce.

But if the new Doctors, who had all fled into *Switzerland*, loſt Ground in *France*, they made a new Acquiſition, ſoon after, which made them Amends in Part for that loſt, I mean of *Geneva*, one of the moſt antient, and moſt celebrated Cities of the *Gauls*, which was once imperial, but which acknowledg'd then their Biſhop as a Prince, who jointly with his Chapter, with the four Syndics, elected by the People, and the little and great Council of the two hundred, had the temporal Government of the City. There *William Farel*, the ſame we have ſeen ſo much in Favour, near *Briſſonet*, Biſhop of *Meaux*, was ſent by thoſe of the Canton of *Bern*, to preach the new Doctrine, which he did with ſuch Succeſs, that in a very ſhort Time he gain'd ſeveral of the chief Burgeſſes of the City, who, very well pleas'd with ſo favourable an Opportunity of recovering their antient Liberty, by ſhaking off, with the *Roman* Yoke, that of their Biſhop, enter'd into all the Meaſures concerted by the new Miniſters, for the Eſtabliſhment of their Doctrine; who began here, as they had done in all the Places where they had met with Encouragement, by plundering the Churches of all their Ornaments, deſtroying and breaking the Altars and Images, tho' for three or four Years, ſucceſſively, they met with a ſtrong Oppoſition from the Part of the *Catholicks*, in which they were ſupported by thoſe of the Canton of *Fribourg*, who were *Roman Catholicks*, and have remain'd ſo to this Day; while the other Party was countenanc'd by thoſe of the Canton of *Bern*, who were all *Zuinglians*.

Peter de le Baume, of the Houſe of *Maurevel*, in *Breſcia*, who was then Biſhop of *Geneva*, but abſent, ran to the Succour of his Flock, but too late. This Prelate was ſo indolent, that he us'd to take but very little Care of the Government of his Church, and of the City, but ſpent the greateſt Part of his Life in the Country, where he had vaſt Poſſeſſions. When he came to appeaſe the Troubles, they were already grown to ſuch a Height, and the City was in ſuch a Confuſion, that he ſoon found that he had loſt all his Authority among them; therefore he quitted *Geneva*, where the oppoſite Party, growing every Day more formidable, it was reſolv'd, at laſt, by the Council of the two Hundred, that the *Catholick* Religion ſhould be aboliſh'd in *Geneva*, as it had been at *Bern*; which was executed in the following Manner:

Father *James Bernard*, Guardian of the *Cordeliers*, or Grey Fryars, of the Convent of *Rive*, who had already preach'd the new Doctrine during *Lent*, had a Writing, (which he himſelf carried to the Chapter of St. *Peter*, and to the Monaſteries) affix'd to all the Corners of the Streets, and the Church-Doors, containing five Propoſitions, in Form of a Theſis, againſt the *Maſs*, the *real Preſence*, the *Worſhip of Images*, the *Invocation of Saints*, the *Purgatory*, and the *monaſtick Vows*; which were to be controverted in a Month's Time, under him, the Preſident, in his Convent. By the ſame Writings, all Sorts of Perſons were exhorted to be preſent at that Diſpute, with a Promiſe that every Body ſhould have the Liberty to ſay what he pleas'd. The Duke of *Savoy*, and the Biſhop of *Geneva*, ſtrictly forbad their Subjects to be preſent at thoſe Diſputes; which, notwithſtanding, were open'd the 30*th* of *May*, 1535, and ended the 24*th* of *June*. The Council, who aſſiſted there as Judges, had order'd four Secretaries to write all that could be ſaid on either Side, that the whole might be examin'd in a general Aſſembly of the *Syndics*, and of the two Hundred Burgeſſes of *Geneva*; and a Reſolution taken accordingly. This Diſpute was immediately follow'd by the Marriage of Father *Bernard*, who, to convince the World that he was perſuaded of the Truth of his Propoſitions, quitted his monachal Trouſers, and was married to a young Girl, Daughter of a Printer of *Geneva*; to whom, to ſecure her Dowry, he brought all he could carry off from his Convent.

But, however, the Magiſtracy of *Geneva*, to ſhew that they acted in that important Affair with a great deal of Deliberation, conſulted three Months longer, before they would conclude, by a publick Act, what they had already determin'd in particular. But, at laſt, after *William Farel*, who was then heard as an Oracle, had *had* a publick Audience in the great Council of the two Hundred, had diſclaim'd, with great Vehemency, againſt the *Maſs*, and the Practices of the *Roman* Church, which he accus'd of Superſtition and Idolatry; it was concluded, that what had been written on that Subject, on either Side, in the Diſputes of the Convent of *Rive*, ſhould be again examin'd for the laſt Time, in the ſame Council. This was done during two Days, after which, the *Syndics* having ſent for the *Auguſtines*, *Dominicans*, and *Cordeliers*, they were aſk'd if they had any Thing to object againſt the *five Propoſitions*; to which they anſwer'd, that they believ'd them heretical, and that they were determin'd never to call in Queſtion what had been ſo ſolemnly defin'd by the *Catholick* Church, and receiv'd, Time out of Mind, by their Anceſtors.

But, however, after the *great Council*, compos'd of a few Lawyers, Merchants, and Mechanicks, had given their Opinion on the five Propoſitions, and declar'd, of their ſupreme Authority, that they were orthodox, and the contrary Articles were nothing elſe but falſe and human Traditions againſt the Word of God; they iſſu'd out a Decree, in 1535, by which it was enjoin'd to all Citizens and Inhabitants of *Geneva*, to follow the new Religion, and the Exerciſe of the *Roman* entirely aboliſh'd. And to leave to Poſterity an eternal Monument of this great Event, (which *Maimbourg* calls a Revolt againſt the Church, and their Biſhop) they had plac'd the Year following, in their Town-Houſe, an Inſcription engraven in golden Letters, on a braſs Table, ſeen there ever ſince, and conceiv'd in theſe Terms: *In Memory of the Grace which God has done us, of ſhaking off the Yoke of the* Roman *Antichriſt, aboliſh'd his Superſtitions, and recover'd our Liberty, by the Defeat and Flight of our Enemies.*

Therefore, after the Publication of this Decree, the *Catholick* Clergy, Monks, and Nuns, were oblig'd to quit the City. Several Remonſtrances were made to the Nuns of St. *Claire*, who were the only ones in *Geneva*, to engage them to quit their Veils, and accept thoſe offer'd to them for Huſbands. The Miniſter *Farel* preach'd to them in their Convent, in Preſence of the *Syndics*, on this Text of the Goſpel, *Exurgens Maria abiit in Montana*, to prove to them, that, by the Example of the Virgin *Mary*, who went to viſit her Couſin *Elizabeth* on the Mountains of *Judea*, they ought not to be confin'd, and were obliged to live in the World, and marry, as well as others; but all, except one, call'd *Siſter Blaiſine*, perſiſted

sisted in the Resolution of accomplishing their Vows. Therefore the Magistrate, very well edified of their Piety and Virtue, had them conducted with Honour, and under a strong *Escorte*, to protect them against all Insults, as far as the Bridge of *Arve*, whence they retir'd to *Anecy*, where the Duke of *Savoy* had *had* a Monastery prepar'd for them.

This great Revolution invited all the *French*, who had the least Inclination for a Change in Religion, to *Geneva*, and, in Consequence thereof, a vast Number, who were afraid to appear publickly in *France*, resorted thither, where they were kindly receiv'd, because they serv'd to re-implace the *Roman Catholicks*, who had been expell'd.

It was in that same Year, 1536, that the famous *John Calvin*, (of whom I must speak at present, since he father'd the Doctrine heretofore mention'd, and call'd since, from his Name, *Calvinism*) was receiv'd in *Geneva*.

JOHN CAUVIN, or CALVIN, (says *Papyr. Massar. Spond. ad Ann.* 1535. *Le vass. ann. de l'Eglis. de Noyon.* and *Desmay, Vie de Calvin.*) was born at *Noyon* the *17th* of *July*, 1509; his Father was *Gerard Cauvin*, a Cooper of *Pont-Levesque*, near *Noyon*; and his Mother *Jeanne le Franc*, Daughter of a Vintner near *Cambray*, who came to live at *Noyon* with his Son-in-Law *Gerard*; who having got some Money in the Excise, became, at last, Attorney of the Fisk of the County of *Noyon*, and Secretary of the Bishoprick. As *John Calvin* appear'd to have a great deal of Wit, and much Inclination to Study, his Parents sent him to *Paris*, recommending him to his Uncle, *Richard Cauvin*, a Locksmith by Profession. This good *Artizan*, who was a very honest Man, took great Care of his Nephew, who studied the Grammar at the College of *La Marche*, and Philosophy at that of *Montaigu*. He had been presented, while yet but eleven Years of Age, to the Benefice of *our Lady De la Gesine*, in the Cathedral of *Noyon*; and at eighteen to the Rectory of *Marteville*, which he *permuted*, two Years after, with that of *Pont-Levesque*, near *Noyon*; and, nevertheless, his Father would never suffer that he should study Divinity, but sent him to *Orleans*, to study the Law, under that famous Professor *Peter de L'Etoille*; whence, without having taken any Degree, he went to *Bourges*, to hear that famous Lawyer *Andre Alciat*, who read, with an extraordinary Concourse, in that University, then, the most flourishing of the whole Kingdom, for the Law.

Calvin had already taken, while yet at *Paris*, some Tincture of the new Doctrine, which had been inspir'd to him by his Kinsman, and Friend, *Robert Olivetan*, the same who flying afterwards into *Switzerland*, was the first of all who translated the Bible from the *Hebrew*, into *French*. But he acquir'd a greater Knowledge of it at *Bourges*, by his intimate Acquaintance with *Melchior Wolmar*, a *German*, whom the Queen of *Navarre*, to whom the King her Brother had given the Dutchy of *Berry*, and who spar'd nothing, says *Beza*, to fill that University with learned Men, had sent for from *Germany*, to be *Greek* Professor, which he understood perfectly well, a Language almost unknown in *France* before that Time.

Wolmar, who was a *Lutheran*, tho' he affected *Catholicity*, finding in *Calvin* a very great Disposition to be one Day a good *Protestant*, and that he had, with a great deal of Wit and Memory, a marvellous Assiduity to Study, taught him all he had learn'd of the Dogma's of *Luther*, and of *Zuingle*. He persuaded him to apply himself entirely to the Study of the *Greek* Tongue, and he took the Pains to be his Master, that henceforward he might be capable of reading the Scripture. *Calvin* follow'd his Friend's Advice, learning, likewise, the *Hebrew* and *Syriack*; so that he studied, at the same Time, the Law, the Scripture, the *Greek*, *Hebrew*, and *Syriack* Languages; neglecting the Science which was most necessary for an Ecclesiastick, I mean Theology; hence that Difference between him and *Luther*, who was a Doctor in Divinity, and a very learned one, reading with great Applause in the University of *Wittemberg*, which was then very flourishing.

While *Calvin* was at *Bourges*, his Father died, which obliged him to return to *Noyon*, to collect the Succession of his Father; where having settled all his Affairs, and sold his two Benefices, says *Papyrus*, he came to *Paris*, where, being yet but twenty Years of Age, he published a beautiful Commentary on the two Books of *Seneca on Clemency*. Having by that Work acquired some Reputation in *Paris*, he began to dogmatise secretly, in private Houses, and contracted a strict Friendship with the Chiefs of those whom he knew to be Partizans of the new Doctrine, though they all took Care to dissemble, for Fear of the *Lieutenant Criminal, John Morin*, who pursued them *Vi & Armis*; *Calvin* escaping very narrowly falling into his Hand, which happened thus.

A Master of Arts, called *Nicholas Cop*, who was intimate with *Calvin*, having been made Rector of the University, could not help in a Sermon, which he preached at the *Mathurins* on *All Saints Day*, advancing certain Propositions, by which he was suspected to be of the new Sect. As the Thing made much Noise, he was deferred to the Parliament, by two *Cordeliers*, who had assisted at his Sermon. The *Rector* being called before that August Assembly, to account for that Action, he would go there, in Ceremony, attended by his Beadles, *&c.* but as he passed through a Street near the Palace, somebody was so kind to dissuade him from proceeding further, and advised him to take Care of himself, least he would be sent to the *Conciergery*; he followed the Advice, went back, and throwing off his Gown and Cap, fled to *Basil*, where his Father, *William Cop*, was born, a very learned Man, who having settled in *France*, was become the King's Physician. The Lieutenant *Morin*, who had already discovered the Intrigues of *Calvin*, and the secret Conferences he had had with *Cop*, his Confident; and that he went in the Night-Time dogmatising from House to House, went himself, accompanied with his Satellites, to the College of Cardinal *Le Moine*, where he knew *Calvin* lodged, to apprehend him; but *Calvin*, who had had timely Notice of it, had made his Escape, some say through the Window of his Chamber, with the Help of his Sheets, so that when the Lieutenant came into the Room, he found only the Nest, but the Bird was fled.

Calvin, not finding himself secure in *Paris*, after having took a Tour into his own Country, went to *Angoulesme*, near a Prebend, called *Lewis Du Tillet*, whom *Calvin* instructed in his new Doctrine, and at whose House at *Claix*, he composed the greatest Part of his Institution. *Du Tillet* went even into *Germany* along with him, to confer with the Lutheran Doctors. And it was there that *Erasmus*, after he had heard *Calvin* speak on those Points of Religion, the most controverted, said to *Martin Bucer*, who had introduced him, *That he saw in that young Man grow a dangerous Plague, which would, one Day, cause a great Deal of Disorder in the Church.* From *Germany* *Calvin* went to *Poitier*, where he made a great Number of new Proselytes, among Persons of all Ranks and Conditions. From thence he went to visit *Fabri*, and *Rousel*, at *Nerac*, and thence to *Paris*, where he thought Lieut. *Morin* had forgot him, but finding himself mistaken, he quitted *France* for ever, and fled to *Basil*, where he finished his Institution in *French*, which he dedicated to King *Francis* I.

From *Basil*, *Calvin* crossed the *Alps*, and went to *Ferrara*, with a Design to gain to his Party the Dutchess *Renée*, of *France*, second Daughter of *Lewis* XII. and of Queen *Anne*, of *Bretagne*. That Princess was promised first to *Charles* V. while he was but Archduke, and afterwards to the Electoral Prince of *Brandenbourg*; but *Francis*, her Brother-in-Law, for some certain Reason of State, had her married to *Hercules* II. Duke of *Ferrara*, in the Year 1528. This Dutchess had a great Deal of Wit and Learning, having rendered herself, by an assiduous

Application to Study, very learned, especially in Philosophy, in which she equalled the greatest Philosophers of her Time, having, besides, an inexhaustible Fund of Goodness, which made her compassionate all those she thought unjustly persecuted. This, says *Florimond de Remond*, *l.* 7. made *Calvin* hope that he could gain her, and engage her in his Sect, by making her renounce that of *Luther*, in which she was known to be engaged. The Dutchess, continues the same Author, received him perfectly well, and would even hear him preach in her Closet; but being informed, that he run the Risk of being arrested, and sent to the Inquisition, though he had took the Precaution to disguise both his Name and Habit, taking the Name of *Happeville*, and the Clerical Habit, he soon repassed the *Alps*, after he had succeeded in his Undertaking, and gained the Dutchess on his Side. The inveterate Hatred that Princess had conceived against the *Roman* Church ever since Pope *Julius* II. had employed all Sorts of Arms, Spiritual and Temporal, against the King her Father, contributed much to her changing her Religion; for she often used to say, that being a Woman uncapable by the salique Law to succeed to the Crown, she could not be revenged, otherwise, of the Pope. The frequent Conferences she had with *Calvin* (says *Brantosm*, in his Panegyrick of that Dutchess) and the Poetry of *Clement Marot*, she had made her Secretary, made her so good a *Calvinist*, that nothing afterwards could make her change, not even the repeated Intreaties, nor the Menaces of her Nephew *Henry* II. who engaged the Duke of *Ferrara*, her Husband, to deprive her of the Education of her Children, threatning her with a more severe Usage, if she continued in her Obstinacy, but all this availed nothing; for having retired into *France*, after the Death of the Duke, under the Reign of *Francis* II. in 1575, she persisted in her Opinion to her Death, which happened at *Montargis* fifteen Years after, where during the Civil Wars, says St. *Marthe*. *l.* 9. and *Brantosm*. she received all the *Calvinists* she could into her Castle, and even used to feed 300 of them every Day.

Moreover *Calvin*, having quitted *Ferrara*, to return to *Basil*, took *Geneva* in his Way, where *William Farel*, who knew the Reputation he had acquired among the *French* Protestants, persuaded him to settle in *Geneva*, to assist him in the Government of the Christian Society, he had established. They divided between them both, the Cares of their Ministry. *Farel* used to preach; and *Calvin*, who had no Talent to speak in Publick, took Care to teach the Theology in the Manner he understood a Science, he had never learned. But as they both undertook to change a great many Things, and they refused to conform to the Practice of *Bern*, which was to receive the Sacrament with unleavened Bread; those of *Bern*, prevailed so far with the *Syndics*, already dissatisfied with the Conduct of those two Ministers, that they were banished by an Arrest, as seditious and publick Disturbers. After which *Farel* retreated to *Neufchatel*, where he was received for Minister, and *Calvin* to *Strasbourg*, near *Martin Bucer*, who obtained of the Magistrates for him, the Right of Citizen, and Leave for Building a Temple, for the *French Refugees*, and to teach Theology.

There, says *Beza*, *Calvin* revised his Christian Institution, which he had often changed, published his Commentary on the Epistle to the *Romans*, and by the Advice of *Martin Bucer*, who was willing that the Ministers should practise, at his Example, what they preached against Celebacy; he married the Widow of an Anabaptist, whom he obliged to change her Sect, to profess his own. He went afterwards with *Bucer*, and the other Deputies of *Strasbourg*, to the Conference of *Wormes*, and afterwards to that of *Ratisbon*, where *Charles* V. had undertook a Reconciliation between the Catholicks and Lutherans. *Beza* says, That *Calvin* acquired in those Conferences, a great deal of Honour, and the Title of profound Theologian. The Catholick Authors pretend, on the contrary, that he must have rendered himself equally odious to the Catholick and Lutherans, by disclaiming, alone, against the real Presence, and that they would never have suffered him among them, if he had not took the Occasion of leaving the Conferences first. This is what himself wrote to *Farel* on that Subject. *Tametisi Neminem ex aliis intellexeram, libere, tamen, sine Timore Offensionis, illam localem Presentiam damnavi. Crede mihi, in ejusmodi Actionibus, opus est fortibus Animis. Calv. ad. Farel. Epist.* i.e. Though I had understood none of the others, however I have freely, and without Fear of offending any Body, condemned that local Presence. Believe me, on those Occasions, there needs a bold Genius.

In 1541 the Faction, contrary to those who had expelled *Calvin* from *Geneva*, becoming the most powerful, he was recalled thither by the Syndics and Council, who took the Resolution to terminate, at once, all the Differences which caused so much Trouble in their new Republick, to have henceforwards, their Church regulated on the Form which *Calvin* would be pleased to give it; which he complied with, by establishing there, without the least Disturbance, his Doctrine and Discipline, which were followed afterwards, by the *French* Protestants, called, since, *Calvinists*, of whom I must speak now, going, however, further back, to give my Reader a general Idea of *Calvinism*.

Ever since the Doctrine of those who first denied the real Presence, had been condemned by the *Roman* Church, and retracted by the Archdeacon *Berengarius*, who had been the first to maintain it in 1160; that Church, says *Genebrard*, enjoyed a profound Peace; 'till 80 Years afterwards it was disturbed a-new, says *Prateolus Castro*, *John Paul*, and *Perrin*, *Hist. des Vaud.* by another new Doctrine, which was properly the Origin of that of *Calvin*. A certain Citizen of *Lyons*, called *Peter Waldo*, or *Valdo*, who lived in the twelfth Century, a simple Man, without Learning, but very rich, being frighted at God's Judgments, for having seen one of his Friends, with whom he had supped, die suddenly at his Feet, after Supper, took the Resolution to follow a Manner of Life, as near that of the Apostles as he could. He had for that Purpose translated, into his own Tongue, Part of the Scripture, especially the *New Testament*, to the Reading of which he applied himself, with a great Assiduity, not at all doubting, but as he was entirely devoted to God, he had also received from him all the necessary Lights, to understand perfectly the Scripture. And as he could not find, in what he read, the Terms of *Mass*, of *Pope*, and of *Purgatory*, he concluded from thence, that all those Things were nothing else but *false Traditions* and *human Inventions*; and that the *Roman* Church, which approved those Things, was the *Babylon of the Apocalypse*, and the *Pope* the *Antichrist*. And then believing himself called to the Apostolate, by a secret Inspiration, he undertook to preach this Doctrine to the People; and as the Austerity, Simplicity and Regularity of his Life, had already gained him a very great Reputation in *Lyons*, especially among the Poor, by whom he was followed and worshipped, and to whom he distributed his whole Estate in Alms, which he gave regularly every Day, his Opinions were heard and received, especially by the common People, as so many Oracles. The Archbishop himself could never hinder him from preaching, which he continued to do 'till after he had been excommunicated by Pope *Alexander* III. when he was expelled from *Lyons*, by the Magistrates, with all his Disciples, who chose to banish themselves, rather than to forsake him. And from that Time they were called *Valdois*, or *Vaudois*, or Poor of *Lyons*. Afterwards they dispersed themselves throughout all *Europe*, to preach their Dogma's, and gained a vast Number of Proselytes; and since were called by the Names of the Places, where they were in greater Number; or by that of their most famous Preachers; and by Derision in *France*, *Albigeois*, *Picards*, and *Arnaldists*; in *Germany*, *Bocmians*; in

in *England*, *Lollards*; in *Italy*, *Fraticelli*; in *Flanders*, *Turlupins*; and elsewhere, by other ridiculous Names, because despis'd every where, say the *Roman Catholicks*, especially in *France*, where they were almost entirely exterminated, a few excepted, who retir'd into some Valleys of the *Alps*, near *Dauphine*.

This Doctrine, thus weaken'd, and almost extinct, was reviv'd 200 Years afterwards by *Wickliff*, of one Part, and *John Hus*, and *Jerom de Prague*, on the other; who having pick'd what they lik'd best from it, added to it something better digested, of their own; but in the following Century *Luther* appear'd, who being far more learned than all these, form'd the *Lutheranism*, in Part, of what he borrow'd from the one and the other, and in Part of what he invented himself, on the most theological Points; *viz.* concerning *original Sin*, *Grace*, *Justification*, and *the Sacraments*: In which he was follow'd, at first, by a great Part of *Germany*, and then deserted by some, even by his principal Disciples, *Carlostad*, *Zuingle*, and *Œcolampadius*, who became *Sacramentairs*.

This is the Genealogy of *Calvinism*, since the most Learned among them agree that *Calvin* chose for Foundation of his Religion the Doctrine of the *Vaudois*; especially when he says that there is nothing else in the *Lord's Supper* but Bread and Wine, without the real or local Presence of the Body and Blood of *Jesus Christ*; when he condemns the Veneration and Invocation of Saints; rejects a visible Chief of the Church, Hierarchy, Bishops, Priests, Masses, Feasts, Images, the Cross, Benedictions, and all the other Ceremonies which the *Catholick* Authors pretend to prove, were us'd by the antient Church, and that *Calvinism* form'd on the Model of the *Vaudois*, is but a *Skelcton of Religion*, having neither Unction, nor Ornament, nor any Thing else which could inspire Piety and Devotion, which penetrating thro' the Senses, to the inmost Parts of the Soul, raises it by the *Things visible*, to the Contemplation of an *invisible God*; that *Luther*, more reasonable in this than *Calvin*, has dexterously avoided that Extreme; and that *Calvin* is nothing else, with all his Wit, but the Disciple of that ignorant and illiterate Citizen of *Lyons*, *Peter Valdo*. The *Calvinists* say, in their Defence, that *Christ* came on purpose to abolish all Sorts of Ceremonies, and to establish among us a Worship, simple, easy, and free from all that could hinder us from adoring him, in *Spirit* and *Truth*. That none of the Apostles had better Education than *Peter Valdo*. That before the coming of the *Holy Ghost* they were all as ignorant as he was; and that they saw no Reason why the divine Scrutator of all Hearts, knowing the Sincerity of his Intentions, had not favour'd him as much as he did the Apostles, tho' not perhaps with so much Pomp and Ceremony; since he says himself, that he has chosen *the Infirm of this World*, *to confound the strongest*. That *Valdo*'s Conduct was, in all Things, agreeable to that of the Apostles, and to the true Principles of that Religion they were sent to establish upon Earth; which are, Charity, Humility, Simplicity, and Disinterestedness; from which his very Enemies cannot reproach him with having ever deviated: That for his Disciples being despis'd throughout the whole *Christian* World, they were not then worse us'd than the primitive *Christians*, call'd in Derision *Nazarenes*.

As for the other Articles of Religion, those relating to the *Eucharist* excepted, *Calvin* borrow'd almost all of them from *Luther*; as those concerning Free-will, which he destroys; the Grace of God, which, in his Opinion, *has always its Effect on Man*, and conquers the Will *by an absolute Necessity*; the Justification *by Faith alone*; the Justice of *Christ*, which is *imputed to us*; the good Works, *without any Merit before God*; the Sacraments, *which he reduces to two*, and which *he divests of the Power of conferring Grace*; the Faith, which, in his Sentiments, consists *in a certain Certitude that we shall be saved*; *the Impossibility of God's Commandments*; the *Inutility* and *Nullity of Vows*, those of Baptism excepted; and several other such Things, which he extracted from the Books of *Luther*, to make Part of his Institution; tho' he added to it several Articles of his own Invention, *viz.* that *Faith is always attended with Doubts and Incredulity*, Instit. l. 3. c. 2. that *Faith and Grace can never be lost*, Harm. in Mat. xiii. 20. that *the eternal Father does not beget continually his Son*, Instit. l. 3. c. 2. paragr. 9, 11, 12. that *the Son has not his Essence from the Father, nor the Holy Ghost from the Father and Son*, Instit. l. 3. c. 13. that *Christ has merited nothing with regard to the Judgment of God, and was afraid of not being saved*, Instit. l. 2. c. 17. l. 3. c. 16. Luc. 3. c. 22, 23. that God has created *the greatest Part of Mankind to damn them, not because they have deserv'd it for their Crimes, but because it is his Will to do it*, having foreseen their *Damnation*; but in Consequence of his having decreed it, before he foresaw their Crimes, which destroys entirely, say the *Catholick* Authors, the just Idea we ought to have of God, and leads us to *Atheism*.

As concerning the *Eucharist*, every Body knows that *Calvin* differs widely from *Luther*, who has always maintain'd, that according to these Words of *Jesus Christ*, *accipite & manducate*, *hoc est corpus meum quod pro vobis tradetur*, that Body is really present in the Sacrament, against all the *Sacramentairs*, who will have him there *only in Figure*; which Opinion *Calvin* borrow'd from *Zuingle* and *Œcolampadius*, tho', at the same Time, he pretends to say a quite different Thing; for after he has often repeated, that *that* Sacrament is *not a simple Figure, without Effect*; *and that it is not only by Thought, and Imagination, or by a lively Representation of the Death of Jesus Christ, we receive his Body, but that it is by the spiritual Mouth of the Faith, which has the Virtue to give us really that sacred Body, and to apply him to our Souls for their Nourishment*, Inst. l. 4. c. 9. Whence, say the *Roman Catholicks*, it appears, that he says nothing by these new Expressions, but what the *Sacramentairs* had said purely and simply, and that he throws himself into an Embarrass, whence 'tis impossible he should extricate himself. For, continue they, since he maintains always, that *Christ* is no where else but in Heaven; hence it manifestly follows, that *Faith*, let it be ever so efficacious, cannot place the Body of *Christ* really in those who receive the Sacrament, and that it makes them only believe they receive it in Memory of the Passion of our Saviour, who died for us, and that he vivifies and nourishes spiritually our Souls by his Grace, and his Spirit; which is so clear, and so true, that in the very Place where *Calvin* says, with so many pompous Expressions, that *Christ gives himself to us, by Faith, but really in the Sacrament*; he is forc'd to confess, in formal Terms, that it is by communicating to us his Spirit and Life, tho' his Flesh does not enter within us; *Proprium in nos vitam diffundere, quamvis in nos non ingrediatur Caro Christi*, Instit. l. 4. c. 9. § 32. Therefore, conclude they, *Calvin*, who is so often represented by his Partisans as an extraordinary Man for Wit and Learning, is but an able Copist, who has pyrated all what the other Hereticks had said before him; and that his Institution, esteem'd by them a great Work, is most properly but a Collection of what he has chose out of the Writings of *Luther*, *Melancthon*, *Zuingle*, and *Œcolampadius*. They confess, however, that if he had not so great a Capacity as *Luther*, he is far more polite, and gives to his *Latin* Writings a far more delicate and fine Turn, which are full of Wit and Vivacity; tho' he is as fiery as *Luther* when he is angry. This is the System of *Calvinism* for the *Dogma's*.

As for the Discipline, he regulated his Authority very nearly in the same Manner 'tis seen at present among his Disciples, by establishing Consistories, Synods, Elders, Deacons, the Form of Prayers and Sermons, and the Manner of celebrating the Lord's Supper, of administring Baptism, and of burying the Dead.

In

In this Manner, say again the *Roman Catholicks*, *Calvin* made himself *Pope* of *Geneva*, while he was endeavouring to destroy the Authority of the *Pope* of *Rome*, and finding Fault with a Power which he usurp'd himself; since by his Industry, Dexterity, and continual Application to the Functions of his Office, and other Affairs, he acquir'd soon so great a Reputation, and so much Credit and Authority, not only in the Consistory, but likewise in the Council, that nothing was transacted there without his Advice. What contributed to render him still more powerful, was, the great Concourse of Foreigners, especially *French*, who flock'd to *Geneva*, among whom was a great Number of very learned Men, most Fryars and Monks, who had deserted their Monastery under the specious Pretence of Religion, tho', in Reality, for *a Petticoat*. They all profess'd a great *Attachment* for *Calvin*, as their *Protector*, who, in Gratitude, us'd to take Care of their *Establishment*, and that no Injustice should be done to them. For having discover'd that one of the most Apparents of *Geneva*, call'd *Amy Perrin*, who had been formerly Captain-General, had conspir'd against the *French*, so far as to be suspected of having undertook to have them all massacred, *Calvin* had him condemn'd to Death. This noble Action render'd him still more absolute, and more dreaded at *Geneva*, whence he extended his Care as far as *France*, sending thither some *Ministers* he had form'd himself, to establish and regulate, according to his Discipline, the new *Calvinist* Churches they had establish'd in several of the best Cities and Towns of that Kingdom.

But, however, they were oblig'd, by the Severity of the *Arrests*, issu'd continually against them, to preach and pray secretly, till after the Fight of St. *Quintin*, in 1557, where *Henry* II, King of *France*, having been worsted, they thought he had something else to mind, than the Affairs of Religion, and therefore assembled publickly at Noon-Day, in the most frequented Streets of *Paris*, and in a Place call'd *Le Pre-aux-Clercs*, to sign the Psalms of *Clement Marot*, whom I have already mention'd, who was very famous among them.

This *Marot*, says *Florimond de Remond*, *l.* 8. *c.* 16. was born at *Cahors*, and in some measure a Poet, the best, and most polite of his Time, where Politeness was not much in Vogue. With this Talent, he ingratiated himself with *Francis* I, to whom he was made *Valet de Chambre*; but as he was one of the first who embrac'd the new Doctrine, and he saw that the King his Master spar'd no Body on that Subject, afraid of being arrested, he fled into *Bern*, and from thence to *Ferrara*, near the Dutchess *Renee*. Some Time afterwards that Princess, at his Intreaties, manag'd his Peace, and obtain'd his Return from the King. He then came back to Court, where, to disengage the Word of the Dutchess, he follow'd the Advice of *Vatable*, *Regius Professor* of the *Hebrew* Tongue, who persuaded him to employ his Wit, and the Talent he had for Poetry, to translate the Psalms, which he offer'd to interpret to him, from the *Hebrew* into *French*. *Marot* translated, at *Paris*, in 1558, his first thirty Psalms, which, speaking without Prejudice, or Partiality, are very ill done, and not at all conformable to the original *Hebrew*. They were no sooner publish'd, but the Faculty of Theology represented to the King, that nothing was more dangerous than that *Burlesque*, and inaccurate Translation; which Remonstrance oblig'd *Marot* to quit once more *Paris*, and to fly to *Geneva*, near his old Friend *Calvin*, who made him translate twenty other Psalms, which he did in the same Manner he had done the first thirty at *Paris*.

This, however, prov'd of no Service to him; for tho' he had often read, and meditated the Psalms, we learn from the Ecclesiastical History of the Reform'd Churches, *l.* 1. from *Cayer's Formula*, and from *Florim. de Rem. l.* 8. *c.* 18. that following his former licentious Life, and having debauch'd the Wife of his Landlord, which at *Geneva* was a Crime punishable with Death, *Calvin*, by his Credit, had that Punishment chang'd into a whipping Bout thro' the Streets of *Geneva*; after which, *Marot* went to hide himself beyond the *Alps*, in *Piedmont*, where he died, aged 60 Years, and a good *Calvinist*.

These were the Psalms, sung, then, by the *Calvinists*; to which *Beza* added the rest of the *Psaltery*, and which were set to Musick by the best Masters of those Times, says *Godeau*, Bishop of *Vance*; and by very bad ones, says *Maimbourg*.

The *Calvinism*, who had been confin'd, at first, in *Paris*, to the common People, began soon to make considerable Progress among the Quality; and even Persons of the first Rank, who would not appear publickly *Calvinists*, for Fear of disobliging the King; a few excepted, who declar'd publickly their new Belief. The most considerable among those who declar'd themselves publickly, was the Lord *Dandelot*, Brother of the *Admiral de Coligny*, and Colonel of the *French* Infantry; a Hero who had shew'd his extraordinary Valour and Courage, and had render'd signal Services on all the Occasions he had been engag'd in. *La Popliniere*, *l.* 5. *Thuanus*, *Dupleix*, and *Mezeray*, say, that the Cardinal *De Granvell*, in a Conference he had with the Cardinal *De Loraine*, for a Project of Peace between the two Crowns, said to him, among other Things, to convince him of the Necessity of that Peace, that the *Calvinism*, which began to insinuate itself into *Flanders*, was not only among the Populace in *France*, as before; but that it begun, likewise, to be introduc'd among the Nobility: And for Proof of it, he produc'd a Letter of *D'Andelot's*, to his Brother the Admiral, Prisoner in the Low Countries ever since the Fight of St. *Quintin*; with which he had sent him some Books printed at *Geneva*, to chear him up during his Imprisonment. The Cardinal *De Loraine*, who hated the *Coligni's*, *Calvinists* or not, inform'd the King of it, who heard, besides, at the same Time, that *D'Andelot*, in his Journey to *Britanny*, where he had been, to see the Estate of his Wife, had *Calvinism* preach'd in his House, where every Body was admitted, without Distinction.

The King, who lov'd *D'Andelot*, whom he had brought up, order'd the Cardinal *De Chatillon*, his Brother, and his Cousin the Lord *Francis* of *Montmorency*, the Admiral's eldest Son, to engage him, when his Majesty should examine him concerning his Belief, to speak well of the Mass; for the two Words which distinguish'd the *Catholicks* from the *Calvinists*, was *Mass*, on one Side; and *Presche*, or *Sermon*, on the other: But all they could do could never prevail upon him to have, at least, that Complaisance for his Master; so that when the King, who was then at *Monreaux*, where he had him sent for, ask'd him, after he had first spoke to him as the most tender Friend, what he believ'd of the *Mass*; he answer'd haughtily, that he thought it *an abominable Invention of Men*. So disagreeable and unexpected an Answer, surpriz'd and embarrass'd the King so much, that tho' he was not naturally passionate, he had *D'Andelot* turn'd out, protesting, at the same Time, that if he had not the Honour of being his *Eleve*, he would run him thro' with his Sword; and then sent him Prisoner to the Palace of the Bishop of *Meaux*; from whence he was remov'd to the Castle of *Melun*, and some Time after set at Liberty, upon his having consented (press'd by the important Sollicitations of his Friends, and mov'd by the Tears of his Wife) that *Mass* should be said before him.

Very near the same Time, the *Calvinists* gain'd to their Party *James Paul Spifame*, a Man of Quality, of a great deal of Wit, Learning, and Experience, and very dextrous in the Management of the most intricate Affairs; who had been Chancellor to the Queen, Counsellor and President to the *Enquests*, Master of the *Requests*, and at last Bishop of *Nevers*. We find, in *Gallia Christiana*, that *Spifame* chang'd his Religion to marry a beautiful *Calvinist* Lady, with whom he was passionately in Love: So that being deserr'd to Justice, and afraid of being arrested, he fled, says

La Popliniere, l. 5. to *Geneva*, where *Calvin*, and the *Seignory*, who thought to have made a great Conquest over the *Catholicks* by the Desertion of a Person of that Consequence, received him with open Arms, made him a Citizen of *Geneva*, and gave him an honourable Post in the Council of the two hundred. And as the Civil War began some Time after in *France*, *Calvin*, says *Sponde Hist. Genev. l. 3.* having made him, of a Bishop, a Minister, sent him to *Orleans*, near the Prince of *Condé*, who, knowing his Capacity, employed him in something else, besides preaching. For he sent him to the Diet of *Francfort*, to justify the Arms which the *Calvinists* had taken against their Sovereign, and to ask the Emperor *Ferdinand*, and the other Princes of the Empire for Succours, which he could not obtain. After this fruitless Expedition, *Spifame*, being returned to *Geneva*, he was suspected to have endeavoured to betray the Party, says *Sponde*, *l. 3.* and to have negotiated, under Hand, his Peace with the Catholick Church. Therefore as it was determined, that he should be made away with, he was accused, either justly or falsly, of having made a false Contract, and false Seals, on which he was tried and condemned to be beheaded, which Sentence was executed upon him, on the Scaffold, says a *Calvinist* Writer; he appeared very penitent, and made a very fine and moving Speech to the People. The *Roman Catholick* Authors, who have mentioned this unhappy Catastrophe, imagine, that he repented then of having deserted, with so much Scandal, the Catholick Religion; and that he made a publick Abjuration at his Death. This happened in 1559.

In the same Year, the Peace being concluded at *Cateau, Cambresis*, the King, considering that *Calvinism* had considerably gained Ground in his Kingdom, during the last War, and being informed that the Edicts he had made against it were so far neglected, that even some Members of the Parliament of *Paris* had turned *Calvinists*, as it had appeared in the Mercurial after *Easter*, he formed the Resolution, says *La Popliniere, l. 5. Mezeray*, and *Dupleix*, to be in Person, at that which was to be held the 10th of *June*, in the Convent of the *Augustins*, where he went, accompanied by the Princes, Cardinals, Constable, Keeper of the Seals, and other Grandees of the Kingdom. After he had declared in few Words his Design of restoring the Peace to the Church, as he had done to his Kingdom, the Cardinal of *Sens*, *Bertrandi*, Keeper of the Seal, informed the Company by his Orders, that he would have the Deliberation, began by the Article of the *Mercurial* on the Fact of Religion, continued; and that every Body, in Order, should give freely his Opinion in his Presence; which was done accordingly, and the greatest Part agreed among themselves, by being of Opinion that the King should procure, as soon as possible, the Convocation of a general Council, to appease the Troubles wherewith the Church was agitated. Nothing, say the Catholick Authors, appeared more just and reasonable than this Advice, which was but a Repetition of the second Article of Peace, by which the two Kings of *France* and *Spain* obliged themselves to unite together, for the Convocation of a Council, which should terminate the Differences in religious Matters. But there was afterwards a great Variety of Opinions; for the one were for proceeding in the Interval, according to the King's Intention, and in all the Rigour of the Edicts and Ordinances against all those, who should continue to maintain a Doctrine contrary to that of the Catholick Church. The Principal among these, were the first President, *Gilles Le Maistre*, and the Presidents *De Harlay*, *Seguier*, *St. André*, and *Mynard*, one of the most inveterate against the *Calvinists*, and who mortally hated them. The others maintained, on the contrary, that the Pains, inflicted by the Edicts, which were too rigorous, should be mitigated; and some were of Opinion, that 'till the Opening of a future free Council, not only the Execution of the Edicts against those called *Hereticks* should be suspended; but they could not, likewise, help shewing that they were *Calvinists* themselves. These were the President *Du Ferrier*, and the Counsellors *Anthony Fumee*, *Nicole Du Val*, *Claudius Viole*, *Eustachius de la Porte*, *Lewis du Faur*, and *Anne du Bourg*, who declared himself more openly than all the Rest, and spoke more like a Minister, inveterate against the *Mass*, and the Pope, than like a Counsellor.

The King, full of Indignation, against these last, after he had said that knowing the Disposition of the Minds in his Parliament, he would likewise know very well how to reward the good, and punish the bad ones, had, immediately, the Counsellors *Du Faur*, and *Du Bourg* seised and carried to the *Bastile*; and, soon afterwards, ordered that the six others should be treated in the same Manner; but none but three could be arrested, who were taken in their Houses, *viz. Fumee*, *De la Porte*, and *Du Faur*, the three others being fled.

The Parliament soon after made the necessary Preparations for the Trial of those Prisoners, but before it could be ended, the King amidst the Publick Rejoicings, made for the Marriages of his Daughter and Sister, received the 29th of *June* 1559, in a Turnament, that fatal Blow, of a Splinter of a Lance, which *Montgomery* gave him, some say with, and some without a premeditated Design, into the Right Eye, and of which he died the 10th of *July*, in the 12th Year of his Reign, and the 42d of his Age; a Prince of an excellent Temper, extraordinary Bounty, Clemency, affable, liberal, just, and passionate for the true Glory, encouraging and cherishing Men of Letters, and of an extraordinary Merit, brave, very dexterous in all Sorts of honest Exercises, happy in War, covered with Glory, for his noble Actions, and the Conquests he had made, as well by himself, as by his Lieutenants, in *Flanders*, *Luxembourg*, *Lorain*, *Germany*, *Piedmont*, *Tuscany*, in the Island of *Corsica*, and triumphed over all the confederated Forces, of *England*, *Spain*, the *Low-Countries*, and the Empire, all united against him, having himself alone, and with main Force, before *Mentz*, and at the Battle of *Renty*, stopp'd the impetuous Course of *Charles the 5th*'s Fortune.

The *Calvinists* thought, that after the King's Death, the Government would be so weak under a young King of 15 Years old, that he would be afraid to pursue them, and to irritate a Party, rendered so powerful by the Multitude, and so formidable by the Quality of those who had entered into it, and who were known capable, says the Catholick Authors, to undertake any Thing. They were then so little afraid of the superior Powers, that the Queen Mother, *Catharine*, found on her Toilett some Letters; and Writings were published, by which they threatened her openly to ruin her, if she refused to set the Prisoners at Liberty. The same Authors pretend, that she was even informed of a Conspiracy formed by the *Calvinists*, to free them by Force, by setting Fire to several Quarters of *Paris*. But as those who were at the Helm, were not to be intimidated by those Menaces, and had took Care to provide for the publick Security, the Trial, begun against those Prisoners in the *Bastile*, was pursued with Vigour. It happened that the Twelfth of *December*, *Anthony Mynard*, *President au Mortier*, born at *Gannat* in *Bourbonnois*, a Man of a rare Merit, and declared Enemy of the *Calvinists*, as he was returning from the Palace on his Mule, was shot by Assassins, near his House in the old Street of the *Temple*. Captain *Stuart*, who pretended to be Kin to the then reigning Queen, the unhappy *Mary Stuart*, was suspected of that Murder, which he always denied with great Constancy and Resolution, even amidst the excruciating Torments of the ordinary, and extraordinary Torture.

This Murder, far from intimidating those at the Helm, made them resolve to have the Sentence executed, pronounced against *Anne du Bourg*, who was hanged, and burnt in the Place of *Greve*, the 23d of *December*, 1559.

However

However, *Calvinism*, under the Reigns of *Francis* I. and *Henry* II. was but yet, as it were, in its Infancy, without a Head, Conduct, Forces, or Arms, to oppose the Powers who had resolved to suppress it: But it being passed from one Extremity to the other, under that of *Francis* II. it became soon a great and formidable Party, formed of the Division and Quarrels of two others, who declared soon, openly, against each other.

There were then in *France* two very illustrious Houses, who, after the Princes of the Blood, obtained the first Rank, and excelled all others for Nobility, Favour, Credit, Power, Honour, and Authority; *viz.* the House of *Guise*, and that of *Montmorency*. The Chief of this was the famous *Anne* of *Montmorency*, Constable of *France*, and Grand-Master of the King's Houshold, a Person of a consummate Wisdom, and Experience in War, as well as in the Cabinet, and who to the Glory of his Ancestors, honoured Time out of Mind, with the glorious Title of *First Christian*, and *First Christian Baron of France*, &c. joined, That he had acquired in the Service of the Kings his Masters, who had always distinguished him by some particular Marks of their Favour and Confidence; and what rendered him still more considerable is, That his great Merit which had gained him the Respect and Veneration of the whole Court, at his Age of very near 72 Years, was supported by the rare Qualities of his five Sons, all very brave Men, and of the three Brothers *Colignis* his Nephews, Sons of his Sister *Louisa* of *Montmorency*, *viz Odet*, Cardinal of *Chatillon*, *Gaspar De Coligny*, Admiral of *France*, and *Francis D'Andelot*, Colonel of the *French* Infantry, all three perfectly united and esteemed, especially among the Nobility and Soldiers, as brave, couragious and intrepid.

The House of *Guise* was established in *France* by *Claudius* of *Lorain*, a younger Son of Duke *René*, and Brother of Duke *Anthony*, who having received for his Appennage the large Possessions the Duke had in *France*, especially the Earldom of *Guise*, erected since into a Dutchy, he came into the Kingdom under *Lewis* XII. and deserved by his signal Services, much more than by his Birth, to marry *Antonia* of *Bourbon*, Daughter of *Francis*, Earl of *Vendosme*, and Aunt to *Anthony* King of *Navarre*, and to *Lewis*, Prince of *Condé*. This Princess proved the strongest Support of his House, by presenting him with six brave Princes, besides four Princesses, the eldest of whom, *Mary* of *Lorain*, had the Honour to marry *James* V. King of *Scotland*, of whom she had *Mary Stuart*, afterwards Queen of *France*. But as the Duke and the Constable divided between them the Favour of *Henry* II, and that Rivals in Favour and Ambition cannot be without some Jealousy, 'twas that, without Doubt, which began to breed the Division between those two Houses, and which increased a great Deal more, after *Claudius*'s Death, by the great Progresses the famous *Francis*, Duke of *Guise*, his eldest Brother, made in the Affection and Confidence of the King his Master, who loved him as if he had been his Brother. The Glory which this new Duke acquired at the Siege of *Metz*, which he defended against the formidable Army of *Charles* V. his taking *Calais* and *Thionville*, &c. contributed much towards rising still higher in Credit, Favour, and Reputation; while, on the contrary, the Misfortune, which happened to the Constable, by the Loss of the Battle of St. *Laurent*, where he was made Prisoner, and by the taking of *St. Quintin*, where the Admiral was also taken, brought the *Montmorency*'s into Disgrace. But what raised the House of *Guise* to the highest Degree of Elevation and Grandeur, they could aspire to, was the Marriage of the *Dauphin* with *Mary Stuart*, Queen of *Scotland*, and their Niece, since at King *Henry*'s Death, they found themselves Uncles of the new King *Francis* II.

In Fact, the Queen-Mother *Catherine* of *Medicis*, having a great deal more the Princes of the Blood than those of *Guise*, whom she imagined would be always dependant of her, took the Pretext of that Alliance, to have them intrusted with the Government, which the young King, who was yet but 15 Years old, divided between the Duke of *Guise*, and the Cardinal of *Lorain*, his Brother; he gave to the first the Superintendancy of the Armies, and to the second, that of the Finances, and to both, the Direction of the Political Affairs, under the general Superintendancy of the Queen-Mother, which Disposition he declared publickly to have done, at the Example of the Kings his Predecessors, who had always considered as a *Right inseparable from the Crown, to choose whom they pleased for their Ministers*. The Princes of the Blood, who appeared dissatisfied at it, were dismissed, under some specious Pretexts. The Constable, who had no longer the Command of the Army, retired to his House; his Post of Grand-Master, which he was obliged to resign, was given to the Duke of *Guise*, preferable to *Francis* of *Montmorency*, who was made Marshal of *France*.

There were among the Malecontents, two great Princes, *Anthony* of *Bourbon*, King of *Navarre*, and *Lewis*, Prince of *Condé*, his Brother, who rendered formidable the Party which had been formed against the *Guises*. *Anthony*, Son of *Charles*, Duke of *Vendosme*, and of *Frances* of *Allençon*, he, who after the Princes of *Valois*, was nearer to the Crown, had naturally several excellent Qualities, for he was good, generous, affable, civil, of a good Sense, agreeable, pleasant in Conversation, brave in Battle, and a very great Master in the Military Art; but he was not a great Man in the Cabinet, in which he was always disappointed, therefore he used to fear it more, than the most formidable Army. But what proved more prejudicial to him was, that besides his voluptuous Life, he was very indolent, irresolute, and inconstant; and that he was easily led by the Nose from one Extremity to another; whereby he found himself, say the Catholick Authors, one of the first of that Party engaged in *Calvinism*; for a Monk, called *Peter David*, who had deserted his Monastery, and retired to *Nerac*, after he had been expelled from *Agen*, where he wanted to establish *Calvinism*, having found the Secret to enter deeply into the Confidence of this easy Prince, he chose him for his Preacher, or rather Minister, and embraced his Doctrine. He even, some Time afterwards, says *Brantosme*, in his Panegyrick of the King of *Navarre*, brought him to Court, where King *Henry*, who found it very ill, reprimanded him for it, so that for Fear of irritating the King, *Anthony*, though a good *Calvinist*, used to go to Mass. The Queen *Jane* of *Albret*, his Wife, was not well pleased, at first, with this Change of Religion, lest it should have obstructed the Design they had formed, for the Recovery of the Kingdom of *Navarre*, either by open Force, or by Negotiation; but the Hatred hereditary in her House, for the Popes and the Court of *Rome*, who had been the Cause of the Disgrace of her House, conquered all other Consideration, and engaged her to follow the Example of her Husband, which she did so effectually, that she refused always afterwards to imitate him in his Recantation.

Mr. *Le Laboureur*, on the Memoirs of *Castelnau*, and the Ecclesiastical History of the reformed Churches say, that the Prince *De Condé*, who had all the good Qualities of his Brother, with a Vivacity and Strength of Imagination, accompanied with Resolution and a Greatness of Soul, worthy his high Birth, and Quality of first Prince of the Blood, had embraced the new Opinions in Complaisance for the Lady of *Roye*, Sister of the Admiral, his Mother-in-Law, and for *Eleonora*, of *Roye*, his Wife, both of a superior Genius and Virtue, and both the most zealous *Calvinists* of their Time. As for the *Colignis*, 'tis certain, says *Brantosme*, that *D'Andelot* had took the first Tincture of that Doctrine, in reading certain *Lutheran* Books, sent to him to the Castle of *Milan*, where he was Prisoner, after having been taken by a Party of *Spaniards*, and that at his Return into *France*, he instructed his two Brothers in the same Principles. There is even some Appearance, that *Louisa* of *Montmorency*, their Mother,

Mother having been of the Number of those Ladies who under *Francis* I. favour'd the new Doctrine, which she follow'd to her Death, inspir'd her Children with an Inclination for it. The Truth is, that the Admiral was already a very good *Calvinist* when he sent the *Chevalier de Ville-gagnon* into *America* to prepare there a Sanctuary for all those of his Sect.

These illustrious Personages, thus dispos'd, seeing the *Guises*, their Enemies, at the Head of the *Catholicks*, put themselves, likewise, at the Head of the *Calvinists*, who under such Chiefs acted not only against the *Guises*, but against the Religion of the Kingdom, and against the Kings of *France* themselves; which, according to the Ecclesiastical History of the Reform'd Churches, *La Popliniere*, *Castelneau*, *l.* 1. *Mem.* *Belleforest*, *Belcaras*, *Aubigne*, *Thuanus*, *Dupleix*, and *Mezeray*, was concerted in the following Manner.

The principal *Calvinist* Ministers had already determin'd among themselves, that to obtain Liberty of Religion, it was absolutely necessary to take off the *Guises*, under Pretence that they had usurp'd the Government to the Prejudice of the Princes of the Blood, to whom it belong'd by Right, especially while the King, *Francis* II, was so young. This they publish'd in their Libels, which were very pertinently and learnedly refuted by *du Tillet*, in an hundred Examples extracted from the *French* History. But to execute this bold, and very difficult Enterprize, they wanted a Chief; and as they saw that they could not depend on the King of *Navarre*, who would never be persuaded to undertake any Thing for Fear of bringing upon him, as threaten'd already, all the Forces of the King of *Spain*, they apply'd to the Prince of *Condé*, who had more Resolution, but a great deal less Prudence than his Brother, not at all doubting but that his Spite, Hatred, Ambition, and his bold Temper and Intrepidity, and the pressing Intreaties of his Mother-in-Law, and of the Princess his Wife, both entirely devoted to the Party, would easily persuade him to grant their Request.

For that Effect, there was a very secret Assembly at the *Ferté*, under *Jouare*, where, with the Prince's Council, met the *Envoys* of his principal Confidents, and the *Ministers* and Deputies of almost all the *Calvinist* Churches; there it was concluded, on the Decision of the *Lutheran* and *Calvinist* Ministers, Professors, and Counsellors, of *Germany*, *France*, and *Geneva*, that in the present State of Affairs it was just and right to take Arms; to seize, in what Manner soever, the Duke of *Guise*, and the Cardinal of *Lorrain*, his Brother, to have them proceeded against on the Informations which those Gentlemen had already canvass'd against them; provided a Prince of the Blood, who in that Case is a right Magistrate, would be the Chief of the Enterprize. This being approv'd and receiv'd by an unanimous Consent of the whole Assembly, the Prince accepted to be their Chief; on Condition, however, that nothing should be attempted against the King, the Royal Family, nor against the State; and that he should not be oblig'd to declare himself till after the Enterprize had succeeded, under the Conduct of him who should be chose for to execute it under his Authority. This Champion, pick'd among the rest, was a Nobleman of *Perigord*, call'd *John Godefroy de Bary*, otherwise *La Renaudie*, whom the Duke of *Guise*, while his Father was Governor of *Burgundy*, made escape from the *Conciergerie* of *Dijon*, where he was imprison'd for Forgery in a Suit of Law which he had against the *Greffier du Tillet*. This Man having lost his Estate and his Honour, which he could not recover but in the Confusion of the State, and the Change of Government, offer'd himself to the Assembly; who knowing him to be a Man of Resolution, accepted his Offers; and afterwards the Prince gave him, in good Form, the Power to act in his Name on all Occasions where it should be wanted to employ his Authority for the *common Cause*; promising him, besides, that he would be at Court on the Day appointed for the Execution of the Enterprize, that he might declare it had been done by his Orders.

This thus resolv'd, *Renaudie*, who ever since his Disgrace at *Dijon* call'd himself *La Forest*, acted with such Dexterity and Diligence, that he assembled, in the Month of *January*, by himself and his Emissaries, a considerable Number of Gentlemen and Deputies of the *Calvinist* Churches at *Nants*, where they came one after another, each carrying, or having carried after him, a Lawyer's Bag, as if he had *had* a Suit of Law at the Parliament of *Britanny*, which was then held at *Nants*. At this Assembly, which was held very secretly, and which pretended, falsely, to represent the States of the Kingdom lawfully assembled, after *Renaudie* had expos'd what had been concluded at *La Ferté*, and which was approv'd here with an unanimous Voice; and he had receiv'd the Oath which he took himself reciprocally to act in this important Affair with an inviolable Fidelity, he declar'd, that the *mute Chief* of the Enterprize was the Prince of *Condé*, who had made him his Lieutenant, to act in his Name; and shew'd in Writing the Power he had receiv'd. After which, it was deliberated, of the Manner, Time, and Place of the Execution; and it was concluded, that five hundred Gentlemen, and a thousand Foot, under thirty Captains, who were chosen, would meet, by the 10*th* of *March*, 1560, thro' different Roads, at *Blois*, where the Court was to be at that Time; and, under Pretence of presenting a Request to the King, should render themselves Masters of the Palace, to execute what had been resolv'd against the *Guises*; and that Troops should be rais'd in all the Provinces, to oppose all those who should undertake any Thing in their Favour.

This is what is related of that Enterprize by all Historians, both *Calvinists* and *Catholicks*, the sole Author of the Additions to the Memoirs of *Castelneau* excepted; who, to make his Court to the House of *Condé*, says, without any Proof, that the Prince had never spoke, nor heard speak of that Design.

But, however, I must say, without the least Prejudice or Partiality, and which I hope will be granted by every honest, just, judicious, and impartial Reader, both *Protestants* and *Catholicks*, that nothing was ever more criminal, nor worse concerted, nor, also, more unfortunate in the Success, than this Design. For to pretend to take Possession, by Force, of the King's Palace, to seize in his Presence his principal Ministers, and even kill them, as the Captain *Mazeres*, who had charg'd himself with that bloody Execution, confess'd it; is it not aiming at the King himself, and sacrilegiously attempting to render one's self Master of his sacred Person, and of the Government of his Kingdom? And what can be worse concerted, than to intrust with a Secret of that Nature, so many People, who were to tell it to a thousand more, in the Provinces where they were going to raise Forces to support that Enterprize? Therefore the *Guises* were soon inform'd of it from all Parts, even by Foreigners, from *Flanders*, *Germany*, *Switzerland*, and *Italy*, without minding those repeated Advices, thinking the Thing impossible, and far from all Likelihood, till they were inform'd of all the Particularities of that Conjuration by a *Calvinist* Advocate, to whom *Renaudie* himself, who lodg'd at his House at *Paris*, had discover'd it.

Then the *Guises* found it very easy to dissipate a Conspiracy so ill conducted, by seizing almost all the Conspirators. To disconcert all their Measures, the Court went to *Amboise*; a vast Number of Nobility was assembled; the *Gendarmerie* was order'd to keep themselves ready to march; Guards were posted at all the Gates; and as the new Project *Renaudie* had form'd, ever since the Court had left *Blois*, was learn'd from one of his Confidents, as far as the *Rendezvous* he had appointed to his Men in the Neighbourhood of *Amboise*, to execute their Enterprize on the 16*th* of *March*; they were most of them seiz'd, without much Difficulty; others were arrested at all the Passages

thro' which they were coming one after another, to be there at the Day appointed. Several of them were hang'd, without any other Formality; others were thrown into the River. *Renaudie*'s Body, who was kill'd while endeavouring to rally his Men, was hang'd, and then quarter'd on the Bridge of *Amboise*; the principal of his Captains were beheaded, after they had confess'd all; as was, also, *La Vigne*, *Renaudie*'s Secretary, who discover'd the whole Secret of that horrible Conspiracy. After which, the Duke of *Guise*, who was to be the Victim, was declar'd Lieutenant-General of the whole Kingdom, the King either present or absent, with a more absolute Power than ever any Body had ever since the *Mairs du Palais*.

But because it was found that this bloody Execution would extend to too great a Number of those Unfortunates, several of whom had been engag'd in the Conspiracy, without knowing what was to be done, an *Edict* of Abolition was publish'd for all those who had arm'd themselves on that Occasion, provided they would retire peaceably in 24 Hours, two and two, or three and three, to their own Houses: But as in the *Interim* three of their Captains, who had arriv'd last, had the Temerity, with the Soldiers they could rally, to attack the Castle, thinking to surprize it; after they had been repuls'd with the Cannon, the general Pardon was revok'd, and the Cavalry detach'd against them, who cut in Pieces those unhappy Remains of the Conspirators. This was the Success of that Conspiracy, which was the Beginning, say the *French* Historians, of those Disorders which *Calvinism* caus'd some Time after throughout the whole Kingdom, by the general Revolt of its Partisans.

As for the Prince of *Condé*, the King having reproach'd him with the *Attentat*, which his Majesty said had been committed, even against his Person; the Prince answer'd, in a Manner conformable to the Greatness of his Courage, by a *Lie*, which he gave in full Assembly, compos'd of all the great Men of the Kingdom, to all those, except the King, the Queens, and the Sons of *France*, who dar'd to maintain that he had made himself Chief of those who could have attempted against the sacred Person of the King, and against the State; offering, besides, his Rank of first Prince of the Blood set *a-part*, to maintain that *Lie*, in a single Combat; but no Body appear'd willing to accept the Challenge; tho' the Duke of *Guise*, that *Lie* was aim'd at, was at least equal in Courage to the Prince, and known for such: But it was not the King's Interest, nor his own, to shew himself sensible of the Affront, which being meant but indirectly to him, and conceiv'd in general Terms, could be very well consider'd as affecting no Body in particular. But as the Prince saw that his Justification could not hinder him from being consider'd as Chief of that Conspiracy, and that he was even narrowly observ'd; he found Means to disappear, and went into *Bearn*, near his Brother the King of *Navarre*. For the *Coligni's*, the Queen-Mother, who had already form'd the Design to make Use of them to *ballance* the Power of the *Guises*, grown formidable to her, hinder'd by her Authority, their being question'd on this Conjuration, tho' every Body thought that they had a Hand in it: So that the Chiefs of the *Calvinists*, who were always on Foot, and in a Condition to raise their Party, appear'd, soon after, says *Maimbourg*, as proud and enterprizing as ever.

In Effect, (according to *Popliniere*, *Dupleix*, and *Mezeray*,) *Mourans* and *Montbrun*, having armed the *Calvinists*, waged War openly, and having wasted, one the *Provence*, and the other the *Dauphiné*, where he seized on *Romans Montelimar*, and even on *Valence*: So that the *Calvinism* was a going to be the reigning Religion in those Provinces, if the Earl of *Tende*, and the Baron *De Lagarde*, on one Side; and on the other *Maugiron*, and *La Motte Gondrin*, the King's Lieutenant in *Dauphiné*, had not run to the Succour of the Catholicks, with old Forces, with whom they dispossessed the two *Calvinist* Chiefs, before they could have had Time enough to fortify themselves in their new Conquests. At the same Time, the *Calvinists*, supported by the Queen of *Navarre*, spread themselves into a great Part of the *Guienne*; and the Admiral, on his Side, to whom his Post gave a vast Power in *Normandy*, maintained them there with so much Authority, that they preached publickly, under his Protection, at *Dieppe*, *Havre*, *Caen*, and some other maritime Towns, and had done the same at *Rouen*, where he had gained some of the principal Officers, if the most considerable of the Parliament had not vigorously opposed it.

All these frequent Enterprizes of the *Calvinists*, obliged the *Guises* to press the Queen that she would consent to the Establishment of the Inquisition, which they thought the most efficacious of all Remedies against *Calvinism*, and which *Henry* II, though a zealous Catholick, could never imagine would suit a *French* Constitution: Therefore the Queen, his Dowager, being of the same Sentiment, would never consent to the Establishment of that, *what you be pleased to call it*, Tribunal.

The Admiral, not at all disconcerted by the strong Opposition, and the frequent Disappointments of those of his Party, presented to the King, in the Assembly of the Notables (held at *Fontainebleau*, in the Month of *August*, to find Means to appease the Troubles) a Request in the Names of all the *French Calvinists*, in which they asked, not only that all Pursuits against them should cease, but also, that they should have the Liberty to build Temples for the publick Exercise of their Religion; and as if the Admiral had been willing to threaten or intimidate the King, he added, that he could have his Request signed (says *Castelnau*, *Mem. l.* 1. *Belcaras*, and *La Popliniere*) by 50,000 Men of the single Province of *Normandy*. He complained also, that the King's Guard had been reinforc'd, which render'd him odious to his Subjects; and which every Body knows is always the Pretext of the Disaffected to a Prince, or his Government, to have him, if they could, at their Mercy; since regular Forces are always the Bulwark of the Throne in a Country divided into Parties.

The Pretext of the Cardinal *De Lorain*, for establishing then the Inquisition in *France*, was, that the Clergy had complained loudly, ever since the Beginning of the Differences in Matters of Religion, that the Laick Judges had usurped an Authority, in judging of the Crime of Heresy, which belonged to the Bishops. *Henry* II, says *Thuanus*, and *Sponde*, to oblige the Bishops, had an Edict issued the 19th of *November* 1549, by which, leaving to the secular Judges the Cognizance of the Crime of Heresy, as to the Fact, with Regard to the Laicks; and to the Bishops, that of Right, when it is a Question to decide, if a Doctrine be heretical, he will, that the Judges after they have proceeded against the accused, should send them to the Bishops, to have them punished according to the Canonical Laws; which proved very advantageous to the *Calvinists*, because the Church cannot dip her Hands in Blood, nor pronounce a Sentence of Death. The Cardinal *De Lorain*, who was not willing they should be dealt with, with so much Meekness and Compassion, obtained, five or six Years afterwards, another Edict, quite contrary to this, by which the ecclesiastical Judges were to proceed against Hereticks, who, after they had been lawfully convicted, should be sent to the secular Judges, to be punished, without Appeal, according to the Rigour of the Ordinances. The Parliament made, on that Subject, several very strong Remonstrances, especially concerning this Clause, *Sans Appel*, without Appeal, which seemed to be of a dangerous Consequence, so that this Edict was not regularly observed.

'Twas for this very Reason that the Cardinal insisted on the Establishment of the Inquisition; but the Chancellor, to avoid that Blow, proposed to the King the

the new Edict of *Remorantin*, which keeping a Medium between the two contrary Edicts of *Henry* II. seems to satisfy equally the ecclesiastical and secular Judges, and to treat severely enough the Hereticks, without having Recourse to the Inquisition, which choak'd the Rights of Parliaments, and of Bishops. For by this Edict, the Cognizance of the Crime of Heresy belongs to the Prelates and their Officers, to the Exclusion of all other Judges; but it orders, likewise, that all those who shall speak of their heretical Dogma's, either in private or in publick, who shall have secret Assemblies, and preach without Leave of the Bishops, write Libels, in Favour of the new Opinions, are to be judged, with their Printers, by secular Judges, without Appeal, and punished according to the Rigour of the Ordinances, as guilty of *High Treason*. This Edict, made at *Remorantin*, in the Month of *May* 1560, pleased every Body, the *Calvinists* excepted, who (says *La Popliniere*, *l.* 6.) called it the *Spanish* Inquisition, though this Edict was never regularly observed; nor the Inquisition established.

The Request, presented by the Admiral, was disapproved by the whole Assembly of the Notables abovementioned, and refuted by the Duke of *Guise*, especially, as to what related to the King's Guard; who said, looking scornfully at the Admiral, that after the Conspiration of *Amboise*, it was necessary for the King's Security, that his Guard should be still stronger, and that to discharge faithfully the Duty of that high Office, it had pleased his Majesty to honour him with, he would take Care that those who presented such Requests, *displeas'd at that Guard, should never be in a Condition to force the King's Palace to render themselves Masters of his sacred Person, and murther his Ministers.* The Cardinal of *Lorain*, added to this (the better to confound the Admiral, who had boasted that he had 50,000 Men ready to sign the Request of the *Calvinists*) that the King had several Millions of Men to oppose them. Then he concluded (say *Dupleix und. Franc.* II. p. 619. *Spond. ad Ann.* 1560, *N.* 16. *Mezeray*, *Tom.* 2. *p.* 785. *Extract. from La Poplin. l.* 6. *p.* 104. *Belcaras*, *l.* 28. *p.* 946.) by saying that, far from being frighted at their Menaces, he took them to Honour, as well as the Hatred and Animosity of those whose Request had been presented by the Admiral. That *at* Paris, *and in all the Provinces, an infinite Number of* Libels *had been published, full of the most atrocious Invectives, and dreadful Menaces against him the Cardinal, and the Duke of* Guise, *his Brother; that he had twenty two of them which he kept carefully, and took Pleasure to shew them, as so many convincing Proofs, of his Zeal for his Religion, and of his inviolable Fidelity for the Service of the King, who had been pleased to choose them for his Ministers.*

Maimbourg says, that he has seen a Collection, in ten Volumes, in *Folio*, of all the Satyrs and Lampoons, wrote by the *Calvinists* of those Times, against the Kings, *Henry* II. and *Francis* II. Queen *Catherine*, when she was not in an Humour to favour them, the King of *Navarre*, ever since he joined with the Catholicks, and especially against the Duke of *Guise*, and his Brother the Cardinal of *Lorain*, Archbishop of *Reims*; wherein (says the same Author) all the most flagrant Invectives, atrocious Calumnies, and supposed Crimes, *&c.* are display'd without Judgment or Wit.

The Cardinal, however, whose Soul was as great as his Genius and Capacity (says *Castelnau*, *l.* 1. *c.* 7.) would never be revenged of those infamous Libellers, otherwise, than by despising their impotent Fury and Rage.

Moreover, the Assembly having rejected the Request of the Admiral, it was concluded, that all the Bishops should come to Court the 10*th* of *January* of the Year following, to go from thence, all together, to the general Council, or to assemble a national one; which was the Cause why Pope *Pius* IV. deferr'd no longer to re-establish that of *Trent*. Mean while, the *States* of the Kingdom were convok'd, first to *Meaux*, and afterwards to *Orleans*, for the Month of *December*; in a Word, all Measures were taken to abolish entirely *Calvinism* in *France*, had they not been disconcerted by the unexpected Death of the King, which happen'd the 5*th* of *December*, 1560, caus'd by an Abscess in his Head, which could never be discharg'd thro' the Ear where it had took its Course.

I have judg'd proper to enter into this Detail, to shew the Reader in what Manner *Calvinism* was introduc'd in *France*; the Pretext, as we have seen, was, the Reformation of the Church, wherein several gross Abuses had been introduc'd, by the Depravation of Manners, the Ignorance and Indolence of the Clergy. But, say the most impartial, and most moderate Authors, such Reformation could have been very well effected, by the same pacifick Method practis'd by the *Christian* Church, ever since its Infancy, to those Times of Confusion and Trouble, without having Recourse to the same violent Means us'd by the *Arians*, *Nestorians*, &c. The Convocation of Councils, which is of apostolical Institution, was, say they again, the sole specifick Remedy for those Evils, and thought such by the Apostles themselves; who, far from having Recourse to Fire and Sword to establish the *Christian* Religion founded by *Christ* himself, on Humility, Patience, and Resignation, would have their Disciples employ no other Arms amidst the most cruel Persecution of Tyrants, than their Tears and Prayers; which prov'd more advantagious to *Christianity*, than if the *Christians* had attempted to repel Force by Force; which they could have done with a far greater Appearance of Reason, since it had been endeavouring to establish the Kingdom of *Christ* on the Ruin of that of *Satan*, which our divine Saviour was come to destroy, if Violence, and Revolt against the superior Powers, had not been contrary to the fundamental Principles of his divine Doctrine, and to the rare Example himself had given us, when *carried like a Lamb* to the Slaughter, *without* so much *as opening his Mouth*; and who paid for himself and St. *Peter* the Tribute to *Cæsar*. What Difference, continue the same Authors, between this Conduct, and that of the Reformers? Our divine Saviour will not employ his infinite Power and Authority to destroy the idolatrous Worship of Idols; and the *Calvinists* usurp one to destroy those who adore the true God with them; he who is King of Kings, and by whom the Princes of the Earth reign, and administer Justice, would himself give an Example of the Obedience and Submission due to those temporal Rulers of the Earth; and those who are born Subjects of those Princes, not only refuse to obey, but have also the sacrilegious Temerity to attempt to over-rule them, which made the most impartial judge, that Ambition is the only Motive they are actuated by, and that of Religion employ'd only as a Cloak to steal the other from the Vulgar, who are not always bless'd with the greatest Penetration, or most just Discernment, but rather seldom mind any Thing besides an outward Appearance.

For my Part, was I permitted to give my Opinion in those difficult and interesting Cases, I think it very inhuman to persecute Mankind for their Religion, or to force them into a Road to Heaven, different from that they are pleas'd to chuse themselves; since they are the most interested, or, to speak more properly, the only ones interested in that Affair; we shou'd not, 'tis true, lead them to the Precipice, nor even suffer them to run to that Precipice, if it was in our Power to prevent it; but we should not, neither, throw them into that Precipice, under the specious, or rather perfidious Pretence of deterring them from it. For Example, we believe that Heresy is one of those great, and but too much frequented Roads which lead into Hell; we would have no Body follow that dangerous, and most fatal Road, which to prevent, as much as it is in our Power, we are so *christianly* kind, that we show to those already engag'd in it the imminent Dangers they are running into; and if they continue in

in their Obstinacy of following it, notwithstanding our Care, and charitable Monitions, we erect Gibbets and Scaffolds, and light Fire on that Road, under Pretence of stopping their Journey, when even in our own Opinion, it must be the surest Means to precipitate them sooner into the Abyss we would have them avoid; whereas, had we continu'd our charitable Monitions, without taking those violent Methods, we had given them Time to reflect on their own unhappy Condition; and if they had not made a good Use of it, and had continu'd in their Obstinacy, we could not have reproach'd ourselves with having been accessory to their Damnation, since we had done all in our Power to save them. Besides, it would be ridiculous to suppose, that, were they even to change thro' such violent Means, that such Conversion could be sincere, and we must be convinc'd, that Want of Sincerity, on those Occasions, is of no Utility. The Apostles never us'd such violent Means to establish the *Christian* Religion, else they could never have made so vast a Number of Proselytes; 'tis true, that they had no Power; nor even when the Church had that Power under the first *Christian* Emperors, has she thought it agreeable to *Christianity*, to employ it to force People to believe against their own Wills.

But, on the other Side, *Christian* Subjects should not have the sacrilegious Temerity to attempt to establish a new *Christian* Opinion by Fire and Sword, on the Ruin of the Throne of their Sovereign, and the Devastation of their Mother-Country, especially a *Christian* Country, and against the Will of the Prince, and the fundamental Laws of the Kingdom; which unjust and cruel Method, *Calvinists* are to this Day reproach'd with by all the most impartial Historians of those Times, with having follow'd in *France*, and of having made of that flourishing Kingdom, for a long Series of Years, and at different Times, a dreadful Theatre of Conflagration, Blood, and Slaughter.

'Tis pretended, that *Calvinism* was establish'd in the same Manner, and by the same bloody Means, in *Scotland*, *England*, the Low Countries, *&c.* and tho' I will not pretend to affirm that the Accusation is just, I'll give here an imperfect Sketch of the Conduct of the *Calvinists* in those different Kingdoms, taken partly from *Calvinist* Authors themselves, of what was transacted in those different Kingdoms on that Occasion; beginning with *Scotland*.

The *Roman Catholick* Religion, which (say *Lesly*, *Hist. Scot. l. 9. Georg. Cone, de dupl. Stat. Relig. apud Scot. l. 2.*) which had flourish'd for the Space of twelve hundred Years in *Scotland*, was yet practis'd there towards the Middle of the *16th* Century, thro' the Care *James* V, a zealous *Catholick*, took to hinder the *Calvinism*, which had already begun to introduce itself into *Scotland*, from taking Root in that Kingdom. For he not only, by *Edicts*, routed out the *Calvinist* Apostles come from *Germany* and *France*, but he had those burnt, without Mercy, and without Distinction of Persons, who profess'd the new Doctrine; to deter others from following their Examples. So that tho' some of the Nobility, as well as of the common People, were already very much inclin'd to that Side, none dar'd to declare publickly his Sentiments on that Subject; and notwithstanding all the Changes which happen'd in *Germany*, *France*, *Denmark*, and *Sweden*, the sole *Catholick* Religion was permitted throughout his whole Kingdom. That Prince went even further; for seeing that *Henry* VIII, his Neighbour, had made *Divorce with the Church of* Rome, since that Church refus'd obstinately to grant him one; *James* assembled the States at *Edinburgh*, and oblig'd them, by his Authority, and much more by his Example, to protest and swear solemnly, as he did himself, that they would always stedfastly abide by the *Roman Catholick* Church, their Mother, from whom they had receiv'd, with the *Catholick* Faith, the Life of the Soul: And tho' *Henry* was his maternal Uncle, (for this *James* was Son of *Margaret*, the eldest of *Henry* VIII's Sisters) he refus'd henceforward to have any Commerce with him, and preferr'd War to it; in which Resolution he persisted to his Death, which happen'd in 1542, thro' Sorrow of having been abandon'd by the principal Officers of his Army, who (say our Historians) had been debauch'd by the *English*.

His Death prov'd fatal to the *Roman* Church, which from that Time began to lose a great deal of Ground in *Scotland*, having no longer that Prince, who maintain'd it by his Authority and Zeal. The *Calvinism* which had been kept conceal'd all this while, began to appear throughout the whole Kingdom, as publickly as if it had been the reigning Religion of *Scotland*; and this by the Connivance of the Earl of *Arran*, Governor of the Kingdom; for he not only forbad (says *Lesley*, *l.* 10) prosecuting those who profess'd the new Doctrine, but he suffer'd, likewise, that they should have full Liberty to appear in publick, and profess their Belief. He even granted to one of the new Apostles the Liberty of preaching in *Edinburgh*, to which he assisted in Ceremony, accompanied by the greatest Lords of the Kingdom; which was as a Signal of the Liberty granted to every Body to profess the new Religion. The Earl did thus because he was already a secret Partisan of the new Doctrine, which afterwards he profess'd publickly; or because he thought, that by granting tacitly Liberty of Conscience, he could easier obtain for *Edward*, Prince of *Wales*, the Daughter of the late King, as he had promis'd to *Henry* VIII, his Father.

This Princess was *Mary Stuart*, which her Father, King *James* V, had *had* of *Mary* of *Lorrain*, his second Wife, the *Guise*'s Sister, and who was but seven Days old when the King her Father died. *Henry* VIII, unwilling to lose so favourable an Opportunity of uniting the Crown of *Scotland* to that of *England*, ask'd this Princess for his Son *Edward*, and gain'd the Governor for that Purpose. But the Queen Dowager, who was *French* in her Heart, disconcerted their Measures, as she did again five Years after, when *Edward* become King, came to ask her himself, but rather as an Enemy than as a Suitor; having advanc'd, for that Purpose, at the Head of a good Army on the Frontiers, while *Henry* II, King of *France*, was asking her for his Son the *Dauphin*. But Queen *Mary* of *Lorrain* remonstrated, in so pathetick a Manner, to the *Scotch* Lords, (says *Castelnau*, *Dupleix*, and *Mezeray*) that their Honour and Interest oblig'd them to prefer, on that Occasion, the *French*, their antient and perpetual Allies, ever since seven or eight hundred Years, to the *English*, who had always been their Enemies, and had so often wag'd War against them, and wanted them rather for Slaves, than for Subjects: That they resolv'd, at last, their young Princess should be given to the King of *France* for the *Dauphin*. Afterwards, for greater Security, *i. e.* in 1548, she was carried into *France*, where, ten Years after, *i. e.* in 1558, being then in her *16th* Year, she was marry'd to the *Dauphin*, aged 15; who the Year following, 1559, succeeded the King his Father. It was then that this young Queen, being of an Age to dispose of the Affairs of her Kingdom of *Scotland*, declar'd Regent the Queen her Mother, *Mary* of *Lorrain*.

But as during the long Interval of 15 Years of the Government of the Earl of *Arran*, *Calvinism* had gain'd an extraordinary strong Footing in *Scotland*; the Chiefs of that Party, who would be secure in that Change, presented a Petition to the Queen Regent to obtain by an Edict what they had enjoy'd, till then, but by Toleration. But while the Queen was deliberating on that Subject, *John Knox*, one of those Monks and Priests who in those Times of Confusion were glad of the Occasion of deserting their Convent, and newly come from *Geneva*, began to preach *Calvinism* publickly at St. *John's Town*, in so seditious a Manner, say our Historians, that having soon inspir'd his Audience with the same Zeal against the *Roman* Church; the People run to Arms, throughout the

the whole City, and their Zealot at their Head, went to plunder the Churches and Monasteries, pulling down the Altars, breaking the Images, &c.

Conæus, *l.* 2. and *Lesley*, *Hist. of Scotl. l.* 1. say, that the Regent, surpriz'd at that sudden Fury, would have (by her Presence, her Care, and amicable Means) stopp'd its Course; but that the Earl of *Argyle*, and the Prior of St. *Andrew*, *James Stuart*, natural Son of the late King, afterwards Earl of *Murray*, having put themselves at the Head of the Rebels, with the Troops they had rais'd, acted every where in the same Manner, and even at *Edinburgh*, of which they took Possession; and where, after having plunder'd the royal Palace, and seiz'd on the publick Funds, they establish'd a new Government, declaring themselves the Chiefs thereof, and abolishing that of the *Regent*. But that Princess, having join'd to the *Catholicks* who had run to her Assistance, the small Succours she had receiv'd from *France*; presented her self before *Edinburgh*, where the Rebels having not Courage enough to come out, and fight her, they judg'd it more proper to enter into a Treaty of Peace, which the Regent herself desir'd, and which they accepted, on these Conditions: *That the* Calvinists, *except those who were Citizens of* Edinburgh, *should quit the Town; and all that had been plundered from the royal Treasure, restor'd: That neither the Churches, nor the Priests, should be henceforward insulted, nor the Ministers disturb'd in their new Religion; and that it should be free for every Body to chuse what Religion they liked best.*

This Peace, say *Balcaras*, *l.* 8. and M. *Le Laboureur. Addit. aux Mem. de Castelnau.* was disapprov'd by the Cardinal of *Lorrain*, who, according to his fiery and impetuous Temper, would have had always Things carry'd further than his Brother the Duke, much more moderate, tho' much more couragious, could desire. However, as this prudent Brother had a very great Regard for the Cardinal, and the *Scotch Calvinists*, who wax'd every Day stronger, continu'd their Disorders against the Treaty, he consented that two thousand Men of *Renfort* should be sent into *Scotland* under the Command of the Lord *De la Brosse*, Knight of the King's Order of St. *Michael*, a very good Captain, and the *Guise*'s Creature, with *Nicholas* of *Pelvé*, Bishop of *Amiens*, entirely devoted to their House. These, according to the Order they had receiv'd, oblig'd the Queen Regent to take a quite contrary Method, by forcing every Body to go to *Mass*, and confiscating the Estates of those Lords who should refuse to obey. This violent and avaricious Conduct had soon spoil'd all; for the greatest Part of the *Scots*, a warlike Nation, and who, above all, love their Liberty, which they thought was going to be entirely ravish'd from them, together with their Estates, began the War with more Fury than before, assisted therein by *Elizabeth*, Queen of *England*; who sent an Army into *Scotland* under the Conduct of *Norfolk*; who having join'd the Rebels, laid Siege to *Leith*, which was gallantly defended by old *La Brosse*, at the Age of 75; and the young *Sebastian* of *Luxemburg*, Viscount of *Martigues*; till the Peace was concluded at *London* between the *French* and *English*; which Peace prov'd very advantagious to the *Calvinism* in *Scotland*.

Four or five Months after this Treaty, concluded in 1561, the young King of *France*, *Francis* II. happening to die, the Queen, his Widow, whom *Catherine* of *Medicis* would suffer no longer in *France*, was obliged to return into her Kingdom; the *Guises*, her Uncles, who dared not to retain her, for Fear of ruining themselves, persuaded her, that her Return was absolutely necessary, especially to appease, in her Kingdom, the Troubles caused by the Difference of Religion; which, in Fact, was true enough, and could easily have been effected, if the poor Queen had returned with as many Forces, as were necessary to have herself obeyed by the Rebels; but the Queen-Mother, who hated her, had her only conducted by all that was the most considerable at Court, as far as *Calais*, and by few, as far as *Edinburgh*, who soon after returned into *France*, and left her alone in her Kingdom, a Prey to her Enemies, and especially to her Bastard Brother, *James Stuart*, Earl of *Murray*, the most perfidious Man, says *Brantosme*, of his Time, and who, in Concert with the *Calvinists*, supported by Queen *Elizabeth*, did all he could to distress her, or by open Force, or by Artifice, obliged her at last to fly into *England* for a Sanctuary, near her Cousin *Elizabeth*, where at last, after 19 Years Imprisonment, she found an Ax and a Block. This fatal Blow established *Calvinism* in *Scotland*, upon so firm and permanent Foundations, that it has reigned, ever since, with as much Power, in that Kingdom, as in any other Part of *Europe* where it is professed.

Calvinism was introduced in *England*, under the Reign of *Edward* VI; 'tis true that his Father *Henry* VIII. had, before him, shaken off the Yoke of the Court of *Rome*, and declared himself Chief of the *Anglican* Church, notwithstanding which, he always remained a mortal Enemy of the *Lutherans*, *Zuinglians*, and *Calvinists*, whom he had rigorously punished. He even had a national Council assembled in 1536, wherein the six principal Articles, maintained by the *Roman* Church, against those new Reformers, were approved of, *viz.* the *Transubstantiation*, *the Mass*, *the Communion*, *in one Kind*, *for Lay Men*, *the Celibacy of the Ecclesiasticks*, *the Validity of the Monastick Vows*, *and the auricular Confession*, which he had observed 'till his Death, before which he had Mass celebrated in his Chamber, adored the Sacrament, and received it in one Kind. But as the Protector and Regent, *Edward Seymour*, during *Edward*'s Minority, was a *Zuinglian*, he had his Pupil educated in that Belief. He afterwards forbid the Catholicks preaching, wrested the Universities from them, and had the Foundations of a new Church erected by the Parliament; in Part *Lutheran*, and in Part *Zuinglian*, and *Calvinist*; which were destroyed at Queen *Mary*'s Accession to the Throne, at King *Edward*'s Death in 1553, after he had reigned seven Years; and which were restored in five Years after by her Sister *Elizabeth*, who succeeded her, and who reassumed the Primacy of the Church of *England*, which *Mary* had renounced, which Church she edified, in the flourishing State it has appeared since; though Mr. *Chambers* says, that ever since that glorious Queen's Death *Calvinism* has almost dwindled away to nothing in *England*, and that the established Church retains but very little of it.

Calvinism had also, during this Interval, made a very considerable Progress in *France*; for by the Intrigues of the Queen-Mother, and of the King of *Navarre*, who at the Death of *Francis* II, had been declared Lieutenant-General, the Exercise of that new Religion, was tolerated publickly, even in the King's Palace at *Fontainbleau*, where the Queen herself, and all the Ladies of the Court, used to assist oftner than at the Service of the *Roman* Church, though they appeared still to profess the Doctrine of that Church; so that very few, the King excepted, went to Mass, 'till the Constable, who, amidst these long and frequent Fluctuations, had always remained a zealous Catholick, complained publickly to the Queen, of this extraordinary Change at Court, which he called criminal and scandalous; and when he saw that that crafty Princess wanted to amuse him with frivolous Reasons (as he thought them) he imagined that he could no otherwise oppose the Torrent, than by entring into a strict Union with the Duke of *Guise*, with whom he was then at Variance, on Reason of the Enmity which subsisted between the two Houses of *Montmorency* and *Lorain*; but preferring then the Interests of his Religion to those of his illustrious House, a Reconciliation was procured between those two great Men, by *James D'Albon*, Marshal of St. *André*, a Man of a great deal of Wit, bold, enterprising, and a very good Soldier, who had acquired a great Reputation, not only in the Field, but also in several Negotiations. M. *Le Laboureur* says, that these

three great Men entered into a strict Confederacy to save the *Roman* Religion from Ruin in *France*, and that this Confederacy was called afterwards the *Triumvirate* by the *Calvinists*.

Moreover the Admiral, who was determined to take all the Advantage he could of a Time so favourable to his Party, resolved, by the Advice of the Princes, to present to the King, at his Return from *Reims*, where he had been to be anointed, the same Request he had presented to the late King at *Fontainebleau*, to obtain the Liberty of building Temples, and the free Exercise of the new Religion, which Request was sent to the Parliament to be examined, and which was done accordingly; and in Consequence thereof, an Edict was given in the Month of *July* 1561, at *St. Germain en Laye*, whereby those who professed the new Religion were not to be molested, but all Assemblies were forbidden, either publick or private, except those of the *Roman* Catholick Religion, 'till the Decision of a general Council. But in the States held at *St. Germains*, in the Month of *August*, the Chancellor *de l'Hospital*, a secret Partisan of the new Doctrine, or rather a hidden *Calvinist* (says *Brantosme*) said, that since it was known by Experience, that in the present Conjuncture of Affairs it was impossible to have the *Edict* of *July* observ'd, by which the Assemblies of *Calvinists* were forbidden; the King wanted to know the Sentiments of the Deputies on that Subject, and if it was not more *à propos* to permit those Assemblies for the Good of the Peace, till more efficacious Means could be found to terminate the Differences of Religion. This was prescribing to the two last Orders, *viz.* the Nobility and Commons, what they were to say, for the Chancellor was then but the Eccho of the Admiral, who had gain'd the greatest Number of those two last Orders on his Side, who consequently, after they had loudly exclaim'd against the first Order, *viz.* the Clergy, concluded, that 'till a national Council could be assembled, where they would have the King preside, assisted with the Princes of the Blood; the *Calvinists* should be allowed to assemble publickly, if it was but to destroy the Calumnies, they were loaded with, and to let all the World know, that nothing was done among them of those Abominations, of which they were falsely accused. But nothing was concluded, on that important Subject, 'till after the famous *Colloquy* of *Poissy*, which had been resolved long before the Convocation of this Assembly, for the Reasons and Intrigues which every Body is not acquainted with, and which I must now discover.

Ever since the Assembly of *Fontainebleau*, the Necessity of a national Council had been always insisted on, to appease the Troubles which the Diversity of Religions had occasioned in *France*: But the most crafty among the *Calvinists*, who wanted no Council, to whose Decisions they should be obliged to submit themselves, undertook to procure a famous Conference, between the Prelates and Catholick Doctors, on one Side, and the *Calvinist* Ministers on the other, under the specious Pretence of being willing to be instructed, and to find out some Way of Accommodation between both Parties, without touching on the Essentials of the Christian Religion, thus to reunite all Minds in the same Belief. They expected to gain a great deal by this Stratagem; because they persuaded themselves, first, (says M. *Le Laboureur*, *Addit. aux Mem. de Castelu. l.* 3. *c.* 4.) that the Truth of the Catholick Faith, which they wanted to oppose, should be put in Compromise, and even this would give Room to several, as they hoped, to question that Truth, and would keep their Minds in Suspence, which could engage them, in Process of Time, to change their Religion with less Difficulty. *Secondly*, That they should not have, then, the Bishops for their Judges; since that Assembly being only to confer amicably, on the Points in Controversy, those Prelates could be there in no other Quality than as Disputants. They expected, besides, that their most learned Ministers, having the Liberty to say what they would in Favour of their Reformation, they would render it so plausible, by their Doctrine and Eloquence, that most of the Courtiers, already inclinable on their Side, would declare openly for the Reform. *Lastly*, They did not make the least Doubt, that as both Parties would never agree, and the Conference should break off, before any Thing could be concluded, they could make the World believe, that it was because it was impossible to refute their Doctrine, or to resist the Strength of their Arguments, and the Passages of the Scripture they had quoted to support it.

This being thus resolv'd among them, they found it very easy to persuade the Queen to agree to it, who wanted more than ever the Friendship of the Admiral, not only to have the Regency confirm'd to her by the States, as he had promis'd her; but likewise to precaution herself against the King of *Navarre*, because she had already discover'd something which was negotiating secretly with him, to make him enter into the Party of the *Triumvirs*, as he did some Time after. She promis'd the Admiral in this, all he could reasonably expect from her; who promis'd her reciprocally, that he would support her with all his Credit to maintain her in her Authority. For the King of *Navarre*, without whose Consent nothing could be done in this important Affair, he was easily persuaded to agree to that Conference, (say *Poplinière*, *l.* 7. and *Sponde*, *ad Ann.* 1564. *n.* 27. and 1573. *n.* 17.) by the famous Lawyer *Francis Baudouin*. This learned Man, who was in very great Esteem near this King, had brought over from *Germany* the Book of *George Cassander*, intitul'd, *Of the Duty of a Christian, in the present Division of Christians*: In which he pretended to have found Means to reconcile the two Religions, and in which, tho' his Intentions were very good, he could never be so happy as to succeed. Tho' this *John Baudouin* (who from one of the first Disciples of *Calvin*, had become one of his greatest Adversaries, and against whom *Calvin* writes with more Bitterness) had a very good Opinion of this Book of *Cassander*, and thought that by following his Maxims and Method both Parties could agree on a Confession of Faith, which could be *orthodox*; therefore he had no great Difficulty to persuade the King of *Navarre*, who lov'd Peace, and wanted to appease the Troubles of which he was quite tir'd, to consent to that Conference.

Therefore Queen *Catherine*, and the King of *Navarre*, being both of a Sentiment on that Subject, tho' thro' different Motives, (as it appears in her Letter to the Bishop of *Rennes*) the King wrote in *April* to all the Prelates and Universities of his Kingdom, commanding them to be at *Poissy* by the 10*th* of *August*, or to send their Deputies, granting for the same Purpose a *safe Conduct* to the Ministers of *France* and *Geneva*, and even to the *Protestant* Doctors of *Germany*; that every one could say freely in the Assembly what he thought could be done to procure an Accommodation. So solemn a Declaration did not a little allarm Pope *Pius* IV, the Emperor *Ferdinand*, and *Philip* II, King of *Spain*, in the Apprehension that so celebrated a Conference should chance to prejudice the general Council, which was then assembling at *Trent*, where they thought the Decision of that Affair should be referr'd. But the Queen took Care to inform those Princes by her Ambassadors, that this Assembly of Prelates was only to consult on Things which were to be propos'd to the Council, and that nothing should be done in it, with regard to Religion, without the Pope's Authority.

The crafty Pontiff, unwilling to depend much on the Queen's Sincerity, took the Resolution to send the Cardinal *Hippolytus d'Este* Legate into *France*, to see that nothing should be transacted in that Assembly whose Decision appertain'd to the œcumenical Council; but as the Journey of a Legate, particularly of this who had five or six hundred Horses in his Retinue, is not so quick, and the Pope was afraid the Assembly should begin without him; his Holiness ask'd the King, by M. *Ramlouillet*, that it should be deferr'd

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ferr'd till the Arrival of the Legate. The artful Queen, however, knew so well how to retard that Voyage, that tho' the opening of the Conference had been deferr'd for a whole Month, the Legate could not arrive at Court till some Time after they had began, in the Assembly, to treat of the principal Points in Controversy between the *Catholicks* and *Calvinists*.

This is the whole Secret of that grand Affair, and the sole Cause of that famous *Colloquy* of *Poissy*; at present it remains to see what were the Sequel, and Consequences thereof.

The Prelates, Doctors, Deputies, and *Calvinist Ministers*, being all arriv'd towards the latter End of the Month of *August*, the *Colloquy* could not begin till *September* following. Before it was open'd, the Ministers presented their Request to the King, (says *La Popliniere*, *l.* 7.) by which they ask'd four Things, without which, said they, they could not enter into a Conference with the assembled Prelates. The first, that as the Cardinals and Bishops were interested in the Cause, they should not be allow'd to be their *Judges*. The second, that the King would be pleas'd to preside in the Assembly, accompanied with his Mother and the Princes of the Blood; to have the necessary Order observ'd. The third, that all Differences should be judg'd by the Word of God contain'd in the Old and New Testament. And, lastly, that all that would be said on either Side, should be collected by Copists, chosen by both Parties; and whose Writings should be consider'd as authentick.

The same Day, the Deputies of the *Sorbonne* humbly desir'd the Queen, that the *Ministers* should not be heard, at least in publick, on what they had to say in Defence of their Confession of Faith, but by some who ought to be Judges of those Affairs, and no Body else. But the Queen answer'd, that the King having engag'd himself to give them a publick Audience, he could not retract his Promise. And while the *Sorbonne* was thus refus'd, the granting of their Request, the Ministers obtain'd all they had ask'd for, and the Under-Secretaries of State were appointed to collect faithfully what should be said on either Side.

Therefore the next Day, which was the *9th* of *September*, the Assembly was open'd in the *Refectory*, or Dining-Hall, of the Nuns of *Poissy*; at the upper End whereof the King was on a Throne, having on his right Hand the Duke of *Orleans* his Brother, the King of *Navarre*, and the Prince of *Conde*; and on his left the Queen-Mother, Madam *Marguerite* the King's Sister, and the Queen of *Navarre*; and behind them, on the right and left, in a very great Space left betwixt the Throne and the Wall, taking the whole Breadth thereof, the Lords and Ladies of the Court: On both Sides, the whole Length of the Refectory, were seated, on the right, the Cardinals of *Tournon*, *Lorrain*, and *Guise*, and about twenty Archbishops, or Bishops; and on the left, over-against them, the Cardinals of *Armagnac*, *Bourbon*, and *Chatillon*; follow'd by as many Prelates as there were on the other Side; behind whom, on both Sides, there were Benches full of Doctors of several Universities, and other Ecclesiasticks of the Prelates Retinue. The lower End of the Refectory was occupied by a vast Number of Gentlemen, especially those of the Gown; behind whom, were rang'd the Guards as far as the Wall, to prevent any Disorders happening in so great an Assembly. Betwixt these two Ends, a little lower than the Middle, there were Bars, which separated both Spaces, that no Body should pass without Order, to that where the King, the Princes, Lords, Prelates, and Doctors, were plac'd.

Every Thing being thus dispos'd, the twelve Ministers, chose among a vast Number of others, enter'd, and took Place, where they could, at the lower End of the Hall: These twelve were accompanied with twenty-two Deputies of their Churches, and of the Deputies of the Nobility and Commons, by whom the Ministers were introduc'd, to shew to all the World that they were, and would always be very well supported. The most famous among those Ministers, were *Augustine Marlorat*, born in *Lorrain*, who had been an *Augustine* Monk, and the same who was hang'd some Time afterwards at *Rouen*; *John Malo*, who had been a Priest; *John de l'Espine*, a *Jacobine* Fryer; *Peter Vermilli*, of *Florence*, otherwise call'd *Martyr*, who had been a regular *Canon* of the Order of St. *Augustine*, a very learned Man, and an eloquent Preacher, but so inconstant in his Doctrine, that he was sometimes *Lutheran*, sometimes *Calvinist*, and then *Zuinglian*, as he was then at *Zurich*, where he was Professor of Theology; but the most eminent of them all, and who was appointed for the *Speaker* of the whole *Calvinist* Party, was the famous *Beza*, then Disciple and Collegue of *John Calvin*; who being too infirm to appear himself at that Assembly of *Poissy*, sent in his Place the Person who was already design'd for his Successor.

Bossu, in *Beza*'s Life, *Florimond de Remond*, *l.* 8. *c.* 17. and *Sponde*, *ad Ann.* 1549. say, that *Theodorus* of *Beza* was of *Vezelay* in *Burgundy*, of an honest Family, a very well-made Man, having a very fine Shape, a very agreeable Face, a cunning and crafty Look, and all the Manners of a Courtier; which had gain'd him the Esteem of the Great, particularly of the Ladies, to whom he was always very gracious. As for Wit, it must be confess'd, that he had a very fine, pregnant, subtil, easy, and polite one; having taken Pains to cultivate it by the Study of the *Belles Lettres*, particularly of Poetry, wherein he excell'd both in *French* and *Latin*; knowing, besides, a little of Philosophy and Law, which he had learn'd in the Schools of *Orleans*. Several Authors of those Times represent him in a quite different Light, with regard to his Conduct; for *Beza* is represented by *Bossu*, *Ans. to the Apology*; *Baudouin*, *Recan. ad Calvin. Rescius de Sect. Florimond de Remond*, *Sponde*, *Hessusius*, and *Mezeray*, as the greatest *Libertine* of his Time; profane, cruel, blood-thirsty, always ready to inspire the most barbarous Attempts, impudent, and plung'd in all Sorts of Debauchery. These were the Ministers sent to maintain, before the King of *France*, *Charles* IX, that every Body ought to reform, by their Example, Doctrine, and Manners, according to the Purity of the Gospel they preach'd.

Having been conducted as far as the Entrance of the Bar which separated the Hall into two, they wanted to advance further, to take Places among the Bishops, or at least among the *Catholick* Doctors; but they were stopp'd short at the Bar, with an Order to stand there bare-headed, and to speak modestly without Invectives, when they should propose what they had to say. This done, the King said, in a few Words, (say *La Popliniere*, *Aubigne*, *Mezeray*, &c.) that he had convok'd the Assembly to put an End to all the Differences, in Matters of Religion, which had so long disturb'd the Peace of his Subjects; and that he would not have the Assembly terminated before the Accomplishment of so great, and so good a Work. The Chancellor being seated on a low Seat, further towards the Middle of the Hall, on the right Hand of the King, spoke to explain his Majesty's Intentions, and shew'd again, on this Occasion, as he had done on all others, that he was both the Son of a Physician, and Friend of the *Calvinists*. He said, first, that *he hop'd that the Assembly would reap the same Fruit from the King's Remonstrance, the Council of* Nice *had done from that of the great* Constantine; *that Fruit being nothing else but the Reformation necessary in the Doctrine and Manners: That to gather soon that Fruit, in curing so dangerous a Malady,* France *was afflicted with, by those Differences of Religion, a present and specifick Remedy should be applied to it, without following the Example of these Physicians, waiting in a languishing State, till the Drugs or Remedies be fetch'd from* Egypt, *or the* Indies; *whereas they could use the Herbs gather'd in their own Gardens: Concluding from thence, that they were not to wait for the general Council which was assembling at* Trent, *and which would be filled with Foreigners, who were not so*

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well acquainted with our Distempers as we were our selves; and that to decide the Points in Controversy, there wanted nothing else but that Assembly of Prelates and Doctors with the Calvinist *Ministers, who were not to be condemned on simple Prejudices, nor treated with Arrogance, as* Alexander, *Patriarch of* Alexandria, *had done* Arius. *That they were to be heard, with Patience, and conferred with amicably; not as Philosophers, by disputing, but like true Christians, who do not want so many Books, but the Word of God only, to reform by it the Abuses which shall be found to have crept into the Doctrine and Discipline, contrary to that divine Word, and against the Practice established by the Apostles.*

The Chancellor having ended his Harangue, the Cardinal of *Tournon*, as the most antient, and *Primate* of the *Gauls*, spoke next, and remonstrated, that the Chancellor, having propos'd certain Things which were not among the Points contain'd in the Letters, whereby they had been summon'd to the Assembly, it was just that they should be communicated to them, that they might prepare an Answer to them. But all he could do, the *Chancellor* would never give a Copy of his Harangue, for Fear, perhaps, of being question'd upon it, if ever the Times should happen to change; and of being convinc'd of *Calvinism* by his own Writings. Therefore the *Calvinists* having been order'd to propose what they had to say to justify their Belief, *Beza*, who was to be the Orator, or Speaker, standing, and bare-headed, while he recited the two first Periods which he address'd to the King; then kneeling down, with all the other Ministers his Companions, and lifting up his Eyes and Hands to Heaven, he made a long Prayer to the Almighty Father, which he terminated with the Lord's Prayer; then rising up, continu'd his Harangue, which is seen at Length in the History of the *Calvinist* Churches, and is nothing else but an Exposition of their Belief, accompanied with some Proofs to establish the Points in Controversy with the *Catholicks*. As he had a very agreeable Voice, an excellent Delivery, and every Body was glad to hear from a Man so much valu'd by those of his Party, the whole Mystery of that new Doctrine which had made so much Noise in the World; he was heard by the whole Court, not only with Attention, but likewise with Pleasure, and even with Marks of Approbation, till he came to the Article of the *Eucharist*; for wanting to express in what Manner the Body of *Christ* was receiv'd there by Faith, he said, *that the Body and Blood of* Jesus Christ *was as far from the Sacrament, as the most distant Part of the Heavens was from the Earth.* This Expression of *Beza*, caus'd a great Murmur in the whole Assembly, who appear'd extremely choak'd at it; so that *Beza*, tho' naturally very bold and intrepid, appear'd very much disconcerted. The Queen-Mother, though at that Time very favourable to the *Calvinists*, believ'd her self oblig'd to shew her Indignation with the rest; she even wrote to the Bishop of *Rennes*, the King's Ambassador to the Emperor, with Orders to the Bishop to inform his Imperial Majesty of what had happen'd in that Action. She said, that *Beza*, speaking of the Lord's Supper, *had forgot himself*, (for these are her proper Terms) *in so absurd a Comparison, and so offensive to the Ears of the whole Assembly; that she would have silenced him, and sent all those Ministers back again, without allowing them to proceed farther, had she not been afraid that departing without an Answer, he would have publish'd every where that he had gained the Victory.*

Beza, however, perceiv'd very well, that he had disoblig'd the Queen; for the next Day he gave her, in Writing, a Declaration of the Sense in which what he had said ought to be understood; which Declaration the Queen sent to the Bishop of *Rennes*, to shew it to the Emperor. In this Declaration he repeated, in formal Terms, what he had said in his Harangue; then added, *that it ought not to be inferr'd hence, that they would exclude* Jesus Christ *of the Sacrament, which would be a manifest Impiety.* But, says he, *we believe, according to his Word, that tho' the Body of* Jesus Christ *be now in Heaven, and no where else; nevertheless, we are made Partakers of his Body and Blood, in a spiritual Manner, and by Faith, as truly as we see the Sacrament with the Eye, touch it with the Hands, and put it into our Mouths.*

His Harangue ended, the Cardinal of *Tournon*, approaching the King, said, that it was really surprizing that Minister should have been suffer'd to offer such Blasphemies before a most *Christian* King, Protector of the *Catholick* Faith, which the Kings his Predecessors, ever since the great *Clovis*, had always inviolably preserv'd in their Kingdom. But since the Evil was done, he most humbly pray'd his Majesty, that, in order to repair it, he would be pleas'd to hear the solid and convincing Answer which would be made to it the Day he would be pleas'd to appoint, which was the *16th* of *September*; when the Cardinal of *Lorrain*, chosen to answer *Beza*, made his Harangue; in which he did not amuse himself, says *Maimbourg*, to refute in Detail all the Articles of the *Calvinist* Belief which *Beza* had expos'd at Length, to engage the *Catholicks* into a Dispute which could never have been ended; but reduc'd the whole to two Points; one whereof is the Principle whereby, continues the same Author, all Controversies are to be terminated, which is the Authority of a sovereign Judge; and the other is the principal Subject of the Separation of the *Calvinists*, which made then the strongest Impression on the Minds, *viz.* the *Eucharist*. For the first, as *Beza* had said that he would have no other Judge than the Scripture, without minding the Councils any further than they were found conformable to that divine Word, the Cardinal endeavour'd to prove, that acting thus was wanting no Judge at all, since the Scripture, being the Law which cannot interpret itself; and all the religious Controversies being founded on nothing else but the different Interpretations given to the Scripture, which each Party pretends to have on his Side; there must necessarily be a living and speaking Judge, to decide by his sovereign Authority what is Scripture, and which is its true Sense. He said, afterwards, that this Judge could be no other than the true Church, which is, without Doubt, that wherein were found the first Controversies, before she had pronounc'd on their Differences, and separated from her Communion the condemn'd Party.

For the second, he employ'd, says *Maimbourg*, *Beza*'s own Words against him, and demonstrated, that to say that *Jesus Christ* is in Heaven, and no where else, and notwithstanding that by the incomprehensible Virtue of the Faith, he is present in the Sacrament, and communicated to us as truly as we touch the Sacrament, and put it into our Mouth; it is to say, that he is present locally in the Sacrament, since the Sacrament is present in our Hand, when we touch it; and likewise in our Mouth, when it enters into it; and, nevertheless, 'tis to say, at the same Time, that he is not in that Manner in the Sacrament, since we are assur'd that he is in Heaven, and no where else; which, he said, was a manifest Contradiction, never to be admitted into the *Christian* Mysteries; concluding, that it was better to say, according to the Scripture, that the Body of *Christ* was in Heaven, in its natural Extent, and in another Manner, on Earth, in the Sacrament.

Thus the Cardinal of *Lorrain* concluded his Harangue, with the Approbation of the whole Assembly, the *Calvinists* excepted, who, 'twas rumour'd, would be heard no more. But as *Beza* insisted that he should have the Liberty to reply to the Cardinal, and the Assembly was not willing he should have any Room to complain that he had been refus'd to exhibit the Proofs of what he had propos'd in his Harangue; two Conferences more were held, the *24th* and *26th* of the same Month, not in publick, before the King, as the first had been; but in private, in a Room of the Monastery of *Poissy*, before the Queen, accompanied with the Queen of *Navarre*, the Princes of the

the Blood, and the Privy-Council. There were five Cardinals on the right Hand, and fifteen or sixteen Doctors behind them, and the twelve Ministers on the left, without the Deputies of their Churches. At first *Beza*, who had very well prepar'd himself for this Action, made a long Discourse of the Church, where he treated of its Nature, Marks, and Authority; from whence he pass'd to the Vocation to the Ministry, and to some other Points, without mentioning, in the least, the Eucharist. He was answered by two very learned Doctors of *Sorbonne*, *Claudius D'Espence*, and *Claudius* of *Xaintes*. But as they run insensibly from one Point to another, without concluding any Thing, which commonly happens in Disputes; the Cardinal of *Lorain*, to remedy that Inconveniency, ordered that they should fix on the Point of the *Eucharist*, which they should not desert, 'till they had agreed on that great Mystery, since that Point once determined, it would be very easy to conclude all the Rest; therefore the Sequel of that Conference, and the whole one of the twenty-sixth was employed on that Subject.

'Twas then that *Peter Martyr*, who, at that Time, professed *Calvinism*, made a long and tedious Discourse in *Italian*, wherein he attempted to refute what the Cardinal of *Lorain*, and the Doctors of *Sorbonne*, had said of the Presence of Christ in the Sacrament. When he had ended his Discourse, the General of the Jesuits, *James Laynè*, who had accompanied the Legate *Hyppolite D'Est* into *France*, as his Theologian, spoke, like *Peter Martyr*, in *Italian*, because that Language was better understood in *France* than the *Spanish*, which was his Mother-Tongue. He directed his Discourse to the Queen, to whom he remonstrated, that *nothing was more dangerous than to treat of an Accommodation with Heretics, whom the Scripture compare to Foxes, or Wolves, in Sheeps Cloathing, because under the pompous Appearance of an ambiguous Expression, they insinuate with Subtilty the Venom of their Heresy, which we authorise in receiving it unawares*; which Sentiment he pretended to support, by the Example of the *Pelagians*, who, to be received into the Communion of the Orthodox, made no Difficulty to admit the Necessity of Grace, for good Works, but they understood by Grace, Nature, which is a gratuite Gift of God without any Merit on our Part. Likewise, said he, the *Calvinists* pretend to confess Christ present in the *Eucharist*, whereby he is communicated to us, but they will have it done in a purely spiritual Manner, and by Faith, and that Christ's Body is in Heaven, and no where else; which was a Contradiction. He added to this, *That if the Calvinists were to be treated with, it was not to be done in that Assembly of* Poissy, *which had not the infallible Assistance of the Holy Ghost, but in the Œcumenical Council, which was open, and to whom those Ministers were to be sent to propose their Reasons, which was even conformable to the Council of* Basil, *not rejected by the* Calvinists, *and which do not allow us the Celebration of a Provincial Synod, while the general is open, nor even six Months before 'tis open. That if through a Principle of Charity they would endeavour to convince the* Calvinists, *and shew them their Errors in a regular Dispute, the Queen, Princes, Council, and all other Persons, who did not profess the Ecclesiastical Doctrine, should spare themselves the Trouble of being present at it, since it was not of their Province to judge of those Things which they could not understand, and that they exposed themselves besides to the Danger of receiving some bad Impressions which they could not easily shake off afterwards.*

This Part of the Discourse of Father *Laynè*, in which he blames the whole Assembly, was not heard favourably by the Queen, who could not help shewing that she was offended at it. But however the Father pursued his Discourse, without Interruption; which being ended, *Beza*, who had took Notice of the Queen's being vexed at *Laynè*'s Harangue, told the good Jesuit, with a haughty and scornful Air, that the Queen would not learn of him what she had to do, with Regard to the Council, and that she knew very well how to provide for it. However, so ill received as was this Remonstrance of *Laynè*, it produced the desired Effect, for from that Day forward, the Queen, Princes, and Council, were no more seen at the Conferences. Her Majesty would not even permit that they should be so numerous as they had been, but ordered that three or four, and afterwards five Doctors, on each Side, should confer together at *St. Germains*, to see if they could agree on a Formula of Faith on the Sacrament of the Eucharist. Those Deputies were, of one Part, *John* of *Monluck*, Bishop of *Valence* (a disguised *Calvinist*) *Peter Du Val*, Bishop of *Sces*, and the Doctors *Claudius D'Espence*, *Lewis Boutiller*, and *John De Salignac*; and on the other, these five Ministers, *Beza*, *Martyr*, *Marlorat*, *Des Gallards*, and *De L'Espine*. The Queen had chose these two Bishops, because she knew them favourable to the *Calvinists*; and for the Doctor *D'Espence*, and his two Colleagues, as they had a sincere Desire to gain them by a pacifick Means, she believed they would easier agree among themselves than any other she could have named; but she was deceived in her Expectation; for after five Days of Conference, during which, says *La Popliniere*, *l.* 7. several different *Formula's* had been proposed, and rejected, she was at last presented with one conceived in the following Terms.

We confess, that Jesus Christ, *in his holy Supper, presents us with, gives, and exhibits truly the Substance of his Body and of his Blood, by the Operation of his holy Spirit, and that we receive and eat sacramentally, spiritually, and by Faith, that proper Body, who is dead for us, to be Bone of his Bone, and Flesh of his Flesh; that we may be vivified by it, and receive from it all that's necessary to our Salvation; and because Faith, supported by the Word of God, makes and renders present to us the Things promised, and that by that Faith we take truly and in Fact the true and natural Body and Blood of our Lord, by the Virtue of the Holy Ghost, in that View we confess the Presence of the Body and Blood of him our Saviour, in the holy Supper.*

Lavatherus and *Beza* say, that the Doctor *d'Espence* and his Colleagues agreed with the Ministers in this *Formula* of Faith; but *Sponde ad Ann.* 1561. accuses this *Lavatherus* of Imposture. *Mentitur*, says he, *insigniter* Lavatherus *sacramentarius, cum ausus est scribere, Catholicos cum Ministris consensisse*; therefore if *Sponde* is to be credited, there is a very great Appearance that this *Formula* was canvassed by the two Bishops, and the five Ministers, and had it presented to the Queen, as made with the unanimous Consent of all the Deputies; for it is certain that she received it with great Demonstrations of Joy, not at all questioning, but as it had been made by the Deputies of both Parties, who had agreed on that Capital Point, as she believed, it would be approved of by the Assembly of Archbishops and Bishops, at that Time employed, at *Poissy*, towards restoring the ecclesiastical Discipline in the Kingdom. Her Majesty sent the *Formula* to them the 4th of *October*, by M. *Bourdin*, Secretary of State, to be confirmed in the Assembly, whose Consent she expected, for the Reunion of the Catholicks with the *Calvinists* in the same Belief. But she was very much surprised, when she heard five Days afterwards, that she had been frustrated in her Expectation; for after the *French* Prelates had read that Exposition, they thought to have discovered, says *Maimbourg*, the Venom hidden under the Flowers of certain Expressions, which seemed to say every Thing, and said nothing, what they should have said, to have been accounted Catholicks. Moreover, continues the same Author, to proceed with Prudence, and in the Order and Spirit of the Church, in an Affair of that Importance, they had it examined in an Assembly of the most learned Doctors of the Faculty of Theology, who, after they had weighed all the Expressions thereof, declared, with an unanimous Consent,

ſent, that it was captious, inſufficient, and heretical. Captious, ſay they, becauſe conceived in certain ambiguous Terms, which ſeems to mark the real Preſence of *Jeſus Chriſt*, deſtroyed by others, which make believe what the *Calviniſt* ſay, that he is in Heaven, and no where elſe. Inſufficient, in that it does not expreſs the real Preſence of the Body and Blood of Chriſt, under the Accidents or Elements of the Bread and Wine, gives no Efficacy to the ſacramental Words, nor a Miniſtry to the Prieſt who conſecrates. *Laſtly* heretical, becauſe in ſaying that Chriſt is preſent in the *Euchariſt* by Faith, which ſupported on the Word of God renders us preſent the Things promiſed, 'tis evident that it admits but a Preſence purely ſpiritual, and in Spirit; for if Faith, continued they, cannot make nor render the Things preſent but to the Spirit, ſince by it we conceive only, and believe the Things, ſuch as God tells us that they are, independantly of her, paſs'd, preſent, or to come; thus we believe on his Word that he has operated Miracles during the Courſe of his Predication, and that he'll come to judge the Living and the Dead, though Miracles and the laſt Day be not preſent, out of our Imagination which conceive them, and believe them by Faith; likewiſe, concluded they, *Jeſus Chriſt* is not really preſent in the Sacrament, becauſe we believe it ſo; but we believe it becauſe he is there in Fact, by the omnipotent Virtue of his divine Word, who ſays it, and who does what he ſays, in ſaying what he does.

Thus the Doctors of *Sorbonne*, expreſſed themſelves on the *Formula* preſented by the Deputies, and this Cenſure being aproved of by the whole Aſſembly, they ſent the 9th of *October*, their Anſwer to the Queen, in a Writing ſigned by all the Prelates, wherein they declare, *that to obey the King, they had conſented that* Beza *and his Aſſociates ſhould be heard, that they might be inſtructed of the Truth, as themſelves had deſired it; That it had been done ſufficiently in the learned and moſt catholick Harangue of the Cardinal of* Lorain, *and in ſome private Conferences, where their Errors and Blaſphemies were heard, even in the King's Preſence, to the extreme Sorrow of all honeſt People, and had been ſolidly refuted. That it was then abſolutely neceſſary, that, previouſly to any Thing elſe, they ſhould ſubmit themſelves, touching that Article, to the Judgment of the Catholick Church, and of its legitimate Miniſters, from whom they were obliged to receive, both the Faith, and the Law; That they proteſt, that, without it they'll be heard no more, that they will be conſidered as Obſtinates in their Errors, and in their Revolt againſt the Church, and that they humbly pray the King to baniſh them from his moſt chriſtian Kingdom, where Hereſy has never been ſuffered, in Caſe they refuſe to ſign, without Delay, the* Formula *of Faith, annexed to this Writing.* This *Formula* was conceived in the following Terms.

We believe and confeſs, that in the holy Sacrament of the Altar the true Body of Chriſt is really and tranſubſtantially under the Elements of the Bread and Wine, by the Virtue and Power of the divine Word pronounced by the Prieſt, ſole Miniſter ordained to that Effect, according to the Declaration and Command of our Lord Jeſus Chriſt.

This Declaration of the *French* Prelates was the Concluſion of the famous Colloquy of *Poiſſy*; for as the Miniſters refuſed to ſign this *Formula*, when preſented to them, the *French* Clergy refuſed likewiſe, and with the ſame Reſolution, to hear them any more. The Queen, who had a Sort of intermittent Religion, and was ſubject by Turns to a Paroxiſm of *Calviniſm*, or of Catholicity, according as it ſuited beſt her Intereſt, being at that Time a moſt zealous *Calviniſt*, continued her Protection to the Miniſters, notwithſtanding the Declaration of the Biſhops, and went even ſo far as to procure them that famous Edict of the 17th of *January* 1562, given at St. *Germain* in an Aſſembly of Notables, compoſed of ſome Preſidents, and of two Counſellors of each Parliament of *France*, and was ſealed, without Reluctancy, by the Chancellor, who was one of the principal Authors of it. By this Edict (the firſt made in *France*, ſays *Maimbourg*, for the Toleration of any other Religion, beſides the Catholick, ever ſince the *French* had embraced Chriſtianity) the free Exerciſe of the new Religion was tolerated throughout the whole Kingdom, the wall'd Towns and Suburbs of *Paris* excepted. This Edict could not be verified in Parliament, not even after three *Juſſions*; 'till the Queen having carried the King, the 6th of *March*, to that auguſt Aſſembly, had it at laſt regiſtered by that Royal and abſolute Authority, to which the Parliament could not reſiſt. It was no ſooner verified, but *Peter Ramus*, a celebrated Profeſſor in Rhethorick and Philoſophy broke all the Images which were in the Chapel of the College of *Preſle*, of which he was Principal. This Action, for which an Information was exhibited againſt him, obliged the Parliament, to order by an Arreſt of the 9th of *July*, that all the Officers and Suppoſts of the Univerſity, the Principals, Profeſſors, and Ushers of all the Colleges and Communities, ſhould ſign the *Formula* of Faith, made by the *Sorbonne* againſt *Calviniſm*, in 1542, in twenty-five Articles, and which the Officers of the Court had ſigned already, which was done in that Month and the following 'till the 26th.

Ever ſince the Publication of this Edict, all Differences in Matter of Religion were decided by the Sword; and the Kingdom of *France* became afterwards for ſeveral Years, ſucceſſively, a Theatre of Confuſion, Blood, and Slaughter, where the Son impiouſly dipp'd his ſacrilegious Hands in the Blood of his Father, and bereav'd of his Life, the very Perſon from whom he had received his. Where Subjects were rebellious under a perfidious Pretence of Loyalty, and through a Principle of Conſcience, where the ſacred and immortal Name of the *Prince of Peace* was employed for an Onſet, or *Crie de Guerre*. For in Fact, the *Calviniſts*, to propagate their new Doctrine, and the Catholicks to maintain the antient Religion of the Kingdom, ran to Arms, and had frequent Encounters in the very Streets of *Paris*, which always terminated with a conſiderable Slaughter on both Sides. The *Calviniſts* had then at their Head the Queen, the Prince of *Condé*, and the *Colignis*. And the Catholicks, the Duke of *Guiſe*, the Conſtable, and the Mareſchal of *St. André*, called then the *Triumvirate*.

This *Triumvirate*, to ſtrengthen themſelves againſt the oppoſite Party, which was then certainly the ſtrongeſt, wanted (ſay *Caſtelnau*, *l.* 3. *c.* 6. and M. *Le Laboureur*, *Addit. to the Mem.*) to gain *Anthony*, King of *Navarre*, on their Side, whom they knew to be diſguſted of late with *Calviniſm* and *Calviniſts*, and employ'd in that Negotiation, *Hippolytus d'Eſt*, Cardinal of *Ferrara*, the Pope's Legate; *James d'Albon*, Mareſchal, the moſt dexterous and crafty Politician of his Time; and *Geffrey* of *Peruſe*, Lord of *Eſcars*, the King of *Navarre*'s Favourite; who all three acted their Parts ſo well near that unconſtant Prince, taking him on his weaker Side, which was Ambition and Intereſt, that they gain'd him, ſay *Le Laboureur* and *Mezeray*, without Difficulty. On this Succeſs, *d'Eſcars* went to *Rome*, where he found Pope *Pius* IV, very well inform'd already by the Cardinal of *Ferrara*, and much irritated againſt the Queen, for favouring ſo viſibly the *Calviniſts*; ſo that he promis'd faithfully to procure, as he did, that the King of *Spain* ſhould give the Kingdom of *Sardinia*, in Exchange for the Kingdom of *Navarre*, to *Anthony*, provided he would declare himſelf Chief of the *Catholick* Party; which Promiſe of the Pope was confirm'd, on the ſame Conditions, to the King of *Navarre*, by Don *Antonio Almeida*, the King of *Spain*'s Ambaſſador, ſent to him for that Purpoſe; and who aſk'd for a Mark of *Anthony*'s Sincerity in this Affair, that he ſhould begin by baniſhing the *Admiral* and his Brothers from Court.

The King of *Navarre*, who, conſcious of his own Sincerity, could not in the leaſt ſuſpect that of thoſe fair

fair Promises made to him, in so plausible a Manner, made no Difficulty to desert the *Calvinists*, to reconcile himself with the Duke of *Guise*, and appear openly at the Head of the *Triumvirate*. The Queen, who, notwithstanding all her Craft, had not discover'd all these secret Intrigues, was thunder-struck at the first News she heard of so unexpected a Change. But, however, as it was always her Politicks to stand by the strongest Party, she was forc'd at this Time to forsake, in Appearance, the *Calvinists*, and to have the *Admiral* and his Brothers turn'd out; promising them, at the same Time, that she would always hold a Correspondence with them and the Prince, if, instead of his Brother, he would put himself at the Head of the *Calvinists*, unite, and strengthen themselves, as they did, to oppose the Power of the *Triumvirate*.

But the good Queen found herself deceiv'd, as before, in her false Politicks; for the *Ministers* being ignorant of this Mystery, did break forth against her in a most violent Manner, and disseated her, in an infinite Number of monstrous Libels, they had dispers'd throughout the whole Kingdom; and the Mareschal of St. *André*, besides, having discover'd this secret Correspondence she held with the Chiefs of the *Calvinists*, render'd her so suspected and odious, that tho' she presided in Council, where nothing was concluded but for Form Sake, there were others held in private, where the most important Affairs were determin'd without her Knowledge.

The Prince and the Admiral perceiving that the Queen had lost all her Credit and Authority in the Council, and the *Triumvirate* had render'd themselves formidable by the Acquisition of the King of *Navarre*, judg'd that there was no other Way left to maintain themselves, and their Party, but by open Force; therefore they sent *James Spifame*, Lord of *Poissy*, heretofore Bishop of *Nevers*, to the *Protestant* Princes of *Germany*, and to the Emperor himself, to ask them for Succours, and shewing them the secret Letters the Prince had receiv'd from the Queen; intimating to them, that it was not so much for the Defence of their Religion they enter'd into a War, as to obey the Queen, who conjur'd them to deliver her and the King her Son, from the deplorable State they were reduc'd to by the Violence of those who oppress'd their Liberty.

This indiscreet Action of the Prince, of which he expected to reap many signal Advantages, prov'd fatal to him and his Party; for it depriv'd him at once of the specious Pretext he had to enter into a War, and of the Good-will and Protection of the Queen, on which he depended, in arming, as he pretended, for her Deliverance; for her Majesty was so irritated at his having discover'd her Secret, by shewing her Letters to all the World, which she thought burnt, as she had desir'd it; that she chang'd all her Love into Hatred, and join'd against the Prince with the *Triumvirs* her Enemies; who laying hold of so favourable an Occasion, of having her entirely on their Side, shew'd her then a greater Deference than they had done before. As she had much Dexterity, she interpreted her Letters to them in a Manner to have persuaded them, had they not been as cunning as she, that all she had wrote to the Prince was only to persuade him to quit *Paris*, where he could have caus'd some Trouble; and at the same Time to justify her self, near the Emperor, and the other Princes of *Germany*; she sent to them Copies of those same Letters, with those Explications, in the Margin.

This done, she had a Declaration publish'd, (say *Popliniere*, *Thuanus*, *Mezeray*, *Dupleix*, &c.) in which the King did let all the World know, that he was perfectly free in *Paris*, as well as the Queen his Mother, who govern'd with all the Authority inseparable from her Character and Quality, as Regent of the Kingdom; commanding the Prince, and all his Adherents, to lay down their Arms, under the Penalty of being declar'd guilty of High Treason. Mean while, the *Catholick* Confederates, acting under the King's Authority, had soon rais'd an Army more numerous, and stronger than that of the *Calvinist* Princes; and after some fruitless Conferences, to find Means of an Accommodation, all Hopes of a Peace being vanish'd, each Party was oblig'd to take the Field. And this is the real and true Origin of the first Civil War; which, says *Maimbourg*, *Calvinism* caus'd in *France*, to maintain itself, in that Kingdom, by the most violent Means, against all Laws, divine and human, which forbid the Subjects to arm against their Sovereign under what Pretence soever, much less to establish a new Religion contrary to that establish'd in *France*, ever since the first Centuries of the Church.

The first Hostilities were committed by the Prince, who render'd himself Master of *Orleans*, and soon after the *Calvinists* seiz'd (say *Castelneau*, *La Popliniere*, *D'Aubigné*, *Belcaras*, *Thuanus*, *Mezeray*, *Dupleix*, &c.) in almost all the Provinces a great Number of Towns; and among others, *Meun*, *Baugency*, *Blois*, *Tours*, *Angers*, *Poitiers*, *Angoulesme*, the *Charité*, *Bourges*, *Lyon*, *Valence*, *Grenoble*, *Tournon*, *Romans*, *Montbrison*, and almost all the Places of *Guienne*, from the *Dordogne* to the *Pyrenees*; where they spar'd nothing, sacred or profane, considering themselves as Republicans, and declaring publickly, says *Montluc* in his Commentaries, that they would *whip that Child who called himself King, and have him learn a Trade, to get his Bread.* They even abandon'd themselves to that Excess of Fury and Rage, say the Authors of those Times, as to discharge their Revenge on the Ashes of the Dead, even those they should have respected most; for they violated the Sepulchre of *John*, Grandfather of *Francis* I, at *Angoulesme*; those of the Ancestors of the Prince of *Condé*, their Chief, at *Vendosme*; of King *Lewis* XI, at *Clery*; of the blessed *Jane*, his Daughter, at *Bourges*; of *Francis* II, at *Orleans*, where they burnt his Heart, deposited in the magnificent Church of St. *Croix*.

The *Catholicks*, on their Side, had all those they could seize, executed; for the Parliament of *Paris* issu'd out, one after another, three or four *bloody Arrests* against the Rebels, who were all declar'd guilty of High Treason, the Prince excepted. The other Parliaments of the Kingdom did the same, so that in less than four Months, more than 3000 of them passed thro' the Hands of the Executioners. By the King's Orders all the *Calvinists* were banish'd from *Paris*, and the *Edict* of *Janvier* was revok'd.

While this was acting, the Army of the Prince being weaken'd by the Desertion of a vast Number of Gentlemen, frighten'd at the violent Measures the Government had taken against their Party, unable to keep the Field any longer, went to shelter himself behind the Walls of *Orleans*, waiting there for the 8000 Men Queen *Elizabeth* of *England*, to whom he had deliver'd *Havre de Grace*, had promis'd him.

I will not attempt to relate here all the Particulars of this first Civil War, nor of the others which *Calvinism* caus'd in *France*, under the Reign of *Charles* IX, who was then King; since they are foreign to my Subject: All I can say on that Subject is, that the *Calvinists* were always beaten in a pitch'd Battle; as at *Dreux*, by the Duke of *Guise*, where the Prince was taken Prisoner; at *Montcoutour*, by the Duke of *Anjou*, afterwards King *Henry* III; at *Jarnac* by the same Duke of *Anjou*, where the brave Prince of *Condé* was barbarously murder'd, against the Laws of Arms, by *Montesquiou*, &c. &c.

Calvin, who had not appear'd, at least publickly, to interfere in all these Troubles, tho' occasion'd by his new Doctrine; having been tormented for several Years with a Complication of Maladies, died, at last, of an *Asthma*, in his *56th* Year, on the *27th* of *May*, 1564, at *Geneva*, where he had resided ever since the Establishment of his new Church. Besides what I have said already of *Calvin*, it must be confess'd, that he had a great deal of Wit; and that if we consider the Strength, Purity, Elegance, Majesty, Politeness, and the Subtilty of his *Latin* Expressions, he has equall'd,

equall'd, if not surpass'd, in his Manner of Writing, some of the most learned Men of his Time. *Massarion*, who has wrote his Life, says, that in order to cultivate his Style, he us'd to read over, every Year, his *Cicero*; tho', in *Massario*'s Judgment, his Style is more like that of *Tacitus* and *Seneca*, than of *Cicero*. We must confess, likewise, that he was indefatigable, as we plainly see, by the great Number of his Works; watchful, extremely sober, eating but once a Day, and then but very little; and so disinterested, that he was contented with a very small Pension; so that he left nothing at his Death, but the Value of two hundred Crowns, his Books and Goods included.

But if *Calvin* had his Perfections, he had likewise several very great Imperfections; for he was peevish, passionate, and a bitter Satyrist, as he is reproach'd with by his Friend *Martinus Bucer*; who, in one of his Letters to him, tells him, that he is more like a mad Dog, than like a Man; that he is as medisant and outragious, as he is polite in his Writings; full of atrocious Invectives, in very fine Terms; and that he judges of Persons, not according to Truth and Reason, but according to the Hatred or Affection he was pleas'd to have for them, and without any other Discernment but that proceeding from his blind Passion. Moreover, his peevish Humour, which seldom forsook him, had render'd him so insupportable, even to his Friends, that those of *Geneva* comparing his atrabilary Temper with that of *Beza*, always merry and gay, us'd to say by a very bad Raillery, which smells much of Impiety, that *they should prefer to be in Hell with* Beza, *than in Heaven with* Calvin. Who, tho' he affected a very great Simplicity, and an entire Abnegation of the Pomp of this World, is accus'd, nevertheless, by his Contemporaries, with having been the most arrogant of all Men, willing to exercise an absolute Empire over the other Ministers his Collegues, whom he consider'd as his Pupils, or rather his Slaves; and so vain, that he was not asham'd to make himself his own Panegyrick, full of Praises he bestows upon himself, in his Answer to the learned Lawyer *Baudouin*; who reply'd to it in these few Words, *Calvinus mihi veniam det, si non possum credere vanitati*; i. e. *Calvin* will be pleas'd to excuse me if I cannot believe in Vanity. But what he is most reproach'd with, by the most impartial Authors, and which will render his Memory odious to all good *Frenchmen*, is, his having been the Cause, by his Doctrine, of the Desolation of his own Country, which his Disciples, inspir'd with his Spirit, undertook to propagate by Arms; which they have so often taken against the Kings, to whom *Jesus Christ* commands us to be as perfectly obedient, as himself was to *Cæsar*: *Tantum enim malorum intulit in patriam* (Calvinus) *ut cunabula ejus merito detestari, atque odisse debeas.* For his Person, *Calvin* was of a middle Stature, had a long Visage, was tawny, and very lean; had black Hair, a sonorous and strong Voice, quick Eyes, an aquilean Nose, and his Beard was thin and long. He was bury'd without any Ceremony, according to the Laws of his new Sect; but his Doctrine was not bury'd with him: On the contrary, it made after his Death new Conquests, especially the most considerable one of the united Provinces, which was effected in the following Manner:

What the *French* have called since the first Troubles of the Kingdom, and which we have heretofore mentioned, having been pacified by the Edict of *March*, 1563, the King's Authority being then acknowledged throughout the whole Kingdom, and the Places which had been possessed by the *Calvinists* having returned under his Majesty's Obedience, the *Germans* having been sent into their Country, and the Peace concluded with *England*: The Queen resolved, says *Castelnau*, *L.* 5. to carry the King with the whole Court through most of the Provinces, in making the Tour of *France*. For that Effect they departed from *Fontainebleau* towards the latter End of *March*, 1564, which was the first Year which begun, by the Month of *January*, according to the Edict made to remedy to the Inequalities seen in Years when they begun, as before, at *Easter*, which is a moveable Feast. However, the Queen undertook this Journey to restore the good Order everywhere, and to revive in the Hearts of the People their natural Love for their Royal Sovereign, by presenting him to them. Perhaps there was also some other secret Design hidden in this Journey, which could never be discovered; the Truth is, that it happened then, several Things, from which the Chiefs of the *Calvinists* inferred, or seem to have inferred, that their Ruin was resolved upon.

'Tis true, that the Queen was then very much changed with Respect to them; for though she flattered the Prince with Hopes, to engage him to conclude the Treaty of *Orleans*, she hated him in her Heart, ever since he had discovered her Secret to the whole Earth: She mistrusted much the Admiral, who, by endeavouring to oppose the Conclusion of the Peace, had shewed that he had a great deal of Ambition; and as she governed then with an absolute Power, she feared always that the Prince, governed by the Admiral, would at last have the same Part in the Government her deceased Brother, the King of *Navarre*, killed at the Siege of *Rouen*, had. As for the King, besides his being governed by the Queen his Mother, for whom he had the greatest Respect and Deference, and who was then in her greatest Paroxism of Catholicity, he hated the *Calvinists* ever since they had insulted him, and almost besieged in *Paris*; and this Hatred increased to that Excess during this Journey, when he saw, says *Mezeray*, in the ruinated Churches, and in the Sepulchres of his Ancestors violated, the frightful Marks of their Impieties and Sacrileges, that he could not refrain his Tears, and protested that he would one Day punish those enormous Crimes with all the Severities they deserved. We must add to this, says *Castelnau*, *L.* 5. *c.* 10. that the Queen was continually intreated by the Pope and all the Catholick Princes, especially by his two Sons-in-law *Philip* II. King of *Spain*, and *Charles* III. Duke of *Lorrain*, to inspire the King with a generous Resolution, to reduce the *Calvinists* to the Impossibility of ever rising in Arms against him, that he might not be reduced once again to the shameful Necessity of receiving the Law from a Handful of his Subjects, in forcing him to grant by Edict the Establishment of Heresy, to the Prejudice of the glorious Title of *Most Christian King*, acquired to him by his Predecessors, by fighting with all their Power and Strength the Hereticks, whom they would never suffer in their Kingdom.

The King and Queen being persuaded by those Remonstrances; it is not at all surprizing if the *Calvinists* were not very well treated during this Journey, though nothing was acted contrary to the Edict of Peace. A second Citadel was erected at *Lyon* against the *Calvinist* Party, which was yet the strongest in that City. Orders were issued out for the Demolition of the Fortifications in the Places they had been Masters of during the War; they were forbidden the Exercise of their Religion ten Leagues round the Places where the Court was to pass, though it was permitted in certain Towns by the Edict, which was interpreted, then, *when the King should not be there, or ten Leagues near*. Another Edict was made at *Roussillon*, the Seat of the Earl of *Tournon*, by which they were forbidden, under Pain of Death, to touch the sacred Things, to break the Images, and to hold any Assembly but in Presence of the Officers appointed by his Majesty for that Purpose. The Magistrates were ordered to force the Monks and Priests who had changed their Religion to have the Liberty to marry, to quit their Wives, under Penalty of the Galleys for the Men, and of a perpetual Imprisonment for the Women. The Conference the Queen had with the *Vice-Legate* in passing through *Avignon* caused a great deal of Uneasiness to the *Calvinists*, and much more that she had at *Bayonne* with the Duke *d'Albe*; they persuaded themselves, says *Castelnau*,

Castelnau, *l.* 6. *c.* 1. and *la Popliniere*, that a League had been made between the two Crowns, to exterminate all the *Calvinists* from the Dominions of the two Kings; and they were the more strengthened in that Opinion, because they knew that the Queen managed then an Interview between her, the Pope, and the Catholick Princes: But however, what confirmed them in the Persuasion that their entire Ruin had been resolved on in the Conference of *Bayonne*, was the Passage of the Duke *d'Albe* into *Flanders* at the Head of a good Army, for the Reasons I am going to mention, by relating in what Manner *Calvinism* was introduced in the *Low Countries*.

While *Charles* V. lived, the new Doctrine which had began to insinuate itself into those Provinces by their Communication with *Germany*, could never be established there; because that great Prince, extreamly beloved by his Subjects of the *Low Countries*, whom he governed according to their antient Privileges and Liberties, had his Edicts observed among them without the least Difficulty; but *Philip* II. his Successor, deviating from the pacifick Method of the Emperor his Father, and treating those People, very jealous of their Liberties, with a great deal of Severity and Rigour, there happened several Revolts of the three Orders of this State, and the new Doctrine took Occasion from thence to propagate and strengthen itself in those Provinces. The Nobility, irritated that all Affairs were trusted to the Management of *Anthony de Granvelle* Bishop of *Arras*, a vast Wit, but very proud, though of a low Extraction, formed a League against him. The People could not suffer, that, against the Promise made to them, the *Spanish* Troops should be kept still in the Country. The Clergy, and especially the Bishops and Abbots, complained loudly of the Erection of new Bishopricks, to the Detriment of their Dioceses and Abbies, which they maintained was manifestly against the Rights and Privileges of their Provinces, and all together protested, That they would never suffer the Inquisition, which *Philip* wanted absolutely to establish in the *Low Countries*.

'Tis true, that *Philip*, afraid of a general Revolt he was threatened with, withdrew his Troops, and was even obliged to recall *Granvelle*; though, to render him more respectable to the *Flemish*, he had procured him a Cardinal's Hat; but as he insisted on the other Points, and particularly on that of the Inquisition, the Confusion continued; during which the *Reformed*, who had kept themselves concealed, began to appear publickly, and soon increased, through the Assistance of a great Number of *Calvinist* Preachers; the Admiral took Care to send into *Flanders* to foment those Divisions, by preaching *Calvinism*, and exhorting the People at the same Time, to maintain themseves in their Liberties, which the Pope and King *Philip*, said they, wanted to ravish from them. The Chiefs of the Nobility declared themselves openly Protectors of those new Evangelists, and of their Proselytes, the one to gain the Affection of the Populace, and the other, because they were *Calvinists* already; among whom the most considerable, the most powerful, and the most dexterous, was *William* Prince of *Orange*, of the illustrious House of *Nassau*, who, though born of a *Lutheran* Father, appeared notwithstanding Catholick at the Court of *Charles* V. to maintain his Credit near that Prince, and turned *Calvinist* under *Philip* II. to strengthen thereby the Party he was forming against that Prince, by whom he had been mal-treated; so that in a very short Time there happened in the *Low Countries* a great Revolution, in which *Calvinism* found Means to establish itself, by Degrees, in the State, we see it there at present.

In fact, more than two thousand Gentlemen of those who professed *Calvinism*, formed a League, in which entred the Admiral and the *Calvinists* of *France*; four or five hundred of them having at their Head *Henry* of *Brederode*, *Lewis* of *Nassau*, and the Counts of *Bergh* and *Calembourg*, presented to the Governess *Margarite* Dutchess of *Parma*, a Request, whereby they asked, among other Things, that the Inquisition should be abolished, and all the Edicts published against the *Lutherans*, *Calvinists*, &c. Afterwards following the Impetuosity of their Zeal, they began in *Flanders*, as their Brethren had done in *France*, by arming themselves, taking Possession of several Towns, breaking the Images, destroying the Altars, abolishing the Mass, and exercising, says *Maimbourg*, all Sorts of Violences and Cruelties against Priests and Monks.

The Governess, a very wise Princess, who had much more of the good Qualities of *Charles* V. her Father than King *Philip* her Brother, acted during six or seven Years, to appease these Troubles, with a very marvellous Prudence, employing sometimes the Severity of the Laws, and sometimes Clemency; sometimes open Force, and sometimes Dexterity, according to the Diversity of Occasions; moderating the Severity of the Orders she received from *Spain*, suspending the Execution of the Edicts, and gaining by her obliging Manners and fine Hopes several of the Lords, and thereby breaking the Union; so that the most mutinous and dangerous, as the Prince of *Orange* and *Brederode*, having retired into *Germany*, and the most seditious among the People, seeing themselves deserted by the Nobility, it seemed as if the Calm was going to succeed the Tempest, with the Obedience due to a Sovereign: But the bad Politicks of *Philip*, wholly contrary to so wise a Conduct, dissipated all those Hopes, by causing a new Revolt, which divested him of the greatest Part of his Dominions of the *Low Countries*.

He had put in Deliberation, in his Council, on the repeated Remonstrances of the Dutchess his Sister, what Means were to be used to keep the *Flemish* in their Obedience: Several were of Opinion, that those of Meekness and of a reasonable Condescension, which had already so well succeeded to the Governess, were the best; but the general Inquisitor, and the Duke *d'Albe*, a very severe Man, even to Cruelty, having concluded for the Rigour, *Philip* took that Party, following in it his natural Ferocity, which appeared soon after, in the barbarous Manner he treated Prince *Charles* his Son, and the virtuous Queen *Elizabeth* of *France*, his Wife. He sent the Duke *d'Albe* into *Italy*, whence with an Army of eight thousand Foot of the old *Spanish* and *Italian* Bands, and three thousand chosen Horse, he passed into *Flanders*, with Orders to establish the Inquisition there, in the same Manner it was established in *Spain*, and to punish with the utmost Severity, all that had been acted, during the Troubles, against God, and against the King.

This Man who pleased his cruel and bloody Humour, in obeying a King very near of his Temper, except that *Philip* was not so brave, nor so great a Captain as the Duke, executed his Orders with so much Cruelty, and threw the poor *Flemish*, whom he used like Slaves, into such a Despair, that there happened at last a general Revolt of all the Orders; who after several Changes of Governors and Governments, several Battles and bloody Combats, and several great Revolutions, terminated, at last, in the Establishment of a new Republick. It began by the Revolt of the two Provinces of *Holland* and *Zeland*, of which the Prince of *Orange* was Governor, who first shook off, by a publick Declaration, and an Edict, the *Spanish* Yoke, embracing, at the same Time, the *Calvinism*; and afterwards by the Union of some other Provinces, entered into the Confederacy. That same Republick, together with its new Religion, has insensibly increased by Sea and Land in *Europe*, and in the *Indies*, to that Pitch of Grandeur and Power, we see her at present.

Thus far I have conducted *Calvinism* from its Origin to its Establishment in several Parts of *Europe*; and I hope with that Impartiality, I had promised my Reader I would effect, throughout all Narrations of this Kind; though I could not help taking Notice, that it is acting contrary to the true Principles of

Christianity, to pretend to reform the Church of Christ by the Sword, since that Reformation should be operated in the same Manner, that Church was founded at first, *i.e.* by Patience, Meekness, and an entire Resignation to the supreme Will of the Almighty, even under the most excruciating Torments, not that I would pretend to excuse the violent Means used by some Christian Princes, to bring all their Subjects into the same Belief in Matters of Religion, but let those Means be as they will, they could never be more cruel than those used by *Diocleſian*, and the other first Persecutors of the Christian Name; though the *Ecclesiastical History* does not so much as furnish us with a single Example, of a Sword having been drawn in those Times, to repel Force by Force, or to defend the Christians against the Violence of the Persecution. On the contrary, the Christians of those Days were the most loyal Subjects, their Persecutors and Emperors had throughout their whole Empire, and the best Soldiers of their Armies; and though they employed no other Arms for the Propagation of the Christian Religion, but their Patience, Prayers, Blood and Tears, Christianity was soon established throughout the whole Earth, and the Cross of Christ became in Time the greatest Ornament of the most sumptuous Diadem; while *Calvinism*, established by Fire, Sword, Revolt, Devastation, *&c.* has almost dwindled away to nothing. We deceive ourselves, if we imagine that we can be devoutly Rebels, or that the Vineyard of the Lord will bear Fruits in a Field watered with the Blood of those, who, like us, have been regenerated in the most sacred one of *Jesus Christ*, of those who were yet the Depositories of that sacred Bath, when we first separated from them, and to whom, perhaps, some Time or other, we'll be once more reunited.

CANDLE-MAKING.

CANDLE-MAKING, is to cover a Cotton or Linen Wick, loosely twisted, with Tallow, Wax, or *Sperma-Ceti*, in a cylindrical Figure, commonly called *Candle*, from the *Latin*, *Candela*, and *Candela* from *Candor*, or *Candeo*, I burn; because a *Candle*, when lighted at the End, serves to illuminate a Place in the Absence of the Sun.

From this Definition we may easily infer that the Materials necessary for this Operation, are Cotton for the *Wicks*, and *Tallow* to cover them with.

The Cotton is bought in Skins, ready spun by Chandlers. In the Countries where that Commodity is not easily come at, its Want is supplied by *Tow*, which being spun and whitened, makes as good Wicks as Cotton itself. The Threads, either of Cotton or Tow, are winded of three or four together, according to the intended Thickness of the *Wicks*, into Bottoms or Clues, whence they are cut out with an Instrument, contrived for that Purpose, into Pieces, for the Length of the *Candle* required. If the Threads be made of Tow, Care must be taken, in cutting the *Wicks*, to pick out and free it of all the small Rushes which could have been left in it, and which otherwise would make the *Candle* flear, and run; each *Wick*, after 'tis cut, must be slightly twisted, and rubbed, with a coarse Piece of Cloth, else it would not keep on twisted. Then they must be put on the Sticks or Broches, then hung up to dry, in some Place, near the Fire, or in a Stow; for unless the *Wick* be thoroughly dry, the *Candle* will never give a good Light. Thus far for the *Wicks*. At present for the *Tallow*.

TALLOW is a Sort of Animal Fat melted down, and clarified. There are scarce any Animals but a Sort of *Tallow* may be prepared from; but those which yield the most, and whereof the most Use is made, are the Horse, Bullock, Sheep, Hog, Goat, Deer, Bear, *&c.* But the best *Tallow* for *Candles* must be half Sheep's, and half Bullock's; that of Hogs making them gutter, gives an ill Smell, and a thick black Smoke. *Candles* made of Dripping or other Kitchen Stuff, as they call it, are of little or no Service; for besides that, they give but a very bad Light, they are almost as soon burnt as they are lighted. In some Provinces of *France*, 'tis Part of the Butchers Business to prepare the *Tallow* fit to be melted for *Candles*, which the *Chandlers* buy from them, without taking that Trouble upon them of poisoning themselves, and their Neighbours, with the suffocating and nauseous Smell attending that dirty Operation. The best *Tallow* is that which is hard, has a blueish Cast, and when handled does not feel greasy. This *Tallow* is made by cutting the *Fat* of the Animal, *viz.* of Bullocks and Sheep, into Pieces, (tho' *Tallow* made wholly of *Sheep's Fat* be the best, and makes finer *Candles*) and throwing it into a Pot, or Boiler, (in *France* they have brass Coppers, broad and shallow, for that Operation) while 'tis melting it must be skimm'd of all its Impurities; and when entirely melted, 'tis strain'd thro' a Sieve, made for that Purpose, to free it of the Impurities which could have escap'd the Skimmer; which is a great deal better Method than that of throwing Water into it to precipitate those Impurities; for the Water communicates a certain Humidity to the *Tallow*, which hinders the *Candles* from burning well, and is the Cause why they so often crackle and spit in the burning. Tho' it be the common Practice here in *England*, where, after the *Tallow* is melted, they empty it, thro' a Sierce, into a Tub, having a Top for letting it out, as Occasion requires; and use it after it has stood three Hours. In *France*, as the *Chandlers* buy their *Tallow* ready prepar'd from the Butchers, and never buy but the cleanest, they have no other Trouble than that of melting as much *Tallow* as they have Occasion for, and which melts as clear and fine as Water, without the least Sediment.

Here, among us, the liquid Tallow is drawn off from the Tub, which has a Tap for letting it out into a Vessel call'd the Mould, Sink, or Abyss, of an angular Form, like a Prism, except that it is not equilateral; the Side on which it opens being only ten Inches high, and the others which make its Depth, fifteen. On the Angle, form'd by the two great Sides, it is supported by two Feet, and is plac'd on a kind of Bench, in Form of a Trough, to catch the Droppings, as the *Candles* are taken out each Dip. In *France*, their *Mould*, Sink, or Abyss, is a stone Vessel, glaz'd within and without, of about two Feet long, a Foot and a half deep, and four or five Inches broad a-top. This they fill up from the Copper, or *Poile*, as they call it, wherein they keep their Tallow melted over a very slow Fire, to keep it always in a due Consistence, that they may be capable to supply the Stock in the Mould, when it begins to be too much diminish'd. Before the Artist sets his Mould for the Operation of dipping, he has all his *Wicks* sing'd over a Flame, to singe off all the Nap which could be upon them, which is so often the Occasion why *Candles* run and flear; and after they are thus sing'd, they are rubb'd again with a Piece of Cloth, to make them smooth. Then they are all put upon five or six Broaches, more or less, according to their Quantity, and each Broach immerg'd once, the *Wicks* being all in a Heap upon each Broach; after which Immersion the *Wicks* are all parted, one by one, smooth'd and straiten'd with the Fingers, and then strung on other Broaches, by sixteen, if the *Candles* be eight in the Pound; by twelve, if of six in the Pound, *&c.* In my Opinion, this first dipping contributes

tributes much towards making the *Candles* ſtrait, as well as facilitating the firſt Immerſions, which otherwiſe would be attended with ſome Difficulty, each *Wick* without it being too light to be immerg'd with Eaſe; while, on the contrary, being render'd heavier by the *Tallow* they have gather'd in that firſt Immerſion, that Weight helps towards their Precipitation into the Tallow, and keeping at a due Diſtance from each other: Tho' I do not hear that they uſe that Precaution here in *England*. The *Wicks* being thus diſpos'd upon the *Broaches*, they are hung on a Rack, and then the Workman, ſitting at a due Diſtance from his Mould, takes two *Broaches* at a Time, and holding them equidiſtant, by means of the ſecond and third Fingers of each Hand, which he puts between them, he immerges the *Wicks* two or three Times for their firſt Lay, and holding them ſometimes over the Top of the Veſſel, to let them drain, ſtrikes gently the Ends of the *Candles* againſt the ſaid Top, to make it round, (which Striking is repeated every Time the *Candles* are immerg'd, and till they are quite finiſh'd, which ſaves the Trouble of paſſing them, after they are made, over a flat brazen Plate, heated to a proper Pitch by a Fire underneath, to take off their peak'd Ends, or Bottoms) then he places again the *Broach* on the ſame Rack he has took it from, which, for greater Conveniency, ſhould be plac'd on his right Hand, beginning at the End next to him, and proceeding thus to the farther End, that when he has immerg'd all his *Broaches*, he may come back to the firſt *Broach* he had begun with, and ſo on to the others ſucceſſively, that each *Broach* may have Time to dry before 'tis dipp'd again; which Dipping is to be repeated as often as the Workman judges it proper to bring the *Candles* to the Thickneſs propos'd; with the laſt Dip the *Candles* are naked, *i. e.* plung'd below that Part of the *Wick* where the other Lays ended. During the whole Operation, the *Tallow* is to be ſtirred from Time to Time. Some are ſo nice, as to expoſe the *Candles*, when made, to the open Air, to be whiten'd, eſpecially in the Night-time; which, in my Opinion, muſt communicate a Dampneſs to the *Wick*, and hinder it from burning well: Tho' I have been aſſur'd of the contrary. Thus far for the making of *dipp'd Candles*.

But as we hope our Shop will be a well-accuſtom'd one, which could not be expected unleſs we have it ſtock'd in a Manner as to be in a Condition to oblige all our Cuſtomers, that is, with very good *Candles*, and of all Shapes and Sizes; we'll proceed to the making of *Mould Candles*, the Invention of M. *Le Brez*, at *Paris*; which to perform, we have provided ourſelves with braſs and tin *Moulds*, which are the beſt, which *Moulds* conſiſt of three Pieces, the Neck, Shaft, and Foot. The Shaft is a hollow Cylinder, of the Diameter and Length of the *Candle* propos'd; at the Extremity of this is the Neck, which is a little Cavity, in Form of a Dome, having a Moulding within-ſide, and pierc'd in the Middle with a Hole big enough for the *Wick* to paſs through. At the other Extremity is the Foot, in Form of a little Tunnel, thro' which the liquid *Tallow* runs into the *Mould*. The Neck is ſolder'd to the Shaft, but the Foot is moveable, being apply'd when the *Wick* is to be put in, and taken off again when the *Candle* is cold. A little beneath the Place where the Foot is apply'd to the Shaft, is a kind of String of Metal, which ſerves to ſupport that Part of the *Mould*, and to prevent the Shaft from entering too deep in the Table, to be mention'd hereafter. Laſtly, In the Hook of the Foot is a Leaf of the ſame Metal, ſolder'd within-ſide, which advancing into the Center, ſerves to keep up the *Wick*, which is here hook'd on preciſely in the Middle of the *Mould*.

Having thus deſcribed the *Mould*, and the ſeveral Parts 'tis compos'd of, we'll proceed to the Operation, by introducing, firſt, by a Piece of Wire, the *Wick* into the *Mould*, thro' the Aperture of the Hook, till it comes out at the Neck, to which it muſt be ty'd, ſo that in drawing the Wire back the *Wick* comes along with it, leaving only enough a-top for the Neck; the other End is faſten'd to the Hook, which keeps it perpendicular. Then we'll diſpoſe the *Moulds* in the Table abovemention'd, pierc'd full of Holes, each an Inch in Diameter: Theſe Holes receive the *Moulds* inverted as far as the String in the Foot. Being thus plac'd perpendicularly, we'll fill them with melted *Tallow*, (prepar'd as before) by pouring it into the Foot with a Pot, or Ladle. After the *Moulds* have ſtood long enough to cool, for the *Tallow* to have ariv'd at its Conſiſtence, the *Candle* is taken out, by taking off the Foot, which brings the *Candle* along with it. This Sort of *Candles* are more agreeable to the Sight, light better, and laſt longer than the dipped ones, and coſt but a Trifle more.

The moſt beautiful of all Sorts of *Candles*, which give a finer Light, laſt longer, and have not the offenſive Smell of thoſe made of *Tallow*, are thoſe made of *Wax*; therefore we'll leave off our greaſy blue Frock, and quit our ſtinking Shop, where we have been almoſt ſuffocated with the Fumes of melted *Tallow*, to ſet up the ſame Buſineſs in finer Materials, ſuch as *Wax*; and in our new Shop we'll make *Tapers* for *Churches*, (tho' very ſeldom us'd in ours) *cylindrical Wax Candles* for the Table, Balls, Aſſemblies, *&c.* *Flambeaux*, &c. But before we proceed on theſe different Operations, we muſt prepare our *Wax* for it; which conſiſts in *bleaching* it. Previouſly to it, we muſt know how to chuſe our *Wax*, which is often ſophiſticated with Roſin, or Pitch, colour'd with *Rocou*, or *Turmerick*; therefore the beſt is that of a *high Colour*, an agreeable Smell, brittle, and which does not ſtick to the *Teeth* when *chew'd*.

This Sort of *Wax* is *bleached*, or whiten'd, by reducing it firſt into little Bits, or Grains, by melting it, and throwing it, while hot, into cold Water; or elſe by ſpreading it into very thin Leaves, or Skins. This *Wax*, thus granulated, or flatted, (tho' 'tis beſt to be granulated) is expos'd to the Air on linnen Cloths ſtretch'd tight on a Frame, rais'd three or four Foot above Ground, and expos'd in an open Place, or Garden, to the moſt powerful Beams of the Sun; the granulated *Wax* ſpreaded thin over it, where it reſts Night and Day, having equal Need of Sun and Dew. Then it muſt be melted, and granulated over again, ſeveral Times, ſtill laying it out to the Air in the Intervals between the Meltings. When the Sun and Dew have at length perfectly *blanched* it, we'll melt it for the laſt Time, in a large Kettle, out of which we'll caſt it with a Ladle upon a Table, cover'd over with round Cavities, of what Bigneſs we pleaſe, to form our *Wax* into Cakes; having firſt wetted thoſe *Moulds* with cold Water, that the *Wax* may be the eaſier got out. Theſe Cakes muſt be laid out to the Air, for two Days, and two Nights, more or leſs, according to their *Thickneſs*, to render it more tranſparent, and drier.

Our *Wax* thus prepar'd, we'll go to work, beginning with *Tapers* for *Churches*, &c. ſince *ab Jove principium*. *Tapers* are of a conical Figure, ſtill diminiſhing from the Bottom, which has a Hole to receive the Hook of the Candleſtick; and are made either with *a Ladle*, or *with the Hand*.

To make *Tapers* with the *Ladle*, the *Wicks* muſt be cut of the proper *Length*, and a Dozen of them ty'd by the Neck, at equal Diſtances, round an iron Circle, ſuſpended directly over a large Baſon of Copper tinn'd, and full of melted *Wax*; then a large *Ladle* full of this *Wax* is pour'd gently, by Inclination, on the Tops of the *Wicks*, one after another; ſo that running down, the whole *Wick* is thus cover'd, the Surplus returning into the Baſon; where it muſt be kept warm, by a Pan of Coals underneath it. We muſt thus continue to pour on the *Wax* till the *Taper* arrives at its deſtin'd Bigneſs; ſtill obſerving, that the three firſt *Ladles* be pour'd on at the Top of the *Wick*, the *4th* at the Height of $\frac{1}{4}$, the *5th* at $\frac{1}{2}$, and the *6th* at $\frac{3}{4}$; by which Means, the *Taper* arrives at its pyramidal Form: Which done, the *Tapers* muſt be taken down hot, and laid a Side of each other in a Feather-

Feather-Bed folded in two, to preserve their Warmth, and keep the *Wax* soft; then they are to be taken and roll'd one by one, on an even Table, usually of Walnut-Tree, with a long square Instrument of Box, smooth at the Bottom, the Roller having been before moisten'd with Water, to hinder the *Wax* from sticking to it. The *Taper* being thus roll'd and smooth'd, its biggest End is cut off, and a conical Hole made in it with a Peg shap'd in that Form, which must be also moisten'd with Water, and the *Taper* roll'd all the while the said Peg is thrusting into it, to facilitate its Introduction. While the *Taper* is yet warm, Roses, and other Figures, are made upon it, with Pincers made of *Box*, and is often adorn'd with gold Leaves. This first Manner of making *Tapers*, has been for a considerable Time almost out of Use, by reason of its being too tedious, too precarious, and because *Tapers* thus made are very fragile, or easily broken, even when expos'd to the least Heat.

Therefore the most practis'd Method of making *Tapers* at present, is, by the *Hand*; which is done thus: The *Wax* being cut into Pieces, and each Piece weigh'd, according to the intended Weight of each *Taper*; those Pieces are put in hot Water contain'd in a brass Caldron tinn'd, very narrow and deep, to be soften'd; which is not done by the hot Water alone, but the *Wax* must be work'd with the *Hands* several Times in the hot Water, to reduce it to a due Softness, that it may be work'd with Ease, and without being brittle: We must observe, likewise, that the Water should not be too *hot*; for then it would make the *Wax* run, and stick to the *Hands*; but it must be of such a moderate Heat, as the Workman may bear his Hands in it to take out the *Wax*; which being brought to a competent Softness, the Workman hangs an End of his *Wick* on a Hook fix'd on some Place, and at a moderate Height; then takes out a Piece of the *Wax*, which he works for the last Time in his *Hands*; then having given it the Shape of a little Channel, fixes it on the *Wick* at that End ty'd to the Hook; then greasing his Hands with Oil, or Lard, but most commonly with Oil, disposes his *Wax*, by little and little, round the *Wick*, beginning with the biggest End, and diminishing gradually, till he arrives down to the lower End, which is to be the Neck of the *Taper*, and where he cuts its *Wick*; and then carries his *Taper* to the Table to be roll'd, and perforated, as those made with the *Ladle*. It must be observ'd, that in this Operation of working the *Wax* upon the *Wick*, the *Thumb* and *Index* are only employ'd at first, *i. e.* in disposing the *Wax* round the *Wick*; but in working it downwards the *Thumb* and *Index* are left out, and the other three Fingers, *viz.* the middle, *Annularis*, and the little Finger, made Use of. The *Wax* being press'd all down, between them and the Palm of the Hand, observing to press it gradually, and in such Manner as to give the *Taper* a pyramidal Form. *Tapers* made in this Manner are stronger, and burn a great deal longer, and in *hot Weather* will rather bow than break.

Cylindrical Wax Candles, are either *for the Table*, or *drawn*. The first Kind are made of several Threads of Cotton loosely spun, and twisted together, cover'd with the *Ladle*, and roll'd, as the conical ones, but not pierc'd. *Drawn Wax Candles*, are so call'd, because actually drawn, in the Manner of Wire, by Means of two large Rollers, or Cylinders of Wood, turn'd by a Handle; which turning backwards and forwards several Times, pass the *Wick* thro' melted *Wax* contain'd in a brass Bason, and at the same Time thro' the Holes of an Instrument like that us'd for drawing Wire, fasten'd at one Side of the Bason; so that by little and little the *Candle* acquires any Bulk, at Pleasure, according to the different Holes of the Instrument thro' which it passes. By this Method may four or five hundred Ells Length be drawn running. The Invention of this was brought from *Venice* by *Peter Blesimare*, of *Paris*, about the Middle of the last Century. The *French* call it *Bougie*, and it is very much us'd in the *Roman Catholick* Countries, especially in Monasteries of both Sexes, and in Cathedral or Collegiate Churches, where the Prebends go early to *Church*, and want each a *Light*, to read or sign their Office, in their respective Stalls; for which Purpose they use this *Bougie*, made up into Cakes, from two Ounces to a Pound Weight.

FLAMBEAUX are made square, usually of four *Wicks*, or *Branches*, of an Inch thick, and about three Foot long, made of a coarse hempen Yarn half twisted. They are made with the *Ladle*, much the same as *Tapers* are, *viz.* by first pouring the melted *Wax* on the Tops of the several suspended *Wicks*, and letting it run down to the Bottom: This is repeated twice. After each *Wick* has thus got its several Cover of *Wax*, they are laid to dry, then roll'd on a Table, and four of them join'd together by being folder'd with a red-hot Iron. When join'd, more *Wax* is pour'd on them, till the *Flambeau* is brought to the Size requir'd, which is usually a Pound and a Half, or two Pounds. Their Form, or Outside, is finish'd with a Kind of polishing Instrument of Wood, by running it along all the Angles form'd by the Union of the *Branches*.

The *Flambeaux* of the Antients were made of Wood dry'd in Furnaces, or otherwise. They us'd divers Kinds of Wood for this Purpose; the most usual was Pine. *Pliny* says, that in his Time they frequently also burnt Oak, Elm, and Hazel. In the *7th* Book of the *Æneid*, mention is made of a *Flambeau* of Pine; and *Servius* on that Passage remarks, that they also made them of the Cornel-tree. *Flambeaux* are sometimes made of *white Wax*, and sometimes of *yellow*; but those made of *white Wax* are finer, light best, and are of a less offensive Smell; tho' in all *Flambeaux*, let them be made of *white*, or *yellow Wax*, both Sorts of *Wax* are always more or less sophisticated. They serve to burn a-Nights in the Streets, as also at Funeral Processions, Illuminations, *&c.*

CHAOLOGY.

CHAOLOGY, is the fabulous History, or Description of the *Chaos*, which all the antient Sophists, Philosophers, Naturalists, Poets, Divines, *&c.* have always represented as the first Principle of the World, and which they describ'd as a dark turbulent Kind of *Atmosphere*; or a disorderly System, or Mixture of all Sorts of Particles together, without any Form or Regularity, out of which the World was form'd.

I define *Chaology* a fabulous History, since I can see nothing in it but what's repugnant to Sense and Reason; much more to that grand Idea we should form to ourselves of the unlimited Power of the divine Creator of all Things, who, by the sole Efficacy of his eternal Word, could form the World of nothing, as perfect at first, as the learned Dr. *Burnet* is pleas'd to represent it in his *Chaology*, after the Separation of the homogeneous Particles from those of a contrary Principle; and their Division afterwards into Regions, for the Formation of a solid habitable Globe.

I would ask those eminent Divines who entertain us with the Romance of that entire, undivided, and universally rude and deform'd Mass they call *Chaos*, or Tohu Bohu, if that Mass was *ab æterno*, or had a Beginning? If it was *ab æterno*, *i. e.* of all Eternity, then

then the World was of all Eternity; and therefore what *Moses* says of it must be a Fable, or an Imposture. But, says Dr. *Burnet*, tho' this rude and deform'd Mass had been *ab æterno*, it could not be concluded hence that the World is *ab æterno*, because that Mass had no Solidity, Order, or Arrangement in its Parts, but was only a confus'd *certum quid*, of no Use, and appropriated to nothing; so that if it had been left in its original Deformity, it would never have deserv'd that Appellation *World*, since it had never been that solid Mass, divided into so many different Regions, and of so many different Positions, as to become at last an habitable Globe. Therefore as the World begun but then, it cannot be eternal.

To this I reply, that tho' the World could not be said to have existed then in the same Manner it has done ever since that pretended Explosion, Separation, and Arrangement of the several different Matters, folded up in the *Chaos*; it cannot be said but it existed then essentially, and actually, and of a far more perfect Existence than the several Parts of a *Fœtus* exists in the *Embryo*; since in this those Parts cannot be brought to Perfection without Nutrition, which is an Increase, and a new Acquisition of Matter; but in that (even in our *Chaologian*'s Opinion) there was in the *Chaos* a Quantity of Matter sufficient for the Composition of the several Parts of the World, which Matter wanted nothing else but a due Consistence. Nay, that Matter was even so perfect as to be capable to direct itself to Action, for (say again our *Chaologians*) the *homogeneous Particles separated themselves from those of a contrary Principle*, each contributing its Mite towards the Formation of the Globe, and each directing itself to its natural Situation. But I would ask those Gentlemen how that Separation happen'd, and what could be the Cause thereof? For if that Mass was eternal, and consequently had that Virtue inherent in itself to unfold its Principles in so beautiful a Manner as to form at any Time that excellent Piece of *Mechanism*; what could be the Reason why so admirable a Faculty was kept so long idle and inefficacious? Is it because the different Principles that rude and confus'd Mass was compos'd of could not be brought, till then, to Maturity? If so, that Mass was not perfect, and being not perfect, could not be eternal; since we cannot form to ourselves the Idea of an eternal Being, without, at the same Time, representing it to our Imagination entirely perfect.

But, say they, we don't pretend that the *Chaos* had been eternal; on the contrary, we believe that it had a Beginning, as well as all the other created Beings. Let it be so, that it had a Beginning; the same Difficulty still remains: For I would ask them when that *Chaos* was created, and to what Purpose? As to the Time of its Creation, no Authors, not even the *Chaologians* themselves, have been pleas'd to inform us of it: For *Moses*, who has wrote the History of the Creation, informs us no further than that *In Principio Deus creavit Cœlum & Terram*; In the Beginning God created Heaven and Earth: But don't make the least mention that he extracted that Heaven and Earth from a *Chaos*. Besides, the Word *created* is a Negation of any created Being pre-existent to it; of which that Heaven and Earth could have been form'd. But to what Purpose could God have created that monstrous Heap of Matter, previously to the Formation of Heaven and Earth? To have a Subject to work upon? Is not a Supposition of that Nature injurious to his infinite Wisdom, and omnipotent and unlimited Power? Besides, could it be reasonably suppos'd that the same Being who could have created that unform'd Mass of nothing, for the Formation of the World, could not have as well form'd the World itself of nothing, as of that unform'd Mass? Can there be any Interval suppos'd between his efficacious Will, and his Action; or are not rather both Operations inseparable in a supreme Being? And could not the same *fiat* which is suppos'd to have extracted the *Chaos* from nothing, have as well extracted the World in its full Perfection from nothing? Since that *Chaos* could have been nothing else but a Subject for *God* to work upon. But why should he not have created that Subject as perfect at first, as he would have it afterwards? Is it because he would not, or could not? If he would not, he must have had some just Reason for it, conducive towards the Advancement of his Glory, or relating to the just Symmetry of the different Parts that *great Whole* was to be compos'd of; but could his omnipotent Power have been better manifested, by the Formation of the World from an unform'd *Mass*, than by its having been created perfect at once? If he could not, then his Power was limited, and not infinite; which cannot be said of *God*'s Power, without Blasphemy.

But what was that pretended *Chaos*? Mr. *Whiston* says, that it was the Atmosphere of a Comet; so that he will have the Existence of Comets to have preceded the Formation of all other created Beings, since the Existence of a *Comet* must be suppos'd previously to that of its *Atmosphere*. Therefore the most imperfect in all Appearance, of all created Beings, must have preceded the Creation of the most perfect ones. That a *Comet* is one of the most imperfect, in its Kind, of all other created Beings, evidently appears, by its Instability, and the Irregularity of its Motion; nay, a *Comet* is not only one of the most imperfect, but, in some Measure, a needless Being; since the greatest Astronomers have not been capable, yet, to discover for what Use, and to what Design *Comets* are plac'd in the Heavens; since neither the superior or inferior World seem affected by their Appearance or Absence; and far from contributing towards the just Harmony which subsists between the different Parts of both, it rather seems, when they appear, as if they were something foreign to the whole Mechanism, and some Pieces out of Place, so contrary to Nature itself, that it considers them as something strange and ominous. What Appearance, then, that God would have made a *Comet* his *Coup d'essay*, or his first Piece of Work.

But if it was ever so true that the Atmosphere of a *Comet* was what has been call'd *Chaos*; I would ask Mr. *Whiston* where was that first *Comet* plac'd, since of its Atmosphere the Heavens and Earth were form'd, which supposes no pre-existent created Being, but that *Comet* with its Atmosphere, since Mr. *Whiston* will have it so; perhaps *God* forming that *Comet*, had also form'd a Heaven for its Residence; or we might suppose that it fill'd up that immense Vacuity which afterwards was divided between the superior and inferior World, which would be a false Supposition; since by supposing that Vacuity, it would be supposing still a created Being pre-existing the World, which would destroy the whole System of the Creation; since that immense Space fill'd by the Heavens and Earth had no Existence independent from them, but was created occasionally, and at the same Time with the Bodies it was to be fill'd with. Besides, the Supposition of such *Comet* is a manifest Contradiction of what *Moses* is pleas'd to relate of the Creation of the World, when he says, that at the Beginning, *i. e.* previously to any Thing else, God created the Heaven and Earth. But we'll suppose, for a Moment, with Mr. *Whiston*, that there was such a *Comet* pre-existent to the Creation of the World; what could have been its Substance? Was it solid, like the other *Comets* which have appear'd since? For if it was, what better Subject could the Creator have chose for to work upon, than the *Comet* itself, which had so well answer'd all his Intentions, without having Recourse to its Atmosphere, which could not be form'd without the Concurrence of some of the other heavenly Bodies; especially the *Sun*, which had no actual Existence then, since, like the other Parts of the World, it was to be form'd of that *Atmosphere*, which Mr. *Whiston* supposes to have been what the *Chaologians*, both antient and modern, call'd *Chaos*.

Orpheus was the first Inventor of that Romance, and sets forth in his *Chaology* the different Forms that *Chaos* went thro' till it became inhabitable. *Hesiod*, *Menander*, *Aristophanes*, *Euripides*, and the Writers

of the Cyclick Poems, repeat the same Fable; and the *Barbarians*, *Phœnicians*, *Egyptians*, *Persians*, &c. build the World upon it.

The *Stoicks* are of Opinion, that as the World was first made of a *Chaos*, it shall at last be reduc'd to a *Chaos*; and that all its Periods and Revolutions, in the mean time, are only Transitions from one *Chaos* to another. *Ennius*, *Varro*, *Ovid*, *Lucretius*, *Statius*, &c. are all of the same Opinion, which arose first among the *Barbarians*, whence it spread to the *Greeks*, and from the *Greeks* to the *Romans* and other Nations. Dr. *Burnet* observes, that besides *Aristotle*, and a few other *Pseudo-Pythagoreans*, no Body ever asserted that our World was always from Eternity of the same Nature, Form, and Structure, as at present; but that it had been the standing Opinion of the wise Men of all Ages, that what we now call the terrestrial Globe, was originally an unform'd, indigested Mass of heterogeneous Matter, call'd *Chaos*, and no more than the Rudiments and Materials of the present World.

For my Part, I am none of those wise Men of Dr. *Burnet*; for admitting the Truth of the History of the Creation, as related by *Moses*, I cannot persuade my self that God, against whose infinite Wisdom it is to create any Thing imperfect in its Kind, can be justly suppos'd to have created that rude, unform'd, and indigested Mass call'd *Chaos*, for the Formation of the World; since, as I have already observ'd, no good Reason can be assign'd for it; and that it is more agreeable to human Understanding to believe, that he who could extract that indigested Mass from nothing on Purpose to form of it afterwards a digested one, could equally extract from nothing the same Mass already digested: That we have all the Reason imaginable to believe he did this, when we know nothing of that but by mere Conjecture, and on the Report of some Poets and Historians, whose chief Talent was to entertain their Readers with Fables and Romances. Tho' several Authors are of Opinion, that these antient Poets, Philosophers, *&c.* might have deriv'd their *Chaos*, with some Alteration and Interpolation, from *Moses*, who, say they, derives the Origin of his World from a Confusion of Matter, dark, void, deep, without Form, which he calls *Tohu Bohu*; to which they add, that *Moses* goes no farther than the *Chaos*, nor tells us whence it took its Origin, or whence its confus'd State; and that where *Moses* stops, there, precisely, do all the rest. Tho', for my own Part, I do not find, in all *Moses*'s Writings, the least mention of that *indigested Mass* of which the *Chaologians* pretend the World was form'd. Therefore it is not surprizing, if he takes no Notice of the Origin of a Thing he had not the least Notion of. *Moses* had two great an Idea of the Wisdom and Omnipotence of God, to make him follow the same Method in his divine Operations we do in ours; and no doubt that if it had been his Sentiment that God, the supreme Being, had form'd the World of the *Chaos*, he had inform'd us of it in as clear and particular Terms as he does when he says, that *In the Beginning God created the Heaven and the Earth*, Gen. i. 1.

CHIRURGERY.

CHIRURGERY, (from the *Greek* χειρ, *manus*, Hand; and εργον, *opus*, Operation;) is an Art which teaches how to cure the Maladies of the human Body, by a methodical Application of the Hand, and of Remedies.

Chirurgery is divided into *speculative* and *practical*, one whereof does that in Effect, which the other teaches to do; for without the Theory, a *Chirurgeon* cannot be secure of what he does; neither can he acquire the Dexterity of Hand so absolutely necessary to his Profession, without Experience and Labour, which we call the *Practical Chirurgery*.

All the Operations of *Chirurgery* are reduc'd under four Kinds; the *Synthesis*, *Diæresis*, *Exæresis*, and *Prothesis*.

The SYNTHESIS, is that which reunites all the divided Parts, as are the Wounds.

The DIÆRESIS, is that which divides and separates the Parts, whose Union hinders the Cure of Maladies, as is the Continuity of the Skin, and of the Flesh in Abscesses, which must be open'd to procure the Evacuation of the *Pus* contain'd therein.

The EXÆRESIS, is that which extracts from the Body all which could be hurtful to it, as Bullets, Arrows, *Pus*, *&c.*

The PROTHESIS, is that which supplies, artificially, the Want of some Parts, as of Legs, Arms, *&c.* when the natural ones are lost. It adds, besides, some Instrument, to help the weak Parts; as Pessaries, to keep the *Matrix* in its Place, when it falls; Crutches, to help Walking, when a Person is weak, *&c.*

Four Things are to be consider'd before an Operation can be attempted: The first, which is the Operation to be made; the second, why it is made; the third, if it be necessary, or possible; and the fourth, in what Manner 'tis to be made.

The Operation to be made is known by its Definition, *i. e.* by explaining what it is in itself. We'll know if the Operation is to be made, by examining if the Malady can't be cur'd without it. We'll judge if it be possible, or necessary, in knowing the Malady, the Strength of the Patient, and the Part affected. And, lastly, we'll know how to make it, if we have well exercis'd ourselves in the Practice of *Chirurgery*; for there is no greater Barbarity, than to attempt those Operations without Skill: For the Patient is not only thereby butcher'd, but likewise put to the most imminent Danger of losing his Life in the most excruciating Torments. I tremble for the Lives of those unhappy Sailors committed to the Care, or rather murdering Hands of young Fellows, who, without the least Experience, or other Merit, but that of a great *Apparatus* of *chirurgical Instruments*, without so much as knowing their different Names, far from having the least Notion how to use them, ship themselves on board a Ship, even in Time of War, in Quality of *Chirurgeon*; are not the Approaches of such an ignorant Wretch more to be fear'd than those of the Enemies? And should they not be punish'd, together with those who promote them to those Posts, the one as Murderers, and the other as accessory to it? Can it be possible to imagine that the Legislature would suffer the Lives of his Majesty's Subjects, on which depends, in Part, the Security of the Kingdom, to be thus trifled with, if they were appriz'd of it? For my Part, I know some of those pretended *Chirurgeons*, who have here taken on board *English* Privateers, during this War with *Spain*, because the Master of the Vessel could have them for very near Half the Price he had been oblig'd to give to a true *Chirurgeon*; but I suppose those Masters had no Design to fight, else they had taken greater Care to provide a better one.

The Foundation of *Chirurgery* consists in three Things, *viz.* in the Knowledge of the human Body; of the Maladies which want the Operation of Hands; and of the proper Remedies.

The Knowledge of the human Body is acquir'd by the Study of Anatomy, of which we have a compleat Treatise under the Letter *A*. That of the Maladies, 1. By reading good Books, and the Lessons of the best

best Masters in *Chirurgery*; and, 2. By a constant and assiduous Practice.

The Maladies which are the Object of *Chirurgery*, and fall under the Consideration of a *Chirurgeon*, are Tumours, Imposthumes, Wounds, Ulcers, Fractures, Dislocations, and generally all Maladies which can be the Subjects of Operations.

The Means and Instruments us'd in *Chirurgery*, to cure those Maladies, are five in Number, *viz.* the Hand, Bandages, Medicaments, Iron, and Fire. For *Hippocrates* teaches us, that when Medicaments are not sufficient, Iron must be employ'd, and afterwards Fire; meaning thereby, that a *Chirurgeon* ought to proceed gradually.

The Instruments us'd in *Chirurgery* are either *portative*, and *non-portative*, (for tho' we may be sufficiently learned and experienced, we must also provide ourselves with all that's necessary, and useful to our Profession, *viz.* Instruments, Plaisters, Unguentums, *&c.*

The *portative Instruments* are those which a *Chirurgeon* carries in his Case in his Pocket, together with his Box of *Unguentums*, (which the *French* call *Boitier*) as a good Pair of Scissars, a Razor, a *Bistouri*, strait and bow'd, a *Spatula*, a great *Lancet* for the Abscess, smaller ones for Bleeding, a *hollow Probe*, of Silver or Steel, several other *Probes*, strait, bow'd, *&c.* of several Bignesses; a silver *Canule*, or Pipe, to carry the Button, or Knob of Fire to a distant Part without any Danger of burning the neighbouring ones; another *Canule*, or Pipe, for a Case for Needles, made like a Whistle at one End, for the *Sutures*; a big triangular Needle, call'd *Carlet*, a *Myrtle-leaf*, a *small File*, Instruments for Tooth-drawing, a Lenticulary, an *Errhina*, &c.

The Instruments *non-portative*, are either particular to certain Maladies, or common to all. Instruments design'd for particular Operations, are the *Trepan*, to open the Bones of the Head, or other Parts; the *Algabus*, or *Probus*, for Men and Women in the Stone, and Difficulties of Urine; large bow'd cutting Knives, a Saw for Amputations, great three-square Needles for *Setons*, small Needles for the Ablation of the Cataract, small Plates and Buckles, for the Reunion of the *Bec de Lievre*.

From the Instruments, we'll proceed to *Compresses*, *Bands*, *Splinters*, *Fanons*, *Tents*, and *Lint*.

A *Band* is a long and large String, wherein the Parts and *Apparatus* are wrapp'd up, and contain'd. The *Bands* at present are made of Linnen; in *Hippocrates*'s Time they were made of Leather, and woollen Stuff. There are two Sorts of *Bands*, viz. *simple*, and *compos'd*; the *simple* are all of a Piece, and have only two Ends; and the *compos'd* are garnish'd with Wool, Cotton, and the like. They are made with several Chiefs, *i. e.* with several Ends join'd, or cut in several Places, as Occasion requires. The *Bands* must be made of clean Linnen half worn, without Hems or Selvage. The *Bands* have different Names, from their different Figures; for they are either long, narrow, triangular, or with several *Chiefs*, or garnish'd.

A Bandage is the *Band* apply'd on the Part. There are as many different Sorts of *Bandages*, as there are Parts to be ty'd; therefore they are either *simple* or *compos'd*. The *simple* are those made with an uniform *Band*; the *compos'd* are those made with several *Bands* plac'd over one another, or sew'd together, or with several *Chiefs*. They have other particular Names from their Authors, or Effects; as *repulsive Bandages*, to repulse; *attractive*, to attract; *contentive*, to contain; *divulsive*, to keep asunder; *agglutinative*, to join, *&c.* There are others which have particular Names, and are design'd for certain Things; as the *Chevetres*, for the inferior Jaw-bone; the *Frondes*, for the Chine, Shoulder, and the *Pireneum*; the Scapularies for the Body, the Brayers for Ruptures, the *Champignons* for the *Scrotum*, the Stirrups for bleeding of the Foot, and other Occasions.

There are several Conditions to be observ'd in *Bandages*: 1. Care must be taken that the *Bands* should be roll'd tight, tho' neither too tight, nor too loose. 2. In Fractures, they must be undone from Time to Time; and they must be rais'd every third or fourth Day, to strengthen them. 3. They must be roll'd commodiously, that they may not hurt the Patient.

The Compresses must be made even, soft, and in Proportion to the Bigness of the Part, or of the Wound. They must be garnish'd in uneven Places, that the Bandages may be the easier roll'd over them, and humected with some Liquor proper to the Malady.

Having thus provided ourselves with all that pertains to our Profession, to operate with Art and Safety; we'll pass to the *Examen* of the several different Maladies which fall under the Inspection of a *Chirurgeon*; taking Care to inform ourselves of the best Method to be observ'd in the different Progress of the Cure. We'll begin by the *Tumours* in general.

A Tumor, or *Tumour*, is a particular Rising, or Eminence, on any Part of the Body; otherwise, it is a Solution of Continuity, arising from some Humour collected in a certain Part of the Body, which disjoins the continuous Parts, insinuates itself between them, and destroys their proper Form.

This gathering of Humours in the Parts of the Body, is call'd *Depositum*, which *Depositum* is made either by *Fluxion*, or *Congestion*.

A *Depositum* by *Fluxion*, is that which forms the *Tumour* all on a sudden, or in a very short Time, by the Fluidity of the Matter. And a *Depositum* by *Congestion*, is that which produces the *Tumour* by Degrees, and almost insensibly, thro' the Slowness and Thickness of the Matter.

The most dangerous of all *Tumours*, are those made by *Congestion*; because their coarse and thick Matter renders their Cure very difficult.

The Difference of *Tumours* proceed, 1. From the natural Humours they are fill'd with; which Humours are either simple, mix'd, or alterated. Simple, as the *Phlegmon*, which is fill'd with Blood; and the *Erisipela's*, fill'd with Bile; mix'd, as the *erisipelatous Phlegmon*, fill'd with Blood mix'd with Bile; or the *phlegmonous Erisipela*, fill'd with Bile mix'd with a Portion of Blood; alterated, as the *Meliceris* fill'd with several Humours which can't be distinguish'd, because of their too great Alteration or Change. 2. The Difference of the Tumours is taken from their Likeness. 3. From the Parts on which they are situated; as the *Ophthalmia* in the Eye, *Parotis* about the Ears, *Paronchia* in the Fingers, *&c.* 4. From the Malady which causes them; as the venereal and pestilential *Buboes*. 5. From certain Things found in one, and not in the others; as in *enkisted Tumours*, which have their Matter contain'd in a *Cystis*, or Bags; and thus of several others.

There are four Kinds of Tumours which include at once all the particular Species, *viz.* the *natural Tumours*, the *ankisted*, the *critical*, and the *malignant*.

Natural Tumours, are those form'd of one of the four Humours contain'd in the Mass of Blood, or of several mix'd together; which four Humours are, the *Blood*, *Bile*, *Pituita*, and *Melancholy*; which produce each their particular Tumour, *v. gr.* the *Blood* produces the *Phlegmon*; the *Bile* the *Erisipela*; the *Pituita* the *Œdema's*; the *Melancholy* the *Scirrhus*; and their Mixture produces, again, the *erisipelatous Phlegmon*, the *œdematous Phlegmon*, or *phlegmonous Erisipela*, the *phlegmonous Œdema*, and according to the Quality of the predominant Humour, the *Tumour* is call'd by its Name.

Ankisted Tumours, are those whose Matter is contain'd in a *Cystis*, or membranous Bag; as the *Meliceris*, or *King's Evil*.

Critical Tumours, are those which appear all on a sudden, in great Maladies, and terminate them for the Good, or the Disadvantage of the Patient; as the *Parotides*.

Malignant Tumours, are those always found accompanied with extraordinary and dangerous Symptoms, and whose Consequences are also very dangerous.

The *Apostbume*, *Abscess*, *Exitures*, and *Pustules*, are Species of *Tumours*, which differ among themselves but *from more to less*; tho', properly speaking, by the Names *Apostbumes* and *Abscess*, are understood big *Tumours* to be brought to Suppuration; and by those of *Exitures* and *Pustules*, are meant small *Tumours* which appear in great Numbers, and which are very seldom brought to Suppuration; the one being form'd of very few Humours, and the others containing a dry Matter.

But, however, there is this Difference between *Tumour* and *Apostbume*, or *Abscess*, that all *Tumours* are not *Apostbumes*, nor *Abscess*, tho' all *Apostbumes* and *Abscesses* are *Tumours*. For Example, the *Gangelions* are *Tumours*, tho' they are not *Abscesses* nor *Apostbumes*; while, on the contrary, *Abscesses* and *Apostbumes* are always *Tumours*; because they cause a Rising, and an Elevation on the Part.

M. *Littre* is of Opinion, that there are windy *Tumours* form'd of Air, inclos'd under some Membrane, which it dilates more or less, in Proportion to the Quantity, and from which it cannot escape, at least not for some Time. The Difficulty is, to conceive how the Air should come to be collected here. M. *Littre* thinks, that the most ordinary Cause of *windy Tumours* is the gathering of Juices in some neighbouring Part wherein there is an Obstruction. The Air, which is intimately mix'd with all the Juices of the Body, continues to be so while they are in their natural Fluidity and Motion; but if they are collected in any Part, and by Consequence have their Motion and Fluidity diminish'd, the Air gets its Liberty, and disengages itself from them. Now the Membranes of the Part wherein the Liquor is collected becoming dilated by this Collection, and their Pores enlarg'd, the disengag'd Air escapes thro' them, but the Juice is left behind, as being too much thicken'd by its Stay there: It therefore runs under some other neighbouring Membrane, which it raises, swells, and extends.

From this Description of the different Kinds of *Tumours*, we'll pass to the Cure, giving all the necessary Instructions, general as well as particular, to bring it to Perfection, not only for all *Tumours* in general, but likewise for each different *Tumour* in particular.

The general Rules which a *Chirurgeon* is indispensibly oblig'd to observe before he undertakes the Cure of *Tumours*, are these: 1. He must examine the Nature of the *Tumour*, because that which is natural, is otherwise treated than that which is *ankisted*, critical, or malignant. 2. The Time of its Formation, *i. e.* its Beginning, Increase, State, and Declension; in which different Periods there must be apply'd different Remedies. And, 3. Its Situation, that the *Chirurgeon* may avoid, in the opening of the *Tumour*, the Encounter of a neighbouring Artery or Tendon.

We must observe, also, that all *Tumours* terminate, or are remov'd by Suppuration, or Resolution; the two other Manners admitted by *Chirurgeons* being not so safe, *viz.* by *Induration* and *Putrefaction*; since a *Tumour* cannot be said to be perfectly cur'd, while some Relicks of it remains, as it happens in the *Induration*, where the Matter is indurated by an imperfect Resolution; or when the *Tumour* is degenerated into another Evil, as in *Putrefaction*, which is often succeeded by the Gangrene. Therefore the safest Manner to cure a *Tumour*, is by Resolution, except when the *Tumours*, or *Abscesses*, are critical and malignant; for then the Suppuration is not only the surest Way, but must even be procur'd by all Sorts of Means, even by opening it; which must be done on that Occasion without waiting for a perfect Maturity. In such Opening, the *Chirurgeon* must take a great deal of Care not to cut the Fibres of the Muscles, and ought not to procure an entire Evacuation of the *Pus* at once, especially in great *Abscesses*, for fear the Patient should faint away; neither is such Opening to be made, always, longitudinally, or according to the Straitness of the Fibres; for when the *Tumours* are large, and there is a *Cystis*, the Incision must be *crucial*, or made cross-wise.

There are four Sorts of Matter evacuated in the *Suppuration* of *Tumours*, *viz.* 1. The *Pus*, which is a white thick Matter. 2. The *Dirt*, which is a Matter as thick as the *Pus*, but of several Colours. 3. The *Sanies*, which is a watery Matter. And, 4. The *Virus*, which is also a watery Matter, but whitish, yellowish, and greenish, all at the same Time, and comes out of Ulcers, very stinking, and with corrosive and malignant Qualities.

A prudent *Chirurgeon* must also mind, when he undertakes the Cure of *Tumours*, the general Causes of those *Tumours*, which are three in Number, *viz.* the *primitive*, which is that which has occasion'd the *Tumour*, *v. gr.* a Fall, or a Blow receiv'd. The antecedent, which is that which furnishes Matter to the *Tumour*, as the Mass of the Blood, which increases and entertains the *Phlegmon*. And the *Conjoined*, which is the Blood, or the Matter extravasated, which forms immediately the *Tumour*, or the *Phlegmon*.

It cannot be otherwise remedied to the primitive Cause, but by avoiding Falls, Blows, *&c.* The antecedent is remedied by diminishing the Plenitude of the Blood, and cooling the whole Mass by Bleeding. The *conjoint Cause* is carried off in dissipating, by *Resolution*, the extravasated Blood, or evacuating it by *Suppuration*.

Critical Tumours borrow their Name from *Crisis*, which is a sudden *Depositum* of Humours made in Maladies, and which ordinarily decides them. This *Depositum* is made by the Strength of Nature, which expels those *Tumours* thro' the common Ways for the Evacuation of the Excrements, or carries them to the Circumference. Thro' the common Ways it procures the humoural Flux, the Evacuation of Urine, and the bloody Flux; and by carrying them to the Circumference, or Habit of the Body, it produces Sweats, *Tumours*, and the Gangrene it self.

Thus far for the general Rules to be observ'd in the Cure of *Tumours*; at present, we must enter into a more particular and exact Detail, and consider, with Attention, how a prudent and experienc'd *Chirurgeon* should proceed in the Cure of each Kind of *Tumour*; beginning with the *Phlegmon*.

The PHLEGMON, from the *Greek* φλεγω, to burn, or inflame; is a Tumour attended with Redness, Tension, Renitency, Pulsation, and great Pain; which when occasion'd by an extravasated Blood, good and laudable, but only peccant in Quantity, is call'd *true Phlegmon*; but if that Blood be adulterated with Bile, or *Pituita*, it is call'd *bastard Phlegmon*.

Note, That the *Anevrisms* and *Varices*, tho' form'd of Blood, are not *Phlegmons*; because that Blood is not extravasated, nor accompanied with Inflammation, but forms those Tumours by a too great Dilatation of the Arteries and Veins. Neither are the *Ecbymoses*, or Contusions, tho' an extravasated Blood, to be consider'd as *Phlegmons*, since it does not suffice to form the *Phlegmon*, that the Blood should be extravasated only, but it must be attended, likewise, with Heat, Pulsation, Inflammation, and Pain; which is not found in the *Ecbymoses*, the great ones excepted, after they have been neglected, in which the Evacuation of the extravasated Blood must be procur'd first, to hinder a too great Suppuration, Inflammation, and several other dangerous Consequences.

There are two Sorts of Remedies proper for the Cure of *Phlegmons*, the one general, and the other particular. The general Remedies, which carry off the antecedent Cause, are Bleeding, and an exact Diet. Purgatives cure sometimes the *Phlegmon* in its *antecedent Cause*, by diminishing the Plenitude, Heat, and Alteration of the Blood. Fomentations, Ca-

Cataplasms and Plaisters, cure it in its *Conjoint Cause*, by procuring the Resolution, or Suppuration; all which different Remedies ought to be administred in Order, and with Judgment, *v. g.* Bleeding is to be done in the Beginning and Augmentation, or Increase of the *Phlegmon*. The Resolutive and Anodyne Remedies are necessary, such as those prepared with *Cherveil* boiled in Whey, to which is to be added some Saffron, to wash the Tumour with, which must be wapt in Cloths dipped in the same Liquor. The Sperm of Frogs alone, or Lime and Soap Water mixed together; or else Oak and Plantine Leaves bruised and applied on the Part, are also very good Remedies for the *Phlegmon*; avoiding above all things cold Remedies, Oil, and Grease, which are pernicious in great Inflammations. These are the Remedies by which we must begin the Cure.

But in the Augmention of the Tumour, and of the Pain, it must be softened by Resolution; and for that Purpose a Cataplasm is composed with Leaves of Elder, with Mallows, Chamomil, and Melilot, to which is added pounded Linseed, boiling the Whole in Whey, adding to a Pound of it the Yolk of an Egg, twenty Grains of Saffron, a Quarter of a Pound of Honey, and Crumbs of Bread, till it has acquired a due Consistence for a Cataplasm, which must be renewed every twelve Hours at least.

When the *Phlegmon* is arrived at its Height, if it could not be brought to a Resolution, its Suppuration might be procured, by adding to the aforesaid Cataplasm, Garlick, the Roots of white Lillies broiled under the Embers, Whey and Basilicon: Or else we'll take only a Glass of Whey, in which we'll melt an Ounce of Soap, to dip Cloth in it, which we'll apply on the Tumour, reiterating it often. The Plaister *Diasulphuris* is very excellent alone.

When the Malignity is conquered, and the *Phlegmon* is on its Declension, the Ulcer must be dried by Degrees with the Plaister *Diasulphuris*, or the *Diachylon*, afterwards we'll use those of *Ceruse*.

Note. That if during the Inflammation, the Gangrene should happen, there must be dissolved in an Ounce of the best Vinegar, a Drachm of white Vitriol, with the same Quantity of *Salarmoniac*, to bathe the Tumour with, or else we'll take the Tincture of Myrrhe, and of Aloes, with some Ægyptiac, and we'll make afterwards a Digestive with Terebinth, Yolks of Eggs, and Honey, mixing with it some Spirits of Wine, or Brandy, if any purulent Matter was left behind.

These are the Remedies to be used in the different Periods of a true *Phlegmon*; but as we have also mentioned a Bastard *Phlegmon*, which must also be cured, we must see how we are to proceed in that Cure, which cannot be done without knowing first, which are the Tumours called properly *Bastard Phlegmons*.

Bastard Phlegmons, otherwise *Phlegmonous Tumours*, are *Buboes*, *Carbuncles*, *Furuncles*, *Antrax*, *Phigeton*, *Phyma*, the *Panaris*, *Gangrene*, *Childblains*, &c.

The *Bubo* is a Tumour which happens in the Groin, accompanied with Heat, Pain, Hardness, and sometimes with Fever. The *Carbuncle* is a hard, red, and burning Tumour, always accompanied with Fever; 'tis covered with a black Crust, which falls afterwards with the Suppuration, and leaves behind a deep and troublesome Ulcer, which does not suppurate at all. The *Antrax* is very little different from the *Carubncle*, appears only in the glandulous Parts, and the *Carbuncle* every where else. The *Furuncle* is a Sort of moderate *Carbuncle*, which resembles the Head of a Nail, and causes the same Pains which could be caused by a Nail being driven into the Part. The *Phigeton* is a small, red, and inflamous Extuberancy, situated on the *Milliary Glands* of the Skin, where it causes a sharp Pain without Suppuration. The *Phyma* appear in the same Manner as the *Phigeton*, and suppurates.

All these Tumours are treated in the same Manner, none of them having any Remedies peculiar to itself, but are all to be cured with emollient, resolutive, and suppurative Cataplasms and Plaisters, which must be applied with Judgment, and in Proportion, as 'tis done to the *Phlegmons*.

The same cannot be said of the *Gangrene*, which is far more dangerous, and therefore wants a greater Care and Attention. The *Gangrene* is distinguished into *Gangrene* and *Sphacelus*, though they be but one and the same Thing; the *Gangrene* being a Mortification begun, while yet the Part retains some Sense of Pain, and a Share of natural Heat; and the *Sphacelus* a thorough Mortification, where there is no Sense or Warmth left.

The *Gangrene* is a Disease in the Flesh of the Part which it corrupts, consumes, and turns black; spreading and seizing itself of the adjoining Parts: It proceeds from a Stoppage or Interception of the Circulation of the Blood, which by this Means fails to furnish the Part with the nutritious and spirituous Juices, necessary to preserve its Warmth and Life.

This Interception of Circulation, which is the next Cause of the *Gangrene*, is itself occasioned divers Ways, as by large Tumours, *Erysipelas*, great Inflammations, violent Cold, tight Bandages or Compressions, sudden Fluxions of the same malignant Humour, Bites of venomous Beasts, Fractures, Wounds, Ulcers ill managed, extreme Weakness, occasioned by Hæmorrhage or old Age, *&c.*

The *Gangrene* is distinguished by the Colour of the Flesh, which now turns pale, dusky, and sublived, and by its growing loose and flabby, of vehemently tense, which it was before, in the Progress of the Disease, the Part distills a fetid, discoloured Water, and emits a cadaverous Smell. Upon the first Seizure the Skin turns pale, afterwards livid; Vesications arise, and the Colour at length changes to black; the Flesh becomes fetid, sanious and moist, then withers and soon becomes insensible; the Heat and Pulsation of the Part being likewise diminished. If in a large Wound the Tumour of the Lips does not suppurate, nor any Flux of Matter or Inflammation arise; if the Lips do not swell, or after swelling grow lank and flaccid again on a sudden, it is reckoned a sure Sign of an approaching *Gangrene*. When it proceeds from extreme Cold, the Part affected is first benumbed, or seized with a pricking Pain, followed by a Redness, which gradually changes to black. When a tight Bandage is the Cause, a Flaccidity of the Part is joined to the Insensibility thereof: When the Scurvey, it often begins in the Great Toe, and appears in the Form of a blackish Spot, which turns to a dry Crust, succeeded by a Stupor of the Part, *&c.* When the Bite of any venomous Creature is the Cause, a continual Fever attends, *&c.* Pain is felt in the Part, which usually brings on a *Syncope* or *Delirium*, Pustules arise about the Bite, *&c.*

By the Microscope a *Gangrene* has been discovered to contain an infinite Number of little Worms, ingendered in the morbid Flesh; and which continually producing new Broods, they swarm and over-run the adjacent Parts.

To stop the Progress of the *Gangrene*, Physicians prescribe, internally, Sudorificks and Alexipharmicks. Externally, Decoctions of Quick Lime, either simple, or with the Addition of *Sulphur*, *Mercurius Dulcis*, and *Spirit of Wine* camphorated. In a severe Stage of the Distemper we scarify deep to the very Quick; and afterwards apply hot Liquors, Cataplasms, *&c.* Some recommend Horse-Dung boiled in Wine, or Urine: The *Unguent Ægyptiack* also comes into Use. *Bellofte* prescribes the following as the most efficacious Remedy known for *Gangrenes*, viz. *Quicksilver* dissolved in double the Quantity of *Spirit of Nitre*, or *Aqua Fortis*; a Linen-Cloth dipped therein, and applied to the *gangrenous* Part: This alone, he assures us is sufficient. If the *Gangrene* be occasioned by an intense Frost, *Snow-Water*, or a Linen-Cloth dipp'd in cold Water, and applied to the

the Part affected, *Boerhaave* directs as the best Cure. If the *Gangrene* proceed to an entire *Sphacelation*, and be seated in any of the Limbs, or extreme Parts, Recourse must be had to the Operation of Amputation; of which we'll give a Description in the Sequel of this Treatise.

The *Panaris*, *Panaritium*, or *Paronychia*, (from the *Greek* παρονυχια, q. d. an Abscess at the Root of the Nails) is a Tumour or Inflammation arising on the Extremities of the Fingers or Toes, properly called *Whitloe*. It is occasioned by a sharp or saline Humour, lodged between the Bone and *Periosteum*, and the Nerves and Tendons. The *Panaris*, is often attended with violent Pains, felt all along the Arm, and with a Fever.

An infallible Remedy for the *Panaris*, is to open it either with a Point of a Lancet, or with some Unguent, and then to dip the Finger in a *Lixivium*, made of Pine Ashes. For the *Panaris* after Bleeding and the general Remedies, Dr. *Burnet* orders the Patient to hold his Finger a good while in rotten Eggs, or a putrified Mouse. *Helmont* tells us, if we believe him, he has seen a Finger as big as an Arm by means of a *Panaris*, cured by rubbing it with Blood, then wrapping it up in a Mole-skin. *Riverius* adds, that to hold the Finger affected in a Cat's Ear, cures a *Panaris* in two Hours.

Childblains, are painful Tumours, often accompanied with Inflammations; they happen particularly in the nervous and external Parts, as at the Heel, and the more the Cold is severe, the greater is the Pain.

Childblains are cured by washing and holding, for some Time, the Heel or other Part affected in hot Wine, where have been boiled *Allum* and *Salt*, of which a Cataplasm is made, afterwards, by adding to it *Rye-Flower*, *Honey*, and *Sulphur*. The Juice of Radishes applied hot, with *Unguent* of *Roses*, is also a very good Remedy, as well as the *Petroleum* alone.

Burnt, is an Impression of Fire made on a Part, in which remains a great deal of Heat, with Bladders full of Serosities, or Crusts, according as the Fire has made more or less Impression.

The *Burnt* is cured by the quick Application of Street-Dirt, often reiterated by that of peeled *Onions*, of *Unguent* of *Roses*, and of *Populeon*, mixed with the Yolk of an *Egg* and quick Lime. If the *Burn* be in the Face, there must be particularly used the *Mucilago* of *Quince-Seeds*, and of *Psyllium*, of *Sperm* of *Frogs*, equal Part of each, and to four Ounces thereof must be added twenty Grains of *Sugar* of *Saturn*. This Remedy is spread on the Face with a Feather, and over it, is applied a Piece of grey Paper. This Remedy is excellent.

If the *Burn* has made a Scar, or a Crust, 'tis taken off with Fresh Butter, spread on a Cabbage-Leaf, applied hot. If the Crust be too hard, and don't fall, it must be opened for the Evacuation of the *Pus*, which would cause a deep Ulcer, if kept long under it. The same Thing is observed for the *Bladders* or *Pustles*, two Days after they are risen; and there must be applied to it the *Unguent* of *Quick-Lime*, with *Oil* of *Roses*, and *Yolks* of *Eggs*.

The next Sort of *Tumours*, which fall under our Consideration, are the *Erysipelas*, and its Dependencies.

ERYSIPELAS, from the *Greek*, ερυειν, *trahere*, to draw, and πελας, *prope*, near, is a small Elevation, produced by a *Depositum* of Bile extravasated, and running between the Flesh and the Skin, known by its yellowish Colour, great Heat, and the Itching it causes.

The Disease spreads itself a-pace, shifting from one Place to another, with sometimes a Fever attending it. It attacks the Patient all at once, and chiefly when out in the Air. Dr. *Quincy* accounts for the *Erysipelas*, from a too fizy Blood, which obstructing the Capillaries, occasions Inflammations. There is another Species of *Erysipelas*, though less usual than the former, most commonly arising from a too copious drinking of spirituous Liquors. It begins with a Fever, after which there is an universal Eruption of *Pustules* almost over the whole Body, much like those after the Stinging of *Nettles*, and sometimes rising into *Vesiculæ*; at going off they leave an intolerable Itching, and as often as scratched, return again.

Etmuller gives it as the distinguishing Character of an *Erysipelas*, that, when pressed very lightly by the Finger, there follows a white Spot, which presently after becomes red again; which does not happen in an ordinary Inflammation, unless when violently pressed. *Scorbutick* People are the most subject to this Disease.

The *Erysipelas*, which happens on the Head, or on the Breast, is not without Danger; and it must be seriously treated with internal and external Remedies. It is disputed whether Purging be good in the *Erysipelas*: *Sydenham* recommends it the next after Bleeding; *Etmuller* cautions against them both, and recommends Diaphoreticks. M. *Le Clerc* says, that Bleeding is not to be used, unless there be a too great Plenitude. He prescribes frequent Clysters, composed of *Whey*, *Chervil*, *Succoree*; adding to the Decoction a Drachm of *Sal-Prunella*, dissolved in two Ounces of *Honey of Violets*. Dr. *Friend* observes, that in the last Stage of an E[illegible] of the Head, attended with a *Coma*, *Delirium*, &c. unless Cathartics will do good, the Case is desper[illegible]. All unctuous, astringent, and cold Applications externally, are dangerous, and sometimes made the *Erysipelas* degenerate into a *Gangrene*. Linen dipp'd in camphorated *Spirit of Wine* and *Saffron*, are applied with Success on the *Erysipelas*, provided they be renewed when they begin to dry.

If the Heat and Pain be excessive, there must be taken half a Drachm of *Sugar* of *Saturn*, twenty Grains of *Camphire*, as much *Opium*, with two Drachms of red *Myrrh*, mixed in half a Pint of white Wine, in which Linen must be dipp'd to apply on the *Erysipelas*, renewing them often. Amidst all these Remedies an exact Diet must be established, else they have little or no Effect.

To repair the Disorders which the *Erysipelas* has caused in the Face, it must be washed with a Remedy prepared with half a Pint of *Whey*, two Yolks of *Eggs*, and a Drachm of *Saffron*.

Besides *Erysipelas*, there are also *Erysipelatous Tumours* and *Apostbumes*; such as the *dry* and *humid Herpe*. The *dry Herpe* is what's commonly called *Ring-Worm*; and the *humid Herpe* are Species of Vesicles, or yellowish Pustules, which cause an Itching, and make small corroding Ulcers in the Skin. To these may be added all Sorts of Itchings.

For the one and the other may be used the Remedies prescribed for the *Erysipelas*, as the Lotions made with *Lime-Water*, the Decoction of *Wormwood*, and the *Sal-Armoniack*, to the Quantity of half a Drachm in four Ounces of Liquor. The *Oil* of *Tartar*, *per Deliquium*, is also a very good Remedy for those cutaneous Distempers. From the *Erysipelas* we'll pass to the *Œdema*.

The ŒDEMA, (from the *Greek*, οιδαω, *I swell*; whence οιδημα, a *Tumour*,) is in Fact a *Tumour*, which appears whitish, soft, and lax, without any notable Change of Colour, Heat, Pain, or Pulsation; and which yields to the Pressure of the Finger, so as for some Time to retain the Dent or Impression thereof.

The general Cause of *Œdema's* is vulgarly supposed to be a *Pituita*, as it is called, or a Phlegmous Humour in the Body. *Contusions*, *Fractures*, *Luxations*, &c. when of long Standing, often give Rise to *Œdemas*, especially in dropsical and aged Persons: So do irregular Living, want of Exercise, Ruptures, Disorders of the Lymphaticks, Defluxions of Humours, Weakness of the Joints, &c.

Its chief Seat is in the Legs: In a *Leucophlegmatia* the whole Body is *Œdematous*. It frequently comes upon other Diseases, especially *Clinics*, i. e. those which

which oblige us to keep long our Beds; and is familiar to Women with Child. It is dangerous when it tends to an Abscess; when it hardens it becomes scirrhous.

There are also spurious *Œdemas*, in which Case the pituitous Humour is mixed with other Humours; whence the *Tumour* becomes Erysipelatous, Scirrhous, and sometimes Gypsous; and hence *Wens*, &c.

Fomentations, Cataplasms, Liniments, and Plaisters, are very good Remedies for the *Œdema*. The Fomentations are made with *Wall-wort*, tied in Bundles, covered with hot Wine, and put in an Oven after the Bread has been took out; they are also took out smoaking hot, the Bundles are untied, and the Part is wrapp'd up within them, covering them over with a hot Cloth. This being often reiterated, the Humour transpires by Sweat. The Cataplasm are composed of *Chamomil*, *Melilot*, *St. John's Wort*, *Sage*, *Parietary*, the Root of *Briony*, *Onions*; the whole boiled in *white Wine*, with *Honey*. Cataplasms are also made with *Horse-Dung* and *Cummin-Seeds* boiled in *strong Vinegar*, mixing with it *Barley-Flower* to the Consistence of Pap. The Plaisters are prepared with an Ounce of *Dyachilon de Gummis*, half an Ounce of *Martiatum*, a Pound of *Oil* of *Lillies*, half an Ounce of *Cummin-Seeds* in Powder, half a Drachm of *Sal-Armoniack*, and an Ounce of *yellow Wax*, to bring it to a Consistence. If there was a Hardness, the Plaister made with the Gums of *Bdellium*, *Ammoniac*, and *Galbanum*, dissolved in Vinegar, must be used.

ŒDEMATOUS *Apostbumes*, or *Tumours*, which partake of the Nature of the *Œdema*, are, the *Phlyctains*, *Empysema*, *Batracos*, or *Ranuncle*, the *Wyne*, the *Talpa*, the *Broncocel*, the *Ganglion*, the *Fungus*, the *King's-Evil*, and all the Species of *Dropsies*, general and particular.

The PHLYCTAINS, are Pustules or Bladders, full of white Water, a little yellowish.

The EMPYSEMA, is a Tumour full of Flatuosities or Wind, with a small Quantity of *glairy Pituita*.

The BATRACOS, or *Ranuncle*, is a Bladder full of glairy Water, which grows under the Tongue at the *Frænum*.

The WYNE, is a Tumour formed of a thickened and chalky *Pituita*, and is ranked among the enkisted Tumours.

The TALPA is a soft and pretty big Tumour, which grows ordinarily on the Head, and in the Face, and contains a white, thick, and pituitous Pus.

The BRONCHOCEL is a *Tumour* which grows on that Part of the Throat called *Adam's-Bitt*, and which swells it much, being formed of a thick Pituita, mixed with a little Blood; 'tis ranked among the enkisted *Tumours*.

The GANGLION is a *Tumour* pretty hard, indolent, and vacillent, produced of a thickned Pituita; 'tis found also on some Nerve or Tendon.

The FUNGUS is a spungious *Tumour*, which grows on the bruised Tendons.

The KING'S-EVIL is *Tumours* formed ordinarily in the Glands of the Neck, and all other glandulous Parts of a viscous, serous, and malignant *Pituita* whose Course is in the Glands of the *Mesentery*.

The DROPSY is a soft Tumour, made by an abundant Depositium of Serosities, in the Parts where it appears. There are three general Species of *Dropsy*, *viz. Ascites*, *Tympanites*, and *Leucophlegmatick*.

The ASCITES, is that which forms the Tumour, or Swelling of the Lower Belly, by a gathering of Water.

The TYMPANITES, is that which forms likewise the Tumour or Swelling of the *Abdomen*, with this Difference, that there is a great deal of Wind mixed with the Water, whereby the Skin is stretched so tight, that when struck, it gives a Sound like that of a Drum, whence it has borrowed its Name.

The LEUCOPHLEGMATICK, is a Tumour, or to speak better, a general Swelling of all the Parts of the Body, as well as of the *Abdomen*; 'tis formed of a glairy and mucilaginous *Pituita*; whence it happens, that the Impression of the Fingers remains in the Places which have been pressed by them.

The particular Species of *Dropsies* are those which happen to different Parts, from which they borrow their Name, as the *Hydrocephalus* in the Head, the *Exomphalus* of the Navel, the *Hydrocelle* of the *Scrotum*: *Lastly*, there is that of the Breast, and that of the *Matrix*.

All the Remedies prescribed for the *Œdema* are also employed variously in all these Maladies, as are Liniments, Fomentations, Cataplasms, and Plaisters. Internal Remedies, such as Diaphoreticks, Sudorificks, and Purgatives, supported with an exact Diet, are of great Service. The Decoction, of *Briony*, and *Marshmallow Roots*, with *Betany*, *Liquorice*, and all other Diureticks, which push by Urine, give a great deal of Ease. From the *Œdema* we'll pass to the *Scirrhus*.

The SCIRRHUS, (from the *Greek*, σκιρρος, a Piece of Marble) is a hard indolent *Tumour*, formed gradually in the soft glandulous Parts of the Body; sometimes internal and sometimes external.

There are two Kinds of *Scirrhus's*, the one only beginning, and frequently painful, when pressed by the Fingers; the other confirmed and senseless. The *Scirrhus* arises from a thick viscid, probably gritty Matter, detained and indurated in the Pores and other minute Passages of the Parts affected.

The *Scirrhus* is cured by softening and resolving it, seldom by bringing it to Suppuration. 'Tis softened by the Application of Cataplasms, made of the Leaves of *Violets*, *Mallows*, *Marshmallows*, *Leeks*, *Alder*, *Rue*, and *Wormwood*; with *Camomil-Flowers*, *Horse* and *Cow's Dung*, and Roots of *white Lillies*, all this is boiled together in Wine, to which are to be added *Honey* and *Hog's-Lard*, to make a Cataplasm, with Crumbs of Bread. 'Tis resolved with Plaisters composed of *Diachylon*, *Melilot*, and *Mucilages*, to which are added the *Oil* of *Worms* and the *Flour* of *Sulphur*. And to render the Remedy more efficacious, the *Oil* of *Tobacco* and *Gum Ammoniack* dissolved in Vinegar. These topical or external Remedies must be accompanied with internal, which serve to prepare the Humours to be evacuated, as the Decoction of *Sarsaparilla*, the Use of good Wine, and light Aliments of an easy Digestion.

There are other Tumours which participate of the *Scirrhus*, as the *Polypus*, *Carcinoma*, *Sarcomæ*, *Nacte*, *Fic*, or *Desir*, and the *Cancer*.

The POLYPUS, πολυπους or πολυπος, is a fleshy Tumour, or Excrescence, on the Inside of the Nostrils, prejudicial to Respiration, or Speech; call'd also, by way of Distinction, *Polypus narium*. This *Polypus* arises, by several Roots, from the *Os cribrosum*, and hangs down, sometimes, as low as the Lip; growing, likewise, backwards, so as to stop the Hole of the Palate, whereby the Air and *Pituita* descend out of the Nose, down into the Throat; and, by this Means, strangles the Patient. It has its Name from the Resemblance it bears to the Fish *Polypus*, call'd in *English Pourcontrel*, or *Many-feet*. Tho' some derive the Name from the Resemblance its Substance bears to that of the *Polypus*; and others from the Resemblance its many Roots bear to the many Feet of that Fish.

Polypus's are chiefly found in scrophulous or cancerous Constitutions, along with venereal Cases, Ulcers, *Arena's*, &c.

Polypus is also us'd for a morbid Excrescence in the Heart; consisting of a tough Concretion of grumous Blood lodg'd therein. *Malpighi* gives a very accurate Description of this *Polypus*; in the right Ventricle of the Heart, he observes, it is usually larger, and of a paler Colour, like *Pituita*, with reddish or blackish Streaks. In the left Ventricle it is smaller, blacker, and denser. He adds, that it seems to have a Sort of Organism, and appears like a Congeries of Pellicles stretch'd over one another, which forms a Kind of nervous Compages.

Polypus's are often found upon opening the Bodies of Persons dying *Apoplectick*, and are, doubtless, frequently the Occasion of sudden Death. They are seldom discovered 'till they have dispatched the Patient. It is a Dispute among Physicians, whether *Polypus's* be produced any considerable Time before, or always immediately after Death. Mr. *Gould* has an express Discourse in the Philosophical Transactions to evince the former.

There are also *Polypus*'s of the Lungs. Dr. *Robert Clark*, in the Philosophical Transactions, gives us a very odd Instance of a Patient, who cough'd up, at Times, several hundred *Polypus's of the Lungs*. These *Polypus's* seemed to have some Organization, and were all perfectly alike. The Patient said, though they had no Life, he had frequently pressed a slimy Matter out of the Body. Dr. *Lister* observes that such *Polypus's* are formed in the remoter and deeper Branches of the *Aspera Arteria*, whence they are very difficult to get up. The Patient above-mentioned never brought them up 'till after a continual Coughing of half a Day and Night. He adds that they are nothing but viscous Excretions of the small Glands, hard baked in those Glands, whose Form they receive. M. *Bussiere* observes they are frequently mistaken for Pieces of the Blood-Vessels or Lungs.

The *Polypus* of the Nostrils may be treated and cured in its Beginning, but it is to be feared, when neglected, or ill managed, that it should degenerate into an incurable Cancer. Besides the general Remedies, which are small Bleedings, and reiterated Purgatives, with an exact Diet; there are particular ones, which are those which dry up and consume the Excrescence, as the Decoction of *Plantin*, *Betony*, and *Parietary*, in red Wine, which must be drawn up the Nose, or introduced into it with small Tents, often renewed, adding to it some Tincture of *Myrrh*, and *Honey*. If the Distemper last too long, and cannot be conquered by Remedies, the *Chirurgeon* must have Recourse to the Operation, which is the Extirpation thereof, which we'll describe hereafter, when we come to Operations.

The NACTE, *Fic*, or *Longing*, is a *Tumour* or Excrescence of the Flesh, which grows on the Buttocks, on the Shoulders, on the Thighs, in the Face, and every where else; from whose different Figures they borrow different Names, for sometimes 'tis a *Goosberry*, sometimes a *Mulberry*, a *Cherry*, &c. Sometimes they are *Fishes* and *Trees*, sometimes *Birds*, or other Species of Animals, according to the urgent Desires of the Mother during Gestation, for Things which she has not enjoyed as she could wish. As for this Species of *Tumours*, they are not to be touched, only the Spots which Children bring along with them into the World are taken off, by the Application of the Afterbirth while yet hot.

The CANCER, is a roundish, hard, ragged immoveable *Tumour*, of an ash or livid Colour; encompassed round with branched, turgid Veins, full of black muddy Blood; situate chiefly in the glandulous Parts, so called, as some will have it, from the Resemblance it bears in Figure to the *Crab-Fish*, or as others say, because, like that Fish, when once it has got hold, it is scarce possible to drive it away. It begins without any Pain, and appears, at first like a *Chicory Pea*; but grows apace, and becomes very painful.

The *Cancer* arises principally on the lax glandulous Parts, as the Breast and Emunctories; it is most frequent in Women, especially such, says *Stolterforth*, as are barren, or live in Celibacy. The Reason of its appearing in the Breast more than other Parts, is, that being full of Glands, with Lymphaticks and Blood-vessels among them, the smallest Contusion, Compression, or Punction, extravasates those Liquors, which growing by Degrees acrimonious from the *Cancer*; hence a *Cancer* is that in the Glands which a *Caries* is in the Bones, and a *Grangrene* in the fleshy Parts. The *Cancer* however is sometimes found in other soft spungy Parts of the Body, and there have been some found in the Gums, Belly, Neck of the Matrix, Ureter, Lips, Nose, Cheeks, Abdomen, Thighs, and even the Shoulders. A *Cancer* arising in the Legs is called a *Lepus*, on the Face and Nose, a *noli mé Tangere*.

Cancers are divided, according to their several Stages, into occult, and open, or ulcerated. *Occult Cancers* are those not arrived at their State, or not yet burst. *Ulcerated Cancers* are known by their Roughness and Fullness of Holes, through which oozes a filthy, stinking, glutinous Matter, frequently yellowish, by their pungent Pain, which resembles the pricking with a thousand Pins; by their Blackness, the Swelling of the Lip of the Ulcer; and the Veins about it, which are blackish, tumid and varicous. Sometimes the Extremities of the Blood-vessels are gnawed off, and the Blood issues out in a *Cancer* of the Breast, the adjacent Flesh is sometimes so consumed, that one may see into the Cavity of the Thorax, it occasions a slow Fever, a Loathing, oftentimes Faintings, sometimes a Dropsy, and lastly, Death.

The immediate Cause of a *Cancer* seems to be a too corrosive volatile Salt, approaching to the Nature of Arsenick, formed by the Stagnation of Humours, *&c. Stolterforth* observes, that it has been often cured by Mercury and Salivation. Some take the ulcerous *Cancer* to be nothing else but an infinite Number of little Worms, which devour the Flesh by Degrees. The *Cancer* is allowed the most terrible Evil that befalls the Body; it is usually cured while yet a small Tumour, of the Bigness of a Nut, or at most of a small Egg, by Extirpation: When it seizes the Breast, or is burst into an Ulcer, Amputation takes Place.

As it is very difficult to discover the *Occult Cancer*, it is often neglected, though it be of the utmost Consequence, to prevent its dangerous Effects by a good Diet, and the Remedies proper to rectify the Intemperies of the Intestines, as are the Half-baths, Whey, Asses Milk, *&c.* As for the Topicks, or external Remedies, they are not to be used, unless one would apply on the Tumour a thin Plate of Lead rubbed over with Quick-Silver; all other external Remedies serve only to render the Skin tender, and make it break the sooner; the Use of Quick-Silver Water for Diet Drink, is also of a great Service on such Occasions. This Water is made by boiling an Ounce of Quick-Silver in two Pints of Water.

In *ulcerated Cancers*, besides these general Remedies used in the *Occult*, the Topick or external, can be successfully employed, as the Powders of Toads, Moles, Frogs, and Crab-Fish, calcinated and put upon it. Detersives made with Water of Quick-Lime, adding to it some Camphire, or Sugar of *Saturn*, are very good.

Having thus treated of all the different Species of true Tumours, we'll pass to the *Enkisted* or Bastard ones.

Enkisted Tumours, are those formed by a *Depositum* of mixt and corrupted Humours, whose Matters are contained in *Cystis*, or membraneous Bags.

The Species of those *Tumours* are the *Steatoma*, *Atheroma*, *Meliceris*, &c. The *Steatoma* is known by its Matter, which resembles Tallow; the *Atheroma* by its Softness resembles Pap; and that of *Meliceris* resembles Honey. These three Sorts of *Tumours* are not well distinguished externally, but they do not change the natural Colour of the Skin, which retains equally in these three the Impression of the Fingers by which 'tis pressed.

These Sorts of *Tumours*, like the others heretofore mentioned, should be resolved; but however, the surest Way is to bring them to Suppuration, and to extirpate the *Cystis*, which is subject to be filled again, after the Resolution of the Humour. All the Remedies used for the *Œdemas* and *Scirrhus* are very good for these Tumours. The specifick ones are these: Take Rosemary, Sage, Wormwood, Elder, Camomil, Melilot, St. John's Wort, put them to boil in White Wine,

Wine, with mercurial Honey, add to it the Seeds of Cumin pounded, and the Oil of Worms, to compose a Cataplasm, which must be renewed twice a Day, after which, if the *Tumour* cannot be dissipated, you must apply the following Plaister, which is excellent: Take equal Parts of *Diachilon* and of *Devigo*, four Parts of mercurial Plaister, melt them together, and mix with them Saffron and Oil of Tobacco, to make a Plaister, which you'll spread upon a Piece of Leather and apply on the *Tumour*, without removing it but once in eight Days to renew it.

As for the Extirpation of the *Cystis*, 'tis made by dividing the *Tumour* into four Parts, by procuring the Suppuration, and consuming the *Cystis* by Degrees.

We'll conclude this Article of *Tumours* by the critical, malignant, pestilential, and venereal ones.

There's this Difference between the *critical* and *malignant*, *pestilential* and *venereal Tumours*: That the *critical Tumours* or *Apostbumes* are indifferently all the *Tumours* formed at the last Period of Maladies, in whatever Part of the Body they be placed.

Malignant Apostbumes or *Tumours*, are those which are rebel to Remedies, and are cured but with very great Difficulty.

Pestilential Tumours or *Apostbumes*, are those accompanied with a Fever, Faintings, Head-ach, which rise principally in Time of the Plague, and which are contagious.

Venereal Tumours or *Apostbumes*, are those which appear at the lower Part of the Groin, contracted in impure Embraces.

Therefore the *Critical Apostbume* can be *malignant*, *pestilential*, and *venereal*. The *Malignant Apostbumes* can be neither *critical*, nor *pestilential*, nor *venereal*, but the *Apostbumes pestilential* and *venereal*, are always *malignant*.

The ordinary Species of *Critical Apostbumes* or *Tumours*, are the Antrax, Furuncle, and Parotides. That of the *Malignant*, the Cancer, King's-Evil, and the like. That of the *Pestilential*, the Carbuncle, which grows every where, and the Buboes, which rise in the Groin. And that of the *Venereal* ones, the Buboes, Shankers which grow on the Yard, the Cardilomate in the Ano, *&c.*

The *venereal* Buboes are distinguished from the *pestilential*, in that the *pestilential* are placed higher in the Groin than the *venereal*, and are always accompanied with a Fever, Reachings, and an universal Faintness; when as the *venereal* Buboe has no other Accidents than the common *Tumours*, which are Pain, Heat, *&c.* As for the Remedies, they are the same with those prescribed for other *Tumours*.

The SCORBUTUS, commonly called *Scurvy*, is a Malady so common here among us, that it deserves a particular Notice. *Wallis* says, that the *Scurvy* is not a particular Disease, but a Legion of Diseases, by its attacking the several Parts of the Body at once.

Dr. *Charleton* observes, that it arises chiefly from sharp saline Particles, taken in by Inspiration, from salt and corrupted Meats eaten, from bad Waters drank, from Nastiness, deep Chagrins, *&c.* Which Sentiment is confirmed by a daily Experience, common Sailors being more subject to it than others: He adds that it is contagious, which is also the Opinion of the *French*, who in their Hospitals, especially at *l'Hotel-Dieu* at *Paris*, have a Ward apart for the *Scorbuticks*, who are not allowed any Communication with the other Wards.

Dr. *Quincy* will have the *Scurvy* to consist in such a Constitution wherein the Blood is unequally fluid; and hence he observes, it is best remedied by Stimuli, Exercise, and such Means as promote Sanguification.

The most usual Symptoms of the *Scurvy*, are, stinking Ulcers in the Mouth, a copious Salivation, Head-ach, Vertigo's, Epilepsies, Apoplexies, Paralysies; the Face appears of a pale and dark red, swell'd, inflam'd, and cover'd with Pustules; the Teeth fall, the Gums swell, itch, putrify, and ulcerate; they become cancerous, and the Jaws are almost immoveable; and the Ulcers cause sometimes so much Disorder, that the Jaws are all eaten with it, and the Teeth seen. There happens a Relaxation of the Parts, the Patients grow stupid and sleepy, they breathe but with Difficulty, have a Palpitation of the Heart, cough, and faint away; they have frequent Reachings, Loosenesses, Gripes, have red and livid Pustules on the Belly and natural Parts, the whole Habit of the Body grows dry, *&c.*

M. *Poupart*, in the Memoirs of the *French* Academy, gives us a very accurate History of a particular Kind of *Scurvy*, very frequent in *Paris* in the Year 1699. The Symptoms and Consequences of this new *Scurvy* were very extraordinary, and soon determin'd M. *Poupart* to conclude it somewhat of that cruel Plague with which the *Athenians* were so long, and so dreadfully harrass'd; yet was it a true *Scurvy*, and the Persons attack'd with it had the usual scorbutick Symptoms.

In the Beginning of this Malady 'tis easily cur'd, but when it is rooted, has attack'd the *Viscera*, or when it is a Disease of the Country, or the Patients are old, the Cure is next to impossible. I have seen Ships sail'd from *Port L'Orient*, in *Britanny*, for the Gulph of *Mexico* in *America*, with two hundred and fifty Men on board, and return into *Europe*, after a Voyage of eight Months, with but fifty Men left, the rest being all dead of the *Scurvy*, and those left ready to die of the same Distemper; occasion'd by the Dirtiness and Laziness of the Sailors, who when they are attack'd with that Malady, keep in their Hammocks, from whence it is almost impossible to raise them; whereas one of the best Remedies for that Distemper is Exercise, and endeavouring to conquer that Drouziness which is one of its most dangerous Symptoms.

A very exact Diet is held of more Effect than the best Medicines; Bleeding does not avail, strong Purgatives are hurtful, so is Sugar, and all sweet Things. *Mercurius dulcis* us'd internally, so as not to salivate, but only raise a Sweating, is found excellent. *Doleus* undertakes to cure any *Scurvy* in twelve Days Time, by the Use of this alone, only the Patient must drink nothing all that Time but the Decoction of simple Antiscorbuticks, such as that of Horseradish, Sorrel, Butterbur, Scarzonerr, Sowthistle, Zedoary, Polypody, Elecampane, Guaiacum, Sassafras, Mustard-seed, *Nasturtium Aquaticum*, *Trifolium*, *Paludosum*, *&c.* Oranges, Lemons, Juniper-berries, *&c.* are also very good Remedies.

Cheselden recommends a continu'd Use of Milk, particularly Milk Emulsions of sweet Almonds, Decoctions of China, Broth, and other Anti-acids and Analepticks. *Etmuller* makes the Basis of the Cure of the *Scurvy* and hypochondriacal Diseases, the same, *viz.* copious Vomiting. Strong Catharticks, he observes, are prejudicial; but gentle ones good; for the Body is to be still kept open. He adds, that Vinegar is hurtful, and yet the acid Juices of Fruits, and Vegetables, wholsome. Accordingly, the Use of Lemon-juice is much recommended by Dr. *Lister*. For my Part, I have found very great Benefit by it, in a Voyage to the *West-Indies*, while every Body on board were afflicted with the *Scurvy*, at least in the Mouth, except myself, who had taken Care to rub my Gums, every Morning, gently, with Lemon-juice. The Decoction of Mustard-seed, to wash the Mouth with, is, to the full, as excellent. These Remedies, taken internally, are very good for this Disease; *viz.* the Tincture of Flint, from ten Grains to thirty; diaphoretick Antimony, from six to thirty Grains; *Mercurius dulcis*, from six to sixteen Grains; diaphoretick *Mars*, from ten Grains to twenty; aperitive *Crocus Martis*, from ten Grains to two Scruples; the volatile Spirit of *Sal Ammoniac*, from six to twenty Drops; the Spirit of *Guaiacum*, from Half a Drachm to a Drachm and a Half; *Tartarum Vitriolatum*, from ten Grains to thirty; Tincture of Antimony, from four Drops to twenty; the volatile Salt of Tartar, Urine, Vipers, and Hartshorn, from six to fifteen Grains

Grains of each; Spirit of *Gum Ammoniac*, from eight Drops to sixteen; and the mercurial *Panacea*, from six Grains to two Scruples.

Emollient and detersive Clysters must be administer'd to the Patient when he goes to Bed, keeping his Body open with Tisans. He may take afterwards Sudorificks, made of Decoctions of Fumitory, Wild Succory, Dandelion, *Scolopendria*, Scabious, Germander, Burrage; the Roots of *Scarzonera*, Polypody, Parsley, and Fennel; the Flowers of green Broom, Alder, Marygolds, *&c.*

The Decoctions to wash the Mouth with, are made of Sage, Rosemary, Hyssop, the Leaves of Oak, *Cochlearia*, Cresses, *Nicotiana*, the Roots of *Aristolochia*, Tormentil, Iris, and Red Roses.

To strengthen the Gums, Gargarisms are made with simple Antiscorbuticks; as the Spirit of *Cochlearia*, two Drachms; a Scruple of Spirit of Vitriol, a Scruple of common Salt, four Ounces of Rose and Plantain-Water, two of each. If the Gums are rotten, they must be rubb'd with Honey of Roses, and some Drops of Spirit of Salt.

To appease the Pains in the Limbs, there must be prescrib'd Baths and Fomentations externally; and internally the Decoction of Sassafras, with some Drops of *Laudanum*.

To appease the Gripes, there must be administer'd Clysters made of Whey, Sugar, Syrup of Poppies, *Cochlearia*, Camomil, Melilot, and Oil of Worms.

Against the Dropsy, the Essence of *Trifolium Febrinum* and Elecampane, from twenty-four Drops to thirty; which must be continu'd.

The Use of Milk hinders Vomiting; the Loosenes is stopp'd by the Spirit of Mastick; the Fever by the Febrifuges and Antiscorbuticks; the Spots are fomented with the Decoctions of aromatick and antiscorbutick Herbs, with Nitre, and Unguent of Stirax: For the Ulcers of the Legs, Lint cover'd with a Powder made of equal Parts of Sugar of *Saturn*, *Crocus Martis*, Myrrh, and *Mercurius dulcis*, must be apply'd upon them. The following Remedy is very good to sweeten the Acidity of the Humours. Take Half an Ounce of Spirit of *Cochlearia*, two Drachms of tartariz'd Spirit of *Ammoniac*, and one Drachm of the Tincture of Worms; fifteen Drops of which Liquor are taken thrice a Day, in a Decoction of Parietary.

Against the *Tubercles*, take two Handfuls of the Flowers of Chamomil and Alder, two Drachms of the Roots of Briony, and a Handful of Crumbs of Bread; and have the whole boil'd in Whey for Cataplasms. To appease the Head-ach, must be taken twenty-five or thirty Drops of the Tincture of *Succinum*, in the antiscorbutick Spirits, or Waters. To facilitate Respiration, must be prescrib'd two Spoonfuls, several Times in a Day, of a Medicine made with two Drachms of antiscorbutick Water, two Drachms of the Essence of Elecampane, and Half a Drachm of Spirit of Gum *Ammoniack*. To hinder the Putrefaction of the Gums, they must be rubb'd often with a Liquor made of a Drachm of the Tincture of Gum Lack, three Drachms of Spirit of *Cochlearia*, and fifteen or twenty Drops of Oil of Tartar *per deliquium*. All the Lotions made of Waters and Decoctions of antiscorbutick Simples, are very good for this Use. They use at the *Hotel-Dieu*, at *Paris*, the Unguent of Stirack, to take off the Spots, and resolve the Hardness in the Legs.

Thus all the Symptoms of the *Scurvy* are remedied, or prevented. From which we'll pass to the *Examen* of Wounds and Ulcers, and to the most easy Manner how to cure them; beginning with Wounds in general.

A WOUND, is a recent Separation made in the soft, or fleshy Parts of the Body, from an external Cause; and particularly the Action of some hard or sharp Instrument. A *Wound* is a Solution of the Continuity of a fleshy Part, made by some penetrating Body, while it yet remains fresh, bloody, and without Putrefaction; by which Circumstances a *Wound* is distinguish'd from an *Ulcer*.

The two first Things to be observ'd in the Treatment of *Wounds*, are their Differences, and the Instruments they are made by; whence Consequences must be drawn for the Application of Remedies.

The Differences of *Wounds* are taken from their Figure, or Situation. With Regard to their Figure, they are call'd long, broad, triangular, large, small, superficial, and deep; with Regard to their Situation, they are call'd simple, complicated, dangerous, or mortal.

SIMPLE WOUND, is that which only opens the Flesh, and is attended with no other Accident.

COMPLICATED WOUND, is that attended with Accidents; as Hæmorrhages, Fractures of the Bones, Dislocations, and the like.

DANGEROUS WOUND, is the *complicated*, whose Accidents are dangerous, as when there is an Artery open'd, or prick'd, a Nerve or Tendon cut; when made near an Articulation, or is attended with Dislocation, or Fracture.

MORTAL WOUND, which is commonly follow'd with Death, as is that situated deeply in a principal Part, and necessary to Life; as in the Brain, Heart, Lungs, Œsophagus, Diaphragm, Liver, Stomach, the small Intestines, Bladder, Matrix, and generally all the great Vessels.

The History of a *Wound* is thus deliver'd by *Boerhaave*: Immediately upon the Solution, the Lips of the wounded Part recede further and further from each other. The Blood gushes out, at first, with some Violence, but stops of itself; then a bloody Scab is form'd in the Cavity of the *Wound*, and a thin ruddy Humour oozes out of the Lips of the *Wound*, which begins to redden, ach, swell, and turn black; and (in great *Wounds*) a Fever and Thirstiness succeed. On the third or fourth Day there is found a white viscid Pus, upon which the Heat, Redness, Tumour, *&c.* abate, and the Cavity gradually fills up from the Bottom upwards, and from the Circumference to the Center, with growing Flesh. Lastly, The *Wound* dries, and cicatrizes. But *note*, these Symptoms vary according to the Nature and Cause of the *Wound*. Thus, if it be by Incision, and a large Blood-Vessel be cut, the Hæmorrhage is more violent, especially if it be an Artery; in which Case, florid Blood flies out impetuously, and by Starts; if only a Vein be cut, the Flux is more moderate and equable, and the Blood of a darker Colour. If the *Wound* be attended with a Contusion, the Hæmorrhage is small.

In *Wounds* where any large Artery is quite cut in two, the Flux usually proves mortal. A lesser Artery cut transversly, flies back against the solid Parts, and will have its Mouth stopp'd; if an Artery be not quite cut off, there arises a perpetual Flux; or if that be stopp'd, an *Aneurysma*. A Nerve being cut off, flies back, produces a Pain and Obstruction about the *Wound*, and below it a Numbness and wasting Immobility; the Case is much the same in *wounded* Tendons, and Membranes. *Wounds* of the temporal Muscle are rarely cur'd, but generally bring on horrible Convulsions.

In young Children, and aged Persons, *Wounds* frequently prove mortal which seem'd but slight. Those *Wounds* generally prove troublesome which happen in an ill State of Body, and especially a low and spare Diet. All *Wounds* are reputed more dangerous, and difficult of Cure, in Winter, than Summer; in Autumn, than in Spring.

The Cure of *Wounds* consists in helping Nature to make the Reunion of the Parts which had been divided, after having took off and appeas'd all that could be an Obstacle to it; which are all foreign Bodies, as Bullets, Burs, Wood, Stones, *&c.* or the Accidents they are attended with; as Hæmorrhages, Inflammation, Mortification, Excrescence of Flesh, *Hypersarcosa*, Dislocation, Fracture of a Bone, Splinters, and sometimes a bad Air.

The

The most dangerous Symptoms in a *Wound*, are the Hæmorrhages, and the first which deserve the Attention and Care of a *Chirurgeon*; therefore it may be stopp'd with a Sort of Cataplasm made with Powder of Aloes, Dragon's-blood, Bole-Armoniack, and the Whites of Eggs, mix'd together, and apply'd to the *Wound*. But the following Remedy is excellent for that Purpose.

Take two Ounces of Vinegar, a Drachm of Colcothar, or red Vitriol, two Drachms of astringent *Crocus martis*, and beat the whole together; in which the Lint to be apply'd to the *Wound* must be dipp'd.

There is also the *actual* and *potential Cautery*, or the Ligatures alone. The *actual Cautery* is not always safe, because the Scar made with Fire happening to fall, the Hæmorrhage begins as before; whereas a *potential Cautery* has always the desir'd Success; such as this: Take very near equal Parts of Vitriol and the Powder of what's vulgarly call'd Toad's-stool; and apply it with some Lint on the Place whence the Blood flows, and the Blood will be instantly stopp'd, taking Care not to touch the Nerve or Tendon; because Vitriol is capable to excite Convulsions.

Note, That I have invented a Styptick, which whether taken inwardly, or apply'd outwardly, stops in an Instant the most violent Hæmorrhages, without Fear of the least dangerous Consequence; since the Remedy is both vulnerary and styptick, and can of itself, without any other, cure any *Wound*, whether internal or external, which is not mortal; provided it be wash'd with it, and cover'd with Lint dipp'd in it.

If the *Wound* be attended with an Inflammation, caus'd by a foreign Body, that foreign Body must be immediately extracted with a proper Instrument. If the Inflammation is occasion'd by a Quantity of Pus, the Pus must be evacuated. If it proceeds from excessive Pains, those Pains must be appeas'd with anodyne Cataplasms and Liniments; such as those which have been propos'd in the Cure of the Phlegmon; or the Part must be bath'd with an equal Quantity of Spirit of Wine and Water. Sugar of *Saturn* in Lime-water has the same Effect.

Against the Mortification of the Part, is used a Decoction of Wormwood, St. John's-wort, Rosemary, and Aloes made with Wine; or the Tincture of Aloes and Myrrh; or camphorated Spirit of Wine alone.

If there be Convulsion, and that Convulsion is caus'd by the Presence of a foreign Body, that Body must be extracted; if it proceeds from the Nerve being wounded, there must be pour'd some Balsam of *Peru* into the *Wound*, or Oil of Lavender.

If foreign Bodies cannot be extracted with the Fingers, nor with Pincers, the Patient must be put in the same Situation he was when he receiv'd the *Wound*, the better to discover those Bodies; or else Plaisters are us'd which have the Virtue to extract them; of which this is one: Take an Ounce of good Theriack, Half a Drachm of Gum Ammoniac, a Drachm of Bdellium, two Drachms of Fat of the Wild Boar, and two Ounces of Wax; for a Plaister. Bullets of Lead may remain in the Flesh, during a whole Life, without proving hurtful.

The Excrescences of Flesh are carry'd off with Powder of Allum, *Ægyptiacum*, or infernal Stone.

The Re-union in Wounds (after all that could have obstructed it is carry'd off) is properly the Work of Nature, but can be procur'd by applying to it some Balsam of *Peru*, and approaching the Lips of the *Wound* with the Fingers, which must be kept as close together as possible, with a Bandage, a glutinous Plaister, or a dry Seam; provided the *Wound* be but superficial; keeping the Air from it: For want of Balsam of *Peru*, an excellent one may be prepar'd of the following Flowers. Take the Flowers of *Jusquiam*, and of St. John's-wort; let them macerate during a whole Summer in Oil of Hempseed; the older this Oil is, the better, provided it be expos'd every Summer to the Sun, and kept well cork'd.

In great *Wounds* 'tis very proper to cover the *Apparatus* with such a Cataplasm as this: Take the Leaves and Flowers of Camomile and Melilot, Summits of Wormwood, Mallows, Marshmallows, Anniseed and Cummin-seed, in Powder, which must be boil'd together in Wine, adding to it Barley-flower, to give it a due Consistence. If there was the least Appearance of Gangrene, there should be mix'd with it Saffron, Myrrh, Aloes, and Spirit of Wine.

It is not necessary to thrust Tents into all Sorts of *Wounds*; for in the small ones it suffices to make the Re-union with the Balsams alone; because they are not to be brought to Suppuration. But the Digestives and Suppuratives must be us'd in great *Wounds*, and in those with Contusion, avoiding the bad Method of some *Chirurgeons*, who fill all Sorts of *Wounds*, indifferently, with Tents, *&c.* drenching flat Tents or Lints with the common Digestive made with Terebinth and Yolks of Eggs, with a little Brandy, or with Tincture of Myrrh and Aloes.

Lastly, The whole Secret consists in cleaning the *Wounds*, whether with Cloths, or with Injections of Tincture of Myrrh and Aloes, or with simple Decoctions of Wormwood, Scordium, and Bugle, in White Wine; prescribing internally the vulnerary Decoctions of *Alchymilla*, *Veronica*, Ground-Ivy, St. John's-wort, Wormwood, Centaury, Bugle, Chervil, and others. The Sutures are often of very great Help for the Reunion of *Wounds*, which cannot be reunited by the Bandage; for Sutures are not to be made but while the *Wounds* are recent, and bleeding, when there is no Contusion, Loss of Substance, nor great Hæmorrhages; when they are not made by Bites of venomous Beasts; when there are no great Inflammations, and the Bones are not discover'd; because they commonly are to be exfoliated. Neither are they made on the Breast, because of its Motion.

Instruments to make *Sutures* with, are strait and bow'd Needles, wax'd Thread, and the Fingers.

The Antients invented a great Variety of *Sutures*, which they reduc'd to three Kinds; *Incarnatives*, *Restrictives*, and *Conservatives*.

INCARNATIVE *Suture*, is thus call'd, because by rejoining the Edges of a Wound, and keeping them together by means of a Thread run a-cross with a Needle, they grow together, and incarnate as before. This they subdivided into five Kinds, *viz.* the *interrupted*, *intertwisted*, *penned*, or *feathered*, with *Clasps*, and the *dry Suture*. Of these five, two are perfectly disus'd, *viz.* the *feathered Suture*, and the *Suture with Clasps*; as being too barbarous, and at the same Time unnecessary. The first was call'd *penned*, when little Pins were made Use of; and *feathered*, when the Barrels of Feathers, or Quills. To perform it, two or three Needles, threaded with a double Thread, were pass'd thro' the Lips of the Wound, at a Finger's Breadth from each other, and a Pin of Feather put in the Stitch, and another Pin of Feather bound with the Ends of the same Thread, that the Feathers might keep the Lips of the Wound close together. To perform the second, they had large crooked Clasps, pointed at each End; one of which they thrust into the upper Part of the Wound, the other into the lower, to bring the Lips together.

These *Sutures*, cruel as they were, are yet known to be useless; for in the only Cases where they should seem serviceable, *viz.* in deep Wounds, where the Contraction of the fleshy Parts keeps the Lips far asunder, and in Wounds of Tendons, they expose the Patient to terrible Convulsions and Shudderings, which are avoided by diminishing the Dilatation of the Wounds, by moderate Compressions, and waiting till the Fibres relax.

RESTRICTIVE *Sutures*, were those wherewith they endeavour'd to stop the Flux of Blood from large Wounds, where any considerable Vessels were cut. To this End, they invented several Kinds, in the

Number whereof were the *Shoemakers*, *Taylors*, *Skinners*, and other Seams, each more impertinent than the other. It is evident, the very Design of such a *Suture* is blameable; for supposing the Wound so exactly sew'd up, that no Blood could escape thro' the Lips thereof; yet will it still flow out of the Vessels, and will thus be forc'd to make its Way between the *Laminæ* of the Muscles; by which Means, the Part will swell, rot, and gangrene. Yet the *Skinner's Suture*, *Sutura pellonium*, is still in Use for Wounds of the Intestines. It is thus call'd, because the Skinners use the like in sewing up the Holes made by the Butchers in fleaing off the Skin.

CONSERVATIVE *Suture*, is that Kind of antient *Suture* whereby the Lips of large Wounds, wherein there was a Loss of Substance, were prevented from receding too far; but a Bandage now suffices.

INTERTWISTED *Suture*, is thus call'd, because the Needles being left sticking in the Wound, the Thread is wound round them, much after the same Manner Taylors do the threaded Needles they keep in their Sleeves, *&c.* This *Suture* is perform'd two Ways; for either the Needles are passed a-cross the Wound, or they are stuck on the Side thereof.

All the *Sutures* hitherto mention'd, are made with Needles and Thread; besides which, there is another Kind call'd *dry Sutures*, which are perform'd with Glue, Size, or other proper viscous Matter. The *dry Suture* is ordinarily made with small Pieces of Leather, on linnen Cloth indented like a Saw, so that the Teeth may fall between each other, and the whole Row may be closed. The Cloth, before it is cut into this Form, is spread with some proper Plaister, in order to its firm Adhesion. The Plaisters, thus prepar'd, being cut into this Form, are apply'd on the firm Flesh, according to the Length of the Wound, reaching from it to the Distance of some Inches; and after they are dry'd, or well fasten'd to the Part, the Lips of the Wound being approach'd, they may conveniently be held together by the *Suture* in that Posture. This Kind of *Suture* is principally us'd for Wounds in the Face, to prevent unsightly Scars; it is likewise convenient when the Fibres of the Muscles are cut a-cross, and where it is difficult, or impossible to apply a Bandage.

In the other Kinds of *Sutures* the Stitches ought always to be taken of a Depth proportionable to that of the Wound; Care being had to avoid the Nerves as much as possible. In long Wounds they are best begun at the Ends, but in short ones at the Middle. If the Wound be angular, they must be begun at the Angles. Before the Knot be made, the Lips of the Wound must be as near, and as evenly as possible, approach'd near one another; the Knots are begun by that of the Middle. A simple one is made first on the Side opposite to that where the Matter is to be evacuated; a small Compress of wax'd linnen Cloth may be put on that Knot, on which Compress must be made a running Knot, to be unty'd easily, if some Accident should happen. If a Plaister is to be plac'd on the Wound after the *Suture*, a small Compress is to be put on the Knots, lest they should stick to the Plaister. If there happens an Inflammation in the Wound, the Knots must be relax'd; and when the Accidents are past, ty'd up again: But if the Inflammation continues, the Threads must be cut, by passing a Probe under it. When the Reunion of the Wound is perfected, the Thread must be also cut, by passing, likewise, a Probe under it. To extract the Threads, a Finger must be apply'd on the Knot, for Fear of re-opening the Wound.

This for Wounds in general; but as we have already observ'd that there are several Sorts of Wounds, and we are sensible that every Part of the human Body is subject to Wounds, each of which perhaps deserves a particular Attention and Care; we'll enter into an exact Detail of those different Wounds, and endeavour to inform ourselves how to treat them; beginning by those of the Head.

Two Things are to be consider'd in a *Wound* of the Head, *viz.* the *Wound* itself, and the Instrument which has made it. With Regard to the *Wound*, it is either *superficial*, or deep. As for the Instrument, it helps towards forming a just Judgment of the *Wound*.

That *Wound* is call'd *superficial*, which goes no farther than the Skin; and that *deep*, which penetrates as far as the *Pericranium*, *Cranium*, or the Substance of the Brain.

If the *Wound* be only *superficial*, it may be cur'd with *Hungary* Water, or with Balsam, putting over it a Plaister of Betony, or of Chirurgeon. If the *Wound*, or the Tearing of the Skin be large, it must be sew'd up.

If the *Wound* be *deep*, and in the *Pericranium*, it must be kept open, waiting for the Suppuration. If it penetrates as far as the *Cranium*, there is either Contusion, or Fracture; if Contusion, the *Chirurgeon* must wait for the Suppuration, and the Fall of the Splinter, by keeping the *Wound* open. If Fracture, that Fracture is either in the first or second Table, or in both. 'Tis known to be in the second Table, only, when attended with no Accidents; and in both Tables, when the Signs appear, and by the Incision crucial of the Flesh, and the Discovery of the *Fissura*.

The Signs of the Fracture of both Tables of the *Cranium*, and of the Extravasation of Blood, on the Membranes of the Brain, are the Loss of Judgment or Reason, at the very Instant the *Wound* is receiv'd, the Hæmorrhage thro' the Nose, Mouth, and Ears, a Drowziness and Heaviness of the Head, and especially bilious Vomiting; whence 'tis concluded that the Operation of the *Trepan* is absolutely necessary.

The Consequences which can be drawn from the Knowledge of the Instrument which has made the *Wound*, are, that the Instrument is either *cutting*, *pricking*, or *contunding*. If it be *cutting*, the *Wound* is *superficial*, and not subject to any great Suppuration. If *pricking*, or pointed, the *Wound* is deeper, tho' not attended with very dangerous Consequences. If *contunding*, there is Contusion, which causes a great Suppuration, besides a great Commotion of the Part, commonly attended with dangerous Accidents. Inductions can even be drawn from the Person who has wounded; for if he be a strong Man, he gives a greater Blow than a weaker; even Passion increases the Violence: All which Considerations are not to be despis'd, and leave Room for very useful Conjectures.

Wounds in the Face are to be treated with the greatest Care and Circumspection, avoiding, as much as possible, Incisions and Suppuration; which would cause Scars and Deformities in the Face. From the Head we'll descend to the Breast.

There are, likewise, two Things to be consider'd in the *Wounds* of the *Breast*; *viz.* if the *Wound* penetrates into the Capacity, or not; which will be known by the Probe, or by a lighted Wax Candle apply'd at the Entrance of the *Wound*, making the Patient to re-assume the Posture he was wounded in, and shutting up his Nose and Mouth; for then the Flame of the Candle is seen vacillent, or wavering. Lastly, By the Effusion of Blood.

When the *Chirurgeon* is sure that the *Wound* penetrates into the Capacity of the Breast, he must examine which Part is wounded, by observing the Situation of the *Wound*, and its Accidents. If the Lungs are wounded, there is a frothy spitting of bright Blood, with a Difficulty of Respiration, and a Cough. If some of the large Vessels be open, the Patient feels a Weight in the Bottom of the Breast, has cold Sweats, breathes with Difficulty, vomits Blood, which likewise comes out of the *Wound*. If the Diaphragm is cut in its tendinous Part, the Patient has laughing Convulsions. If the Heart be wounded in its Basis, or in its Ventricles, the Wounded faints away, and dies: But if the Probe cannot penetrate, and none of the Accidents abovemention'd appear, 'tis certain that the *Wound* is not of great Consequence.

When

When the Wound penetrates, and there is no Part offended, but only an Effusion of Blood on the Diaphragm, Recourse must be had to the *Empyema*, otherwise the extravasated Blood would putrify, cause Inflammation, the Gangrene, and consequently Death. Which *Empyema* is an Operation, whereby the Matters extravasated on the Diaphragm, are evacuated by an Aperture made on the *Breast*. From the *Breast* we'll descend to the *Abdomen*.

The Qualities of a Wound made in the *Abdomen*, are known by probing it, observing its Situation, and minding its Accidents. By probing 'tis discovered whether the Wound penetrates into the Capacity, or not, by making the Patient to reassume the Posture in which he was wounded; by the Situation we may guess what Part is wounded, and by the Examen of the Accidents be entirely convinced of the Nature of the Wound. For Example, we know that one of the great Guts is open, when the Wound is in the *Hypogastrium*, and when the Excrements come out through the Wound; whereas we are sure that it is a small Intestine, when the Wound is near the Navel, and the Chyle comes out, *&c.*

In the Cure of the Wounds of the *Abdomen*, Care must be taken not to let the Air enter into them; they must be dilated to sew the wounded Intestine, and restore it to its Place; the *Epiploon*, or *Cawl*, if it comes out through the Wound, must be tied and cut, least growing putrid, it should infect the neighbouring Parts, which must be washed with strong Wine, in which have been boiled *Camomil-Flowers*, *Roses*, and *Wormwood*; they must be powder'd with *Aloes*, *Myrrh*, and *Olibanum*, and the Wound sew'd to be dressed outwardly; prescribing an exact Diet to the Patient; and abstaining, on these Occasions, from Clysters, especially if one of the great Guts be wounded, using rather Suppositories, and laxative Tisannes, or Diet Drink, to avoid Dilatation.

Another Kind of Wounds, which deserve a particular Attention and Skill, are those made with Fire-Arms. Those Wounds are always with Laceration, Loss of Substance, Fracassement, and breaking in the Bones: They are red, black, livid, and with Inflammation; they are seldom accompanied with *Hæmorrhages*; they are commonly round, narrower at the Entrance than at the Exit, unless they have been made with quartered Bullets, *&c.*

If those Wounds penetrate the Substance of the Brain, the *Medulla Spinalis*, the Heart, the *Pericardium*, the large Vessels, and others of the noble Parts; 'tis almost always present Death; but all the superficial ones, those made in any other Parts of the Body, are curable.

To do it with Judgment, and Hope of Success, we must inform ourselves of the Quality of the Arms which has made the Wound; for a Musket is more dangerous than a Pistol, and a Cannon more than a Musket. Their Situation must be examined, the Accidents they are attended with; for the more they are complicated, the more dangerous they are.

The Patient must be put, if possible, in the same Situation he was when wounded, the easier to know the Direction of the Wound by the Probe, with which the Bullet must be searched, or some other extraneous Bodies, as *Wood*, *Burr*, *Linen*, *Stuff*, and the like, which must be extracted, through the same Aperture they have entered into it, avoiding lacerating the Part in extracting them. If the Operator has worked in vain for extraneous Bodies, he'll make a Counter-opening at the opposite Part, on the Place where any Hardness is felt, without touching the Vessels: The Incision made, he must extract those Bodies with his Finger, or some Instrument.

If the Bullet be so far in the Bone, that it cannot be extracted without splitting it, 'tis better to leave it there. If there is a great Fracassement of Bones in the Legs or Arms, they must be amputed. The Pain and Inflammation are to be appeased by bleeding, anodyne Topicks, cooling Clysters, and Purgatives; if there had been a too great Effusion of Blood, Bleeding is to be avoided.

The Purgatives must be very gentle, as are the *Cassia*, *Manna*, *Tamarinds*, *Syrup of Violets*, and that of *Damask Roses*. Anodynes to appease the Pain are Cataplasms made with Crumbs of *Bread*, *Milk*, *Saffron*, and the *Yolk of an Egg*. *Oil of Roses*, alone, made hot, is a very good Remedy. To appease the great Inflammations, there must be applied on the Part *Oil of Roses*, the *White of an Egg*, and *Vinegar*, the whole beaten together.

Spirituous Remedies are the first, which are to be applied on the Wound; Lint dipp'd in camphorated *Spirit of Wine*, and applied on the Part, is excellent; but if the Blood was to flow, there should be applied *Stiptick Water*, or other astringent Remedies, all which are to be applied hot. To hasten the Suppuration of contused Wounds, a Digestive must be prepared of *Oil of Roses*, *Yolks of Eggs*, and *Terebentine of Venice*. If the Wound was on the Nerves, Tendons, or other nervous Parts, none but spirituous Remedies should be used, never Unguents, which would only putrify the Parts.

The Balsam of *Peru*, the distilled Oils of *Terebentine*, of *Wax*, of *Lavender*, of *Bays*, and that of *Philosophers*; the Balsam of *St. John's Wort*, *Spirit of Wine*, and *Gum Elemy*, are excellent Remedies for the Nerves. Take four Ounces of Unguent of *Althea*, a Drachm and a half of distill'd *Oil of Bays*, which being mixed together are applied; or, Take an Ounce of distill'd *Oil of Terebentine*, a Drachm of *Spirit of Wine*, half an Ounce of Camphire, mix it together, and let some of it be dropp'd in the Wound; or, Take a Scruple of *Euphorbium*, half an Ounce of *Terebentine*, and some *Wax*; mix them together, to be applied hot to the nervous Parts.

If the Wounds are deep, Injections are to be made with the following vulnerary Water; 'tis very good for all Sorts of Contusions, for the *Gangrene* and *Ulcer*. Take small *Sage*, *Mugwort*, *Comfrey*, of each four Handfuls; *Plantin*, *Nicotiana*, *Betony*, *St. John's Wort*, *Wormwood*, of each three Handfuls; *Fennel*, *Centory*, *Bugle*, *Scrophulary*, of each three Handfuls; three Ounces of round *Aristoloch*, and two Ounces of the long: Let the whole be in digesting, during thirty Hours, in eight Quarts of good white Wine, and distill'd afterwards in *Balneo Mariæ*, to the Consumption of a third Part.

If the *Gangrene* happens to the Part, we'll use the *Spirit of Matricaria*, made of two Drachms of *Mastick*, *Myrrh*, *Olibanum*, *Succinum*, and a Quart of Wine rectified; the whole must be distilled. This is a very good Fomentation: Take equal Parts of camphorated Wine, and of Water of *Quick Lime*, with two Drachms of *Camphor*. This Fomentation must be applied hot.

We'll subjoin to this some Remedies for *Burns* with Gunpowder. If the *Burn* be recent, and the Skin not ulcerated, the first Remedy to be applied to it is the *Spirit of Wine* or *Brandy*; or an Unguent shall be made of *Oil of Olives*, or of *Bitter Almonds*, of *Salt*, of Juice of *Onions*, and with liquid *Verjuice*. If the Skin is ulcerated, an Unguent must be made of the second Bark of *Alder*, boiled in *Oil of Olives*; after 'tis strained, there must be added to it two Parts of *Ceruse*, with one of *burnt Lead*, which must be agitated in a Mortar to make a Liniment of it.

The Grains of Powder left in the Skin must not be extracted, because they break, and thereby engage themselves more in the Skin; therefore they must be left to come out in the Suppuration.

When the Wound is superficial, and the Skin is yet whole, the *Onions* pounded with common *Honey*, are a very good Remedy; but if the Skin be lacerated, they must not be used, since they would cause too much Pain. The *Oil of Tartar*, *per Deliquium*, is a very excellent Remedy.

If a *Fever* follows the *Burn*, it must be appeased with *fix'd Nitre* prepared with *Antimony*, taken internally,

ternally is very good. For external Remedies, if the *Burn* be but superficial, you'll take *Onions* and *Quick Lime* slacken, with a Decoction of *Radishes*; which Water must be applied hot, with double Compresses dipp'd in it. This is a very great Remedy: Take *Quick Lime*, and throw it into common Water, that the Water may rise above it at the Heighth of four or five Fingers; when the Ebullition is over, pour into it *Oil of Roses*, the whole will congeal like Butter, and must be applied on the *Burn*.

There is also a very good Lotion made with the Juices of *Garlick* and *Onions*, when the *Burns* are recent or new. *Crab-Fishes* pounded alive in a Mortar, to have the Juice of them, is a good Remedy: Or, mix the *Crab-Fishes* pounded with fresh Butter without Salt, and let them boil together, 'till they have acquired the Consistence of Unguent.

If the *Burn* be very strong, and with *Pustules*, *Etmuller* will have it opened, and applied upon it the Unguent made with *Hen's-Dung* boiled with Fresh Butter: Or, Take a Handful of *green Sage*, two Handfuls of *Plantin*, six Ounces of *Fresh Butter* without *Salt*, three Ounces of *Hen's-Dung*, the newest and whitest that can be found; fry the whole during a Quarter of an Hour, strain it and keep it.

If the *Burn* be still greater, and there be a Crust upon it, all the *Pustules* must be opened, the *Chirurgeon* working the two first Days, to make the Scar fall, by making a Liniment to it with *Fresh Butter* beaten in a Mortar, with the Decoction of *Mallows*, which Remedy must be spread upon hot *Colewort-Leaves*, and applied on the Scar, which will fall.

If the Scar be too hard, and too obstinate, Incisions must be made into it for the Evacuation of the *Sanies*, for Fear it should breed a putrid and deep *Ulcer*. After the Evacuation of the Matter, there must be applied to it the Emollients above-mentioned, 'till the Separation of the Scar; then the *Ulcer* must be consolidated, with the Digestives and Mundicatives, which are Unguent of *Quick Lime*, with *Oil of Roses* and *Yolks of Eggs*. The camphorated white *Unguentum* is very good.

If the *Gangrene* happens, Sudorificks are to be prescribed, such as the camphorated *Treacle Water*, the *Essence* and *Spirit of Alder*, the *Spirit of Hartshorn*, with its *Salt*, &c.

For external Remedies, when the *Gangrene* is but just begun, *Spirit of Wine*, applied hot, is very good; if *Aloes*, *Olibanum*, and *Myrrh* be mixed with it, it will be still better. *Camphor* must always be mixed in external Remedies for the *Gangrene*. The Decoction of *Quick Lime*, in which have been boiled *Sulphur*, *Mercurius Dulcis*, and *Spirit of Wine*, is an excellent Remedy. When the *Gangrene* is come to a certain Head, the Part must be scarified deep, and covered afterwards with a Cataplasm made of *Horse-Dung*, boiled in Wine. This Remedy is sure. If the *Sphacelus* begins, the Part must be scarified, putting upon it a great deal of *Unguent Ægyptiacum*, and over it the Cataplasms above described. When the *Gangrene* is degenerated into a *Sphacele*, all that's dead must be cut off. From *Wounds* we'll pass to *Ulcers*.

ULCER, *Ulcus*, is a Solution or Discontinuity of Texture, or Loss of Substance in the fleshy Parts of the Body, proceeding from an internal Cause. *Galen* defines *Ulcer*, an inveterate Erosion of the soft Parts of the Body; by which instead of Blood, they are brought to yield a kind of *Pus* or *Sanies*, which prevents the Consolidation. *Etmuller* defines an *Ulcer*, a Solution of Continuity from some corrosive Sharpness or Acidity, that takes away from the Parts, and turns the proper Nourishment of the Body into a sanious Matter. *Galen* commonly uses the Word *Ulcer* and *Wound* indifferently, but the *Arabs*, and the Moderns after them, distinguish between the two, and with a just Reason; since a Wound proceeds always from an external Cause, and an *Ulcer* from an internal, *viz.* from the Humours which fall on a Part, or from a Wound, which having not been cured in Time, has degenerated into an *Ulcer*, occasioned by the Malignity of its *Pus*.

The Causes which produce *Ulcers*, and the Accidents they are attended with, make their Difference. From their Causes, they are called *simple*, *malignant*, *great*, *small*, *dangerous*, or *mortal*; and from their Accidents, *putrid*, *corrosive*, *cavernous*, *fistulous*, and *cancrous*.

PUTRID, or *sordid Ulcer*, is that, whose Sides are lined with a tough, viscous Humour, and is also attended with Heat, Pain, Inflammation, and a large Flux of Humours to the Part: With Time the Sordes increase and change Colour, the *Ulcer* corrupts, its Matter grows fetid, and sometimes the Part gangrenes. *Putrid Fevers* often give Rise to this Kind of *Ulcer*.

CORROSIVE, or *Phagedænic Ulcer*, is that which by the Acrimony and Malignity of its Sanies, eats away the adjacent Parts all around; the Lips thereof remaining tumefied. When this Kind of *Ulcer* eats deep, and spreads wide, without being attended with a Tumour, but putrifies and grows foul and fetid, it is called *Noma*, and both on Account of the Difficulty wherewith they heal, are also termed *Dysepulota*.

CAVERNOUS *Ulcer*, is that whose Entrance is narrow, and Bottom large, in which there are several Holes, without Callosity in its Borders, full of a malignant Sanies.

FISTULOUS *Ulcer*, is that which has long Holes, narrow, and deep, with Callosity in its Borders, and whose Sanies is sometimes virulent, and sometimes not.

CANCROUS *Ulcer* is large, its Lips are swelled, hard, and knotted, of a brown Colour, with big Veins all around it, full of a livid, blackish Blood; whose Bottom is full of round Cavities, of a very offensive Smell, because of the bad Qualities of the Sanies, which runs from it.

There are other Species of *Ulcers*, as *verminous*, *varicous*, *sinuous*, *verolick*, *scorbutick*, and others.

VERMINOUS *Ulcer*, is that where the Matter being thick, does not flow away, but generates Worms, &c.

VARICOUS *Ulcers*, are such, as being seated in the Veins, and becoming painful and inflammatory, swell up the Part they possess. These when recent being occasioned by the Use of Corrosives, or proceeding from a ruptured Varix, are often attended with an *Hæmorrhage*. The Veins adjacent to the *Ulcers* are, in this Case, preternaturally distended, and may sometimes be felt intervowen together, like Net-work, about the Part.

SINUOUS *Ulcers*, are such as run aslant, or Sideways, from their Orifice; and may be known, either by searching with the *Probe*, *Wax Candle*, &c. or the Quantity of Matter they discharge, in Proportion to their apparent Magnitude. These sometimes lie deep, and have several Turnings: They are distinguished from *Fistula*'s, only by their Want of Callosity, except in the very Orifice.

Old Ulcers are rarely cured without the Use of internal Remedies, which are to be such as destroy and absorb the Acidity; Sudorificks, especially Decoctions of the Woods, Antimonials, Viperines, and Volatiles; but above all Things Vomitories often repeated, in the most obstinate *Ulcers*, mercurial Salivation is often required. *Old Ulcers* are frequently incurable, without making an Issue in the opposite Part.

The Cure of *simple*, *shallow Ulcers* is commonly effected by applying a Pledget armed with *Liniment Arcæi*, or *Basilick Flower* to the Part; a Plaister of *Diachil. Simp.* or *de Minio*, being laid over it, and repeating the Dressing once a Day, or seldomer. If only the *Cuticula* be lost, or eaten away, nothing more than a little *Unguent. Desicativ. Rub.* or *Diapanphol*, &c. spread thin upon Linen need be applied.

If spungy Flesh should grow up, in either Case, it may be kept down with a little *Roman Vitriol*, &c. as in Case of healing up the simple *Ulcers*, made by the breaking of common Tumours. Evacuations are indispensibly

dispensibly necessary, in the Cure of *Ulcers* of the compound Kind, where the Constitution will admit thereof. If the *Ulcer* be fistulous, sinuous, cancerous, *&c.* and the Matter fetid, thin, or sanious, it is found proper to join Calomel with the Purgatives, or to give it in small Doses, between the Repetitions thereof, so as not to salivate.

Besides the Use of evacuating Medicines, it will here also be proper to order a Course of Diet-Drink, made with the sudorifick Woods, especially where the *Ulcer* is suspected to be venereal. In the mean Time, proper Dressings are to be used.

When the *Ulcer* obstinately resists this Treatment, a Salivation is generally proposed, and seldom fails to promote the Cure, tho' all other Remedies should have been try'd in vain. If the Patient be too weak to undergo the Fatigue of a thorough Salivation, it may be moderated, and kept up the longer, in Proportion to his Strength.

External Medicines, for *Ulcers*, are Digestives, Cleansers, Sarcoticks, and Epuloricks. M. *Bullock* gives us a Medicine of singular Efficacy in the Cure of *Ulcers*; and it is no more than a Decoction of Walnut-tree Leaves in Water, with a little Sugar; in which a linnen Cloth being dipp'd, is to be laid on the *Ulcer*, and this to be repeated every second or third Day. This simple and vulgar Medicine, he finds, suppurates, deterges, incarnates, resists Putrefaction, *&c.* more than any other Medicine known; tho' I can assure that my vulnerary Tincture produces the same Effect, even in the most rebellious *Ulcers*, with the sole Assistance of gentle and most common Purgatives.

The *Venereal Disease* falls next under our Consideration, which we design to examine thro' its different Stages; *viz.* the *Clap*, *Chordee*, *Gonorrhœa*, *Shankers*, *Bubo's*, and the *Grand Pox*.

VENEREAL DISEASE, *Lues venerea*, in *France* call'd *Mal de Naples*, (the *French* having brought it from thence, at their Return from the Conquest of that Kingdom, under *Charles* VIII.) in *England*, *French Pox*; is a contagious Malady, contracted by some impure Humour, generally receiv'd in *Coition*; and discovering itself in Ulcers, and Pains about the genital, and other Parts.

It is usually said that it made its first Appearance in *Europe* in the Year 1493; tho' others will have it much older, and contend for its being known to the Antients, only under other Names. M. *Becket*, particularly, has attempted to shew, that it is the same with what among our Forefathers was call'd the *Leprosy*, and which, in many of our *English* Writings, Charters, *&c.* is call'd *Brenning*, or *Burning*. In order to prove his Point, he has search'd the Records relating to the Stews antiently kept on the Bank-side, *Southwark*, under the Jurisdiction of the Bishop of *Winchester*. Among other Constitutions of these Stews, dated 1162, it was appointed, 'That no 'Stew-holders should keep any Woman that has the 'perilous Infirmity of BURNING.' And in another Vellom Manuscript, now in the Custody of the Bishop of *Winchester*, dated 1430, it is again order'd, 'That 'no Stew-holder keep any Woman within his House 'that has any Sickness of BURNING, but that she be 'put out upon a Pain of making a Fine unto the 'Lord of a hundred Shillings.'

To confirm this Account, M. *Becket* quotes a Description of the Disease from a Manuscript of *John Arden*, Esq; *Chirurgeon* to King *Richard* II, and King *Henry* IV. *Arden* defines the Disease call'd *Brenning*, *Incendium*, to be a certain inward Heat, and Excoriation of the *Urethra*; which Definition, M. *Becket* observes, gives us a perfect Idea of what we now call a *Clap*; agreeable to the latest and most exact anatomical Discoveries, and free of all the Errors of *Platerus*, *Rondeletius*, *Bartholine*, *Wharton*, and other later Writers on this Disease.

As to the *Leprosy* being the same with this *venereal Disease*, it must be own'd, there are a good many Symptoms in the one Disease which quadrate well enough with those in the other; but then the Symptoms in each are so precarious, that a great deal of Stress cannot be laid hereon.

The common Tradition is, that the *venereal Disease* first broke out in the *French* Army, when it lay encamp'd before *Naples*; and that it was owing to some unwholsome Food: On which Account the *French* call it, as we have already observ'd, the *Neapolitan Disease*, and the *Italians* the *Mal Francese*: But others go much higher, and suppose it to be the *Ulcer Job* complains of so grievously. And accordingly, in a *Missal* printed at *Venice* in 1542, there is a Mass in Honour of St. *Job*, to be said for those recover'd of this Disease; as being supposed to owe their Deliverance to his Intercession. But the Opinion which prevails most among the more knowing of our Physicians, is, that the *Disease* is of *Indian* Extraction; and that it was brought hither by the *Spaniards* from the *American* Islands, where it was very common before ever the *Spaniards* set Footing there: Whence the *Spaniards* call it *Sarva des India*, or *Las Buvas*; notwithstanding what *Herrera* says, that the *Spaniards* carry'd it to *Mexico*, instead of bringing it thence.

Dr. *Lister*, and others, take it to have had its first Rise from some of the serpentine Kind; either from a Bite thereof, or from some of their Flesh taken as Food. This is pretty certain, that Men bitten or stung by Scorpions, are greatly eas'd by *Coition*; but the Woman, *Pliny* assures us, receives a deal of Damage thereby; which is no slender Argument of the Disease's arising from some Person so poison'd. *Lister* adds, that there is no Room to doubt but that the *Lues* arose from some such Cause; for upon any venomous Bite the *Penis* becomes vehemently extended, and the Patient being seiz'd with a *Satyriasis*, breathes nothing but Rage and Lust; Nature, in Effect, seeming to direct him to Coition for a Remedy.

For my Part, I do not see what Occasion we have to ransack Antiquity so far as to rake honest *Job's* Ashes, (if there ever was such a Man as *Job*) or to run to the remotest Climates in Quest of the Origin of a Disease which we can so easily find in ours, and among us. 'Tis also as ridiculous to tax the irrational Part of Animals with it; unless we mean thereby, that those who are not asham'd to become the despicable Slaves of their Brutality, have for that Time forfeited their Reason, and are turn'd Brutes; for, in my Opinion, if we be pleas'd to trace the true Origin of the *venereal Disease*, we shall find it in those common Prostitutes who abandon themselves to all Sorts of Persons, without Distinction of Age, Constitution, *&c.* and whose *Matrix*, like a Common-Sewer, receives indifferently, in a short Space of Time, several Seeds of different Consistence and Qualities; which being divested, soon after the Ejaculation, of those Spirits in which consisted their Life and Elasticity, remains a viscous and dead Substance, which from that Instant tends towards a Solution of Continuity in its Parts, no longer kept united by the Direction and Agitation of its most subtil Particles. That Matter soon corrupted, forms a Filth in the Part, whose putrid Particles being exalted by the Heat of the Body, irritate the Vessels, dilate their Pores, and insinuating themselves thro' them, gain the Fluids, and accompanying them in the Circulation, have soon corrupted the whole Mass. This System appears to me so true, that the monthly Evacuations in Women, whereby that Filth is wash'd out, and carry'd away from the *Matrix*, is often a Sort of Preservative against that Distemper; and that for the same Reason they are not so apt to contract it as Men are. And if that Distemper was almost unknown to our Forefathers, 'tis because our Foremothers were more virtuous than their Grand-daughters.

Physicians and *Chirurgeons* divide the *venereal Disease* into several Stages, of which the *Clap* is the first.

Dr. *Cockburn*, and others after him, will have the *Clap* to consist in an Ulceration of the Mouths of the Glands,

Glands, of the *Urethra* in Men, and of the glandular *Lacunæ* in Women; occasion'd by the Insinuation of an acrimonious purulent Matter, contracted from an infected Person in *actu Coitus*. From these Glands issues or gleets a sharp, corrosive Matter, accompanied with Heat of Urine, *Chordee*, *&c.* which make what's usually term'd the first Stage of the Distemper. A *Clap* appears sometimes sooner, and other Times later, tho' generally in about three or four Days after the Infection is receiv'd; and discovers itself by a painful Tension in the *Penis*, an excruciating Pain in making Water; by the Urine appearing whitish, and full of small Threads. Sometimes the Testicles are swell'd, as well as the Glans and the Prepuce; and sometimes, also, there is a Running of a yellowish, greenish, *&c.* Matter.

If the Person be affected with a *Phimosis*, or *Paraphimosis*; if the Running be of a thin Consistence, a yellow or green Colour, and in great Quantity, and the Testicles swell'd, it is usually term'd a *Gonorrhœa virulenta*, and the *Clap* suppos'd to be in its second Stage. Some Authors think, that in this Degree, or Stage, the Infection has reach'd the Mass of Blood, and the *Vesiculæ Seminales*; others insist that the Symptoms may be accounted for from the Running, or *Virus* being more corrosive; and by that Means irritating and inflaming the adjacent Parts.

In *France* they used to begin the Cure of a *Clap* by Bleeding, if there was a great Inflammation in the Part, then administer'd to the Patient cooling and diuretick Diet-Drinks, and Emulsions made with cold Seeds in Whey. A very good Ptisane, or Diet-Drink, which can be made every where, and at all Times, is to put a Quarter of an Ounce of refin'd Salt-petre on each Pint of Water, of which the Patient must drink as often as possibly he can; this Diet-Drink is very cooling and diuretick, and he must use it till the Inflammation be appeas'd. He must afterwards be purg'd with gentle Remedies, at first, *v. g.* this made of *Cassia* and Manna, an Ounce of each in two Glasses of Whey, taken an Hour or two after one another. Then he must be purg'd, afterwards, several Times, with twelve Grains of Scammony, and ten of Calomel; which Remedies are to be continu'd till 'tis seen that the Running is no longer yellowish, nor greenish, nor of any other bad Colour. When it turns white, and spine, it must be stopp'd with Astringents, such as powder'd *Carabé*, astringent *Crocus martis*, or its Extract, from Half a Drachm to a Drachm. When the Running is stopped, for to be certain of a perfect Cure, there must be prescrib'd a Drachm of mercurial *Panacea*, to be taken at three different Times, in Conserve of Roses. And if there should happen to be a small Spitting, it must be left going on, since it can be easily stopp'd afterwards, by Purgations.

Late Authors, especially Dr. *Cockburn*, have insisted on the Cure of a *Clap* by a particular Injection, without the Use of any other Medicine. This has given a Handle to Quacks, who, by affecting to do the same by their Injections, generally check the Running, and make a confirm'd Pox. M. *Le Clerc* prescribes the Use of Injections, while the Astringents are taken; and will have those Injections made with the medicamentous Stone, of which a Drachm must be put on eight Ounces of Plantain-water. The same Author forbids the Use of Mercury, while the *Chirurgeon* is endeavouring to stop the *Gonorrhœa*; because, says he, Mercury is a Melter, which is good but while the Glands of the Groins, or the Testicles are tumify'd, or when the Running is stopp'd too soon.

A *Clap* is often attended with an Inflammation and Contraction of the *Frænum*, and the under Part of the *Penis* call'd *Chordee*, and which renders Erection painful. It generally is proportionable to the Degrees of the *Virus* receiv'd; so that in virulent *Gonorrhœa's* it is usually a very troublesome Symptom. It proceeds from the Acrimony of the Matter which runs from the *Urethra*, irritating the under Part of the Yard; by which it is, as it were, ty'd, or held forcibly downwards in Erection, especially its *Frænum*. When the Acrimony is considerable, it sometimes gives Rise to unnatural Erections, or the Symptom call'd a *Priapism*. If the *Chordee* be violent, or does not decrease proportionably to the other Symptoms in *Gonorrhœa's*, an Emetick of Turbith Mineral is usually given with Success, it causing a Revulsion from the Part.

Clap is also often call'd a *virulent Gonorrhœa*, to distinguish it from a simple *Gonorrhœa*, or that without *Virus* or Malignity which takes its Rise from violent Exercises, and Strainings; the immoderate Use of hot Foods, and particularly fermented Liquors, as Beer, Wine, Cyder, *&c.* This is cur'd by indulging Rest, nourishing Foods, Broths, *&c.*

The Cause of the *virulent Gonorrhœa*, according to M. *Littre*, is some acid Humour, heated, rarefy'd, and raised at the Time of *Coition*, from the internal Parts of the *Pudendum* of a Woman infected, and lodg'd in the *Urethra* of the Man. It has different Seats in the Body; sometimes it only fixes on *Cowper's* mucous Glands; sometimes on the *Prostates*; and sometimes on the *Vesiculæ Seminales*: Sometimes it possesses two, and sometimes all three of these Places at once. From this Diversity of Seats of the *Gonorrhœa virulenta*, M. *Littre* makes two Sorts; *simple*, which only affects one of the three Parts; and *compound*, or *complicated*, where several are affected. That seated in the mucous Glands, he observes, may remain simple, thro' the whole Course of the Disease, by reason the Mouths of those Glands open into the *Urethra*, an Inch and a Half on this Side the *Prostates*, and also look down towards the Glands, so that their Liquor is easily discharg'd. The other two Sorts mutually produce each other, by reason the Ducts of the *Vesiculæ Seminales* terminate in the *Urethra* in the Middle of those of the *Prostates*; so that there is an easy Communication between them.

That seated in the mucous Glands, is much the rarest Case, and the easiest cur'd. The Cure is effected by emollient Cataplasms, and Fomentations upon the Part, and a Half-Bath. For the other Species, more powerful Means are to be us'd. The principal Remedies are mercurial Purges, an Emulsion of green Hempseed, Cuttle-fish Bone, Turpentine, *Saccharum Saturni*, *&c.* we have, likewise, great Commendations of green Precipitate of Mercury, and *Mercurius dulcis*. *Balf. Saturn. Terebinthinatum*, prepar'd with a gentle Fire, of *Saccharum Saturni*, and Oil of Turpentine, is much applauded where the Heat is great about the Reins and Genitals; as also Camphor. An Infusion of Cantharides in Wine is the *Nostrum* of a noted *Dutch* Physician. Resin of the Wood *Guiacum* is also recommended; and Balsam of *Cupaiba* is held a Sort of Specifick; to which must be added, *Antimonium Diaphoreticum*, *Bezoardium minerale*, Water wherein Mercury has been boil'd; Injections of Lime-water, *Mercurius dulcis*, *Saccharum Saturni*, &c.

Pitcairn's Method of curing the *Gonorrhœa virulenta*, is as follows: In the Beginning of the Disease he purges with a laxative Ptisan of Senna, Salt of Tartar, and Melilot Flowers; and gives the Patient Whey for his Drink. After three or four Days are spent in Purging, if the Scalding of the Urine and the Flux be abated, and the Colour and Consistence of the Matter improv'd; he administers Bolus's of Turpentine and *Rhaponticum*, for 6 or 7 Days; and if they keep the Body loose, so much the better. By all Means Astringents are to be avoided; the *Gonorrhœa* being scarce ever known to degenerate into a Pox, unless too hastily stopp'd.

Du Blegny directs the Cure of the *Gonorrhœa* to begin with a gentle Cathartick of Cassia, Senna, Crystal Mineral, Tamarinds, Althæa, and Rhubarb, administer'd every other Day; then Diureticks, particularly those of Turpentine; and, lastly, gentle Astringents; as Mineral-water, *Crocus martis astringens*, Tincture of Roses, Tincture of Coral in Cochineal, *&c.*

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In my *chymical* Experiments, I have found two Remedies which can anſwer all the Expectations of a *Chirurgeon* in the Cure of a *Clap*, throughout all its Stages. The one is, a Preparation of Salt of Tartar and of *Antimonium diaphoreticum*, with the Spirit of Vitriol. This Remedy is cathartick, diaphoretick, and diuretick; and therefore purges gently, by Stool, Urine, and inſenſible Tranſpiration, without confining the Patient, otherwiſe than to a moderate Diet, and abſtaining from ſtrong Liquors, Pulſe, ſalt Meats, *&c.* till the Cure be perfected; which commonly happens in 10 or 12 Days. The ſecond Remedy is a Liquid, which is both a Cleanſer and an Aſtringent, and is adminiſter'd 20 Drops to each Doſe, to ſtop the Running, and to conſolidate the relax'd Veſſels by Degrees.

I conſider SHANKERS as the next Thing in the *venereal Diſeaſe* worthy the Attention and Care of a judicious *Chirurgeon*. *Shankers* are round Ulcers, cav'd in the Middle, which riſe on the Glans and the Prepuce.

To cure *Shankers*, they muſt be touch'd with the *infernal* Stone, and brought to Suppuration, with red Precipitate, mix'd with the Unguent of *André de la Croix*. Oil of Mercury, put upon Lint, is very good to open *Shankers*, and to conſume the Fleſh. The Patient muſt be very well purg'd with Calomel and Scammony; after which, he muſt take the mercurial *Panacea's*, which is a very good Remedy for all but a confirm'd Pox.

Next to *Shankers* come BUBO's, which are large Tumours, or Abſceſſes happening in the Groin. *Buboes* muſt not be left to come to a perfect Maturity before they be open'd; becauſe the Matter, by ſojourning too long, would chance to be carry'd into the Blood by the Circulation, and cauſe the *Pox*; therefore they muſt be open'd ſoon, with a Lancet, or a long Train of potential Cauteries, if they be too hard. They muſt ſuppurate a long while, and Care muſt be taken to purge the Patient with Calomel and Scammony.

All theſe abovemention'd are but the Branches of that corrupted *Trunk*, or rather the Forerunners of that cruel Devaſtator of a human Conſtitution the *Pox*, which ſometimes begins by a virulent *Gonorrhœa*. The Patient feels a Wearineſs in all his Members; it is accompanied with a Salivation and Head-ach, which increaſe at Night; excruciating Pains are felt in the Arms and Legs; the Palate is ſometimes ulcerated. If the *Pox* be an old one, there happens a *Caries* in the Bones. The Skin of the Patient is cover'd with round red Spots, and dry Puſtules; the Cartilages of the Noſe are ſometimes gnaw'd. There are *Exoſtoſes*. When the *Pox* is come to its Height, the Hairs fall, the Gums are ulcerated, the Teeth ſhake and fall, the whole Body dries up, the Eyes grow livid, the Noſe ſtinking, and the *Amigdalæ* ſwell. Ulcers grow in the natural Parts, and *Buboes* in the Groin; Worms in the Glans and Prepuce, and *Condiloma's* in *Ano*.

When the *Pox* is but juſt begun, 'tis eaſily cur'd; but if it be an old confirm'd one, and the Patient of a bad Conſtitution, has his Voice hoarſe, and Ulcers, *Caries*, and *Exoſtoſes*; the Cure is very difficult.

The Spring and Summer are the two Seaſons moſt proper to undertake the Cure of the *Pox*; which Cure muſt begin by an exact Diet. The Patient muſt be plac'd in a warm Apartment, and feed on Chickens, and other ſuch Aliments. He muſt drink ſudorifick Decoctions made with *Guiacum*, China, Sarſaparilla, and eat nothing ſalted, pepper'd, *&c.* Clyſters muſt be adminiſter'd to him, to keep his Body open; he muſt be let Blood, and purg'd with 8 Grains of Reſin of Jalap, and 10 of Calomel; which Purgations muſt be reiterated as often as the *Chirurgeon* ſhall judge proper. He muſt afterwards take the Bath, during 8 Days ſucceſſively, Morning and Night; during the Bath, he muſt take the volatile Salt of Vipers; the Doſe is from 6 to 15 Grains: Or the Fat of Vipers, from Half a Drachm to a Drachm, in ſome Conſerve of Roſes.

The Patient muſt afterwards be brought to a Salivation by Frictions, which muſt be made with Unguent of Mercury. This Unguent is compos'd of crude Mercury, mix'd with Turpentine in a Mortar; the whole being mix'd afterwards with Hog's Lard; *i. e.* one Part of Mercury upon three of Hog's Lard.

The Frictions begin at the Soal of the Foot; from thence they are continu'd to the Legs, and to the Inſide of the Thighs, taking Care not to touch the Back Bone. When the Patient is of a tender Conſtitution, ſometimes a ſingle Friction ſuffices. He muſt be rubb'd by the Fire, after he has took ſome Chicken Broth. He muſt not be rubb'd, each Time, with more than one or two Drachms of Mercury without reckoning the Greaſe. He is rubb'd with the Hand, ſo that no Greaſe appear on his Skin; after which, he muſt be put to Bed. The *Chirurgeon* muſt often look in the Mouth of the Patient, to ſee if the Mercury operates, which is eaſily known; becauſe the Tongue, Gums, and *Amigdalæ* ſwell, and grow thick; the Patient has the Head-ach, his Breath is ſtrong, his Face red, he has ſome Difficulty to ſwallow his Spittle, or begins to ſalivate.

If none of theſe Signs appear, he muſt again be rubb'd the next Day, Morning and Night; becauſe there are ſometimes four or five Frictions given, and internally ſome mercurial *Panacea*, to haſten the Salivation. During the Frictions, the Patient muſt be fed with Chicken-Broth, Eggs, *&c.* which he muſt take every two Hours, at leaſt. He muſt keep his Bed in a warm Room, and muſt not get up, but when the Salivation is to be ſtopp'd, which commonly laſts 20 or 25 Days, or rather till the Salivation be fine, *i. e.* no longer ſtinking, nor colour'd; but clear and fluid.

If a Looſeneſs happens during the Salivation, it ſtops; but it muſt be procur'd again, by ſtopping the Looſeneſs, with Clyſters made with Milk and Yolks of Eggs; and if it could not be procur'd that Way, a ſlight Friction muſt be made; if the Salivation was too copious, it muſt be diminiſh'd with ſome gentle Purgatives.

The Patient ſalivates, ordinarily, three or four Pounds every Day, in a Baſon made on Purpoſe; which he keeps in his Bed near his Mouth, into which the *Saliva* runs. A ſmall Stick, ty'd round with ſome linnen Cloth, muſt be thruſt, from Time to Time, between the Teeth and the Jaws, which otherwiſe would glue together.

If the Salivation does not ſtop of itſelf, in a due Time, to ſtop it, the Patient muſt be purg'd. If there are Ulcers left in his Mouth, they muſt be dry'd with Gargariſms made of Barley-water, Honey of Roſes, or warm'd Wine. Warts are cur'd with being ty'd, if the Ligature be poſſible; and if not, they muſt be conſum'd with Cauſticks. Sometimes they are cut, and left bleeding, and waſh'd afterwards with hot Wine.

When the Patient is up, he muſt be chang'd of Linnen, Bed, and Room, and purg'd; after which, he'll recover his Strength by being fed with good Aliments, and by drinking good Wine. If he be too much weaken'd, he muſt drink Cows Milk, with Sugar of Roſes.

It happens, ſometimes, ſays *Lemery*, that when the Patient has not been well prepar'd, and the Salivation has been excited too ſoon, the Sublimation been made with too great a Violence; Part of the Sublimy fixes itſelf on one or two Veſſels, corrodes their Membranes, and cauſes an Hæmorrhage; as he ſays he ſaw it happen to a Man in *Languedoc*, who in Half an Hour's Time vomited twelve Pounds of Blood without dying, becauſe he was a robuſt Man.

It happens, ſometimes, that the ſalivary Ducts, ſays the ſame Author, have been ſo much dilated and relax'd, by the pricking Salts which made the Sali-

Salivation, that they can never be contracted again; whence the Brain dries up by Degrees, and Death follows; therefore a *Chirurgeon* must take Care not to let the Salivation run too long.

If the *Pox* be not inveterate, the Salivation can be excited by the mercurial *Panacea* alone, without giving the Frictions; after Bleeding, the Purgations, and Bath, the Patient must take ten Grains of that *Panacea* in the Morning, and as much at Night; the third Day he must take twenty Grains in the Morning, and as many at Night. The Dose must be thus increased till the Salivation happens copiously, which must be kept running, by giving every second or third Day twelve Grains of *Panacea*; which must be continu'd till the Salivation be fine, and the Accidents vanish'd.

From the Maladies of the Flesh, we'll proceed to those of the *Bones*, which are five in Number, *viz.* the *Luxation*, *Fracture*, *Caries*, or *Ulcers*, the *Exostosis*, and the *Nodus*.

LUXATION, or *Dislocation*, (from the *Latin*, *Luxare*, to loosen) is the slipping of the Head of a *Bone* from its proper Receptacle into another Place, whereby the natural Motion of the Joint is destroy'd.

Luxations are either violent, proceeding from some external Cause; as Falls, Strains, Blows, Leaps, Extensions, *&c.* or gentle, arising from internal Causes; as a natural Laxity of the Ligaments, a Fluxion of Humours, or gradual Collection thereof between the Joints, *&c.*

Luxation properly has Place only among *Bones*, whose Structure determines them to a manifest Motion, as are all those united by *Diarthrosis*; those articulated by *Synarthrosis*, where there is no manifest Motion, are indeed subject to Fracture, Caries, Exostosis, *&c.* but not to *Luxation*.

Luxations again are either complete, total, and perfect; or incomplete, partial, and imperfect. Both these *Luxations* can happen behind, or before, within Side, or without, and be simple or complicated.

Perfect, or *compleat Luxation*, is that where the Head of a *Bone* is actually started out of the Cavity of another. It is known by a Tumour or Protuberance, formed by the Head of the separated *Bone*, which raises up the Skin, and muscular Flesh above its natural Level, in a Part not destined to receive it; and a Hollowness or sinking in the Place from whence it is started, perceivable by the Touch. It is also attended with great Pain, a total Abolition of Motion, and a shortening of the Limb.

Imperfect or *partial Luxation*, called also *Subluxation*, is where the Motion is only much impaired, the Joint weakened, and a Deformity perceivable in it, when compared with the opposite Part, which is sound. This is otherwise called a *Strain*, when it proceeds from an external Cause; or simply a *Relaxation*, when from an internal one.

A *Luxation* is said to be *simple*, when it has no other Accident or Injury accompanying it. *Complicated*, when it is attended with a Wound, Inflammation, Fracture, or the like.

The Cure of a *simple Luxation*, is by a speedy Reduction of the dislocated Member to its natural Place. To this are necessary, 1. *Extension*, ἀνάξασις, which a luxated as well as fractured Member requires; as well on Account of the Contraction of the Tendons, as that the Head of the Bone may more directly be introduced into its Seat.

This Extension is made either by the Hands alone, which is called *Modus palæstrius*; because among Wrestlers, dislocated Members used to be reduced after this Manner; or by Ligatures or Towels; or by Instruments or great Machines, when the Luxation is difficult and inveterate. 2. After *Extension* follows the intruding of the Joint into its natural Cavity; which likewise, may either be effected by the Hands only, or by the Heel (as when the Head of the *Os Humeri* is fallen into the Arm Pit) or by Means of Ladders, Doors, Pestles, or *Hippocrates*'s Instrument, called *Ambe*. This Way is termed methodical, by Way of Distinction from the third, which is called *Organical*, because performed by large Instruments, but now altogether out of Use. *Gourmelinus* to these adds ἀποθεσις, the very Act of reducing the Member into its own Place, which is to be known by the Sound usually heard, and from the Use and Motion of the reduced Joint.

Lastly, Because on Account of the Laxity of the Tendons, *&c.* the reduced *Bone* cannot remain in its natural Position, it is necessary, yet further, to apply Compresses and Bandages; by which means the Articulation is preserved safe, 'till the Ligaments may acquire their usual Strength of Elasticity and Astriction.

The Luxation of the Thigh with the Hip, is seldom or never reduced. That of the first *Vertebra* is very difficult. That of the inferior Jaw-bone, and of the Sole of the Foot is mortal.

The Reduction of *Luxations* is easier in Children than in aged Persons, but it grows more difficult when deferred for several Days, because of the Abundance of the *Lympha*, and of the nutritious Juice.

If an Inflammation should happen before the Member is reduced, nothing ought to be attempted 'till that Inflammation is appeased, but in order to prevent and appease it, the reduced Member must be bathed with hot Wine, in which have boiled the Summits of *St. John's Wort*, *Camomile*, *Rosmarin*, *Stæchas*, and the like. The Bands must be dipped in the same Liquor.

If an œdematous Tumour rises on the luxated Member, after the Articulation has been reduced, Sudorificks must be administred to the Patient, and the Member anointed with Oil of *St. John's Wort*, or of *Turpentine*, and covered with a Plaister made of *yellow Wax*, and *white Resin*; the whole being melted, there must be added to it *white Succin*, and *Gum Elemi*; of each a sufficient Quantity to make a Mass, which must be incorporated with the *Balsam* of *Peru*.

If the *Bone* be thrown out of its Place by a coagulated Matter, in Form of a Plaister; Resolutives and Attenuants must be used, as are the Spirit volatile of *Tartar* prepared with the Lees of Wine, or the Spirit of *Tartar* prepared by Fermentation. With *Tartar* and its proper *Alkali*, which is the best, the Use thereof must be continued.

When the dislocated Bone has not been reduced soon enough, there is formed in the Cavity a *Coagulum*, which hinders the Reduction; this *Coagulum* may be melted with the following Oils before the Reduction of the *Bone*. Take one Part of distill'd Oil of *human Bones*, two Parts of fetid Oil of *Tartar*; mix the whole together, and put *Quick Lime* over it, to have it distilled through a Retort; the Part must be fomented with this Oil.

If the Luxation has happened through a too great Relaxation of the Ligaments, they must be strengthened by the Part reduced being kept in its Place by good Bandages, prescribing all Remedies, impregnated with an oily volatile Salt, as those produced by the *Sassafras*, *Sarsaparilla*, *Sal-Armoniack*, &c.

Before I proceed further, I must give my Pupil some Examples of the most ordinary Luxations, as that of the *Wrist*, of the *Leg*, of the *Rotula*, of the *Foot*, and of the *Jaw-Bones*.

The WRIST is luxated in two Manners, *viz.* or according to its Flection or Extension; or according to the Abduction and Adduction. The Luxation according to its Flection is called inward, then the Hand is turned inwardly; the contrary happens when dislocated according to its Extension, called the *outward Extension*.

The *Luxation* towards the Ribs, or according to Adduction, is when the *Wrist* is pressed towards the *Radius*, then there is a Tumour on that Side, and a Cavity on the other, and the Hand inclines towards the *Cubitus*.

The two last *Luxations* are imperfect, because of the Apophises of the *Cubitus* and *Radius*.

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The Structure of the Articulation of the *Leg*, provided with a Cartilage, in Form of a Half-Moon, and its Ligaments on its inward Part, which strengthens it more, renders that Luxation less frequent.

The LEG can be luxated in four Manners, before, behind, and towards the Ribs, *i.e.* inwardly and outwardly. The two first Luxations are perfect, and the two others imperfect.

In the *Luxation* before, the *Leg* is shorter than the other, and tight behind, but bowed, and the *Heel* approaches the Buttocks. In the inward *Luxation* the *Leg* and *Foot* are thrown outwardly. There is a Cavity without, and a Tumour within; so that the inward *Condilus* of the *Thigh* rests on the outward Cavity of the *Leg*. The contrary happens when the *Luxation* is outward.

The strong Adherence which the *Rotula* has with the Aponeurosis of the Extensores of the *Leg*, and the Facility it has to move upwards and downwards, makes one believe that it cannot be luxated neither above nor below, but only at the Sides, and particularly inward. Those two Sorts of Luxations are easily known, if there be a Cavity where the *Rotula* should be naturally, and a Tumour on that Side, it has been throwed by the Luxation.

The FOOT, properly called, may be dislocated in four Manners, *viz.* before, behind, inwardly, and outwardly. The two first Luxations are compleat; the two others incompleat, only the Muscles which keep up the *Bones* be broken.

The *Astragalus* dislocated before, when the *Heel's Bone* occupies the Cavity of the *Tibia*; for then the *Heel* has no Sally, and the *Foot* is bowed, though the Tendon of *Achilles* be tightly stretched. When the *Astragalus*, or *Huckle-Bone*, is luxated behind, the naviculary *Bone* passes under the Articulation, and the *Tibia* over it, whence it happens that the *Heel* is very long, the *Foot* short, and remains extended.

Of all the *incomplete Luxations*, that made outward is the less common, because the *Peroneum* descends low and embraces the *Astragalus*; when it happens the Sole of the Foot is inward, because the Muscles destined for its Motion are farther from the Support; the contrary happens when the Luxation is inward. In the *incomplete Luxations*, there is almost always a Separation between the *Tibia* and the *Peroneum*, as in the *Wrist*, the *Cubitus* is started from the *Radius*; for which Reason, after the Luxations of the *Foot* and *Wrist*, those Parts remain a long while useless, and great Pains are felt in them. Those started *Bones* being very difficult, and a long while before they can be brought to their former Situation.

It must be observed, that though this be called a Starting, as much of the *Wrist* as of the *Foot*; it is, however, a true *Luxation*, because in the *Wrist* the *Cubitus* and *Radius* are really articulated. In the *Foot* 'tis a simple Starting, because the *Leg* and *Peroneum* are so straitly joined with Cartilages and Ligaments, that they can be said to be united.

It must also be observed that, generally, in all the *incomplete Luxations*, of what Manner soever they be, the Ligament on the Side of the *Luxation*, *i. e.* on that Side the Bone throws itself, suffers a great deal more than that on the other Side.

Besides these Species of *Luxations* of the Wrist and Foot, there are others belonging to the small Bones in particular, which compose the Wrist and Foot.

Those *Luxations* happen when some of those small Bones come out of their Places, and throw themselves sometimes outward, and sometimes inward. Those *Luxations* are easily known by the Tumour the displac'd Bone forms in the Place it has throw'd itself. It also sometimes happens, that in the violent Motions of the Articulations, the Heads are half dislocated, and re-implace themselves afterwards, without any Help; it is what we call a Sprain, in *French Entorse*; and which happens very often in the Foot.

'Tis plainly seen, by the Disposition of the Cavity of the Bone of the Temple, that the Jaw-bone can easier be dislocated forward, than backward; that Side being more smooth, and rais'd.

The *Luxation* of the *Jaw-bone* is of both Sides at once, or of only one Side. The *Luxation* of both Sides, otherwise call'd compleat, can happen four Ways: 1. Forward, the two *Condili* of the *Jaw-bone* resting on the Roots of the *zigomatical Apophises*, and there is a Vacuity found on each Side towards the Fore-part of each Ear, which is the Cavity of the *Ossa Temporum*; the Chin starts forward, and hangs on the Breast; the Mouth is open, and the Patient cannot shut it, tho' the Muscles, *Crotaphites*, and Masseters, be very tight. The Patient feels violent Pains in the Temples, occasion'd by the Tension of the *Cratophites*, and of the Compression of their Tendons found between the *Caracoides Apophisis* of the inferior Jaw-bone, and the *Zigoma*, and can't speak; the *Pterigoides* Muscles are press'd: This is the *Luxation* which often happens in Gaping. 2. It happens backward, and then the two *Condili* of the Jaw-bone rest on the osseous and cartilaginous Conduct of the Ears, and on the Roots of the *Stiloides Apophises*; but this *Luxation* happens but with great Difficulty in Adults, unless the *Apophises Stiloides* be broken. In Children it extends itself easier, and the Conduct of the Ear is but cartilaginous. In this Species of *Luxation* there are Tumours seen along the Ears, near the *Apophises Mastoides*; the inferior Jaw-bone is shorter than the superior, the inferior *Incisores* are behind the upper ones; the Mouth is shut, and the Patient is a little deaf.

The third and fourth Species of *Luxation* happen when one Side is carry'd inward, while the other is throw'd outward. For Example, If the right *Condilus* advances towards the Conduct of Communication between the Ear and the Mouth; and the left Conduct rests on the Conduct of the Ear, which forms a Tumour on the left Side, and a Hollowness on the right; the Patient is deaf of the left Ear, the Chin is awry, and throws itself on the left Side. The contrary happens if it be the left *Condilus*, which rests on the Conduct of Communication between the Ear and the Mouth; and the right rests on the Ear, which forms a Tumour on the left Side; and the contrary happens if it be the left *Condilus*, which rests on the Conduct of the Communication of the Ear.

The *incomplete Luxations* of the Jaw bone in one of these Sides, happen in two Manners; forward, and backward. Those forward are the ordinary ones. In both, the Mouth is awry; so that if the right *Condilus* be *luxated* forward, the Chin throws itself forward on the left Side, and there is seen a Hollowness towards the Cavity of the right Temple; the contrary happens in the *Luxation* of the left Side. If the right Side be *luxated* backward, the Chin throws itself within, on the right Side, and there is a Tumour towards the right *Apophisis Mastoides*; the contrary happens if it be the left. In the first Species, *i.e.* in that which happens forward, the Mouth is more open, especially on the *luxated* Side, than in the second, where it is more firm, especially on the Side *luxated*.

Tho' we have given already the general Rules for the Reduction of a *Luxation*; as each Species of *Luxation* has its particular Manner of being reduc'd, it is very fit I should enlarge more on that Subject. Some of the general Rules I had forgot, are, 1. That the Bones should be brought back thro' the same Way they have took in the *Luxation*. 2. That the Operator should take Care to make the Extension to none but the dislocated Bone. For Example, If the Arm is to be reduc'd, it must be taken above the *Cubitus*, and not under; because then the Extension would be made in the Articulation of the *Cubitus*.

Some, in the *Luxation* of the Jaw-bone, give a Box on the Chin, to reduce it; but tho' such Method has often succeeded, it is dangerous to use it.

It must be observ'd, that tho' the *Luxation* be very well reduc'd, it often happens that the Part can't be mov'd; which happens from the Contusion and Bruises

ſes the Muſcles and Tendons have receiv'd in the *Luxation*.

The Bone being reduc'd into its natural Place, there are Bandages uſed to keep it there, tho' the Operator could very well do without them, if he would; ſince it is but in the following Caſes that Bandages are neceſſary. 1. In the *Luxations* proceeding from internal Cauſes; becauſe the Ligaments having been relax'd, a Bandage muſt ſupply their Want. 2. In the *Luxation* of the Jaw-bone, eſpecially when it happens in Gaping; becauſe the Ligaments having been weaken'd, and ſoften'd, by ſome Humidity, want Help to keep up the Jaw-bone, whoſe Weight tends towards a new *Luxation*; to which muſt be added, that the Patient can ſcarce be at Reſt, and that the continual Motions he is oblig'd to make, either to ſpeak, or eat, could cauſe a ſecond *Luxation*. 3. In the *Luxations* of the Wriſt and the Foot; becauſe, as we have obſerv'd already, they are ordinarily accompanied with Startings of the *Cubitus* and *Radius*, and of the *Tibia* and *Peroneum*, a Bandage muſt be made, from above downwards, to bring together gently the ſtarted Bones, and keep them firm; which muſt be done without a Compreſſion on the afflicted Part. 4. In the *Luxations* of the Clavicle, with the *Sternum*, the Arm muſt be kept up, by Means of the Scarf.

In all other *Luxations*, there wants no Bandage, unleſs there be an Inflammation; and the Bandage ought to be contentive only, to keep up what's put on the afflicted Part. For the Thigh, Leg, *&c.* the Patient muſt keep his Bed for two or three Days, to ſtrengthen the Part.

The Accidents which accompany the *Luxations*, are Inflammations, *Echimoſis*, Pains, Convulſions, *&c.* are remedied, firſt, by the Reduction of the *Luxations*; ſecondly, by the general Remedies, ſuch as Bleeding, Clyſters, Diet, *&c.* thirdly, by the Topicks, as Fomentations, Liniments, and the Compreſſes dipp'd in Brandy. The Accidents which happen after the Reduction, are, the Gangrene, occaſion'd by a Bandage too tight; or the *Enchiloſis*, by the Parts having been kept too long in the ſame Situation, without giving it any Motion: Therefore it is neceſſary, in tedious Maladies, as Fractures, *Luxations*, and Aneuriſms, where the Parts are kept long in the ſame Situation, to oblige the Patient to move thoſe Parts, by Intervals, without Violence, to entertain their free Motion, hinder the gathering of a viſcous Matter in their Articulations, and the Stifneſs and Shortneſs of the Tendons.

ENCHILOSIS is a Malady which attacks the Articulations. There are five Sorts of *Enchiloſes*; one is cauſed by the thickening and hardening of the Humour which bathes the Articulations; which happens for want of Motion, or becauſe that Humour is too abundant, too thick, and too viſcous.

The ſecond Species of *Anchiloſis* is made by the Union, or the very Bones articulated; which ordinarily happens either after ſome Ulcers, or on Occaſion of ſome Fracture in the Articulation. In this Caſe, the bony Fibres, having been eaten by the Acrimony of the Pus, or bruiſed by ſome Blow, the nutritious Juice which runs from it ſerves as a Glue to join the two Extremities of the Bones.

The firſt Species of *Anchiloſis* is commonly accompanied with a Tumour of the Articulation, which has yet a ſmall Motion. In the ſecond there is no Tumour, and the Motion is entirely loſt.

The ſecond Species of *Anchiloſis* is incurable. The firſt can be cur'd at firſt with emollient Remedies, and by the frequent Motions of the Articulation; but when it is old, and there is a conſiderable Gathering of Matter, the Cure is very difficult, if not quite impoſſible.

The beſt Remedies are all thoſe capable to melt the thicken'd Matter gather'd in the Articulation; as the Unguent of Styrax, mix'd and melted with Oil of Bays and Earth Worms; the Compreſſes are dipp'd in hot Brandy, the Part is fomented with Spirit of Wine mix'd with the Oils abovemention'd; for ſpirituous Medicaments are never to be uſed alone, without being mix'd with Oils, or Greaſe; becauſe they harden the Skin, and oily Medicaments are to be mix'd with ſpirituous, elſe they would not be ſtrong enough. The Part muſt be thruſt into the Inſide of an Animal newly kill'd; but the moſt efficacious Remedy is the Motion of the Part, ſomewhat violent, and often reiterated, keeping the Part warm. Theſe Remedies are good againſt the Shortneſs and Stifneſs of the Tendons, which happens for having kept the Part too long in the ſame Situation, without giving it the leaſt Motion.

The third Species of *Anchiloſis* is cauſed by a Liquor which bathes the Fibres of the Muſcles, becauſe kept too long in the ſame Poſture. This Liquor thickens, and hinders the natural Motion of the Muſcles, becauſe the Fibres are kept contracted, or lengthen, by that Sort of Glue; which is the Cauſe why the Patient walks on the Toes, becauſe the Foot is extended; or on the Heel, becauſe 'tis bow'd, and thus of the others. In theſe Caſes are uſed human Greaſe, or the Marrow of a Hart, or of a Mule, Palm Oil, *&c.* but it happens, ſometimes, that thoſe Remedies increaſe the Pain in the Part, and often excite an eriſipelatous Inflammation in the Skin. The ſame Thing happens alſo, ſometimes, from the Uſe of Baths of hot mineral Water; therefore the beſt Remedy againſt the Shortneſs of Tendons, is to thruſt the Part into the Throat of an Ox newly ſtuck, or the Belly of a Calf, or a Sheep, juſt open'd.

All *Articulations* are very ſubject to *Anchiloſis*, even the Jaw-bone is not free from it; but thoſe more ſubject to it are the Knees, becauſe of the great Extent of the Ligaments, of its *Aponeuroſis*, and of the Number of its Cartilages.

So much for the *Luxation*, or *Diſlocation* of the Bones; at preſent for their Fractures.

FRACTURE is a Solution of Continuity in a Bone, when it is cruſh'd or broken by ſome external Cauſe.

A Bone can be broken four Ways, *viz.* tranſverſly, or ſloping, or lengthwiſe, properly call'd a Fiſſure, or into ſeveral Pieces; and with three Sorts of Inſtruments, *viz.* contunding, cutting, and twiſting; *i. e.* that a Bone can be divided in the Continuity of its proper Parts, or by Contuſion or Inciſion, or Twiſting.

The *Fracture* of a Bone is known by its growing ſhorter, by its Want of Motion, by its bending ſomewhere elſe beſides in its Articulations, by the Inequality found in its Continuity, by the Cracking heard, and ſometimes by the coming out of one of its Ends thro' the Fleſh it has open'd; and, laſtly, by the Compariſon made with the ſound Part of the other Side; as of the right Arm with the left.

The *Fracture* lengthwiſe, or *Fiſſure*, is not eaſily diſcover'd, and cauſes great Accidents when it is not known. This is known by the Pain, and by the Tumour found at the Bottom of the *Fiſſure* of the Bone, when felt; beſides the Conjectures which can be form'd from the Report of the Patient.

The *Fracture* with *Fracaſſement* is the moſt difficult to cure, becauſe of the great Number of Splinters, which cauſe every Day new Pains, and new Suppurations.

There are two Sorts of *Fractures*, one ſimple, and the other complicated. *Simple Fracture*, is that in which a Bone is broken without any other Accident. *Complicated Fracture*, is always accompany'd with ſome Accident; as that in which there is a *Fracaſſement* of Bones, or in which the Bone is broken into Pieces; or elſe the *Fracture* is join'd with a *Luxation*, or a Wound, or when there is Inflammation, *&c.*

Old People, becauſe their Bones are drier, are more expos'd to *Fractures* than Children, whoſe Bones are almoſt cartilaginous, and obey the Violence which can be made to them; whence it happens, that Bruiſes which they receive on the *Cranium*, or any where elſe, are eaſily remedied with Plaiſters and Bandages appro-

appropriated to the Figure of the Parts. 'Tis also for the same Reason that Bones are easier broken in Winter, than in Summer.

The most dangerous *Fractures* are those which happen in the Joints, and in the *Cranium*. In the *Cranium*, because of the Brain; and in the Joints, because of the nervous Parts.

In the Cure of *Fractures*, the *Chirurgeon* has two Things to attend to; first, to restore the *fractured* Bone to its natural Situation; and to keep it tight with *Ferulæ*, or Splinters, and Bandages: In which Case, Nature takes on herself the Office of healing, and conglutinating it, by forming a *Callus* thereon.

If the *Fracture* be transversly, the Reduction must be made by Extension, and Counter-extension; and if lengthwise, *Coaptation* suffices. If the *Fracture* be complicated with a Wound, the Cure must begin by the Reduction, and the other Remedies are administer'd afterwards, as in the simple *Fracture*.

The Reduction of the *Fracture* is known to be made when the Pain ceases, when the Part has reassum'd its natural Form, when it appears without Inequalities, and like the sound Part of the other Side.

When there are Splinters left in the *Fracture* after the Reduction made, the Patient feels intolerable Pains in the Part, which is a Sign that there is an Abscess forming there; and when there has been a Wound join'd to the *Fracture*, the Lips of the Wound swell, grow soft and paler, and the Pus is more abundant than before.

Tho' the Splinters might appear, they are not to be pull'd out, but the *Chirurgeon* must wait patiently their coming out with the Pus, or help their coming out with the Use of Injections made with the Tincture of Myrrh and Aloes, and with proper Plaisters, and also with Pincers.

After the Reduction made in a *simple Fracture*, the Parts must be consolidated and strengthen'd with Liniment of Oil of Worms and St. John's-wort, mix'd with Wine or Brandy; with Fomentations of red Roses, Rosemary and St. John's-wort, boil'd in Wine; taking Care to wrap up the broken Member, but in such a Manner, that the two Extremities should not cross over one another, leaving a small Interval free between both; after which, the *Ferulæ*, or Splinters, and the Bands, must be apply'd; taking Care they are not too tight, and to raise them every third Day, to make them tighter; because they loosen in that Interval, to hinder the troublesome Itching, and to give Air to the Part; avoiding, thereby, the Gangrene which could happen thro' a Suffocation of the natural Warmth.

There is more or less Time requir'd in the Cure of a *Fracture*, as the *fractur'd* Bones are different in Bigness; thus the *Callus* of the *fractur'd* Jaw-bone is form'd in 20 Days; that of the Clavicle, or Shoulder, in 24; that of the *Humerus* in 40; that of the *Cubitus* in 30; that of the Bones of the *Carpus*, and of the Fingers, in 20; that of the Ribs in 20; that of the *Femur*, or Thigh, in 50; that of the *Tibia*, or Leg, in 40; and that of the Bones of the *Tarsus*, and of the Toes, in 20.

To facilitate the Formation of the *Callus*, the *fractur'd* Part must be rubb'd with Oil of Worms, and hot Spirit of Wine, mix'd together. The *Lapis Abteocolis* is a Specifick on this Occasion.

Note, That in a *simple Fracture*, if there were Splinters embarrass'd in the Flesh, which could not be re-united to the Body of the Bone, and known to be entirely separated, and divested of the *Periosteum*; a great Care must be taken to not use, then, an ordinary Bandage; for the Splinters would tear, still more, the neighbouring Parts, which would cause excessive Pains to the Patient, Fevers, Abscesses, and, lastly, expose him to the Danger of losing the Part, and perhaps his Life. An Incision must be made, then, on the Splinters, and they are extracted; especially in the *Fractures* of the Ribs. If the *Fracture* was with a Wound, they must be extracted thro' the very Wound; but if they could not be separated, they must be let fall by Suppuration; which, however, is not to be attempted in the *Fractures* of the Ribs, where the Splinters prick, and tear the *Pleura*. Lastly, If in a *Fracture* with a Wound, an End of the Bone, or both, should come out thro' the Wound, as not to be reduc'd, they must be saw'd, and cut.

Note, also, That to reduce the *fractur'd* Bones to their natural State, (of which we have yet took but very little Notice) the *Chirurgeon* has both Extremities of the broken Bones gently and equally drawn by two Servants, and with his Hands he adjusts them to the Figure of the Part; and if there be any Splinters, he endeavours to reduce them even with the Bones. The Extension must be greater, if the *fractur'd* Bones ride over one another; it must be greater, also, if the *Fractures* be sloping, than when they are horizontal. Lastly, It must be proportion'd to the Strength of the Muscles of the Part. Sometimes the Hands are strong enough, but there are Cases where one's oblig'd to have Recourse to Strings, and Machines. For Example, In the *Fracture* of the *Femur*, or Thigh, it is absolutely necessary to use the superior *Lacs*, or Strings; it being impossible to embrace it with the Hands unless it be to a young Child. The *Chirurgeon* must not obstinately insist on the Extensions to reduce a *Fracture* accompany'd with Contusions, *Echimoses*, and Inflammations; but wait till the first Rage of the Distemper be abated, especially when the Bones are not much disorder'd, and the Accidents are rather caused by the Blow, or Fall, than by the Disorder of the Bones, *&c.* When the *Fracture* is reduc'd, the *Apparatus* must be ready, the Box garnish'd with what's necessary, plac'd under the *fractur'd* Part, and two Servants keeping the Part in the same Situation, and drawing softly, and equally, at each Extremity of the Member, they lower it both together, to place it on the Plan of the Bandage with 18 Chiefs. The *Chirurgeon* must keep up the Place of the *Fracture* till the Part be plac'd, and the Servants keep it tight while the *Chirurgeon* shall dress the Wound, and make the Bandage. There is yet a particular Case, which is, that when there is a long Splinter which rises above the Bone, and there be a Wound underneath, or above, or both together; in this Case 'tis necessary to have a small, and very narrow Band, with which are made two or three Circularies in the Middle of the Splinter, to keep it in Subjection while the *Chirurgeon* dresses the Wound. These Remarks are for *complicated Fractures*; in the *simple* ones the two Servants keep the Part lifted up, and extended in the same Situation, drawing always softly, and equally, at each Extremity, without moving, while the *Chirurgeon* dresses it; an Ambrocation must be made with the Spirits of Wine and Turpentine, and Oil of Worms. The Part is cover'd with a Compress dipp'd in the same Remedy, if there be a slight *Echymosis*. The Compress must be splitted according to the two Thirds, to prevent any *Replits*; the other Compresses and Bands are to be dipp'd in *Oxicrat*, or Water and Vinegar, to cool the Part, and that they may be easier apply'd.

From these particular Reflections on the Reduction of *Fractures*, as to Practice, I'll pass to some others, of the same Kind, on the *Apparatus*, since there is not a single Throw of a Band which has not its Utility; and also on the Posture the Patient is to be put in, according to the Part *fractured*, and how he is to behave while under Cure.

I'll

I'll begin with the *simple Fracture* of the Leg, on which there are to be made first three circular Tours with the first Band, which has two Uses: 1. It hinders the *Callus* from rising too much, and causing a Deformity. 2. It serves to strengthen more the *fractured* Place, which is the only one to be kept in Subjection.

Secondly, The End of the Band must be well fixed, while the three circular Turns are made, since from thence depends the whole Firmness of the rest of the Bandage; and if the three Tours be made too loose, they'll give Way and run, or else when new ones shall be made over them, they'll make Pleats, which will be very troublesome, and discommode the Part.

Thirdly, Circular Throws must be made first, because they are stronger than the *Doloirs*, and they are three in Number, thereby to keep the fractured Part and the End of the Band in a greater Subjection.

Fourthly, *Doloirs* must be made afterwards, because a long Space is to be run over, which *Doloirs* must be more or less narrow, as the Parts are more or less round, because, when too near one another, they grow loose and slip less than the large ones; and these loosen still less than *Rampans*, which are Tours of Bands like the Circumvolutions of a Serpent round a Tree.

Fifthly, *Renversed* are made in the Places of the Part which are uneven. 1. To hinder the Bandage from being rumpled, and making Pleats, which would wound the Part, and dispose the Bandage to slip too easily. 2. To fill up the Hollowness. These *renversed* must always begin at the Inside of the Leg, because it is hollower, and less garnished with Flesh; and they must be so contrived, that their Middle should meet on the posterior Part of that Part, and be always placed on the same Line, the better to fill up the Vacuity.

After these three first Tours of the Bands, the *Chirurgeon* must ascend towards the Knee by *Doloirs*. The second Band is applied immediately on the first, and makes three Circularies on the Place of the *Fracture*, to strengthen the three first Tours of the first Band. The three first Throws are tighter than the others, to keep the *Fracture* and the End of the Band steady. Then the Operator must descend lower to keep in Subjection the inferior Part of the broken Bone, the first Band having already strengthened the superior. Narrow *Doloirs* must be made in that Descent, for the Reasons abovementioned; and likewise some *renversed*, if the Bandage makes any Pleats. A Ject or Throw of the Band is carried round the Sole of the Foot. 1. It strengthens the *Doloirs* made in coming downwards, and those made in going upwards. 2. It keeps the Sole of the Foot a little bowed and firm, in Order that the Extensors of the Foot, which are a great deal stronger than the Flexores, being a little counterpoised by the Tours of the Band, the Muscles should not be shortened, and keep the Foot extended, from whence it happens that after the Cure of the *Fracture*, the Foot cannot be bowed, nor rested, but on the Toes. In making that Throw of the Band, Care is to be taken that the Ankles should not be covered, and therefore a *renversed* must be made, to hinder the Bandage from resting on those Bones.

Doloirs are made in ascending or going upwards, to keep the Sole of the Foot steady, and a little bowed, and stop the Bandage, which must be ended in the same Place with the first. After these two Bands a circular Compress must be applied, to give a round Form to a Member, and whose Parts must be more flattened, and thicker, the nearer they approach the Calf of the Leg. This Compress must be applied in such a manner as not to rest on the inward Face of the Bone of the Leg, because naked of Flesh. This Compress by rendring the Part even, causes that the *Ferulæ*, or Splinters applied over it, rest equally, according to their Length.

The Splinters must be made of Cards, or of a very thin Wood, those of thick Cards are the best. When those made of Wood are used, they must be garnished with Linen-Cloth, or Flax on that Side next the Leg, that they may not offend the Part; if they be of thick Card, they must be wrapped up with a Linen-Cloth folded double, otherwise as they are to be wetted, they would stick so hard to the Bands, which are underneath, and above, that they could not be easily disengaged, when the *Apparatus* is to be raised. The Cards are wetted, that they may be the better adjusted to the Figure of the Part, and obey the better the Tours of the Bands, whereby they are to be kept steady, and keep in drying the Figure given them.

Those Splinters serve to keep the reduced Bones in the Situation which has been given them, and hinder the Part from bowing in the fractured Place. The third Band is to keep the Splinters steady, and is to be placed in the same Manner the other two have been.

Over all these Bands are put two Cards, to embrace the whole Part, and which must be tied with small Pieces of Tapes, beginning to tie by those of the Middle, the better to tie the two others, without being obliged to have them kept up.

The Part is afterwards placed between the *Fanons*, which must embrace the Leg and Thigh, to make of the whole but a single, tight, and inflexible Piece. The *Fanons* ought not to be of an equal Length. That applied on the Inside of the Thigh and of the Leg must be a-Top, shorter than the other, which must rest on the Buttock and Hip, that they may not offend the *Scrotum*, the Groin and *Peronæum*. Both *Fanons* must descend, the one as low as the other, and a little lower than the Sole of the Foot, to keep up the Articulation, and not incline on either Side.

Before the Leg be plac'd on the Sinew of the *Fanons*, a small quilted Cushion, of the Length and Breadth of the Leg, must be put upon it; at the Extremity of this Cushion there must be a *Bourlet*, or *Boudin*, open in the Middle to place the Heel, and which is to be a little flatten'd in the Place where the Tendon of *Achilles* is to rest; because if it was round in that Place, it would wound it. The Part being plac'd on the Mattrass, the *Fanons* are to be ty'd, and roll'd, as much as is necessary, to rest on the Sides of the Leg and Thigh; but lest they should not rest enough on the Sides of the Sole of the Foot, which are less rais'd than the Ankles, those Places should be garnish'd with small Compresses, and by that Means the *Fanons* keep the Sole of the Foot more firm, without Fear of wounding it. A Space is given to these Compresses, as much as is wanted to raise the *Fanons*, and hinder their resting on the Ankles; and for Fear they should rest on the *Condili* of the *Femur*, and on the Head of the *Peroneum*, Compresses must be put over, and underneath that Part, to defend it. This done, the whole Inside of the Leg is cover'd with a long Compress of linnen Cloth folded double, and the *Fanons* are ty'd with four or five small Bands, three to the Legs, and one or two to the Thigh; that of the Leg is ty'd first. Afterwards a Soal made of Wood, or Card, lin'd with linnen Cloth, is to be apply'd to the Sole of the Foot.

The *Chirurgeon* must likewise observe to give to the Part and Patient, a convenient Situation. The Situation of the Patient, and of the Part, is not always the same; 'tis different, according to the Diversity of the Parts: For Example, in the *Fractures* of the *Femur* and Leg, the Patient must keep very exactly his Bed, and the same Situation, till the *Callus* be form'd; and lie on his Back, his Head as low as his Buttocks, that the Body may not rest on the Heels, and the Foot of the *fractured* Part ought to be a little rais'd.

The Patient, on the contrary, can walk, tho' he has an Arm *fractur'd*; but he must not use that Arm till the *Callus* be form'd.

In the *Fracture* of the Thigh, of the *Rotula*, of the Leg, and of the Foot, the Knee ought to be always extended, instead that the Elbow should be a little

little bent; and let the Patient be a-bed or up, the Arm must be kept up with a Scarf. The same Thing must be observed in all the Fractures of the Arm, of the Cubitus, of the Hand, and Shoulder, as well as of the Clavicle; because it is a great deal less natural to be too much extended than bowed, and Flexion is less painful to the Elbow than Extension.

Motion being contrary to the Re-union of *Fractures*, the *Chirurgeon* ought to dress the Patient but seldom, the *Apparatus* must not be raised before the seventh, eighth, or ninth Day, unless the Patient feels great Pains, or Itchings in the Part, or those underneath should be too much swelled and stretched, or the Part awry; he must dress it afterwards oftener or seldomer, according as he shall judge it necessary for each Dressing. Two Servants must lay hold of the Part by the two Extremities of the fractured Bone, to raise it softly and evenly, and at the same Time each of them must draw it to him as directly as possible, that the Part may not be bow'd in either Sense, no more than the Eminences, which would prick the neighbouring Parts. To raise the *Apparatus* more directly and gently, the *Chirurgeon*, assisted by two Servants, must take it and raise it with his Hands, at the Place of the *Fracture*. The Servants are to keep it in that Posture, without moving it, while the *Chirurgeon* undoes the *Apparatus*, and puts on a new one; and as this can't be done soon, he must employ two Servants who understand well their Business, and are strong. The *Chirurgeon* must handle the Part gently, and in order to it, he is to support with one Hand as much as he can, the Place of the *Fracture*, while he makes and undoes the Bandage, changing Hands alternately at each Dressing: He may foment the Part with aromatick Wine a little warm, to cleanse it of the Dirt which may have gather'd there, which causes Itchings in the Skin. If the *Chirurgeon* should find the Skin a little torn, he must dip the first Bandage in Lime-water. If there was some Inflammation, he should make an Embrocation with Oil of Roses and Spirit of Wine; but if there are none of those Accidents, he must only dip all his Compresses in *Oxicrat*, or aromatick Wine.

Often, thro' the Patient or *Chirurgeon*'s Fault, Bones are re-united in such a Manner, that they pass over one another, or form an Angle, or at least are awry: In such a Case, if the *Callus* be re-united, it may be broke by strong Extensions, or other violent Motions, in shaking the Part in various Manners: If there was a Wound, and the *Callus* could not be broke, the Wound ought to be widen'd, the re-united Bones discover'd, and the Exfoliation of the *Callus* procur'd. Several advise the breaking of the Part, and for that Purpose propose the Use of several Machines; but this is exposing the Patient to very great Dangers, and often the Part breaks in another Place; therefore 'tis better to leave it with some Deformity, than to expose the Patient to the Danger of his Life, even without being sure of rectifying the Disorder, and curing the Deformity.

Note, That the *Callus* is nothing else but the nutritious Juice of the Bone which runs thro' the Extremities of the Fibres at each End of the fractur'd Bone, and which gathers insensibly, like Glue, and serves as a Cement to join the fractur'd Bones. This *Callus* is of the same Substance with the Bone, from which it differs only in its Configuration. In the Bone the Fibres have a Direction, and extend themselves according to the Length of the Bone; whereas in the *Callus* none but an homogeneous Matter is seen, which orders itself more or less irregularly according to the different Disposition of the neighbouring Places, and according to the Care taken to confine it. However, tho' the *Fracture* be well reduc'd, it raises always a small Eminence all round it. The Time of the Formation of the *Callus* cannot be precisely determin'd, no more than that of the Exfoliations; 'tis form'd sooner in the spongeous Bones, than in the compact; in Children, than in Adults; and in Adults, than in old People.

In the *Fractures* of the *Humerus*, sloping, there must be apply'd a Bandage with several Chiefs, which must come round the Body of the Bone, without moving the Part.

In the *Fractures* of the *Radius*, it must be observ'd, that the two broken Ends of the Bone draw towards the *Cubitus*; first, because the Blow, which is the ordinary Cause of the *Fracture* of that Part, sinks it; secondly, because the two Muscles which serve to the *Pronatio* are stronger than those which serve to the *Supinatio*; and 'tis known that we are more inclin'd to the *Pronatio*, than to the *Supinatio*: Therefore the Muscles draw both Ends towards the *Cubitus*, and the *Aponeurosis* which is between the Bones hinders them from throwing themselves outwards. For if the *Radius* be broke in its Middle, the square Muscle acting, draws the inferior End, and the round Muscle draws the superior End towards the Elbow; therefore the only Means to reduce, and know that *Fracture*, is by helping the Patient to make the Motion of *Supinatio*.

The *Fracture* being thus reduc'd, there must be had two Compresses, one of which must be a great deal thicker at one End than at the other; and another, which must not be so thick; placing the thickest Compress within the Arm, the thick End downward, and the other outward, the thick End likewise downward. This Bandage is made contrariwise of that of the other *Fractures*, because it must not begin on the *Fracture*, but on the inferior Part of the Bone, making it sufficiently narrow at the Beginning. When we come to the *Fracture*, we must place it lighter, *&c.*

In the *Fracture* of the Ribs, as the Ends of the broken Bones throw themselves inward, to reduce them to their natural State they must be press'd on the Sides with both Hands; the same Thing will happen as if you was to take a Bow at both Ends, the Middle will rise upwards; and to keep the Bone in that Situation, there must be had two thick Compresses, one to place at the End ty'd to the *Sternum*, the other on the End articulated with the two *Vertebræ*, compressing them strongly without putting any Thing on the Place of the *Fracture*.

In the *Fracture* of the *inferior Jaw bone*, after the Reduction of the *Fracture*, the best Method is to keep the Bone firm, and to put it in a leaden Box, made exactly in the Form of the Jaw-bone; but if the *Fracture* was with a Wound, it is adviseable to have a Box of Tin made, in which there should be a Window, thro' which the Wound is dress'd; and if there be no Wound, a Carton must be soak'd in Water, and put in a linnen Cloth wetted with the White of an Egg, beaten with some *Sal Ammoniac*. But it is to be observ'd, that before that *Defensive* is apply'd, a linnen Cloth, folded double, is to be plac'd between it and the Skin, to hinder it from wounding the Part, and it will grow hard, and of the same Figure as the Jaw-bone; therefore it will keep it in its proper Situation.

The *Fractures* of the Clavicle sloping, are very difficult to keep up, because when the Clavicle is not broke, the pectoral Muscles and *Trapezes*, with the *Rhomboides*, make an *Equilibrium*; but when the Clavicle is *fractured*, the Pectorals carry it over their Antagonists; therefore they draw forward the *Omoplate*, which is moveable, and consequently the End of the Clavicle ty'd to the *Acromion* rises over the other; to hinder this, a Machine is us'd which draws the Arms behind.

To reduce the *Fracture* of the *Rotula*, the Patient being seated in a Chair, resting his Foot on the Ground, the Operator must push that Half of the *Rotula* risen into the Thigh, and there must be made Use of the Bandage, to keep it up.

The *Cranium* has alſo its particular *Fracture*, which is a Wound complicated with a *Fracture*, and which can be done three Ways, *viz.* by Contuſion, Inciſion, and Pricking.

The moſt dangerous of theſe three *Fractures*, is that by Contuſion; becauſe the Commotion is greater.

All the *Fractures* of the *Cranium* do not oblige the *Chirurgeon* to have Recourſe to Trepanning, but only the deep ones; as for the ſuperficial, they are cur'd by Exfoliation.

Note, That *Exfoliation*, from the *Latin ex*, and *folium*, Leaf, is the ſcaling of a Bone; or its riſing, and ſeparating in Leaves, and *Laminæ*.

The deep *Fracture* of the *Cranium*, which obliges to Trepanning, is that made of both Tables of that Part, and which penetrates to the *Meninges*, on which there is then extravaſated Blood, which muſt be took off by the Operation of the *Trepan*. This *Fracture* is known by the Eyes, and his Reaſoning; and tho' the Eyes be the ſureſt Guide in the *Fracture* of both Tables of the *Cranium*, as Things are not always to be ſeen, we want often the Reaſoning, to ſupply what the Eyes do not diſcover.

The Eyes alone diſcover the *Fracture* of the *Cranium*, when the Wound is large, and open enough to let it be ſeen at firſt; and Reaſoning ſupplies the Defect of the Eyes when the Wound is ſmall, the Bone not diſcover'd, and nothing but the Accidents appear.

The Accidents or Signs of the *Fracture* of the *Cranium*, are, Dimneſs of the Eyes, and Loſs of Judgment, both which happen at the very Inſtant of the Blow, or Fall, with a bilious Vomiting, which follows ſoon after. Theſe Signs are call'd univocal; there are others call'd equivocal, which are for a Confirmation of the firſt: As the Loſs of Blood thro' the Noſe, Eyes, and Ears; Redneſs of the Eyes, Heavineſs of the Head, Swelling of the Face, and afterwards Drowzineſs, Shivering of the whole Body, Fever, Convulſions, *&c.* but it is not neceſſary that all thoſe Signs ſhould appear, to judge of the Neceſſity of *Trepanning*, ſince it ſuffices to have the equivocal ones to make the crucial Inciſion in the Place of the Wound, and diſcover the Bone to find the *Fracture*, which is often ſo fine, that the *Chirurgeon* is oblig'd to uſe the Printer's Ink, which inſinuates itſelf into the *Fracture* and the *Engina*, with which the black Line which has penetrated to the Bottom, when the *Fracture* is compleat; whereas 'tis eaſily blotted out, when the *Fracture* is only ſuperficial.

In Summer the Accidents appear in three or four Days, or ſeven at farthest; in Winter they are later, and do not appear, ſometimes, till fourteen; but at the End of this Term, it can very well be ſaid that *Trepanning* is often needleſs. In a dubious Caſe, when we do not very well know if the *Trepan* is to be apply'd or not; after the Accidents have been carefully examin'd, if we cannot find a very good Foundation for undertaking the Operation, we muſt deſiſt from it.

The *Trepan* is not to be apply'd on the *Fracture*, but on the Side, and always on a firm Place. When the *Fracture* happens on the *Sagittalis*, or *Lamboides Suture*, a double *Trepan* muſt be made, and apply'd on both Sides the *Suture*, becauſe of the Blood which might be extravaſated there.

The Method to be obſerv'd in the Wounds of the Head, and the *Fractures* of the *Cranium*, is as follows:

In the ſimple Wounds of the Head, none but Balſams are to be us'd, applying a Plaiſter of Diachilon over it. When there is Contuſion, either in the *Pericranium*, or *Cranium*, the Wound ought to be kept open till after the Suppuration, or Exfoliation. When there is only a Bump, without Wound, or Accidents, it muſt be reſolv'd with Spirit of Wine mix'd with Oil of St. John's wort, in which Compreſſes are dipped, and applied on the Part.

The Wounds with *Fracture* muſt abſolutely be *trepann'd*; in which Operation, Oil of Turpentine muſt be us'd to diſtil on the Membrane of the Brain; or Spirit of Wine mix'd with Oil of Almonds; and the *Chirurgeon* muſt by all Means bring it to a copious Suppuration. The Patient, beſides, muſt be let Blood before and after the Operation, eſpecially if there be a Fever, or Plenitude; taking Care to facilitate the natural Evacuations by means of Clyſters, at leaſt every other Day, preſcribing an exact Diet, free of all Agitations of the Body and Mind, abſtaining even from eating till the fourteenth Day; and from Coition, which is mortal at that Time, for forty Days from that of the Operation; as it is, likewiſe, in all conſiderable Wounds.

The third Malady of the Bones, in my Manner of reckoning, is the *Caries*; which is the Putrefaction of the Subſtance of the Bone, or an Ulcer, and the Gangrene in that Part.

The CARIES has either an internal or external Cauſe. The internal Cauſe ariſes in the Subſtance of the Bone; and the external, from a dirty Ulcer in the Fleſh, which has communicated its Malignity to the very Subſtance of the Bone, which it has corrupted.

The *Caries* proceeding from an internal Cauſe, is known by the deep and continual Pains which precede, and continue a long while without Diminution, and afterwards by the Alteration of the Fleſh which covers the Bone, which grows ſpongeous, ſoft, and livid. That proceeding from an external Cauſe, is known by the Quality of the Pus which comes out of the Ulcer of the Fleſh, which is blackiſh, oily, and of an extraordinary bad Smell; and alſo by the Probe, which makes perceptive Aſperities in the Bone which it has diſcover'd.

When the *Caries* is known to proceed from an external Cauſe, the beſt Remedy is the Powder of Iris, which ſuffices when the *Caries* is ſuperficial; but the Oil of *Guaiacum* muſt be employ'd on Lint, which is apply'd on the Ulcer when it is deep; or Brandy in which have been macerated Iris-Root, Cinnamon, and Cloves. Laſtly, the *actual Cautery* muſt be apply'd.

When the *Caries* ariſes from an internal Cauſe, the Fleſh muſt be open'd, to give Vent to the *Sanies* which runs from the ulcerated Bone, the better to procure its Exfoliation; and if the Ulcer has not yet open'd the Bone outwardly, the *Trepan* muſt be apply'd to it, treating the Ulcer afterwards as above directed.

Some Authors diſtinguiſh the *Caries* into three Species; in the firſt thereof, the *Perioſteum* being much inflam'd, is deſtroy'd by the corroſive Liquors, and the Bone changes only Colour, growing black, and very dry, loſing but very little of its Hardneſs, and falling but with great Difficulty; which ſome call Shankers of the Bones. Then the Juices running between the ſound Bone and the ulcerated Part, 'tis depriv'd of its Nutrition, and there falls from it a very thin Leaf. In the ſecond the corroſive Liquors operate on that Bone, as *Aqua fortis* does on Iron; therefore according as the Bone is hard or ſoft, the Corruption is more or leſs ſtrong, and the *Caries* unequal and rough; whence thoſe Juices operate according to the Hardneſs of thoſe Places, and the ulcerated Part of the Bone grows ſoft, and falls into ſeveral ſmall Scales, and the Bone itſelf is often ſo much humected, that it falls in the Manner of Salt; which is ſeen often enough in the *Caries* of the Teeth, and which is call'd Rottenneſs of the Bone. In the third the Alteration being but ſlight and ſuperficial, there happens an inſenſible Exfoliation, which is carry'd off with the Suppuration of the Fleſh.

Theſe ſame Authors forbid, to facilitate the Fall of the carious Bones, the Uſe of Spirits of Salts, or of Vitriol; or of the Oils of *Guaiacum*, Paper, and Antimony; becauſe they pretend that the Application of thoſe Remedies, even when adminiſter'd with Caution, cauſe a Malady more dangerous than the firſt;

first; because, say they, the Action of those Remedies can't be so well manag'd but it extends itself as far as the sound Bone, and penetrates the soft Flesh which grows under it. These Remedies, continue they, must never be apply'd to the *Cranium*, since they have been attended with fatal Consequences; which they prove by the Example of a Quack, who having apply'd them to a Patient, they did eat both Tables of the *Cranium*, which caus'd a Gangrene to the *Dura mater*, and he dy'd in excruciating Torments.

For a spongeous *Caries* they prescribe the Butter of Antimony, or the *actual Cautery*; which, say they, is still better, since in the Bones which appear dry there are seen to arise acrimonious and corrosive Vapours, which were the true Cause of the *Caries*.

Note, That in the Hospital of the Charity of *Paris* a Man had an *Aneurism* in the *Dura mater*, which caus'd violent Pains; there appear'd, besides, several Tumours outward, which were open'd by M. *Mareschal*, in which there was found a beautiful Blood, as it is found, commonly, in the *Aneurisms*; but some Time after he dy'd in great Pain. His *Cranium* having been open'd, half of it was found entirely carious and spongeous, adhering to the *Dura mater* inwardly, and outwardly to the *Pericranium*. The *Caries* had begun inwardly and outwardly.

One of my Countrymen, a *Britton*, having been tormented for two Years together with a violent Pain in his Head, went to the *Hotel Dieu*, where he grew quite blind: He had a Tumour on the Temple behind the Ear, and there was found in it Blood, as in the first Example. Being dead, some Time after, his Head was open'd, wherein the Teguments were found callous, the *Cranium* carious and spongeous, but the Brain sound.

The EXOSTOSIS, (which is the fourth Malady of the Bones I have mention'd) is a Tumour which rises on the Superficies of the Bone; occasion'd by the *Depositum* of an unfiltrated Humour in its own Substance. This Tumour is commonly accompanied with violent Pains; because in growing and rising insensibly, it pushes, raises, and lacerates the *Periosteum*; which every Body knows to be of an exquisite Sense. The bigger the Tumour of the Bone is, the greater the Pain; because then the *Periosteum* is much extended, and if the Humour which transudates from the Tumour is very acrimonious, the Pain grows insupportable, because it causes an Inflammation to the Membrane, which must be more or less considerable, in Proportion the Matter will be more corrosive. The nutritious Juice of the Bones does not run always regularly thro' the small Pipes or Conducts; often 'tis stopp'd and coagulated, by the Disorder of its Parts, or thicken'd by the abundance of Acids. The Juices which succeed these finding the Passages obstructed, by the reiterated Impulsions against those Pipes, to force a Passage, they dilate, and relax their Texture in such a Manner, that they swell up, and grow very big in those Places, and produce Tumours which are nothing else but the swelling of the solid Parts of the Bones. Thus we see Branches of Trees grow bigger underneath the Place where the Course of the Sap has been intercepted. This produces the first Species of *Exostosis*, which happens often to those afflicted with the Pox, and which is call'd *Nodus*.

Sometimes the nutritious Juices steal away from their ordinary Conducts, by the Action of some corrosive Acids; then the Extremity of the Vessels being open, there are form'd Tumours which make the second Species of *Exostosis*, by the continual running of those Juices, which in coming out, coagulate, and congeal in Form of a Rock, more or less irregularly, according to the Diversity of Motion, the Quantity of Matter, and the various Configuration of the neighbouring Places. Thus in Trees and Plants the Sap stealing away by the Action of sour Juices, or thro' the small Apertures made by the Stings of Insects, produces different Sorts of Tumours, most of which serve for Habitation to those little Animals. It happens also, sometimes, that the osseous Fibres are extraordinarily relax'd by the nutritious Serosity sojourning too long in them, and that they let it pass in Form of Juice, as far as the Superficies, and losing insensibly its Liquidity, by the Evacuation of what it contain'd the most volatile, it thickens, and congeals in Form of Ice, or Gum, against the *Periosteum*, and the Body of the Bone; and as it is but only glu'd to the Surface of the Bone, it can be easily unglu'd, with the Rugine; it is what the Antients call'd *Gummata*, and what makes the third Species of *Exostosis*.

There is a fourth Species of *Exostosis* which happens when the Bone is broke throughout its whole Length, which proceeds from the Softness of the Bone, which receives too much Aliment; but the Juice which those Sorts of Bones receive is vicious; therefore these Sorts of *Exostosis* are seldom seen without *Caries*. Sometimes an Abscess grows in the Bone, like those which grow in the Flesh, *i. e.* that the Bone grows ordinarily big, at the End towards the *Epiphises*, because they are softer in those Places, and all those *osseous Cellulæ* are full of a purulent Serosity. These Tumours accompany three Sorts of Maladies, the Pox, Scurvy, and the King's Evil; but particularly the first. They happen to the whole Body of the Bone, or to some Places of the Body, or to the Extremities call'd *Epiphises*. The first are very painful, hard, and compact, and degenerate into Abscesses, when they are of some Years standing; which can happen in two Manners; the *Caries* beginning at the Superficies of the Bone, or at the internal or external Part. Their Origin is commonly preceded by violent Pains in the *Periosteum*, which increase by the growing of the Tumour, and which continue till a perfect Cure.

Those of the Extremities grow a great deal bigger, because of the spongeous Texture of the *Epiphises*, and are less painful, from the Quality of the Matter which is less active. The *Epiphises* being not cover'd with a *Periosteum*, form often these Sort of Tumours in the small Bones of the *Carpus* and *Tarsus*; some, after they have continu'd a certain Time, disappear, either by the Action of Remedies, or by the Help of the Matter, as it is seen in Children. Others degenerate into Abscesses, grow painful, and the Juice which runs from it corrodes the neighbouring Ligaments and Tendons, and as the Pain is excessive, and like that which would be felt if a Thorn was run thro' an Articulation; some Authors have call'd this last *Spina ventosa*.

The CURE of these Sort of Tumours is different, according to their different States. *Exostoses* are cured, especially of those afflicted with the Pox, by a good Salivation; and when they come to rot, the Hand and Fire must be join'd to Remedies, to melt what is carious. As to the Abscesses of the Articulations, they can't be conquer'd but by the Amputation of the Part; 'tis true, that some are cur'd without Amputation, but it is with a great deal of Care, and it takes a long Time; but when the whole Bone is *exostosed*, it must be cut off. The *Exostoses*, or *Nodus*, which rise on the Bones of the Head, are more difficult to cure than others; as also the *Caries* of that Part. It is prov'd by several Examples, that *Exostoses* of the first Species can be melted, *i. e.* if the Tumour be of the Bigness of an Egg, that three Parts thereof can be melted; and that tho' the Bone remains always a little more risen in that Place than usual, it is nevertheless very sound; for the Patient feels no Pain there; which I conceive may happen in this Manner: The nutritious Juices which have been coagulated, by the verolick Acidity within the Conducts of the osseous or bony Fibres, whereby they have been dilated, as abovemention'd, being melted

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by the Mercury, a Part thereof can transpire, and the other remaining in the Vessels is evacuated by the Salivation, and the Inside of the Fibres being also cleans'd, they sink; but because they have been very much chang'd, the Bone must be more rais'd in that Place, and the Fibres occupy a greater Volume. the *Gummata* can also be melted with convenient Remedies.

There are other Maladies of the Bones; as the Softness of the Bones, their Brittleness, Bowing, or *Rachitis*, vulgarly call'd *Rickets*; and Cracking.

The SOFTNESS *of the Bones* proceeds from the nutritious Juice of the Bone being too little impregnated with saline and acrimonious Particles, and their Marrow too abundant; since that watery Juice produces the same Effect in the Bones it does in Trees, and in Horn. It insinuates itself into the whole Substance of the Bone, and as it is of a fluid Consistence, it occasions that the same Parts, among which 'tis embarrass'd, remain ill united, and grow easily carious when they are press'd by some exterior Agent. But this Softness is still increas'd by the Superfluity of the small oily Particles of the Marrow which slide in all the Intervals of the Fibres, whose Texture they relax. Whereby we can plainly see that a Bone can be soften'd without being attack'd with those Species of *Caries* abovementioned. One Thing, only, is to be observ'd, that there is never a Softness in the Bones but where there has been left some Levain of the *Rachitis*. The best Remedies for this Malady, are Sudorifficks, Diureticks, and Absorbents.

The RACHITIS, or *Rickets*, is a Disorder affecting the Bones of Children, and causing a considerable Protuberance, Incurvation, or Distortion thereof. It sometimes arises from a Fault in swathing the Child, rolling him too tight in some Places, and too loose in others; placing him in an inconvenient, or too often in the same Posture, or suffering him to be long wet. It is likewise attributed to the Want of proper Motion, and using the Child to be borne in one Arm only; whence the Legs and Knees remain too long in the same incurvated Situation. Or it may be occasion'd by some Fault in the Digestion, occasioning the Aliment to be unequally apply'd to the Body, by which some Parts of the Bones increase in Bulk more than the rest.

The *Rickets* usually appear between the first eight Months and the sixth Year of the Child's Age; the Part it affects grows lax, flaccid, and weak; and if it be the Legs, they become unable to support the Body. All the Parts subservient to voluntary Motion are likewise debilitated and enfeebled; and the Child grows pale, sickly, slothful, and cannot sit erect. His Head generally becomes too large for the Trunk, and can't be supported or manag'd by the Muscles of the Neck, which gradually wear away. Swellings and knotty Excrescencies appear in the Wrists, Ankles, and Tips of the Ribs; and the Bones of the Legs and Thighs grow crooked. The like Disorder sometimes also seizes the Bones of the Arms. If the Symptoms continue long, the *Thorax* becomes strait, a Difficulty of Respiration ensues, as also a Cough, and a hectick Fever; the *Abdomen* swells, the Pulse grows weak and languid, and the Symptoms increasing, at length prove mortal. When the Child is able to talk before he can make Use of his Legs, he is presum'd to have the *Rickets*.

When the Disorder is taken early, it may be remedied by proper Bolsters and Bandages, suited to the Parts affected; but when the Bones are grown rigid and inflexible, other mechanical Contrivances, as Puddings, strait Boots, and several Sorts of Machines or Engines made of Pasteboard, Whalebone, Tin, &c. are made Use of, to restore the distorted Bones to their natural Straitness.

Mercurius dulcis, Syrup of Chicory and of Roses, Manna, and Scammony, are accounted very good Purgatives in the *Rickets*; together with diuretick and diaphoretick Ptisans made of China, *Sarsaparilla*, &c. absorbent Powder, which corrects the Acidity of Humours, the Infusion of *Millipedes*, or Wood-Lice, and dry Frictions made over the whole Body with a warm linnen Cloth before the Fire, especially on the Parts affected, are found of Service. A Liniment of Rum and Palm Oil, or a Plaister *de minio*, and *Oxycroceum*, apply'd along the Back, to cover the whole Spine, are much esteem'd; also the Oil of Snails is very famous for the same Intention; being what drains from them after bruising and suspending them in a flannel Bag; with this the Limbs and spinal Bones are anointed.

Certain *Bones* have been seen several Times to break easily, and we have on this Subject several Observations made by *Fabricius Hildanus*. A Man has been seen, says he, coming out of the Pox, who walking in his Room broke at once both his Thighs.

What causes the Fragility of the Bones is, that their Parts being disunited, and touching but slightly each other, they are separated by the least Violence made to them, which can happen in several Manners. 1. For want of Nutrition; then the whole Humidity remaining in the Texture of the Bone transpires insensibly, thro' the Heat of the neighbouring Parts, and in their Evaporation separate and carry off some Particles of the Bones, which renders them porous, brittle, and friable, like a Bone which has been for a long Time expos'd to the Air; therefore the Bones of such as are antient are more brittle than those of young Persons; just as we see old Branches of Trees easier broke than those of young Plants, especially in Winter. 2. But besides the Interception of the nutritious Juices, the Mass of Blood furnishes corrosive and very penetrating Salts, which pass and re-pass thro' the Pores of the Bones; they bruise some of their Parts, and carry off those with which they are associated, and calcine, in some Manner, the whole Body of the Bone, which will grow very like those Bones found in Fields; which, for having been too long expos'd to the Air, are grown white, hard, but very dry, brittle, and friable. These Alterations are observ'd in the Bones of those afflicted with the Pox, but particularly in those of the Scorbuticks, where the Juices are more active, and more penetrating. They have also been found in the Bones of Persons who had never been attack'd with any of those Maladies. 3. The Want and Alteration of the Marrow can also contribute towards this Malady of the Bones; for they keep up the Softness of the bony Fibres, if it be in a very small Quantity, and very thick, the Fibres and the Bone grow brittle. 4. It happens sometimes, that the *Caries* being internal, and without Pain, because it has not yet penetrated as far as the *Periosteum*, it remains only a *Lamina* of Bone, very sound, therefore they break in those Places at the least Violence made.

The CRACKING, or *Cliquetis of the Bones*, which is heard sometimes in the Motion of the Members, depends on the Acidity or Drineſs of the Articulations, occasion'd by the Liquor they are moisten'd with being exhausted; as it happens in certain Persons afflicted with the Pox, who hear a Noise in their Knees while they walk. This Noise may be caus'd by the Extension of the Ligaments and Tendons which surround the Articulation, which striking strongly against the Air, cause that Noise.

Having thus given an exact Description of all the different Maladies which attack both the Flesh and Bones of the human Body, and which fall under the Consideration of a *Chirurgeon*; having explain'd all the different Symptoms they are attended with, and form'd a Judgment of their different States; and having instructed my Pupil how to cure those which are curable: I'll pass to my *Chirurgical Operations*, which is the nicest Point of the whole Art, and wants most a dextrous and practis'd Hand. Therefore I'll open my Case of Instruments, where I hope to find them all in very good Order, very well set, and without Rust. But as I design to begin this important Subject with the easiest and most common Operations; I'll only arm myself at first with those which are necessary

to make a *Cautery*, a *Seton*, and for *Bleeding*, *Cupping*, and *Blisters*.

A CAUTERY, *Cauterium*, (from the *Greek* καυτηρ, or καυτηριον, form'd from καιω, *I burn*) is a Medicine to burn, eat thro', or corrode some solid Part of the Body. *Cauteries* are of two Kinds, *actual* and *potential*.

Actual CAUTERIES, are those which produce an instantaneous Effect; as Fire, or a red-hot Iron, which are apply'd in the *Fistula lachrymalis*, after Extirpation of Cancers, Amputations of Legs or Arms, &c. in order to stop the Hæmorrhages, and produce a laudable Suppuration. They are also sometimes apply'd to carious Bones, Abscesses, and malignant Ulcers, in order to open a Passage for the Discharge of the peccant Humours. The Irons us'd on these Occasions, are sometimes crooked at the Extremity, and that variously, according to the various Occasions; whence some are call'd *cultellary*, others *punctual*, others *olivary*, &c. M. *Homberg* assures us, that a great Part of the Medicine of the People of *Java*, and other Parts of the *East-Indies*, consists in Burning, or the Application of *actual Cauteries*; and that there is scarce any Disease but they will happily cure thereby.

The *actual Cautery* of hot Iron is frequently apply'd for the making of Issues in Parts where Cutting is difficult, or inconvenient: It makes a little round Hole, which is to be fill'd up with a Pea, or Ivy-Berry, to keep it open for the Humour to pass through. *Pareus* describes a Method of making *Velvet*, or silken *Cauteries*, so call'd either because they give no Pain, or because he purchas'd the Secret at a dear Rate, from a certain Chymist. The *Cautery* describ'd by *Galen*, is a brazen Tube, thro' which a little red-hot Iron is thrust to the Part.

Potential CAUTERIES, are Compositions of caustick Medicines, usually of Quick-lime, black Soap, and Chimney-Soot. Take as much Silver as you please, let it be dissolv'd with three Times as much Spirit of Nitre in a Phial; put the Phial to a Sand-Heat, to evaporate two Thirds of the Humidity: Pour what's left into a good Crucible, place it over a slow Fire till the Matter descends to the Bottom, which will grow like Oil, which must be pour'd, then, into a hot Mould, and it will coagulate; after which you must keep it for Use in a Phial, very well cork'd. This *Cautery* is the best, and of an Ounce of Silver you'll extract an Ounce and five Drachms of *potential Cautery*.

In the Operation the *actual Cauteries* are the surest, because they are apply'd when we will, as long as we please, and for what Effect we please; whereas the *Potentials* can't be so well manag'd; but in Hæmorrhages *potential Cauteries* are the surest, because the Scar they make being not so quick, they close better the Vessels, which are not so subject to open when it falls, as it is seen often at the Fall of the Scar by Fire.

Cauteries, otherwise call'd ISSUES, are apply'd where-ever there is to be Attraction, to correct the *Intemperies*, or stop the Course of Humours, by making a Scar to the Part; however, the Places they are commonly affix'd to, are the *Fontanella* on the Head, the Back, between the first and second *Vertebra*, at the exterior Part of the Arm, in a small Hollow which is between the Muscle *Deltoides*, and the *Biceps*; between the Muscle *Psoas*, and *Vastus internus* in the Inside of the Knee, above the *Flexores* of the Leg; observing, that the *Issue* be plac'd every where near the great Vessels, that it may draw, and purge more abundantly.

There is an easy Way of making an *Issue*, which succeeds best in Children; it is done after this Manner: Having apply'd a small Piece of blistering Plaister, about the Bigness of a small Pea, to the Part where you would have an *Issue*, and letting it lie on for a few Hours, it will cause a Blister; the Skin being rais'd, apply a Pea as usual, and compress it tight with a Bandage, till by Degrees it sinks in, and forms an *Issue*.

Some People have so advantageous an Opinion of *Issues*, even to Infatuation, that they have us'd them for the slightest Indisposition, especially for their Children; without considering, that those tender Bodies, seldom loaded with Humours, have their Parts robbed of their nutritious Substance thro' those *Issues*; which, in Process of Time, renders them subject to very dangerous Maladies, as inward Decays, Consumptions, &c. of which I have seen several Examples. In *Portugal*, *Issues* are so much in Fashion, that a Person there, even among those of the first Rank, is accounted to be very careless of his Health, who has not five or six *Issues*, at least; there are some who have twelve or fifteen; and the first Salute you receive from a Friend, instead of our *How do you do*, is, *How are your Cauteries*, or *Issues*. The Ladies have also their Share of them, which, between the Husband and the Wife, would be a very pleasant Nosegay, for any Foreigner who would visit them in the Morning.

The SETON, *Setaceum*, is a Wound made in the Skin of the Hind-part of the Neck, which is kept suppurating by Means of a little Skein of Silk or Cotton pass'd thro' it, and which has very near the same Effect as a Cautery. It must be observ'd, that the Skein of Silk ought to be dipp'd in Oil of Roses, and one of its Ends should be longer than the other, to procure the Evacuation of the Humours. Tho' the *Seton* be commonly made on the Neck, it nevertheless can be apply'd any where else, as Occasion requires it. It often happens, that a *Chirurgeon* is oblig'd to use it in Wounds made with a small Sword, or with a Musket, which run thro' and thro', then the Skein is soak'd in proper Medicaments, and every Time the *Apparatus* is rais'd, that Part drench'd with Pus must be cut off, which is then drawn from the Ulcer.

CUPPING, is an Operation for the Discharge of Blood and other Humours, by the Skin. It is perform'd by collecting the Humours into a Tumour under the *Cutis*, and letting them out thence by Scarification. The Instruments us'd therein are the *Cucurbitulæ*, or *Cupping-Glasses*, which are glass Vessels whose Bottoms are a little larger than the Entrances.

Cupping is perform'd either *dry* or *wet*. *Dry Cupping* is when it is done without opening the Skin; and the *humid*, or *wet*, when made with Scarifications. The Operation is perform'd thus: The Vessel is heated with Candles, Tow, a Torch, Lamp, or the like; but in my Opinion Tow is best, and less troublesome. A Ball of it is made slightly between both Hands, and thrust into the *Cucurbitulæ*, which is afterwards held over a Candle; the Flame of the Candle catches the Tow, which immediately appears all in Flames; in which State the Vessel must quickly be apply'd close to the Part, which is no sooner done but the Flame is extinguish'd, and the Tumour begins to rise; for the Air in the Cavity of the Vessel being, by this Means, rarefy'd, and brought near to the Condition of a *Vacuum*; that Part of the Body cover'd by it becoming less press'd by the Air than the rest, its Juices are forc'd up with the *Cutis*, and raise a Bunch in the Cavity of the Vessel; to which the Scarificator being apply'd, and ten or twelve Incisions made at the same Time, a plentiful Evacuation is effected. But it must be observ'd, that the Vessel thus in Flames must be apply'd three or four Times successively, before the Tumour can be rais'd enough to be scarify'd. Every Time the Vessel is taken off, to put fresh Tow into it, it must be done gently, moving it backwards and forwards, and not drawing it all at once; for it will hurt the Patient, and perhaps break the Vessel.

This Operation is perform'd in all the Maladies where it is necessary to make Attraction; but more particularly in the Apoplexy, Vapours in Women, Paralisy, and the like. In the Apoplexy they are apply'd on the Shoulders, or on the *Sacrum*; for Vapours

pours in Women, on the Thighs; and for the Paralisy, on the paralitick Parts.

A LEACH is a small Animal like a Worm, which sucks Blood; 'tis commonly apply'd on Children, and weak Persons, in lieu of Bleeding. *Leaches* are also us'd in Fluxions, when the Hemorrhoides, or Piles, are too full, for the *Varices*, and on the different Parts of the Face.

For the Choice of *Leaches*, those must be taken which have their Backs green, and their Bellies red; they must be fish'd in pure and running Waters, and at Noon-Day; and those must be rejected which are black and hairy.

BLEEDING, more properly call'd PHLEBOTOMY, (from the *Greek* φλεψ, Vein, and τεμνειν, to cut) is a Species of Evacuation of the utmost Importance in Medicine, perform'd by the *Chirurgeon* by the artificial Incision of a Vein or Artery.

The Vessels open'd in *Phlebotomy*, are the *preparate Vein*, in the Forehead; the *Ranulæ*, under the Tongue; the *jugulary Veins* and *Arteries* in the Neck; the *temporal Arteries* in the Temples; the *Basilica*, *Cephalica*, and *Mediana*, in the Arms; the *Salvatella* between the *Annularis* and little Finger; the *Saphena* on the internal *Malleous*, or Ankle; and the *Ischiatica* on the external.

The Conditions requisite to *bleed* well, are, to chuse well the Vessel, to not prick at a Venture, to not *bleed* without Necessity, or the Advice of a Physician, who must know the proper Times for it, as that of the Intermission in Intermitting Fevers, the Cool of the Morning in Summer, and towards Noon in Winter; and how to make different Orifices; for in Summer they ought to be smaller, and greater in Winter.

To perform this Operation, the *Chirurgeon* must take his *Lancet*, with the Thumb and the Index, resting the other three Fingers on the Arm of the Patient; he pushes the Point of the *Lancet* into the Vessel, and raises that Point upwards, to make the Orifice bigger. If there was a Tendon, which is known by its Hardness, or an Artery, discover'd by its Pulsation, off the Vein, and very near it, the *Lancet* must only be plung'd deep into the Vein in Cutting, and be drawn upright, without making a *Levee*, or Rising; otherwise the Artery or Tendon would be cut with the Point. If the Artery or Tendon were immediately under the Vein, the Vein should be prick'd a little underneath, and keeping the *Lancet* inclin'd, and advancing it a very little forwards, the Point will perfect the Opening, in raising it. If the Artery was too close to the Vein, the Wound should be made higher or lower than usual. If the Vein was superficial, and leaning on a hard Muscle, the *Lancet* must not be push'd upright into the Vein, but must be inclin'd, and take the Vessel underneath; otherwise the Muscle and its Membrane would be prick'd, which would cause a violent Pain, and perhaps a great Inflammation. Every Body knows that this Operation is to be perform'd with the right Hand on the right Arm, and with the left on the left Arm.

The Operation ended, a Bandage is made on the Part with a Compress apply'd on the Orifice; 'tis kept with two Fingers, taking the Band with the other Hand. The End of the Band is held with the middle Finger, the Index, and the Thumb, and apply'd on the Compress; several *Ties* are made of the longer End of the Band in the Plit of the Arm, and revers'd with its shorter End kept between the three Fingers, tying both Ends of the Band under the Elbow.

Bleeding is subject to several Accidents, some greater, some less. Those Accidents are the *Apostbume*, the *Thrombus*, *Echymosis*, *Hypothymia*, *Fainting*, and *Convulsion*.

The THROMBUS is a small Tumour of the Blood which happens at the very Place where the Wound is made, in *Bleeding*, occasion'd by the Orifice having been made too small, or greater than the Capacity of the Vessel. The *Thrombus* is never attended with any dangerous Consequences; and can be cured by only placing a Compress wetted in fresh Water, between the Foldings thereof there must be some Salt, which resolves the Tumour, and hinders the Suppuration.

One of the most dangerous Accidents which can happen in *Bleeding*, is the pricking of an *Artery*, which when not entirely open'd, causes the *Aneurism*, and the opening causes the Loss of a florid Blood, which flows in abundance, and by *Sallies*. Though the *Sallies* of the Blood in coming out, are not always certain Signs that an *Artery* has been prick'd; because it might happen, that the *Basilica* will be found leaning directly on the *Artery*, whose Pulsation will make the Blood of the *Basilica* come out by *Sallies*; therefore these three Circumstances must be join'd, to be certain that the Blood flows from an *Artery*, of a *florid Colour*, *Abundance*, and *Sally*.

To avoid pricking the *Artery*, in *Bleeding*, my Pupil must know, that the *Artery* is placed in the Arm under the *Basilica*, and that he must feel it before he makes the Ligature, and observe well if it be profound, or superficial; for if it be superficial, it may be easily avoided, by pricking the Vein higher or lower; but however, when by Misfortune, Imprudence, or Ignorance, an *Artery* has been open'd, if it be well open'd, the Blood must be let to flow, till the Person falls into a *Syncope*, or faints away, and through that Means 'tis easier to stop the Blood afterwards; which will be done by making a good Bandage with several Compresses, putting in the first a Counter, or a Half-penny, tho' a Piece of chewed Paper is best, with graduated Compresses over it.

It may be ask'd in this Place, if the opening of an *Artery* by Accident, be attended with such dangerous Consequences, why the *Arteries* of the Temples are open'd to ease the violent Pains of the Head? I'll answer, that in that Place the *Arteries* being situated on the Bones which press them behind, their Re-union is thereby render'd easier.

It also sometimes happens, that the Tendon, or rather its *Aponeurosis*, is touch'd in *Bleeding*, which is known, when in opening the *Mediana*, the *Chirurgeon* has found some Resistance at the End of his *Lancet*, the Patient has felt a violent Pain, the Blood flows in abundance, and the Arm is seen to swell. The Remedy to this Accident, is, to place on the Vessel a Compress dipp'd in *Oxycrat*, to make a proper Bandage, and keep the Arm in a Scarf. If the Inflammation which happens, was follow'd with Suppuration, it must be entertain'd by a small Tent. If the Suppuration was great, the Wound must be dilated, and the Balsam of *Arceus*, with a good Digestive, or Oil of Eggs with Brandy, must be used. Placing over it a Plaister of *Ceratum*, making an Embrocation on the Arm, with Oil of Roses, and dipping Compresses in *Oxycrat* to cover the whole.

Note, That there is no fear of wounding the Nerves in *Bleeding*, because they are too deeply situated to be touch'd. That in the *Bleeding* of the Foot, there are very few or no Accidents to be fear'd, because the Veins of the Muscles are accompany'd with no Arteries, nor Tendons. Therefore 'tis said that the Arm must be given to a Master *Chirurgeon*, and the Foot can be given to a Prentice.

An Idea of the Effects of *Phlebotomy*, or *Bleeding*, with the Reason of its Use, may be conceiv'd by what follows. It is evident, the Blood thrown out of the Heart, while it strikes upon the antecedent Blood, and drives forwards, transfers to it Part of its own Motion, and is therefore so much retarded in its own Motion. Hence if the Blood be drawn out of the *Basilica* Vein of the Right Arm, the succeeding Blood, or that carry'd by the axillary Artery, or right Subclavian, will be less hinder'd in its Motion, than it was before that Vein was open'd; for Part of the Blood being taken away by the open-

ing of that Vein, there remains behind a lesser Quantity in the Axillary Vein, or less is contain'd between the further Extremity of the Axillary Artery and the Heart, than was before; therefore the Blood being let out by the Vein, the Remainder in the Artery will be less impeded in its Motion than before. Hence the Blood of that Artery, which communicates with the Vein that is open'd, will flow with the greater Velocity after the Aperture is made than before. Consequently while the Blood is flowing out of the Vein in the Arm, that thrown out of the Heart into the *Aorta*, will find less Resistance in the ascending Trunk than in the descending; and will therefore flow faster in the ascending than in the descending Trunk: And thence too it will find less Resistance in the right Subclavian Artery than in the left.

Lastly, It hence appears, that the Blood being let out of a Vein in the right Arm, the remaining Blood in the right Axillary Artery runs with a greater Velocity into the Artery of that Arm which is contiguous to it, than thro' the Thoracick Artery, or the right Scapulary, which is likewise contiguous to it; because when the Blood is not suppos'd to be drawn out from any Vein corresponding to the Thoracick Artery, or into which this discharges itself, there is proportionably a greater Impediment to the Motion of the Blood in the Thoracick Artery, than in that of the Arm. But because the Velocity of the Blood in the Subclavian Artery, or the right Axillary, is greater than the left; the Velocity in the right Thoracick, will also be greater than in the left Thoracick Artery. Hence it is manifest, that the Blood being let out of a Vein in the right Arm, the greatest Velocity of the remaining Blood will be in the Artery of that Arm, because it immediately empties its Blood into the Vein that is open'd; and the next greatest Velocity will be in the Thoracick Artery, or Scapulary of the same Side, going out from the Axillary Artery. But the Velocity of the Blood, will be far less in the Brachial, Axillary, and Thoracick Artery, on the left and opposite Side; and least of all in the Arteries arising from the descending Trunk of the *Aorta*.

On this View it may be easily conjectur'd, what is to be done in the several Circumstances of *Blood-letting*: For Instance, if we would prevent the Increase of any Humour from the Blood stagnating in the left Leg, or bring it about, that as little Blood as possible, should flow from that Leg in any given Space of Time; First, Blood is to be taken from the Arm, or Leg of the right Side, because this is truly making what's call'd a *Revulsion*. Again, if Blood be drawn away, on the same Side, and from some Vein that receives the Blood from a Branch of that Trunk which transmits it to the swelled Part; it will occasion a greater Derivation of Blood to that Limb. As to what relates to the whole Habit, in all Lentors, and Viscidities, if there be a due Strength and Elasticity remaining in the Solids, *Phlebotomy* will make the remaining Blood circulate the faster, and become thinner and warmer; but in a *Plethora*, from a Debauch, and too large Quantity of spirituous Nourishment, or from a Diminution of Perspiration, while the Blood yet retains its natural Fluxility, *Phlebotomy* will make the remaining Mass circulate slower, and become cooler.

In the former Case, a Diminution of the Resistance in the Blood-Vessels, will increase the contractile Powers of those Vessels, and make them beat faster, and circulate their Contents with greater Velocity; but in the latter Case a Diminution of the Quantity of a spirituous Blood will lessen the Quantity of Spirits secreted in the Brain; the Consequences of which will be, that the Heart and Arteries will not contract so often, nor so strongly as before; and therefore the Blood will move slower, and become cooler. And on these Things depends the whole Doctrine of *Blood-letting*.

From these easy Operations, which can be made with the light Instruments we carry in our Pockets, we'll pass to the most difficult ones, and which want a greater *Apparatus* of Instruments: And first by those made on the Head and Face, descending to the Breast, from thence to the *Abdomen*, and ending at the Legs and Feet.

The first Operation made on the Head, and the most considerable one, is, that of TREPANING, to relieve Cuts, Contusions, Caries's, and Fractures in the Skull, by Means of an Instrument call'd the *Trepanum*, or Trepan.

Note, that the *Trepan* is an Instrument made in Form of a *Terebellum*, or small Wimble, only the Handle indented somewhat in Manner of a round Saw, having a broad Circle over its Point, to prevent it, in the Operation, from penetrating thro' the Membranes that invest the Brain. It has usually a sharp Nail in the Middle of its Circumference, serving to keep it firm and steady during the Operation. It should also have a kind of Cope to rise and fall as Occasion requires, that it may not go deeper in the Bone than is necessary. There are also two-pointed *Trepans*, other triangular, quadrangular, and hexagonal, for the Cure of a Caries of the Bones. Also perforative *Trepans*, and exfoliative ones.

Tho' we be thus provided with a *Trepan*, we must observe, before we fall to work, 1. That there is no *Trepaning* on the supercilious *Sinus's*, because of their Cavity, nor on the Sutures, because of the Vessels which pass there; nor on the temporal Bones, without an urging Necessity, especially on that Part which joins with the Parietal, because the Extremity of that Bone would part, being only apply'd on the Parietal; nor on the Middle of the Coronal, and Occipital, because of an interior Eminence to which the *Dura Mater* adheres; nor on the lateral *Sinus's* which are situated on the Side of the Occipital. 2. That if the Fracture be very narrow, the *Trepan* may be apply'd upon it; but it is better to *trepan* on the Side of the Fracture, on the inferior Part; that the *Trepan* is never apply'd on Hollownesses; and that if the Bones part, there ought to be no other *Trepaning* than to raise them with the *Elevatory*.

These being carefully observ'd, we'll begin the Operation, by shaving the Hairs; and then we'll make an Incision in Form of a Cross, if the Wound be far from the Sutures, and there be no Muscles to cut; in Form of a T, or of a ⊤, if made near the Sutures, the Foot of the ⊤, or T, being made parallel to the Sutures, and the Top of the latter descending towards the Temples. It is also made in the Middle of the Forehead. If it suffices to make a longitudinal Incision in the Forehead, the Wrinkles must be follow'd, since the Seam will be less deform'd; but the Incision is never made there in form of a Cross, neither are the Lips of the Part cut. If the Incision be made on the Cratophites Muscle, or on the hind Part of the Head, it must be in Form of an V, whose Point will meet with the Bottom of the Muscles; it is still better to make a longitudinal Incision on that Part, because there are less Fibres cut. The Incision must always begin at the inferior Part, to hinder the Blood from being troublesome. It must be made with a *Bistoury*, boldly, if there be no Depth or Hollowness; and if there is, it must not be too much lean'd upon. The Incision made, the Lips are to be separated from the *Cranium*, with the Fingers, or some other proper Instrument. If there be no urging Necessity to apply the *Trepan*, it may be deferr'd to the next Day, filling up the Wound with Lint cover'd with a Plaister, a Compress, and the great *Cover-chief*, which we'll teach how it is to be made, after the Operation, which must be continu'd with the Perforative, to make a small Hole, in order to keep steady the Pyramid which is in the *Corona*, after which the *Corona* is apply'd;

apply'd; then holding the Instrument fast with the left Hand, it must be turn'd with the right pretty quick at first. When the *Corona* has made its Way, 'tis rais'd, to take off the Pyramid, lest that Point should prick the *Dura mater*. The *Corona* is rais'd from Time to Time to brush away the Dust, or Chips, that proceed from the Perforation, and then begin a-new. When the Blood appears, the Operator must go softly, that the first Table of the Piece of Bone which is to be rais'd may not part from the second. When he approaches the *Dura mater*, he must go softly, and probe with the End of a Feather round the Bone, to see if he be in the *Cranium*. The *Trepan* must be often rais'd, to clean it, to hinder it from heating, and to probe the Hole; every Time it is rais'd, the Hole must be prob'd with a Pen Feather, to see if the Bone be cut even; and if not cut even, the Operator must lean heavier on that Side 'tis least cut. When the Bone begins to wag, it must be lifted up with the Myrtle-leaf, or taken out with a Pair of *Chirurgeon*'s Pincers, or Forceps. When the Piece is took out, all the Inequalities left at the Bottom of the Hole must be cut with the lenticular Knife; if there be Depths, they must be rais'd with the Elevatory. The *Dura mater* ought to be press'd a little with the Lenticulary, to facilitate the Evacuation of the Blood; the Patient is made to lean his Head, to shut his Nose and Mouth, and to stop his Breath, to make the Matter run out; and the *Dura mater* is wip'd with false Tents. If Pus was perceiv'd under it, it should be open'd with a *Lancet* thrust into the false Tent, to steal it from the Sight of the Assistants. A small Piece of linnen Cloth dipp'd in some Medicament, is put between the *Dura mater* and the *Cranium*; which Piece of Linnen is ty'd to a Thread, to be taken out when 'tis wanted. The Hole is fill'd up with Lint dipp'd into some proper Medicaments; the Wound is garnish'd with Lint, a Plaister, and the Cover-chief.

The Operator must go slower in *trepaning* Children, than when he *trepans* Adults, because their Bones are tenderer. On this Occasion, spirituous, not oily Medicaments, are to be us'd; the Exfoliation happens sometimes sooner, sometimes later.

The *Callus* closes ordinarily the Aperture of the *Cranium* in forty or fifty Days, if no Accidents happen. In the great Fractures, where the Bones have no Connexion together, they are carried off.

This Operation ended, the Hole fill'd up, and the Wound cover'd, the *Bandage*, which must be apply'd over the whole, is the *grand Cover-chief*, made of a great Napkin folded in two, but in such a Manner, that the Side which touches the Head should be four Fingers longer than that which does not touch it; 'tis apply'd on the Head by the Middle, a Servant keeping on the *Apparatus* with his Hand. The superior Ends of the Napkin must be kept under the Chin; the Operator takes the inferior Ends, and draws them by the Sides, so that the four Fingers of the Napkin, which are greater, be rais'd on the Forehead; the two Ends of the Napkin behind the Head are to be cross'd, and pinn'd where they end, avoiding making any Pleats, which would hurt the Patient. The Ends of the Napkin which fall on the Shoulders, are rais'd upon the Head, on that Side near the small Angle of the Eyes; the two Ends kept under the Chin, are pinn'd there, or ty'd.

The Operation of the HYDROCEPHALUS, is made to evacuate the Waters of the Head. If the Waters be under the Skin, a pretty large Aperture must be made to it with a *Lancet*, leaving a *Cannula* in the Aperture, to let the Waters ooze thro' it. In this Malady Cauteries and Scarifications may be of some Service. If the Waters are between the Brain and the *Dura mater*, it may be pierc'd with a *Lancet*, after *Trepaning*.

From the *Cranium* we'll descend to the Eyes, and make the Operation of the *Fistula lachrymalis*, and the *Ablation of the Cataract*.

The Operation of the *Fistula lachrymalis* is made when there is a fistulous Ulcer at the great Angle of the Eye, at the Place of the *Glandula lachrymalis*. It usually begins with an Abscess call'd *Anchilops*, which in Time produces an Ulcer call'd *Ægilops*, which afterwards degenerates into a *Fistula*. When press'd with the Finger, it yields a stinking Matter, not unlike the Yolk of an Egg; and the corrosive Humour finding, or making itself a Passage, there ensues a perpetual oozing. Sometimes the *Os Ethmoides* itself is corroded, and render'd carious by it; in which Condition it is suppos'd to be only curable by an *actual Cautery*; sometimes it becomes cancerous, and then *Riverius* directs all Medicines to be laid aside.

For the Operation of the *Fistula lachrymalis*, the Patient is put in a commodious Situation, his sound Eye is cover'd, to hinder him from seeing the Instruments; the bad Eye must be kept steady with a Spoon; an Incision, in Form of a Half Moon, is made on the Tumour with a *Lancet*, avoiding cutting the Eye-lid, or the small Cartilage which serves as a Pully to the great *Obliquus*; and if the Bone was carious, a small *actual Cautery* should be thrust into it; for this, a small Funnel is made Use of, thro' which is introduc'd the *Cautery* on the Bone. The Operator could forbear piercing the *Os unguis*, because it exfoliates entirely, by reason of its Thinness; therefore the Hole is made without piercing.

The *Apparatus* and Bandage of this Operation, is made by filling up the Wound with small dry Tents of Lint cover'd likewise with Lint, a Plaister over it, and a Compress over the Plaister. The *Bandage* is made with a Handkerchief folded triangular, whose Ends are ty'd behind the Head. If the Flesh grows too much, it must be consum'd with the infernal Stone; and if it be necessary to dilate the Wound to facilitate the Exfoliation, small Pieces of Spunge, prepar'd with Wax, must be thrust into it; afterwards the Callosities must be consum'd with *Causticks* mix'd with oily Remedies, to weaken the Action, taking Care that they should not incommode the Eye. If the Bone was carious, *Euphorbium* must be apply'd to it, or small Tents of Lint dipp'd in Tincture of Myrrh and Aloes. The Ulcer must be treated afterwards as all other Ulcers.

Note, That some perforate the *Os Nasi*, to give Room for the Matter to be evacuated that Way. A *French Chirurgeon*, nam'd *Anel*, has found out a new Way, *viz.* by putting a Probe and Syringe, of an inconceivable Fineness, thro' the *Puncta lachrymalia*, into the *Sacculus lachrymalis*.

The CATARACT is a Suffusion of Sight arising from a little Film, or Pellicle, which swimming in the aqueous Humour of the Eye, and getting before the Pupil, intercepts the Rays of Light. The *Cataract* is suppos'd to be form'd by a Condensation of the more viscous Parts of the aqueous Humour, between the *Uvea* and the Crystalline itself; which is only an Assemblage of several little Pellicles laid over one another.

There are two Kinds of *Cataracts*, the *genuine* and *spurious*; the first owing to a Humour amass'd in the Eye, coagulated and fix'd therein, and destroying its Use; the latter arises from Fumes, or Vapours, thrown upon the Eye by some Accident; as in a Fever, *&c.* The *genuine Cataract* has several Degrees, and several Names; at first the Patient sees, as it were, Clouds, Moats, Flies, *&c.* diffus'd over the Objects in View; thus far the *Cataract* is call'd *imaginary*, there being nothing yet appearing to the Eye of another Person. As the Suffusion increases, the Pupil begins to appear of a Sea-green Colour, sometimes like the Air full of Clouds, and then the *Cataract* is call'd *Water*, or *Water-Fall*. When the Evil is arriv'd at its Height, and the Matter sufficiently coagulated, the Patient loses all Sight; the Pupil ceases to be transparent, but becomes white, or brown, or some

ſome other Colour, which laſt is properly what we denominate a *Cataract*. The yellow, black, or Lead-colour *Cataracts*, are not to be couch'd, ſince they are nothing elſe but what's commonly call'd *Glaucoma*, *i.e.* the Cryſtalline of the Eye ſo much indurated, or vitiated, that the Light can't paſs thro' it, to make its Impreſſion on the Retina. The Operation is made to blue, green, Pearl colour, *&c. Cataracts*. To know if the *Cataract* be in a Condition to be couch'd, the Patient is order'd to rub his Eye; if the *Cataract* remains immoveable, it muſt be couch'd; but if it changes Place, the Operation muſt be deferr'd till it has grown ſolid. The Spring and Autumn are the moſt proper Seaſons for this Operation, which muſt be effected in the following Manner:

The Patient is made to ſit down, the Eyes turn'd towards the Light; after the ſound Eye ſhall have been cover'd, the *Chirurgeon* muſt ſit on a Seat higher than that of the Patient, a Servant muſt hold the Patient's Head, who muſt be order'd to turn the Eye towards the Noſe; the Globe of the Eye muſt be kept ſteddy, with the *Speculum oculi*, which is a ſmall Machine in Form of a Spoon, pierc'd in the Middle; thro' which the Eye is made to paſs. The *Chirurgeon* takes a round, or flat ſteel Needle, which he judges beſt; with which he pierces the *Adnata*, by the Edge of the *Cornea*, on the Side of the little *Canthus*, or ſmall Angle of the Eye, puſhing boldly his Needle till he comes to the Middle of the *Cataract*. He puſhes the *Cataract* upwards, to looſen it, and then downwards, keeping it ſometimes, with the Point of his Needle, beneath the Pupil; if it re aſcends after he has quitted his Hold, it muſt be brought down again. The Operation is ended, when the *Cataract* remains where he has lodg'd it, in the Bottom of the Eye. In pulling out the Needle, he muſt cloſe the Eye-lids, and preſs them a little upon the Eye.

The *Apparatus* and *Bandage* of this Operation is to cloſe both the Eyes of the Patient, and put a Band over them. He muſt keep his Bed for ſeven or eight Days, and ſome Defenſive is put upon the Eye, to hinder the Inflammation.

This is the ordinary Theory and Practice of the *Cataract*, which ſome modern *Phyſicians* and *Chirurgeons*, as *Heiſter*, *Briſſeau*, *Maitre Jan*, &c. oppoſe, and ſubſtitute a new one in its Place. This Opinion is, that inſtead of couching, or lying a little Membrane, or Pellicle, it is the Cryſtalline itſelf that is thus couch'd, and lodg'd in the Bottom of the vitreous Humour. This they ſuppoſe to have been condens'd, and to have loſt its Tranſparency; whence, inſtead of being an Inſtrument of Viſion, it proves an Obſtacle to it, by ſhutting out the Rays from the Retina. This Alteration of its Tranſparency, is accompany'd with a Change of Colour; it ſometimes becomes greeniſh, and on this Account is call'd, by the *Greeks*, *Glaucoma*. The *Glaucoma* and *Cataract*, therefore, in their Opinion, are the ſame Thing; tho' in the other Hypotheſis they are very different; the firſt being reputed incurable, but not the latter.

The chief Reaſon urg'd in Behalf of this latter Hypotheſis, in the Royal Academy of Sciences, where it was propos'd, is, that after the Operation of Couching, the Perſon can't ſee without a convex Lens. Now if no more were done than the taking away a Pellicle from before the Cryſtalline, it would be in the ſame Condition as before, and would make the ſame Refractions; nor would any Lens be neceſſary; whereas, ſuppoſing the Cryſtalline couch'd, it is evident the Lens will be requir'd to ſupply its Place. To which it is anſwer'd, that there have been Inſtances of Perſons who have ſeen, after Couching, without any Lens; at leaſt it is granted, that immediately after the Operation ſeveral Perſons have ſeen very diſtinctly; and tho' Lens's ſoon become neceſſary, yet the firſt Moment wherein they ſaw without, ſeems to be a Proof that the Cryſtalline was not couch'd.

M. *De la Hire*, in Confirmation of the antient Syſtem, aſſigns this Reaſon for the Neceſſity of a Lens after the Operation, *viz.* that the Vice which produc'd the *Cataract* is ſtill ſubſiſting in the aqueous Humour; which being too thick and muddy, lets too few Rays paſs: A Failing to be repair'd by a Lens, which throws a greater Quantity of Rays on the Retina. He adds ſome Experiments made on the Eyes of an Ox; the Reſult of which was, that the Cryſtalline could never be laid perfectly in the Bottom of the Eye, but there ſtill ſtuck up, ſo as to ſtop up Part of the Paſſage of the Rays; partly on Account of its Bulk, and partly on that of its being ſuſtain'd by the vitreous and aqueous Humours. He adds, that in the Operation of Couching, the *Needle* is apt to ſcratch the interior Surface of the Cryſtalline, and open the Membrane, wherein it is enveloped; the Conſequence of which will be Wrinkles, which will render the Refractions irregular, and change the Direction of the Rays which ſhould all meet in the ſame Point; ſo as to ſpoil the Repreſentation of Objects. Laſtly, it is inſiſted, that if the Cryſtalline be couch'd, the Patient would not ſee at all, for want of the neceſſary Refractions.

M. *Antoine*, on the other hand relates, that upon opening a Perſon whom he had couch'd on both Eyes, he found the two Cryſtallines actually couch'd, and lodg'd at the Bottom, between the vitreous Humour, and the *Uvea*, where they were left by the Needle; and yet the Perſon ſaw without either; which ſhews, both that the Operation of Couching the Cryſtalline is practicable, and that Viſion may be perform'd without it; in effect the vitreous and aqueous Humour, upon removing the Cryſtalline, may be ſuppos'd to run into the Cavity, to aſſume the Figure of its Mould, and perform the Refractions and Offices of the Cryſtalline; it being found by Experiment, that the Refraction is the ſame in both Humours.

To ſhew, however, that there are *Cataracts* diſtinct from *Glaucomas*, M. *Littre* produc'd before the Society, an Eye of a Man blind twenty-two Years, wherein was a diſtinct *Cataract*, or Pellicle, which clos'd the Aperture of the Pupil.

There are other Operations made on the Eyes, beſides thoſe of *Fiſtula Lachrymalis*, and the *Ablation* of the *Cataract*, viz. 1. There is, ſometimes, *Pus* under the *Cornea*; to extract which the Eye is kept ſteady by means of the *Speculum Oculi*; a ſmall Inciſion is made with a fine Lancet, and the Eye a little preſs'd, to procure the Evacuation of the *Pus*. If it was too thick it muſt be extracted, by ſucking it ſoftly thro' a ſmall Pipe, in the Middle thereof there muſt be a ſmall Phial, into which the *Pus* falls, while ſuck'd. 2. A ſmall Tumour grows often in the Eye. That Tumour muſt be ty'd by the Root with a running Knot, to tye the Tumour faſter, from time to time, to make the Tumour fall. If the Tumour was on the Hole of the Pupil, this Operation muſt not be attempted, becauſe it would hinder the Paſſage of the Light. 3. Sometimes there is a pretty hard Membrane, called *Unguis*, formed at the great *Canthus*, or Angle of the Eye. If that Tumour was not adherent to the great Angle, it ſhould be cut at its Root, by tying it; this is performed with a blunt Needle, with a Thread which muſt be run under the Membrane, and then tied. 4. If the Eye-lids were glued together, the Operator muſt take a bow'd Needle, blunted and threaded, which he muſt run under the Eye-lids, drawing afterwards the Ends of the Thread to raiſe the Eye-lids; and then they are to be ſeparated with a Lancet. 5. If the *Cils* or Hairs prick the Eye, they muſt be pull'd out one by one, with a Pair of Pinchers. 6. If there were ſmall, hard, and tranſparent Tumours on the Eye-lids, they muſt be open'd, for to evacuate the *Pus*.

Quitting the Eyes, we'll lay hold of the *Noſe*, not to pull, or lead any Body by it, tho' the laſt be much in Faſhion, at preſent, and tho' often led by the Noſe myſelf, I ſhall not attempt to lead others, but only undertake the Extirpation of the *Polypus*, from that Part.

The Operation of the POLYPUS is made when there are Excreſcences of Fleſh in the Noſtrils. If the

the *Polypus*, or Excrescences of the Flesh were livid, stinking, hard, painful, and very adherent, they ought not to be touch'd, they are Cancers, and not *Polypus*; but if they are whitish, red, hanging, and without Pain, the Extirpation must be made with Pinchers. The *Polypus* is seiz'd as near its Root as possible; the *Forceps* is moved from one Side to the other, to loosen the *Polypus*. If the *Polypus* descends into the Throat, it must be extracted through the Mouth, with bow'd Pinchers. If after the Operation there happens an Hæmorrhage, 'tis stopp'd by introducing into the Nostrils, Tents dipp'd in some stiptick Liquor, or the Liquor shall be syring'd into the Part.

From the Nose we'll descend to the Mouth, and make the Operation of the *Bec de Lievre*. This Operation is made when the Lip is split. If there was a great Loss of Substance, the Operation is not to be made; 'tis never made to aged People, nor to the Scorbuticks, and very seldom to Children, because their continual Cries hinder the Re-union. But if it should be made to them, they ought to be kept a long while without sleeping, that they may sleep while the Operation lasts.

To make this Operation if the Lip was adherent to the Gum, it must be loosen'd with a Bistoury, without touching the Gum. The Edges of the *Bec de Lievre* must be a little par'd with the Scissars, to help the Re-union; which to perform with the more Ease, the Edges of the *Bec de Lievre* should be laid hold of with Pincers. The Servant, who supports the Head of the Patient, must press his Cheeks forward, to approach the Edges of the *Bec de Lievre*; then a Needle threaded with a wax'd Thread must be run thro' both the Edges of the Wound, from outwards, inwards, at one Line Distance from the Edges; the Operator must take Care that the two Edges of the *Bec de Lievre* should be very well adjusted together, and very equal; the Thread is turn'd round the Needle, by crossing over.

For the *Apparatus* and *Bandage*, the Lips of the Wound must be wash'd with hot Wine; the Points of the Needles are cut, and small Compresses apply'd to their Ends. Lint with some good Balsam is apply'd on the Wound, and a Piece of linnen Cloth dipp'd in some desiccative Liquor plac'd between the Lips and the Gum, to hinder them from gluing together, if they must have been separated. Over all is put an agglutinative Plaister, which must be sustain'd with an uniting Bandage, which is a small Band pierc'd in the Middle. 'Tis pass'd behind the Head, and brought before; one of its Ends is pass'd thro' the Hole, which is apply'd on the Wound, and both Ends of the Band pass'd where 'tis ty'd. A Number of Needles must be put in Proportion to the Length of the Wound, which Wound must be dress'd three Days afterwards. For the first Time no other Thread but that of the middle Needle, if there be three, is to be put round it; to effect which, a Servant must push the Cheeks forward. The eighth Day the middle Needle, if it be a young Child, must be taken off, tho' the Needles are not to be taken off till the Edges of the Wound appear to be join'd; neither are they to be left too long, because the Holes they have made could not be clos'd without some Difficulty.

The Throat being the Part next to the Mouth, we'll stick there, while we make the Operation of the *Bronchotomy*.

The Operation of the BRONCHOTOMY, is to cut into the Wind-Pipe to prevent Suffocation in a Squinancy; or an Incision in the *Trachæa*, or Wind-Pipe, between two of its *Annuli*, or Rings, in order to give Passage for the Breath, when there is Danger of Suffocation. It is perform'd thus: The Body of the Patient being prepar'd, an Incision is made between the third and fourth *Annuli*, or in the *Trachæa*. In separating the Muscles *Sternohioides*, Care must be taken not to cut the recurrent Nerves, because the Patient would lose his Voice; nor the Glands *Tyroides*. The Skin and Integuments divided, and the Muscles remov'd, a silver Tube is apply'd, short and flat, a little bow'd, and not thrust too far, for Fear it should cause a Cough. This Tube must have two small Rings, to fix two Ribbands on them, which must be ty'd round the Neck. 'Tis left in the Wound till the Accidents are over, after which 'tis took out, and the Lips of the Wound approach'd near one another with the uniting Bandage above describ'd, and the Wound dress'd.

Dr. *Musgrave* observes, that in all Medicines there is not one Method that works so great a Change for the better in so short a Time. However, it is seldom practis'd, in regard that Gap which appears on the cutting a Throat, (the divided Parts being then drawn towards their more fix'd Ends) together with the great Efflux of Blood when the jugular and carotid Arteries are also wounded, create in most Men a Dread of the Operation, and make many believe all Wounds of the *Trachea* mortal. The same Author makes no Scruple, however, to say it ought to be practis'd in Quinsies, and other Dangers of Suffocation, from Causes of a like Nature with them; from an extraordinary Cure which he himself had wrought in this Way.

Leaving the Throat, we'll lean on the Breast, (tho' perhaps not a very white and firm one) to make the Operation of the *Cancer*.

The CANCER is no bigger than a Pea, at first; 'tis a small, hard, blackish Tumour, sometimes livid, and troublesome by its Itching. When it has increas'd, the Tumour appears hard and livid, causing a supportable Pain at first, and an insupportable one in the Augmentation. When 'tis ready to ulcerate, the Heat is great, and the Pulsation pricking; the Veins around it are swell'd, and full of a black Blood; they extend themselves, like the Legs of a Lobster, till Death happens. When the *Cancer* is not ulcerated, 'tis call'd occult, and *manifest* when ulcerated.

The palliative Remedies for an *occult Cancer*, and to hinder it from ulcerating, are, a Cataplasm of *Hemlock*, newly made; all the Species of Chicory, the Decoction of *Solanum*, the Juice of its Plants, that of Scabious, Plantain, and Crab-fishes, pounded in a leaden Mortar, and their Juice beaten in the same Mortar, is excellent. The human Excrements, or Urine distill'd and apply'd on the *occult Cancer*, are very good. This is an excellent Remedy: Take an Ounce of burnt Lard, two Ounces of Oil of Roses, and six Drachms of Saffron; beat the whole in a hot Mortar, and apply it on the Part. The Amalgama of Lead with Mercury is very good; the Patient must be purg'd with black Hellebore, and *Mercurius dulcis*.

When the *Cancer* is ulcerated, the Spirit of Chimney-Soot is us'd with Success; but if the *Cancer* is to be extirpated, it must be done in the following Manner:

The Patient being laid on a Bed, the Arm on the Side of the *Cancer* must be rais'd upwards, and backwards, to give a greater Relief to the Tumour. A Needle threaded with a strong Fillet must be run thro' the Basis of the Breast; the Thread must be cut, to take off the Needle, which must be run again thro' the Breast, to make the Threads cross one another. The four Ends of the Threads are ty'd together, of which is made a Handle to raise the Tumour, which must be cut all round, as far as the Ribs, with a very good Razor. The Operator begins to cut at the inferior Part, to end at the Vessels next under the Arm, where a small Piece of Flesh is left, to stop the Blood with less Difficulty. A Button of Vitriol is put on the Vessels, or Lint dipp'd in Stiptick-water; the Edges of the Breast are press'd with the Hands, to evacuate the Blood, and the Humours.

For the *Apparatus*, the Wound is garnish'd with Lint cover'd with astringent Powders, a Plaister, a Compress, a Napkin round the Breast, and the Scapulary to keep it up.

Instead of running Threads thro' the Breast, 'tis better to have *Forceps*, turn'd at both Ends, in Form of a Half-Moon, so that both Ends of the two Half-Moons

Moons pass over one another, when the *Forceps* are shut; the Breast is taken and drawn with the *Forceps*, and cut, at one Blow, with a flat and very sharp Knife. The Operator begins to cut at the inferior Part, that the mammary Vessels should be cut last; for Fear of being incommoded by the Hæmorrhage. No *actual Cautery* should be us'd to stop the Hemorrhage, because it begins a-new when the Scar falls.

If the Tumour was not yet ulcerated, a crucial Incision is made to the Skin, without penetrating into the glandulous Body; the Fore-pieces of Skin are separated from the Glands, the cancrous Tumour is embrac'd with the Pincers, and cut. If there are swell'd Vessels, they must be ty'd before the Extirpation of the Tumour. If the Tumour was adherent to the Ribs, it ought not to be touch'd.

From the Out-side of the Breast we'll penetrate into its In-side, (*not to discover a corrupted or false Heart*, but) to make the Operation of the *Empyema*.

The EMPYEMA, from the *Greek* εν, in, and πυον, Pus, is a Collection of Pus, or purulent Matter, in the Cavity of the Breast; discharg'd thither upon the bursting of some Abscess, or Ulcer, in the Lungs, or Membranes that inclose the Breast. The *Empyema* sometimes succeeds a Quinsy, sometimes a Peripneumony, but more usually a Pleurisy; as being ordinarily the Effect of a peripneumonick or pleuritick Abscess. It usually comes fifteen or twenty Days after those Diseases. Sometimes, also, it is generated of extravasated Blood, issu'd out of a bursten, broken, or putrify'd Vein. It is distinguish'd by a Difficulty of Breathing, a dry Cough, a Heaviness about the Diaphragm, a Noise, or fluctuating of the Matter upon moving; a slow Fever, ruddy Cheeks, hollow Eyes, the Tips of the Fingers hot, and a Swelling of the Abdomen.

The Cure is difficult, from the Difficulty of absorbing, or evacuating such extravasated Matter: If Nature shews any Endeavour to throw it off by Vomiting, Urine, or the like, she must be seconded and assisted therein. Thus if the Urine be purulent, administer Diureticks; if the Stools, Laxatives; if the Spitting, Expectorants; but never Emeticks: Otherwise Recourse must be had to the Operation, which must be perform'd as follows:

If the Tumour appears outwardly, the Abscess must be open'd between the Ribs; but if there are no exterior Signs, the Operator must chuse the most commodious Place to make his Aperture. The Patient set up in his Bed, supported by some Body, the Aperture is made between the fourth and fifth, or the fifth and sixth Ribs, reckoning from the lowest, at four Fingers Breadth Distance from the *Spina*. To make it, the Skin is pinch'd transversly, to cut it lengthwise, the Operator holds it on one Side, and a Servant on the other; the Incision is made with a strait Bistoury, and must have three or four Fingers Breadth in Length; the Fibres of the great *Dorsalis* are cut transversly, that they may not stop the Aperture; the Index of the left Hand is thrust into the Incision, to put aside the Fibres; the *Intercostales* Muscles are to be cut, and the Point of the Bistoury guided with the Finger, to pierce the *Pleura*, for Fear of wounding the Lungs, which are often adherent to it. The Aperture being made, if the Pus runs out well, it must be [illegible] running; if not, the Index must be put into the Wound, to break the Adherences whereby the Lungs are ty'd to the *Pleura*; which is done by turning the Finger round between the *Pleura* and the Lungs.

To facilitate the Evacuation of the Pus, the Patient is made to lean, shut his Mouth, stop his Nose, and to push as if he would blow; if Blood is contain'd in the Part, more of it must be evacuated than if it was Pus; because the Evacuation of Pus weakens more than that of Blood.

In making the Incision, the *Intercostales* Muscles must be cut transversly, not to discover the Edges of the Ribs; thus the Wound will not become so soon fistulous.

If it be judg'd that there is Pus on both Sides the Breast, both Sides must be open'd; because the Breast is divided into two by the *Mediastinum*; in that Case both Apertures must not be left open, for Fear of suffocating the Patient.

The APPARATUS, and *Bandage*, is made with a Tent cover'd with Balsam; it must be soft, and blunted at the End, and must enter no further than between the Ribs, for Fear it should wound the Lungs. If the Tent was made of Lint, it would be a great deal better than one made of Linnen; a Thread must be ty'd to it, otherwise it would chance to fall into the Breast. *Pledgets*, or Lint, must be put upon the Wound, a Plaister, and a good Compress, over all. This *Apparatus* is supported with a Napkin pinn'd round the Breast, which Napkin is also supported with a Scapulary, which is a Band six Fingers broad, pierc'd in the Middle to pass the Head thro', one of the Ends falling behind, and the other before, both to be pinn'd to the Napkin. This done, the Patient is put into his Bed half sitting, if the Lungs were to hinder the Evacuation of the Pus, the Operator must have Recourse to a Cannula.

We must continue our Progress, and fall from the Breast to the Abdomen, for the Operation of the *Paracentesis*.

PARACENTESIS, from the *Greek* παρα, with, and κεντειν, *pungere*, to prick, is an Operation which consists in opening a little Hole in the lower Venter, or Belly, to let out Waters collected in the Cavity thereof, or between the Teguments, in an Ascites, or Water Dropsy.

This Operation is made with a kind of Stillet, or Bodkin, which the *French* call *Trocart*. The Antients us'd to make it with a Lancet. The Patient is supported in his Bed, or in a *Fautuille*, that the Waters may descend the easier. A Servant must press the Belly with both Hands, to make it form a Tumour. The Operation is usually perform'd two or three Fingers Breadth on one Side the Navel, sometimes a little lower, but always so as to avoid the *Linea alba*. Before the Puncture, it would be very proper to raise the Skin a little; the Bodkin is accompanied with its *Cannula*, which remains in the Belly after the *Puncture*; the Bodkin is took out, to let the Water flow as long as the Patient's Strength will allow; the best Operators draw all the Water at once. The Bodkin makes so small an Aperture, that there is no Fear that the Water should come out, which might happen if it was made with a Lancet; for then the Operator would want a bigger *Cannula*. When a new *Puncture* is wanted, it must be made under the first; if the Water makes the Navel start out, the *Puncture* can be made there.

The APPARATUS and *Bandage* are made with a large Compress four Times double, supported with a Napkin folded into three or four, and this Napkin supported with the Scapulary.

There is also the PARACENTESIS of the *Scrotum*, made when that Part is filled with Water. In this Operation, the Patient must be kept standing or sitting, the *Scrotum* is seiz'd with one Hand, and a little pressed to make it form a hard Tumour, into which the Puncture is made with the Bodkin, as in the *Paracentesis* of the *Abdomen*. In the *Hydrocele* of Infants the Puncture may be made with the Lancet, to draw the Water all at once; but in Men, when there is much Water, 'tis better to make it with the Bodkin. The Testicles ought to be drawn back, for Fear of wounding them with the Point of the Instrument. If it was judged that the *Hydrocele* is ankisted, the Membrane which contains the Water should be consumed with a Train of Cauteries on the Place where the Incision is to be made; and the Scar is opened afterwards with the Lancet. The Puncture must be made on the superior Part of the *Scrotum*, because less painful than in the inferior, and less subject to Inflammation.

There are several Operations made in the *Abdomen*, as the *Gastrorraphy*, that of the *Exomphalus*, of the *Bubonocele*, and *compleat Hernia*, of the *Castration*, of the

the *Stone*, of the *Puncture* of the *Pireneum*, and of the *Fistula in Ano*.

The Operation of the GASTRORAPHY is made, when there is a Wound in the Belly big enough to let the Intestines or Guts come out. If there be a Wound in the Intestine or Gut, it must be sewed up with the Skinner's Suture, or Seam, heretofore-mentioned. If the *Epiploon* or *Cawl* was mortified, what's mortified must be cut off; for this, a Needle threaded with wax'd Thread, is run through the sound Part of the *Epiploon*, without pricking the Vessels; the *Epiploon* is tied on both Sides with each of those Threads, which have been run double through it, and cut off an Inch beneath the Ligature. The Threads must come out at the Wound, to be took off after the Suppuration. Then the Guts must be thrust again, alternately, with the Ends of the Fingers, into the Belly. If they cannot be reduced with Ease, they must be fomented with spirituous Fomentations, made of a Handful of Flowers of *Camomile* and *Melilot*, an Ounce of *Annisseed*, with as much *Fennel* and *Cummin-Seed*, half an Ounce of *Cloves* and *Nutmegs*; the whole must be boiled in Milk, adding to it an Ounce of camphorated *Spirit of Wine*, two Drachms of *Saccharum of Saturn*, with two Scruples of *Oil of Annisseed*, which Fomentation must be used hot.

Before the Operator makes the *Sutures* of the Intestines, or Guts, he must have them fomented with camphorated Spirit of Wine; but if the Intestines were mortified, they must not be sewed up, but only fomented with spirituous Liquors, Clysters are not to be administred to the Patient, lest they should swell up the Intestines, but Suppositories, or laxative Ptisans must be used, if natural Evacuations be necessary. The Patient ought to be very sober while the Cure lasts, and take no other Aliments but good Broth and Gellies.

If the *Intestines* cannot be reduced, the Wound must be dilated, as far as possible from the *Linea alba*, rather towards the inferior Part of the Belly than towards the superior, if the Wound be in the superior. To dilate it, the Intestines are placed on one Side of the Wound, and a Compress dipp'd in hot Wine, is put over them, which must be held by Somebody; a proper Probe is introduced into the Belly, taking Care not to engage the Gut between the Probe and the *Peritonæum*; to avoid which, the Gut must be a little drawn up: The Probe is held with the left Hand, to run a bow'd Bistoury into its *Canelure*, and the Teguments are equally cut, outwards and inwards, and the Intestines thrust alternately into the Wound with the index Fingers.

The Suture must be intertwisted; 'tis made with two bowed or crooked Needles, threaded at each End with the same Thread; the Index of the left Hand is introduced into the Belly to keep up the *Peritonæum*, the Muscles, and the Skin, on the Edge of the Wound; the Needle is ran with the other Hand into the Belly, conducting the Point of the Needle with the Index, and piercing pretty deep. The other Needle is ran into the other Lip of the Wound, inside of the Belly, observing the same Thing as in the first, if several Stitches were to be made, the Process is the same. A Servant must approach the Edges of the Wound, and make the Knots. The Wound is to be dressed, and the *Apparatus* supported with the Napkin, and Scapulary. The Patient must lye on his Belly, for the first Days, to cicatrise the Wound of the Belly, or of the Guts.

If the Intestine was entirely cut, it should be sewed all around the Wound, so as to remain always open: If the Patient should live, he would render his Excrements that Way. An Example has been seen, in *France*, of an Invalid, who had lived a long while in that Condition.

The Operation of the EXOMPHALUS, is made when the Intestines have formed a *Hernia* in the Ombilick. The Patient is laid on his Back, and an Incision made on the Tumour as far as the Fat, in pinching the Skin, if possible; otherwise it must be made on the Tumour as far as the Fat, without pinching it. Afterwards the Membranes are tore with the Nails, to discover the *Peritoneum*, for fear of cutting the Intestine. When the Operator perceives the *Peritoneum*, he draws it upwards with his Nails, to make a small Aperture to it: He introduces the Index of the Left Hand into the Belly, to guide the Point of the Scissars, with which the Incision is to be dilated. He thrusts again the Gut into the Belly, and if the *Epiploon* was adherent to the Tumour, he would loosen it from it; but if the Intestines were adherent to the *Epiploon*, they must be separated by cutting part of the *Epiploon*, rather than touch the Intestine. The Intestine being reduced, a Servant must press the Belly on the Edges of the Wound. If there was a Mass of Flesh at the *Epiploon*, formed by the Adherence of the *Epiploon* with the Muscles, and the *Peritoneum*, that must be loosened, and then a Ligature made to carry it off with the *Epiploon*, as we have done in the *Gastroraphy*, dressing the Wound afterwards. The same Precautions mentioned in the *Gastroraphy*, must be used in this; and the *Apparatus* supported with the Napkin and Scapulary.

The Operation of the BUBONOCELE is made when the intestinal Parts are fallen into the *Groins*, or the *Scrotum*. For this the Patient is laid on his Back, the Buttocks a little risen, the Skin is pinched transversly on the Tumour; the Operator holds the Skin by one Side, and the Servant by the other, and makes an Incision in following the Plit of the Groin; when he has discovered the Fat, he must tear with an Instrument, or with his Nails, every Thing he meets with 'till he comes to the Intestine, which he must take out, a little, if it does not adhere to the Annuli of the Muscles, and handle it softly, to dissolve the Excrements. This done, the intestinal Parts are reduc'd alternately with the Indices into the Belly, if possible; if not, the Wound must be dilated upwards, by introducing a Probe into the Belly, to run the Scissars thro' its Conelure. If the Probe cannot enter, the Intestine must be drawn out a little, in putting the Finger upon it near the *Annulus*, and a small Scarification shall be made to the *Annulus* with a strait Bistoury, which must be conducted with the Finger to introduce the Probe, upon which shall be run a bow'd or crooked Bistoury to cut the *Annulus*, or Ring, *i. e.* to dilate the Wound within Side. The Operator must not go too far, for Fear he should cut a Branch of Arteries; afterwards the Parts are reduced into the Belly. If the *Epiploon* had caused the *Hernia*, it must be tied, and what's alterated cut. The *Annulus* must be scarified within, in order to make a good *Cicatrice* or Seam.

The APPARATUS and *Bandage* must be made with a very soft and blunted Tent, big and long enough to hinder that the Impulsion of the Intestines should make them re-enter between the *Annuli*; and that Tent must be tied to a Thread, to be extracted at Pleasure. The Wound must be filled with Lint, covered with a good Digestive, made with Turpentine, and the Yolk of Eggs; a Plaister, and a Compress of a Triangular Figure, and Bandage *Spica*.

The Operation of the *compleat* HERNIA is made when the Intestinal Parts fall into the *Scrotum* in Men, and in Women to the Bottom of the Lips of the *Matrice*. For this Operation the Patient is laid on his Back, as in the *Bubonocele*, and the Incision is made in the same Manner; this is made as far as into the *Scrotum*, and the Membranes are lacerated as far as the Intestine. The Operator examines if the Parts be adherent to the Testicle; if it be the *Epiploon*, it must be loosened, and a Piece of it left to the Testicle; but if it was the Intestine, and it could not be separated without offending the one or the other, 'tis better to offend the Testicle than the Intestine. If the *Epiploon* was alterated, it must be cut as far as into its sound Part; the Wound is filled with Lint; and for Bandage, the *Spica*, as in the *Bubonocele*.

The Operation of the CASTRATION (*Italy* excepted, fertil in *Nicolinis*, *Senesinis*, *Farinellis*, and other Monsters of that Kind) is occasioned by the Mortification

cation or *Sarcocele* of the Testicles. In this Operation the Patient is made to lie on his Back, his Back-Side higher than his Head, to open his Legs, which are held by Servants; then the Operator pinches the Skin of the *Scrotum*, giving one End to hold to a Servant, while he holds the other, to which he makes a longitudinal Incision from Top to Bottom. The Carnosity of the *Dartos*, which wraps in the Testicle, is separated. The Vessels are tied between the *Annuli* and the Tumour, and cut a Finger's Breadth under the Ligature. The spermatick Vessels are not to be ty'd too hard, for Fear of a Convulsion; one End of the Thread must be left to come out of the Wound. If the Excrescence of the Flesh was adherent to the Testicle, and is felt moveable, it must be separated dextrously, leaving a small Piece of that Flesh to the Testicle. If some considerable Vessels were to appear on the Tumour, they should be ty'd, before 'tis cut.

The APPARATUS and *Bandage* are made by filling the *Scrotum* with Lint. The *Bandage* must be the Suspensor of the *Scrotum*, call'd *Pauche*; 'tis a *Bandage* with four Chiefs, the superior serving for a Girt, and the inferior pass between the Thighs, and are ty'd behind to the Girt. There is another *Bandage* of the *Scrotum* with four Chiefs, the superior serve for a Girt; 'tis split at the Bottom, is without Seam, the inferior Chiefs cross over one another, to pass between the Thighs, and be ty'd to the Girt; both are pierc'd thro' for the Passage of the *Penis*.

The next Operation which falls under our Consideration, is a very great one, call'd the *Operation of the Stone*; and tho' I am not so famous a Lithotomist as *Franco*, *Frere Jacques*, *Peronie*, *Mareschal*, *Cyprianus*, *Cheselden*, *Bau*, &c. I must attempt this Operation, beginning with that of the *Stone in the Urethra*; to perform which, if the *Stone* was stopp'd at the Sphincter of the Bladder, it must be push'd out with the Probe; if it was at the End of the Glans, it must be press'd, to make it come out; if it cannot come out, a small Incision must be made at the Sides of the Aperture of the Glans. If the *Stone* was far from the Glans, an Incision is to be made to the *Urethra*; for this, the Skin is drawn upwards, the Yard is held between two Fingers, the Incision is made lengthwise, at the Side of the Yard, on the *Stone*, which is press'd between the Fingers, to make it come out; or else 'tis extracted with a proper Instrument. If the Incision was very small, the Skin should only be left at Liberty, and it would cure of itself; but if it was a large Incision, a small leaden *Cannula* should be introduc'd into the *Urethra*, for Fear the Cicatrice, or Scar should close the *Urethra*. The *Cannula* must be rubb'd over with some Deficcative, and the Wound dress'd with a Balsam; after which, the *Penis* must be put into a small Bag, or Sheath, to keep up the *Apparatus*, which Bag must be pierc'd at one End, for the Evacuation of Urine, and have two Bands at the other, which are to be ty'd round the Waste.

The Operation of LITHOTOMY, or of the *Stone in the Bladder*, is made three several Ways; by the *small Apparatus*, the *great Apparatus*, and the *high Apparatus*. I'll begin with the *great Apparatus*, as that which is ordinarily practis'd, and which is practis'd in the following Manner.

As this Operation is never to be attempted but when the Operator is sure that there is a Stone in the Bladder, to know which he must introduce a Finger into the *Anus*, approaching it towards the *Pubis*, and thus he often feels the Stone, if there be one; to Women the Finger is introduc'd into the *Vagina*; to little Girls, in the *Anus*; but it is a great deal better to use the Probe, rubb'd over with Grease: For this, the Patient must lie on his Back, the Operator holding the *Penis* upwards, the Glans uncover'd, between the Thumb and the Index; the Probe is held in the right Hand, on the Side of the Rings, and introduc'd into the *Penis*; when it has enter'd the *Penis*, its Handle is turn'd towards the *Pubis*, drawing a little the *Penis*, that the Channel of the *Urethra* be strait. If it be perceiv'd that the Probe is not in the Bladder, the Finger must be introduc'd into the *Anus*; to guide it into it. To discover if there be a Stone in the Bladder, the Probe must be mov'd backward and forward in the Bladder; if a small Noise is heard, the Operator may be sure that there is a Stone; and if it was thought that the Stone swims in the Bladder, which would hinder it from being felt, the Patient must be made to piss thro' the hollow Probe. This is another Fashion of Probing: The *Penis* is rais'd upwards, a little inclin'd towards the Belly; the Rings of the Probe are turn'd on the Belly, and the Back, towards the *Anus*, then introduc'd into the Part, moving it backward and forward, to feel the Stone.

To make the Operation, the Patient is plac'd on a Table of a convenient Height, that the Operator may work standing; the Patient must lean his Back on that of a Chair with the upper Part downwards, and garnish'd with something to hinder it from hurting the Patient, who must have his Legs asunder, and the Soals of his Feet on the Edges of the Table, being kept behind, by the Shoulders, by a Man standing behind him upon the Table. His Arms must be ty'd with his Legs, which must be kept asunder by Servants. A groov'd Probe must be introduc'd into the Bladder, the Servant standing on the Table, at the Side of the Chair, holding between his two Indices the Back of the Probe, at the Place of the *Pireneum*, where the Incision is to be made between his two Fingers, with a Bistoury edg'd on both Sides. The Incision is to be three or four Fingers broad on the Side of the *Rapheum*, but it must be but two Fingers broad in Children. If the Incision was too small to give Passage to the Stone, it should be widen'd, rather than force the Wound with the Dilatators; when the convex Part, or the Canelure, or Grooving of the Probe will be quite naked, the Conductors must be thrust into the Grooving of the Probe, between which is conducted the Forceps, the Probe having been before extracted. As soon as the Forceps is introduc'd into the Bladder, the Conductors are also extracted; the Stone is search'd, seiz'd fast, and extracted from the Bladder. If the Stone was a long one, and was seiz'd at both Ends, the Operator must endeavour to re-seize it by its Middle, to avoid the great Dilatation it would cause at its Passage. The Stones are sometimes so big, that the Operator is oblig'd to leave them in the Bladder. If the Stone was very much adherent to the Bladder, its Extraction must be deferr'd; perhaps it would separate in the Suppuration. After the Stone has been extracted, a proper Instrument must be introduc'd into the Bladder, to cleanse it of the Fragments of the Stone, Blood, and other Impurities. The Operation over, the Patient is carry'd to his Bed, having first cover'd the Wound with a good Compress. If an Hæmorrhage happens, the Blood must be stopp'd with Astringents. If it was thought that there were some Fragments of the Stone remaining in the Bladder, a Tent should be put into the Wound; but if the Operator is sure that there are none, the Wound must be dress'd with Lint, a Plaister, a Compress appropriated to the Part, and supported by a Scapulary. The Patient is made to approach his Thighs near one another, and they are ty'd, lest they should part, with a small Band.

The *Operation of the Stone* is made in Women by the LITTLE APPARATUS, which is perform'd by introducing the Index and middle Fingers into the *Vagina*, or into the *Rectum* to little Girls, to draw the Stone towards the Neck of the Bladder, and to keep it steddy, being extracted afterwards with a Hook.

The *little Apparatus* was formerly made to Men, by cutting thro' the *Pireneum*, near the Suture on the left Side, after the Stone, by the Fingers of the Operator, had been brought to that Part. This was called *Cutting upon the Gripe*, but is almost disus'd, by reason it subjects the Patient to great Hazards and Inconveniencies.

The Operation of the Stone is alſo often made to Women very nearly in the ſame Manner 'tis made to Men. After the Patient has been put in the ſame Situation Men are, the Conductors are introduc'd into the *Urethra*, between which the Forceps is thruſt, with which the Stone is extracted; which if too big, a ſmall Inciſion is made on the right and left of the *Urethra*.

The third Method, call'd the HIGH OPERATION, or *Apparatus*, firſt practis'd by *Pet. Franco*, has been ſince deſcrib'd, and ſtrenuouſly pleaded for, by *Roſſet*; but it ſoon fell into Oblivion, from which it was only recall'd about the Year 1719, by M. *Douglas*, a *Chirurgeon* of *London*; who collecting what ſcatter'd Hints he could find relating to it, and improving them with his own Obſervations, pav'd the Way for its being brought into regular Uſe, which before it never had been. He was ſoon follow'd by the celebrated Mr. *Cheſelden*, and ſome others; of 31 Patients cut by them in this Manner, in a few Years, 25 recover'd. It is true, Mr. *Cheſelden* has ſince quitted this Method for the *lateral Operation*. Of late Years the *French* have begun to adopt the *high Operation*; and M. *Morand*, a *Chirurgeon* of *Paris*, has wrote a Book on the Subject, chiefly taken from the *Engliſh* Writers.

The Manner of proceeding herein, is this: After the Bladder is injected with a ſufficient Quantity of warm Water, and the Patient conveniently plac'd, the Operator ſlowly makes an Inciſion above the *Os pubis*, along the *Linea alba*, till he gets Sight of the Bladder, into which he directly plunges his Knife, and afterwards draws out the Stone. The Advantages attending this Method are, that it is perform'd in a very ſhort Time; that the Wound eaſily heals; that the Dilaceration of Parts, frequent in the other Ways, is prevented; and that there is no Danger of the *incontinentia Urinæ*. On the other Hand, it is thought to be chiefly practicable upon young Perſons, and ſuch as are lean; the Wound in old and fat Perſons being apt to mortify: Moreover, if the Operator be not very cautious, he may eaſily let out the Inteſtines.

To theſe may be added, the *lateral Operation* invented by *Frere Jacques*, a Religious of the third Order of St. *Francis*, towards the Cloſe of the laſt Century, and practis'd by him with great Reputation in the *Franche Comté*. But this Reputation is loſt again at *Paris*; which, however, did not hinder M. *Rau*, Anatomy Profeſſor at *Leyden*, from undertaking to rectify what was amiſs in it, in which he ſucceeded; inſomuch, that the Method is now known by his Name, which has taken Place of that of the firſt Inventor.

The Spring and Autumn are the two moſt proper Seaſons for this Operation; and even theſe Seaſons are more favourable to the Patient one Year than the other. M. *Mareſchal* was pleas'd to tell me, that he has cut in one Seaſon, at the *Hotel Dieu*, a hundred Perſons for the Stone, who all recover'd but two; and another Year, in the ſame Seaſon, cut a hundred and twenty-ſix, ſeemingly with the ſame Succeſs, at firſt, who, notwithſtanding, all dy'd, ſome Time after, except ten. An exceſſive Heat, as well as Cold, are very prejudicial to this Operation, and to the Recovery of the Patient.

The PUNCTURE *of the Pireneum* is another Operation of the Abdomen, and is perform'd in a Suppreſſion of Urine, or when the Inflammation is ſo great that the Probe can't be introduc'd. For this Operation, an Inciſion is made with the Biſtoury, or a Lancet, in the ſame Place where the *Lythotomy* is made, and a *Cannula* introduc'd into the Bladder, till the Inflammation be over.

We'll viſit the *Poſteriors*, not as *Buſby*, or Father *Gerard* us'd to do, but only to make the Operation of the *Fiſtula in ano*.

A FISTULA is a deep, winding, callous, cavernous Ulcer, with a narrow Entrance, but opening thence into a ſpacious Bottom, and generally yielding a ſharp, virulent Matter. *Fiſtula's* differ from *Sinus's* in this, that the former is callous, and the latter not.

A FISTULA *in ano*, is a *Fiſtula* form'd in the *Anus*, or Fundament. Of this ſome Authors reckon four Kinds, *viz.* the *Cæcum internum*, which is open outwards, but not into the *Rectum*; the *Cæcum externum*, which has an Aperture into the *Rectum*, but none outwards; the *compleat*, which opens both into the *Anus* and the Inteſtine; and the *Cuniculatus*, or that with ſeveral *Sinus's*, which diſcharge themſelves into one common Cavity, which is the Fund, and, as it were, Reſervoir of them all.

Others, as *Wiſeman*, reduce the *Fiſtula in ano* to two Claſſes: The firſt are thoſe ariſing from a *Phyma*; theſe are very painful, and difficult to cure, as entering deep among the Interſtices of the Muſcles, and forming various *Cuniculi*, or *Sinus's*; which the more remote they are from the *Anus*, the worſe they are, by reaſon they do not allow of being cut. The ſecond owe their Origin to an internal Hæmorrhage, or Extravaſation between the Coats of the *Rectum*; and have a ſmall Perforation, near the Circumference of the *Anus*, whence they yield a thin *Sanies*, or Ichor, without Pain; they in Time bring on Itchings and Excoriations, and the Orifices at length become callous, and are ſometimes clos'd, and ſometimes open again.

Fiſtula's, if they do no Harm by the Copiouſneſs of the Flux, the Stench, or the like Accidents, are a Benefit to Nature, as carrying off cachectick Humours; and ought not to be cur'd, but kept open.

The freſh, ſimple *Fiſtula*, may be cur'd without Danger. The chief Way is, by cutting, where that may be done without Damage to the Muſcle of the *Anus*, which might occaſion an involuntary Evacuation of Excrements. The Operation is done in the following Manner:

If the *Fiſtula* be open outwards, the Patient muſt lie on his Belly at the Edge of the Bed, his Legs aſunder; the Operator muſt make a ſmall Inciſion with a Biſtoury, at the Orifice of the *Fiſtula*, to run into it a ſmall, thin, and bow'd or crooked Biſtoury; at the End thereof there muſt be put a ſmall pointed Stillet, with a ſmall ſilver Tongue to it, to recover it, that it may enter without cauſing any Pain; this Biſtoury muſt be introduc'd into the *Fiſtula*, having the Index of the left Hand in the *Anus*, and its Tongue muſt be drawn out; the Handle of the Biſtoury muſt be held with one Hand, and the Stillet which pierces the *Anus*, with the other. The Inſtrument is drawn out to cut the *Fiſtula*, all at once.

If the *Fiſtula* opens in the Inteſtine, an Inciſion muſt be made outwards, at the Bottom of the *Fiſtula*, to open it in the Place where ordinarily appears a ſmall Tumour, or Inflammation; or where the Patient feels ſome Pain when the Part is touch'd. If the Tumour was far from the *Anus*, it might be open'd with the potential Cautery, to avoid cauſing Pain. When the Bottom of the Sack is open'd, the Biſtoury, with its Stillet and Tongue, is introduc'd into it. The End of the Stillet is extracted thro' the *Anus*, and the Fleſh cut all at once. If the *Fiſtula* was too far in the *Anus*, the Sphincter of the *Anus* ſhould not be entirely cut, for afterwards the Patient could not be able to retain his Excrements.

After the *Fiſtula* has been open'd, all the Sinuoſities found in it muſt be cut, likewiſe, with Sciſſars; the Wound is fill'd with Tents made of Lint, dipp'd in ſome anodyne, *Pledgets*, a Plaiſter, a triangular Compreſs, and the whole ſupported with the Bandage call'd T.

We'll come back to the Fore-part of the Abdomen, to make the *Cæſarian Section*, call'd alſo *Cæſarian Birth*, *Partus Cæſareus*. This Operation can be made, and has been made, when a Woman can't be deliver'd thro' the ordinary Way. To perform it, ſhe muſt be made to lie on her Back; a longitudinal Inciſion is made under the *Umbilic*, on the Side of the *Linea*

Linea alba, till the Operator discovers the Matrice, which must be open'd, avoiding wounding the Child; after which, the Membranes he is wrapp'd in must be open'd: The After-Birth is to be separated from the Matrice, and the Child drawn out. The Wound must be wash'd with hot Wine, and the Gastroraphy made to the Belly, without sewing the Matrice, or Womb. The Operation over, Injections are made in the Matrice, to facilitate the Evacuation of the Blood, and a pierc'd Pessary introduc'd into its Neck.

From the Trunk of the Body we'll descend to the Extremities, and make the Amputation of the Leg.

Note, That *Amputation*, in *Chirurgery*, is the Operation of cutting off a Limb, or other Part of the Body, with an Instrument of Steel.

Note, also, That the Leg is cut four or five Inches below the Knee; the Thigh, as near the Knee as possible; and the Arm, as near the Shoulder as possible. The Amputation is never made in the Articulation, unless it be of the Fingers and of the Toes.

For the *Amputation of the Leg*, the Patient is made to sit on the Edge of his Bed, or in a Chair; he must be supported by two Servants, one to hold the Leg at the Bottom, and the other to draw the Skin upwards above the Knee, that the Flesh may cover the Bone after the Operation. A pretty thick Compress is plac'd within-side the Knee, on which are made two Ligatures; the first above the Knee, to stop the Blood, to be straiten'd with the *Tourniquet*; the second under the Knee, to straiten the Flesh for the Knife. Before the first Ligature be straiten'd, a Piece of Card must be put under it, for Fear of pinching the Skin. The Leg being made very steddy, the Operator plac'd to the Inside of the Limb, makes the Incision with a bow'd Knife, turning circularly to the Bone, keeping one of his Hands on the Back of the Knife, and endeavouring to separate the Flesh from the Bone with a Stroke or two; then divides, also, the *Periosteum* from the Bone with the Back of the Knife, or a Bistoury, and cutting the Flesh and Vessels which are between the two Bones. The Flesh being cut, a splitted Band must be put upon it, whose Chief must be cross'd, to draw the Flesh upwards, that the Bones may be cut further, and cover'd by it after the Amputation, and also to facilitate the Passage of the Saw. The *Chirurgeon* must then take the Leg with his left Hand, and the Saw with the right, which he must apply on the two Bones, to cut them both at the same Time, beginning by the *Peroneum*, and ending by the *Tibia*. He must incline the Saw, and go softly, at first, to make the Way; after which, he must go swifter, and with as few Strokes as possible.

The Leg being cut, the *Turniquet*, or Gripe, must be slacken'd, to let a little Blood flow, and to give an Opportunity of searching for the large Blood-Vessels, and securing the Hæmorrhage at their Mouths; which is done by straitening again the *Tourniquet*, or Gripe, or placing Buttons of Vitriol at the Mouths of the Arteries, and astringent Powders on a large Cake of Cotton, or Tow, apply'd to the End of the Stump. If this be us'd, somebody must hold the whole Apparel, with the Hand on the Part, for the Space of 24 Hours. This Practice is receiv'd at the *Hotel Dieu* at *Paris*.

Others make the Ligature of the Vessels, which is done by laying hold of their Mouths with a Forceps with Springs; which Forceps is given to a Servant to hold; a Needle, threaded with a wax'd Thread, is run thro' the Flesh under the Vessel, and run again, and then a Ligature is made with the two Ends of the Thread to the Vessel. The *Tourniquet*, or Gripe, is taken off with the Band, the Patient is order'd to bow a little, the Stump and the Flesh is brought down, to cover the Bone.

The Apparatus and *Bandage* are made by putting small Compresses on the Vessels, and dry Pledgets on the two Bones, and several other Pledgets cover'd with astringent Powders; over it another great Pledget of Cotton or Tow cover'd with astringent Powders, the whole being wrapp'd up with a Plaister, and a Compress in Form of a Cross of *Malta*, with three or four longitudinal Compresses, and a circular one. The Cross of *Malta*, and the Compress, are plac'd within-side the Knee, whose Chiefs, or Ends, are cross'd over the Stump; they must be held by the Servant who supports the Part; the other Chiefs are cross'd, likewise; the two longitudinal Compresses, crossing one another, are plac'd at the Center of the Stump, and a third Longitudinal is made to run round the Stump, to stop the two first; they must be three Fingers in Breadth, and long enough to pass on the Stump.

This done, the Bandage is made with a Band four Ells long, and three Fingers broad, roll'd to a Globe, with which are made three Circularies on the Edge of the Part cut, rising upwards by *Doloirs*, and passing obliquely the Band under the Knee, and descending again over the first Turns; continuing thus to descend and rise till the whole Stump be cover'd; the Band must be stopp'd above the Knee. In three or four Days the Dressing may be remov'd, and proper Digestives, mix'd with Astringents, apply'd; having an actual Cautery, or some powerful Styptick, in Readiness, in case of a violent Hæmorrhage at the first Opening. M. *Sabourin*, *Chirurgeon* of *Geneva*, is recorded, in the History of the *Royal Academy of Sciences*, *Anno* 1702, for an Improvement in the Method of *Amputation*, propos'd to the Academy. The whole Secret consists in saving a Piece of Flesh, and Skin, a little lower than the Place where the Section is to be made; wherewith the Stump is to be afterwards cover'd. The Advantages whereof are, that in less than two Days Time this Flesh unites with the Extremes of the divided Vessels, and so saves the Necessity either of binding the Ends of those Vessels with Thread, or of applying Causticks, or Astringents; which are Methods very dangerous, or at least very incommodious. Add, that the Bone thus cover'd up, does not exfoliate.

There are other Operations, which we have not brought under their proper Heads; as those of the *Suture of the Tendon*, of the *Aneurisma*, of the *Fræenum* at the Tongue, of the *stopp'd Conducts*, of the *Phimosis* and *Paraphimosis*, of the *Variceum*, of the *Panaris*, the Reduction of the *bearing down of the Anus*, and of the *Matrice*, and the *opening of Abscesses*.

The Suture *of the Tendon* is made when the Tendons are cut, and they are big enough. If the Wound was cur'd, the Operator must open it, to discover the *Tendon*; the Part must be bow'd to approach the Ends of the *Tendon* near one another; then a flat, strait, and fine Needle, threaded with a double wax'd Thread, is run thro' a small Compress, making a Knot at the End of the Thread, to stop it on the Compress; the Tendon is to be perforated from the Inside outwards far enough, for Fear the Thread should cut it. The Needle must be run under the other End of the *Tendon*, on which must be plac'd a small Compress to tye the Thread upon it. The Ends of the *Tendon* are to be made to pass a little over one another, by bowing the Part. The Wound is dress'd with Balsams; for if Unguents were put on the Tendons, they would rot; therefore none but spirituous Medicaments are to be us'd. The Part must be kept steddy, for Fear its Extension should separate the Ends of the *Tendon*.

An Operator makes the Operation of the *Aneurisma*, when a *Chirurgeon* has prick'd the Artery, or when there is a Tumour at the Artery. To perform this, the Patient is seated on a Chair, his Arm being held by a Servant in a convenient Situation for the Operation. A Compress, doubled four Times, must be put on the Part, and which is to follow the Progress of the

the Artery, that the Ligature may press better the Vessel. The Arm may be wrapp'd in another Compress, on which the Ligature is made, which must be tighted with the *Tourniquet*, or Gripe, provided the Arm be not too much swell'd; for in that Case the Operation ought to be deferr'd, for Fear of the Gangrene. The Artery being very well fix'd, the *Chirurgeon* must lay hold of the Arm under the Tumour with one Hand, and with the other make the Incision with a Lancet, beginning at the Bottom of the Tumour, and ending a-top all along the Progress of the tumify'd Artery. The Tumour being open'd, the congeal'd Blood is forc'd out with the Finger; then the Gripe must be slacken'd, to discover, with less Difficulty, the Opening of the Artery; after which, it must be separated from the Membranes with a proper Instrument, and supporting it with an Errhina, to separate it from the Nerve and the Membranes. The Errhina is held by a Servant, while the Operator passes under the Artery a bow'd Needle threaded with a strong wax'd Thread; which is cut, afterwards, and the Needle taken off. A single Knot is made first, on which is plac'd, if the Operator pleases, a small Compress, kept steddy by two other Knots. Another Ligature is made at the inferior Part of the Artery, otherwise Blood would flow from the small lateral Arteries. The Artery ought not to be cut between the two Ligatures, because the first would part by the Impulsion of the Blood; the Thread will drop off by the Suppuration. The Wound is fill'd with small Tents made of Lint, a Pledget cover'd with astringent Powders, and a Plaister with a Compress in the Plit of the Elbow.

The Bandage is made with a Band six Ells long, and a Thumb's Breadth wide, roll'd at one End; the Operator begins to apply the Band, by some Circularies under the Elbow, but not too tight; he makes several Turns of the Band, and puts on the Tumour, as in Bleeding, a thick and narrow Compress all along the Artery, as far as under the Arm; the Arm and the Compress are wrapp'd in the Band, ascending by small *Doloirs*, as far as under the Arm, and is stopp'd by Circularies round the Breast. The Patient is laid in his Bed, his Arm a little bow'd on a Pillow, and his Hand a little higher than the Elbow.

For the *enkisted Tumours*, if they are small, and hanging down, and have their Basis narrow, a Ligature is made to it with a strong Thread, ty'd tighter by Degrees, that makes them fall of themselves after some Time; or else they are cut above the Ligature. If the Tumour was a big Wen, a crucial Incision must be made to the Skin, without touching the *Cystis*. The Incision made, the Bag must be separated with the Nails. If there were some considerable Vessels at the Root, they are ty'd, or cut, and the Blood stopp'd with Astringents. If some Parts of the *Cystis* had remain'd, they are to be consum'd with Corrosives; the Pieces of Flesh are approach'd near one another, and a conglutinative Plaister apply'd to it, without a Suture. If the Tumour adheres strongly to the *Pericranium*, it must not be touch'd.

The Operation of the *Frænum* of the Tongue, when the Ligament of Children's Tongues extends as far as its Extremity; which hinders them from sucking with Ease, and makes them lisp when they speak. This Ligament is cut with small Scissars; the Thumb of the left Hand is put on the Gum of the inferior Jawbone, to make the Child open its Mouth, and its Tongue is rais'd with the Index of the same Hand; the Scissars are introduc'd between these two Fingers, to cut the *Frænum* as near the Tongue as possible. If an Hæmorrhage happens, Recourse must be had to styptick Waters; and the Nurse must take Care to pass often her Finger under the Tongue, to hinder the Reunion.

If a Membrane should close the Entrance of the *Vagina*, a leaden Cannula must be introduc'd into it, which must have Rings to tye it to the Waste, which hinders the Re-union of the Wound.

If the Lips of the *Vulva* were join'd together, the Patient must be laid on her Back, her Knees up, in order to make an Incision with a bow'd Bistoury, beginning a-top; after which, a leaden Cannula must be introduc'd into the Aperture.

If the *Vagina* was full of Carnosities, a Section must be made to it, till it be all open.

If the Conduct of Urine, as well in Boys as in Girls, was clos'd, an Incision is to be made to it with a very narrow Lancet; and as Children piss frequently, that alone will hinder the Re-union.

If the Conduct of the Ear was stopp'd with a Membrane, it must be perforated, not too deep, for Fear of wounding the Drum of the Ear. If there is a Carnosity which comes out of the Ear, a Ligature must be made to it, or it must be cut with Scissars, to make it fall; and what remains of it in the Conduct of the Ear, must be consum'd with Causticks, carry'd to it by means of a small Cannula; taking Care not to cauterize the Drum. In these different Manners are freed all the different Conducts of the human Body, when they are stopp'd.

At present, for the Operation of the PHIMOSIS, and PARAPHIMOSIS; when the *Preputium* is glu'd, or strongly constring'd upon the Glans, so as not to be capable of being drawn back, to uncover the Glans; 'tis a Malady call'd *Phimosis*. Sometimes a *Phimosis* conceals Shankers on or about the Glans, and sometimes is so violent as to prevent the flowing out of the Matter; whence it causes an Inflammation, or Mortification of the Part.

The PARAPHIMOSIS is also a Disorder wherein the Prepuce is shrunk, and withdrawn behind the Glans, so as not to be capable of being brought to cover the same. This happens often in venereal Disorders, where the Humour of a Gleet frequently proves so sharp, as to cause the Extraction.

If the *Phimosis* was very adherent to the Glans, it must not be touch'd; but if by feeling the Glans 'tis found moveable, or that there are only some Adherences; the Patient must be made to sit, a Servant must hold the Skin at the Root of the *Penis*, that the Section may be made directly under the Glans; the Operator must draw the Bottom of the Prepuce, and introduce a small pointed Instrument, with which he must perforate the Prepuce at the Bottom of the Glans near the *Frænum*; and the Incision must be perfected with drawing out the Instrument towards himself.

The *Paraphimosis* is cur'd by making Fomentations on the Part, to appease the Inflammation, if there be any; and it is drawn downwards with the Fingers. If the Disorder can't be conquer'd with Medicaments, Scarifications must be made all round the Top of the Prepuce, applying afterwards Medicaments proper to appease the Inflammation, and hinder the Mortification.

The PANARIS, or *Whiteloe*, is an Abscess, as we have already observ'd, which happens at the End of the Finger. There are superficial ones, and others which penetrate as far as the *Periosteum*; in both Cases, the *Panaris* must be open'd on the Side of the Fingers, to avoid hurting the Tendons. When the Abscess penetrates as far as the *Periosteum*, the Aperture must be made, likewise, on the Side, and the Lancet push'd to the Bone; after which, the Pus must be evacuated, which would rot the Tendons, was it to remain too long upon it.

The APPARATUS is made with a Plaister made in the Form of a Cross of *Malta*, apply'd by its Middle on the Top of the Finger, making the Chiefs to cross all round. The Compress must also be cut in the same Form, or in that of a simple Cross only; the Band must be a Finger broad, and long enough to cover the whole *Apparatus*; it must be pierc'd at one End, and cut the Length of three Fingers at the other; the two Chiefs must be pass'd thro' the Hole to surround the Finger, by little *Doloirs*.

The REDUCTION *of the Anus* is perform'd by making the Patient lie on his Belly, the Buttocks higher than the Head; the Fingers of the Operator must be

be dipp'd in Oil of Roses, with which he reduces softly the *Anus*; which done, he applies Compresses to it dipp'd in some astringent Liquor; and they are to be supported with the T, or double T.

For the REDUCTION *of the Matrice*, the Patient must lie on her Back, the Buttocks rais'd; then the Operator makes Fomentations, puts a Piece of linnen Cloth on the Neck of the Matrice, which he pushes up gently; this done, the Patient must lie on her Back cross-legg'd. If the Matrice was to fall again, a Pessary should be introduc'd into it, after the Reduction.

ABSCESSES must always be open'd in the riper Place, and where the Humours have a greater Propensity; never cutting the Fibres of the Muscles without an absolute Necessity, and avoiding the great Vessels, Muscles, and Tendons. The Aperture should be rather greater than less, taking Care not to precipitate the Evacuation of the Pus. If the Skin was too thick, as in the Heel, it must be thinn'd with a Razor; and if there was Pus under the Nails, they should be scrap'd with a Piece of Glass, before they are perforated.

There are also some Fractures, which I have omitted to mention under the Head *Fracture*, which can as well be brought under this of *Operations*, *viz.* the Fracture of the *Nose*, of the *inferior Jaw-bone*, of the *Clavicle*, of the *Omoplata*, or *Shoulder-bone*, of the *Sternum*, of the *Vertebræ*, of the *Os Sacrum*, and of the *Coccix*.

When the *Fracture of the Nose* is considerable, the Nostrils are stopp'd, and the Patient loses his Smell. To reduce it, the Operator must take a small Stick cover'd with Cotton, which he must introduce into the Nostrils as gently as possible, to raise the Bones, putting his left Thumb on the Nose to keep them up. The Bones being reduc'd, he must make the *Apparatus* and Bandage.

The APPARATUS consists in introducing into the Nostrils small *Cannulæ* of Lead, of a proper Bigness and Figure; these *Cannulæ* support the Bones, and facilitate Respiration; they must not be push'd too far, for Fear of hurting the *Laminæ* of the Nose. They must be rubb'd over with Oil of Turpentine, and Spirit of Wine, and are to have small Handles, to be ty'd to the Cap. If there was no Wound in the Nose, there wants no Bandage; but if the Fracture be with a Wound, after the Application of Remedies, there must be plac'd on each Side of the Nose a triangular Compress cover'd with a Piece of Card of the same Figure. This small *Apparatus* is to be supported with a Band two Fingers broad, and half an Ell long, and with four Chiefs, leaving in the Middle three Fingers plain, *i. e.* which is not to be cut. The *Plain* of this Band is apply'd on the Fracture, its superior Chiefs are pass'd behind the Neck, and brought back before; its Inferiors are likewise pass'd behind, crossing over the Superiors, and brought back before. When the Bones of the Nose are not reduc'd, there ensues from it a very great Deformity, and an insupportable Smell, caus'd by Excrescences of Flesh, and *Polypus*'s.

To reduce the *inferior Jaw-bone*, the Operator must thrust his Fingers into the Mouth of the Patient, to press the Eminencies of the Bones, which he must do likewise outwardly. If the Bones cross'd over one another, there should be a small Extension made. If the Teeth were come out of their Place, they must be reduc'd, and ty'd to the sound Teeth with wax'd Thread. The Bones being reduc'd, the *Chirurgeon* must make the *Apparatus* and *Bandage*.

If the Fracture was but on one Side, a Compress, sew'd to a Card, must be apply'd on the Jaw-bone, both of the Bigness and Figure of the Jaw-bone; the *Bandage* is made with a Band roll'd at one Chief of three Ells long, and two Fingers broad. It is begun by making a Circulary all round the Head, passing over the Forehead, descending afterwards under the Chin, then re-ascending on the Cheek, near the little *Canthus*, or Angle, passing afterwards the Band on the Head, then descending again under the Chin, to make a *Doloir* on the Fracture. The Operator continues to make three or four Circumvolutions on the Fracture, and makes the Band descend afterwards under the Chin, to stop and tighten the *Tours* of the Band, and Ends round the Head, passing over the Forehead.

If the *Jaw-bone* was fractur'd on both Sides, there must be apply'd to it a Compress and Card, of the Figure of the whole *Jaw-bone*, supported by the Bandage abovemention'd; or the Box of Tin describ'd under the Article of *Fractures*.

To reduce the *Fracture of the Clavicle*, the Patient being seated in a Chair, his Arm must be drawn backwards, while a Servant pushes his Shoulder forwards; during which, the Operator must reduce the Bones into their Places, by pushing the Eminencies, and drawing up the Bones sunk. Or the Patient lying on his Back, with a convex Body under it, as a large wooden Bowl, his two Shoulders must be press'd, to raise the two Ends of the Bone, which the Operator must take Care to reduce.

For the APPARATUS, the Cavities above and under the *Clavicle* must be fill'd with Compresses garnish'd with their Cards, and another on the Bone, which is to be very nearly of the Figure of the *Clavicle*, and a large one to cover the three others. This *Apparatus* must be supported with the following Bandage, provided the Fracture be in the Middle of the *Clavicle*, to make it. The Operator must take a Band six Ells long, and four Fingers broad, roll'd to two Globes, which he applies by the Middle on the Fracture, bringing one of the Ends down to the Breast, and passing the other Chief behind, under the Arm opposite to the fractur'd Part, over the Breast, to bring it over the other End of the Band, rais'd to make a *Doloir* on the Fracture; he passes the other End under the fractur'd Part, and over the Band which has made the *Doloir*, which he raises in making a third *Doloir* on the *Clavicle*. He continues the Circularies round the Body, and the *Doloirs* round the *Clavicle*, till it be all cover'd; he makes also some Circularies at the superior Part of the Arm, near the Head, and covers with some Circularies the Space found between the Circularies and *Doloirs* of the Arm. Lastly, He stops the Band, by making some Circularies round the Body.

If the Fracture was at the Head of the *Humerus*, the Bandage must be made with a Band five Ells long, and four Fingers broad; the Operator passes the End of the Band under the Arm opposite to the fractur'd Part, behind the Back, and the other End under the fractur'd Part, making one K Y, or one X, on the Shoulder, coming back under the other Shoulder behind, returning to the Fore-part to make a second K Y on the Fracture; he makes two Circularies to the superior Part of the *Humerus*, which forms a Triangle call'd *Geranium*; he covers that Triangle with *Doloirs*, and ends round the Breast. This Bandage is call'd *Spica*.

It is ordinarily the *Acromium* which breaks in the *Fracture of the Omoplate*; 'tis known that the Middle of the *Omoplate* is broken, by a Numbness of the whole Arm. The *Chirurgeon* must examine the Place of the Fracture, and reduce the Eminencies of the Bones into their Places; if the Splinters prick, an Incision must be made to take them out, or to cut their Points. The Reduction made, he must also make the *Apparatus* and *Bandage*.

He places a Compress on the *Omoplate*, and a great Piece of Card, of the Bigness and Figure of the Bone; and makes afterwards the Bandage call'd *Stoury*, with a Band roll'd at one Chief, of four Ells long, and four Fingers broad. He passes the Band behind the Back, its End under the Arm opposite to the fractur'd Part, passing the other End under the Shoulder, and afterwards over it, to go and form a K Y, in the Middle of the Back. He continues those *Tours* of the Band, in making *Doloirs*, till the *Omoplates* are entirely cover'd; then makes Circularies

round the superior Part of the *Humerus*, as in the *Spica*, and ends the Bandage with Circularies round the Breast.

For the Reduction of the *Fracture of the Sternum*, the Patient must lie on his Back, a convex Body under it, and some Body leans hard on his Shoulders, to push them backwards, and make the *Sternum* rise, which was sunk; and which being reduc'd by this Means, the *Chirurgeon* must make the *Apparatus* and *Bandage* in the following Manner:

He must apply a Compress and a Card on the *Sternum*, very nearly of the Figure of the Part, which is to be supported with the Napkin and the Scapulary.

It is almost always the *Apophises* of the *Vertebræ* which are fractur'd, seldom their Bodies. It is known that the Body of the *Vertebra* of the Neck is fractur'd by the Palsy of the Arm, with Loss of Sense, and of the Back, by the Suppression of Urine, and by the Palsy of the Sphincter of the *Anus*, which hinders him from keeping up his Excrements. If these Accidents happen, the *Chirurgeon* may judge that the Marrow is press'd, and prick'd by the Needles; to take them out, an Incision must be made on the Body of the *Vertebra*, at the Place of the Fracture. If the *spinous Apophises* be only fractur'd, these Accidents will not happen; the Patient will only feel some Pain. To reduce them, the Patient must lie on his Belly, and the Operator do his best to raise the Bones, and place them in their natural Situation; after which, he must make the *Apparatus* and *Bandage*.

If the *spinous Apophisis* was fractur'd, a small, and long Compress, cover'd with a Card of the same Figure, must be plac'd on each Side the *Apophisis*, and over each Card another Compress; the *Bandage* is made with a Napkin, supported with the Scapulary.

The *Fracture of the Os Sacrum* is reduc'd like that of the *Vertebræ*. Its *Bandage* and *Apparatus* is made with the T pierc'd over-against the *Anus*; or with the double T. It is made of a Band two Fingers broad, and long enough to go round the Body above the Hips; another Band is join'd to the Middle of this, of the same Breadth, and long enough (passing over the *Apparatus* of the *Os Sacrum*, and between the Thighs) to be ty'd forwards, at the first Wasteband. The double T is made by joining two Bands at a Finger's Distance from one another, to that which is to go round the Body; this Bandage must be supported with the Scapulary.

The Coccix is ordinarily broke by Falls, and sunk inwards; to restore it, the Index is to be introduc'd into the *Anus*, as far as the Fracture, to push it outwards, and the other Hand will adapt it to its natural Place.

The *Apparatus* and *Bandage* is the same as that of the *Os Sacrum*. If the *Os innominatum* was broke, the *Spica* should be made to it, after it has been reduc'd.

I should proceed from this to *Midwifery*, which is also rank'd among the *chirurgical Operations*; but as I design to give an entire Treatise of *Midwifery* under the Letter *M*, I conclude this, by furnishing my *Chirurgeon*'s Shop with some of the Medicaments it must be indispensibly provided with; informing him, at the same Time, how to make them. Those Medicaments are, *Balsams*, *Unguents*, *Plaisters*, *Oils*, *Powders*, *Stiptick Waters*, &c.

The Balsams are either *natural*, or *artificial*. The best of the *natural Balsams*, and the most necessary to a *Chirurgeon*, is that of *Peru*. The *artificial Balsams* are those of *Arceus*, the *Samaritan*, *Spanish*, and the *green Balsams*.

The Balsam *of Arceus* is made (when a considerable Quantity is wanted) with two Pounds of Tallow of Goats, *Venice* Turpentine, and Gum *Elemi*, a Pound and a Half of each; and a Pound of Hog's Lard. To the Gum *Elemi*, cut into small Pieces, and liquify'd on a slow Fire, are added the Turpentine, Goat's Tallow, and Hog's Lard; when these are well dissolv'd, they must be strain'd thro' a Piece of new linnen Cloth, to separate the Dregs; the whole must be left to cool, and the *Balsam* is made.

This *Balsam* is incarnative, and consolidates all Sorts of Wounds and Ulcers; 'tis us'd for the Fractures and Luxations of the Bones, to cure Contusions, and the Wounds of the Nerves.

To make the *Samaritan Balsam*, you must take equal Parts of Oil of Olives and good Wine, which must be boil'd in a glaz'd earthen Pot till the Wine be entirely consum'd. This *Balsam* mundifies and consolidates simple Wounds, especially when they are fresh.

The Spanish *Balsam* is made by taking Wheat, Roots of Valerian, and *Carduus Benedictus*, an Ounce of each; all which must be well pounded, and put afterwards, with a Pint of White Wine, in a glaz'd earthen Vessel, narrow a-top, which must be well stopp'd, and plac'd on hot Embers during 24 Hours, adding to it afterwards six Ounces of St. John's-wort, making the whole boil to the Consumption of the Wine; after which, 'tis strain'd, and a new Addition made to it, afterwards, of two Ounces of *Olibanum*, in Powder, and eight Ounces of *Venice* Turpentine; which, after it has been mix'd together over a slow Fire, the *Balsam* is made.

This *Balsam* was always us'd by *Aquapendente*; 'tis excellent for all Sorts of Wounds, even the nervous, which, 'tis said, 'Twill cure in 24 Hours. The Wound must be wash'd first with cold White Wine, and then anointed with this *Balsam* hot. If the Wound was deep, this same *Balsam*, also made hot, must be syring'd into it, approaching afterwards the Edges of the Wound near one another, and anointing them with it. On the Wound must be put a Compress dipp'd in the *Balsam*, and another over it, dipp'd in strong Wine, and over this another dry Compress.

To make the *green Balsam*, you must take equal Parts of Linseed Oil, and Oil of Olives, *viz.* a Pound of each, an Ounce of Oil of Bays, two Ounces of *Venice* Turpentine, Half an Ounce of distill'd Oil of Juniper-berries, three Drachms of Verdigrease, two Drachms of the best Aloes, two Drachms and a Half of white Vitriol, and a Drachm of Oil of Cloves. The Oils of Linseed and Olives must be put together in a Frying-Pan, over a very slow Fire, and then must be incorporated with the Turpentine and Oil of Bays; after which, the Pan having been taken off the Fire, and the Mixture left to cool, there must be mix'd with it, by Degrees, the Verdigrease, white Vitriol, and Aloes, very well pounded; adding to it the Oils of Cloves and Juniper-berries; and the *Balsam* is made.

This *Balsam* is very good for all Sorts of Wounds made either with Iron, or Fire-Arms. The Wound must be wash'd with hot Wine, and afterwards anointed with this *Balsam* hot; applying to it Pledgets imbib'd with it, and over it a large Pledget dipp'd in some stiptick Liquor. This *Balsam* mundifies, incarnates, and cicatrizes the Wound; 'tis good against the Bite of venomous Beasts, fistulous, and malignant Ulcers. From this, we'll pass to the making of *Unguents*, beginning with that of *Styrax*.

The Unguent *of Styrax* is made with four Parts of Oil of Walnuts, three of Gum *Elemi*, six of Colophony, three of yellow Wax, and three of liquid *Styrax*; the whole melted together in stirring it, after which 'tis strain'd. This *Unguent* is frequently and happily us'd at the *Hotel Dieu* at *Paris*. It resists the Gangrene, and carries off the Putrefaction. Plaisters of it are apply'd on the Spots, and *Durities*, or Hardness which happens on the Body of the Scorbuticks.

To make the *mundicative Unguent of Smallage*, you must take three Handfuls of Leaves of *Smallage*; of Wormwood, Germander, little Centaury, Sage, St. John's-wort, Plantain, Betony, great and little Comfrey, *Veronica*, *Vervain*, and Honeysuckles, of each two Handfuls; eight Pounds of common Oil; of white Pitch, Mutton Fat, yellow Wax, and Turpentine, two Pounds each. All the Herbs must be pounded in a Stone Mortar, and the white Pitch, Mutton

Mutton-Fat cut in Pieces, and the Turpentine, melted in the Oil, in a Copper Bason tinn'd, over a slow Fire. Afterwards the pounded Herbs must be thrown into it, to be boil'd together gently, stirring the whole, from Time to Time, with a wooden *Spatula*, till it is perceiv'd that the Oil of the Herbs is almost all consum'd; then the whole must be strain'd strongly thro' a Cloth, and after the *Unguent* has been left to cool, to extract from it all the Fæces and Humidity, it must be melted over a slow Fire; after which, being left again to cool and thicken, must be added to it Myrrh, Aloes, Iris of *Florence*, and round Aristoloch, very well pounded, incorporating the whole together. This *Unguent* deterges the Ulcers, cleanses, cicatrizes, and consolidates all Sorts of Wounds.

The *black suppurative Unguent* is made of two Pounds of common Oil, white and yellow Wax, the Fat of a Loin of Mutton, pure Resin, Tar, and Turpentine of *Venice*, Half a Pound of each; and two Ounces of Mastick in Powder: What's to be melted, is melted in Oil, adding to it the Powder of Mastick, to make it an *Unguent*. This *Unguent* makes all Sorts of Apostbumes break, as well as Carbuncles; and venereal and pestilential Buboes; it is even apply'd after the breaking of Abscesses, till their perfect Cure.

To make the *white Unguent*, you must take three Pounds of Oil of Roses, nine Ounces of white Wax, a Pound of Ceruse of *Venice*, and a Drachm and a Half of Camphor; the Ceruse must be pulveriz'd by rubbing the Cakes on the Hair-cloth of a Sieve, the Bottom upwards, and the Powder falls on a Paper plac'd under it. That Powder must be wash'd several Times with Water, in a large earthen Pan, stirring it with a wooden *Spatula*, and pouring out the Water by Inclination, when the Powder is fell to the Bottom. When the Water of the Lotions is become insipid, the last Lotion must be made with Rose-water, leaving the Powder in it for five or six Hours, at the End of which it must be pour'd out by Inclination, and the Powder left to dry, cover'd with a Paper from the Sun; then the white Wax bruis'd, and the Oil prescrib'd, must be put in a glaz'd earthen Pot, and the Pot in the boiling *Balneo mariæ*; when the Wax is melted, the Pot is to be taken out of the *Balneo*, and the Dissolution agitated with a wooden *Spatula*, till it begins to thicken; when the Ceruse is to be added to it, stirring the *Unguent* till it be almost cold. Those who want to add the Camphor to it, must have it liquify'd in some Oil, and add it to the *Unguent* when cold. This *Unguent* is good for Burns, *Erefipela's*, Itch, and several other cutaneous Distempers. It appeases the Itching and Intemperies of Ulcers, dissipates the Excoriations and Redness which happen to the Bodies of Children, is good for Contusions, and consolidates and cools slight Wounds.

The UNGUENT ÆGYPTIACUM is made of eleven Ounces of Verdigrease, fourteen Ounces of strong Vinegar, and two Ounces of good Honey. The Verdigrease must be plac'd in a Pan of Copper over a very slow Fire, bruis'd with a wooden Pestle, and mix'd with the Vinegar, straining the whole, afterwards, thro' a Hair Cloth. If some of the Verdigrease was left on the Hair Cloth, it must be put again into the Pan, and dissolv'd in a Portion of the same Vinegar, passing it thro' the same Hair Cloth, so that nothing remains but the needless Parts of the Copper. This Dissolution must be boil'd afterwards with Honey, over a slow Fire, stirring it, from Time to Time, till it has acquir'd a pretty soft Consistence of *Unguent*, and a reddish Colour. This *Unguent* consumes rotten Flesh, and the Superfluities of Ulcers and Wounds.

To make the UNGUENT BASILICUM, or *Royal*, you must take yellow Wax, Mutton Fat, Resin, Tar, and Turpentine of *Venice*, of each a Pound, with five Pounds of common Oil; cut into small Pieces the Wax, Fat, Resin, and *Pix navalis*, and let them melt together with the Oil, in a Bason of Copper, over a very slow Fire; then after you have strain'd the whole thro' a coarse Cloth, you must incorporate the Turpentine with it, and the *Unguent* is made. This *Unguent* promotes Suppuration, and cicatrizes Wounds after the Pus has been evacuated; 'tis put on Pledgets, and sometimes mix'd with Yolks of Eggs, Turpentine, and other *Unguents*; or with Oils and Plaisters.

CERAT, is also a Kind of *Unguent*; the following one is call'd *refrigerative Cerat*.

To make the REFRIGERATIVE CERAT, you must take a Pound of Oil of Roses, and three Ounces of white Wax, which must be put into a glaz'd earthen Pot, and the Pot in *Balneo mariæ*, till the Wax be well liquify'd in the Oil; then take off the Pot, and stir the *Unguent* with a wooden Pestle, till it be cool; add to it two Ounces of Water, and stir it with the Pestle till it be all absorb'd in the *Cerat*; add to it, again, as much Water, and stir it; add, again, till the *Cerat* becomes pretty white, and be well saturated with fresh Water; then pour out, by Inclination, all the Water, and keep the *Cerat*. Some mix with it an Ounce of Vinegar. It is employ'd outwardly on all the Parts which want cooling; it appeases the Pains of the Hæmorrhoides, or Piles; 'tis good for all the Distempers which happen on the Nipples of the Breasts; 'tis us'd for Burns alone, or mix'd with other *Unguents*.

Having made our most useful *Unguents*, we'll begin to make our *Plaisters*, by the *Diapalma*.

DIAPALMA is made of equal Quantities of Litharge of Gold prepar'd, and common Oil; equal Quantities of Hog's Fat, Decoction of Summits of Palm-trees, or of Oak, four Ounces of Vitriol calcin'd till it be red, and dissolv'd in the Decoction of Summits, or Tops of the Branches of Palm-trees, or Oak. To make this Decoction, you must bruise very small the Summits of Palm-trees, or Oak, make them boil gently in three Pints of Water, to the Consumption of Half, and strain it, to have the Decoction. The Litharge must be pounded in a brass Mortar, and dissolv'd in two or three Pints of clear Water, which Water, when muddy, must be pour'd quickly into a Vessel, and the Litharge that Water is loaded with will fall to the Bottom of the Vessel, while that left in the Mortar must be pounded a-new, and dissolv'd in the Water of the first Lotion, or in some other, and pour'd again into the Vessel, repeating the same Operation till nothing is left at the Bottom of the Mortar but the most impure Part of the Litharge, incapable of being rais'd by the Water. After the Lotions are well settled, the Water is pour'd by Inclination, and the Powder left at the Bottom of the Vessel is put to dry; and having weigh'd of it the Quantity prescrib'd, it must be mix'd cold in a Pan of Copper tinn'd, with the Oil, Fat, and Decoction of Palm-tree. These Things being well incorporated together, a good Fire of Charcoal must be lighted in a Furnace, over which they must boil, agitating them all the while with a wooden *Spatula*; and when the Plaister is done, there must be added to it the calcin'd Vitriol dissolv'd in a Portion of the Liquor kept for that Purpose, if the Plaister is to be red, or of white Vitriol dissolv'd in the same Decoction, if it must be white; then the Plaister is to be roll'd, and wrapp'd up in Paper. It is us'd for the Cure of Wounds, Ulcers, Tumours, Fractures, Burns, Chilblains, and to apply on Issues.

To make the *Plaister of simple Diachylon*, you must take three Drachms of the Roots of *Althæa* cleans'd, Linseeds, and Fenugree-seeds, four Ounces of each; six Pounds of Spring-water, four Pounds of common Oil, and four Pounds of Litharge of Gold; the Roots of *Althæa* having been wash'd and cut, they must be put into the tinn'd Copper Bason with the Linseeds and Fenugree-seeds, pouring over it the six Pounds of Spring-water; and after they have macerated for the Space of 24 Hours over a very slow Fire, agitating the whole from Time to Time with a wooden *Spatula*, they must be boil'd slowly, reiterating often the Agitation, till the Mucilages be sufficiently thicken'd, when they are to be strain'd thro'

a ſtrong and thick Cloth; after which, they are mix'd and incorporated together with the Litharge, prepar'd in the ſame Manner we have done it for the *Diapalma*, with the Oil in a Baſon of Copper tinn'd, and plac'd on a moderate Fire, agitating the whole, without Intermiſſion, with a wooden *Spatula*, and as quick as poſſible; which Agitation muſt be continu'd till the Plaiſter begins to fall to the Bottom of the Veſſel; then the Fire muſt be diminiſh'd by Half, the Artiſt contenting himſelf to evaporate, by Degrees, the ſuperfluous Humidity, which could remain in the Plaiſter, which being conſum'd, the Plaiſter is done. This Plaiſter ſoftens and reſolves the Durities, or Hardneſs, and even the ſchirrous Tumours of the Liver and *Viſcera*; it melts ſcrophulous Tumours, the old Relicks of Abſceſſes, *&c.*

Oils are made either by Infuſion or by Expreſſion. To make the *Oil of Roſes by Infuſion*, you muſt take two Pounds of Roſes newly gathered, and pound them, half a Pound of Juice of Roſes, five Pounds of common Oil, put all together into a glazed earthen Veſſel very well corked, and expoſe it to the Sun, for the Space of 40 Days, afterwards let it be boiled in *Balneo Mariæ*, ſtrain it and keep the Oil. The *Oil of Roſes* compoſed alſo by Infuſion, is made with a Pound of red Roſes newly gathered, and pounded, and four Pound of common Oil, to be put into a glazed earthen Veſſel, narrow at Top, and well corked, and expoſed to the Sun, for one Hour, afterwards ſtrained through a Cloth. The Liquor muſt be put in the ſame Veſſel, adding to it the Juice of Roſes, and Roſes in the ſame Quantity as before, reiterating the Maceration, Collature, and Expreſſion; and by repeating the ſame Thing a third Time, the Oil is done. Theſe Oils ſweeten and diſſipate the Fluxions, abate the Inflammations, diſſipate the Head-Ach and Delirium, and provoke to Sleep. They muſt be warmed before the Part be anointed with them; they are adminiſtered internally againſt the *Diſenteria*, and Worms, from half an Ounce to an Ounce; and the Parts are anointed with them in Fractures, and Luxations of the Bones.

To make the Oil of Bays, you muſt take as much *Bays* as you pleaſe, and bruiſe them in a Mortar; after which they are put in a Caldron, and boiled in a ſufficient Quantity of Water for the Space of half an Hour, and ſtrained ſtrongly through a Cloth, leave the Liquor to cool, and take off the *Oil* which floats a-top; bruiſe again the Grounds, and let them be boiled for another half Hour in the firſt Water, ſtrain it, and take off the *Oil* as before. The firſt *Oil* is better than the ſecond, therefore they are to be kept apart. This *Oil* is emollient and attenuant; 'tis good againſt the Palſy, the Shivering, in Fevers, by anointing the Bones with it; and againſt the Itch, Ring-Worms, *&c.*

M. *L'Emery* gives us a Receipt for a *Stiptick Water*, which, ſays he, he knows by Experience to be excellent; and which is as follows. Take five Drachms of Colcothar, or red Vitriol, which remains in the *Cornue*, after the Diſtillation of the Spirit; Roman Alum, and Sugar-candied, of each half an Ounce, the Urine of a young Perſon, and Roſe-water, four Ounces of each; Plantin-Water ſixteen Ounces, which are to be agitated all together in a Mortar, for ſome Time, and poured afterwards into a Bottle. When this Water is uſed, it muſt be poured out by Inclination. A Compreſs dipped in it, and applied on an Artery open, and kept upon it with the Hand, ſtops the Blood. A Piece of Cloth dipped in it, and introduced into the Noſe, ſtops alſo the Bleeding of that Part; taken internally it ſtops the Spitting of Blood, *Dyſenteria*, the Flux of the Hemorrhoides, and of the *Menſes*; 'tis vulnerary. The Doſe is from half a Drachm to two Drachms, in Water of Knotted Graſs.

As the Maladies of the Eyes are very frequent, a *Chirurgeon* ſhould know, alſo, how to make Collyria, which are Remedies proper for thoſe Maladies. The following one is of *Lanfranc*. Take a Pint of White Wine, Roſe and Plantain-waters, three Pints of each; two Drachms of Orpiment, a Drachm of Verdigreaſe, Myrrh and Aloes, of each two Scruples. The Orpiment, Verdigreaſe, Myrrh and Aloes, muſt be very well pounded before they are mix'd with the Liquors. This *Collyrium* is not only good for the Diſeaſes of the Eyes, but 'tis us'd alſo in Injections for the natural Parts of Men and Women. If us'd in Injections, it muſt be ſoften'd with four Times as much Roſe and Plantain-waters.

Blue Collyrium is made with a Pint of Water in which Quick-lime has been ſlacken, and a Drachm of *Sal Ammoniack* in Powder; the whole muſt be mix'd together in a braſs Pan, and left in it for a whole Night. The Liquor being filtrated afterwards, is kept. This *Collyrium* is one of the beſt Remedies that can be prepar'd, for all the Diſeaſes of the Eyes.

There are, beſides, dry *Collyries*; as the following one. Take two Drachms of Sugar-candy, prepar'd Tutty, and Lizard's Dung, of each a Drachm; white Vitriol, Aloes, and Salt of *Saturn*, Half a Drachm of each: Reduce them all into Powder, and mix them. Two or three Grains Weight of this *Collyrium* is blown, each Time, into the Eye, thro' a ſmall Pipe, as long as is neceſſary; and theſe Powders can be diſſolv'd in ophthalmick Waters, to make a liquid *Collyrium*.

Note, That the vulnerary and ſtiptick Tincture I have invented, apply'd outwardly, anſwers all the Expectations of a *Chirurgeon*, and can ſupply, upon a Breach, in a Siege, at Sea in an Engagement, and in any other Emergency, the Want of Remedies, and of a *Chirurgeon*, by ſtopping the moſt violent Hæmorrhage, and perfecting the Cure of all Sorts of Ulcers, and Wounds which are not mortal; and may be kept a hundred Years without loſing its Virtue. It has the ſame Effect inwardly, by ſtopping the ſpitting of Blood, curing Ulcers in the Lungs, helping Reſpiration by inciſing and diſſolving the viſcous and glutinous Humour which obſtructs their *Bronchia*; and I know it by Experience to be a Sort of Specifick for the Conſumption. It alſo helps Digeſtion, and repairs, in ſome Meaſure, a decay'd Conſtitution. For ſeveral of theſe Virtues, I could have a great Number of Vouchers of Credit.

CHRONOLOGY.

Chronology, from the *Greek* χρονος, Time, and λογος, Diſcourſe; is the Art of meaſuring and diſtinguiſhing Time, or the Doctrine of *Epocha's*. But as we have already canvaſs'd that Subject in our *Calendar*, we'll conſider *Chronology*, in this Place, as accommodated to the various, and moſt remarkable Events that have happen'd in the World ever ſince its Creation to this preſent Time; and more particularly, the different *Epocha's* of the Foundation of Empires, Monarchies, *&c.* the Succeſſion of their Emperors, Kings, *&c.* their Characters, the Duration of their Reign, the remarkable Events which have happen'd under it, both in the natural and political State, *viz.* Eclipſes, Prodigies, Earthquakes, Inundations, *&c.* Battles, Sea-Fights, *&c.* the Eſtabliſhment of the *Chriſtian* Church, and the Succeſſion

cession of its Pastors, from the Time of the Apostles to ours, their Characters, &c.

We'll begin this *Chronology* with that of the antient Patriarchs.

CHRONOLOGY *of the antient Patriarchs.*

ADAM, in the first Year of the World. *God* (after he had extracted the Heavens, heavenly Bodies, Elements and Animals, from nothing, assign'd to every Creature its Place in the Universe, and shew'd the Riches of his Being by the Communication he had made of it, in so different a Manner, and the Depth of his Wisdom in the Disposition of all Things) wanted to make an Abridgment of the World in creating the first Man; whose Body he form'd of Clay, infusing into it a Soul, form'd of his Image, being spiritual as he is a Spirit, immortal as he is immortal, and intelligent as he is the supreme Wisdom. He was created in a State of Innocence, which consisted in the Illumination of his Understanding by the Infusion of a Science, whereby he knew his Creator, and all the Creatures made for his Use, in the Strength of an uncorrupted Will, and in the Extent of a Liberty which nothing inclin'd to Evil, and which, without the least Reluctance, could easily, as well as agreeably, pursue the sovereign Good. And lastly, with a Grace always present, and of which he could use with an absolute Power, or not use, at Pleasure. His Body was adorn'd, likewise, with excellent Perfections, since besides that of his Organs, the Harmony of his Constitution, and his entire Submission to the Dictates of the Spirit, he was immortal of that *first Immortality, which consisted in the Possibility of not dying*, as *the second* shall consist in the Impossibility of dying.

The same Year, while *Adam* was asleep, God extracted from one of his Ribs, the first Woman, to be his Companion and Help-Mate; he blessed them, joined them together, and thereby instituted in their Persons the conjugal Society. He placed them both in the Garden of *Eden*, where he used to descend, in the middle of the Day, to bless them with his Familiarity.

But they had scarce Time enough to know the Happiness of their Condition (though it be not precisely known how long they continued in their State of Innocence, and it is an extravagant Temerity to pretend to determine it) when *Eve* was seduced by the Devil, hidden in the Serpent; she did eat of the forbidden Fruit, and obliged *Adam* to eat it likewise. He was afraid if he had refused it, says St. *Augustine*, to have, thereby, put a Damp to her Pleasures; but the true Reason was, that he wanted to be free of that small Mark of Subjection, which God had given him, to shew that he was Sovereign. Therefore the ambitious Desire of Independency, which does not become the Creature, with Regard to her Creator, the unhappy Complaisance, in his own Excellency, and the criminal Desire of being entire Master of himself, precipitated *Adam*, and his Posterity with him, from a most happy State of Power, Science, and Pleasure, into a very unfortunate one of Imbecility, Ignorance, and Sorrow. His Eyes, and those of his Wife, were opened, and they saw that they were naked; that is to say, according to the same St. *Augustine*, that beginning to feel in their Members a Revolt which their Sin had formed in them, by the Concupiscence, they had learned what they had been ignorant of, were ashamed of it, and covered themselves, and God cloathed them with the Skin of dead Beasts, which were Marks, both of their Crime which had subjected them to Death, and of the Grace of Forgiveness, the Creator granted them, as well as a continual Lesson of Repentance.

In the Year of the World 130, *Adam* had for his first Son *Cain*, and afterwards *Abel* for his second, who was killed by *Cain*, his Brother in the 128th, or the 129th Year of his Age. The Murtherer despairing of the divine Goodness for the Forgiveness of his Sin, was cursed, and condemned to be a Vagabond upon Earth. After he had run for a considerable Time through several Places, with a greater Inquietude of Mind than of Body, he stopp'd in a Place where he built a City, which he called by the Name of his Son *Enoch*, *Enochia*, and the first built in the World.

In the Year of the World 133, *Seth* was born, who imitated his Father in his Piety towards God, in his Respect towards his Parents, and in all the other Virtues. His Descendants are called the Children of God in the Scripture, to distinguish them from those of *Cain*, called the Children of Men.

Seth, aged 105 or 106 (I reckon the Years accomplished) begot *Enos*, in the Year of the World 236; according to *Capel* 234, according to *Clavisius* 235. The *Genesis* observes particularly that *Enos* began to invoke the Name of the Lord; which does not signify an Establishment of a divine Worship, as if God had never been adored before; but an Institution of a religious Worship, accompanied with some Ceremonies, more august, and better regulated than before. *Seth* lived after he had begotten *Enos* 807 Years, and died, aged 912.

In the Year of the World 326 *Enos* begot *Cainan*, lived 815 Years after, and died, aged 905.

In 395, *Cainan* begat *Malaleel*, and died, aged 910.

In 460, *Malaleel* begat *Jaret*, and died, aged 895.

In 622, *Jaret* begat *Enoch*, and died, aged 962.

ENOCH, is called Prophet by St. *Jude*; and St. *Augustine*, *l.* 15. *de Civit. Dei. c.* 23. believes that he wrote some Treatises of Religion. As for the Book which bears his Name, and quoted by the antient Fathers, there's no doubt of its being apocryphal. In the Year of the World 688; according to *Capel* 684, according to *Clavisius* 687,

METHUSELAH was born of *Enoch*, who staid three hundred Years afterwards upon Earth, and disappeared in the Year of the World 987, and was carried by the Lord into a Place unknown to Men. The Authors, who endeavour to discover the Place where he is, make a Research more curious than useful. The Holy Ghost in the *Book of Wisdom*, *c.* 4. says, *that he was transported from amidst the Sinners, for Fear Malice should deprave his Understanding.*

Methuselah, aged 187 Years, and the Year of the World 874 had begotten *Lamech*, and died, aged 969.

LAMECH at 82 begat *Noah*, in the Year of the World 1057, according to *Capel* 1053, according to *Clavisius* 1056, and died, aged 777.

Note, That *Adam* died after he had lived 930 Years accomplished. That the Hereticks, called *Tatianists*, and *Encratists* said, That he was damned, and some Catholick Authors have questioned his being saved; but the antient Fathers, and all the Interpreters of the sacred Scriptures, after them, are of Opinion that he repented, and that God forgave him his Sin. Some Chronologists assure us that *Eve* lived two Years after him.

God seeing that the Wickedness of Men was great upon the Earth (says *Moses*, *Genes.* vi. *v.* 5.) and that every Imagination of the Thoughts of his Heart was only Evil continually, unwilling to suffer any longer, the Abominations of Men, resolved to drown the World by an universal Deluge. He forewarned *Noah* of this Punition 120 Years before it happened, *i. e.* in the Year of the World 987, and ordered him to build an Ark, on the Dimensions he shewed him, wherein he should retire with his Family. *Shem*, *Ham*, and *Japhet*, were born 20 Years after this Menace, not altogether, but successively. The Scripture reckon them thus, though in the Opinion of the *Hebrews*, *Shem* was not the eldest, but *Japhet*, which is also the Sentiment of several modern Authors. Others,

with St. *Augustine*, maintain that *Shem* was the eldest. The Ark being finished, *Noah* entered it with his three Sons, and their Wives the 17th Day of the second Month of the Solar Year, which answers to the 19th of our *April*, in the Year of the World 1656; according to *Capel* 1652, according to *Clavisius* 1657, of *Noah* 600. Before *Jesus Christ*, according to *F. Petau*, 2329; according to others, 2348 or 2291.

By the Lord's Command *Noah* came out of the Ark, with his Family, the 27th of the second Month, which answers to the 29th of our *April*. And here ends the first Age of the World, to which *Torniel*, *Salian*, *F. Petau*, *Clavisius*, and almost all *Chronologers*, give 1656 Years, *Capel* excepted, who, contrary to the common Opinion, retrenches four Years from it.

Noah being come out of the Ark, in the Year of the World 1657, according to *Capel* 1653, according to *Clavisius* 1658, of *Noah* 601, erected an Altar, and offered a Sacrifice. 15 Years afterwards, *i. e.* the Year of the World 1659, of *Noah* 613, he planted the Vine.

ARPHAXAD was born of *Sem*, in the Year 1658, and begat, when 37 Years were accomplish'd, *Cainan*, and dy'd aged 338. *Cainan*'s Name is not found, nor in the original *Hebrew* of the *Genesis*, and of *Deuteronomy*, nor in the *Latin* Version, nor in the *Chaldaick*, nor in *Josephus*, nor in *Philo*, nor in *Theophilus* of *Antioch*, nor in *Julius Africanus*, nor in St. *Epiphanius*; but only in the Traduction of the *Septuagint*, and in the Genealogy of St. *Luke*. Several Authors believe that it was inserted there thro' the Copist's Fault, and maintain, that it is not found in the old Exemplaries, and therefore ought to be omitted. This Diversity gives a great Subject of Dispute to the *Catholick* Interpreters, and most of them say, after several antient Fathers, who retain the Genealogy of *Cainan*, that it is better to confess that the Cause of the Omission of his Name in the *Hebrew*, is not known, than to accuse of Corruption the Text of the Evangelist, or to have follow'd the Error of the *Septuagint*.

SALE was begotten by *Cainan*, or *Arphaxad*, the Year of the World 1723; and *Cainan* dy'd, aged 568.

Sale begat HEBER, in the Year 1753, and dy'd, aged 433. *Heber* gave his Name to the *Hebrews*.

Heber begat *Phaleg* in 1787, and died, aged 464.

Note, That in his Time Mankind having been greatly multiplied, ever since the Deluge, formed the extravagant Design of leaving to Posterity an eternal Monument of them, by building a City and a Tower, whose Top should be carried to Heaven. *Moses* calls it the first *Babylon*. *Bodinnus* and *Sabellius* mistake it, for *Suza*, and others for *Bagdat*, *Bagdet*, or *Bagadet*, of our Time. One was situated on the Borders of *Euphrates*, the other on the Borders of *Tigris*. At present there are yet seen some Ruins of that, 40 Miles off of this. *Josephus* says that the Builders had undertook the Work of this lofty Tower for a Retreat against another Deluge, if it should happen; but it is an Imagination of that Author: Since God had but lately assured them, by a solemn Promise, that he would never drown the World any more; for if it had been their Design, they had chose a very bad Situation for their Building, between two great Rivers, the *Euphrates* and the *Tigris*, very subject to overflow their Banks. There is as little Appearance that they wanted to shelter themselves against the Fire from Heaven, which always falls on the loftier Edifices. Their true Intention, which made their Guilt, was Pride, and the Desire of rendering themselves famous, by a sumptuous Edifice, without having consulted the Will of God, who, to punish them, confounded their Language, which obliged them to desist from their Undertaking, and to leave the City imperfect. *Nimrod* continued their Design, and brought it to its Perfection. All the learned agree that *Hebrew* was the Language they all spoke before that Confusion, so that it must be considered as the Mother-Tongue of all others, notwithstanding what the *Maronites* say in Favour of the *Syriack*. We do not know into how many different Tongues God divided it at the Time we speak of. The *Rabins* reckon 70 of them, *i. e.* as many as there are Nations, and Angels to govern them. *Clemens Alexandrinus*, *lib.* 1. of *Tapiss*. St. *Epiphanius*, *lib.* 1. *de Heres. Heres.* 39. add two more to it, and the *Latin* Fathers, as St. *August. lib.* 16. *de Civ. Dei. c.* 3. &c. are of the same Sentiment. As for the Division of the Provinces, *Noah*'s Descendants separated themselves into, 'tis marked with a greater Accuracy in the Scripture. In this general Partition the Children of *Japhet* extended themselves from the Mountains *Taurus* and *Amanus*, in *Cilicia*, to the River *Tanais* in *Asia*, and from thence to the Streight of *Gades*, at present called *Gibraltar*, or of *Cadiz*. Of his seven Sons, and as many Grandsons, mentioned by *Moses*, two only, *viz.* *Thiras* and *Javan* came into *Europe*. *Thiras* occupied *Thracia*, *Mœsia*, and all the septentrional Provinces. *Javan* pitched his Tents in the Meridional, watered by the *Mediterranean*, as *Greece*, *Italy*, *France*, and *Spain*. *Cham* and his Posterity inhabited *Africa*, *Egypt*, and a great Part of *Syria* and *Arabia*. The Children of *Shem* peopled the Regions of *Asia* from the River *Euphrates* to the Ocean. As for *America*, there is a very great Appearance that it was peopled, but a long while afterwards, by the Tartars of *Asia*, because that Part they inhabit is either contiguous to the occidental Continent of *America*, or only separated from it by small Streights, which could give a free and easy Passage, not only to Men, but likewise to the wild Beasts found there in a great Number, and which there is not the least Appearance, could have been carried there.

PHALEG begot *Ragau*, the Year of the World 1817, and died, aged 239.

RAGAU begot *Sarug*, in the Year 1849, and died, aged 259.

SARUG begat *Nachor*, in 1879, and died, aged 230.

NACHOR begot *Thare*, in 1908, and died, aged 147.

THARE in the 70th Year of his Age begot *Abraham*, the Year of the World 1978, and died, aged 205. *Thare*, before *Abraham*, had had *Aram* and *Nachor*. The *Hebrews* say, That he was a Sculptor, and the first who made Statues, which were adored, and gave Origin to Idolatry. St. *Epiphanius* and *Suidas* are of that Opinion. Several Authors will have it that *Abraham* himself was of that Profession, and that he had known the true God but when he was 48 Years of Age. *Philo*, the *Jew*, says, That God appeared to him one Night, while he was taking his Observations of the Heavens, to which the *Chaldeans*, among whom he lived, were much addicted. Here ends the second Age of the World, which lasted, according to *Torniel*, 456 Years, or 366 according to *F. Petau*.

In the Year of the World 2113; according to *Capel*, 2073; according to *Calvisius*, 2023; according to *F. Petau*, 2022; of *Abraham* 75; before *Christ*, according to *Salian* 1940; *Abraham* quitted his Country and Relations, in Obedience to God's Commands, and came, with *Lot*, *Aram*'s Son, and his Sister *Sarah*, whom *Abraham* had married, into the City of *Aran*, or *Charan* (since called *Charras*) in *Mesopotamia*, which *Abraham* left, likewise, to obey the Will of God, in the Year of the World 2114; of *Abraham* 76, and came into the Land of *Canaan*. Some Time after

after the Country being desolated by Famine, he was forced to go into *Egypt*, where some Authors falsly say, that he instructed the *Egyptians* in Astrology and other Sciences. At his Return from *Egypt*, in the Year of the World 2116; of *Abraham* 78 or 79. According to others, he parted from his Nephew *Lot*, who went to inhabit the *Pentapole*. In 2117, of his Age 79 or 80, he defeated *Codorlahomar*, King of the *Elamites*, who had carried away *Lot*, with his whole Family. 'Twas after this Victory that *Melchisedech* came to meet him, blessed him, and presented him with Bread and Wine. The Scripture introduces *Melchisedech* without Father and without Mother, which made *Origen* believe that he was an Angel, and the Hereticks, called by his Name, imagined him the Holy Ghost, though he was really a Man, and a mysterious one, as St. *Paul* represents him in the Epistle to the *Hebrews*. Ten Years after his Arrival into the Land of *Canaan*, i.e. in the Year of the World 2124; of *Abraham* 86; *Abraham*, by the Advice of his Wife, *Sarah*, married his Maid, *Agar*, by whom he had a Son called *Ishmael*. In the Year 2144; according to others, 2103; of *Abraham* 101; before *Christ*, according to Father *Petau*, 1936, *Sarah* was deliver'd of that Son so often and so solemnly promised, called *Isaac*. In 2163; of *Abraham* 125; of *Isaac* 25; before *Christ*, according to *Salian*, 1890, or 1861, according to others; *Abraham* received an express Command from God to sacrifice that beloved Son, *Isaac*, on a Mountain, which he would shew him, and which some of the Fathers say to have been that on which the Temple was built afterwards; others believe that *Calvary* was the Place designed for that extraordinary Sacrifice, which was no otherwise accomplished than in the Faith of the Father, and in the entire Resignation of both Father and Son. That marvellous Sacrifice offered only by the Patriarch, in the Preparation of his Heart, was the lively and natural Figure of the Sacrifice which Christ was to offer in reality upon the Cross. The Fathers are of Opinion that it was then revealed to *Abraham*, and that of that Knowledge must be understood, what our Lord says, *John c.* viii. *v.* 56. *That* Abraham *had seen his Day and was glad. Abraham* lost his Wife *Sarah*, who was 127 Years old, in the Year 2175; of *Abraham*, 137; of *Isaac*, 37; and died himself in *Isaac*'s Arms, having attained the Age of 175 Years, in the Year of the World 2213; according to *Capel* 2177; according to *Clavisius*, 2123; before *Christ*, according to *Salian*, 1840; or 1862, according to Father *Petau*. *Abraham* excelled in all Sorts of Virtues, who has deserved that the Holy Ghost should say of him, *Eccles. c.* 44. *That he had not his equal. Josephus* relates the Praises which some Antients, among the *Gentiles*, have bestowed on him.

Isaac, born in the Year of the World 2078, married (his Father being yet alive) *Rebecca*, Grand-Daughter of *Bethuel*, Son of his Uncle *Nachor*, who brought him two Sons, *Esau* and *Jacob*, who was blessed, in lieu of *Esau*, by his Father *Isaac*, grown blind, in the Year of the World 2276, of *Isaac* 128, of *Jacob* 68; St. *Augustin*, though *Jacob* deceived his Father in this Action, excuses him of Falshood, *l. contra. mend. c.* 10. Other Interpreters confess that he had lied in fact, though he had a Right to the paternal Benediction, as well by God's Direction, as by *Esau* having sold it to him. *Isaac* died aged 180.

Chronology *of the Judges of the* Hebrews.

Jacob married in the House of *Laban*, *Leah*, (or rather was deceived by *Laban*, who thrust into his Bed *Leah* in lieu of *Rachel*, whom he had promised to *Jacob*,) his Father being yet living, in the Year of the World 2283, of *Isaac* 145, of *Jacob* himself 85. Twenty Years being elapsed since his Arrival in the House of *Laban*, he quitted it, to return into *Canaan*, in the Year of the World 2296, or 2261, according to others; of *Jacob*, 97, or 98; *Jacob* died in *Egypt*, in the Arms of *Joseph*, of the Death of the Elects, in the Year of the World 2345; according to *Capel*, 2310; of *Jacob*, 147; of *Joseph*, 56.

Joseph was born in the Year of the World 2229; sold by his Brothers in 2306 of the World; of *Isaac*, 168; of *Jacob*, 108; of *Joseph*, 17, begun; sold again by the *Ismaelites* to *Potiphar*, Captain of the Guards to *Pharaoh*, King of *Egypt*, in the Year of the World 2316; of *Joseph*, 27. Interprets *Pharaoh*'s Dreams, in the Year of the World 2389; of *Jacob*, 121; of *Joseph*, 30. The seven Years of Famine begun in *Egypt*, according to his Prediction, the Year of the World 2327, according to *Capel*, 2290; of *Jacob*, 229; of *Joseph*, 37. Brings his Father *Jacob* into *Egypt*, in the Year of the World 2329, or, according to *Capel*, 2293; of *Jacob*, 131; of *Joseph*, 40, begun; before *Christ*, 1747, according to Father *Petau*, and died aged 110, in the Year of the World 2400, according to *Capel* 2365, and according to Father *Petau*, 2308. *Joseph* was regretted by the *Egyptians*, as a great Minister, and a very honest Man, which is seldom found together, but which, by this Example, is not impossible.

Moses was born after his Sister *Mary*, and *Aaron* his Brother, in the Year of the World 2464; according to *Capel*, 2423; according to *Clavisius*, 2372; of *Moses*, 1; before *Christ*, according to *Salian*, 1589; according to others, 1577, or 1576. He quitted *Pharaoh*'s Court, to go and visit those of his Nation, 2503; according to *Capel*, 2463; of *Moses*, 40; before *Christ*, 1537, or 1535. Having met in that Journey an *Egyptian*, who mal-treated an *Israelite*, he killed him, and fled afterwards into the Desart of *Madian*, where he married a Daughter of a Priest, called *Jethro*, otherwise *Raguel*, (*Artepanus*, in *Eusebius*, calls him King of *Arabia*,) her Name was *Sephora*. He lived 40 Years in that Country. Here ends the third Age of the World, which, in *Torniel*'s Opinion, lasted 431 Years.

Moses is appointed by God for the Deliverance of the *Israelites* from the *Egyptian* Yoke, in the Year of the World 2544; according to *Capel*, 2502; according to *Genebrard*, 2670; according to *Clavisius*, 2452; of *Moses*, 81, begun; before *Christ*, 1510, according to *Salian*; according to others, 1496 and 1448. Erects the Tabernacle, on the Model shewed to him by God himself, two Years after the *Israelites* Deliverance, the first Day of the first Month, which answered to the 22d of *March*, in the Year of the World 2545; of *Moses*, 82; and died after he had conducted and governed the People for the Space of forty Years, without the least Malady or Pain, sound of Mind and Body, and as vigorous as he had been in his Youth, though he was then 120 Years old. The Scripture says, *Deuteronomy* xxxiv. that he *died by the Lord's Command*, and that he buried him in the Valley of the Land of *Moab*, against *Phogor*, without any body having ever been capable to discover the Place of his Sepulture: 'Twas then, as St. *Jude* relates in his Epistle, that the Archangel *Michael* disputed with the Devil, who wanted to discover to the *Israelites* the Body of *Moses*, that they might adore him as a God. They *wept for him in the Plains of Moab thirty Days*: He was an admirable Man in all Things; the Holy Ghost in the *Ecclesiastes*, *c.* 45. makes his Panegyrick in very honourable Terms. *Philo* has wrote his Life in three Books. *Josephus* against *Apion*; *Eusebius*, *lib.* 6. *de prepar. Evang. c.* 3. and 4. and St. *Cyrille* of *Alexandria*, *l.* 1. *cont. Julian.* quotes the Testimonies of several Pagan Authors, who spoke very advantageously of him. *Mumenius* said that *Pythagoras* and *Plato* had learned their Doctrine in his Books, and that the last was an *Attick Moses*. He is more antient than all the *Greek* Writers, and even than their *Mercury*, whom they called *Trismegistus*.

Joshua, Son of *Nun*, of the Tribe of *Ephraim*, born in the Year of the World 2523, was chosen by God, even while *Moses* was yet alive, for his Successor; and accordingly took the Reins of the Government,

ment, at *Moses*'s Demise, in the Year of the World 2584; according to *Capel*, 2543; according to others, 2548; of *Joshua*'s Administration, 1; before *Christ*, according to *Salian*, 1469; according to Father *Petau*, 1491. He commanded the Sun to stop on the Horizon, to see the End of his Victory over *Adonibezek*, which the Sun did, in the Year of the World 2590; of *Joshua*, 7; before *Christ*, according to *Salian*, 1463; according to Father *Petau*, 1486. He distributed the Conquests to the *Israelites*, in the Year of the World 2591; of his Government, 8; after which he dy'd, having govern'd *Israel* for the Space of 25 Years, according to *Josephus*; 27, according to *Eusebius*; and according to others, 26, 17, 14, or 10, with a great deal of Piety, Courage, and Prudence.

This Diversity of *Chronology* proceeds from that of reckoning the Years elaps'd ever since their coming out of *Egypt*, to the Time they began to build the Temple of *Jerusalem*; the one reckons precisely the Administration of every Judge, without including the *Interregnums* of the Servitude of the People; while others include them. When *Joshua* dy'd, he was 110 Years old, which he had pass'd all in the Service of God, and of the Publick. As there is no mention made in the Scripture of his Children, there is a very great Appearance that he had never been marry'd. He has had the Advantage to be one of the most express Types of *Jesus*, the true Saviour, not only of the *Jews*, but also of all the People of the World, and the *Introductor* of the true *Israelites* into the Land of the Living.

Note, That after *Joshua*'s Death there was an *Interregnum* of 10 Years, during which, the People were govern'd by the Elders of *Israel*, who had Part in the Government under that great Captain. This *Interregnum* began in the Year of the World 2594. During that Interval of Time, the *Israelites* contracted Alliances with the Natives against the express Command of God; for which Crime, he punish'd them with several Servitudes; the first under *Chusan Rishathaim*, King of *Mesopotamia*, which lasted 8 Years.

OTHNIEL, born in the Year of the World 2556, restor'd them to their Liberty in the Year 2601; according to *Capel*, 2583; before *Christ*, according to *Salian*, 1452; according to Father *Petau*, 1459. This Judge govern'd them during 40 Years, and retain'd them in the Worship of the true God, which they deserted after his Death, were punish'd by a Captivity under *Eglon*, King of *Moab*, which lasted 18 Years.

EHUD, born in the Year of the World 2599, by God's Command kill'd that King, and thereby deliver'd the *Israelites* from that Captivity in the Year 2658; according to *Capel*, 2649; who enjoy'd, during his Administration, which lasted 80 Years, reckoning those of their Idolatry and Servitude, a profound Peace.

SANGAR succeeded him, *Anno* 2720, and govern'd but 1 Year.

Note, That these two Judges being dead, that inconstant Nation return'd to her antient Impiety, and was accordingly punish'd with a Captivity of 20 Years, under *Jabin*, King of the *Chananeans*.

BARAK and DEBORAH deliver'd them from that Captivity, in the Year of the World 2741, or 2742; according to *Capel*, 2677; before *Christ*, 1327; according to Father *Petau*, 1301; according to *Salian*, 1312; and both govern'd the People during 40 Years. After their Death, the *Jews* fell again into their ordinary Idolatry, which was follow'd with the customary Punishment of a Captivity under the *Midianites*, which lasted 7 Years.

GIDEON, of the Tribe of *Manasses*, was chosen, by the Lord, for their Liberator, in the Year of the World 2760; according to *Capel*, 2768; of his Administration, 1; who in 2768 of the World, the eighth of his Administration; according to *Capel*, the Year of the World 2724; according to Father *Petau*, 2730; before *Christ*, according to *Salian*, 1280, defeated entirely, with 300 Men only, a formidable Army of their Enemies, 20000 of them being kill'd in that Battle. After this Victory, *Gideon* procur'd to the *Israelites* a Peace, which lasted during the whole Time of his Administration; and he died full of Honour, among his Countrymen, in the Year of the World 2800, the fortieth of his Administration.

ABIMELECH, born of a Servant Maid, but in a licit Marriage, according to the Custom of the Time, murder'd all the Sons *Gideon* had left of several Wives, *Jotham* excepted, who fled; after which, he was chosen Prince of *Israel*, and was kill'd at the Siege of *Thebes*, with a Stone thrown by a Woman, from a Tower, upon his Head, in the Year of the World 2803, and the third of his Administration.

THOLA, after this Tyrant, was Judge of *Israel*, and exercis'd that Employ during 23 Years, without doing any Thing worthy of being recorded.

JAIR took his Place, in the Year of the World 2827; according to *Capel*, 2789. Under him the People were made Captives by the *Philistines* and *Ammonites*; in which deplorable Condition they remain'd for the Space of 18 Years. *Jair* dy'd, after twenty-two Years of an Administration of which the Scripture remarks nothing considerable.

JEPHTHAH succeeded him, *Anno* 2849, according to *Capel*; before *Christ*, according to *Salian*, 1204; according to Father *Petau*, 1166; according to others, 1189, or 1187. He made a Vow, in going against the *Ammonites*, to sacrifice the first Person who should come to meet him after the Victory; and that Person was his Daughter. He told her his Vow, and at the End of two Months, which she ask'd to bewail her Virginity, to accomplish his Vow, he sacrific'd her, with his own Hand, to God. I know that the antient Fathers are much divided, on the *Right* and *Fact* of this extraordinary Vow. Some accuse it of Temerity, and pretend that its Accomplishment was unjust; others, on the contrary, believe that it was very agreeable to God, and made by the Motion of his Spirit, with which the Scripture says *Jephthah* was inspir'd. St. *Paul*, *Hebrews* xi. ranks him among those whose Faith he recommends. *Agamemnon* liv'd in the same Time, *i. e.* in the Year of the World 2855; and some Authors imagine that the Sacrifice of *Iphigenia*, for the Safety of the *Grecian* Army, has been invented on the Sacrifice of the Daughter of *Jephthah*, the Names being very nearly the same. *Jephthah* dy'd in the sixth Year of his Government.

ABESAN succeeded him, and govern'd for the Space of 4 Years.

ATALON succeeded *Abesan*, who govern'd 10 Years.

ABDERE succeeded *Atalon*, and govern'd 8 Years.

SAMPSON succeeded him, in the Year of the World 2880; according to *Capel*, 2841; of *Sampson*, 20; before *Christ*, according to *Salian*, 1173; according to Father *Petau*, 1135. He was the Liberator of the People. His Birth had been foretold by an Angel, to his Mother, who was sterile, with a particular Order to her to bring him up as a *Nazarene*, that is to say, not to cut his Hair; nor to let him drink neither Wine, Beer, nor any other Liquor which could inebriate; and to eat no Meat unclean by the Law. He observ'd all those Precepts, and when the Time which God had fix'd for the Deliverance of *Israel* was come, he perform'd those Things which the sole Authority of the Scripture, which relates them, hinders us from considering as fabulous: For with the single Jaw-bone of an Ass he kill'd 1000 *Philistines*, and routed the rest of their Army. He carry'd the Gates of *Gaza* on his Shoulders to the Top of the Mountain, after he

he had broke them open with his Hands; and having been taken thro' the Perfidy of *Dalilah*, who deliver'd him to the *Philistines*, after she had cut his Hair, in which resided his Strength; the same Strength being return'd with his Hair, by his shaking the Pillars on which a large Edifice was supported, where the most considerable among the *Philistines* were assembled for a publick Feast, he bury'd them all along with him in the Ruins of that Edifice. Thus died this extraordinary Man, in the twentieth Year of his Government; of the World 2900; according to *Capel*, 2860.

Eli succeeded him the same Year, who was both High-Priest and Judge of *Israel*, which he govern'd during forty Years, and dy'd suddenly, falling from his Chair at the News that the *Philistines*, after an entire Victory over the *Israelites*, where 30000 of them perish'd, had carry'd away the *Ark of the Covenant*; in the Year of the World 2940; before *Christ*, according to *Salian*, 1113; according to Father *Petau*, 1095; according to *Capel*, 1101.

Samuel, born of a sterile Mother, call'd *Hannah*, whom *Eli* had educated with a great deal of Care, as a Child consecrated to God, to whom he had promis'd, while *Eli* was yet alive, the Conduct of his People, exercis'd that Office with a Justice and a Piety which were without Reproach. He was then 40 Years of Age. *Samuel*'s chief Care was to bring the *Israelites* back to the Worship of the true God, which he accomplish'd in the twentieth Year of his Government; but growing old, and having establish'd his Children Judges of *Israel*, they degenerated so much from the Virtues of their Father, and committed so many Violences, that the People, unwilling to bear it any longer, press'd *Samuel* to give them a King, as had the other Nations. This Request disoblig'd *Samuel*, and offended *God* himself; for as he wanted to be the particular King of the *Israelites*, whom he govern'd by the Judges as by his Lieutenants, he consider'd as injurious the Proposition made to his Prophet, to put them under the Domination of a Man who would be dignify'd with a Quality which he had reserv'd to himself. This Request was made in the Year of the World 2959; of *Samuel*, 20; according to *Capel*, 2918; according to *Salian*, 2672, of *Samuel*, 23; before *Christ*, 1091; according to Father *Petau*, 1067. *Samuel* did all he could to dissuade them from that Design, by representing to them all that they would suffer under a Sovereign. He calls that the King's Right, not as being a just one, but as Sovereigns making often no other Use of their Authority which *God* is sometimes pleas'd to chastise as offending his Justice, and being contrary to the true End of Royalty, which is to make the People live in Peace, preserve their Estates, and protect them against their Enemies. All these Menaces could not make the *Hebrews* change their Sentiments, and *Samuel* was forc'd to give them a King. But before we undertake the *Chronology* of those Kings, we must go back to find in *Assyria* the Origin of a monarchical Government.

Chronology *of the Kings of* Assyria.

The Empire of the *Assyrians* has been the first Monarchy of the World, and Nimrod, *Cham*'s Grandson, Author thereof. The Scripture calls him, Gen. x. *a mighty Hunter before the Lord*. He made Use of his *Chase* to assemble a Company of dextrous and valiant young Men, who help'd him to ascend the Throne. *Diodorus* has observ'd the same Artifice in *Ninus*, whom the *Greeks* have mistook for *Nimrod*. He pursu'd the Design of the Town of *Babylon*, where he fix'd the Seat of his Empire; he founded, afterwards, *Nineveh*, *Rehobath*, *Chalach*, and *Basan*, which he usurp'd of the Descendants of *Shem*. This *Nimrod* being the first King of the World, according to the sacred Scriptures; and *Belus*, according to the profane; we have all the Reason imaginable to believe that *Nimrod* and *Belus* are but one and the same Person. It is surprizing that *Mercator* would have *Nimrod* to be *Ninus*, and confesses, notwithstanding, that *Belus* reign'd before *Ninus*; when the Scripture says clearly, that the first who began to be potent on Earth was *Nimrod*. Therefore,

Nimrod, or *Belus*, began to reign in the Year of the World 1791, and reign'd 65 Years.

Ninus succeeded *Belus*, *Anno Mundi* 1856, and reign'd 52 Years.

Semiramis succeeded *Ninus*, *An. Mund.* 1908; reign'd 42 Years.

Zameis succeeded *Semiramis*, *An. Mund.* 1950; reign'd 38 Years.

Arius succeeded *Zameis*, *An. Mund.* 1988; reign'd 30 Years.

Analius succeeded *Arius*, *An. Mund.* 2018; reign'd 40 Years.

Xerxes *Balaneus* succeeded *Analius*, *An. Mund.* 2058; reign'd 30 Years.

Armametres succeeded *Xerxes*, *An. Mund.* 2088; reign'd 38 Years. In the tenth Year of *Armametres* flourish'd the famous Legislator *Phoroneus*.

Belochus succeeded *Armametres*, *An. Mund.* 2126; reign'd 35 Years. In the 26*th* Year of *Belochus*'s Reign happen'd the Deluge of *Ogyges*.

Baleus succeeded *Belochus*, *An. Mund.* 2161; reign'd 52 Years.

Astadas succeeded *Baleus*, *An. Mund.* 3221; reign'd 32 Years.

Mamitus succeeded *Astadas*, *An. Mund.* 2241; reign'd 30 Years.

Mancaleus succeeded *Mamitus*, *An. Mund.* 2275; reign'd 30 Years.

Iphareus succeeded *Mancaleus*, *An. Mund.* 2305; reign'd 20 Years.

Mamylas succeeded *Iphareus*, *An. Mund.* 2325; reign'd 30 Years.

Sparetus succeeded *Mamylas*, *An. Mund.* 2355; reign'd 40 Years. In the 32*d* Year of *Sparetus*'s Reign *Cecrops* founded *Athens*; and about the same Time happen'd the Deluge of *Deucalion*.

Ascades succeeded *Sparetus*, *An. Mund.* 2395; reign'd 40 Years. In the sixth Year of *Ascades*'s Reign *Isis* came into *Egypt*, and taught the Sciences.

Amyntas succeeded *Ascades*, *An. Mund.* 2435; reign'd 45 Years.

Belothus succeeded *Amyntas*, *An. Mund.* 2480; reign'd 25 Years. In the first Year of *Belothus*'s Reign *Cadmus* flourish'd, who is thought to have invented the *Greek* Letters. The same Year, *Europa* was ravish'd, of whom were born *Minos* and *Rhadamanthus*.

Bellopares succeeded *Belothus*, *An. Mund.* 2505; reign'd 30 Years.

Lamprides succeeded *Bellopares*, *An. Mund.* 2535; reign'd 32 Years.

Sozares succeeded *Lamprides*, *An. Mund.* 2567; reign'd 20 Years.

Lamparos succeeded *Sozares*, *An. Mund.* 2587; reign'd 30 Years.

Panias succeeded *Lamparos*, *An. Mund.* 2617; reign'd 49 Years.

Sosarmus succeeded *Panias*, *An. Mund.* 2662; reign'd 19 Years.

Mitteus succeeded *Sosarmus*, *An. Mund.* 2681; reign'd 27 Years.

Tanteus succeeded *Mitteus*, *An. Mund.* 2740; reign'd 40 Years.

Thineus succeeded *Tanteus*, *An. Mund.* 2780; reign'd 30 Years.

Dorcilus succeeded *Thineus*, *An. Mund.* 2810; reign'd 40 Years.

Eupales succeeded *Dorcilus*, *An. Mund.* 2850; reign'd 38 Years.

Laostenes succeeded *Eupales*, *An. Mund.* 2888; reign'd 45 Years.

Piriciades succeeded *Laostenes*, *An. Mund.* 2933; reign'd 30 Years.

Ophratenus succeeded *Piriciades*, *An. Mund.* 2963; reign'd 20 Years.

OPHRATANES succeeded *Ophrateus*, *An. Mund.* 2983; reign'd 50 Years.

Note, That in the Year of the World 2928, *Carthage* was founded.

OCTAZAPES succeeded *Ophratanes*, *An. Mund.* 3033; reign'd 41 Years.

SARDANAPALUS succeeded *Octazapes*, *An. Mund.* 3074; reign'd 20 Years.

Note, That the Monarchy of the *Assyrians*, to *Sardanapalus*, lasted 1330 Years; tho' *Eusebius* says 1240, *Justinus* 1300, *Diodorus* 1400, and *Orosius* 1160. It was destroy'd by the *Medes*, but as the *Jewish* Monarchy has preceded that of the *Medes* by above 200 Years, we'll also give the *Chronology* of the Kings of the *Jews*, before that of the Kings of the *Medes*.

CHRONOLOGY *of the Kings of the* Hebrews.

SAUL, Son of *Cis*, of the Tribe of *Benjamin*, being in Quest of the Asses of his Father, found a Kingdom, *Anno Mundi* 2959; and was anointed by *Samuel* in the Prophet's own House, by an express Command from God. *Saul* was then about 40 Years of Age. This Prince succeeded in all his Enterprizes, as long as he remain'd true to God; but *Saul*'s frequent Disobedience having irritated him, he transferr'd the Kingdom to *David*, the younger Son of *Jesse*, of the Tribe of *Judah*; and commanded *Samuel* to anoint him, *Anno Mundi* 2967, of *Saul* 8, of *Samuel* 28; Years before *Christ*, according to Father *Petau*, 1063. *Saul* kill'd himself, having been defeated by the *Philistines*, and his Son *Jonathan* kill'd in the Battle, in the Year of the World 2980; according to *Capel*, 2939; according to others, 2944; of *Saul*, 40; 20 Years since *Samuel*'s Death; before *Christ*, according to Father *Petau*, 1057; according to *Salian*, 1073.

DAVID, who had long before been anointed by *Samuel*, by God's express Command, succeeded him, and had the *Amalekite* put to Death, who brought him the News of *Saul*'s Death, for pretending to make to himself a Merit, near *David*, of having been that unfortunate King's Murderer, which was false; for it was but too true that *Saul* had been his own Murderer, and perhaps *David* knew perfectly well the Imposture of the *Amalekite*. But, however, he had him punish'd, to shew his Subjects that he was not willing to encourage those infamous Parricides who had the sacrilegious Temerity to lay violent Hands on the Lord's Anointed; giving, on that Occasion, to all other Sovereigns a very great Example of the most consummate Politick; who should be afraid that those who have been once guilty of so atrocious a Crime, in the sacred Person of a King, could repeat the same on another, if not upon his Guard; and always abhor, rather than encourage those Monsters in Nature, whom Heaven and Earth look upon with Horror; and for whom God himself, omnipotent as he is, cannot find a Punishment adequate to their Crimes.

Immediately after *Saul*'s Death, *David* went to *Hebron*, where he was anointed a new King over the Tribe of *Judah*, where he reign'd 7 Years and a Half, and *Ishboseth* King over *Israel*, who having been kill'd in his House, left the Throne free for *David*, who ascended it, (after he had *Ishboseth*'s Assassins put to Death) in the Year of the World 2987, of *David* 8. *David* walking in the Lord's Commands, return'd always victorious over his Enemies. He debauch'd *Uriah*'s Wife, in the Year of the World 2993; of his Reign, 14; before *Christ*, according to Father *Petau*, 1093. *Absalom*, his Son, revolted against him, in the Year of the World 3004; of *David*, 26; according to others, 21. *Adonijah*, his eldest Son, had himself proclaim'd King before his Father's Death, in the Year of the World 3020, of *David* 40, ever since his first Unction. *David* died, after he had declar'd *Solomon* for his Successor, and establish'd him on his Throne, in the same Year 3020, of his Age 70, and of his Reign 40. He was mourn'd by his Subjects, not only as their King, but as their Father and Liberator; and as the Holy Ghost has took Care to give us his Character in the *Ecclesiastes*, it does not become me to say any Thing of it.

SOLOMON, aged 23, succeeded him, the same Year of the World 3020; before *Christ*, according to *Salian*, 1033; according to Father *Petau*, 1015. He receiv'd his Wisdom from God, the Year of the World 3022, of his Reign 3; began to build the Temple the Year of the World 3023, of *Solomon* 4, ever since the Deliverance of the *Jews* from the Captivity of the *Egyptians*, 480; and died (after he had shamefully deserted the Worship of the true God to plunge himself in Idolatry, leaving us, thereby, uncertain of his Salvation) the Year of the World 3059, of his Reign 40, of his Age 64.

ROBOAM, his Son, succeeded him, the Year of the World 3060; and had reign'd alone, if he had not despis'd the Advice of his old Counsellors, and follow'd that of the young ones, who advis'd him to oppress his Subjects still more than his Father had done; which forc'd ten Tribes to revolt from him to follow *Jeroboam*, to whom God, by the Prophet *Ahiah*, had promis'd the Kingdom of *Israel*, even while *Solomon* was yet alive. *Jeroboam* chose *Sichem* for the Seat of his Empire. *Roboam* died, of his Age 58, of his Reign, and of that of *Jeroboam*, 17; of the World 3076. His Memory is condemn'd in the Scripture, as of a Prince as imprudent in the Conduct of his Kingdom, as Infidel to God, in whose Presence he had always committed Evil, and had never took Care to seek after him.

Note, That during *Roboam*'s Reign, *Sesack*, King of *Egypt*, after he had taken several of his Towns and Cities, besieg'd *Jerusalem* with a formidable Army. The Prophet *Semeias* told *Roboam*, and the People of *Jerusalem*, that God had deliver'd them into the Hands of *Sesack* because they had forsook him. These Reproaches excited them to Repentance, which God seeing, sav'd their City from Ruin, which was unavoidable. Peace was concluded between the King of *Judah* and *Sesack*, who, notwithstanding, plunder'd all the Treasures of the Temple; and *Roboam* plac'd in it Targets of Brass, instead of those of Gold which *Sesack* had carried away.

ABIAH succeeded *Roboam* in the Kingdom of *Judah*, and in his Impieties, in the Year of the World 3077, of *Jeroboam*'s Reign 18, gain'd a considerable Battle over *Jeroboam*, where 500000 of the Enemies were slain; and died after he had reign'd two Years and some Months.

JEROBOAM, King of *Israel*, died the Year of the World 3079, or 3081; of his Reign 20, or 21. The sacred Scripture says that he was struck by the Almighty; which makes me suppose that he ended his Life by some Punishment from Heaven, which his Impiety deserv'd. For he establish'd Idolatry throughout his Dominions, in making *Israel* to sin, by the golden Calves he had erected; one in *Dan*, and the other in *Bethel*, near *Samaria*. In each Place he built a Temple and an Altar, appointed Priests, and order'd Sacrifices, forbidding his Subjects to resort to *Jerusalem*. He expell'd the legitimate Priests and *Levites*, substituting in their Place others he had taken from among the Rabble. He sold the *Sacerdoce*, and declar'd himself their Chief.

ASA succeeded *Abiah* in the Kingdom of *Judah*, the Year of the World 3079, of *Jeroboam* 20, but not in his Impiety; for he demolish'd all the Temples erected to Idols, and blotted out all the Marks of the Impiety of his Father. In the 17*th* Year of his Reign,

Reign, or 15th, according to others, he defeated the Army of the oriental *Egyptians*, consisting of a Million of Men; his being compos'd of 500000, either *Jews* or *Benjamites*.

NADAB, who had succeeded *Jeroboam* in the Kingdom of *Israel*, *Anno Mundi* 3081, reign'd but two Years, and was kill'd by *Baasa*, one of his Generals.

BAASAH usurp'd his Throne, in the Year of the World 3083; which he occupied for the Space of 29 Years under the Kings of *Judah*, *Abiah* and *Asah*. He declar'd War against *Asah*, in the Year of the World 3095, of *Asah* 16, of *Baasa* 14, and the 36th ever since the Division of the Kingdom; and reign'd 24 Years.

Asah, King of *Judah*, died of the Gout, in the Year of the World 3120; according to *Capel*, 3078; in the forty-first Year of his Reign, and the fourth of *Achab*, King of *Israel*. The sacred Scripture witnesseth, that he did what was just before the Lord.

HELAH had succeeded *Baasa* in the Kingdom of *Israel* in the Year of the World 3112, was kill'd in the second Year of his Reign by *Zambri*, who soon afterwards burnt himself, with his whole Family, in *Thersa*, where he was besieg'd by *Amri*, whom the *Israelites* had elected King.

AMRI built the City of *Samaria* on a Mountain he had bought of the Tribe of *Ephraim*, 923 Years before the Birth of *Christ*, according to Father *Petau*, where he fix'd the Seat of his Kingdom, which was before in the City of *Thersa*; and reign'd 12 Years.

JOSAPHAT, at the Age of 35 Years, was saluted King of *Judah*, in the Year of the World 3120, and the fourth of the Reign of *Achab*, King of *Israel*. He is noted, among all others, for his extraordinary Piety towards God, and for the Effects of his Zeal, which abolish'd in his Dominions all Marks of Idolatry and Superstition, sending Priests and *Levites* thro' the whole Kingdom to instruct his Subjects in the Law of *Moses*; for which he was rewarded with Glory, Power, and Riches; which render'd him venerable to his Subjects, and formidable to his Neighbours. The Scripture says, that he had in the small Extent of his Dominions eleven hundred and sixty thousand Men capable to bear Arms. In the Year of the World 3137, 3138; of his Reign 17, 18; of that of *Achab*, King of *Israel*, 21, 22; having concluded an Alliance with *Achab*, they both undertook a War against the *Syrians*, contrary to the Advice of the Prophet *Micaiah*, in which he escap'd narrowly with his Life, by a Miracle of the Divine Protection. *Josaphat* reign'd 25 Years, and died in Peace in the Year of the World 3145, of *Joram* King of *Israel* 7.

ACHAB succeeded *Amri* his Father in the Kingdom of *Israel*, in the Year of the World 3117; and surpass'd, in Tyranny and Impiety, all his Predecessors. He built a Temple to *Baal* in *Samaria*, to please the impious *Jezabel* his Wife, and persecuted with an extreme Fury the Prophets of the Lord. He gain'd a signal Victory over *Benhadad*, who had besieg'd his Capital; and another, where he cut to Pieces 100000 *Syrians*; and was kill'd himself, with an Arrow, in that unfortunate War he undertook jointly with *Josaphat* King of *Judah* against the same Nation.

Note, That under his Reign the Prophet *Elias* appear'd to oppose this Prince's Impiety, and that of his Wife *Jezabel*, who both wanted to abolish the true Religion. The Prophet came to *Achab*, in the Year of the World 3124; of *Josaphat*, King of *Judah*, 7; and foretold to him an horrible Famine, which was to last three Years. In the Year of the World 3134, of *Josaphat* 14, of *Achab* 18; he anointed, by an express Command of God, *Hazael* King of *Syria*, and *Jehu* King of *Israel*; and was ravish'd from the Earth in a Chariot of Fire, in the Year of the World 3139, of *Josaphat* 19, of *Joram*, King of *Israel*, 42.

JORAM succeeded *Josaphat* his Father, by whom he had been associated to the Kingdom, (having put to Death six of his Brothers, and several of their Friends) in the Year of the World 3145, of *Joram*, King of *Israel*, 7; by the Advice of his Wife *Athaliah*, Daughter of *Achab*, and of the impious *Jezabel*, he reviv'd the Impiety and Idolatry of the Predecessors of *Josaphat*, and died in his Impiety in the Year of the World 3130, of *Joram*, King of *Israel*, 12; of his Reign 8.

OCHOSIAS, who had also been associated to the Kingdom of *Israel* by his Father *Achab*, succeeded him in the Year of the World 3137, or 3138; of *Josaphat*, King of *Judah*, 17, or 18; continu'd in all the Impieties of his Parents, and died as he had liv'd, in the second Year of his Reign.

OCHOSIAS, *Joram*'s youngest Son, succeeded his Father in the Kingdom of *Judah*, some Time before *Joram*'s Death, in the Year of the World 3130; of *Joram* 8. He was 25 Years old when he began to reign, (I am of Opinion we should read that Number in the *Paralipomenon*, instead of 42, to take off the Contradiction found in it) and reign'd but one Year. He prov'd as impious as his Father was. He join'd with *Joram* in a War against *Hazael*, who had smother'd *Benhadad*, King of *Syria*, and usurp'd the Throne; but these two Princes were oblig'd to return Home without doing any Thing.

JORAM succeeded his Brother *Ochosias* in the Kingdom of *Israel*, and was kill'd with an Arrow by *Jehu*, in *Naboth*'s Field; after he had reign'd 12 Years.

ATHALIA seeing *Ochosias* dead, caus'd all his Children to be kill'd, and all those of the Royal House, to empire herself of the Government, in the Year of the World 3157; of *Jehu*, King of *Israel*, 7; of *Joas*, King of *Judah*, 1. There was but this *Joas*, an Infant in his Cradle, who was sav'd, thro' the Care of *Josaba*, or *Josabeth*, *Ochosias*'s Sister, and Wife of the High-Priest *Jojada*. This generous Priest placed him on the Throne, while he was yet but 7 Years old, and had the Paricide *Athalia* put to Death. The Temple where she us'd to adore *Baal* was demolish'd, and the Priest kill'd at the Foot of the Altar.

JOAS walk'd always in the Ways of the Lord, while he follow'd the Advice of *Jojada*; but this holy Man happening to die, he soon degenerated from his former Piety, so far as to give Leave to the Lords of his Court to rebuild the Altars he had demolish'd. The Scripture does not say that he became an Idolater himself; therefore 'tis unjustly that *Josephus* accuses him of it. His criminal Complaisance was punish'd by the Devastation of his Dominions, which *Hazael*, King of *Syria*, enter'd with Fire and Sword, in the 35th Year of *Joas*'s Reign, and the 33d of *Joachas*, King of *Israel*. He besieg'd *Jerusalem* so close, that to engage him to raise the Siege, *Joas* was forc'd to deliver to him all the Treasures of the Temple, and of the Crown. To crown all his other Impieties, he caus'd *Zachariah*, Son of the High-Priest *Jojada*, to whom he had so much Obligation, to be ston'd to Death between the Temple and the Altar. *Genebrard* says, that ever since that Sacrilege God abstain'd from giving any Answer in the Sanctuary. At last, *Joas* was kill'd in his Bed by his Servants, in the Year of the World 3196; of his Reign 40; of *Joas*, King of *Israel*, 2.

JEHU

JEHU having entirely exterminated the Race of *Achab*, caus'd *Jezabel* to be precipitated thro' the Windows, demolish'd the Temple of *Baal*, burnt his Idol, and kill'd his Priests; succeeded *Joram* in the Year of the World 3130, or 3131; and dy'd, after he had reign'd 28 Years.

AMASIAS, in the 25*th* Year of his Age, of the World 3196, succeeded *Joas* in the Kingdom of *Judah*. In the Beginning of his Reign he shew'd himself a zealous Observer of the Law of God; but he did not persevere long in that Piety. In the 12*th* Year of his Reign, of the World 3208; or 3163, according to others; of *Joas*, King of *Israel*, 14; he rais'd in his own Dominions an Army of 300000 Men, besides 100000 Auxiliaries he took among the *Israelites*, against the *Idumeans*; but God did let him know that he was not pleas'd with that Mixture; therefore he dismiss'd the *Israelites*, and gain'd the Victory; after which, he deviated from his former Piety, and ador'd the Gods of the Nations he had vanquish'd. A Prophet, whom the *Chronology* of the *Hebrews* calls *Amos*, for having reproach'd him with his Impiety, was kill'd by his Command. *Amasias* dy'd in the 16*th* Year of his Reign; the first of that of *Jeroboam* second, King of *Israel*; of the World 3211, or 3166 according to others.

JOACHAZ succeeded *Jehu* his Father in the Kingdom of *Israel*, and in his Idolatry, in the Year of the World 3130, or 3131; and reign'd 17 Years.

JOAS succeeded *Joachaz*, in the Year of the World 3193; of *Joas*, King of *Judah*, 37. *Joas* visited *Elisha* dying, who promis'd him as many Victories over the *Syrians* as he should strike Times the Ground with his Stick. And as he struck it only three Times, the Prophet put himself in a great Wrath, and said to him, that if he had gone as far as seven, he had entirely ruin'd the *Syrians*. He associated *Jeroboam* II. to the Kingdom, and reign'd 16 Years.

Note, That *Elisha* dy'd soon after this, in the 100*th* Year of his Age; of the World 3198; of *Amasias*, King of *Judah*, 2; of *Joas*, King of *Israel*, 4; or 10, according to the *Hebrews*; and was bury'd in *Samaria*. A Man kill'd by Robbers, having been thrown into his Sepulchre, and touch'd his Bones, was restor'd to Life. This render'd his Tomb venerable; insomuch, that St. *Jerom* calls it a Mausoleum.

OZIAS, aged 16 Years, succeeded his Father *Amasias* in the Kingdom of *Judah*. Authors do not agree among themselves if it was immediately after his Death, or if there was an *Interregnum* of 12 Years. This Prince is commended by the Scripture for his Piety, of which he gave several Instances in the Reestablishment of the Worship of God, against the *Philistines*, *Arabs*, and *Ammonites*. Several Authors believe that it was in the 2*d* Year of this King's Reign, *i. e.* of the World 3227; of *Jeroboam*, King of *Israel*, 17; (others assign the 20*th* of *Amasias*, King of *Judah*, and the 6*th* of *Jeroboam*; *Capel* says the 16*th*) that *Jonas* went to *Nineveh*, by the Lord's Command, to pronounce the Destruction of that City in forty Days. Under the Reign of *Ofias*, the Prophets *Hosea*, *Joel*, *Amos*, *Obadiah*, and *Isaiah*, announc'd to the *Israelites*, and the *Jews*, the Misfortunes which should happen to them if they did not repent, and abandon the Worship of Idols. They foretold the same Punishment to the *Syrians*, *Philistines*, *Tyrians*, *Idumeans*, *Ammonites*, and *Moabites*. *Ofias* forgetting his Duty to God, had the Presumption to offer, himself, the Sacrifice of the Incense, which only belong'd to the Priest; and for his Temerity was punish'd with a Leprosy, which cover'd his whole Body, and for which he was expell'd from the Temple by the Priests, and even from his own Palace, according to God's Ordinance. His Son *Joathan* took the Administration of the Kingdom, *Ofias* being then in the 40*th* Year of his Reign.

Note, That under this Reign, in the Year of the World 3278, they began to reckon by *Olympiads*, *i. e.* by a whole Circle of four Years. The *Olympick Games* were celebrated the fifth towards the Summer Solstice, and continu'd five Days. They had been instituted, long before, by *Hercules*, in a Place of the *Peloponnese*, near the City *Olympia*, and the Temple of *Jupiter Olympian*; but they having been neglected, *Iphitus*, King of *Elidia*, restor'd them with so much Solemnity, that he was consider'd since as the Founder of those Games. Others do not agree among themselves of the Year of *Ofias*'s Reign in which they were instituted. *Torniel* and *Sponde* will have it the 49*th*, which, in their Opinion, fell in with the Year of the World 3278; Father *Petau* will have it the 34*th*, 777 *Julian* Years before the Birth of *Christ*. *Scaliger*, *Clavisius*, and *Temporarius*, reckon but 776 Years; and *Capel* 775 Years, 178 Days. 'Tis but since that Time that the *Greek* History begins to come out of Confusion.

JEROBOAM, second of the Name, began to reign alone, over *Israel*, in the Year of the World 3166; of *Amasias*, King of *Judah*, 15; and reign'd 41 Years. He was a Prince brave and fortunate in War. He often beat the *Syrians*, re-conquer'd all they had dismember'd of his Kingdom, and added to it the Cities of *Damas* and *Ematha*; so that his Dominions had then very near the same Limits they had under *Solomon*.

ZACHARIAS his Son succeeded him, after an *Interregnum* of 12 Years; of the World 3263; of *Ofias*, King of *Judah*, 38; and reign'd but six Months.

SELLUM succeeded him, who wore but one Year the Crown he had ravish'd from him, with his Life.

MANAHEM had *Sellum* put to Death, and seiz'd on the Kingdom, which he kept ten Years. His Death happen'd in the 49*th* of *Ofias*; of the World 3274.

JOATHAN, who had taken the Administration of the Kingdom of *Judah*, during his Father's Leprosy, reign'd but 16 Years, and dy'd in the Year of the World 3293; of *Phaccia*, King of *Israel*, 17. *Joathan* was not remarkable for any great Events, and the sacred Scripture says, that he walk'd in the Steps of the Piety of *Ofias* his Father, who cannot be reproach'd with any Thing else but of having usurp'd the Ministry of the Priests.

PHACCIA succeeded *Manahem* in the Kingdom of *Israel*, in the Year of the World 3277, and reign'd 20 Years. *Phaccia* kill'd in one Day 120000 Men of the Army of *Achas*, King of *Judah*, and made 200000 Prisoners, who were released at the Persuasion of the Prophet *Obadiah*, who came to meet him. He afterwards join'd *Razin*, King of *Syria*, to besiege *Jerusalem*.

ACHAZ, aged twenty Years, succeeded *Joathan* his Father in the Kingdom of *Judah*, (but not in his Religion and Piety) in the Year of the World 3293; of *Phaccia*, King of *Israel*, 17. Being besieg'd in *Jerusalem* by *Razin*, King of *Syria*, and *Phaccia*, King of *Israel*; he would not believe the Prophet *Isaiah*, nor ask for the Sign which God offer'd him, in Heaven, or on Earth, to assure him of his Protection; but sent to *Tiglathpilaser*, King of *Assyria*, all the Money he found in the Temple, to engage him to come to his Succour. That Prince came, in all Appearance,

pearance, as an Ally: but, in Fact, as an Instrument of the Wrath of God against the Kingdom of *Israel*; for he carry'd into Captivity a great Part of the Tribe of *Zebulon*, *Reuben*, *Gad*, *Manasses*, and the whole Tribe of *Naphthali*; forcing *Phaccia* to raise the Siege of *Jerusalem* to save the rest of his Kingdom. God made the same Use afterwards of *Tiglathpilesser*, to punish also *Achas*; whom that Prince had so well succour'd against *Phaccia* and *Razin*, for his Impieties; for he enter'd the Kingdom of *Judah*, where he committed incredible Ravages; which *Achas* was oblig'd to leave in that Condition, dying in his Irreligion, after he had reign'd 16 Years, in the Year of the World 3308; of *Oseah*, King of *Israel*, 4.

Note, That in the first Year of *Achaz*'s Reign; of *Phaccia*, King of *Israel*, 17; of the World, 3293; the Prophet *Isaiah* made the admirable Prediction of the Birth of the *Messiah* from a Virgin, who was to conceive, and be deliver'd of a Son; whose Name would be EMANUEL, *i. e. God with us.* In the *7th* Year of his Reign, the *4th* of *Oseah*, King of *Israel*; of the World 3300, according to *Torniel*; according to *Capel* 3247; according to *Genebrard* 3403; according to *Clavisius* 3193; the latter End of the *3d* Year of the *6th Olympiad*, according to *Varro*; and the *4th*, according to *Verus Flaccus*; before *Christ* 754, according to Father *Petau*; according to *Salian*, the Year of the World 3302; the first of the fifth *Olympiad*; and before *Christ* 751; ROME was founded by *Romulus*.

OSEAH, Son of *Helu*, who had kill'd *Phaccia*, in Treason, to ascend the Throne of *Israel*, succeeded him, in the Year of the World 3304, of *Achas*, King of *Judah*, 12. In the *9th* Year of his Reign, *Salmanazar*, King of *Assyria*, besieg'd and took *Samaria*, after a Siege of three Years; carry'd him into Prison, where he dy'd, and all the *Israelites* into Captivity, whom he dispersed throughout the remotest Provinces of his Empire, and thereby put an End to the Kingdom of *Israel*, 255 Years after its Division from that of *Judah*; of the World 3314; or 3276, according to *Capel*; the sixth of *Hezekiah*, King of *Judah*; 739, or, according to others, 724 before *Christ*.

Note, That among the Captives of the Land of *Israel*, *Tobiah* render'd himself famous for his Piety. He found Favour near *Salmanazar*, who gave him Money, and Leave to go where he pleased. He made Use of that Favour to visit his Compatriots, whom he assisted in their Miseries; exhorting them to remain faithful to God. He was try'd by Blindness, and the Reproaches of his Wife, who laugh'd at his Works of Charity, (*perhaps she foresaw that they would be approved by the Whore of* Babylon.) Sending their Son to *Rages*, a City of *Media*, the Angel *Raphael* serv'd him as a Guide and Protector under a human Form, deliver'd him from all Dangers, and brought him back to the paternal House. This Captivity of ten Tribes, properly speaking, has never ended, by sending back all the Captives, as did that of the Tribes of *Judah* and *Benjamin*. All were not generally carry'd Captives, several were left as useless, or incapable of the Fatigues of the Road; and others were fled, by Precaution, into the neighbouring Countries. *Josephus* writes, *L.* 11. *Antiq. c.* 11. that in his Time those two Generations were settled beyond the *Euphrates*, where they had multiply'd exceedingly. Those who make them pass into *Tartary*, and from thence into *America*, have no solid Proofs for it. Rabbi *Benjamin*, who liv'd near 500 Years ago, and had seen all the Places of the inhabited World, to visit his Compatriots, says, in his *Itinerary*, that he had found a greater Multitude of them in the Countries of the antient Domination of *Assyria*, towards the *Nord*, and the Mountain *Chaborus*, which make Part of Mount *Taurus*, and parts *Assyria* from *Media* and *Armenia*; than in any other Place he had pass'd through. He reckon'd in one single City 300000 *Jews*; he found in other Places of *Media* the entire Generations of *Reuben*, *Gad*, *Manasses*, *Dan*, *Ashur*, *Zebulon*, and *Naphthali*.

HEZEKIAH succeeded his Father *Achar* in the Kingdom of *Judah*, in the Year of the World 3308; of *Oseah*, King of *Israel*, 4; but not in his Impiety: On the contrary, he repair'd all the Outrages *Achar* had offer'd to the Divinity, and restor'd entirely the Worship of the true God in the Kingdom of *Judah*. *Eusebius* says, that he suppressed several Books of *Solomon* which treated of natural Things, because of the bad Use the *Jews* made of them. *Genebrard*, after the *Hebrews*, makes him learned in the Mathematicks; and attributes to him a Reformation of the *Jewish* Year, by the Intercalation of the Month *Nisan*, at the End of every third Year. His Courage was equal to his Piety, giving several signal Proofs of it in bringing back the *Philistines* who had revolted against his Father, under his Government, and defeating all the Forces they opposed to him. In the *14th* Year of his Reign, of the World 3322, or 3321 according to *Salian*, he refused to pay the Tribute to the King of *Assyria* imposed by *Tiglathpilesser*. *Sennacherib*, Son of *Salmanazar*, four Years afterwards came into *Judea* with a formidable Army, and took several Places. While he was besieging *Lachis*, *Hezekiah*, afraid that after he had taken that Place he would render himself Master of *Jerusalem*, sent him Ambassadors with Presents, to engage him to quit his Dominions. But *Sennacherib* despising his Submission, and the Confidence he had in God, three Years afterwards returning from *Egypt*, where he had been victorious, came to besiege *Jerusalem* with a Design to demolish it entirely: But the Angel of the Lord kill'd in one Night 85000 Men of his Army, with their Chief, in the Year of the World 3324; according to *Clavisius*, 3233; according to *Capel*, 3283; of *Hezekiah*, 16, according to some; or 14, according to others; of *Sennacherib*, 7. In the *14th* Year of his Reign, *Hezekiah* fell dangerously ill, and the Prophet *Isaiah* had told him from God that he should die; but at that unwelcome News that Prince, having mourn'd, pray'd, and sigh'd, that Sentence was revok'd. For Proof that God granted him 15 Years more to live, the Shadow return'd back ten Lines on the Sun-Dial which *Hezekiah* had caused to be made; and by this unhear'd-of Miracle, the Day in which it happen'd was ten Hours longer than it ought to have been, according to the Opinion of several of the antient Fathers. In the *29th* Year of his Reign; of the World 3337; according to *Capel*, 3299; according to others, 3304; before *Christ*, 701, or 699, or 716; *Hezekiah*, thro' a Principle of Vanity, made Parade of all his Treasures before the Ambassadors whom *Nabonassar*, King of *Babylon*, had sent to him to felicitate him on his Recovery, and inform themselves of that marvellous Prolongation of Day which had been observ'd by all the Learned in *Chaldæa*, and had puzzled them. But God, irritated at it, sent *Isaiah* to tell him, that all those Things which were the Object of his Vanity would be transported into *Babylon*, and his Children carry'd into Captivity. *Hezekiah* acquiesced to that rigorous Sentence, and by his Humiliation obtain'd that it should not be executed while he liv'd. He dy'd in Peace, aged 53, of which he had reign'd 29 with a great deal of Glory, and much more Piety.

MANASSES, the worst, and the most impious of all the Kings his Predecessors, succeeded him at twelve Years of Age; of the World 3338. He signaliz'd the Beginning of his Reign, which was 55 Years, by

all the Abominations of Idolatry which can fall in the Soul of a Tyrant, and Enemy of God. He caused the Prophet *Isaiah* to be cut in two with a wooden Saw. This Prophet was of the Royal Blood, and some *Hebrew* Authors make him the one his Father-in-law, and the other his Grandfather, on the Mother's Side. In the *15th* Year of his Reign he was carry'd Captive into *Babylon* by King *Merodach Baladan*, (*Capel*, and several others, fix this unhappy Event at the *23d* Year of his Reign) of the World 3352. The Repentance of *Manasses* in his Prison, and the sincere Return of his Heart to God, whom he had forsaken, appeased his Wrath, broke *Manasses*'s Chains, and caused that the King of *Babylon* sent him back into his Dominions. He died in Peace in the *67th* Year of his Age; of his Reign 55; of the World 3372; before *Christ* 661, according to *Salian*.

Note, That under *Manasses*'s Reign happen'd the memorable History of *Judith*, which has caused some Difference in the Opinions of Authors, as to its *Epocha*. For some, among whom is Father *Petau*, place it under the Reign of *Manasses*, and under *Merodach*, whom they take for *Nebuchodonosar*, King of *Assyria*, 688 Years before the Birth of *Christ*. *Torniel* puts it 200 Years back, under the Kings of *Persia*, after the Return from the Captivity of *Babylon*. The Words of *Achor*, whom *Holofernes* examines on the Nation of the *Jews*, seem to prove clearly this second Opinion, which was, that of some of the antient Fathers. Certainly 'tis difficult to reconcile all that has been written, on the Book we mention, with the Reign of *Manasses*; but let it be how it will, of that Widow who had always liv'd in Obscurity, and deliver'd the City of *Bethulia*, and its Inhabitants, from the most imminent Danger, by the Death of *Holofernes*, whose Head she cut off in his Bed, was a Proof that God, who makes Use of idolatrous Princes, and of their Generals, knows very well how to punish them himself when he has done his Work thro' their Hands. *Habakkuk* prophesy'd about the *14th* Year of *Manasses*'s Reign.

AMON succeeded his Father *Manasses* in the Year of the World 3393, or 3394; and imitated him in his Crimes, but not in his Repentance; therefore he had not so happy an End, since he was kill'd by his Servants in the second Year of his Reign. The *Septuagint*, on *Eusebius*'s Report, add ten Years more to it; and several Authors, antient and modern, have follow'd that false *Chronology*.

JOSIAS, his Son, aged 18 Years, succeeded him, in the Year of the World 3395, but not in his Impiety; for he took less Care for the Establishment of his Government, than for that of the Worship of God, and to abolish all the Marks of the Idolatry of his Father. But, however, he was kill'd in the Plains of *Magedo*, in a Battle he had fought against *Nachao*, King of *Egypt*, whose Passage he wanted to obstruct, while he was going to wage War against the King of *Assyria*. His Subjects mourn'd for him as if they had lost their Father, rather than their King. He reign'd thirty-one Years.

Note, That JEREMIAH began to prophesy in the *13th* Year of *Josiah*; but all the Misfortunes that Prophet, and the Prophetess *Holda*, threaten'd the *Jews* with, did not happen during *Josiah*'s Reign.

JOACHAS, his second Son, call'd also *Sellum*, and *Jechoniah*, by *Jeremiah*, and by *Esdras*; was chosen King of *Judea* by a popular Faction, against the Right of his eldest Brother *Eliachim*, in the Year of the World 3426. *Nachao*, who ever since his Father's Death treated the *Jews* as if he had been their Sovereign, came to *Jerusalem*, made the Usurper Prisoner, and re-establish'd *Eliachim* on the Throne, whom he nam'd *Joachim*, and who abused greatly his Power, with Respect to God, and to his Subjects. In the *2d* Year of his Reign he associated to the Royal Authority his Son *Joachim*, or *Jechoniah*, which reconciles the Contrariety of the Text of the Book of *Kings*; which says, that he was 18 Years of Age when he began to reign, with that of the *Paralipomenon*, which mentions only 8 Years. In the Year of the World 3428; of *Joachim* 3, or 4 began; *Nebuchadnezzar*, Son of the King of *Babylon* of the same Name, being irritated at *Joachim* for the Alliance he had concluded with *Nachao*, King of *Egypt*, attack'd his Dominions, took *Jerusalem*, carry'd away all the Riches he found in it, and *Joachim* himself Prisoner, according to some Authors; tho' I am of Opinion, that it is more true that *Nebuchadnezzar* restor'd him to his Dignity, contenting himself with exacting a solemn Oath from *Joachim*, that he would remain true to him. *Joachim* forgetting the Oath he had made to a victorious Prince, and formidable to all the other Powers of the East, revolted openly against him 3 Years afterwards; of the World 3435; of *Joachim*'s Reign 10, or 11; but according to *Capel* 5. This Revolt cost him his Crown, which the *Babylonian* gave to his Son *Joachim*; but he soon repented of that Liberality, and came to lay Siege to *Jerusalem*, which he took by Composition, which was very rigorous; since *Jechoniah*, his Mother, his Wives, his Eunuchs, the Priests, Levites, and Grandees of the Kingdom, the Magistrates, and the Chiefs of the Army, were forc'd to follow *Nebuchadnezzar* to *Babylon*, where they liv'd as Captives. *Mathanias*, the King's Uncle, was establish'd in his Place, and call'd *Zedekiah*.

Note, That some Authors believe that *Joachim* was soon sent back to *Jerusalem*, where he dy'd a violent Death, and had the Sepulchre of Asses, according to *Jeremiah*'s Prediction. Others refer that sending back to the first War, where he was made Tributary of *Nebuchadnezzar*; at which Time happen'd the first Transmigration. *Ezekiel* was in the second, and prophesy'd during the Captivity of his People, in *Chaldæa*.

ZEDEKIAH was the Son of that excellent Prince *Josiah*, and began to reign in the Year of the World 3436. He soon forgot the Calamities which had happen'd to his Brothers and Country, occasion'd by their Idolatry and a bad Council, or rather a just Blindness God sent him to punish him for his Impieties, made him revolt against *Nebuchadnezzar*, at his Return from *Babylon*, where he had been to carry him Presents, and assure him of his Fidelity, in the Year of the World 3444; of *Zedekiah*'s Reign 9; the *Idumeans*, *Moabites*, *Ammonites*, *Tyrians*, and *Sidonians*, engag'd him in that rash Enterprize, under the false Hope of shaking off their insupportable Yoke. *Jeremiah* forewarn'd them that the Event of their Enterprize would prove unfortunate; and by the wooden Chains he appear'd loaded with in his Presence, signified that he should wear those of the *Babylonian*, if he should subtract from his Obedience. But *Zedekiah* chose rather to believe the Prediction of *Ananias*, who flatter'd him, than so salutary an Advice, the Truth whereof was confirm'd too late to repent: For the Army of *Nebuchadnezzar* having enter'd *Judea*, conquer'd the whole Kingdom, besieg'd *Jerusalem*, and after 3 Years of a Siege frightful in Calamities, *Zedekiah*, wanting to fly, was taken, and carry'd to *Nebuchadnezzar*, who was at *Reblatha* of *Syria*, between *Tyre*, he was besieging, and *Jerusalem*. After he had reproach'd *Zedekiah* with his Infidelity and Ingratitude, he caused all his Children to be murdered in his Presence, and afterwards commanded his Eyes to be put out, and that he should be carry'd Captive to *Babylon*. Thus ended the Kingdom of *Judah*, in the Year of the World 3446; of *Zedekiah* 12; before *Christ*, according to *Salian*, 607; ac-

according to Father *Petau*, 591; according to *Capel*, 590; and according to *Clavisius*, 588; 387 Years since its Separation from that of *Israel*. The Reigns of *Saul*, *David*, and *Solomon*, being added to it, make up 488, or 499 Years. Authors vary extreamly in the Supputation of the Years of every King of these two Kingdoms, because of their different Manner of reckoning, and of the Mixture of the Reign of the Children with that of their Fathers.

Note, That *Chronologers* do not agree among themselves on the *Chronology* of the 70 Years, how long the Captivity of the *Hebrews*, under the *Babylonians*, lasted, which *Jeremiah* had prophesy'd. The one begins it at the 14*th* Year of *Josiah*'s Reign; the other at the 4*th* Year of *Joachim*, when *Nebuchadnezzar* invaded *Judea* for the first Time; these at his 11*th* Year, and those at the 11*th*, also, of *Zedekiah*'s. F. *Petau* is of the second Opinion, and says, that the Prediction of *Jeremiah* related only to the Servitude or Slavery of the neighbouring Nations, as well as to that of the *Jews*; and that it is certain that *Nebuchadnezzar* conquer'd those at his first Invasion into *Syria*, and put these under Tribute, which was the Beginning of their Captivity; the End whereof, in his Opinion, falls on the first of *Cyrus*, not of his Reign, but on that where *Babylon* having been taken, he permitted the *Jews* to return into their Country. This is also the Sentiment of *Capel*. *Torniel*, whose *Chronology* I commonly follow, says, on the contrary, that it is from the 11*th* of *Zedekiah* that this Captivity must be reckon'd.

Note, also, That *Nebuchadnezzar* having punish'd *Zedekiah* as he deserv'd, and executed upon him the Sentence of the Divine Justice, sent (in the Year of the World 3447, and the first of the Captivity, according to *Torniel*;) *Nabuzardan* Generalissimo of his Armies, to *Jerusalem*, to perfect the entire Ruin of the Temple, of the royal Palace, of all the most considerable publick Edifices, and of the Walls. His Orders were punctually executed, so that the most beautiful City of all the East became then a great Heap of Stones. *Jeremiah*, who had prophesy'd this Desolation, and who, for having during the Siege advised to surrender, had suffer'd much from the Cruelty and Impiety of the Inhabitants, was taken out of Prison by *Nabuzardan*, and was permitted to stay in his Country with *Godolias*, whom *Nabuzardan* left to govern the *Jews* left in *Judea*, to cultivate the Land. All the sacred Vessels belonging to the Temple were carry'd away, and nothing was sav'd from the Pillage but the golden Candlestick, the Table of the Shew-Bread, the Ark of the Covenant, and the Altar of the Incense, which were hidden somewhere under Ground.

Note, again, That the *Israelites* having obtain'd, from *Cyrus*, the Liberty of returning into their Country in the 70*th* Year of their Captivity; of the World 3517; according to *Capel* 3462; according to *Clavisius* 3419; according to *Genebrard* 3710; before *Christ*, according to *Salian*, 537, or 538; of the Reign of *Cyrus* 21; and the first of the *Persian* Monarchy; they chang'd their Government, which was at first in the Hands of *Zorobabel* as a Duke. After him it came to the Sovereign Pontiffs; and, lastly, it return'd again to Kings.

ZOROBABEL began his Government in the Year of the World 3518, or 19; he was descended from the Kings of *Judah*, being the Son of *Salathiel*, who had *Jechoniah* for his Father. Several believe that *Jechoniah* had no Children, founded on the Passage of *Jeremiah* where he is call'd sterile; so that in their Opinion *Salathiel* is call'd his Son, because he succeeded to his Right. But others believe that the Prophet does not pretend to say that he had no Children; since, in the 28*th* Verse of the same Chapter, mention is made of his Posterity, but that he was not succeeded by his Children; which, for a Prince, is the same as if he had *had* none. At their Return into *Judea*, the *Jews* assembled at *Jerusalem*; where, after they offer'd Sacrifices to God in Thanks for their Deliverance; they took the necessary Measures for rebuilding the Temple, and the Year following, in the second Month, which answers to our *April*, began to work at the Foundation of that Part they call'd the Sanctuary. I say this to reconcile *Esdras* with *Haggai*, who says, that this Foundation was began under *Darius Hystaspes*, meaning of the exterior Temple. Under this *Darius Hystaspes*, *Zorobabel*, who was perfectly well acquainted with him, came to his Court, in the 2*d* Year of his Reign, to obtain from him the necessary Orders to continue the Building of the Temple. He obtain'd for that Effect all he wanted; so that returning into *Judea* with the Authority of the Prince, they began a-new to work at that Edifice, with such Assiduity, that four Years afterwards its *Dedication* was made in the most solemn Manner, and to the inexpressible Joy of the People; in the Year of the World 3537; of *Zorobabel* 21; of *Darius* 6, accomplish'd. The outward Temple was finish'd 3 Years after. We do not know precisely the Time of *Zorobabel*'s Death; the History of the Sovereign Pontiffs who govern'd the People after him, is as sterile, for the Affairs of that Nation, as it is fruitful in Events for the *Persians*, *Greeks*, and *Romans*.

JOACHIM succeeded *Zorobabel* in the Year of the World 3551. The Prophets *Haggai* and *Malachi* dy'd under *Xerxes*, who accomplish'd the 9*th* Year of his Reign under the Pontificate of *Joachim*; in the Year of the World 3576, of *Joachim* 25. *Artaxerxes* nick-named *Long-hand*, who succeeded him, treated favourably the *Israelites*, and gave to *Esdras* the Authority of punishing those among the People who should prove refractory to God, or to the Prince, not only with Exile, but likewise with Death. *Esdras* came into *Judea* accompanied with 1760 *Jews*, in the Year of the World 3595, or 96; of *Artaxerxes* 6, or 7; of *Joachim* 44, or 45; and having assembled at *Jerusalem* all those who were in the Province, he persuaded them to expel all the idolatrous Wives they had taken, against the Law of God.

ELIASIB succeeded his Father *Joachim* in the Pontificate, and govern'd 21 Years. It was in his tenth Year, of the World 3609, of *Artaxerxes* 20, or 21; that *Nehemiah*, of the sacerdotal House, obtain'd of the same *Artaxerxes*, whose Butler he was, Leave to come to *Judea*, and Orders for rebuilding the Walls of *Jerusalem*, and to defend his Companions against the continual Vexations of their Neighbours.

Note, That it is from the 20*th*, or 21*st* Year of that Prince, the most learned *Chronologists*, after the antient Fathers, reckon the 70 Weeks which the Angel *Gabriel* had reveal'd to *Daniel*, at the End whereof the Messiah was to die. They make up 490 Lunar Years; and *Jesus Christ* having been baptiz'd at the Beginning of the 70*th*, was crucify'd the 3*d* Year following; which verify'd literally the Prophecy, that in the Middle of the last Week the Victim and the Sacrifice should fail, *i. e.* that it would end, by the Oblation of him whose Types they were. I know that several Authors are of a contrary Opinion, but that I relate here is the most common, and, in my Opinion, the clearest, and the most certain. The Antients have follow'd it, and *Pererius*, in his Commentary on *Daniel*, has very well refuted all the others.

NEHEMIAH, since his Arrival, govern'd the *Jews* during 12 Years, with a great deal of Wisdom and Piety; having re edify'd the Walls and Gates of

Jerusalem, and disposed every Thing necessary for the Security of the *Israelites*, the Dedication of those Edifices was made. 'Twas under his Government that the sacred Fire, which had been hidden by *Jeremiah*, was found; or rather that the muddy Water found in its Place, lighted of itself at the Beams of the Sun, having been pour'd over the Wood, and the Sacrifice. *Artaxerxes* having heard of that Miracle, sent new Presents to the Temple, and gave Orders that it should be surrounded with Walls, which is the Reason why the Author of the second Book of the *Maccabees*, says that he built a Temple. *Torniel*, and some others with him, are of Opinion, that the Ark of the Covenant, and the Altar of Incense, were found at the same Time, but this is not very well proved. *Nehemiah* collected a very large Library at *Jerusalem*, which some will have to be composed of all Sorts of Books, and others of those only which related to the Religion, and the State of the *Hebrews*.

Note, That according to the Conjecture of several, *Esdras* collected under the Government of *Nehemiah*, all the Canonical Books, purged them of the Corruptions they were filled with, and distinguish'd them into twenty two Books, according to the Number of the *Hebrew* Alphabet. Which has occasion'd the common Error, that all the Volumes of the Old Testament having been lost, he had dictated them of Memory. 'Tis supposed that in that Revision he changed some Names of Places, putting the modern ones, which were in use, instead of the antient; and that by the Inspiration of the Holy Ghost, he added certain Things which happen'd after the Death of their Authors. St. *Jerome*, *in Prolo Gal.* says, that he invented the new square Characters, at present in use among the *Jews*, and left the old ones to the *Samaritans*, which are not so beautiful. *Genebrard* adds, that with the Advice of the Council call'd *Sanhedrim*, he distinguish'd the sacred Book into Verses, having been written by their Authors without that Distinction. He instituted a celebrated Academy at *Jerusalem*, and the Order of the *Scribes*, i. e. of the Interpreters of the Law, who were to explain all Difficulties of the sacred Scriptures, keep them, and hinder them from being alter'd. Some attribute to him the Books of the *Paralipomenon*. There are two which bear his Name, but the second seems to have been written after his Death, which happen'd in the tenth Year of *Darius*, call'd *the Bastard*, who had succeeded to *Artaxerxes*.

NEHEMIAH at the End of twelve Years returned to the Court of *Artaxerxes*, and during his Absence, the People degenerated from the Piety, he had so advantageously and so successfully promoted among them, and violated the Law in several Points of consequence. At his Return he punish'd them, and corrected the Abuses. We do not know very well how long he lived after this Reformation.

JOJADAH succeeded *Eliasib*, in the Pontificate, which he held 44 Years, and JONATHAS his Son, who succeeded him, 47, and left it to *Jeddoa* or *Jaddus*.

Note, That in the 28 Years of *Jojadah*, of the 2*d* of *Artaxerxes Memnon*, (call'd *Abasuerus*, in the sacred Text, and who married *Esther*) of the World 3650, happened the famous History of *Haman* and *Mordecai*. In the ignominious Death of the first is seen the Example of a Favourite who abuses his Fortune, and the Power he has gain'd over his Master; and in the Exaltation of the second, is discovered the visible Protection of *God*, on Persons who confide in his Succours. *Bellarmine*, and some others, maintain on the contrary, that this Event happened under the first *Artaxerxes*.

JADDUS, succeeded *Jonathas*, in the Pontificate; the Year of the World 3714. 'Twas under his Pontificate, that *Alexander*, Son of *Philip*, King of *Macedon*, came to *Jerusalem*, in the Year of the World 3720; according to *Capel* 3668; of *Alexander* 5; of *Jaddus* 6; and before *Christ* 332. He was irritated against the *Jews*, because during the Siege of *Tyre*, which was so famous, they refused to send him Provisions, to not break their Alliance with *Darius*. As he was coming to besiege *Jerusalem*, to be reveng'd of that pretended Affront, *Jaddus* went to meet him dress'd in his pontifical Ornaments, to endeavour to appease him. *God* in whose Hands is the Hearts of Kings, changed so well that of the young Conqueror, that he adored his Name written on the golden Plate which *Jaddus* carry'd on his Forehead, and came to *Jerusalem* to offer him Sacrifices, in order to obtain his Protection. He gave new Privileges to the *Jews*, and confirm'd those they had receiv'd from the Kings of *Persia*, whom *Jaddus* told him, he should conquer, according to *Daniel*'s Prophecy.

Note, That *Sanballat* was Governor of *Samaria* for *Darius*, when *Alexander* came into *Judæa*, and he deserted him to follow the Party of the Conqueror; and as a Reward for his Treason, he obtain'd Leave of *Alexander* to build a Temple on the Mount *Gerizim*, like that of *Jerusalem*, which he shew'd to be necessary to keep *Judæa* under his Obedience, by the Division of the *Jews* and the *Samaritans* in the Worship of *God*. He establish'd sovereign Pontiff his Son-in-law *Manasses*, *Jaddus*'s Brother. All the Priests who had marry'd Foreigners, as he had done, to avoid the Punition of their Fault, retired to this new High Priest; and *Samaria*, in the following Centuries, was always the Refuge of those who could not bear the Discipline of the Law. Thus was form'd the Schism between the *Samaritans* and the *Jews*, for the Place of legitimate Worship. We learn from St. *John*'s Gospel, Chap. viii. that this Temple was yet standing at that Time. It was rebuilt since by *John Hyrcanus* King and Pontiff, by whom it had been desolated.

ONIAS II. succeeded *Jaddus* in the Pontificate, the Year of the World 3736; and kept it fourteen Years.

SIMEON, call'd *the Just*, succeeded *Onias*, the Year of the World 3744. He repaired the Temple of *Jerusalem*, which was falling to ruin, had it environ'd with a double Wall, and convey'd Water to it through great Pipes, to wash the Victims. He kept that eminent Post twelve Years, and left it to his Brother, during his Son, *Onias*'s Minority.

ONIAS II. having attain'd at the Age proper for the publick Administration, took it upon him as his Right. Having desisted from paying the usual Tribute to *Ptolomy Euergetes*, King of *Egypt*, he very narrowly miss'd being the Cause of the entire Ruin of the *Jews*.

SIMEON II. exercis'd the Pontificate after him. In his Time *Ptolomy Philopater* came to *Jerusalem*, the Year of the World 3838, and wanted to enter the Sanctuary of the Temple; but *Simeon* oppos'd it with Courage, and *God* seconded that Opposition, by a sudden Shivering and Fainting.

ONIAS III. succeeded him, the Year of the World 3846; of *Antiochus*, King of *Syria*, 16; but having espoused the Party of *Ptolomy* King of *Egypt*, to the Prejudice of that of *Antiochus*, he was forc'd to fly into *Egypt* with a great Multitude of his Partisans, where he was receiv'd favourably. St. *Jerome* says, that with the King's Leave he built a Temple at *Heliopolis*, on the Model of that of *Jerusalem*, which subsisted till the Time of *Vespasian*. But *Josephus*, *Eusebius*, and several others, place that Building under King *Ptolomy*, call'd *Philometer*, in the twentieth Year of his Reign. In this *Onias* consulted rather his

his Avarice and Vanity, than his Religion; and applyʼd very ill, to his Edifice the Prediction of *Isaiah*, of the Altar of *God*, which was to be seen in *Egypt*, because it signifyʼd, that the Worship of the Gospel, would be introducʼd in *Egypt* by the Apostles of *Christ*.

Note, That in the *33d* Year of *Onias*'s Pontificate, of the World 3879; before *Christ* 176, according to some; or 174, according to others; began to reign *Antiochus*, callʼd by some *Epiphanes*, i. e. *illustrious*, but only by *Antiphosis*; and by some other *Epimanes*, i. e. *furious*. Famous in the sacred Writings for his Impieties, and the Cruelties he exercised against the *Jewish* Nation. He signalizʼd the Beginning of his Reign by the Injustice he did to *Onias*, in depriving him of his Pontificate, to give it to his Brother *Jason*, who bought it for ready Money; he in his Turn was soon divested of it by *Menelaus*, through the same Means, having out-bid him; who also was deprivʼd of his Dignity, in favour of *Lysimachus*, because he failʼd paying the annual Sum agreed upon. In which Dignity *Lysimachus* behaved as *Jason* had done, with all sort of Injustice, Violences, Rapines, and Sacrileges. *Jason* on the false Rumour of *Antiochus*'s Death, attempted to render himself Master of *Jerusalem*, where he caused all the Inhabitants to be massacred, whom he knew favourable to the *Syrians*. *Antiochus* hearing of the Revolt of *Jerusalem*, came to besiege it, and took it by Storm, in the Year of the World 3885; of his Reign 7; 80,000 Men were killʼd; 40,000 made Prisoners; and as many sold for Slaves. This impious Prince, conducted by *Menelaus*, enterʼd the Sanctuary, profaned the Temple, and carryʼd away the golden Altar, the Candlestick, the Table of the Shew-Bread, the sacred Vessels, and all the Money of the Treasury. By his Order the Idol of *Jupiter Olympian*, was placed on the Altar of the true God, and Sacrifices offerʼd unto it. ʼTwas during that cruel Persecution, *viz.* in the Year of the World 3887; of *Antiochus* 9; of *Menelaus*'s false Pontificate 16; of the Empire of the *Greeks* 145; the *2d* of the 153 *Olympiad*; before *Christ* 166, according to *Salian*; that the seven Brothers callʼd *Maccabees*, with their Mother, sufferʼd Martyrdom at *Antioch*.

MATTATHIAS, of the Race of the *Asmonæans*, who had fled with his five Sons from *Jerusalem* to *Modin*, a small Town in the Tribe of *Judah*, where he was born, succeeded *Onias* III. Seeing one Day an *Israelite* sacrificing to the Devil, he killʼd him on the Altar, together with the Magistrate who forcʼd him to that Impiety. *God* made use of him to humble the Pride of a great King, and to restore his Worship which had been almost entirely abolished.

Note, That in *Mattathias*'s Time begun the Principality of the ASMOMÆANS; a Name that came from his Grandfather, callʼd *Asmonæah*. It lasted very near 130 Years, till *Herod*, and the sovereign Sacrificature, was almost always joinʼd to it.

MATTATHIAS having been elected Prince of the *Jews*, died a Year afterwards, and left for Successor *Judas Maccabee*, his Son.

JUDAS MACCABEE, took the Reins of the Government, in the Year of the World 3889, 3890; of *Antiochus Epiphanes* 11, 12; of the Empire of the *Greeks* 177, 178; before *Christ* 164, 165, according to *Capel*. The miserable State of the Affairs of *Judæa* wanted such a Prince. *God* shewing himself visibly his Protector, in the miraculous Victories he gainʼd over *Antiochus*'s Generals. *Maccabee* pursuing his Victories, reconquerʼd several Towns, and particularly *Jerusalem*; where he purified the Temple, placing in it new Vessels, and restoring the divine Worship, with all the Magnificence the Exigency of their Affairs could allow. The Sacrifice was offered in it the *25th* of the ninth Month, called *Casleu*, the very same Day it had been polluted by *Antiochus*'s Orders three Years before. He defeated gloriously *Timothy* and *Gorgias*, who commanded for *Antiochus Eupator*, in *Judea*; and ʼtis said that it was after those several Victories he sent Money to the Temple to offer Sacrifices for those who died in the several Battles he had fought. He besieged the Citadel of *Sion*, (to secure the neighbouring Country) in the Year of the World 3892; of his Reign 14; of *Antiochus Eupator* 2; of the Empire of the *Greeks* 150; before *Christ* 162, according to Father *Pesau*; and according to *Salian* 161. *Antiochus* came to endeavour to raise the Siege with an Army of 110,000 Foot, 20000 Horse, 300 Chariots of War, and 32 Elephants. *Maccabee* made several Sallies upon them, from which he always returnʼd victorious. *Eleazar* his Brother believing that the King was on an Elephant, threw himself under the Animal's Belly to make the King fall with the Elephant, by whose Fall he was bruised, without accomplishing his Design. The antient Fathers commend him as a Martyr of his Country. He disconcerted all the Measures of *Alcimus*, who had bought the Pontificate of *Antiochus Eupator*; and negotiated an Alliance with the *Romans*, to secure the Peace he had procured the *Jews*; but was killʼd at last, at the Head of 800 Men in an Engagement he had against an Army of 20000 Foot, and 2000 Horse, while he was pursuing a Squadron which he had broken and routed.

JONATHAN was elected by the *Jews* to succeed his Brother *Judas*, in the Government; in the Year of the World 3894; of *Demetrius* King of *Syria* 2 or 3; before *Christ* 160, or 161. After he had defeated all the dangerous Designs of his Enemies, he chose *Machmas* for the Place of his Residence, where he applyʼd himself to the Re-establishment of the Affairs of Religion, and of the Province, by the good Regulations he made to have Justice practised and authorised among the *Jews*. He was perfidiously arrested Prisoner, at *Ptolemaides*, by *Triphon*'s Order, thoʼ he came there on *Triphon*'s Word.

SIMON his Brother succeeded him, and sent to *Triphon* the Money he askʼd for the Release of *Jonathan*, and that of his Sons. But instead of sending them back, he had the Father killʼd, and carryʼd the Sons along with him into *Syria*. *Simon*, to be revenged of *Triphon*, enterʼd into an Alliance with *Demetrius*, *Triphon*'s Competitor to the Throne of *Syria*, and who had lately killʼd his Pupil *Antiochus*. *Demetrius* granted him an entire Exemption of all Tribute for the whole *Judea*. Throʼ this Means the *Jews* became free, who had always been Tributary, either to the *Persians*, or to the *Greeks*, ever since their Return from the *Babylonish* Captivity. *Simon* took by Famine the Citadel of *Sion*, and enterʼd it in Triumph. He fortifyʼd the Mountain where the Temple was built, and chose it for his Residence. Under his Government *Judæa* enjoyʼd Peace; and he became so famous, that the *Romans* and *Spartans* were glad to renew with him the antient Alliances. But however that Man so respected, and at the same time so formidable to the most powerful Princes, fell by the Hand of his Son-in-law *Ptolomy*, who killʼd him in Treason with two of his Sons; the *8th* of his Government; of the World 3919; of *Demetrius Nicanor* 11; before *Christ* 134, according to *Salian*; 130, according to others.

JOHN, called *Hyrcanus*, *Simon*'s Son, who was at *Gaza*, hearing the News of this Parricide, came to *Jerusalem*, to take the Direction of the publick Affairs. The People chose him for Duke and Pontiff together, in the Year of the World 3920; of *Demetrius* 12; of the *171st* Olympiad 3; before *Christ* 133,

133, according to *Salian*; or 135, according to others. His first Thought was to chastise *Ptolomy* for his Impiety, whom he besieg'd in a Place where he had retreated. But his maternal Piety hinder'd him from taking him; for every Time (says *Josephus*, *l.* 13. *Antiq. of the Jews*, *c.* 9.) he attempted to storm the Place, *Ptolomy* had his Mother and Brothers conducted on the Walls, where, after they had been whipp'd, he threaten'd to precipitate them, if *John* would not withdraw his Forces. He was besieg'd in *Jerusalem* by *Antiochus Sidetes*, in the 6*th* Year of his Government; of the World 3925; of *Demetrius Nicanor* 17; of *Antiochus Sidetes* 9; the Feast of the Tabernacles happening at that Time, the Besieg'd ask'd a Truce of 7 Days, to celebrate it; which *Antiochus* not only freely granted, but sent, likewise, several rich Presents to the Temple. *Hyrcanus*, mov'd at that Action of Piety, su'd for Peace, and obtain'd it, on Condition to pay an annual Tribute, and 500 Talents of Gold as a Preliminary. He took *Samaria*, after one Year's Siege, in the 23*d* of his Government; of the World 3942; and govern'd 31 Years, without taking the Title of King.

ARISTOBULUS, one of *Hyrcanus*'s Sons, succeeded him, and took the Name of King, in the Year of the World 3950; according to *Capel* 3897; according to *Clavisius* 3844; of *Antiochus Grippus* 21, or 22; before *Christ* 101; according to others 102, or 104. To secure his Principality, he had his four Brothers arrested, and one of them, call'd *Antigonus*, kill'd, on some false Reports. He added to this Murder that of his own Mother, who dy'd of Hunger in the Prison, where she was kept by his Orders. God punish'd his Crimes by a Vomiting of Blood, which carry'd him out of the World in the first Year of his Reign, of the World 3951. In that short Time he added to his Dominions the greatest Part of *Ituria*, whose Inhabitants he had oblig'd to receive the *Judaick* Religion.

ALEXANDER, his Brother, who espoused his Widow *Solome*, call'd *Alexandra*, by the *Greeks*, succeeded him, by the Intrigues of his Wife. But his Cruelty, who had not spared one of his Brothers, suspect to him, render'd him odious to his People, who revolted against him. *Josephus* says, *Antiq. lib.* xv. *cap.* 21. that at several Times he caused to be put to death, in the Space of six Years, 50,000 Men. One Day, while he was at Table with his Concubines, he order'd 800 Persons of Quality to be ty'd to the Cross, and that their Wives and Children should be massacred before their Eyes; for which he was call'd *Thracides*. He govern'd 27 Years, and dy'd in the Year of the World 3978.

ALEXANDRA, *Alexander*'s Wife, had been declar'd Regent of the Kingdom by her Husband, who had left two Sons, *Aristobulus* and *Hyrcanus*. This last, tho' the eldest, was less fit for the Government than his younger Brother; but their Mother wanted to govern alone; and as she had Wit and Courage enough to maintain herself, she render'd herself formidable to her Neighbours, and to her People. The Sect of the *Pharisees* had but lately began, and the Austerity of their Lives had gave them so much Credit among the People, that they were absolutely necessary to the ambitious Queen; therefore she so artificially dealt with them, that they prov'd very serviceable to her in supporting her Authority. *Hyrcanus* had succeeded his Father in the Pontificate (for ambitious as she was, she never pretended to be the Chief of the *Jewish* Church). *Aristobulus* seeing his Mother sick, seiz'd on some Places to invade the Kingdom. The Queen hearing this News, had his Wife and Children confin'd in a Tower, call'd afterwards *Antonian*, and dy'd some Time after, in the 9*th* Year of her Reign; of the World 3987; before *Christ* 66.

HYRCANUS, whom his Birth-right called to the Throne, took the Name of King; but having been soon after defeated by his Brother *Aristobulus*, and seeing himself abandoned by his Partisans, he relinquished the Crown to him, and took to a private Life. ANTIPATER, an *Idumean* by Extraction, a Person of Wit, Courage, and Credit, took Occasion of his Simplicity, to ruin *Aristobulus*, whose Power he feared. He knew so well how to gain him, through Fear of the Violence of his Brother, and by the Hopes of re-ascending the Throne, that he left himself to be conducted by him, to the Court of *Aretas*, King of the *Arabs*, who promised to restore him. In Fact he entered *Judea* with an Army, in the Year of the World 3988, 3989, defeated that of *Aristobulus*, and forced him to fly to *Jerusalem*; where he besieged him in the Temple, and had certainly took him, if *Scaurus*, Lieutenant of *Pompey*, had not obliged him to raise the Siege. *Aristobulus* charged the Rear-Guard of *Aretas* in his Retreat, and killed him a great Number of Men, among whom was found *Antipater*'s Brother, the first Mover of this War. *Hyrcanus* and *Aristobulus* came to meet *Pompey* at *Damas*, whom they had chosen for Arbiter of their Differences, and who ordered them to live in Peace 'till his Arrival in *Judea*, where he would procure a Reconciliation between them. But though *Aristobulus* had been very well received by *Pompey*, he nevertheless prepared for War, and endeavoured to amuse him by several Artifices, which having been discovered by *Pompey*, he called *Aristobulus* to his Camp, where he had him arrested Prisoner. Mean while the Partisans of his Brother *Hyrcanus* introduced him in *Jerusalem*, those of *Aristobulus* retreated into the Temple, where they defended themselves during three Months, 'till they were forced at last to surrender. Then *Pompey* entered the Temple, and even the Sanctuary, which was permitted to the High Priest alone, but did not touch the Treasure.

Hyrcanus re-assumed the Pontificate in the Year of the World 3991; the 2d of the 179th Olympiad; of the Foundation of *Rome*, 699, or 692, *Cicero* and *Anthony* being Consuls; before Christ 62, according to *Salian*; and before *Judea* became Tributary to the *Romans*. *Hyrcanus* reigned 34 Years, always disturbed by the Ambition of his Brother *Aristobulus*.

HEROD, younger Son of *Antipater*, who had followed the Party of *Julius Cæsar* against *Pompey*, whom his Father had made Governor of *Galilee*, while he was but 25 Years old, (though *Josephus* says but 15, but his Text is corrupted, and has caused the Mistake of several Authors in the Chronology of the Years of *Herod*) was made King of the *Jews* by the Senate, at the Recommendation of *Anthony*, whom he had served faithfully. *Herod* came into *Judea* in the Year of the World 4014; of the Pontificate of *Hyrcanus* 36; of *Augustus* 4; where he found that *Antigonus* had fortified himself to resist him. At the End of two Years he besieged him in *Jerusalem*, and took him, with the Succours of *Sosias*, *Antony*'s Lieutenant, who would have kept him for a Triumph; but *Herod* acted so well near *Antony*, by Presents, that he condemned *Antigonus* to lose his Head. In him ended the Principality of the *Asmonæans* (which had lasted 126 Years, according to *Josephus*) in the Year of the World, 4015; according to Father *Petau*, 3947; according to *Clavisius*, 3913; of the Foundation of *Rome*, 717; of *Augustus*, 5; of the 145th Olympiad, 2; according to others, the 4th of the 182d; before Christ, 35 or 36. By that Death, *Herod* found himself peaceable Possessor of the Kingdom, which he found the Secret to keep after the Overthrow of his Protector *Anthony*, at the Battle of *Actium*. *Herod* had followed his Party against *Augustus*; but when he saw that *Antony*, against his Advice, continued to be entirely governed by *Cleopatra*, who was the Cause of his Ruin; he begun to favour that of the Victorious, and sent him Succours and Provisions to gain his Favour. He even took the Resolution to meet *Augustus*; and to be sure that nothing should be attempted against his Authority, during his Absence, he had *Hyrcanus* put to Death, notwithstanding his Age of 80 Years, his Birth, and his Pontifical Dignity. Through the same Principle of an ambitious Jealousy, he caused his Mother-in-Law, *Alexandra*, and his Wife, *Mariamne*, to be confined Prisoners,

Prisoners, for Fear, that during his Absence, they should undertake something against him. He laid his Diadem at *Augustus*'s Feet, in the Year of the World 4024; of *Hyrcanus*, 45; of *Augustus* 13; of the 187th Olympiad, 2, according to *Torniel*; before Christ 25 or 26; and told him ingenuously that he had served *Antony*, to whom he had several very great Obligations, that if he was pleased to receive him in the Number of his Friends, he would serve him with the same Fidelity. *Augustus*, pleased at his Sincerity, confirmed to him the Kingdom of *Judea*. At his Return he found his Wife, *Mariamne*, so irritated against him, for his having left Order at his Departure to put her to Death, in Case he should not return, that she could never forgive him afterwards. As he loved her passionately, he suffered, for a long Time, her Reproaches and Scorns; but *Salome*, his Sister, as bad as he to the full, having accused her of having attempted to poison him, he had her Head took off. Some Time after he treated *Marianne*'s Mother with the same Cruelty, on the single Report, that during his Illness, she wanted to possess herself of some Fortresses. In the Year of the World 4028, 4029; of *Augustus*, 18; of his Reign, 16 or 17; he undertook to build a Temple from the very Foundation, which *Josephus* says, *l.* 15. of *Antiquit. c.* 14. he made very magnificent; but some Authors believe that he only repaired and adorned the old one, and that the Description *Josephus* gives us of it is fabulous. In the 15th and 18th Years of his Reign; of *Augustus*, 22; of the World, 4032; he built a Theatre, and an Amphitheatre, where every fifth Year he celebrated Combats, in Honour of *Augustus*, in the Manner of the Olympick Games; for which the Emperor gratified him with the Sovereignty of three new Provinces, and a Tetrarchy to his Brother, called *Pheroras*. His Gratitude for this new Favour went as far as to Impiety, by his building a Temple in the *Trachonitides*, in Honour of *Augustus*, and a new City at a Place called the Tower of *Straton*, which he called *Cæsarea*, and where he erected a Colossus, as big as that of *Jupiter Olympian*. In the 24th and 25th of his Reign; of the World, 4038, 4039; he went to meet *Agrippa*, who was come into *Asia*, and engaged him to come to *Jerusalem*, where he received him with the Magnificence of an Emperor, rather than of a Petty-King, as he was. In the 26th of his Reign; of *Augustus*, 30; of the World, 4040; having been reconciled with his Sons, by *Augustus*, he declared publickly that he would have them reign after him, naming *Antipater* first. In the 32d; of *Augustus*, 36; of the World, 4046; falling sick of a Malady, which was judged mortal by his Physicians, because of his great Age of 70 Years, he made his Will, by which he left his Kingdom to *Herod*, his younger Son, because he was irritated against *Archelaus*, and *Philip*, the two others whom *Antipater* rendered suspected to him. He bequeathed 1000 Talents to the Emperor, and made great Donations to his Sister *Salome*, whose Conformity of Manners with his had endeared to him. He altered this Will before his Death, and left the Kingdom to *Archelaus*, giving to *Herod*, whom he deprived of it, the Tetrarchy of *Galilee*, with some other Provinces; and to *Philip*, that of *Trachonitis*, of *Gaulonites*, of *Batanea*, of *Paneades*. Having thus disposed of his Succession, he died in violent Pains, in the Year of the World 4051, according to *Torniel*; of his Reign 37; of *Augustus*, 41, or 42, reckoning from the Death of *Julius Cæsar*; of Christ, 1 or 2, in the 71st Year of his Age.

Note, That St. *Epiphanius* places *Herod*'s Death at the *4th* Year of *Christ*; *Severus Sulpicius* at the *5th*; *Eusebius* and *Beda* at the *6th*; and Cardinal *Baronius* at the *9th*. *Baronius* founds his *Chronology* on a Fault, to be met with in the Text of *Josephus*; where, instead of 25, the Copist has put 15 Years, which was the Age of *Herod*, when *Antipater*, his Father, made him Procurator of *Judea*, and gave him the Government of *Galilee*. The same learned Author will have, also, the 37 Years of *Herod*'s Reign reckon'd from the Battle of *Actium*, and not from the Declaration of the Senate, under the Consulship of *Calvinus* and *Pollio*. But there is not the least Appearance that *Josephus*, who was a *Jew*, and knew so distinctly *Herod*'s Affairs, and who liv'd so near his Time, would have establish'd a false Supputation, and not remember'd that Battle, which had been a celebrated *Epocha*. The Date of the Enumeration made by *Quirinus* under *Archelaus*, his Son, which he places at the *37th* Year from that Battle, justifies, again, his Supputation; but the most important Reason is, that, according to that of *Baronius*, it cannot be prov'd that *Christ* was born in *Herod*'s Time, which the Gospel says clearly. 'Tis what has oblig'd me to leave this Place of *Baronius*, and to place that Death, so much disputed, in the first or second Year of *Christ*.

There is as great a Contestation among Authors concerning the Nation of *Herod*. The most common Opinion is founded on a great Number of Fathers and antient Authors, and particularly on the Authority of *Josephus*, who makes him an *Idumean*, and calls him a Stranger. Several Moderns, on the contrary, among whom *Torniel* has signaliz'd himself, maintain, that tho' he was an *Idumean* of antient Extraction, he nevertheless was a *Jew* born, because his Father, and his Grandfather, had embrac'd the *Judaick* Religion, and that the Name of *Jew* becomes as well those who profess'd *Judaism*, as those born in *Judea*; which they prove by several Passages of the Scripture. It must be observ'd, also, that the *Idumeans*, 100 Years before *Herod*, had embrac'd *Judaism*, under King *Alexander*; they call'd *Jerusalem* their Country, the holy City, the common City, and their Metropolis, as *Josephus* shews it in his History of the *Jewish War*. *Philo*, in his Book of *Monarchy*, treats distinctly of the State of those *Jews* we mention, whom he calls Proselytes, by way of Distinction from the others; and says, that *Moses* had equall'd them in all Things, in his *Republick*, except that none but Natives should enter the Council call'd *Sanhedrim*, unless the Stranger had a *Jew* Mother. Sometimes, by the Name of *Jews* were understood those only born in the Province of *Judea*, or of a *Jewish* Race, with Respect to whom all the other *Jews* by Religion were call'd Strangers. *Josephus* speaks of it in both Manners; therefore, tho' he names *Herod* a Stranger with Regard to the first Signification, we must not conclude from thence that he was really a Stranger, much less a *Gentile*. He mentions his Ancestors, *Antipas* and *Antipater*, as *Jews* potent in Credit and Wealth, tho' they were but private Persons.

There remains another Difficulty, arising from the famous Oracle of *Jacob* on his Death-Bed; *The Scepter shall not depart from Judah, nor a Lawgiver from between his Feet, until Shiloh come*, Gen. xlix. 9. Authors are divided in the Explication of this Passage, which is very important, because it contains the Mark of the coming of the Messiah. Those who take the Word *Judah* for the particular Tribe thus call'd, and from whence the Kings since *David* were issu'd, and say that *Herod* was a Stranger, are less embarrass'd, with Regard to *Herod*; since they are oblig'd to maintain, that all the Dukes or Pontiffs who have govern'd with a sovereign Authority, the *Hebrews*, ever since their Return from the Captivity of *Babylon*, were of that Tribe; which not only cannot be prov'd, but is manifestly contradicted in the Scripture, in which it appears that *Zedekiah* was the last King of the

Family

Family of *David*, and that the *Asmoneans* were of the Tribe of *Levi*, since they exercised the Sacrificature. To avoid this bad Step, they are oblig'd to imagine that on the Mother's Side they issu'd from the Tribe of *Judah*, and that therefore it can be very well said that the Scepter had not departed from *Judah*. But besides that the Scripture says nothing of that Descent, 'tis certain, that if even it was found mark'd there, that could not suffice for the Accomplishment of the Prophecy in Question; because among the *Jews* the Genealogies were reckon'd only by the Fathers. However, I believe, with several grave Authors, that in this Prediction of *Jacob*, the Name of *Judah* is to be taken for the whole *Jewish* Nation, which had been preserv'd in that Tribe ever since the Transmigration to *Babylon*, the other Tribes having been either destroy'd or dispers'd. Therefore the true Sense, in my Opinion, should be, that the *Hebrews* should be a particular People, and have Magistrates of their Nation, either Kings, Dukes, or Pontiffs, to govern them, and make them live, according to their ecclesiastical and political Laws, till the coming of the *Messiah*. This Prediction has had its Beginning, its Progress, and its entire Accomplishment. I take its Beginning at the first Victories of the *Romans* under *Pompey*, when they render'd themselves Masters of *Judea*, and made the *Jews* Tributaries. Its Progress has been in *Herod*, who being of *Idumean* Extraction, and in that Sense a Stranger, usurp'd the royal Authority over the *Jews*, disposed of the Pontificate at his Pleasure, and committed in the Government the Violences abovemention'd. After his Death, *Archelaus*, his Son, was depriv'd of the Kingdom, and *Judea*, reduc'd into a Province, govern'd by a Procurator of *Cæsar*. The last Execution was when *Titus* having burnt the Temple, and ruinated the City, the *Jewish* Nation was entirely destroy'd by the Sword, and dispersed throughout the World by Servitude and Flight; and had no longer Dukes, Pontiffs, Temple, nor any Thing else of a People, making a political Body, and separated from others; for some Time before this general Destruction *Jesus Christ* came into the World to make of the *Jews* and *Gentiles* a new People, who should serve him in Spirit and Truth.

ARCHELAUS succeeded his Father in the Kingdom of *Judea*. He came to *Augustus* to be confirm'd by him in the Dominions of *Herod*, who had declar'd him his Successor. *Herod*, his second Brother, ask'd it, in Virtue of a first Will, and all his Parents join'd with him. The *Jews* had sent Ambassadors to the Emperor, to desire him that they should be deliver'd from the Domination of both, and be permitted to live under the Governors of *Syria*. The Cause was pleaded before *Augustus*, and *Nicolaus Damascenus* spoke for the Princes the *Jews* wanted to exclude. The Emperor, to reconcile them all, gave *Judea*, *Idumea*, and *Samaria*, to *Archelaus*, and divided the rest of the Kingdom between *Philip* and *Herod*, and *Galilee* fell to the last. *Archelaus* imitating, or rather surpassing his Father in Cruelty, the *Jews* were forc'd at last to send Ambassadors to *Rome*, to ask for Justice of the Emperor; who sent for *Archelaus*, and who justify'd himself so ill of the Violences he was charg'd with, that *Augustus* banish'd him to *Vienna* in the *Gauls*; and join'd the Provinces where he commanded to the Government of *Syria*. *Archelaus* reign'd 9 Years.

HEROD ANTIPAS succeeded him, and reign'd 24 Years.

HEROD AGRIPPA succeeded *Herod Antipas*, having been taken out of Prison, where he had been put by *Tiberius* and *Caligula*; but he came into *Judea* but under *Claudius*, in the Year of *Christ* 42; of *Claudius* 1. He signaliz'd the Beginning of his Reign by the Death of St. *James*, call'd *Major*, whose Head he sacrific'd to the *Jews* to ingratiate himself to them at his Accession to the Throne. He also imprison'd St. *Peter*, and dy'd soon after.

AGRIPPA the Younger succeeded *Herod Agrippa*, and reign'd 26 Years. In him ends the Kingdom of the *Jews*.

At present I'll re-assume my *Prophane Chronology*, at the Beginning of the Monarchy of the *Medes*, where I had left it.

CHRONOLOGY *of the Kings of the* Medes.

ARBACES, having forc'd *Sardanapalus* to burn himself, with his Wives and Children, in *Nineveh*, his Capital, began the Monarchy of the *Medes*, in the Year of the World 3102; and reign'd 20 Years.

MANDANES succeeded *Arbaces*, in the Year of the World 3122; and reign'd 50 Years.

SARSANENES succeeded *Mandanes*, in the Year of the World 3172; and reign'd 30 Years.

ARTECARNIS succeeded *Sarsanenes*, in the Year of the World 3202; and reign'd 50 Years.

ARBIANUS, or CARDICEAS, succeeded *Artecarnis*, in the Year of the World 3252; and reign'd 22 Years.

ARTEUS, call'd also DEIOCES, succeeded *Arbianus*, in the Year of the World 3274; and reign'd 53 Years.

ARTINES, or PHRAORTES, succeeded *Arteus*, in the Year of the World 3327; and reign'd 22 Years.

ARTABANUS, call'd also CIAXARES, succeeded *Artines*, in the Year of the World 3349; and reign'd 40 Years.

ASTIAGES succeeded *Artabanus*, in the Year of the World 3389; and reign'd 38 Years.

Note, The *Assyrians* began again to reign in *Nineveh*, during the Reign of the *Medes*, viz. PHUL began to reign in the Year of the World 3163; and reign'd 48 Years. TIGLATHPILESER succeeded *Phul* in the Year of the World 3211; and reign'd 25 Years. SALMANASSAR succeeded *Tiglathpileser*, in the Year of the World 3236; and reign'd 9 Years. SENNACHERIB succeeded *Salmanassar*, in the Year of the World 3245; and reign'd 7 Years. ASSARHADDON succeeded *Sennacherib*, in the Year of the World 3252; and reign'd 18 Years. In him ends the Monarchy of the *Assyrians*; for after him there's no mention made of Kings of *Assyria*, but only of *Babylon*; the Monarchy whereof was founded by *Merodach Baladan*.

CHRONOLOGY *of the Kings of* Babylon.

MERODACH BALADAN, first King of *Babylon*, began to reign in the Year of the World 3270; and reign'd 40 Years.

BEN MERODACH succeeded *Merodach Baladan*, in the Year of the World 3310; and reign'd 21 Years. We imagine this *Merodach* to be the same who is called, in the Book of *Judith*, *Nebuchodonosor*.

NABULASSARUS succeeded *Ben Merodach*, in the Year of the World 3331; and reign'd 20 Years.

Note, That we have chang'd but two Years of the Number, with regard to the *Chronology* of the Kings of *Babylon*, taken from *Berosus*, by *Josephus*, in his first Book against *Appion*; which *Berosus* gives to *Evilmerodach*, by making his Reign of 22 Years. Because 'tis said, in the 4th Book of *Kings*, that *Evilmerodach* began to reign the 37th Year of the Transmigration of King *Joachim*; from which Time, to the End of the Kingdom of *Babylon*, it appears that there must have elaps'd 44 Years; which, however, must have been short, if we had not given 22 Years to *Evilmerodach*.

NEBUCHADNEZZAR *the Great* succeeded *Nabulassar*, in the Year of the World 3360; and reign'd 43 Years. This great Prince, after he had conquer'd the *Ethiopians*, *Arabs*, *Idumeans*, *Philistines*, *Syrians*, *Persians*, *Medes*, *Assyrians*, and almost all *Asia*; had the sacrilegious Vanity to have an Idol made of Gold, and to command all his Subjects to adore it, in the 44*th* Year of his Reign; or the 25*th*, according to *Capel*. He made that famous Dream of that mystical Statue; which signify'd the Duration of the four Monarchies; and the other of a Tree whose Head touch'd Heaven, cover'd the Earth with its Branches, and under the Shadow thereof all the Animals shelter'd themselves; which was cut and thrown down in an Instant. *Daniel* interpreted both, and this last in particular, which he told *Nebuchadnezzar* was an Omen of the Change which was to happen in his Grandeur, and in his Person; which Change was strange and incredible; for this Prince, victorious over all *Asia*, while he was admiring the Magnificence of *Babylon*, which he had render'd one of the most sumptuous Cities in the World, was chang'd into an Ox, (I mean that he fancied himself such, either by a Malady call'd *Lycanthropy*, or by a Disorder of his Imagination, made by the Divine Justice) and expell'd from his Palace into the Fields, the Year of the World 3387, according to *Herodotus*; of his Reign 36; where he liv'd seven Years, grazing like the Brutes; which being expir'd, his Reason was restor'd to him, and he acknowledg'd, by this frightful Chastisement, the Power and Goodness of the true God, who had restor'd him to his Kingdom. *Nebuchadnezzar* liv'd but one Year after, which he employ'd so well, by the Advice of *Daniel*, that the antient Fathers make no Doubt of his Salvation, founded on that, after his Penitence the Scripture does not accuse him of any Fault.

EVILMERODACH succeeded *Nebuchadnezzar*, the Year of the World 3430; and reign'd but 2 Years, according to the *Chronology* of Father *Petau*, *Capel*, and some others. *Torniel*, *Sponde*, and several others with them, give him 23 Years.

NERIGLISSAR, his Brother-in-law, or Son-in-law, kill'd him; and reign'd 4 Years.

LABOSSARDACH, yet an Infant, succeeded *Neriglissar*, in the Year of the World 3429; but as he gave several Signs of a very bad Genius, he was killed, by the unanimous Consent of the Grandees of the Kingdom, after he had reign'd 9 Months only.

BALTASSAR, or BELSHASSAR, Son of *Evilmerodach*, was put in his Place, in the Year of the World 3430, according to *Herodotus*; 3441, according to *Capel*; of the Captivity of *Babylon* 53, according to *Torniel*. Some make *Baltassar* Son of *Neriglissar*, mistaking him for *Labossardach*. The *Babylonians* called him *Naboandel*, and the prophane Historians *Nabodenes*. In the 17*th* Year of his Reign, of the World 3447, of the Captivity of *Babylon* 70; *Cyrus*, King of *Persia*, having defeated *Astyages*, King of the *Medes*, and transferr'd that Empire to his People, came to besiege *Babylon*. *Baltassar*, who thought it impregnable, instead of providing for its Defence, pass'd the Nights in all Sorts of Debaucheries, using in his Repasts the sacred Vessels which *Nebuchadnezzar* had brought from *Jerusalem*. At the same Time he was committing that Profanation, a Hand wrote on the Walls the Sentence of his Condemnation, in Characters which none but *Daniel* could read, and explain. The Event shew'd that he had not been mistaken, since this impious Prince was kill'd the same Night. In him the Monarchy of the *Babylonians* was extinct.

Note, That properly speaking the *Babylonian* Monarchy is but a Continuation of that of the *Assyrians*; which almost all *Chronologers* reckon from *Belus*, or *Nimrod*, to *Baltassar*; and, in their Opinion, lasted 1585 Years, and had 50 Kings.

CHRONOLOGY *of the Kings of* Persia.

CYRUS, who founded the *Persian* Monarchy on the entire Ruin of that of *Babylon*, began to reign in the Year of the World 3425, and reign'd 29 Years. He sent back all the *Israelites* into their Country, and gave them Leave, by a Proclamation publish'd throughout his whole Empire, to re-build the Temple of *Jerusalem*. *Theodoretus* says, that *Daniel* shew'd him his Name in *Isaiah*, and the Prediction of that Return made long before he was born, which engag'd him to treat the *Jews* with Humanity and Compassion. *Cyrus* dy'd in the War against *Thomyris*, Queen of *Scythia*, in the 4*th* Year of the 62*d* Olympiad, and before *Christ* 529, according to Father *Petau*.

Note, That I have made *Cyrus* to reign 29 Years, tho' I place the Beginning of the *Persian* Monarchy but after the taking of *Babylon*, and *Baltassar*'s Death; because *Cyrus* had reign'd 20 Years before the Subversion of *Babylon*, having transferr'd the Monarchy of the *Medes* to the *Persians*, as it appears from *Daniel* xiii. *Herodotus*, *lib.* 1. *Diodorus*, *lib.* 2. and *Justinus*, *lib.* 1. But you'll ask, perhaps, who was that *Darius* the *Mede*, who reign'd but one Year after *Baltassar*, as mention'd in *Daniel* v. 6, and 9. I'll answer, that he was the Son of *Astyages*, mention'd by *Xenophon*, whom *Cyrus* was pleas'd to honour with the Title of King of *Babylon*, because he was his Kinsman, and older than him; tho' several Authors will have *Darius* the *Mede* to have reign'd in *Babylon* 17 or 19 Years, before it was attack'd by *Cyrus*; and Father *Petau* calls him *Nabonides*. *Torniel*, *Sponde*, and those who follow them, make him also King over the *Chaldeans* with *Cyrus*, and explain thus the Passage of *Daniel*, which says of him that he succeeded *Baltassar* at the Age of 62 Years. But he did not reign long, and by his Death *Cyrus* found himself sole Master of the Monarchy he had founded.

CAMBYSES succeeded *Cyrus*, in the Year of the World 3455; and reign'd 7 Years, and 6 Months.

MAGUS, with his Brother, succeeded *Cambyses*, in the Year of the World 3462; and reign'd but six Months.

DARIUS HYSTASPES succeeded *Magus*, in the Year of the World 3463; and reign'd 36 Years.

XERXES succeeded *Darius Hystaspes*, in the Year of the World 3499; and reign'd 21 Years, according to some; and but 9, according to others.

ARTABANUS succeeded *Xerxes*, in the Year of the World 3520; and reign'd but 7 Months.

ARTAXERXES, call'd *Long-Hand*, succeeded *Artabanus*, in the Year of the World 3521; and reign'd 40 Years. He prov'd very favourable to the *Jews*, and gave them Leave to return into *Judea*, if they pleas'd.

XERXES succeeded *Artaxerxes*, in the Year of the World 3561; and reign'd but two Months.

SOGDIANUS, having kill'd *Xerxes*, succeeded him, in the Year of the World 3561; but he reap'd but very little Advantage of his Crime, for he reign'd but 7 Months.

DARIUS NOTHUS, who had depriv'd *Sogdianus* both of his Life and Crown, succeeded him, in the Year of the World 3562; and reign'd 19 Years. Historians call him the Bastard.

ARTAXERXES, call'd *Mnemon*, to whom *Darius* had left the Kingdom, succeeded him, in the Year of the World 3581; and reign'd 43 Years.

ARTAXERXES OCHUS succeeded *Artaxerxes Mnemon*, in the Year of the World 3624; and reign'd 23 Years.

ARSES succeeded *Artaxerxes Ochus*, in the Year of the World 3647; and reign'd 4 Years.

Family of *David*, and that the *Asmoneans* were of the Tribe of *Levi*, since they exercised the Sacrificature. To avoid this bad Step, they are oblig'd to imagine that on the Mother's Side they issu'd from the Tribe of *Judah*, and that therefore it can be very well said that the Scepter had not departed from *Judah*. But besides that the Scripture says nothing of that Descent, 'tis certain, that if even it was found mark'd there, that could not suffice for the Accomplishment of the Prophecy in Question; because among the *Jews* the Genealogies were reckon'd only by the Fathers. However, I believe, with several grave Authors, that in this Prediction of *Jacob*, the Name of *Judah* is to be taken for the whole *Jewish* Nation, which had been preserv'd in that Tribe ever since the Transmigration to *Babylon*, the other Tribes having been either destroy'd or dispers'd. Therefore the true Sense, in my Opinion, should be, that the *Hebrews* should be a particular People, and have Magistrates of their Nation, either Kings, Dukes, or Pontiffs, to govern them, and make them live, according to their ecclesiastical and political Laws, till the coming of the *Messiah*. This Prediction has had its Beginning, its Progress, and its entire Accomplishment. I take its Beginning at the first Victories of the *Romans* under *Pompey*, when they render'd themselves Masters of *Judea*, and made the *Jews* Tributaries. Its Progress has been in *Herod*, who being of *Idumean* Extraction, and in that Sense a Stranger, usurp'd the royal Authority over the *Jews*, disposed of the Pontificate at his Pleasure, and committed in the Government the Violences abovemention'd. After his Death, *Archelaus*, his Son, was depriv'd of the Kingdom, and *Judea*, reduc'd into a Province, govern'd by a Procurator of *Cæsar*. The last Execution was when *Titus* having burnt the Temple, and ruinated the City, the *Jewish* Nation was entirely destroy'd by the Sword, and dispersed throughout the World by Servitude and Flight; and had no longer Dukes, Pontiffs, Temple, nor any Thing else of a People, making a political Body, and separated from others; for some Time before this general Destruction *Jesus Christ* came into the World to make of the *Jews* and *Gentiles* a new People, who should serve him in Spirit and Truth.

ARCHELAUS succeeded his Father in the Kingdom of *Judea*. He came to *Augustus* to be confirm'd by him in the Dominions of *Herod*, who had declar'd him his Successor. *Herod*, his second Brother, ask'd it, in Virtue of a first Will, and all his Parents join'd with him. The *Jews* had sent Ambassadors to the Emperor, to desire him that they should be deliver'd from the Domination of both, and be permitted to live under the Governors of *Syria*. The Cause was pleaded before *Augustus*, and *Nicolaus Damascenus* spoke for the Princes the *Jews* wanted to exclude. The Emperor, to reconcile them all, gave *Judea*, *Idumea*, and *Samaria*, to *Archelaus*, and divided the rest of the Kingdom between *Philip* and *Herod*, and *Galilee* fell to the last. *Archelaus* imitating, or rather surpassing his Father in Cruelty, the *Jews* were forc'd at last to send Ambassadors to *Rome*, to ask for Justice of the Emperor; who sent for *Archelaus*, and who justify'd himself so ill of the Violences he was charg'd with, that *Augustus* banish'd him to *Vienna* in the *Gauls*; and join'd the Provinces where he commanded to the Government of *Syria*. *Archelaus* reign'd 9 Years.

HEROD ANTIPAS succeeded him, and reign'd 24 Years.

HEROD AGRIPPA succeeded *Herod Antipas*, having been taken out of Prison, where he had been put by *Tiberius* and *Caligula*; but he came into *Judea* but under *Claudius*, in the Year of *Christ* 42; of *Claudius* 1. He signaliz'd the Beginning of his Reign by the Death of St. *James*, call'd *Major*, whose Head he sacrific'd to the *Jews* to ingratiate himself to them at his Accession to the Throne. He also imprison'd St. *Peter*, and dy'd soon after.

AGRIPPA the Younger succeeded *Herod Agrippa*, and reign'd 26 Years. In him ends the Kingdom of the *Jews*.

At present I'll re-assume my *Prophane Chronology*, at the Beginning of the Monarchy of the *Medes*, where I had left it.

CHRONOLOGY *of the Kings of the* Medes.

ARBACES, having forc'd *Sardanapalus* to burn himself, with his Wives and Children, in *Nineveh*, his Capital, began the Monarchy of the *Medes*, in the Year of the World 3102; and reign'd 20 Years.

MANDANES succeeded *Arbaces*, in the Year of the World 3122; and reign'd 50 Years.

SARSANENES succeeded *Mandanes*, in the Year of the World 3172; and reign'd 30 Years.

ARTECARNIS succeeded *Sarsanenes*, in the Year of the World 3202; and reign'd 50 Years.

ARBIANUS, or CARDICEAS, succeeded *Artecarnis*, in the Year of the World 3252; and reign'd 22 Years.

ARTEUS, call'd also DEIOCES, succeeded *Arbianus*, in the Year of the World 3274; and reign'd 53 Years.

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Note, The *Assyrians* began again to reign in *Nineveh*, during the Reign of the *Medes*, viz. PHUL began to reign in the Year of the World 3163; and reign'd 48 Years. TIGLATHPILESER succeeded *Phul* in the Year of the World 3211; and reign'd 25 Years. SALMANASSAR succeeded *Tiglathpileser*, in the Year of the World 3236; and reign'd 9 Years. SENNACHERIB succeeded *Salmanassar*, in the Year of the World 3245; and reign'd 7 Years. ASSARHADDON succeeded *Sennacherib*, in the Year of the World 3252; and reign'd 18 Years. In him ends the Monarchy of the *Assyrians*; for after him there's no mention made of Kings of *Assyria*, but only of *Babylon*; the Monarchy whereof was founded by *Merodach Baladan*.

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CHRONOLOGY *of the Kings of* Persia.

CYRUS, who founded the *Persian* Monarchy on the entire Ruin of that of *Babylon*, began to reign in the Year of the World 3425, and reign'd 29 Years. He sent back all the *Israelites* into their Country, and gave them Leave, by a Proclamation publish'd throughout his whole Empire, to re-build the Temple of *Jerusalem*. *Theodoretus* says, that *Daniel* shew'd him his Name in *Isaiah*, and the Prediction of that Return made long before he was born, which engag'd him to treat the *Jews* with Humanity and Compassion. *Cyrus* dy'd in the War against *Thomyris*, Queen of *Scythia*, in the 4*th* Year of the 62*d* Olympiad, and before *Christ* 529, according to Father *Petau*.

Note, That I have made *Cyrus* to reign 29 Years, tho' I place the Beginning of the *Persian* Monarchy but after the taking of *Babylon*, and *Baltassar*'s Death; because *Cyrus* had reign'd 20 Years before the Subversion of *Babylon*, having transferr'd the Monarchy of the *Medes* to the *Persians*, as it appears from *Daniel* xiii. *Herodotus*, *lib.* 1. *Diodorus*, *lib.* 2. and *Justinus*, *lib.* 1. But you'll ask, perhaps, who was that *Darius* the *Mede*, who reign'd but one Year after *Baltassar*, as mention'd in *Daniel* v. 6, and 9. I'll answer, that he was the Son of *Astyages*, mention'd by *Xenophon*, whom *Cyrus* was pleas'd to honour with the Title of King of *Babylon*, because he was his Kinsman, and older than him; tho' several Authors will have *Darius* the *Mede* to have reign'd in *Babylon* 17 or 19 Years, before it was attack'd by *Cyrus*; and Father *Petau* calls him *Nabonides*. *Torniel*, *Sponde*, and those who follow them, make him also King over the *Chaldeans* with *Cyrus*, and explain thus the Passage of *Daniel*, which says of him that he succeeded *Baltassar* at the Age of 62 Years. But he did not reign long, and by his Death *Cyrus* found himself sole Master of the Monarchy he had founded.

CAMBYSES succeeded *Cyrus*, in the Year of the World 3455; and reign'd 7 Years, and 6 Months.

MAGUS, with his Brother, succeeded *Cambyses*, in the Year of the World 3462; and reign'd but six Months.

DARIUS HYSTASPES succeeded *Magus*, in the Year of the World 3463; and reign'd 36 Years.

XERXES succeeded *Darius Hystaspes*, in the Year of the World 3499; and reign'd 21 Years, according to some; and but 9, according to others.

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ARTAXERXES, call'd *Long-Hand*, succeeded *Artabanus*, in the Year of the World 3521; and reign'd 40 Years. He prov'd very favourable to the *Jews*, and gave them Leave to return into *Judea*, if they pleas'd.

XERXES succeeded *Artaxerxes*, in the Year of the World 3561; and reign'd but two Months.

SOGDIANUS, having kill'd *Xerxes*, succeeded him, in the Year of the World 3561; but he reap'd but very little Advantage of his Crime, for he reign'd but 7 Months.

DARIUS NOTHUS, who had depriv'd *Sogdianus* both of his Life and Crown, succeeded him, in the Year of the World 3562; and reign'd 19 Years. Historians call him the Bastard.

ARTAXERXES, call'd *Mnemon*, to whom *Darius* had left the Kingdom, succeeded him, in the Year of the World 3581; and reign'd 43 Years.

ARTAXERXES OCHUS succeeded *Artaxerxes Mnemon*, in the Year of the World 3624; and reign'd 23 Years.

ARSES succeeded *Artaxerxes Ochus*, in the Year of the World 3647; and reign'd 4 Years.

DARIUS succeeded *Arses*, in the Year of the World 3651; and reign'd 6 Years. This was the last King of *Persia*, whose Armies having been defeated by *Alexander*, Son of *Philip*, King of *Macedon*, and that young Conqueror pursuing his Victories with a marvellous Success; he establish'd the Monarchy of the *Greeks* on the Destruction of that of the *Persians*, which some say lasted 230 Years, and others 210 only. It had begun under a conquering Prince, and it ended by the Arms of another who equall'd, if not surpass'd him in military Exploits.

ALEXANDER *the Great* began to reign in the Year of the World 3657, and enjoy'd but 12 Years the Sovereignty he had conquer'd; for he dy'd in *Babylon*, at the Beginning of the 33*d* Year of his Age. Some say he was poison'd, and others, that he dy'd of a Malady which proceeded from his Excess of drinking, to which he was much addicted, and which faded all the Lustre of his other Qualities truly royal.

Note, That after *Alexander*'s Death all the Provinces he had conquer'd were divided among his Captains, of whom he made almost as many Kings. *Egypt* fell to *Ptolemy*, call'd *Lagus*; *Syria* to *Laomedon*; *Cilicia* to *Philotas*; *Media* to *Pison*; *Paphlagonia*, *Cappadocia*, and the neighbouring Provinces, to *Eumenes*; *Pamphylia*, *Lycia*, and *Phrygia*, to *Antigonus*; *Lydia* to *Meleager*; *Phrygia minor* to *Leonatus*; *Thracia* to *Lysimachus*; and *Macedon* to *Antipater*. The Provinces of the superior *Asia* were left to their Governors. The four Parts of that Distribution became each a particular Monarchy, *viz. Macedon*, *Egypt*, *Syria*, and *Asia*; and had each their respective Succession of Kings; whose *Chronology* I must entertain my Readers with, beginning with that of the Kings of *Macedon*.

CHRONOLOGY *of the Kings of* Macedon.

PHILIP ARIDÆUS succeeded *Alexander*, in the Year of the World 3663; and reign'd 7 Years.

CASSANDER succeeded *Philip*, in the Year of the World 3670; and reign'd 19 Years.

ANTIGONUS and ALEXANDER succeeded *Cassander*, in the Year of the World 3689; and reign'd 4 Years.

DEMETRIUS succeeded them, in the Year of the World 3693; and reign'd 6 Years.

PYRRHUS succeeded *Demetrius*, in the Year of the World 3699; and reign'd 7 Months.

LYSIMACHUS succeeded *Pyrrhus*, in the Year of the World 3700; and reign'd 5 Years.

PTOLEMY CERAUNCES succeeded *Lysimachus*, in the Year of the World 3705; and reign'd 1 Year.

MELEAGER succeeded *Ptolomy*, in the Year of the World 3706; and reign'd 2 Months.

ANTIPATER, the same Year, succeeded *Meleager*, and reign'd 45 Days.

SOSTHENES, also, the same Year, succeeded *Antipater*; and reign'd but 2 Days.

ANTIGONUS succeeded *Sosthenes*, in the Year of the World 3708; and reign'd 36 Years.

DEMETRIUS succeeded *Antigonus*, in the Year of the World 3744; and reign'd 10 Years.

ANTIGONUS succeeded *Demetrius*, in the Year of the World 3754; and reign'd 15 Years.

PHILIP succeeded *Antigonus*, in the Year of the World 3769; and reign'd 42 Years.

PERSES succeeded *Philip*, in the Year of the World 3811; reign'd 10 Years, and was the last King of *Macedonia*; the Monarchy thereof was extinct in him.

CHRONOLOGY *of the Kings of* Egypt.

PTOLEMY, Son of *Philip*, *Alexander*'s Father, rather than of *Lagus*, was the first King of *Egypt* after the Division made of *Alexander*'s Conquests, and from him all the Kings of *Egypt*, who succeeded him, were call'd *Ptolomy*, as those before him were call'd *Pharaoh*. He began to reign in the Year of the World 3663, and reign'd 40 Years, according to *Eusebius*'s *Chronicle*.

PTOLOMY *Philadelphus*, *Ptolomy Lagus*'s Son, succeeded him, in the Year of the World 3703; and *Eusebius* (whom I most commonly follow in this profane *Chronology*) and several others, make him reign 38 Years. This Prince was still more powerful than his Father; under him *Sostrates* built the fine *Pharum* of *Alexandria*; and desiring to collect the greatest Library in the World, and to enrich it with the Books which the *Jews* held most sacred, that famous Version of the *Septuagint* was made under the Direction of *Demetrius Phalereus*, to accomplish that famous Library, which consisted of 200000 Volumes.

PTOLOMY EUERGETES succeeded *Philadelphus*, in the Year of the World 3742; and reign'd 26 Years. The Name of *Euergetes*, which signifies Benefactor, was given him by the *Egyptians*, because he had brought back into *Egypt* the Idols of the Gods, and the Vases destin'd to the Sacrifices, which *Cambyses* had carry'd away, in his Conquest of *Egypt*. *Euergetes* conquer'd the Kingdom of *Syria*, and almost all *Asia*. *Josephus* says, that after these great Exploits he came to the Temple of *Jerusalem*, and offer'd Sacrifices of Thanksgiving.

PTOLOMY, (call'd by way of Irony *Philopater*, *i. e.* loving his Father, whom he had kill'd) succeeded *Euergetes*, in the Year of the World 3767; and reign'd 17 Years.

PTOLOMY EPIPHANES, *i. e.* illustrious, succeeded *Philopater*, in the Year of the World 3783; and reign'd 24 Years. During his Minority, *Antiochus*, who reign'd then in *Asia*, and in *Syria*, and had render'd himself formidable by his great Victories over several Nations, attack'd *Egypt*, the Conquest whereof he thought very easy, because of the Violences of *Agathocles*, the young King's Tutor; but was disappointed.

PTOLOMY PHILOMATER succeeded *Epiphanes*, in the Year of the World 3806; and reign'd 35 Years. Under Pretence of supporting *Alexander Balas*, his Son-in-law, in his Usurpation of the Kingdom of *Syria*, he enter'd that Kingdom at the Head of an Army; where having been receiv'd as a Friend and Ally, in all the Towns where *Alexander* commanded, he took Possession of them for himself; but he was not long Master of *Syria*, he had usurp'd by so perfidious a Treason; for he dy'd soon after.

PTOLOMY EUERGETES succeeded *Philopater*, in the Year of the World 3840; and reign'd 29 Years.

PTOLOMY, call'd PHISCON, because of his Deformity, succeeded *Euergetes*, in the Year of the World 3868; and reign'd 17 Years. He assisted the *Syrians* in their Revolt against King *Demetrius*, whose Cruelty and Arrogance had render'd him odious to his Subjects. *Phiscon*, at their Instance, gave them a King of the Race of the *Seleucides*, call'd *Alexander Zelina*.

PTOLOMY ALEXANDER succeeded *Phiscon*, in the Year of the World 3884; and reign'd 10 Years, thro' the Intrigues of his Mother *Cleopatra*, to the Prejudice of his eldest Brother *Ptolomy Lathurus*.

PTOLOMY DIONYSIUS succeeded *Alexander*, in the Year of the World 3902; and reign'd 30 Years.

CLEOPATRA succeeded *Dionysius*, in the Year of the World 3932; and reign'd 22 Years. This Queen was the famous *Cleopatra* represented by some Historians as the most debauch'd Princess that ever ascended a Throne; and by others, innocent of all the Crimes laid to her Charge. The Truth is, that she was indebted for her Crown to *Julius Cæsar*; and that thro' a Greatness of Soul, and Gratitude, she presented him with the most precious Jewel (at that Time) of the *Egyptian* Diadem. But leaving off the Allegory, 'tis certain that she had been closely intimate with *Julius Cæsar*, as closely with *Anthony*, and attempted to be

be the same with *Augustus*; but finding herself disappointed, she had Recourse to the Sting of an Asp, to hide her from the Shame she thought she so justly deserv'd, and expected to be expos'd to. In *Cleopatra* ended the *Egyptian* Monarchy, and *Egypt* was made a Province of the *Romans*.

CHRONOLOGY *of the Kings of* Syria.

SELEUCUS NICANOR, *i. e.* Victorious, the first King of the *Syrians* since the Death of *Alexander*, began to reign in the Year of the World 3676; and reign'd 32 Years. He conquer'd, without Difficulty, *Syria*, the *Persians*, *Medes*, and *Babylonians*, who preferr'd him to *Antigonus*. It is by him that the Books of the *Maccabees* begin to reckon the Kingdom of the *Greeks*, and of the *Seleucides*, 14 Years after the Death of *Alexander*, and the 2*d* Year of the 117*th* Olympiad. The *Chronology* of the *Chaldeans* place this *Epocha* at the 3*d*, which proceeds from the Difference of beginning the Year, with the *Jews*, at the Spring; and with the *Chaldeans*, at Autumn.

ANTIOCHUS SOTER succeeded *Seleucus Nicanor*, in the Year of the World 3708; and reign'd 19 Years.

ANTIOCHUS THEOS succeeded *Antiochus Soter*, in the Year of the World 3727; and reign'd 15 Years.

SELEUCUS, by Irony call'd CALLINICUS, *i. e.* great Warrior, succeeded his Father *Antiochus*, in the Year of the World 3742; and reign'd 20 Years. This Prince could never oppose the Rapidity of the Conquests of *Ptolomy Euergetes*, King of *Egypt*, who dispossess'd him of his Kingdom.

SELEUCUS CERAUNUS succeeded *Seleucus Callinicus*, in the Year of the World 3762; and reign'd 3 Years.

ANTIOCHUS *the Great* succeeded *Seleucus Ceraunus*, in the Year of the World 3765; and reign'd 36 Years.

SELEUCUS PHILOPATER succeeded *Antiochus*, in the Year of the World 3801; but with a great Diminution of Strength and Glory. He was kill'd at *Athens*, in the 12*th* Year of his Reign.

ANTIOCHUS EPIPHANES, his Brother, succeeded him, in the Year of the World 3813. His Name is famous in the Scripture for his Impiety. He reign'd 11 Years.

ANTIOCHUS EUPATOR, his Son, was plac'd on the Throne by *Lysias*, his Kinsman, in the Year of the World 3824. He was but 9 Years of Age when he began to reign, and reign'd but 2 Years; for he was dispossess'd of the Kingdom by *Demetrius*, Son of *Seleucus Philopater*, to whom it did belong; and killed, with his Kinsman *Lysias*, by their own Troops.

DEMETRIUS SOTER saw himself a peaceable Possessor of his Kingdom, which *Antiochus Epiphanes* had stolen from him; but having, during the Course of his Reign, render'd himself odious, and insupportable to his Neighbours, they favour'd the Usurpation of a Son of *Antiochus Epiphanes*, call'd *Alexander Ballu*, or *Balas*. He was a Pretender to the Kingdom of *Syria*, and seiz'd, at first, on *Ptolemaides*. *Justinus* says, that it was a young Man, bold and enterprizing, who was very much like *Antiochus*'s Son, whom the *Antiochians* engag'd in this Enterprize, with the Assistance of *Ptolomy*, King of *Egypt*; *Attalus*, King of *Asia*; and the King of *Cappadocia*, with whom *Demetrius* was at War, who the Year following, in a Battle against his Enemy, lost his Kingdom, and his Life; after he had reign'd 12 Years.

ALEXANDER, who had usurp'd *Demetrius*'s Throne, succeeded him, in the Year of the World 3838; and reign'd 10 Years.

DEMETRIUS, Son of that other *Demetrius*, from whom *Alexander* had wrested the Crown, dispossess'd him in his Turn, in the Year of the World 3848; and reign'd but 3 Years; having been forc'd, after he had been beaten by *Triphon*, to fly into the Provinces of the superior *Asia*.

ANTIOCHUS SEDETES, Son of *Alexander Balas*, whom *Triphon* had sav'd, and plac'd upon the Throne of *Syria*, succeeded *Demetrius*, in the Year of the World 3851; and reign'd but 1 Year; having been kill'd by *Triphon*, who thereby became Master of the Kingdom.

DEMETRIUS, the 7*th* of that Name, succeeded him, in a Part of the Kingdom, in the Year of the World 3860; and reign'd 4 Years. And making Alliance with the *Jews*, he form'd a Design to recover the other Part of *Syria*; but having undertook a War against the *Parthians*, and gain'd some Victories, he was taken by Treason, and conducted into *Hyrcania*.

TRIPHON was thereby left sole Possessor of the Kingdom of *Syria*; and reign'd 12 Years.

ANTIOCHUS SOTER, *Demetrius*'s Brother, over whom *Triphon* had usurp'd the Kingdom, finding that *Triphon* had render'd himself odious to his Subjects, dethron'd him, and was proclaim'd King, in the Year of the World 3876; and reign'd 18 Years. He was kill'd in a War he undertook against *Phraates*, King of the *Parthians*, who detain'd his Brother *Demetrius* Prisoner; some say by his Enemies, others with his own Hands, unwilling to survive the Loss of his Glory. If this be the *Antiochus* mention'd in the 2*d* Book of the *Maccabees*, he was ston'd to Death by the Priests of a Temple he wanted to plunder.

DEMETRIUS, whom *Phraates* releas'd afterwards, and sent back into *Syria*, render'd himself Master of it, and possess'd it 4 Years. His Cruelty forc'd his Subjects to revolt, and to receive for King, *Alexander Zebina*, whom *Ptolomy Euergetes* gave them. *Demetrius* was forc'd to fly, and being expell'd from all the Places where he had taken Sanctuary, was kill'd at his landing at *Tyre*. *Appian* says, that *Cleopatra*, his first Wife, kill'd him, to be reveng'd for his having marry'd *Rhodogone*, Daughter of the King of *Parthia*. She had brought him two Sons, *Seleucus* and *Antiochus*, call'd *Grypus*, because of his hook'd long Nose. The first having taken the Diadem against his Mother's Will, was kill'd by her. Therefore,

ANTIOCHUS GRYPUS succeeded his Father *Demetrius*, and reign'd 29 Years. He punish'd his Mother for the Murder of his Brother, and oblig'd her to drink the Poison she had prepar'd for him. He was almost always at War with *Antiochus* call'd *Sizenus*, because brought up at *Cizick*.

ANTIOCHUS SIZENUS succeeded *Grypus*, in the Year of the World 3875; and reign'd 18 Years.

PHILIP succeeded *Antiochus Sizenus*, in the Year of the World 3894; and reign'd 2 Years. He was the last of the Kings of *Syria*; for the *Syrians* seeing their Country ravag'd by the Civil Wars, caus'd by several Pretenders to their Throne, elected *Tigranes* King of *Armenia*. But he could not resist the formidable Powers of the *Romans*; and having been conquer'd by *Pompey*, *Syria* was reduc'd into a Province, 688 Years since the Foundation of *Rome*, and 228 of the *Syrian* Monarchy, since *Seleucus*, to the Beginning of *Tigranes*'s Reign, which was of 18 Years, according to *Justinus*; or of 14, according to *Appian*.

Note, That properly speaking there were no other Kings of *Asia* but those of *Syria* and *Egypt*, by Turns, *Antigonus* and *Demetrius* excepted. *Antigonus* was the first stil'd King of *Asia*; he began to reign in the Year of the World 3668; and reign'd 18 Years. *Demetrius*, the last King of *Asia*, began to reign in the Year of the World 3686; and reign'd 17 Years. *Demetrius* was taken Prisoner by *Seleucus*, King of *Syria*, and depriv'd of his Kingdom.

Before I pass to the *Chronology* of the *Roman* Emperors, (the next in Order) it is proper I should inform the Reader of the *Roman* Affairs, from the Foun-

Foundation of that Metropolis of the World, to *Julius Cæsar*'s Usurpation.

CHRONOLOGY *of the* Roman *Affairs, from the Foundation of* Rome *to* Julius Cæsar.

ROME was founded by *Romulus*, in the Year of the World 3300, according to *Torniel*; according to *Capel*, 3247; according to *Genebrard*, 3403; according to *Clavisius*, 3198; the *7th* of *Achaz*, King of *Judah*; of *Oseah*, King of *Israel*, the *4th*; the *3d* Ending of the *6th* Olympiad, according to *Varro*; or the *4th* according to *Verus Flaccus*; before *Christ*, according to Father *Petau*, 754; according to *Salian*, the Year of the World 3302; the first of the *5th* Olympiad; and before *Christ* 751.

Six Kings reign'd in *Rome* for the Space of 220 Years, according to *Livius*, and *Dennis* of *Halicarnassus*. 1. ROMULUS, 37 Years. An *Interregnum* of 1 Year. 2. NUMA POMPILIUS, 43 Years. 3. TULLIUS HOSTILIUS, 32. 4. L. TARQUINUS PRISCUS, 38. 5. SERVIUS TULLUS, 44. 6. L. TARQUINUS SUPERBUS, 25.

The CONSULS began the Year of the World 3478, the *61st* Olympiad, and the *15th* of the Reign of *Darius Hystaspes*. The consular Government lasted till *Julius Cæsar*, *i. e.* 462 Years.

The SECESSION of the People, and the first Creation of *Tribunes*, happen'd the *261st* Year of the Foundation of *Rome*; the Year of the World, according to *Livius*, 3495; the *72d* Olympiad.

The Magistracy of the DECEMVIRS began the Year of the Foundation of *Rome* 303, and lasted scarce 3 Years, *Liv. lib.* 3.

The first Creation of DICTATORS was made (according to *Liv. lib.* 2.) in the Year of the Foundation of *Rome* 253; *T. Largus* having been the first created.

The *Military* TRIBUNES began to exercise a consular Authority, in the Year of the Foundation of *Rome* 311.

Note, That *Consuls* were the Head of the Senate. They commanded the Armies of the Republick, and were supreme Judges of the Differences between the Citizens. In regard, however, they had made some Abuse of their Power, it was allow'd, by the *Valerian* Law, for the Party aggriev'd to appeal from their Tribunal to the People; especially in Cases where the Life of a *Roman* Citizen was concern'd. In Process of Time, the *Consuls* being too much taken up with the grand Affairs of State, or at the Head of Armies, there were other Magistrates created for the Distribution of Justice to the People, in lieu of *Consuls*. After the *Romans* had expell'd their Kings, they were govern'd by two *Consuls*, having their Name *à Consulendo*, elected by an Assembly of the People. Their Office was to hold a Year; and if either of them dy'd in the Course of the Year of their *Consulate*, a new one was elected. To be elected *Consul*, it was regularly requir'd that the Candidate should be at least 43 Years old; tho' we meet with some Exceptions to this Rule. The Election was held in the Month of *January*, in the *Campus Martius*, afterwards in the *Capitol*.

TRIBUNE *of the People*, *Tribunus Populi*, was a Magistrate chosen out of the Commons to protect them against the Oppression of the Great, and to defend the Liberties of the People against the Attempts of the Senate and Consuls. Their Number, at first, was but two; but the next Year, under the Consulate of *A. Posthumus Aruncius*, and *Cassius Viscellinus*, there were three more added; and this Number of five was afterwards increas'd, by *L. Trebonius*, to ten. The Appellation *Tribune* was given them by reason they were at first chosen out of the *Tribunes* of the Army. The *Tribunes* call'd Assemblies of the People when they pleas'd, and in those Assemblies frequently annull'd the Decrees of the Senate. Nothing could be concluded without their Consent, which they express'd by subscribing the Letter *T* at the Bottom of the Decree, they had in their Power to prevent the Execution of any Decree, without giving any Reason for it, and merely by subscribing *Veto*, I forbid. They even sometimes call'd the Consuls and Dictator to Account for their Conduct before the People.

Military TRIBUNE, *Tribunus Militum*, was an Officer who commanded in chief over a Body of Forces; particularly the Division of a Legion, much the same with our Colonel, or the *French Maître de Camp*. There was some Distinction of the *Tribunes* into *Laticlavii* and *Angusticlavii*; those born of a noble Family, were allow'd, after they were made *Tribunes* of a Legion, to take the *Latusclavus*; the rest were only to wear the *Angustusclavus*. Whence *Suetonius* takes Care to inform us, that his Father was *Tribunus Laticlavius* of the *13th* Legion. Over these *Tribunes* of Legions and Cohorts there were other *Tribunes*, who commanded in the Absence of the Consuls, and were invested with a consular Authority. *Budæus* will have these to be much the same as the Marshals of *France*, or, at least, Lieutenant-Generals. *Romulus*, likewise, establish'd a *Tribune* of the Cavalry, *Tribunus Equitum*, who was the same with the *Magister Equitum* under the Dictators, the first Officer after the Kings. *Varro* will have it, they were call'd *Tribunes*, because, at first, they were only three in each Legion, when the Legion consisted of 3000 Men, taken out of the three Tribes then on Foot. In Proportion as the Legion was increas'd, the Number of *Tribunes* was likewise increas'd to six. At first the Nomination lay in the General of the Army; but in the Year of *Rome* 311, it was appointed, that the People should nominate one Part, and the General another. The latter were call'd *Rufuli*, from *Rutilius Rufus*, who pass'd the Law. Those chose by the People in the *Comitia*, were call'd *Comitiati*; they were indifferently either Patricians or Plebeians, and had the same Marks of Honour as the Consuls themselves. The *Tribune of the Prætorian Cohorts*, was the Captain of the Guards.

DECEMVIRI, was an Order of Magistrates created with a sovereign Power, to draw up, and make Laws for the People; thus call'd, by reason their Number was ten. To the *Decemviri* was given all the legislative Authority ever enjoy'd by the Kings, and after them by the Consuls. One among them had all the Ensigns and Honours of the Function, and the rest had the like in their Turn, during the Year of their *Decemvirate*. It was the *Decemviri* drew up the Laws of the twelve Tables, call'd thence *Leges Decemvirales*, which for a considerable Time were the whole of the *Roman* Law. In the Year 303, the Consuls *Appius Claudius Crassinius*, and *T. Genucius Augurinus*, being oblig'd to abdicate; the first *Decemviri* were created, as we have observ'd; the Year following ten new ones were appointed to succeed them; and in the Year 305 another Set were to have been chosen, but that the People rose, made them lay down, and resum'd the Consuls. The excessive Debauchery of *Appius Claudius Crassinius*, one of the Consuls, who was first oblig'd to abdicate, and who had been chosen first *Decemvir* three Times, was the principal Cause. There were also military *Decemviri*, and on divers Emergencies *Decemviri* were created to manage and regulate certain Affairs, after the same Manner as Boards of Commissioners are appointed among us. Thus we find

find *Decemviri* for conducting Colonies; *Decemviri* to prepare and preside at Feasts in Honour of the Gods; *Decemviri* to take Care of the Sacrifices; and *Decemviri* to keep the Sybils Books.

DICTATOR was a Magistrate created by the Senate, or People, on some extraordinary and eminent Occasion, to command with sovereign Authority for a certain Time, ordinarily limited to six Months, tho' the Office was sometimes continu'd to twelve Months. Recourse was never had to such an Officer, but in dangerous and difficult Times, as in sudden Wars, popular Factions, *&c.* He had absolute and monarchic Power while his Dictature lasted; and some will even have it, his Power went beyond that of the Kings. He was Arbiter of Peace and War, and had Command of Life and Death, without any Appeals lying to the People. Twenty-four Axes were bore before him, whereas only twelve were bore before the Consul. The first *Dictator* chose from among the People was *T. Largus*, created, as we have already observ'd, in the Year of *Rome* 253. *Dionysius Halicarnasseus* derives the Word *ab Edicendo*, because they ordain'd and appointed what they pleas'd. But *Varro* will have the Word taken hence, that the Consul named him, which the *Latins* call'd *Dicere. Lib.* 4. *De Linguâ Latinâ.* Dictator, *quod à Consule dicebatur, cursus Dicto, audientes omnes essent.*

ROME was taken by the *Gauls*, (according to *Dionysius* of *Halicarn. l.* 1. *Liv. l.* 5.) in the Year of its Foundation 365.

The ROMAN WAR with King *Pyrrhus*, happen'd in the Year of *Rome* 473. *Liv. lib.* 13.

The ROMANS appear'd first upon the Sea, and began the first *Punick* War, in the Year of *Rome* 489; the 129*th* Olympiad; of the World 3723, *Polyb. l.* 3. and lasted 22 Years, *Eutrop. l.* 3.

The 2*d* PUNICK WAR began in the 140*th* Olympiad; the Year of *Rome* 537; of the World 3771; *Polyb. l.* 3. and lasted 17 Years, *l.* 30.

The ROMAN WAR with *Philip*, King of *Macedon*, began in the Year of *Rome* 554; of the World 3788; and ended the Year of the World 3821; the King of *Persia* being then taken by *Æmilius Paulus*, *Liv. l.* 44, and 45.

The ASIATICK WAR was happily ended by *L. Scipio*, Brother of *Scipio* the *African*, against *Antiochus the Great*, King of *Syria*, in the Year of *Rome* 564; of the World 3298; *Liv. l.* 37.

The third PUNICK WAR began in the Year of *Rome* 602; of the World 3836; and was ended in 5 Years by *Scipio* the *African*, call'd the Lesser. *Flor. l.* 49, 51. *Eutrop. l.* 4.

The NUMANTIAN, or NUMANTINE WAR, began in the Year of *Rome* 620.

The JUGURTHINE WAR began in the Year of *Rome* 643; of the World 3877. *Sallust.*

The WAR *of the Cymbrians* began before the *Jugurthine War*, but was ended after it, by *C. Marius.* From this I'll pass to the *Chronology* of the *Roman* Emperors.

CHRONOLOGY *of the* Roman *Emperors.*

The *Roman* Republick had risen to so great a Pitch of Glory, Power, and Grandeur, that it being almost impossible she could rise higher; it was necessary, in some Measure, she should come down. She had no foreign Enemies who could make her fall, having vanquish'd all those who had some Strength, and possessed herself of their Dominions, either by Alliances, or Conquests. Therefore the Divine Providence chose her very Citizens to chastise her for her Crimes.

Pompey and *Julius Cæsar* were the first in Reputation, Authority, and in Capacity, either for Peace, or War. Each of them had an Ambition out of Measure, and could no longer be kept within the narrow Limits of simple Citizens. After several Artifices to destroy one another, their Differences broke out, at last, into a Civil War. *Pompey* espous'd the best, and most honest Party, which was that of defending the Publick Liberty. *Cæsar* having cross'd the *Rubicon*, found himself soon in a Condition of having not committed a great Crime in vain. After the Battle of *Pharsalia*, where *Pompey* was vanquish'd, and forced to fly into *Egypt*, where he was kill'd by the Party of *Ptolomy*, King of that Country. Some Time after he vanquish'd also *Scipio* and *Juba*, in *Africa*; and in *Spain* the Son of *Pompey*. Having put an End to the Civil Wars, he triumph'd five Times, *viz.* 4 Times in the same Month after the Death of *Scipio*, and the fifth after the Defeat of the Sons of *Pompey*. After he had treated the *Romans* with all Sorts of Diversions, he apply'd himself to regulate the Affairs of the Republick. He corrected the Feasts, by adding two Months to the Year, which he order'd should henceforward begin at the Month of *January*. He elected Patricians, increas'd the Number of Senators, Ediles, Questors, and other inferior Magistrates; he expell'd from the Order of the Senators those who had been convicted of Concussion. He impos'd a Custom on foreign Merchandise, and abolish'd the Use of Sedans, Robes of Purple, Pearls, *&c.* and prohibited a too great Sumptuosity in private Tables. He made Citizens of *Rome*, all Doctors in Physick, and all Professors of the liberal Arts; that thereby those who were already in the City should be engag'd to stay in it, and others invited to it. He abolish'd all the Colleges, except those establish'd Time out of Mind; he order'd that all Debtors should pay their Creditors, and that, to that Effect, all Possessions should be valu'd at the same Price they were rated at before the War, abating of the Debt what had been paid for the Interest, what was written in the Obligation, and what had been deliver'd since; so that by this Ordinance the Creditor lost a 4*th* Part of what he had lent. But notwithstanding all these wholsome Laws, and all he did besides for the Good of the *Roman* Republick; being consider'd by some of the most considerable among the *Romans* as an Oppressor of the publick Liberty, and an Usurper, a Conspiracy was form'd against him, conducted by *Cassius* and *Brutus*; the Consequence whereof was, his being assassinated in the Senate by the Conspirators, where he receiv'd 23 Wounds, of which there was but one mortal, in the Opinion of the Physician *Antistius*, and which was the 2*d* which he receiv'd in the Breast. This Accident happen'd in the Ides of *March*, against which *Spurina* had forewarn'd him. He had *had* several Presages of his unhappy Catastrophe, and, among others, the Night which preceded the Day of his Death he dream'd that sometimes he soar'd above the Clouds, and sometimes that *Jupiter* shook Hands with him. *Calphurnia*, his Wife, dream'd also, that the Roof of her House was falling to Ruin, and that her Husband was murder'd in her Arms. He met with a Man, on his Way to the Senate, who gave him a Memoir which contain'd all the Particulars of the Treason formed against him, which he mixed with some other Papers he held in his left Hand, as if he design'd to have read it soon.

JULIUS CÆSAR was 56 Years old when he was assassinated. He usurp'd the Sovereign Authority in the Year of the World 3937, and possess'd it 4 Years. He was tall, well shap'd, of a fine Complexion, had black Eyes, and a quick Sight; and was of a strong Constitution, except in his latter Years, when he was subject to fainting Fits. As for the Qualities of his Mind, he was brave, without Rashness; liberal, without Prodigality; magnificent, without Profusion; and so eloquent, as to be admir'd, even by the famous Orator *Cicero*, his Enemy; dextrous in all Sorts of military Exercises, and indefatigable. He march'd oftener at the Head of his Armies on Foot, than on Horseback; seldom conducting them thro' dangerous Roads, and never without having observ'd first the Situation of the Country. He was never disconcerted, nor ever persuaded to desist from his Enterprizes by

 any

any Scruple of Religion; despising all Predictions, Omens, &c. He us'd to attack the Enemy, not only with a premeditated Design, but according as the Occasion would allow it. Himself alone has often rally'd his Army, and brought them back to the Charge when it was almost entirely routed. He always shew'd himself so meek and tractable towards his Friends, that *C. Pompeius* having been surpriz'd by a Malady in accompanying him thro' a Wood, where there was but a small Hut; *Cæsar* quitted it to him, and laid on the Ground in the open Air. He never conceiv'd so great an Enmity or Hatred against any Body, but that he could forget it; using always a very great Moderation when he us'd to take Revenge of the most attrocious Injuries he had receiv'd. But, on the other Hand, he is accus'd of having abus'd his Authority, by having accepted excessive Honours; such as the perpetual Consulate, the perpetual Dictature, the Censoriat, and the Title of Emperor; the Sirname of Father of the Country, a Statue among the Kings, and a high Seat in the Orchestre; but, above all, of having affected the Divinity.

Julius Cæsar usurp'd the Sovereign Power, and robb'd the *Romans* of their Liberty, in the Year of the World 4005; of the Foundation of *Rome* 705, or 709; the *4th* of the 182*d* Olympiad; before *Christ* 48; and govern'd 4 Years.

Note, That after the Funeral of *Julius Cæsar*, his last Will was open'd, and read aloud in the House of *Anthony*, at the Request of his Father-in law *Piso*; by which he appointed for his Heirs, his three Nephews, Children of his Sisters; *viz. C. Octavius* for nine Parts of his Estate, which he had divided into twelve; and *L. Pinarius*, with *Q. Pedius*, for the three others. *Octavius* came to *Rome* to enter into Possession of the Succession of his Uncle, against the Advice of his Mother, and of his Father-in-law *Philip*. Having afterwards rais'd Forces, he govern'd the Republick during 12 Years, says *Suetonius*; first with *Anthony* and *M. Lepidus*, call'd since the Triumvirate; and some Time afterwards with *Anthony* alone. In that Interval he had five Civil Wars, *viz.* that of *Mutina*, *Philippi*, *Perusia*, *Sicily*, and *Actium*. The first and last were against *Anthony*, the second against *Brutus* and *Cassius*, the third against *L. Anthony*, Brother of the Triumvir, and the fourth against *Sex. Pompey*, Son of the great *Pompey*. But that of *Actium*, decided between him and *Anthony* the Quarrel of the Empire of the World, and gave Birth to the *Roman* Monarchy foretold by *Daniel*.

Augustus began to govern alone, in the Year of the World 4017; according to Father *Petau*, 3947; according to *Clavisius*, 3913; the *4th* of the 185*th* Olympiad; according to others, the *4th* of the 182*d*; of the Foundation of *Rome*, 719; and reign'd 44 Years: During which Time, he engag'd the most strenuous Afferters of the antient Liberty to admire his Domination by his wise Conduct, and the general Tranquility he procur'd to the whole Earth. He ended, at *Nole*, a Life which his good Constitution had carry'd to the Age of 75 Years, 10 Months, and some Days; the Year of *Christ* (by which we design to reckon henceforward) 14. His Qualities, join'd to his good Fortune, had rais'd him to the highest Degree of Grandeur. He had robb'd his Fellow Citizens of their Liberty, but he had took from them Privileges which they were not capable to keep any longer; his Beginning was that of an Usurper, but he ended as a Father; and had said of him, that *he should never have been born if he was to die.* The greatest Wrong he did to the *Romans*, was, to leave the Empire to *Tiberius*, whose bad Qualities he was not unacquainted with; and in that I chuse to accuse him of Weakness, and of too great a Complaisance for *Livia* his Wife, who had gain'd an absolute Power over him; rather than of that black Malice *Tacitus* would have us suspect him, of having thought to have himself regretted, and of rendering his Government illustrious, by the Comparison of his Virtues with the Vices of his Successor.

Note, That under *Augustus*, the *King* of Kings, the true, legitimate, and eternal Emperor of Heaven and Earth, the second Person of the holy Trinity, the Son of God, *Jesus Christ*, was born, not to ravish from, but restore to Mankind their antient Liberty, they had been robb'd of by *Adam*'s Prevarication. All the Authors who treat of this miraculous Birth, make so many different Opinions, as to the Year of *Augustus*, of the World, of the Olympiad, of the Foundation of *Rome*, of the Consulate under which it happen'd; and every one of them believes to prove his Sentiment by indubitable Demonstrations. *Torniel* places it in the Year of the World 4089; *Salian* 4052; *Gordon* 4001; *Cornelius a Lapide* 3951; *Sixtus* of *Sienna* 3962: Father *Petau* 3983. Among *Protestant Chronologers*, *Capel* reckons the Year of the World 3999, or 4000, and some few Years more; *Sethus Calvisius* 3947; and *Simpson* 4003. As for the *Greeks*, they differ from the *Latins* by 1500 Years; so that it is a Labyrinth, out of which it is impossible to extricate one's self. As Authors have reckon'd differently the Years of *Augustus*, some taking them from the Death of *Julius Cæsar*, others from his first Consulate, or the Battle of *Actium*; hence follows a different Supputation for that of the Birth we speak of. For the Consulate, St. *Epiphanius* places it under the 13*th* Year of *Augustus*, with *Silvanus*; *Cassiodorus* under that of *Cornelius Lentulus*, and *Valerius Messala*, or *Messalius*; *Severus Sulpicius* under that of *Sabinus* and *Rufinus*. As for the Olympiad, this says that it was the 3*d* Year of the 194*th*; that the 2*d*, others the 3*d*, &c. I have follow'd, in this Diversity of Opinions, that of Cardinal *Baronius*; 'tis true, that he has not distinguish'd the *Æra*, or *Christian Epocha*, invented by *Dionysius Exiguus*, who liv'd under the Emperor *Justinian*, of the true Year when *Christ* came into the World, which the Learned *Chronologers* place a Year or two before. *Dexterius* anticipates it of 4 Years; *Kepler* of 3; *Anthony Capel* of 6. But we must fix on two; so that, agreeable to this Calculation, the present Year we reckon 1742, should be 1744, since the true Year of *Christ*.

Tiberius, to whom *Augustus* had left the Empire, succeeded him the 19*th* of *August*, of *Christ* 14. *Tiberius* knew perfectly well how to treat the *Romans*, who had not then Courage enough to shake off the too heavy Yoke imposed upon them, nor Wisdom enough to use themselves to it, and endeavour to render it supportable. Never Prince was more profoundly deceitful, nor left less Room to penetrate his Designs. He was perfidious even often against his own Intention, so much he had used himself to Deceit and low Cunning. The Jealousy of the Command was always more powerful over him, than the Love of his nearest Kindred, and nearest Friends. The Death of *Germanicus*, who was the greatest Object of his Jealousy, and that of his Wife *Agrippina*, was a Proof of it, equally fatal and bold. Their Sons *Drusus* and *Nero*, were treated with the same Rigour. His best Friends could not escape his Hands. After he had raised *Sejanus* to the highest Degree of Elevation and Grandeur, a Subject can aspire to, he made him perish miserably; and involved in his Ruin all those who were suspected by him, and of whom he wanted to be revenged. The Senate was deprived of the most noble and most virtuous Members it was composed of, by the Malice and Impudence of Delators, who were the faithful Instruments of

of the Cruelties, and Jealousy of him who used to say, that *he held the Empire as a Wolf by the Ears.* *Tiberius* was no less monstrous in his Voluptuousness; and the Solitude of the Island of *Caprea*, where he lived a long while shut up, could not hide them so well but *Suetonius* has known them; tho' they should have been buried in Oblivion. Life became tedious to him, and he had within himself a Judge, who left none of his Crimes unpunished; but as if he wanted to have them forgotten, he chose for his Successor a Man worse than he was himself; and that Man was *Caligula*, Son of *Germanicus*. And in Gratitude, *Tiberius* being very near Death, this new Prince impatient to see himself Master of the World, strangled him, 'tis said, with his own Hands. Some say, that he was poison'd by *Caius*. Others, that the Paroxisms of his Fever, having given him some Respite, they refused him Victuals. And others, that a Pillow was thrown on his Face whilst he was in a fainting Fit. But *Seneca* writes, that *Tiberius* finding himself near Death, drew his Ring from off his Finger, and held it sometimes as if wanting to give it to somebody; and afterwards did put it again on his Finger, and keeping his Left-Hand clinch'd, was a long while without moving; but that having afterwards called his Servants, and finding that no body answer'd him, he got out of Bed, near which fainting away he died, the 16*th* of *March*, of the Year of *Christ* 37; after he had lived 72 Years, and reign'd 22 Years, six Months, and 18 Days. *Tiberius* was very learn'd, and spoke very well the *Greek* Tongue. For his Person he was very corpulent, and strong of Body, very tall, broad Shoulders, broad Stomach, and otherwise well limb'd. He had a very fine Complexion, long Hairs, and very good Features.

Note, That under *Tiberius*, the Amphitheatre of *Fidenes* buried 50000 Men under its Ruins, and that *Germanicus*, *Tiberius*'s Nephew, defeated *Arminiſhed*, and push'd his Conquests as far as the *Elbe*.

CALIGULA succeeded *Tiberius* the 16*th* of *March*, of the Year of *Christ* 37. *Caligula* rival'd, or rather surpassed his Predecessor in Malice, Violence, Impurities, and all other Crimes the Soul of a Tyrant is capable of. There was never a Man more furious, nor more extravagant. He dissipated in few Months, the immense Treasure *Tiberius* had heap'd up in several Years; and which amounted to sixty Millions, six Hundred and seventy-five Thousand golden Crowns; the poorer he was, the more prodigal. He made no Scruple of the most horrible Injustice, nor of debasing himself far beneath his Rank and Quality, to find Money to defray his Expences, which were incredible. 'Tis almost impossible to conceive the Brutality of his Mind, and to judge of his Humour it sufficeth to repeat these Words of his, *Would to God the* Roman *People had but one Head.* His greatest Folly was that of being consider'd as a God. He had the Heads of the Images of the antient Divinities taken off, and his put in the Place. He used to stand between the Statues of *Castor* and *Pollux* to be ador'd, and he boasted of lying with the Moon; in a Word, there was no Extravagancy where that ridiculous Desire of Deification had not carried him to. But the most violent was that of having his Statue placed in the Temple of *Jerusalem*; because he knew the Opposition he should meet with from the *Jews*, in endeavouring to oblige them to a Worship, which their Law condemn'd as a Sacrilege. He gave Orders to *Petronius* Governor of *Syria*, to have a Statue made which should represent him under the Form of *Jupiter*, and to have it placed in the Sanctuary; but he was dissuaded from that Attempt by *Agrippa*, Son of *Aristobulus*, whom the old *Herod* had caused to be put to Death, and who was one of his Favourites. But he repented soon of his Complaisance, and commanded that a gilded *Colossus* should be made at *Rome*, and his Resolution was to have it placed in the Temple of *Jerusalem*, before the *Jews* could know any thing of it. His intended Journey into *Egypt* was, by his Presence, to support that Consecration, after which he made no doubt, but the whole Earth would adore him; but God stopt his sacrilegious Designs by the Hands of *Chereas*, who kill'd him the 24*th* of *January*, of the Year 41, after he had lived 29 Years, reign'd 3, 10 Months, and 8 Days. *Caligula* is accused, besides all his other Vices, of having debauch'd his own Sisters. He was tall, corpulent, pale, the Neck and Legs very small, the Temples and Eyes shallow, the Forehead large and frightful, thin Hairs, the Top of the Head bald, and his whole Body cover'd with rough Hairs.

CLAUDIUS his Uncle succeeded him, the 24*th* of *January*, of the Year 41. Never was a Man so stupid. His own Mother wanting to exaggerate the Stupidity of some body, used to say freely, that he was as great a Fool, as her Son; he was governed by his Freed-men. His Wife *Messalina*, whose Debaucheries has render'd her Name famous, was so impudent, and altogether so conscious of his Stupidity, that she married another Man while he was yet living. At last he took the Resolution to have her put to Death, and some Days afterwards ask'd for her, as if she had been yet living. The young *Agrippina* his Niece, whom he had married, sent him soon out of the World, by the Poison she gave him, with Mushrooms, which was call'd since the *God's Meat*. Several say, that so soon as he had swallow'd down the Poison he lost his Speech, and that having been tormented with violent Pains, during the whole Night, he expired at break of Day. His Death was kept secret till every thing could be regulated with regard to his Successor. He died the 13*th* of *October*, of the Year 54, *Asinius Marcellus* and *Acilius Aviola*, being then Consuls; in the 64*th* of his Age, and the 13*th* of his Empire.

Note, That in the 2*d* Year of the Empire of *Claudius*, happen'd that great Famine foretold by *Agabus*, and at the very Time he had mark'd. *Claudius* shew'd on that Occasion, a truly paternal Care for the Support of the People of *Rome*. *Josephus* relates, that a Queen of the *Adiabenians* had a vast Quantity of Corn bought at *Alexandria*, and dried Raisins in the Island of *Cyprus*, which she sent to *Jerusalem* for the Subsistence of the poor Inhabitants; the *Christians* of *Antioch* sent also great Alms to the *Christians* of *Jerusalem*, by *Paul* and *Barnabas*.

NERO, the Son of *Agrippina*, by *Domitius Anobarbus*, her first Husband; but whom *Claudius* had adopted in his Family; succeeded him the 13th of *October* of the Year 54; he did nothing unworthy of a great Prince during the first five Years of his Empire; on the contrary, he begun by giving all the Marks of a virtuous Inclination, protesting publickly, that he was determined to govern the Empire according to the Command of *Augustus*, giving on all Occasions several Proofs of Liberality, Compassion, and Civility: He abolished some Impositions, and diminished others. But he abandoned himself afterwards to all Sorts of monstrous Voluptuousness; his Cruelty equalled his Infamies, having caused his own Mother to be put to Death; and *Rome* set on Fire for his Diversion; he was abominated by the Senators, as the cruel Executioner of the most honourable of their Order: The Citizens abhorred him as a Monster, born in all Appearance for the entire Ruin of the Empire, and of the human Race. There was no Chastity which could withstand him; and he infamously boasted of having preserved it in no Part of his Body. He had attempted to change a Boy into a Woman, and married another, with all the nuptial Ceremonies. At last, God having made use of him as a Scourge to Mankind, punished him in his Turn.

In

In *Gaul*, the *Roman* Army quitted his Service; and in *Spain*, *Galba* revolted against him. This last News being brought to him while he was at Table, surprized him so much, that he tore the Letters, threw down the Table, and broke two rich Vessels which he valued much. He asked for some Poison of the famous *Locusta*, which he put into a Gold Box. He entered the Gardens of *Servilius*, from whence he sent his Confidents to prepare a Fleet at *Hostie*, designing to fly; on which he founded the Tribunes of the *Pretorian* Guard, to know if they would accompany him; but some excused themselves on various Pretences, and others refused it openly. In that Dilemma, he found (as he confessed himself) neither Friends or Foes; and no body would promise to kill him, if he was once reduced to that Extremity. The Soldiers of his Guard abandoned him, so that he was forced to change his Cloaths to disguise himself, and to seek his Security in the Flight, wherein he was accompanied but with four Men. He was pursued from all Sides, to be sacrificed to the publick Vengeance; and when he saw himself on the Point of being taken, for fear of the Supplice inflicted on those the Senate had declared Enemies of the Republick, he was forced to kill himself. He was not worthy to die by a more honest Hand; and he could not have had a more infamous Executioner than himself. The Empire had suffer'd him 13 Years, 8 Months, and some Days. He died the 39th Year of his Age, the 10th of *June* of the Year 68.

Note, That under *Nero* began the first Persecution against the Christians, during which St. *Peter* and St. *Paul* suffered Martyrdom, the one being crucified with his Head downwards, according to his Desire, and the other beheaded, in the 13th Year of his Empire, of *Christ* 67; after the first had govered the Church of *Rome* 24 Years, 5 Months, and 11 Days, according to Cardinal *Baronius*, and 25 accomplished, according to *Eusebius*.——Some orthodox Authors say, that *Nero* was the Antichrist; because St. *Paul* says of him, that he exercised the Mystery of Iniquity; but in this Place the Apostle could not speak of *Nero*, who was not Emperor when he wrote the Second Epistle to the *Thessalonians*, out of which those Words are extracted. St. *Augustin* relates two other Opinions still more extravagant: One maintained, that *Nero* was to rise from the Dead, to be the Man of Sin; the other, that he was not dead, but would appear at the End of the World to fight *Jesus Christ*. *Severus Sulpicius*, otherwise a very grave and judicious Author, has wrote this Dream in such a Manner, as if he really believed it.—*Suetonius* and *Tacitus* speak of an Impostor, who gave himself for *Nero*, and found several Partisans; but was soon discovered, and punished for his Imposture, with the last Supplice.

SERGIUS GALBA was elected by the Army he commanded, to succeed *Nero*, in the Year 68. He pretended to be descended from *Jupiter*, and *Pasiphae*, *Minos*'s Wife, King of *Crete*. The Origin of the Name of *Galba*, of the Family of the *Sulpicius*'s, is variously recounted by *Suetonius*. His Father had been Consul. *Augustus* making him sit at his Table, told him one Day by a sudden Motion, *Thou* Galba *will also taste of the Empire*. He took no Notice of those prophetick Words; and made a Jest openly of the Prediction made to his Grandfather, that the Empire would enter late into his Family; that will happen, said he, when a Mule shall grow fecund. A long while after this Discourse, that Prodigy happened; and when he was informed of it, he confirmed himself in the Design he had conceived to revolt against *Nero*, and so render himself Master of the World. He could have had the same Thought after *Caligula*'s Death, and several pressed him to it; but he prefer'd the Sweetness of a private Life, to the Pomp of the sovereign Power. This Moderation gained him the Esteem of *Claudius*, who always considered him as a Man of an extraordinary Merit. In fact, he had retained the Severity of the antient Manners, either in War, for the Discipline of the Armies; or, in Peace, for his Manner of Living, and the Government of his Family. *Nero* had given secret Orders, that he should be put to Death; he was informed of it, and the Fear of Death, joined to the Sollicitations of *Vindex*, and of several Persons of Virtue, who desired him earnestly to succour his Country against a Tyrant, who wanted to destroy it, made him resolve to revolt, if it was a Revolt to deprive *Nero* of the Empire, who had robbed it from *Britannicus*.——Historians accuse him of a sordid Avarice, and of having been entirely governed by three Favourites, and who were making Haste, as under an old Prince, to make their Fortune and heap up Riches. The Soldiers of the Army of *Germany* having not received from him the Gratification they expected, and promised to them by him, being offended, besides at a Word he had said, and which was worthy of an Emperor, that *he used to chuse his Soldiers not to buy them*; wrote to the Soldiers of the Pretorian Guard, that they could by no Means approve of an Emperor made in *Spain*, and therefore desired them to chuse another more agreeable to all the Armies. This News made *Galba* judge that he was less despised for his old Age, than because he had no Children; which made him resolve to adopt *Pison*, a young Man of an illustrious Family, and of very great Hopes: He brought him to the Camp, and declared his Choice publickly to the Soldiers, but as he mentioned no Gift, he left room for the Practices of *Otho*. Six Days after this unfortunate Adoption, there was so powerful a Cabal made among them against *Galba*, that they killed him the 10th of *January*, without any body endeavouring to defend him. He was in the 63d Year of his Life, and the 7th Month of his Reign.

OTHO, his Assassin, succeeded him, the Year of *Christ* 69; but he did not enjoy long the Fruit of his Crime. He had been *Nero*'s Favourite, and the Companion of his Debaucheries, which shewed what was to be expected from his Government. The Army of *Germany* had chosen, on their Side, *Vitellius*, who was still a worse Master. If *Otho* had followed the Counsel of the wisest of his Friends, he had continued the War; but either through Impatience, or Despair, he killed himself with a Poniard, the 20th of *April* of the Year 69, after he had reigned 3 Months and 5 Days.

VITELLIUS succeeded *Otho*, the 20th of *April* of the Year 69: He had insinuated himself into *Caligula*'s Favour, by an infamous Flattery, which went so far as to adore him as a God. The same Art had rendered him agreeable to *Claudius*: And History remarks, that he used to carry one of *Messalina*'s Shoes in his Pocket, and so kiss it as something sacred. *Nero* was also gained by the same vile Means; and *Vitellius* obtained from those Princes very honourable Posts, in which he behaved in a different Manner. In the Proconsulate of *Africa*, he governed himself with a great deal of Justice and Innocence; and in the Post of the Publick Works of *Rome*, he was accused of having even robbed the Temples. When he had usurped the sovereign Power, he made use of it to gratify his Passions: He was so great an Epicure, that he made four Meals a Day, and could not be treated but at a vast Expence: According to *Suetonius*, a Repast was very cheap, when it not exceeded 1200 Pounds Sterling. *Suetonius* mentions a Feast made by that Emperor's Brother, to treat him, wherein were served 2000 different Fishes; and of a Pasty, which *Vitellius*, when he regaled his Brother in his Turn, had put on the Table, and which was made of Pheasants Tongues, of Brains of Peacocks, and of Livers of unknown Birds, which he had brought over, by Sea, from *Spain*: He called it, by reason of it's Bignesss, *Minerva*'s Buckler, and did

did coſt 2500 Pounds Sterling. His Cruelty was equal to his Gluttony, and his Friends and Servants fell a Victim to it; being even ſuſpected of having not ſpared his own Mother. This unſupportable Conduct cauſed the Revolt of the Armies of *Murſia*, *Pannonia*, (at preſent *Hungary*) *Judea* and *Syria*, who choſe for Emperor *Veſpaſian*. He was vanquiſhed by Sea and Land; and at laſt received the Ignominy of his Death by the Hands of his Soldiers, the 3d of *October*, according to *Joſephus*, or of *December*, according to *Tacitus*, the juſt Puniſhment of the Crimes he had committed, in ſo great a Number, that it is ſurpriſing there could have been ſo many perpetrated, in the ſhort Space of eight Months Reign, (or of a Year, wanting ten Days, according to others,) not very well eſtabliſhed.

VESPASIAN ſucceeded him the 1ſt of *July*, of the Year 69: He was of the Race of the *Flavians*, who, before him, had not made a very great Figure. Through *Narciſſus*'s Favour, he had received the Command of the Armies of *Germany*, and of *Britain*, where he had vanquiſhed thoſe People in ſeveral Battles, and brought under the *Roman* Yoak two formidable Nations, with twenty of their Cities, or Towns. He had governed *Africa* with all the Integrity imaginable: But under the Empire of *Nero*, he was obliged to reſign all his Poſts, and retire to an obſcure Place, to obey that Prince; who baniſhed him from his Court, becauſe, while he was reciting his Verſes, *Veſpaſian* fell aſleep. Under his Reign, the Empire, which had been afflicted by the Civil Wars under the three preceding Reigns, enjoyed that Tranquillity ſo long wiſhed for. *Veſpaſian* was a very great Prince, either in Peace or War, if Avarice had not tarniſh'd the Luſtre of his Virtues. He died the 24th of *June*, of the Year 79, after he had reigned ten Years.

Note, that under *Veſpaſian*'s Reign, the *Jews* were puniſhed for the Parricide committed on *Jeſus Chriſt*. *Titus*, his Son, having by his Orders, aſſembled his Forces in *Ceſarea*, came to beſiege *Jeruſalem*, at the Time of the Solemnity of the Paſſover; which had brought to that City an infinite Number of People from all Parts of *Judea*, in the Confidence that there was nothing to fear. *Titus* ſeated his Camp towards the Mount of Olives; where the Son of God, looking over that unfortunate City, did ſhed Tears, foreſeeing its Calamity. The Approach of the Enemy put an End to all the Parties *Jeruſalem* was then divided into, and they all united in their common Defence; and behaved in it with ſo much Valour, that *Titus* was often expoſed to the greateſt Danger for his Perſon: But without loſing Courage for his bad Succeſs in ſome Attacks, he, on the contrary, purſued the Siege with ſuch Vigour, that in ſix Days he was Maſter of the two firſt Walls, and lodged himſelf at the Foot of the third. The Magazines of Corn, kept in the City, and which could have ſufficed for ſeveral Years, being ſet on Fire, cauſed a Famine; and ſeveral leaving *Jeruſalem* to avoid it, *Titus* had them crucified. The Number of them was ſo great at laſt, that it wanted Room to erect Gibbets, where thoſe unhappy Fugitives were hung. It being rumoured throughout the Army, that thoſe who came to ſurrender themſelves, and which had been received to Mercy, had ſwallowed their Gold; the *Arabs* and *Syrian* Soldiers killed in one Night two thouſand of them, and ſearched in their Entrails for the Treaſures they thought they had buried there. *Titus* ſtopt the Courſe of that Cruelty; and to force the Beſieged to ſurrender the ſooner, he cauſed *Jeruſalem* to be environed with a Wall, flanked with thirteen Forts; which was perfected in three Days. The Proviſions were ſo much diminiſhed in the City, that after they had had Recourſe to the moſt filthy Things, they were forced to feed on human Fleſh. A Mother killed her own Child at her Breaſt, and prolonged her Life a few Days, at the Expence of that which ſhe had given.

This Extremity could not ſoften the Hearts of thoſe who governed; they deceived the People by falſe Prophecies of a ſudden Succour, and obliged them to reject all honeſt Conditions offered by *Titus*. This Obſtinacy engaged him to purſue the Siege with ſtill more Vigour: He took the Tower called *Antonian*, which was near the Temple: The Soldiers burned the Portico which joined thoſe two Edifices on the Side of the *Septentrio*, and the *Jews* did the ſame of that towards the Weſt, to deſtroy the *Romans*, who had rendered themſelves Maſters of it. *Titus* began then to think of taking the Temple; and had all the Machines prepared, which were neceſſary to attack it with Fire and Sword: But as he was on the Point of executing it, he had a Sort of Pity for ſo celebrated a Place, and commanded, willing to preſerve it againſt the Opinion of the Council of War, to extinguiſh the Flames, which began to burn the Outſide. He was obeyed immediately: But Men could not preſerve what God had reſolved to deſtroy. In this Attack, (ſays *Joſephus*, *l. 7. of the Jewiſh War*, *c.* 18.) a Soldier, without reſpecting the Orders *Titus* had given, to ſave the Temple, did ſet the Edifices next to it on Fire: The *Jews* ran on all Sides to extinguiſh it; *Titus* did the ſame on his Side; but the Confuſion was ſo great, that he could not be heard, much leſs have his Orders executed; ſo that the Fire encreaſing always its Violence, the Temple was reduced to Aſhes the 10th of *Auguſt*. It had been burnt the ſame Day by *Nebuchadnezzar* King of *Babylon*. *Joſephus* reckons from its Duration to its Conflagration, 1130 Years, 7 Months, and 15 Days, ſince its firſt Foundation by *Solomon*; and 639 Years and 45 Days ſince it had been repaired under *Cyrus*. *Herod Aſcalonites* had re-edified it almoſt from its Foundation, with the Sumptuoſity worthy not only of a petty King of *Judea*, but of an Emperor of the whole Earth. The Temple being burnt, *Titus* gave Leave to the Soldiers to burn the City, and took likewiſe the Fortreſs of *Sion*; ſo that the Eighth of *September* of the Year 72; or 60, according to others; of *Veſpaſian* the 2d, on the Sabbath Day, he was abſolute Maſter of *Jeruſalem*. *Joſephus*, making the Enumeration, by the Sacrifices made at *Eaſter*, ſays, that thoſe who were then in a Condition to eat the Paſchal Lamb, amounted to Two millions ſeven hundred thouſand Perſons; beſides a vaſt Number of thoſe, whom the legal Impurities, or ſome other Reaſon, hindered from celebrating the Paſſover with the reſt. Of this incredible Multitude, Eleven hundred thouſand died during the Siege, and Ninety-ſeven thouſand were made Priſoners, during the whole War, according to the Supputation of the ſame Author, who was preſent at the Siege, and Ruin of his unhappy Country. *Titus* cauſed *Jeruſalem* to be entirely ruinated, reſerving only ſome Towers to lodge the Garriſon he had left there.

TITUS ſucceeded his Father *Veſpaſian*, the 24th of *June*, of the Year 79: He had a great deal of Clemency, Liberality, and Compaſſion, and all the other Virtues of a great Prince; he was learned, and a Friend to the Learned; and was juſtly called, the Delight of Mankind. He died the 13th of *September*, of the Year 81; after he had reigned two Years, two Months, and twenty Days. He gave but a ſhort Joy to the World; and his Days, which he thought loſt, when not marked with ſome Liberality, ran with too much Precipitation.

Note, That under *Titus* happen'd that famous Conflagration of Mount *Vesuvius*, which ruin'd whole Towns and Cities, and a vast Tract of Land. The Ashes flew as far as *Africa*, *Egypt*, and *Syria*. *Pliny* the elder wanted to see near this terrible Prodigy, but was punish'd for his curious Temerity; having been suffocated by the Flames. *Rome* run the Risque, also, under his Reign, of perishing by a Fire, which lasted 3 Days, and 3 Nights, with an excessive Violence. During which Time, several Temples were consum'd, with a vast Number of Palaces and Houses.

DOMITIAN, his Brother, in the Opinion of several, employ'd Poison, to take his Place, the 13*th* of *September* of the Year 81. He was cruel, impudent, vain, and extravagant; for he took the Name of God, and Lord. The Poets of his Times, and *Martial* in particular, presented him with as much of that Incense as he could want; and their Verses, which we read at this Time, are despicable Witnesses of their Flattery for a Prince, who, far from deserving the Name of God, and of Son of *Pallas*, was even unworthy of that of a Man. He was kill'd by *Stephen*, a Freed-man of *Clement* the Consul, the 18*th* of *September* of the Year 96; after he had reign'd 15 Years, and 5 Days. *Suetonius* writes, that the Day before his Death he said that the next Day the Moon would be bloody for him in the Sign *Aquarius*; from whence Father *Petau* infers, that he died two Years sooner than mention'd by Cardinal *Baronius*. *Apollonius Tyaneus*, that famous Magician, was at the same Time *Domitian* was kill'd, haranguing the People of *Ephesus*. He stopp'd all of a sudden, and drawing two or three Steps back, his Eyes frightfully fix'd on the Earth, cry'd, *Strike, strike the Tyrant*. *Nero* reviv'd in his Person, and the Persecution against the *Christians* was renew'd.

NERVA was elected Emperor, the 18*th* of *September* of the Year 96, with an indicible Joy. He began happily his Reign, by an Edict of a general Absolution for all those who had been banish'd or imprison'd for Crimes of Impiety. He had Courage, Prudence, and Spirit, and spar'd nothing to restore the Empire to its antient Lustre. He dy'd the 17*th* of *January* of the Year 98, after 1 Year, 4 Months, and 29 Days Reign.

TRAJAN, whom he had associated to the Empire, on the single Consideration of his Virtue, succeeded him, the 27*th* of *January* of the Year 98. If he had not a Birth proportion'd to that high Dignity, his Soul was adorn'd with those excellent Qualities which made *Nerva*, who chose him, judge that he was worthy of it. He had very well serv'd *Vespasian*, and *Titus* his Son, in the Wars against the *Jews*, where he commanded the 12*th* Legion. He wrote to the Senate at his Accession to the Empire, *that never, by his Order, an honest Man should be put to Death, nor noted of Infamy*; but kept very ill his Oath, with Respect to the *Christians*; for tho' he publish'd no Edicts expresly against them, nevertheless, the Prohibition he made of nocturnal Assemblies, and of new and foreign Religions, left Room for the Governors of Provinces to prosecute *Christ*'s Servants. He dy'd either of a Malady, or of Poison, in a Town of *Cilicia* call'd then *Selinuntes*, and since the City of *Trajan*, the 10*th* of *August*, of the Year 117; after he had reign'd 19 Years, 7 Months, and 15 Days; and in the 61*st* Year of his Age; or, according to others, in the 64*th*. His Cruelty, Incontinency in the Love of Boys, Excess of Drinking, and his obstinate Idolatry, tarnish'd all his Virtues.

Note, That in the 7*th* Year of his Empire *Trajan* began to erect, at *Rome*, that famous Column which was ended, but 7 Years after. 'Tis one of the most marvellous Efforts of Architecture, and which shews more the Grandeur of the Prince who undertook it. Under it his Ashes, having been brought to *Rome*, were deposited. The 13*th* Year, and the 112*th* of *Christ*, happen'd that frightful Earthquake at *Antioch*, which one cannot read in the History of *Dion* without being seiz'd with Horror. The Presence of *Trajan*, who us'd to pass the Winter there, had drawn from all the Provinces of the Empire an innumerable Multitude of Persons of all Ranks and Qualities, either for their private Affairs, or to gratify their Curiosity, by the Sight of so magnificent a Court. In that Calamity there was not a single House left entire, nor an Inhabitant who was not maim'd. They were oblig'd to save *Trajan*, with great Difficulty, thro' a Window; the neighbouring Mountains sunk into the Earth, some Rivers were dry'd, and new Sources appear'd.

ADRIAN, who had been adopted by *Trajan*, succeeded him, the 10*th* of *August* of the Year 117. He was learned in all Things, and equall'd the greatest Princes of his Time; but his excellent Qualities were blacken'd by his Persecution against the *Christians*, and having all those whom he thought could aspire to the Empire put to Death; among whom was his Brother-in-law *Servian*, who was almost 100 Years old. He also oblig'd his Wife *Sabina* to kill herself. He adopted for his Son *Antoninus*, call'd the *Pious*, on Condition that he should adopt two others, *viz. Lucius Ælius Verus*, and *Marcus Antoninus*; this, Son of *Anius Verus*, his Wife's Brother; and that, Son of *Lucius Aurelius* and *Ceronius Commodus*, whom he had chosen some Time before for his Successor, but who was dead before him. Having thus provided a Successor, he ended his Life by a voluntary Abstinence, the 12*th* of *July* of the Year 138; after he had reign'd 20 Years, 10 Months, and 29 Days. He rebuilt *Jerusalem*, and chastis'd severely the rebellious *Jews*.

ANTONINUS, call'd the *Pious*, on his Father's Side a *Gaul*, and whom *Adrian* had adopted, succeeded him, the 12*th* of *July* of the Year 138. He had a great deal of Wit, Learning, Eloquence, Policy, Moderation, Honesty, and Tenderness for his People, and was very liberal. He dy'd the 7*th* of *March* of the Year 161; after 22 Years, 7 Months, and 26 Days Reign.

Note, That during *Antoninus*'s Empire, happen'd a general Famine, in which an infinite Multitude of Persons perish'd of Hunger. The *Circus* at *Rome* was almost entirely ruinated. The Inundation of the *Tyber* caus'd great Ravages, and Fire consum'd more than 300 Houses. Earthquakes destroy'd several Cities in *Asia*; and those of *Antioch* and *Narbonne* were consum'd by Fire.

MARCUS AURELIUS, call'd the *Philosopher*, succeeded *Antoninus*, the 7*th* of *March* of the Year 161. He had all the good Qualities which can be desir'd in a great Prince for the Felicity of his People; and in his Person was seen the Accomplishment of that old Proverb, that *the World would be happy, if all Philosophers were Kings, or all Kings Philosophers*. He was unhappy in his Family; his Son-in-law was as voluptuous, and as irregular in his Conduct, as himself was continent and moderate. The Name of *Faustina*, his Wife, is still infamous, for her Incontinency; and some Historians say that he knew nothing of her Debauchery, or that if he knew it, he had the Prudence to dissemble it. He was so griev'd at the vitiated Inclinations of his Son *Commodus*, that he appear'd tir'd of his Life. In Fact, as he lov'd the Empire so extreamly, he could be but sensibly touch'd to leave it to a Person whom he knew unworthy of it. One of his Friends having ask'd him, while he was expiring, to whom he recommended his Son; *To you*, said he, *and to the immortal Gods, if he deserves it*. He dy'd of a voluntary Abstinence, the 17*th* of *March* of the Year 189;

189; in the 59th Year of his Age; after he had govern'd the Empire for the Space of 19 Years, and 10 Days.

Note, That *Marcus Aurelius* vanquish'd the *Parthians* and *Marcomans*. The 8th Year of his Empire, a Plague, said to have come out of a small Trunk broke open by a Soldier in the Temple of *Apollo* at *Babylon*, ravag'd the whole Earth. *Galen*, that celebrated Physician, was at *Rome* at that Time; but instead of trusting to the Remedies of his Art, he took his Security by Flight.

COMMODUS succeeded him, the 16th of *March* of the Year 180; and *Rome* saw in his Person a second *Nero*, who had neither Piety for his Gods, nor Respect for the most inviolable Laws of Nature; Fidelity for his Friends, nor Gratitude for his Servants; nor Regard for the Innocence or Merit of Persons. All the Good he did was, his sparing the *Christian* Blood, which had been so cruelly lavish'd away under the Reign of his Father. He had form'd a Design to have *Martia*, whom he kept as his Wife, put to Death, together with *Lartus*, Captain of his Guard, and *Electus*, his Chamberlain; but he was prevented by them: For the Pocket-Book, where he had mark'd them, happening to fall into the Hands of *Martia*, she shew'd it to the two others; whence all three form'd the Resolution to poison him, and *Martia* charg'd herself with the Execution of their Design. Accordingly, she presented him with Wine mix'd with a violent Poison, at his coming out of the Bath. But as the Poison had not so quick an Effect as they expected, they had him strangled by an *Athleta*, with whom he us'd to exercise himself often in Wrestling. He dy'd the 31st of *December* of the Year 194, or 193, according to others; after he had reign'd 12 Years, 9 Months, and 19 Days.

ÆLIUS PERTINAX, a Man of low Extraction, but who from small Posts in the Army had been raised to the Consulate, the Præfecture of *Rome*, and to the Government of the greatest Provinces; was elected Emperor at the Beginning of *January* of the Year 195, or 193, according to others; being then sixty Years of Age. The Senate consented to it easily, in Hopes that by his Prudence and Virtue he would reestablish every Thing on their antient Footing. In Fact, he made several very good Laws, and shew'd himself very far from the Insolence and Violence of his Predecessors. But as *Lætus*, who had rais'd him to the Empire, and the Pretorian Soldiers, could not suffer the Re-establishment of the military Discipline, which had been entirely abolish'd under *Commodus*; and the Innocence of his Manners reproaching them tacitly with their Dissolution, they murder'd him, 3 Months after his Election, which had appear'd very long to him in the Exercise of the sovereign Authority, to which he was always ready to prefer the Tranquillity of a private Life. Courtiers who could not relish the Severity of his Conduct, rejoic'd at his Death; but the People mourn'd for him, with good Reason, since they expected that under so wise a Prince they should enjoy a profound Tranquillity.

DIDIUS JULIANUS, who to the Splendor of his Birth had added that of the greatest Posts in War, and of the most honourable Employments in Peace; was elected by the Soldiers to succeed *Pertinax*, notwithstanding the Intrigues of *Sulpician*, Præfect of *Rome*, and Father-in-law of the last deceas'd Emperor, the same Year 195. He promised them to revive the Memory of *Commodus*, and a considerable Gift. The Senate, to whom he had referr'd the Judgment of that military Faction, approv'd it, and gave him the Title of Emperor; but that Example was not follow'd by the People, who believing him the Author of *Pertinax*'s Death, committed all Sorts of Outrages against him, so far as to throw Stones at him as he went to the Senate. *Pescennius Niger* in *Syria*, *Albinus* in *Britain*, call'd afterwards *England*, and *Septimus Severus* in *Pannonia*, revolted openly against him; the two last agreed together, and *Septimus Severus* coming to *Rome*, *Didius Julianus* was kill'd by the Pretorian Soldiers, towards the latter End of *May* of the Year 195; after he had reign'd 2 Months, and 5 Days.

SEPTIMUS SEVERUS, elected by the Pretorian Guard, succeeded *Didius Julianus*, in the Month of *June* of the Year 195. He had a great deal of Wit, Conduct, and Learning, and lov'd the Learned. He gain'd several Victories by his Courage and good Conduct, but was cruel, blood-thirsty, vindictive, and violently passionate. He passed into *England*, and died at *York*, the 4th of *February* of the Year 213; after 17 Years, 8 Months, and 3 Days Reign.

CARACALLA, his Son, succeeded him, the 4th of *February* of the Year 213. He was discover'd wanting to poison his Father, which caus'd so profound a Melancholy to *Severus*, that it accelerated his Death. At his Arrival at *Rome*, he had the Physicians of his Father put to Death, because they had refus'd to follow the Instructions he had given them of poisoning him. His Brother *Geta* was sacrific'd to his Ambition, in the very Bosom of his Mother. All those who had been his Servants, or of *Severus*, were treated in the same Manner; and the Historians of those Times reckon 20000 Persons whom he had massacred. *Papinian*, a famous Lawyer, and Præfect of the Prætory, refusing to excuse or defend his Fratricide, was beheaded. His Generosity would make the *Christian* Doctors blush for Shame, of being so ready to excuse the Crimes of Kings, when they have any Hopes at Court. He did not so much as spare the *Vestals* of his Gods, some of whom he had bury'd alive, after he had ravish'd one. He had neither Humanity for his Subjects, nor Sincerity for his Allies. As his Cruelties had render'd him odious to Mankind, he thought that they were all his Enemies; therefore he was very curious to consult the Devil, imagining that thro' his Means he could avoid the Danger he was threaten'd with. He wrote, while in *Egypt*, to a Man call'd *Maternianus*, whom he had left at *Rome* for his secret Affairs, that he should make an Assembly of the most learned Magicians he could find, to know from them when he was to die. I don't know if they foretold the Time of his Death; but, however, a Centinel, call'd *Martian*, kill'd him, in his Journey from *Edessa* to *Carras* in *Mesopotamia*, the 7th of *June* of the Year 218; after he had reign'd 6 Years, and 2 Months.

OPILIUS MACRINUS, by whose Orders he had been kill'd, caus'd himself to be elected in his Place, the 12th of *April* of the Year 219. He was born a *Moor*, and of a very low Extraction; Fortune had raised him to the Post of Præfect of the Prætory, but he did not enjoy long a Dignity acquir'd by a Crime. The Soldiers who had raised him to the Throne kill'd him, the 7th of *June* of the Year 220; after he had reign'd 1 Year, and 2 Months wanting 2 Days. His too great Severity in the Observance of the military Discipline, caused his violent Death; for he was not contented to have the Maroders ty'd to a Cross, but had them punish'd by Supplices ordain'd for Slaves, that the Ignominy, join'd to the Pain, should deter others from committing any Violence.

ANTONINUS, Son of *Caracalla* and *Semis*, or *Semiramis*, was elected by the Army to succeed *Macrinus*, the 16th of *May* of the Year 220. Historians commonly call him *Heliogabalus*, and in several Medals he is call'd *Helagabalus*; because before his Election to the Empire he was Priest of the Sun among the *Phœnicians*, who give the same Name to that Planet. He brought his God with him to *Rome*, and commanded that he should be ador'd throughout the whole World, to the Exclusion of all others. He built a Temple for him, and wanted to bring into it the Fire kept in the Temple of *Vesta*, the *Palladium*, and the sacred Bucklers. *Lampidius* says, that he sacrificed to him human Victims, which were the most beautiful Boys and Girls he could find. All Vices

were seen in him to the last Degree of Horror they could arrive. His Luxury had no Limits, and to make him desire something, it was enough that its Price was excessive. His Repasts consisted of 22 Services, and his Caterers were oblig'd to run to furthermost Provinces to cover his Table with rare Birds, and unknown at *Rome*. Nothing else but Balsams were burnt in his Lamps. He had Cisterns full of the most excellent perfum'd Water. He marry'd, in secret, a *Vestal* call'd *Aquilia Severa*, that from her and him who was Pontiff should come, said he, a celestial Posterity. His Impurities were detestable; the Soldiers of his Guard, to whom he had render'd himself insupportable, having learn'd that he wanted to put to Death *Alexander Cæsar*, whom he had adopted, kill'd him in his Camp, and his Mother with him, the *6th* or *10th* of *March* 223; after he had enjoy'd the sovereign Authority 3 Years, 9 Months, and 4 Days; in the *18th* Year of his Age. Their Bodies were drawn thro' the Streets of *Rome*, and thrown into a Common-Shore, and afterwards into the *Tyber*; whence he has been call'd since *Heliogabalus Tiberinus*.

Note, That *Heliogabalus* had caused several Senators to be put to Death, because they refused to approve the Senate of Women he had created, to judge the Causes of Ladies; and of which his Mother *Sæmis* was President, or perhaps, Speaker.

ALEXANDER, Son of *Mammea*, that Woman so famous in History, was saluted Emperor by the Army the 6th of *March*, of the Year 226, with extraordinary Applauses of all the Senators, and of the People of *Rome*. He was compassionate, good, honest, couragious, learned, just; a great Admirer of Letters, and Friend to the Learned, modest, judicious; a great Captain; and made Merit and Virtue flourish in the Empire. He used to propose to the People the Name of those he wanted to promote to some Post; that they might have the Opportunity to declare what they knew, which could reasonably give them the Exclusion. He used to say, that the *Jews* and Christians observing that Custom, for their Priests, it should be introduced for the Governors and Magistrates of the Empire. He had learned from the last, this fine Sentence, *Alteri ne feceris quod tibi fieri nonvis*; and not only had it often in his Mouth, but had it pronounced aloud by a Herald, every Time a Criminal was punished. He ordered that it should be engraven in several Places of his Palace, and in the publick ones. He loved the Christians, and favoured them on several Occasions: But he was unfortunately murthered in his Tent at *Mayence*, by a Soldier, the 15th, or 18th of *March*, of the Year 237, and the 29th of his Age; of which he had reigned 13 Years, 9 Months, and 13 Days.

MAXIMINUS CAJUS JULIUS, was raised to the Empire the 18th of *March*, of the Year 137. He was rather a Monster of Cruelty than a Man; his Actions were so inhuman and furious, that he was called the *Phalaris* and *Busiris* of his Age. He was killed by his Soldiers before *Aquilea*, which he was besieging, in the Month of *October*, of the Year 242, after two Years, and almost six Months Reign. He used to eat in one Day 64 Pounds of Meat, and to drink 24 Quarts of Wine. The Senate opposed to him the four following Emperors.

PAPIENUS and BALBINUS came to the Empire in the Year 242, with an universal Applause; the People expected to enjoy under their Government a profound Peace: But the Soldiers, not been used to obey Emperors made by the Senate, massacred them both inhumanly, the same Year 242; after they had reigned 10 Months, or a Year. They had both a great deal of Courage, Prudence, and Conduct.

GORDIAN was elected Emperor, in the Year 240, while *Maximin* was yet alive. He adopted his Son of the same Name; and were both good, honest, brave, learned, laborious; Friends to Letters, and to the Learned. They were both killed about the Year 242, after they had reigned very near two Years.

GORDIAN III. succeeded them, by a military Faction, being yet but 16 Years of Age, in *April*, of the Year 242. In the second Year of his Reign, having smothered the War, which was beginning in *Africa*, by the Revolt of *Sabinian*, he gave to the Empire a general Tranquility. He punished the Insolence of the *Persians*; who to be revenged of the Affront they had received under *Alexander*, had made an Irruption, like that of a Torrent, into *Syria*; where they had taken *Antioch*. After the Death of *Gordian*, his Father-in-law, he gave his Post of Præfect of the Prætory, to *Philip*, a Person of a mean Extraction. This Elevation inspired him with the Ambition of rising still higher; and forgetting the Gratitude he should have had for his Benefactor, whose Virtue besides, claimed his Respect; he had him assassinated on the Frontiers of *Persia*, the 10th of *March*, of the Year 246, where he had pursued *Sapor*. All his Murderers perished by a violent Death. *Gordian* reigned 6 Years; and was prudent, brave, wise, meek, honest, and moderate.

PHILIP succeeded him the 1st of *March*, of the Year 246. He endeavoured to blot out the Spot of the Murder he had perpetrated, by several salutary Regulations, and by the Peace he procured to the Empire. *Eusebius*, *l. 6. c. 13.* writ that he was a Christian; and that one *Easter* Eve, wanting to enter the Church, the Bishop of the Place opposed it, and told him, That he could not be received, till he had made publick Penance for the publick Crimes laid to his Charge; to which he humbly submitted. This Narration is justly suspected of Falshood, or of Equivocation; and *Eusebius* gives it as a Rumour, rather than as a Certainty. Several *Latin* Authors, and very antient, as *Vincentius* of *Lerins*, *Orosius*, and *Cassiodorus* affirm it. But if *Philip* has been a Christian, his Christianity cannot be referred but to the latter End of his Life. He made very just and wholsome Laws, against the Abomination of the Love of Boys, who were exposed in Publick to a Brutality which cannot be named without Horror. He deprived Poets, who by *obscene and satyrical Verses, debauched the Morals, and black'ned the Reputation of Persons of Quality and Virtue*; of the Privileges granted to Professors of Sciences. But those Ordinances were as much Political as Christian; and I do not see what Reason we should have to wish for the first Christian Emperor, a Man who had committed an horrible Murder, to gain the Empire. The *Secular Games* were celebrated the Fourth of his Reign, where began the 1000th, since the Foundation of *Rome*, the 22d of *April*. *Cassiodorus* says, That there was seen, then, a Combat of a thousand Gladiators; which does not agree very well with *Philip*'s Christianity. He lost the Empire by the same Means he had acquired it; a violent Death, which happened in the Year 251, after he had reigned seven Years.

DECIUS succeeded him, in the Year of Christ 251. He was couragious and bold, but very cruel. The first Edicts he publish'd, were against the *Christians*. *Denis*, Bishop of *Antioch*, writes, that the Persecution he excited against them, which *Orosius* reckons for the *7th*, the *Fideles* thought they were arriv'd at that Time where *Christ* had said that the Temptation would be so great, that the Elects, if such a Thing had been possible, would be induced to Error. He was drown'd in a Marsh where his Horse had carry'd him, while he was flying before the *Goths*, who had routed his Army in *Mesia*, in the Year 252; having reign'd but 1 Year, and 4 Months. His Body never appear'd since that Accident.

GALLUS succeeded him, in the Year 252. He was cruel, blood-thirsty, and was kill'd by his Soldiers as he went to chastise *Æmilian*, who had revolted, in the Year 257; after he had reign'd 4 Years.

VALERIAN came to the Empire in the Year 257. He

He had been proclaim'd Emperor, *Gallus* yet living, by the Army of the *Alps*. In the first Year of his Empire, *Valerian* loved the Christians, and his Palace was full of them; but having been abused by an *Egyptian*, who made Profession of Magic; he changed all on a sudden, of Manners and Customs; and made no Scruple to sacrifice human Victims to the Devil, and to search in Entrails of Children for Signs of Futurity. After this Impiety, it was easy to persuade him to persecute the Christians, who till then had been pretty well used. In this Charge, he kindled against them the most violent Persecution the Church had seen yet. But he was defeated at last by *Sapor*, King of *Persia*, thro' the Treason of *Macrinus*; who treated him with so much Ignominy, that he made use of his Back as a Stool to get on Horseback; and afterwards had him flea'd alive, about the Year of *Christ* 262.

GALLIAN, his Son, succeeded him, in the Year 62. He was cruel, vicious, and abandon'd to all Sorts of Crimes. *Claudius* caus'd him to be assassinated at *Milan*, with his Brother and his Sons, the 21*st* of *March* 270; after he had reign'd 8 or 9 Years.

Note, That under *Gallian*'s Reign the *Scythians* destroy'd all the Cities of *Bithynia*. In *Sicily* an Army of Thieves committed incredible Ravages. A Flood of Men run into *Germany* and *Italy*, and came as far as *Ravenna*. *Crocus*, incited by his Mother's Exhortations, was their Conductor. The *Goths*, on their Side, desolated *Grecia*, *Macedonia*, and *Asia*. The *Quades* and *Sarmates* plunder'd *Pannonia*; the *Parthians* conquer'd *Mesopotamia*, and over-ran *Syria*. The Temple of *Diana*, so famous, and reckon'd among the 7 Wonders of the World, was plunder'd, and burnt by the *Scythians*. *Æmilian* caus'd himself to be declar'd Emperor by the Army of *Egypt*. *Aureolus*, on his Side, had render'd himself Master of *Illyria*; *Valens* of *Achaia*; *Pison* of *Thessalia*; *Trebellian* of *Isauria*; and almost every Province of the Empire had its Tyrant. *Trebellius Pollio* reckons 30 of them, and has wrote their History, but in a Manner which irritates rather the Curiosity of the Reader, than it is satisfactory because of its Brevity. The Indolence, Voluptuousness, Cowardice, and Stupidity of *Gallian*, encourag'd all the Chiefs of his Forces to think of supplanting him in a Place of which he was so unworthy. There was never a Man more voluptuous, and more extravagant in his Voluptuousness. In the Spring he had Chambers made of Roses, and Castles of Apples. He us'd to eat Melons in the midst of Winter, and every Month of the Year there were Figs and Fruits serv'd on his Table. He never drank but out of Vessels of Gold, and precious Stones. He bathed 6 or 7 Times a Day in Summer, and 2 or 3 in Winter, with young Girls and old Women. He never drank 2 Glasses of the same Wine.

CLAUDIUS came to the Empire the 24*th* of *March* of the Year 270. *Trebellius Pollio* says, that he had the Moderation of *Augustus*, the Piety of *Antoninus*, and the Virtue of *Trajan*; and could have given them the Example of all these Virtues, if he had been their Predecessor. He defeated in two Battles the *Goths*, *Sarmatians*, and *Scythians*, who compos'd an Army of 300000 Men. He dy'd of the Plague in *Pannonia*, in the Year 272, after 2 Years and some Months Reign, which was very short, says again *Trebellius Pollio*; but which had appear'd such, if he had reign'd as long as the Life of a Man can extend itself.

Note, That his Brother *Quintilius* was elected Emperor in his Place by the Soldiers; but his Rigour render'd him so odious to them, that they kill'd him, 15 Days after his Election.

AURELIAN, a *Hungarian* born, but of very mean Extraction, was proclaim'd Emperor by the Legions, after he had pass'd thro' all the Degrees of the Militia, with a great deal of Honour; which was the Cause why the Senate and the People receiv'd him with great Applause. He expell'd the *Scythians* from *Pannonia*, where they committed horrible Ravages, and granted them the Peace they ask'd for. He was as happy against the *Marcomans*, whom he defeated in a second general Engagement near *Placentia*; but having threaten'd his Secretary *Mnestheus* on some Suspicion he had conceiv'd of his Fidelity, his Secretary, who was not unacquainted with his Temper, resolv'd to be before-hand with him. Therefore he counterfeited his Hand, and made a List of the most valiant of the Army; where, among those he hated, he plac'd some others for whom he had no Ill-will, as if *Aurelian* had condemn'd 'em all to die; he even added his own Name to it, to render the Thing more credible. When the Proscripts saw this Memoir, they soon resolv'd the Death of him, who they thought had design'd theirs; which they effected between *Byzantium* and *Heraclea*, the 29*th* of *January* of the Year 278; after 5 Years and some Months reign.

Note, That the Army consulted the Senate on the Election of a new Emperor, not thinking it proper to chuse any of those who had kill'd *Aurelian*, to take his Place, since thereby it had been crowning their Crime, and exposing the Lives of all the Emperors to the Ambition and Suspicion of all Sorts of Persons. The Senate, on their Part, referr'd that Choice to the Army, having seen, by Experience, that military Men were not dispos'd to obey Princes chosen by those of the Long Gown. Six Months of *Interregnum* elaps'd in these mutual Differences, at the End whereof

CLAUDIUS TACITUS was elected Emperor by the Senate, the 25*th* of *September* of the Year 278, with a general Applause of the People, and of Persons of Distinction; every one expecting from his Virtue and Prudence a happy Government. The *Christians* had Reason to bless the Beginning of his Reign, for he revok'd all the Edicts of his Predecessors. They had scarce enjoy'd this new Calm, when the Death of this Prince came to disturb it, at the End of six Months, the 13*th* of *April* of the Year 278.

PROBUS succeeded him, the 3*d* of *July* of the Year 278, having been rais'd to the first Dignity of the World, with publick Acclamations. He was the Son of a Peasant of *Dalmatia*, but his Valour, Wit, and other excellent Qualities, supply'd all the Defects of his Birth, in so advantagious a Manner, that no Exception was taken against it. He defeated 400000 *Germans* in *Gaul*, and obtain'd another signal Victory against the *Sarmatians* in *Illyria*, and the *Goths* in *Thracia*. *Bonosus* and *Proculus* revolted against him, but both perish'd unfortunately. But the Triumphs he reasonably expected over the *Persians*, were stopped, by the Treason of his Parricide Soldiers, who murder'd him, the 2*d* of *November* of the Year 283, the 5*th* of his Reign, according to *Vospisk*; or the 7*th*, according to *Eusebius*, *Orosius*, *Cassiodorus*, *Aurelius Victor*, and *Eutropius*.

MARCUS AURELIUS CARUS was elected by the Army to succeed him, the 17*th* of *December* of the Year 283. His first Care was to have *Carinus* and *Numerian*, his Sons, created *Cæsars*, who soon afterwards he associated to the Empire. He was brave, prudent, and a wise Soldier. He was kill'd by Thunder, on the River *Tigris*; or, according to others, dy'd of a Malady in the Beginning of the 2*d* Year of his Reign; of *Christ* 284; after he had vanquish'd several Nations.

CARINUS succeeded him, in the Year of *Christ* 284. He render'd himself guilty of all Sorts of Crimes, and had several innocent Persons put to

Death for suppos'd Crimes. He dy'd in the Year 287, after 2 Years Reign.

NUMERIAN succeeded him, in the Year 287. He was meek, brave, eloquent, learned, a Friend to Learning and of the Learned. *Arius Aper*, his Father-in-law, kill'd him in his Bed, in the Year 288, after he had reign'd 1 Year, and some Months.

DIOCLESIAN, of a mean Birth in *Dalmatia*, and who had been Slave to the Senator *Annulinus*, was elected Emperor by the Army, the *17th* of *September* of the Year 288. He had a vast Wit, a great deal of Prudence, Courage, Policy, and Experience in the military Art; but abandon'd himself to that Excess of Folly, as to desire to be ador'd as a God. He excited a violent Persecution against the *Christians*, and abdicated the Empire the *1st* of *April* 306, after he had reign'd 20 Years.

MAXIMIAN HERCULES was associated to the Empire by *Diocleſian*, the *1st* of *April* of the Year 289. He was a Prince that was wise, prudent, brave, and of great Firmness and Resolution. He abdicated the Throne in the Year 308, after 18 Years Reign.

CONSTANTIUS succeeded to the Empire in the Year 308. His Virtue render'd him worthy of his Fortune; for he was a very accomplish'd Prince, an Enemy to Impositions, and shew'd that he possess'd immense Treasures in the Good-will of his Subjects. He dy'd in the Year 310, after he had reign'd 2 Years, 3 Months, and 25 Days.

CONSTANTINE *the Great* came to the Empire in the Year of *Christ* 310. He was the first *Christian* Emperor, modest, pious, brave, liberal, prudent, a great Conqueror, and a wise Captain. While he besieg'd *Maxentius* in *Rome*, a luminous Cross appear'd in the Air, in Sight of the whole Army, with this Inscription, IN HOC SIGNO VINCES; *Thou shalt vanquish in this Sign.* The same Thing was confirm'd to him in a Dream, say all the ecclesiastical Historians; as *Eusebius*, *Sozemenes*, *Socrates*, *Evagrius*, *Theodoret*, &c. and the next Day he gain'd that famous Battle which rid *Rome* of a Tyrant, and the Church of a Persecutor. The Cross was display'd as the Bulwark of the *Romans*, and of the whole Empire; Peace was restor'd to the Church, and *Constantine* loaded it with Honours. Victory follow'd him every where, and the Barbarians were vanquish'd by him, or by his Children. He defeated *Licinius*, who had revolted against him, tho' he had married *Constantine*'s own Sister. *Constantine* having divided the Empire between his Sons, and given the western Empire to *Constantine* and *Constans*, and the eastern to *Constantius*, died at *Nicomedia*, the *22d* of *May* of the Year 337; in the *65th* Year of his Age, and the *31st* of his Empire. His Body was put into a golden Coffin, carry'd to *Constantinople*, and deposited in his Palace, where he was serv'd for several Days as if he had been living. He was afterwards bury'd in a Monument, which he had caus'd to be erected, while living, in the Church of the Apostles.

Note, That under *Constantine*'s Reign that monstrous Beast, *Popery*, which has been since represented under so many different hideous Shapes, began to flourish; and that Sign of the Whore of *Babylon*, the CROSS, to be respected: Unless we rather chuse to believe, that what's said on that Subject, by the most authentick, faithful, and irreproachable Historians of those Times, is nothing else but a mere Romance, or that *Constantine* himself was nothing else but a Visionary, or an illiterate and superstitious *Papist*, first Cousin to the late King of *France*, *Lewis* XIV.

Note, also, That in the same Reign was founded the City of *Constantinople*, which borrows its Name from *Constantine* himself, who was the Founder thereof. It was built on the Ruins of *Byzantium*, a City of *Thracia*, beyond *Chalcedon* in *Bithynia*. *Constantine* adorn'd it with a great Quantity of sumptuous Edifices, with an Hippodrome, Fountains, Galleries, &c. and made it the Capital of the East. He created a Senate equal to the *Roman* Senate, and granted to the Inhabitants the same Honours, and the same Privileges enjoy'd by the *Romans*.

CONSTANTIUS, his Son, succeeded him, the *22d* of *May* of the Year 337. He was cruel, impious, and inconstant, and made no other Use of his Authority than to protect the *Arians*, and persecute the Orthodox. He defeated the Tyrant *Magnentius* in several Encounters, and forc'd him to kill himself at *Lyons*, where he had took Sanctuary. He dy'd the *3d* of *November* of the Year 361; after he had reign'd 24 Years, 5 Months, and 12 Days.

JULIAN *the Apostate* succeeded *Constantius*, in the Year 361. He was vigilant, laborious, chaste, sober, learned, liberal, and full of Wit; but cruel, and impious. He perish'd in *Persia*, in an Occasion where he had engag'd with too much Temerity, the *6th* of *June* of the Year 363, after 1 Year, and very near 8 Months Reign. *Libanius*, an intimate Friend of *Julian*, and a *Pagan*, writes, that he was kill'd by a *Christian*, in the last Battle he fought against the *Persians*.

JOVIAN succeeded to the Empire the *27th* of *June* of the Year 363. He had a great deal of Piety, Courage, and Prudence; and caus'd the Temples of the Idols, which had been open'd by *Julian*, to be shut. He dy'd in a Village of *Bithynia*, on his Journey to *Constantinople*, the *17th* of *February* of the Year 364; after he had reign'd 7 Months, and 22 Days.

VALENTINIAN, the first of the Name, came to the Empire the *25th* of *February* of the Year 364. He was pious, wise, just, and liberal; but so passionate, as to grow, in some Measure, furious. He dy'd the *17th* of *November* of the Year 375; after 11 Years, 8 Months, and 21 Days Reign.

GRATIAN succeeded him the *17th* of *November* of the Year 375. He was pious, modest, chaste, eloquent, brave, judicious, and a great General. He dy'd the *25th* of *August* of the Year 383; after he had reign'd 7 Years, 9 Months, and 12 Days.

VALENTINIAN II. succeeded him, the *25th* of *August* of the Year 383. He was pious, prudent, and very brave. He dy'd the *15th* of *May* of the Year 392, after 8 Years, 8 Months, and 21 Days Reign.

THEODOSIUS, the first of the Name, call'd *the Great*, came to the Empire the *15th* of *May* of the Year 392. He was pious, moderate, affable, just, prudent, inclin'd to Clemency, and possess'd all the military Virtues. He dy'd the *17th* of *January* of the Year 395, after he had reign'd 16 Years, wanting 2 Days.

HONORIUS, the first of the Name, and his Son, succeeded him in the western Empire, the *17th* of *January* of the Year 395. He dy'd of the Dropsy, the *15th* of *August* of the Year 423, in the *29th* Year of his Age, of which he reign'd 28 Years, 5 Months, and some Days. Historians speak variously of this Prince; some of them say that he had but very little Wit, and still less Courage; having never appear'd at the Head of his Army, notwithstanding the great Wars his Reign was disturb'd by. Others, on the contrary, represent him as a religious Prince, who lov'd Justice. 'Tis true, that he maintain'd powerfully the *Christian* Religion, against the *Pagans*, *Jews*, *Hereticks*, and *Schismaticks*; but in the rest of his Conduct there appears neither political Wisdom, Courage, nor Wit: For he was always govern'd by some Minister or other, who abus'd his Favour.

Note, That in the *12th* Year of *Honorius*, *Rhadaguises*, born a *Scythian*, invaded *Italy*, at the Head of 200000 *Goths*. They ruinated all the Towns they met with in their Passage, and exercis'd on the Inhabitants all the Cruelties those *Barbarians* could invent. The *Roman* Forces were

were not strong enough to oppose that Torrent; therefore *Honorius* was oblig'd, on that Occasion, to have Recourse to the Succours of other *Goths* and *Huns*, under the Conduct of *Haldinus* and *Sarus*. But without coming to an Engagement, the Army of *Rhadaguise* was seiz'd all on a sudden with a Panick Fear, says *Orosius*, *lib. 7. c. 37.* fled, and was pursu'd by the *Romans*, who kill'd *Rhadaguise*, and made so great a Number of them Prisoners, that they were sold afterwards like Droves of Beasts, at a very low Price. St. *Augustine*, *lib. 5. De Civit. Dei*, *c. 27.* mentions this Victory; and attributes it to a manifest Protection of God, which, says he, the *Christians* should publish, for Fear of being accounted as ungrateful as the *Idolaters*, who wanted to bury it in Oblivion. *Zosimus* says, on the contrary, that *Stilicon* surpriz'd *Rhadaguise* beyond the *Danube*, before he could enter the *Roman* Provinces, and defeated him in the *9th* Year of *Honorius*'s Reign. The Invasion of *Alarick* threw all *Italy* into such a Consternation, as well as the Emperor himself, that he had *Rome* environ'd with new Walls, and sent *Stilicon* at the Head of an Army to oppose *Alarick*'s Progress. *Stilicon* met him in *Liguria*, where he gave him Battle, and entirely defeated him; but *Stilicon*, to favour his private Interests, frustrated the Empire of the Fruits of that Victory, and tarnish'd the Glory of his Action. For while it was in his Power to make *Alarick* Prisoner, keeping him besieg'd on all Sides, he concluded a secret Alliance with him, and facilitated his Escape. Ever since he made a Tool of *Alarick*, to render himself more considerable, and indispensibly necessary to *Honorius*; sometimes beating him, and sometimes letting him conquer, and keeping him under Pretence of employing him against *Arcadius*, Emperor of *Constantinople*. At his Instigation *Alarick* ask'd the Emperor the Payment of his Army which *Stilicon* had stopp'd in *Egypt*, to pass into the eastern Empire. *Honorius* mention'd that Affair to the Senate, and ask'd, which was more expedient, to give Money to *Alarick*, or to declare War against him? But the Authority of *Stilicon* obstructing the Liberty of the Suffrages, it was resolv'd to give to the *Barbarian* 4000 Pound Weight of Gold, to buy the Peace. *Lampadius* (says *Orosius*, *l. 7. c. 38.*) oppos'd that Resolution as much as it was in his Power, and said boldly, that *acting thus, it was not buying the Peace, but making a Paction of a despicable Servitude.* The Senate having been dismiss'd, and *Stilicon* fearing the Authority of *Lampadius*, who had acquir'd a very great Credit and Reputation; took Sanctuary in the next *Christian* Church. This Retreat giving the Opportunity to *Lampadius* to undeceive the Emperor, and to let him into all the Treasons of *Stilicon*; he procur'd that all the *Roman* Magistrates of his Faction were kill'd. *Stilicon* himself underwent the same Fate at *Ravenna*, where he had fled. His Son *Eucherius*, whom he wanted to raise to the Empire, having fled likewise, came to *Rome*, where *Honorius* caus'd him to be strangled, with his Mother *Serena*. The Senate order'd that *Stilicon*'s Name should be eras'd from all the publick Places where it should be found engraven, and all his Statues thrown down. This unhappy Catastrophe should deter those who have the Favour of Princes, and the entire Direction of their Affairs, from ever rising against their Benefactors, who should be sacred to them; and from attempting to try how far Fortune could carry them. For she only shews them the Place of their Master, to make them fall, if they are Fools, and ungrateful enough to aspire to it. This also may teach Fathers how to moderate their Ambition, for their Children, and not to endeavour to raise them by a Crime, or to a Rank above their Condition; for those Designs are almost always fatal to those who form them, and the unjust Desire of a Grandeur above one's Sphere, ruins the solid Grandeur which one could possess with Security.

CONSTANTIUS, *Honorius*'s General, was associated to the Empire the *8th* of *February* of the Year 421. He was the Buckler of the Empire against the Tyrants of the *5th* Century, having render'd himself famous, by his Valour, Prudence, Victories, and Conquests. He dy'd the *2d* of *September* of the same Year, after about 7 Months Reign.

VALENTINIAN III. succeeded to the Empire, the *23d* of *March* of the Year 425. He was weak, vicious, a great Admirer of common Prostitutes, and without any Merit. He was entirely govern'd by his Mother, and his Eunuchs, who had the sole Disposal of all the Posts and Employments in the Empire. His longest Journey was from *Ravenna* to *Rome*, and from *Rome* to *Ravenna*; yet he wasted as much Time to resolve himself to it, as if it had been a very long one. His Mother and Favourites us'd to keep him shut up in his Palace, where he plung'd himself in all Sorts of Voluptuousness, spending Part of his Time in Exercises becoming rather a Woman, than a Man. Therefore *Sidonius Apollinaris* calls him *a Fool Half-man*. He was kill'd in the *Field of* Mars, by *Maximus*'s Intrigues, the *17th* of *March* of the Year 455; after he had been *call'd Emperor* 30 Years.

Note, That in the *20th* Year of *Valentinian*'s Reign *Attila*, King of the *Huns*, who call'd himself *Flagellum Dei*, invaded *Italy* at the Head of a formidable Army. He ravag'd all the Places he met in his Passage, and, amongst the rest, *Aquileia*, *Pavia*, and *Milan*, were entirely destroy'd. He took the Road of *Rome*, and *Valentinian*, who could not defend himself against that Deluge of Men, sent Pope St. *Leon* in Embassy to *Attila*, who concluded a Peace with him, engag'd him to re-pass the *Danube*, and return into his own Country.

In the *27th* Year of *Valentinian*, of *Christ* 452; those who had sav'd themselves from the Ruins of *Aquileia*, and of the neighbouring Cities, retir'd into small Islands of the Gulph of the *Adriatick Sea*, and laid the Foundations of the Republick and City of *Venice*. Its Glory equals that of the greatest Empire, and by the Form of its Government, and the Wisdom of its Conduct, has always maintain'd her Freedom, oblig'd all the Princes of the World to value her Alliance and Friendship, has extended her Conquests very far on the *Archipelago*, and on the Continent, and has gloriously rais'd herself when on the Brink of Ruin.

MAXIMUS finding no Resistance, usurp'd the Empire, the *17th* of *March* of the Year 455; and marry'd *Eudoxia*, *Valentinian*'s Widow, by Force, to defile his Master's Bed, as his Master had defil'd his. He created *Cæsar*, his Son *Palladius*, and made him marry *Eudoxia*, *Valentinian*'s Daughter. But one Night being in Bed with *Eudoxia*, in the Transports of the Love he had for her, he confess'd to her, that the same Love had engag'd him to have *Valentinian* kill'd. *Eudoxia*, who had always suspected it, and was looking, in her Mind, for an Expedient to be reveng'd of it; form'd, at that Instant, the Resolution to have Recourse to the most violent Expedients to ruin him. Accordingly, she sent, the next Day, a Person she could entirely confide in, to *Genserick*, King of the *Vandals*, to intreat him to come into *Italy*, to take a just Revenge of the Death of *Valentinian*, his Ally; and to deliver her from the Servitude *Maximus* kept her in, under the Name of Husband. *Genserick*, unwilling to let slip so favourable an Occasion of extending his Conquests, had soon a great Fleet fitted out,

out, and landed in *Italy* unexpected. He enter'd *Rome* without Resistance, and *Maximus* was forc'd to fly; but the *Romans* pursu'd him, and ston'd him to Death, the 12*th* of *June* of the same Year 455; after he had reign'd 77 Days.

Note, That the *Vandals* plunder'd *Rome* for 14 Days successively, without sparing the Churches; the Riches whereof they carry'd along with them into *Africa*, and especially the gold and silver Vessels which the Emperor *Titus* had brought from the Temple of *Jerusalem*, and which had been preserv'd till then with a great deal of Care. *Evagrius* says, that the City was burnt; *Nicephorus*, that nothing was burnt but what serv'd to publick Spectacles.

AVITUS, whom *Maximus* had sent Ambassador to *Theodorick*, King of the *Goths*, was created Emperor by his Army, and with the Consent of all the Persons of Quality who were then in *Gaul*, the 10*th* of *July* of the Year 455. He did all he could to decline that Dignity, which he knew he could not maintain. But he could not resist the Desire of the Army, nor that of the *Goths* themselves, who promis'd to support him; therefore he concluded a Peace with them, and came into *Italy*, where he found the *Romans* so irritated against him, because he was *Maximus*'s Partisan, that not finding himself strong enough to defend the Purple he was cloath'd with, he laid it down, if we may believe *Cassiodorus*, in the City of *Placentia*; having reign'd but 10 Months, and 8 Days. *Evagrius* says, that he dy'd of the Plague; and *Nicephorus*, that he ended his Life by a voluntary Abstinence.

MAJORIAN was elected Emperor by the Senate, and by the Army, the 7*th* of *April* of the Year 457. He was commendable for his Wit, Learning, and Valour; and his Prudence in the military Art made him gain several great Victories. But the perfidious *Racimer*, whom he had made *Generalissimo* of all his Forces, caus'd him to be kill'd in the City of *Tortosa*, the 7*th* of *August* of the Year 461; after 4 Years, 4 Months, and 2 Days Reign.

SEVERUS LIBIUS was put in his Place by the Parricide who had kill'd him, the 19*th* of *November* of the Year 461. The infamous *Racimer* us'd him as he had done his Predecessor, and poison'd him the 15*th* of *August* of the Year 465; after he had reign'd 3 Years, 8 Months, and 2 Days.

Note, That there was an *Interregnum* of 1 Year, and some Months, or of very near 2 Years.

ANTHEMIUS was made Emperor by the Credit of *Racimer*, in the Month of *August* of the Year 467. He was worthy of the Empire for his political Virtues. *Racimer*, who had made him Emperor, and marry'd his Daughter, caus'd him to be kill'd at *Rome* the 11*th* of *July* of the Year 472; after he had reign'd 4 Years, and 11 Months.

OLIBRIUS was created Emperor in his Place, by the same *Racimer*, the same Year 472; but he enjoy'd but a very short Time his new Dignity, for he was kill'd six Months after his Creation, by the *Goths*.

Note, That there was an *Interregnum* of 4 Months, and 14 Days.

Note, also, That *Racimer* dy'd 40 Days after the Murder of his Father-in-law *Anthemius*. He was a Man without Faith, whom the Weakness of the Emperors had rais'd from a simple Soldier to the first Dignities of the Army, and who had put himself in a Condition to dispose of the western Empire as he thought fit.

GLYCERIUS was rais'd to the Empire by the *Goths*, the 5*th* of *March* of the Year 473; but he was depos'd, after he had reign'd very near a Year, by *Julius Nepos*. *Glycerius* was afterwards made Bishop of *Salone*, according to *Evagrius*; or of *Pont*, according to *Jornandes*.

JULIUS NEPOS took *Glycerius*'s Place, the 14*th* of *June* of the Year 474; and was depos'd, in his Turn, by *Orestes*, whom he had made General of his Army, after he had reign'd very near 15 Months.

MANILIUS, (call'd in Scorn *Augustulus*, because the *Roman* Empire, which had began under *Augustus*, ended in the West under this young Man) was created Emperor by his Father *Orestes*, the 31*st* of *October* of the Year 475. He was the last Emperor acknowledg'd for such at *Rome*, from whence he was expell'd by *Odoacer*, King of the *Erules*, who made himself King of *Italy*, the 23*d* of *August* of the Year 476.

Note, That the whole Glory of the Empire, which had been divided, was by this Extinction of the western Empire transferr'd to *Constantinople*, the Seat of the Empire of the East, which had since a long Succession of Emperors, whose *Chronology* I'll begin by *Constantine the Great*, since he built that City, and chose it for the Place of his Residence.

CHRONOLOGY *of the Emperors of the* East.

CONSTANTINE *the Great*, first *Christian* Emperor in the *East*, succeeded *Constantius Clorus*, his Father, in the Year 306. He chose for the Seat of his Empire the City of *Byzantium*, which he call'd *Constantinople*, after he had rebuilt it in a magnificent Manner, the 11*th* of *May* of the Year 330.

CONSTANTIUS II. succeeded him, the 22*d* of *May* of the Year 337. He abandon'd himself to the *Arians*, and persecuted the Church. He dy'd at *Mopsuretenes*, between *Cilicia* and *Cappadocia*, in the 45*th* Year of his Age; having reign'd 13 Years, with his Father *Constantine*, and 25 after *Constantine*'s Death.

JULIAN *the Apostate* came to the Empire the 11*th* of *December* of the Years 361. He was kill'd with an Arrow, in the 2*d* Combat he gave to the *Persians*.

JOVINIAN was proclaim'd Emperor by the Army, the 27*th* of *June* of the Year 363. *Sozomene* says, that he refus'd at first the imperial Dignity, protesting that he was a *Christian*; but that when the Soldiers were inform'd that his Religion was the Cause of his Refusal, they all declar'd aloud, that they were of the same Religion. The Extremity of the Peril, to which the Temerity of *Julian* had reduc'd the Army, and the Scarcity of Provisions, oblig'd *Jovinian* to conclude a Peace with the *Persians*, by abandoning to them some Countries which had formerly belong'd to the Empire. He dy'd suddenly at *Dadastanes*, a Village of *Bithynia*, either for having eat to Excess the preceding Night, or because he lay in a Room newly built, the Walls whereof were yet damp, and where a great Quantity of Charcoal had been burnt during the Winter, to dry it.

VALENTINIAN I. was proclaim'd Emperor by the Army at *Nice*, in *Bithynia*, the 25*th* of *February* of the Year 364; after he had been adorn'd with the Marks of his Dignity, the Soldiers cry'd, that there should be a Collegue given him, to help him to support it. But he told them, *It was in your Power to proclaim me Emperor; but since you have proclaimed me, 'tis no longer in your Power, but in mine, to do what you propose. Be quiet, as Subjects ought to be, and I'll order as your Sovereign what I judge proper.* After he had thus rejected the Proposition of the Army, he came to *Constantinople*, where he associated his Brother *Valens* to the Empire, giving him the East for his Part, and reserving for himself all that extended towards the West, and from *Illyria* to *Africa*.

VALENS was associated to the Empire the 29*th* of *March*, or the 1*st* of *April* of the Year 364. He was impious,

impious, and cruel, having indiscreetly attack'd the *Goths* advantagiously posted near *Adrianople*, he was burnt in a Tower, where he had hid himself, after the Defeat of his Army, the *9th* of *August* of the Year 378, in the *50th* Year of his Age; after he had reign'd 14 Years, 4 Months, and 9 or 12 Days.

THEODOSIUS *the Great* came to the Empire, in the Year 392. He was the Joy and Admiration of the whole World, as we have observ'd already.

ARCADIUS, his Son, succeeded him in the Empire of the East, the *17th* of *January* of the Year 395. He had neither Courage, nor Merit; and was govern'd by his Wives and Eunuchs. He dy'd the *1st* of *May* of the Year 408; after 13 Years, 3 Months, and 15 Days Reign.

THEODOSIUS II. his Son, succeeded him, the *1st* of *May* of the Year 408. He was a very good Prince, entirely govern'd by his Sister *Pulcheria*, for a very considerable Time, till, by the Artifices of *Chrysaphius*, and the Importunities of his Wife *Eudoxia*, he dismiss'd that generous and learned Princess, who was capable to govern not only that divided Empire, but the whole World. He took for Pretext of her Disgrace, this: *Theodosius* having, for a considerable Time, thro' Lazinesss, sign'd all the Petitions which were presented to him, without reading them, which was of a very dangerous Consequence for the publick Affairs; she let him know his Fault by an ingenious Invention; which was, to present to him a Paper containing, that she bought his Wife for a Slave, if his Majesty would consent to it. *Theodosius* sign'd that Writing without reading it; and *Pulcheria* having it in her Hands, detain'd the Empress, who was come to visit her. The Emperor asking for his Wife, she told him, that she had bought her, and shew'd to him what he had sign'd, of the Vendition. *Theodosius*, instead of making a good Use of this Piece of Wit of his Sister, was irritated at it; and *Eudoxia*, his Wife, finding him in that Humour, made him easily consent to her Disgrace. While she govern'd, the Empire had enjoy'd a long Prosperity; but as soon as she quitted the Helm, and *Chrysaphius* was made Master of it, *Theodosius*, who suffer'd himself to be govern'd by that base and wicked Minister, committed a vast Number of unpardonable Faults, so far as to be reduc'd to the shameful Necessity of paying Tribute to *Attila*, King of the *Huns*. He dy'd the *29th* of *July* of the Year 450; after he had reign'd 42 Years, 2 Months, and 28 Days.

MARCIAN was elected Emperor by *Pulcheria*'s Credit, and an Arret of the Senate, the *25th* of *August* of the Year 450. *Pulcheria*, who had succeeded to the Empire, and was in the *51st* Year of her Age, marry'd him, for Reasons of State, on Condition that they should live in Celibacy. *Marcian* was judicious, prudent, brave, charitable, and virtuous; he liv'd with *Pulcheria*, as with his Sister, and had never the least Affection for any other Woman which could offend the Purity of his Marriage. He had no Favourites, nor Ministers, who could abuse his Goodness, or his Authority, to gratify their private Passions. He dy'd the *16th* of *January* of the Year 457; after 6 Years and a Half's Reign.

LEO I. call'd *the Elder*, or *the Great*, was elected Emperor, the *7th* of *February* of the Year 457. He may be rank'd among the good Emperors; and nothing diminishes the Glory of his Virtues, but the Indulgence he us'd towards the *Hereticks* who liv'd at his Court, and especially *Basiliscus*, his Wife's Brother. He forgave him the Treason he had been guilty of in *Africa*, against the Maxims of the best Politicians, which were against so black an Action's being left unpunish'd. He dy'd in the Month of *November* of the Year 474; after he had reign'd 17 Years, and 9 Months.

Note, That under his Reign a Rain of Ashes fell at *Constantinople*, which had been carry'd thither by the Winds, from Mount *Vesuvius*, which, that Year, had vomited frightful Flames.

ZENO, the *Isaurian*, his Son in-law, succeeded him, in the Year 474. His Reign was blacken'd with all the Crimes a Tyrant is capable of; he had the Air of a Satyr; his Wife *Ariadne* caus'd him to be bury'd alive, the *6th* of *April* of the Year 491; after 18 Years of the most violent Tyranny. *Cedrenus* says, in his Abridgment, that it was rumour'd, that his Head had been cut off in the Night, without being known by whom. But the Truth is, that having been attack'd with a Fit of the Epilepsy, to which he was subject, he was thought dead; and that *Ariadne*, his Wife, who wanted to be rid of him, had him bury'd in Haste. He came afterwards to himself; and his Tomb having been open'd, the Guards, whom the Empress had order'd to be plac'd there, told him, that there was another Emperor in his Place. No Matter, said he, take me from hence, and carry me to a Monastery, where I'll end my Days. The Soldiers did but laugh at that Proposal; so that he dy'd phrenetick, after he had eat his Arms, and his Slippers. *Zonarus* writes, that having made himself drunk, which happen'd very often, his Wife had him bury'd in that Condition.

ANASTASIUS, the first of that Name, was rais'd to the Empire by the Empress *Ariadne*, the *11th* of *April* of the Year 491; which confirm'd the Suspicion of a criminal Love between them, during *Zeno*'s Life. The Reputation of Piety he had acquir'd in a private Life, made his Subjects conceive very great Hopes of his future Government; and the People of *Constantinople*, while he assisted at the *Circenses Games*, after his Coronation, cry'd, *Prince, command as you have liv'd.* In Fact, the Beginning of his Reign answer'd their Hopes; for he began by taking off an Imposition, call'd *Chrysargyre*, which was rais'd every four Years, not only on the Heads of Persons of what Rank soever, either Poor or Slaves; but likewise on all Animals, and even Dogs; for every one of which there were paid 3 Farthings; and had all the Registers of this Tax burnt in the publick Place. He forbid the Venality of the Magistracy, which had been introduc'd by his Predecessor, and which was the Cause of the Corruption of the Judges in the Empire, and of the Oppression of the Poor. But the Virtue of *Anastasius* being not sincere, or not strong enough to conquer his Passions, he soon alter'd his Conduct, and shew'd himself as violent, avaricious, and unjust, as he had been meek and liberal. He us'd to forgive the Criminals, let their Crimes be ever so enormous, when they could purchase their Pardon with Money. He sold all Sorts of Employments, and loaded the Provinces with new Impositions. He made himself the Heir of the Deceas'd, under some frivolous Pretence or other. He was not in the least sensible of the Glory of the *Roman* Name; and he preferr'd the purchasing Peace, at a dear Rate, of the Enemies, to the Honour of going to War against them as an Emperor. He us'd to appoint for Governors of Provinces, young Men without Virtue, or Experience, who confiding in his Protection, plunder'd them with Impunity. He was kill'd by Thunder, the *8th* of *July* of the Year 518; after he had reign'd 27 Years, 3 Months, and 29 Days.

Note, That under *Anastasius*'s Reign, the *Goths* having besieg'd *Constantinople*, *Proclus*, an Engineer, burnt their Fleet with Burning-Glasses. But *note*, also, that the Fleet was not compos'd of *English* Men of War.

JUSTINUS *the Elder*, or the first of that Name, was taken from the Dunghil to be plac'd on the Imperial Throne, the *9th* of *July* of the Year 518. He was a Man who from a Shepherd, or Hog-Driver, became a Soldier; and having pass'd thro' all the Degrees of the Militia, with a great deal of Reputation, had arriv'd to the first Dignities of the Empire, and acquir'd great Credit and Authority. He is famous for his Piety, and Zeal for the *Catholick* Religion; for his Love for his Subjects, and his Care for the

Re-union of the oriental with the occidental Church. He dy'd of an Ulcer in his Thigh, the first of *August* of the Year 527; after he had reign'd 9 Years, and 22 Days.

JUSTINIAN, the first of that Name, who had been adopted, and crown'd by *Justinus* himself, took the Government of the Empire in the Month of *April* of the Year 527, being then 45 Years of Age. *Evagrius*, an Author very near his Time, accuses him of a sordid Avarice, which had engag'd him to make so many Laws and Novels as so many Nets to catch the Estates of private Persons. *Nicephorus*, who wrote long after his Death, undertakes his Defence, and praises him as a very religious, zealous, and liberal Prince; who publish'd several good Laws, and made vast Conquests. For my Part, I really believe that in the last Violences he exercis'd against the orthodox Bishops, he was deceiv'd by those who had all his Confidence; and as he was very ignorant, he could not discover the Imposture, nor distinguish the Truth from private Interests of Ambition and Revenge. He dy'd the 14*th* of *November* of the Year 566; after he had reign'd 39 Years, 7 Months, and 23 Days.

Note, That under *Justinian*'s Reign *Belissarius*, the greatest General of his Time, defeated the Army of the *Persians* under the Conduct of *Mirrhanes* their General. The same *Belissarius* defeated, likewise, in the Year 530, the Army of *Gilimer*, in *Africa*, and forc'd *Gilimer* himself to fly. *Justinian* publish'd a very just and necessary Ordinance against the Bishops who came to Court without an apparent Necessity; for of these frequent Journeys it happen'd, that the Churches were left without their Pastors, which was the Occasion of several Disorders; and the Bishops us'd to spend the Revenues of their Bishopricks, instead of distributing them to the Poor. This Law would be very necessary in our Time, where the greatest Part of the Bishops are seen at Court, without being brought to it by the urgent Necessity of their Dioceses. The Laicks have just Reason to suspect, that they are invited there either by Ambition, or Avarice, or by the Diversion of the good Company, or the Inquietude of Mind, and a Surfeit of their Functions. For if they would live as Bishops, they have no Need to appear at Court, where they are needless. If they want to live as Courtiers, they render themselves ridiculous, and even odious, to those who shew them the greatest Demonstration of Friendship; or if it is to grow richer, that Desire is not very agreeable to an apostolical Spirit.

JUSTINUS II. call'd *the Younger*, came to the Empire the 14*th* of *November* of the Year 566. The Beginning of his Reign appear'd fortunate; but he soon discover'd the Corruption of his Manners, and fell into Excesses of Folly, to which he was very subject. He was always beaten by the *Persians*, and their King *Chosroes*. He dy'd in a Paroxism of Phrenzy, the 4*th* or 5*th* of *October* of the Year 577, or 578; after 13 Years, and 9 Months Reign. *Evagrius* gives him more, and Cardinal *Baronius*, who in the first Edition of his Annals has follow'd his *Chronology*, has retracted himself in the second.

TIBERIUS FLAVIUS, whom *Justinus* had chosen for his Successor, ascended the Throne the 6*th* of *October* of the Year 578. The Empress *Sophia* had rais'd him to that Dignity, in Hopes to marry him; but as he had his Wife call'd *August*, she was so irritated to see herself frustrated of her Hope, that she conspir'd against him in Favour of *Justinian*, *Justinus*'s Nephew; but to no Purpose. *Tiberius* answer'd the Hopes his Subjects had conceiv'd of his Virtue, and extraordinary Merit. Under his Reign the Affairs of the Empire chang'd Face; for by the Victories of *Mauricius*, General of his Armies, he stopp'd the Rapidity of the good Fortune of the *Persians*, and forc'd the proud *Chosroes*, their King, to die of Sorrow at *Ctesiphonte*. He dy'd with all the Glory and Reputation of a great Prince, the 14*th* of *August* of the Year 582; after he had reign'd very near 4 Years.

Note, That when *Tiberius* created *Mauricius Cæsar*, whom he design'd for his Successor; he made the following Speech: 'Thou must continue, 'said he, to make me a good Epitaph of thy 'Manner of governing thy People. Adorn my 'Sepulchre with thy Virtues; answer the Ex'pectation the whole World has conceiv'd of 'thee; thou must not tarnish the Glory of those 'Virtues, nor deviate in any Thing from thine 'antient Generosity; moderate, by thy Reason, 'the sovereign Power thou hast been rais'd to, 'and let Philosophy serve as a Guide to thy 'absolute Authority. The Empire is an exalted 'State, which is apt to turn the Heads of those 'who have it not very strong, and discovers 'what they are in Reality: Therefore thou must 'not imagine that thou dost surpass as much all 'others in Prudence and Capacity, as thou dost 'it in good Fortune. Study, with the greatest 'Application, how to make thyself belov'd, ra'ther than fear'd by thy Subjects; and prefer 'salutary Advice to Flattery; for the royal 'Power hates Correction, tho' it be the Thing 'a Sovereign wants most. Let Justice walk al'ways before thine Eyes, and be the Rule of all 'thine Actions. Look on the Imperial Purple 'with the Eyes of a Philosopher, as a simple 'Robe thou art cloath'd with; and think that 'the Jewels of thy Diadem differ in nothing 'from the Pebbles on the Sea-Shore. The dark 'Colour of the Purple forewarns Princes against 'abandoning themselves to vain Glory, and ad'monishes them to make frequent Reflections on 'the Duties of their Post, which will hinder 'them from being dazzled by the fatal Brilliant 'of the monarchical Vestment. The Scepter of 'the Empire ought to admonish thee, that thou 'dost not exercise an unlimited Power; but that 'thou dost live in a pompous Servitude, with 'Regard to other Men. Let Humanity and 'Mansuetude govern thy Wrath, and shake thy 'Pride. Nature has given a King to the Bees, 'and arm'd him with a Sting, that he may sting 'those who will not obey: But that King is not 'tyrannical; he minds nothing but how to serve 'the Bees, and his Sting is just. At least let's 'be his Imitators, if we are not willing to be 'govern'd by Reason. I tell thee these Things 'as an affectionate Father, who wishes for thy 'Glory, and the Prosperity of thy Reign; and 'if thou govern thyself according to these Rules, 'thy Life must be full of Glory, and Felicity.'

MAURICIUS TIBERIUS was plac'd on the Throne the 14*th* of *August* of the Year 582. He had a vast deal of Wit, Courage, Prudence, and Valour; and was very zealous for the Defence of the orthodox Faith; but he was cruel and avaricious: His Avarice hinder'd him from redeeming, at a very low Price, his Subjects who had been made Captives by the King of the *Avari*. This infamous Action cost him his Life, and that of his Children; for the *Constantinopolitans* having revolted, their Example was soon after follow'd by the Army, who elected *Phocas*, who enter'd *Constantinople* amidst the publick Acclamations; who caus'd five of *Mauricius*'s Sons to be murder'd before his Eyes, himself being kill'd also, the 27*th* of *November* of the Year 602; after he had reign'd 20 Years.

PHOCAS usurp'd the Empire the 27*th* of *November* of the Year 602. He affected, at first, a great deal of Meekness, Liberality, and Love for the Learned; but he soon became cruel, blood thirsty, and abandon'd himself to all Sorts of Abominations. *Heraclius*, who had been created Emperor in *Africa*, assembled his Forces, with which he came to *Abides*, thence to *Heraclea*,

Heraclea, and from *Heraclea* to *Constantinople*, which he enter'd, after he had defeated the Fleet of the Emperor, in the Port of *Sophia*. *Phocas* was seiz'd, and *Photinus*, whose Wife he had debauch'd, wanting to be reveng'd for that Affront, enter'd the Palace, divested *Phocas* of the imperial Robe, put him on a black one, and presented him to *Heraclius*; who told him, with a terrible Voice, *Hast thou thus governed the Empire? Phocas*, without being in the least disconcerted, answer'd him, *Thou must govern better*. *Heraclius* afterwards caus'd *Phocas*'s Feet, Hands, and privy Parts, to be cut off; and commanded, lastly, that he should be beheaded. His Body was dragg'd thro' the Streets of *Constantinople*, and afterwards burnt.

HERACLIUS was crown'd Emperor, with *Eudoxia* his Wife, whom he marry'd the same Day of his Coronation, the 5*th* of *October* of the Year 610. He was brave and judicious. He dy'd the 11*th* of *March* of the Year 641; after 30 Years, 7 Months, and 5 Days Reign.

Note, That in the 25*th* Year of *Heraclius*'s Reign, of *Christ* 630; began the Sect of that abominable Impostor MAHOMET, the Venom whereof has poison'd more than Half the Earth. He was born in *Arabia Felix*, and his first Profession was that of Groom of a Stable. He had neither Wit, nor Knowledge, and did not know so much as how to read, or write. He enter'd into the Service of a rich Widow, and had Dexterity enough to oblige her to marry him, after he had debauch'd her. During his Marriage, he us'd to fall often into epileptick Fits, and his Convulsions were very violent; which his Wife supported patiently enough, and to appease her, he us'd to make her believe that the Angel *Gabriel* appear'd to him often, and that his Presence caus'd those Convulsions. There was a detestable Monk call'd *Sergius*, who had been expell'd from his Monastery because he profess'd *Arianism*; to whom this Woman communicated all that *Mahomet* had told her, and this Wretch confirm'd her in the Belief of that false Apparition; assuring her, that *Mahomet* was a Prophet. She communicated this Secret to her Neighbours, who told it to their Husbands; and thus, in a short Time, it was rumour'd abroad that *Mahomet* had Communication with the Angel *Gabriel*. This Impostor finding that his Imposture had found Belief among the Populace, invented new Dreams, which, he said, were reveal'd to him by his Angel. Among the rest, he publish'd a Book under his Name, compos'd by *Sergius*, full of Follies, which, notwithstanding, he pretended he had receiv'd from Heaven; and had it distributed among the People of the Country, who were Fools enough to put Faith in it. In my Treatise of *Mahometanism*, under the Letter *M*, I'll give the whole History of this ridiculous Sect.

CONSTANTINE II. *Heraclius*'s Son, succeeded him the 11*th* of *March* of the Year 641; but he reign'd 3 Months only. It was thought that the Empress *Martina*, his Mother-in-law, caus'd him to be poison'd, the 22*d* of *June* of the same Year, to place her Son *Heracleonas* on the Throne.

HERACLEONAS succeeded him, the 22*d* of *June* of the Year 641. He ascended the Throne by the Murder of *Constantine*, and was brought down from it by an Arret of the Senate, who order'd his Nose, and his Mother's Tongue, to be cut off, and both sent into Exile, towards the End of *December* of the same Year.

CONSTANTIUS, *Heraclius*'s Grandson, was rais'd to the Empire in the Year 641. He committed several very great Excesses against Religion, protected *Hereticks*, and had his Brother put to Death without Cause; who, say the Visionaries of those Times, haunted him afterwards, with a Cup full of Blood, and these Words, *Drink Brother*.

CONSTANTINE POGONATUS, *i. e.* bearded, because he us'd to wear a long Beard, succeeded *Constantius*, the 15*th* of *July* of the Year 668. He took a just Revenge of the Death of his Father, and gain'd, by his Prudence and Courage, several Victories over the *Saracens*. He dy'd in the Year 685; after he had reign'd 17 Years, and about 2 Months.

JUSTINIAN, his Son, call'd *the Younger*, succeeded him in the Month of *September* of the Year 685. He was impious, cruel, and vindictive, which made him hated of his Subjects; and was, in Part, the Cause of his violent Death. For *Leoncius*, Duke of the East, who had been imprison'd 6 Years, on false Reports, tho' he had done signal Services to the Empire, having been, at last, set at Liberty, on Condition that he should depart from *Constantinople*, waiting in the Port for a favourable Wind, to obey that Order, having been press'd by his Friends, who were come to take their Leave of him, to lay hold of the favourable Opportunity of the Disaffection of the *Constantinopolitans*, to seize on the Empire, arm'd some Soldiers, and came to the Pretory, of which he render'd himself Master; and the Revolted having soon afterwards taken *Justinian* Prisoner, they cut off his Nose, and sent him into Exile. They also seiz'd the Monk *Theodosius*, and *Stephen* his Treasurer, the two Ministers of his Violences; and after they had been dragg'd thro' the City, they were burnt alive. *Justinian* had afterwards his Head cut off by *Philippicus*'s Orders, in the Year 711; after he had reign'd 16 Years.

PHILIPPICUS BARDANES succeeded him, in the Year 713. He was impious, cruel, and without Wit. He dy'd in the Year 715; after 1 Year, and 6 or 10 Months Reign.

ANASTASIUS II. succeeded him the 4*th* of *June* of the Year 715. He was learned, moderate, and religious. He dy'd in the Year 717; after he had reign'd 2 Years, and 9 Months.

THEODOSIUS ADRAMITANUS was elected Emperor by the Army, in the Year 717. He was but a Tax-gatherer when he was rais'd to the imperial Throne; whom the Army, who had revolted from *Anastasius*, forc'd, by a ridiculous Caprice, to accept the Empire; but, however, that Choice, made without Reflection, prov'd advantagious to the Empire; for *Theodosius* prov'd a very good, moderate, and pious Prince. But as he had been plac'd on the Throne against his Inclination, he abdicated it in Favour of *Leo Isaurus*, in the Year 717; after he had reign'd 1 Year, and 2 Months.

LEO III. call'd *Isaurus*, succeeded him, the 25*th* of *March* of the Year 717. He was cruel, impious, and wild. He dy'd after 24 Years, 2 Months, and 25 Days Reign.

CONSTANTINE, his Son, (call'd *Copronimus*, because he had eas'd himself in the baptismal Font, at his Baptism) succeeded him, in the Year 741. He was impious, cruel, Protector of the Caprices of the *Iconoclasts*, and Persecutor of the Orthodox. He dy'd of a violent Fever, caus'd by a Carbuncle on his Thigh, the 14*th* of *September* of the Year 775; after he had reign'd 34 Years, and 3 Months.

Note, That in the 9*th* Year of *Copronimus*'s Reign, of *Christ* 749; happen'd an Earthquake in *Syria*, which destroy'd several Cities, some of them being even transported, together with their Inhabitants, from one Place to another. In one of the Extremities of *Mesopotamia* the Earth parted for the Breadth of two Miles, and from that Depth rais'd another white and sandy Earth, in the Middle whereof appear'd an Animal, in the Shape of a Mule, but whose Voice was human, and who foretold an Irruption against the *Arabs*.

LEO IV. came to the Empire the 14*th* of *September*, of the Year 775. He affected at first to appear pious and magnificent; but discover'd soon after, that he inherited the Impiety, and all the other Vices of his Father and Grandfather. He died of a Fever the 8*th* of *September*, of the Year 780; after he had reign'd 5 Years, wanting 6 Months.

CONSTANTINE VII. his Son, an Infant, succeeded him, under the Regency of his Mother *Irene*, a Woman illustrious for her Beauty, Wit, and Prudence. This cruel and impious Prince plung'd himself in all Sorts of Debauchery, and died the 19*th* of *August*, of the Year 797; after 16 Years, 11 Months and some Days Reign.

IRENE the Empress possessed herself of the Government of the Empire, the 19*th* of *August*, of the Year 797; she was possessed, as we have already observ'd, of a great deal of Beauty, Judgment, and Policy; but her Passion for the Throne, blinded her to that Excess, that she caused the Eyes of her own Son to be put out. She died the 9*th* of *August*, of the Year 802, after 5 Years, 2 Months, and 16 Days Reign.

NICEPHORUS, first of the Name, succeeded *Irene*, on the Throne, the 31*st* of *November*, of the Year 802. He was cruel, avaritious, and impious. He was taken by the *Bulgarians*, who cut off his Head the 16*th* of *July*, of the Year 811; after he had reign'd 8 Years, 8 Months and 27 Days.

MICHAEL CUROPALATES, his Son-in-law, ascended the Throne, the 2*d* of *October*, of the Year 811. He was a good Prince, courageous, intrepid, prudent, and beloved of his People. *Michael* having lost the Battle against the *Bulgarians*, near *Adrianople*, a City in *Thracia*, fled to *Constantinople*, and there form'd the Design to quit the Empire, in favour of *Leo* the *Armenian*. This refused it a long while, till *Nicephorus* the Patriarch, and all the Patricians (says *Theophanes*) forc'd him to accept it. But *Cedrenus*, and some other Historians, relate this Affair in a quite different Manner. They say that the Loss of the Battle happen'd by the Treason of *Leo*, who, notwithstanding, made use of it to blame the Emperor as a Coward, and uncapable to maintain the Honour of the Empire; which disgusted the Soldiers, and made them proclaim *Leo* Emperor. *Michael* having heard of the Election, as he had acquir'd a great Command over his Passions, and lov'd Peace, he sent to *Leo* the Diadem, the purple Robe, and the Slippers, which were the Marks of the Empire, and the next Day retired into a Monastery with his Wife and Children, in the Year 813; after he had reign'd 1 Year, and 9 Months.

LEO V. call'd the *Armenian*, succeeded to the Empire the 11*th* of *July*, of the Year 813. He had some excellent Qualities which he tarnish'd by his Cruelty for his Relations; for he order'd that *Theophilactes* his eldest Son should be castrated. He was kill'd in his Chapel on *Christmas-Eve*, of the Year 820; after he had reign'd 7 Years, 5 Months, and 14 Days.

MICHAEL II. call'd the *Stoterer*, whom *Leo* had caused to be condemn'd to be burnt alive, for the atrocious Injuries he had vomited against him, was proclaim'd Emperor, in the Year 820. He was impious, cruel, and without Religion. He died of a *Dissenteria*, or Bloody Flux, in Execration to the whole World the 1*st* of *October*, of the Year 829; after 8 Years, 9 Months, and 7 Days Reign.

THEOPHILUS I. his Son succeeded him, the 1*st* of *October*, of the Year 829; he had Wit, and was a Politician, but passionate and blood-thirsty. He undertook several great Wars against the *Saracens*; and died in the Year 842; after he had reign'd 12 Years.

MICHAEL III. his Son, call'd the *Drinker*, succeeded him in the Month of *January*, of the Year 842. He was abandon'd to all Sorts of Crimes, of Infamies and Brutalities, and gloried in surpassing in Abominations *Nero*, *Caligula*, and *Heliogabalus*. He was kill'd by *Bazile*, the 24*th* of *September*, of the Year 867; after 23 Years, and 8 Months Reign.

BAZILE, the first of that Name, call'd the *Macedonian*, ascended the Throne in the Year 867. He was just, religious, and full of Merit. He died the 1*st* of *March*, of the Year 886; after 18 Years, 5 Months, and 7 Days Reign.

LEO VI. call'd the *Philosopher*, succeeded him the 1*st* of *March*, of the Year 886. He was pious, learn'd, and a very great Prince. He gain'd two Battles against the *Servians*. He died the 11*th* of *June*, of the Year 911; after 25 Years, 3 Months, and 10 Days Reign.

ALEXANDER II. succeeded him the 11*th* of *June*, of the Year 911. He plung'd himself in all the most infamous and atrocious Crimes, and became a perfect Atheist. He died the 7*th* of *June*, of the Year 912; after 11 Months, and 27 Days Reign.

CONSTANTINE PORPHIROGENITA succeeded him, the 7*th* of *June*, of the Year 912. He was pious, good, prudent, and Friend of the Learned. He died poison'd by his Son, the 9*th* of *November*, of the Year 959; after 48 Years, and 5 Months Reign.

ROMANUS the younger, ascended the Throne the 9*th* of *November*, of the Year 959, by a Parricide, expell'd his Mother and Sisters; and liv'd in Indolence, and in continual Debaucheries. He died the 15*th* of *March*, of the Year 963; after 3 Years, and 4 Months Reign.

NICEPHORUS, call'd *Phocas*, came to the Empire the 16*th* of *August*, of the Year 963. He render'd himself illustrious by his great Conquests. But his Avarice eclipsed all his great Actions. He died the 11*th* of *December*, of the Year 969; after 6 Years, 3 Months, and 26 Days Reign.

JOHN ZEMISCES, succeded the 26*th* of *December*, of the Year 969. He render'd himself famous by his great Victories, his Conquests, his Piety, and his Justice; and died the 4*th* of *December*, of the Year 975; after 5 Years, 11 Months, and 10 Days Reign.

BAZILE II. call'd the *Younger*, ascended the Throne in the Year 975. He render'd himself illustrious by his Conquests; but he was very cruel, having caused the Eyes of 15000 *Bulgarians* to be put out. He died in the Year 1025; after he had reign'd 50 Years.

CONSTANTINE X. call'd the *Younger*, came to the Empire in the 1025. He pass'd all his Time in Pleasures and Voluptuousness. He died the 9*th* of *November*, of the Year 1028; after he had reign'd very near 3 Years.

ROMANUS III. succeeded him the 9*th* of *November*, of the Year 1028. He appear'd pious, liberal, and magnificent at first; but became, afterwards, avaricious, which gave him the Name of *Argyrophiles*. He died poison'd the 11*th* of *April*, of the Year 1034; after he had reign'd 5 Years, and 6 Months.

MICHAEL IV. call'd *Paphalegonian*, ascended the Throne in the Year 1034. He was a very beautiful Prince, very eloquent, and had a Boldness which nothing could stop. He died the 10*th* of *December*, of the Year 1041; after 7 Years Reign.

MICHAEL V. call'd *Celaphates*, came to the Empire in the Year 1041. He prov'd ungrateful to those who had raised him to the Empire. His Eyes were put out, and he died in the Year 1042; after he had reign'd 4 Months, and 5 Days.

CONSTANTINE MONOMACHUS, succeeded him the 11*th* of *February*, of the Year 1042. He was indolent, and lost in Vices. This Prince caused the Temple of *Jerusalem* to be rebuilt, which the *Saracens* had ruinated 39 Years before. The *Turks* became Masters of almost all *Asia*. He died the 30*th* of *November*, of the Year 1054; after 12 Years, 5 Months, and 20 Days Reign.

THEODORA, Daughter of *Constantine the Younger*, was

was plac'd on the Throne towards the Year 1054; and died the 22d of *August*, of the Year 1056; after 1 Year, 8 Months, and 23 Days Reign.

MICHAEL, call'd *Stratonicus*, came to the Empire in the Month of *August*, of the Year 1056. He was not very well qualify'd for the Empire, tho' very brave, and very well vers'd in the military Art. He died the last Day of *August*, of the Year 1056.

ISAAC I. call'd *Comnene*, came to the Empire the 8th of *June*, of the Year 1057. He had a vast deal of Wit, and had acquir'd a great Reputation in the War. But he eclips'd all his Virtues by his Avarice and Pride. He died in the Year 1059; after 2 Years, and 3 Months Reign.

CONSTANTINE XII. call'd *Ducas*, came to the Empire the 25th of *December*, of the Year 1059. He was a prudent Prince; but tho' he lov'd Justice and Equity, he render'd himself despicable by his Avarice. He died the 5th of *June*, of the Year 1067, after he had reign'd 7 Years and a half.

ROMANUS IV. call'd *Diogenes*, ascended the imperial Throne the 1st of *January*, of the Year 1068. He defeated several Times the *Saracens*, and took several of their Places; but he unfortunately fell into their Hands, and died in the Month of *October*, of the Year 1071; after he had reign'd 3 Years, 1 Month, and 12 Days.

MICHAEL VII. call'd *Parapinaces*, succeeded to the Throne in the Month of *October*, of the Year 1071. He was very learn'd, and lov'd the Learn'd, but his Avarice render'd him odious to his Subjects. He died in the Year 1078; after he had reign'd 6 Years, and a half.

NICEPHORUS BOTONIATES came to the Empire the 25th of *March*, of the Year 1078; he was brave and prudent, but very unfortunate. He died the latter End of *March*, of the Year 1081; after he had reign'd 3 Years.

ALEXIS COMNENE succeeded him the 1st of *April*, of the Year 1081. He was a very well made Prince; but 'tis said that his Conduct prov'd disadvantageous to the *Croisades*, made for the Conquest of the Holy Land. He died the 15th of *August*, of the Year 1118; after he had reign'd 37 Years, 4 Months, and 15 Days.

JOHN COMNENE succeeded him the 15th of *August*, of the Year 1118. He was a fine Prince, pious, just, brave, and render'd himself illustrious by his Victories. He died of being wounded with a poison'd Arrow, the 8th of *April*, of the Year 1143; after he had reign'd 24 Years, 7 Months, and 15 Days.

EMANUEL COMNENE succeeded him the 8th of *April*, of the Year 1143. He was thought at first a Coward, and perfidious; but towards the latter End of his Reign, he grew liberal and charitable. He died the 27th of *September*, of the Year 1180; after he had reign'd 47 Years, 5 Months, and 23 Days.

ALEXIS II. call'd *Porphyrogenita*, came to the Empire the 27th of *September*, of the Year 1180. *Andronicus* caus'd him to be strangled, and his Body throw'd into the Sea, while he was yet but 15 Years of Age, in the Month of *October*, of the Year 1183; after 3 Years, and some Days Reign.

ANDRONICUS, the first of the Name, ascended the Throne in the Month of *October*, of 1183. He was cruel, blood-thirsty, impious, brutish, and inhuman. He was soon punish'd for all his Crimes; *Isaac* caus'd his Hairs, Beard, and one Eye to be pull'd out, one Hand to be cut off, and had him exposed in that Condition on a Camel, to the Rage and Fury of the Populace. He died the 12th of *September*, of the Year 1185; after 1 Year, 11 Months, and 10 Days Reign.

ISAAC II. call'd *Ange* or *Angel*, succeeded him in the Month of *September*, of the Year 1185. He liv'd in a Manner unworthy of a Prince; he maintain'd some Wars, in which he was worsted, tho' he destroy'd the Tyranny of some Petty-Lords. He died the 10th of *April*, of the Year 1195; after 9 Years, and 8 Months Reign.

ALEXIS ANGE, or ANGEL III. of the Name, call'd *the Tyrant*, began to reign the 10th of *April*, of the Year 1197. He was brutal, passionate, and so avaritious, that that miserable Passion render'd him capable of the meanest Actions. He died in the Year 1203; after 8 Years, 3 Months, and 10 Days Reign.

ALEXIS IV. call'd *the Younger*, succeeded him the 1st of *August*, of the Year 1203; and died in the Year 1204; after he had reign'd 1 Year.

ALEXIS V. call'd *Ducas Marrufle*, came to the Empire in the Year 1204. He was reported cruel, impious, and addicted to all Sorts of Vices. He died the same Year, having been thrown from the Top of a Tower. After his Death the *French* render'd themselves Masters of the Empire.

CHRONOLOGY *of the* French *Emperors of* Constantinople.

BAUDOUIN, first of the Name, Emperor of *Constantinople*, was before Earl of *Flanders*. He render'd himself Master of that imperial City, the 16th of *May*, of the Year 1204. He was vigilant, courageous, and good, but he wanted Prudence; he fell into an Ambuscade of *Bulgarians*, who cut off his Arms and Legs. He died the latter end of *July*, of the Year 1206; after two Years, and some Months Reign.

HENRY, first of the Name, succeeded his Brother *Baudoüin*, the 16th of *August*, of the Year 1206. He maintain'd his Authority by his Valour, Prudence and Victories. He died the 11th of *June*, of the Year 1216; after he had reign'd 10 Years, 2 Months, and 22 Days.

PETER II. Prince of *Courtenay*, was declar'd Emperor the 9th of *April*, of the Year 1217. He was brave, wise, and pious, and was assassinated the same Year.

ROBERT *of Courtenay* succeeded his Father in 1221. He caused by his Weakness great Revolutions in the Eastern Empire; and was kill'd by a Lord of his Court, in the Year 1229; after he had reign'd 8 or 9 Years.

BAUDOUIN II. Prince of *Courtenay*, came to the Empire in the Year 1237. His first Wars were fortunate enough. But he neglected to be upon his Guard, therefore was surprised by his Enemies, who re-enter'd *Constantinople* through an Aquéduct, in the Year 1261; after the *Latins* had kept the Empire for the Space of 58 Years; and *Baudouin* died in 1273; after 33 Years, and some Months Reign.

Sequel to the CHRONOLOGY *of the* Greek *Emperors of* Constantinople.

THEODORUS LASCARIS was expell'd *Constantinople* by the *French* in 1204. He retired to *Nice* in *Asia*, where he was crown'd Emperor: Where he collected together the scatter'd Parts of his Empire, which he preserv'd by his Prudence and Courage; and died in 1222, after he had reign'd 18 Years.

JOHN DUCAS III. succeeded him in the Year 1222. He was a Prince famous for his great Victories. He extended the Limits of his Empire every where; and was severe without Cruelty; and a great Œconomist, without Avarice. He died in the Year 1255; after he had reign'd 33 Years.

THEODORUS II. call'd *the Younger*, ascended the Throne in the Year 1255. He was brave, prudent, and gain'd several Victories. He died in the Month of *August*, of the Year 1258, or 59; after he had reign'd 4 Years.

JOHN IV. call'd *the Younger*, succeeded him in 1259. He reign'd but one Year.

MICHAEL VIII. call'd *Paleologue*, was proclaim'd

LEO IV, came to the Empire the 14*th* of *September*, of the Year 775. He affected at first to appear pious and magnificent; but discover'd soon after, that he inherited the Impiety, and all the other Vices of his Father and Grandfather. He died of a Fever the 8*th* of *September*, of the Year 780; after he had reign'd 5 Years, wanting 6 Months.

CONSTANTINE VII. his Son, an Infant, succeeded him, under the Regency of his Mother *Irene*, a Woman illustrious for her Beauty, Wit, and Prudence. This cruel and impious Prince plung'd himself in all Sorts of Debauchery, and died the 19*th* of *August*, of the Year 797; after 16 Years, 11 Months and some Days Reign.

IRENE the Empress possessed herself of the Government of the Empire, the 19*th* of *August*, of the Year 797; she was possessed, as we have already observ'd, of a great deal of Beauty, Judgment, and Policy; but her Passion for the Throne, blinded her to that Excess, that she caused the Eyes of her own Son to be put out. She died the 9*th* of *August*, of the Year 802, after 5 Years, 2 Months, and 16 Days Reign.

NICEPHORUS, first of the Name, succeeded *Irene*, on the Throne, the 31*st* of *November*, of the Year 802. He was cruel, avaritious, and impious. He was taken by the *Bulgarians*, who cut off his Head the 16*th* of *July*, of the Year 811; after he had reign'd 8 Years, 8 Months and 27 Days.

MICHAEL CUROPALATES, his Son-in-law, ascended the Throne, the 2*d* of *October*, of the Year 811. He was a good Prince, courageous, intrepid, prudent, and beloved of his People. *Michael* having lost the Battle against the *Bulgarians*, near *Adrianople*, a City in *Thracia*, fled to *Constantinople*, and there form'd the Design to quit the Empire, in favour of *Leo* the *Armenian*. This refused it a long while, till *Nicephorus* the Patriarch, and all the Patricians (says *Theophanes*) forc'd him to accept it. But *Cedrenus*, and some other Historians, relate this Affair in a quite different Manner. They say that the Loss of the Battle happen'd by the Treason of *Leo*, who, notwithstanding, made use of it to blame the Emperor as a Coward, and uncapable to maintain the Honour of the Empire; which disgusted the Soldiers, and made them proclaim *Leo* Emperor. *Michael* having heard of the Election, as he had acquir'd a great Command over his Passions, and lov'd Peace, he sent to *Leo* the Diadem, the purple Robe, and the Slippers, which were the Marks of the Empire, and the next Day retired into a Monastery with his Wife and Children, in the Year 813; after he had reign'd 1 Year, and 9 Months.

LEO V. call'd the *Armenian*, succeeded to the Empire the 11*th* of *July*, of the Year 813. He had some excellent Qualities which he tarnish'd by his Cruelty for his Relations; for he order'd that *Theophilactes* his eldest Son should be castrated. He was kill'd in his Chapel on *Christmas-Eve*, of the Year 820; after he had reign'd 7 Years, 5 Months, and 14 Days.

MICHAEL II. call'd the *Stoterer*, whom *Leo* had caused to be condemn'd to be burnt alive, for the atrocious Injuries he had vomited against him, was proclaim'd Emperor, in the Year 820. He was impious, cruel, and without Religion. He died of a *Dissenteria*, or Bloody Flux, in Execration to the whole World the 1*st* of *October*, of the Year 829; after 8 Years, 9 Months, and 7 Days Reign.

THEOPHILUS I. his Son succeeded him, the 1*st* of *October*, of the Year 829; he had Wit, and was a Politician, but passionate and blood-thirsty. He undertook several great Wars against the *Saracens*; and died in the Year 842; after he had reign'd 12 Years.

MICHAEL III. his Son, call'd the *Drinker*, succeeded him in the Month of *January*, of the Year 842. He was abandon'd to all Sorts of Crimes, of Infamies and Brutalities, and gloried in surpassing in Abominations *Nero*, *Caligula*, and *Heliogabalus*. He was kill'd by *Bazile*, the 24*th* of *September*, of the Year 867; after 23 Years, and 8 Months Reign.

BAZILE, the first of that Name, call'd the *Macedonian*, ascended the Throne in the Year 867. He was just, religious, and full of Merit. He died the 1*st* of *March*, of the Year 886; after 18 Years, 5 Months, and 7 Days Reign.

LEO VI. call'd the *Philosopher*, succeeded him the 1*st* of *March*, of the Year 886. He was pious, learn'd, and a very great Prince. He gain'd two Battles against the *Servians*. He died the 11*th* of *June*, of the Year 911; after 25 Years, 3 Months, and 10 Days Reign.

ALEXANDER II. succeeded him the 11*th* of *June*, of the Year 911. He plung'd himself in all the most infamous and atrocious Crimes, and became a perfect Atheist. He died the 7*th* of *June*, of the Year 912; after 11 Months, and 27 Days Reign.

CONSTANTINE PORPHIROGENITA succeeded him, the 7*th* of *June*, of the Year 912. He was pious, good, prudent, and Friend of the Learned. He died poison'd by his Son, the 9*th* of *November*, of the Year 959; after 48 Years, and 5 Months Reign.

ROMANUS the younger, ascended the Throne the 9*th* of *November*, of the Year 959, by a Parricide, expell'd his Mother and Sisters; and liv'd in Indolence, and in continual Debaucheries. He died the 15*th* of *March*, of the Year 963; after 3 Years, and 4 Months Reign.

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JOHN ZEMISCES, succeded the 26*th* of *December*, of the Year 969. He render'd himself famous by his great Victories, his Conquests, his Piety, and his Justice; and died the 4*th* of *December*, of the Year 975; after 5 Years, 11 Months, and 10 Days Reign.

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CONSTANTINE X. call'd the *Younger*, came to the Empire in the 1025. He pass'd all his Time in Pleasures and Voluptuousness. He died the 9*th* of *November*, of the Year 1028; after he had reign'd very near 3 Years.

ROMANUS III. succeeded him the 9*th* of *November*, of the Year 1028. He appear'd pious, liberal, and magnificent at first; but became, afterwards, avaricious, which gave him the Name of *Argyrophiles*. He died poison'd the 11*th* of *April*, of the Year 1034; after he had reign'd 5 Years, and 6 Months.

MICHAEL IV. call'd *Paphalegonian*, ascended the Throne in the Year 1034. He was a very beautiful Prince, very eloquent, and had a Boldness which nothing could stop. He died the 10*th* of *December*, of the Year 1041; after 7 Years Reign.

MICHAEL V. call'd *Celaphates*, came to the Empire in the Year 1041. He prov'd ungrateful to those who had raised him to the Empire. His Eyes were put out, and he died in the Year 1042; after he had reign'd 4 Months, and 5 Days.

CONSTANTINE MONOMACHUS, succeeded him the 11*th* of *February*, of the Year 1042. He was indolent, and lost in Vices. This Prince caused the Temple of *Jerusalem* to be rebuilt, which the *Saracens* had ruinated 39 Years before. The *Turks* became Masters of almost all *Asia*. He died the 30*th* of *November*, of the Year 1054; after 12 Years, 5 Months, and 20 Days Reign.

THEODORA, Daughter of *Constantine the Younger*, was

was plac'd on the Throne towards the Year 1054; and died the 22d of *August*, of the Year 1056; after 1 Year, 8 Months, and 23 Days Reign.

MICHAEL, call'd *Stratonicus*, came to the Empire in the Month of *August*, of the Year 1056. He was not very well qualify'd for the Empire, tho' very brave, and very well vers'd in the military Art. He died the last Day of *August*, of the Year 1056.

ISAAC I. call'd *Comnene*, came to the Empire the 8th of *June*, of the Year 1057. He had a vast deal of Wit, and had acquir'd a great Reputation in the War. But he eclips'd all his Virtues by his Avarice and Pride. He died in the Year 1059; after 2 Years, and 3 Months Reign.

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MICHAEL VII. call'd *Parapinaces*, succeeded to the Throne in the Month of *October*, of the Year 1071. He was very learn'd, and lov'd the Learn'd, but his Avarice render'd him odious to his Subjects. He died in the Year 1078; after he had reign'd 6 Years, and a half.

NICEPHORUS BOTONIATES came to the Empire the 25th of *March*, of the Year 1078; he was brave and prudent, but very unfortunate. He died the latter End of *March*, of the Year 1081; after he had reign'd 3 Years.

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EMANUEL COMNENE succeeded him the 8th of *April*, of the Year 1143. He was thought at first a Coward, and perfidious; but towards the latter End of his Reign, he grew liberal and charitable. He died the 27th of *September*, of the Year 1180; after he had reign'd 47 Years, 5 Months, and 23 Days.

ALEXIS II. call'd *Porphyrogenita*, came to the Empire the 27th of *September*, of the Year 1180. *Andronicus* caus'd him to be strangled, and his Body throw'd into the Sea, while he was yet but 15 Years of Age, in the Month of *October*, of the Year 1183; after 3 Years, and some Days Reign.

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ALEXIS ANGE, or ANGEL III. of the Name, call'd *the Tyrant*, began to reign the 10th of *April*, of the Year 1197. He was brutal, passionate, and so avaritious, that that miserable Passion render'd him capable of the meanest Actions. He died in the Year 1203; after 8 Years, 3 Months, and 10 Days Reign.

ALEXIS IV. call'd *the Younger*, succeeded him the 1st of *August*, of the Year 1203; and died in the Year 1204; after he had reign'd 1 Year.

ALEXIS V. call'd *Ducas Marrufle*, came to the Empire in the Year 1204. He was reported cruel, impious, and addicted to all Sorts of Vices. He died the same Year, having been thrown from the Top of a Tower. After his Death the *French* render'd themselves Masters of the Empire.

CHRONOLOGY *of the* French *Emperors of* Constantinople.

BAUDOUIN, first of the Name, Emperor of *Constantinople*, was before Earl of *Flanders*. He render'd himself Master of that imperial City, the 16th of *May*, of the Year 1204. He was vigilant, courageous, and good, but he wanted Prudence; he fell into an Ambuscade of *Bulgarians*, who cut off his Arms and Legs. He died the latter end of *July*, of the Year 1206; after two Years, and some Months Reign.

HENRY, first of the Name, succeeded his Brother *Baudoüin*, the 16th of *August*, of the Year 1206. He maintain'd his Authority by his Valour, Prudence and Victories. He died the 11th of *June*, of the Year 1216; after he had reign'd 10 Years, 2 Months, and 22 Days.

PETER II. Prince of *Courtenay*, was declar'd Emperor the 9th of *April*, of the Year 1217. He was brave, wise, and pious, and was assassinated the same Year.

ROBERT *of Courtenay* succeeded his Father in 1221. He caused by his Weakness great Revolutions in the Eastern Empire; and was kill'd by a Lord of his Court, in the Year 1229; after he had reign'd 8 or 9 Years.

BAUDOUIN II. Prince of *Courtenay*, came to the Empire in the Year 1237. His first Wars were fortunate enough. But he neglected to be upon his Guard, therefore was surprised by his Enemies, who re-enter'd *Constantinople* through an Aqueduct, in the Year 1261; after the *Latins* had kept the Empire for the Space of 58 Years; and *Baudouin* died in 1273; after 33 Years, and some Months Reign.

Sequel to the CHRONOLOGY *of the* Greek *Emperors of* Constantinople.

THEODORUS LASCARIS was expell'd *Constantinople* by the *French* in 1204. He retired to *Nice* in *Asia*, where he was crown'd Emperor: Where he collected together the scatter'd Parts of his Empire, which he preserv'd by his Prudence and Courage; and died in 1222, after he had reign'd 18 Years.

JOHN DUCAS III. succeeded him in the Year 1222. He was a Prince famous for his great Victories. He extended the Limits of his Empire every where; and was severe without Cruelty; and a great Œconomist, without Avarice. He died in the Year 1255; after he had reign'd 33 Years.

THEODORUS II. call'd *the Younger*, ascended the Throne in the Year 1255. He was brave, prudent, and gain'd several Victories. He died in the Month of *August*, of the Year 1258, or 59; after he had reign'd 4 Years.

JOHN IV. call'd *the Younger*, succeeded him in 1259. He reign'd but one Year.

MICHAEL VIII. call'd *Paleologue*, was proclaim'd

Emperor, in 1259, or 1260. He was ambitious, passionate, and cruel; but he extended the Limits of his Empire, and submitted himself to the *Latin* Church. He dy'd in the Year 1283; after he had reign'd 24 Years.

ANDRONICUS PALEOLOGUE II. came to the Empire the 11*th* of *December* of the Year 1283. He was cruel, ungrateful, impious, and unfortunate in all his Wars. He dy'd the 12*th* of *February* of the Year 1332; after he had reign'd 44 Years.

ANDRONICUS III. call'd *the Younger*, succeeded him the 12*th* of *February* of the Year 1332. He gain'd several great Victories; but he was cruel, unjust, and impious. He dy'd the 15*th* of *June* of the Year 1341; after he had reign'd 19 Years, and some Months.

JOHN V. call'd *Cantacuzene*, came to the Empire in 1341. He was a Prince of extraordinary Merit, who conquer'd several Provinces, and had a vast deal of Wit and Learning. He dy'd in 1355; after he had reign'd 14 Years.

JOHN VI. call'd *Paleologue*, came to the Empire in 1355. His Reign prov'd unfortunate; his Son attempted to dethrone him. He dy'd in 1391; after 37 Years Reign.

EMANUEL II. call'd *Paleologue*, ascended the Throne in the Year 1391. He had Wit and Learning, and lov'd the *Belles Lettres*. He dy'd the 21*st* of *July* of the Year 1425; after 33 Years Reign.

JOHN VII. call'd *Paleologue*, came to the Empire the 19*th* of *January* of the Year 1425. He was unfortunate in his Enterprizes. He concluded the Union between the *Greek* and *Latin* Church in 1439; and dy'd the 31*st* of *October* of the Year 1448; after he had reign'd very near 23 Years.

CONSTANTINE XIII. call'd *Paleologue*, came to the Empire the 31*st* of *October* of the Year 1448. He had Courage and Wit, but he was unfortunate; having been smother'd in the Crowd at the Siege of *Constantinople*, form'd by *Mahomet* II. who destroy'd the Empire, by the taking of his Capital. The Death of this unfortunate Prince happen'd the 29*th* of *May* 1453; after he had reign'd very near 6 Years.

Note, That the Empire of the *East*, which had begun under *Constantine* I. in the Year of *Christ* 306, ended under *Constantine* XIII. and the last, in the Year of *Christ* 1453; and therefore lasted 1147 Years: And the City of *Constantinople*, which had been built by *Constantine*, was lost by another *Constantine*. At present, we'll proceed to the *Chronology* of the Emperors of the *West*, or of *Germany*; beginning with those of the House of *France*, as the Founders of that Empire, and the Restorers of that of the *West*.

Previously to this *Chronology*, we must observe, that ever since *Constantine the Great* had fix'd the Seat of the Empire at *Constantinople*, he had *had* very few Successors capable to maintain the Dignity of the Empire; for several of them had render'd themselves despicable for their Cowardice, in suffering the *Goths*, *Vandals*, and *Saracens*, to invade several of the most considerable Provinces of their Empire; and the others had been abhorr'd for their Crimes. But God, by his Providence, would restore, at the latter End of the 8*th* Century, that supreme Dignity in the *West* in the Person of *Charlemagne*, King of *France*. Therefore,

CHRONOLOGY *of the Emperors of the* West, *or of* Germany, *of the House of* France.

CHARLEMAGNE I. Emperor of the *West*, was crown'd the 25*th* of *December* of the Year 800. He was meek, very gracious, liberal, pious, charitable, a Friend to Learning and the Learned; magnificent, brave, laborious, learned; a wise and prudent Captain, a good Politician, and a great Conqueror. He dy'd the 28*th* of *January* of the Year 814; after he had been Emperor 13 Years, 1 Month, and 4 Days.

LEWIS I. call'd *the Gentle*, succeeded him the 28*th* of *January* of the Year 814. He was good, pious, charitable, sober, laborious, vigilant, learned, liberal, and very much inclin'd to Clemency. He dy'd the 20*th* of *June* of the Year 840; after he had reign'd 27 Years.

Note, That *Charlemagne*, and his Son *Lewis*, laid the first Foundation of that monstrous *Colossus* of Power which the *Popes* have usurp'd since by Degrees, and the most ambitious of them have carry'd to that scandalous, extravagant, unjust, and criminal Height we have seen it since, and which has made them dream that they had the Power to dispose of Empires and Kingdoms at their Pleasure; as if crown'd Heads were in some Measure but honourable Vassals of the *Roman* See; so contrary to the true Principles of *Christianity*, and to the Maxims of the Gospel; without mentioning this Oracle pronounc'd by God himself, *Per me Reges regnant; per me Principes imperant*: Which is more than sufficient to convince us, that Princes receive their Power immediately from God, and depend on none but him; tho' *Lewis* carry'd his Son *Lotharius* to *Rome* to be crown'd by Pope *Paschal*.

LOTHARIUS I. succeeded his Father *Lewis*, the 20*th* of *June* of the Year 840. He was brave, generous, and liberal; but he was jealous, ambitious, and ungrateful towards his Father. He abdicated the Empire in Favour of *Lewis*, his Son, and became Monk in the Abbey of *Prau*, the 28*th* or 29*th* of *September* of the Year 855; after he had reign'd 15 Years.

Note, That *Lewis*, before his Abdication, divided his Dominions between his 3 Sons, *Lewis*, *Lotharius*, and *Charles*; and gave to *Lewis*, his eldest, *Italy*, and the Empire, to which he had been associated ever since the Year 851; to *Lotharius* the Kingdom of *Lorrain*; and to *Charles* *Provence*, and Part of the Kingdom of *Burgundy*. The Kingdom of *Lotharius* was call'd, in the *Tudesk* Language, *Loterreich*; in the *Roman*, *Lobier Regno*; and by Abbreviation, *Lorrain*, *i. e.* the Kingdom of *Lotharius*.

LEWIS II. call'd *Stoterer*, succeeded his Father *Lotharius* in the Empire, the 29*th* of *September* of the Year 855. He was a just and pious Prince, and gain'd several Victories over the *Saracens*. He dy'd the 31*st* of *August* of the Year 875; after he had reign'd 21 Years.

CHARLES *the Bald* succeeded him (by the Intrigues of Pope *John* VIII. who call'd him to *Rome*, to put him in Possession of the Empire,) in the Year 875. He was couragious, liberal, magnificent, learned, a Friend to Learning and the Learned; and was poison'd, the 5*th* or 6*th* of *October* of the Year 877; in the 2*d* Year of his Reign.

Note, That the *French* Lords hated *Charles*, under Pretence that he rais'd to the first Posts of the Kingdom Persons of a mean Extraction, and seem'd to despise the *French* Nation; affecting, besides, to wear Clothes in the Mode of the *Greeks*, who were their mortal Enemies. It happen'd then, that by the criminal Machinations of the Conspirators, among whom was *Boson* himself, his Favourite, and his Wife's Brother, that on his Return from *Italy*, crossing *Mont Cenis*, he was poison'd by his Physician, born a *Jew*. His Body was deposited at *Verceil*, and 7 Years afterwards brought to the Abbey of St. *Denis*.

CHARLES III. call'd *the Gross*, succeeded him the 2[illegible]*th* of *December* of the Year 880, or 881. He went

to *Italy*, and render'd himself Master, first, of all *Lombardy*, of which he was crown'd King at *Milan*; then passing to *Rome*, he obtain'd easily the Empire from Pope *John* VIII. who crown'd him Emperor on *Christmas*-Day. He was a very good Prince, very just, and devout, even to Excess. He dy'd the 12*th* or 13*th* of *January* of the Year 888; after he had reign'd 8 Years, and some Months.

Note, That *Charles the Gross* had always had his Brain disorder'd, ever since he thought he had seen the Devil; of which he gave so many Instances to all his Subjects, that, at last, he had neither Servants left, nor Money to subsist withal. None but *Luitprand*, Bishop of *Mayence*, had Compassion on him, who kept him, till *Arnould*, Son of his Brother *Carloman*, had assign'd him the Revenue of 2 or 3 Villages for his Subsistence.

ARNOULD came to the Empire in the Year 888. Some say, he was brave, and gain'd several Victories. *Luitprandus*, on the contrary, accuses him of several Crimes, and of having suffer'd that in his Court Priests should be taken Prisoners without Cause, Virgins and marry'd Women ravish'd, who could not find a Sanctuary even in Churches, where Women of evil Fame were suffer'd to prostitute themselves. *Arnould* dy'd the 29*th* of *November* of the Year 899; after he had reign'd 12 Years.

LEWIS III. succeeded him, the 29*th* of *November* of the Year 899. He dy'd, aged 19, the 21*st* of *January* of the Year 912; after 12 Years, and some Days Reign. He was vanquish'd by the *Hungarians*, and was the last Emperor of the *West* of the Race of *Charlemagne*; which occupied the Imperial Throne for the Space of 112 Years. At present we are going to see it ascended by *German* Princes, and first by those of the most illustrious House of *Saxony*, which throughout all Ages has always been fertile in Heroes, and Princes of an extraordinary Merit.

CHRONOLOGY *of the Emperors of* Germany.

CONRADE I. Duke of *Franconia* and *Hesse*, came to the Empire in the Year 912. He was brave, judicious in War, a very good Politician, and very generous. He dy'd the 1*st* of *July* of the Year 919; after he had reign'd 7 Years.

HENRY I. call'd *Bird-catcher*, Son of *Otho*, Duke of *Saxony*, ascended the Imperial Throne in the Year 919. He was illustrious for his Courage, Prudence, great Victories, Conquests, and his Piety. He dy'd the 2*d* of *July* of the Year 935; after 17 Years and a Half's Reign.

OTHO I. call'd *the Great*, succeeded his Father *Henry* I. of the House of *Saxony*, in the Year 936. He was just, good, pious, prudent, and couragious. He vanquish'd the *Hungarians* and *Bohemians*, and deserves to be consider'd as one of the most illustrious Successors of *Charlemagne*. He dy'd the 7*th* of *May* of the Year 973; after he had reign'd 37 Years.

OTHO II. of the House of *Saxony*, succeeded his Father *Otho* I. in the Year 973. He was brave, judicious, and gain'd several Victories. He dy'd of Sorrow for having been beaten at Sea, on the Coasts of *Calabria*, by the *Saracens*, the 7*th* of *December* of the Year 983; after he had reign'd 10 Years, 7 Months, and 2 Days.

OTHO III. of the House of *Saxony*, succeeded his Father *Otho* II. in the Year 983. He was crown'd Emperor by Pope *Gregory* V. He was just, severe, learned, and liberal, even to Prodigality. He gave to the whole Earth a memorable Example of his Severity. *Mary* of *Arragon*, his Wife, having been convicted to have endeavour'd to debauch a young Earl, and to have accus'd him afterwards of the Crime he had refus'd to perpetrate; he caus'd her to be burnt alive.

Note, That *Bellarmine* and *Baronius* attribute the Institution of the Electoral College to *Otho* III. and Pope *Gregory* V. of which Opinion are the Generality of Historians, and particularly the Canonists. *Wicquefort* is of another Sentiment, and endeavours to make it appear from the Elections of the succeeding Princes, that the Number of Electors was not then fix'd; nor the Electoral Dignity annex'd to any particular Principalities, exclusive of the other Princes of *Germany*. He adds, that there was nothing settled, with Regard hereto, before *Charles* IV. and that the Publication of his Golden Bull was only to prevent Schisms, and secure the Repose of the Kingdom, by a Regulation in Form.

Note, also, That the Emperors of *Germany* are very different, in Power, Dignity, &c. from the *Roman* Emperors heretofore mention'd; for these have but a Shadow of the Power those possess'd, and a bare Title, which does not, cannot add any Thing to the Rights of Sovereignty; since its Effect is only to give Precedence, and Pre-eminence above other Sovereigns; those other Sovereigns pretending, at the same Time, that *that* Pre-eminence is not a Right annex'd to the Imperial Dignity, but rather a Concession, or Courtesy of those same Sovereigns. The Emperors, however, pretend, that the Imperial Dignity is more eminent than the Regal; but the Foundation of such Prerogative does not appear. It is certain, the greatest, most antient, and absolute Monarchs, as those of *Babylon*, *Persia*, *Assyria*, *Egypt*, *Macedonia*, &c. heretofore mention'd, were call'd by the Name of *Kings* in all Languages, both antient and modern. It is disputed, whether or no *Emperors* have the Power of disposing of the Regal Title. It is true, they have sometimes taken upon them to erect Kingdoms; and thus it is that *Bohemia* and *Poland* are said to have been rais'd to the Dignity: Thus, also, the Emperor *Charles the Bald*, in the Year 877, gave *Provence* to *Boson*, putting the Diadem on his Head, and decreeing he should be call'd *King*; *Ut more priscorum Imperatorum Regibus videretur dominari*. Add, that the Emperor *Leopold* erected the Ducal *Prussia* into a Kingdom, in Favour of the Elector of *Brandenburgh*; and tho' several of the Kings of *Europe* refus'd, for some Time, to acknowledge him in that Quality; yet, by the Treaty of *Utrecht*, in 1712, they all came in. In the *East*, the Title and Quality of Emperor are more frequent than among us. Thus the Sovereign Princes of *China*, *Japan*, *Mogul*, *Persia*, &c. are all *Emperors* of *China*, *Japan*, &c. In the *West* the Title has been a long Time restrain'd to the Emperors of *Germany*. The first who bore it, we know, was *Charlemagne*, who had the Title *Emperor* conferred on him by Pope *Leo* III. tho' he had all the Power before. The Authority of the *Emperor* of *Germany* over the State of the Empire, consists, 1. In presiding at the Imperial Diets, and in having a negative Voice therein; so that his Vote alone can prevent all the Resolutions of the Diet. 2. In that all the Princes and States of *Germany* are oblig'd to do him Homage, and swear Fidelity to him. 3. That he, or his Generals, have a Right to command all the Forces of all the Princes of the Empire, when united together. 4. That he receives a Kind of Tribute from all the Princes and States of the Empire, call'd the *Roman Month*. For the rest, there is not a Foot of Land, or Territory annex'd to his Title. The Kings of *France* were also call'd *Emperors* at the Time when they reign'd with their Sons, whom they associated to the Crown. Thus *Hugh Capet* having associated his Son *Robert*, took the Title of *Emperor*, and *Robert* that of *King*; under which Title they are mention'd in the History of the Council of *Rheims*, by *Gerbert*, &c. King *Robert* is also call'd *Emperor* of the *French* by *Helgus*

Helgau of *Fleury*. *Louis le Gros*, upon associating his Son, did the same. In the first Registers of the King's Charters, fol. 166. are found Letters of *Louis le Gros*, dated in 1116, in Favour of *Raymon*, Bishop of *Maguelonne*; wherein he stiles himself, *Ludovicus, Dei ordinante providentia, Francorum Imperator Augustus.* The Kings of *England* had likewise, antiently, the Title of *Emperor*; as appears from a Charter of King *Edgar: Ego Edgarus Anglorum Basileus, omniumque Regum insularum oceani quæ Britanniam circumjacent, &c. Imperator, & Dominus.*

HENRY II. of the House of *Saxony*, called the *Lame*, was elected Emperor the *7th* of *June* 1002; but not crowned 'till the Year 1014, he was a vigilant, laborious, just, liberal, brave, and judicious Captain; he made great Conquests, and was so chaste that he preserved his Virginity in Marriage, and so pious, that he is ranked among the Saints. He died the *13th* of *July*, of the Year 1024, after he had reigned 25 Years, 5 Months and 16 Days.

Note, That under *Henry* II's Reign, *i.e.* in 1009, the Prince of *Babylon*, excited by the *Jews*, entirely ruinated the Church of *Jerusalem*, where the Sepulchre of Christ is kept; but some Time afterwards the Mother of the same Prince, who was a Christian, caused the same Church to be re-edified, with a greater Magnificence and Splendour than it was before that Accident happened; and the *Jews* began to be expelled from all Parts.

CONRAD II. called the *Salique*, Son of *Hermandus*, Duke of *Wormes* and *Franconia*, was elected Emperor the *8th* of *September* of the Year 124; he was wise, prudent, severe, happy in his Wars, and loved Peace and Justice: He died the *4th* of *June*, of the Year 1039, after he had reigned 14 Years, 10 Months, and 21 Days.

HENRY III. called the *Black*, succeeded his Father *Conrad* II. in the Year 1039; he defeated the *Bohemians*, and took their Duke Prisoner, for his refusing to obey. He restored *Peter*, King of *Hungary*, to his Throne, and brought the *Italian* Princes over to their Duty, and undertook several great Things, which he accomplished happily enough: He died the *5th* of *October*, of the Year 1056, after he had reigned 17 Years and 4 Months.

HENRY IV. called the *Elder* and the *Great*, succeeded his Father, *Henry* the *Black*, in 1056. He was a great Prince, good, and honest, addicted to Clemency, very couragious, and who had been in Person in 62 Battles; but he loved a little too much his Pleasures. He had a great many very great Differences with Pope *Gregory* VII. he died the *7th* of *August*, of the Year 1106, after 50 Years Reign.

HENRY V. called the *Younger*, Son of *Henry* the *Elder*, rendered himself Master of the Empire in the Year 1106. He caused his Father to be killed to ascend the Throne, and defeated several Princes, who would not acknowledge him: He died the *23d* of *May*, of the Year 1125, after he had reigned 19 Years.

LOTHARIUS II. Duke of *Saxony* was elected Emperor the *13th* of *September*, of the Year 1125. He was brave and laborious, and gained several Victories: He died in the Year 1137, after he had reigned 13 Years.

CONRAD III. Son of *Frederick*, Duke of *Suabia*, succeeded *Lotharius*, by Election, the *13th* of *March*, of the Year 1138. He was pious and brave; he went into *Palestina* with an Army, and died the *15th* of *February*, of the Year 1152; after he had reigned 12 Years, 10 Months, and 15 Days.

FREDERICK I. called *Barberossa*, succeeded his Brother the *4th* of *March*, of the Year 1152. He was a very well made Prince, courageous, sincere, liberal, of an even Temper, both in his good and bad Fortune. He passed into the holy Land at the Head of an Army of 150,000 Men, took several Towns or Cities, and gained several Victories over the *Turks*. He was drowned, while bathing, in the River *Serra*, between *Antioch* and *Nice*, the *10th* of *June*, of the Year 1190, after he had reigned 37 Years, 3 Months, and 7 Days.

HENRY VI. called the *Severe*, succeeded his Father *Frederick Barberossa*, in the Year 1190. He was violent and passionate; he took Possession of the Kingdoms of *Sicily*, and obliged *Alexis Ange*, Emperor of the *Greeks*, to pay him a Tribute. He died of Poison the *28th* of *September*, of the Year 1197; after 8 Years, two Months, and 22 Days Reign.

PHILIP I. Duke of *Suabia*, was Son of *Frederick Barberossa*, and Brother of *Henry* VI, whom he succeeded in the Year 1197; he was a Prince liberal, prudent, couragious, and of a great Piety; he was assassinated the *23d* of *June*, of the Year 1208; after he had reigned 10 Years and some Months.

OTHO IV. had been elected Emperor in *Philip's* Time: He lost the famous Battle of *Bouvines*; and died the *15th* of *May*, of the Year 1218; after he had reigned 10 Years and some Months.

FREDERICK II. was Son of the Emperor *Henry* VI. of the House of *Suabe*; he was elected in the Year 1218. He spoke six Sorts of Languages, and was courageous and magnificent. After he had rendered himself Master of *Jerusalem*, and of all *Palestine*; he was smothered by *Mainfroy* his natural Son, the *13th* of *December*, of the Year 1250, after he had reigned 32 Years and some Months.

Note. That there was an Interregnum of 22 Years.

RODOLPHUS, Earl of *Habsbourg*, was elected Emperor the last Day of *September*, of the Year 1273. He was extremely pious, and very brave. He laid the Foundation of the House of *Austria*, being the Chief thereof; in 1278, he gained a memorable Battle against *Othocarus*, King of *Bohemia*, who was killed on the Spot. The Place of this Victory was the Dutchy of *Austria*, which he gave to his Son *Albert*: He died the last Day of *November*, of the Year 1291, after he had reigned 18 Years.

Note, That under *Rodolphus*'s Reign, *i.e.* the *30th* of *March*, of the Year 1282, on *Easter-day*, at the first Peal of the Bells for *Vespers*, or Afternoon Prayers, all the *French*, except one, amounting in all to 20,000 Persons, of all Ages and Conditions, were massacred in *Sicily*, by a Conspiracy canvassed by *John de Praida*; which Massacre has been called since, by Historians, the *Sicilian Vespers.*

ADOLPHUS OF NASSAU came to the Empire in the Year 1292. He was unfortunate in all his Wars: Having been deposed, he died the *2d* of *July*, of the Year 1298, after he had reigned 6 Years and a half.

ALBERTUS I. Son of *Rodolphus* I. succeeded the *27th* of *July*, of the Year 1298; he was vigilant, laborious, and very brave. In crossing over the *Rhine*, on some Expedition, he was assassinated by his Nephew the *1st* of *May*, of the Year 1308, after 9 Years and 9 Months Reign.

Note, That under *Albertus*'s Reign, the Christians lost what they had left of their Conquests in the *Holy Land*; the *Croisades* ended, and none but *Pilgrims* passed, henceforwards, into those Countries. The Order of the Knights Templers was abolished throughout all *Christendom*, and 57 of them were burnt alive, and with a slow Fire at *Paris*. We have Reason to mention this barbarous Execution in another Place, therefore no more of it at present.

HENRY

HENRY VII. Duke of *Luxembourg*, succeeded the 1*st* of *November* 1308. He was brave, just, addicted to Clemency, very pious, and more illustrious for his Virtues than for his Dignity. He waged War in *Italy* against the *Guelphi's*, but perished at *Escureti*, poison'd with an *Host*, the 24*th* of *August*, of the Year 1313; after he had reigned 4 Years, 7 Months, and 18 Days.

FREDERICK III. Son of *Albertus* I. of the House of *Austria*, was elected Emperor the 25*th* of *November*, of the Year 1314. He was unfortunate in all his Enterprises, and died the 13th of *January*, of the Year 1330, after he had reigned 15 Years.

LOUIS IV. Duke of *Bavaria*, was elected Emperor the 13*th* of *January* of the Year 1330. He took *Frederick* Prisoner, who abdicated the Empire. He dy'd the 11*th* of *October* of the Year 1347; after he had reign'd 30 Years, and 10 Months.

CHARLES IV. of the House of *Luxemburg*, was elected Emperor, the 19*th* of *July* of the Year 1347. He made that famous Constitution call'd the *Golden Bull*, for the Election of Emperors, and which we have mention'd under the Article *Bulls*. He spoke several Languages, had form'd vast Projects, and was very brave. He receiv'd 3 Wounds at the Battle of *Crecy*, where his Father, already blind, and very old, was kill'd. He dy'd the 29*th* of *November* of the Year 1378; after he had reign'd 32 Years, and 2 Months.

WENCESLAUS OF LUXEMBOURG succeeded his Father *Charles*, the 29*th* of *November* of the Year 1378. He was difform both of Body and Mind, negligent, lazy, and addicted to Vices which render'd him unworthy of the Throne. He dy'd the 20*th* of *August* of the Year 1400; after he had reign'd 22 Years.

ROBERT, call'd *Exiguus*, or *le Petit*, Duke of *Bavaria*, was elected Emperor the 10*th* of *September* of the Year 1400. He dy'd in 1410; after he had reign'd 10 Years.

SIGISMOND OF LUXEMBOURG came to the Empire the 8*th* of *November* of the Year 1410. He was a fine Prince, liberal, generous, and a Friend to the Learned. He spoke several Languages, and restor'd Peace to the Church. He dy'd the 8*th* of *December* of the Year 1437; after he had reign'd 26 Years.

Note, That *Sigismond* having ask'd the King of *France* for Succours against the *Turks*; the King sent him *John* Earl of *Nevers*, Son of the Duke of *Burgundy*, with the Flower of the *French* Nobility; but they were defeated at the Battle of *Nicopoli*.

ALBERT II. Archduke of *Austria*, was elected Emperor the 30*th* of *May* of the Year 1438. He was a very good Prince, meek, patient, liberal, and who had form'd Projects very advantagious to the Church, and the Empire. He oblig'd the *Turks* to raise the Siege of *Belgrade*, which had lasted a Year, and dy'd the 27*th* of *October* of the Year 1439; after 1 Year, 7 Months, and some Days Reign.

FREDERICK III. or IV. call'd *the Pacifick*, Son of *Ernest*, Archduke of *Austria*, was elected Emperor in the Month of *March* of the Year 1440. He was very pious, and dy'd the 19*th* of *August* of the Year 1493; after he had reign'd 53 Years, and 4 Months.

Note, That under *Frederick* III's Reign, the *Turks* gain'd the Battle of *Vasnes*, where the *Christian* Army was totally defeated, and *Ladislaus*, King of *Hungary*, kill'd. In the first Year of his Reign, *i. e.* in 1440, the excellent, and most ingenious Art of *Printing* was invented, by a Gentleman of *Mentz*, call'd GUTTEMBERG.

MAXIMILIAN I. of the House of *Austria*, was elected Emperor, in the Year 1493. He was learned, lov'd the Learned, and experienc'd several Turns of Fortune. He dy'd the 12*th* of *January* of the Year 1519; after he had reign'd 25 Years, and 5 Months.

CHARLES V. of the House of *Austria*, succeeded to the Throne the 28*th* of *June* of the Year 1519. He had a vast deal of Courage and Merit; happy in his Expeditions against *Francis* I. King of *France*, whom he took Prisoner at *Pavia*. He abdicated voluntarily the Empire, in Favour of his Brother *Ferdinand*, and all his Kingdoms in Favour of his Son *Philip*, the 25*th* of *October* 1557; after he had reign'd 38 Years, 2 Months, and 28 Days.

Note, That under *Charles* V's Reign, *Martin Luther* preach'd his new Doctrine; and that *Solyman* the Magnificent, Emperor of the *Turks*, after he had render'd himself Master of the Island of *Rhodes*, but not without vast Expence, and a considerable Loss of his Forces, came to lay Siege to *Vienna*, which he was forc'd to raise. The Abdication of *Charles* V. surpriz'd all *Europe*, considering his vast Ambition. It was said, that the good Fortune of *Henry* II. King of *France*, contributed much to it; and that *Charles* us'd to complain, that the Jilt had deserted an old Emperor, to follow a young King. His Manner of Living in his Retirement was no less surprizing; for he us'd to follow all the Rules, and practise all the Austerities of the Monks among whom he had retir'd; and to discharge all the most onerous Offices of the Monastery, in his Turn, as if he had been one of the meanest among them. 'Tis said, that it being his Turn one Night to awake the Monks, for *Matins*, a young one, who was in a profound Sleep, and whom he had a great deal of Pain to awake, angry at his being thus disturb'd, told him, that, *in his Opinion, he should rest contented with having so often disturb'd the Peace of all* Europe, *without coming, likewise, to disturb their Rest.* He would often have his Obsequies solemniz'd, and was carry'd to Church in an uncover'd Coffin, as if he had been dead; and from his Coffin us'd to join his Voice to that of the Monks, while they were singing the Prayers appointed for such an Occasion.

FERDINAND I. of the House of *Austria*, succeeded him, the 14*th* of *March* of the Year 1558. He was learned, judicious, gentle, and lov'd Peace and his People. He dy'd the 25*th* of *July* of the Year 1564; after he had reign'd very near 6 Years.

MAXIMILIAN II. Son of *Ferdinand* I. succeeded his Father the 25*th* of *July* of the Year 1564. He was disturb'd by the *Turks* in *Hungary*, and dy'd the 12*th* of *October* of the Year 1576; after he had reign'd 12 Years, 2 Months, and 17 Days.

Note, That under his Reign, *i. e.* in the Year 1570, the *Turks* invaded the Island of *Cyprus*, and the following Year took *Famagosta*, the Capital of that Island. The *Bassa Mustapha*, irritated at the too obstinate Resistance of *Bragandini*, who defended it for the *Venetians*, and violating, as a *Barbarian*, the Faith he had given him; caus'd him to be flea'd alive. Moreover, the *Christians* gain'd over the *Turks* the famous Battle of *Lepante*, where the whole maritime Power of the *Ottoman* Empire was entirely destroy'd, with so terrible a Slaughter of the *Turks*, that the Sea was dyed with their Blood.

RODOLPHUS II. Son of *Maximilian* II. succeeded him the 12*th* of *October* of the Year 1576. The Beginning of his Reign was attended with a great Tranquillity; but the End was much disturb'd with foreign Wars, and domestick Divisions. He dy'd the 20*th* of *January* of the Year 1612; after he had reign'd 35 Years, and 2 Months.

MATHIAS I. succeeded his Brother *Rodolphus* II. the 13*th* of *June* 1612. He was pious, gentle, and lov'd

lov'd Peace. He dy'd the 20*th* of *March* of the Year 1619; after he had reign'd 6 Years, and 9 Months.

FERDINAND II. Archduke of *Gratz*, of the House of *Austria*, succeeded him the 28*th* of *August* 1619. He had great Wars to maintain against the *French*, *Swedes*, the *Protestants* of *Germany*, and the Rebels of *Hungary*. He was a good and pious Prince, and dy'd the 8*th* of *February* of the Year 1637; after he had reign'd 18 Years, and 7 Months.

FERDINAND III. succeeded his Father *Ferdinand* II. the 8*th* of *February* 1637. His Reign was no less disturb'd with Wars than that of his Father. He was a religious Prince, and dy'd the 2*d* of *July* of the Year 1657; after he had reign'd 21 Years.

LEOPOLD, Archduke of *Austria*, Son of *Ferdinand* III. succeeded him the 28*th* of *July* 1658. His Reign was that of Justice and Piety. He dy'd in the Year 1705.

Note, That under *Leopold*'s Reign the *Turks* besieg'd *Vienna* with an Army of 130000 Men, commanded by *Cara Mustapha*, Grand Vizier. But *John Sobieski*, call'd, very justly, *the Great Sobieski*, at the Head of 10000 Men only, forced them to raise the Siege, in so great a Disorder and Confusion, that they left in the Trenches all their Artillery, Ammunitions, Provisions, &c. and even *Mahomet*'s Standard; which *Cara Mustapha* was oblig'd to carry off himself, for Fear it should have fell into the Hands of the *Christians*. This gave Occasion to *Leopold* to reconquer all he had lost in *Hungary*, and to gain several Victories over the *Infidels*.

JOSEPH I. succeeded his Father in 1705. He had been crown'd King of *Hungary* in 1687; and King of the *Romans* in 1689. He maintain'd the War which divided all *Europe*, on Account of the Succession to the Throne of *Spain*; and which was at last terminated in Favour of *Philip* V. the present King of *Spain*. He dy'd in 1712.

CHARLES VI. succeeded his Brother *Joseph*, in 1712. He claim'd the *Spanish* Succession, contrary to the Disposition of the last Will and Testament of *Charles* II. who therein had design'd *Philip*, Duke of *Anjou*, Grandson of his Sister, and Son of *Louis*, Dauphin of *France*, for his Successor. *Charles*'s Allies supported his Claim with their Arms, tho' contrary to the Maxims of the best Politicks; since it is by no Means the Interest of the illustrious *Germanick* Body to have at their Head a Prince who would be both Emperor, and King of *Spain*. But, however, the decisive Battle of *Almanza*, in *Spain*, where the Army of the Allies was totally defeated, ended those Disputes, and secur'd the Crown to *Philip* V. *Charles* was one of the most accomplish'd, and the most amiable Princes of his Time. He was brave of his Person, generous, liberal, grateful, learned, and pious; ador'd by his Subjects, belov'd, esteem'd, and respected by all *Europe*. He dy'd the 20*th* of *October* of the Year 1740, aged 55 Years, without Issue Male. But he has left to the two illustrious Archdutchesses, his Daughters, for chief Apennage, his rare Merit, and excellent Virtues; which the most formidable Pretender to his Succession will never be capable to wrest from them; and which render them worthy of the Empire of the whole Earth; which I could wish it was in my Power to give them.

CHARLES ALBERT, Elector of *Bavaria*, succeeds him in the Empire, and in the Kingdom of *Bohemia*.

Note, That as I have prescrib'd to myself a Law of following the *Chronology* of the several Monarchies of the World according to their Antiquity, I cannot dispense myself from placing next to the *Chronology* of the Emperors, that of the Kings of the *Visigots*, without pretending to leave thereby, any Room for renewing that Dispute which has subsisted so long between the two Crowns of *France* and *Spain*, for the Precedency, and which has been terminated, at last, in Favour of *France*; since the Kings of *Spain* can no more pretend to be the Successors of the Kings of the *Visigots*, than the Kings of *England* can pretend to be the Successors of the Kings of *Britain* when divided into an Heptarchy, and before those different small Kingdoms were united into one, under King *Egbert* I; who gave the Name of *England* to *Great Britain*; otherwise the Kings of *England* could claim the Precedency of all the Kings of *Europe*; since there were Kings in *Great Britain* when King *Lucius*, who then reign'd, in some Provinces of this Island, ask'd, (in the Year of *Christ* 183, the 2*d* of the Emperor *Commodus*) of Pope *Eleutherius*, the Evangelists, for a more perfect Instruction of his Subjects in the true Religion, and to establish a Church among them. So that the *Britons* had not only Kings, but even *Christian* ones, when the other Nations of *Europe* had none at all: But as those Times are very obscure, and it is impossible to trace a Succession from thence; it would be as ridiculous for the Kings of *England* to rank those antient *British* Kings among their Predecessors, as it was for the Kings of *Spain* to trace their Origin from the *Visigots*.

CHRONOLOGY *of the Kings of the* Visigots.

ATAULPHE, the first King of the *Visigots*, began to reign in the Year of *Christ* 412. He grew despicable to his People, and was kill'd at *Barcelona*, with six of his Children, in the Year 415; after he had reign'd 3 Years.

SIGERIC was elected King by his Army, in 415; but as he shew'd some Inclination for Peace, those who had carry'd him to the Throne depriv'd him of it, and of his Life, the same Year 415; after he had reign'd 7 Months.

WALLIA, whom they thought determin'd to wage an implacable War against the *Romans*, was put in his Place; but when he saw himself Master, he chang'd his Thought, concluded an honourable Peace with the Emperor *Honorius*, and sent him his Sister *Placidia*, *Ataulphe*'s Widow. He destroy'd entirely the *Alans*, and dy'd in the Year 419; after he had reign'd 3 Years.

THEODORIC I. ascended the Throne in the Year 419. He had form'd several grand Projects, but was kill'd in the memorable Battle given against *Attila*, in 451; after he had reign'd 33 Years.

TORISMOND ascended the Throne in the Year 451. He was cruel, proud, and universally hated. He was assassinated in the Year 452; after he had reign'd 2 Years.

THEODORIC II. ascended the Throne in the Year 452. He was a great Conqueror, a brave and judicious Captain, but impious, cruel, and dipp'd his fratricidious Hands in the Blood of his Brother. He was kill'd at *Toulon* in *Provence*, by *Evaric*, his younger Brother, and Successor, in the Year 466; after he had reign'd 14 Years.

EVARIC succeeded his Brother in the Year 466. Soon after he enter'd *Lusitania*, at present *Portugal*, which he ravag'd entirely. He did the same in *Higher Spain*, *Navarre*, and *Catalonia*, where he ruinated *Tarragona*; from thence he pass'd into *Gaul*, where he committed infinite Disorders. The Avarice and Disorder of those who govern'd those Provinces, for the Emperor, the Sterility and Famine they were desolated by, made him undertake that Irruption, which prov'd successful to him. *Arles* was the only City which preserv'd, still, some Marks of the Majesty of the *Roman* Empire; but she could not, or would not defend herself against the Arms of *Evaric*, who made it the Seat of his Kingdom, in the Year 464. The Emperor *Anthemius*, to expel him from it, implor'd the Succours of the *Britons*, and their King *Reotime* brought him 12000 Men as far as *Bourges*. *Evaric* gave him Battle before he could join the *Romans*,

Romans, and defeated him; so that *Reotimus* was oblig'd to fly into *Burgundy*. After this Defeat, *Evaric* besieg'd *Clermont* in *Auvergne*, which *Ecdicius*, Son of the Emperor *Avitus*, defended against him. In a Sally *Ecdicius* made with a small Number of Forces, the Army of the *Goths* was seiz'd with such a panick Fear, that it was entirely defeated. *Evaric* dy'd (after he had expell'd the *Romans* from *Spain*, who had maintain'd themselves there very near 700 Years) in 485; after he had reign'd 19 Years.

ALARIC succeeded his Father in the Year 485. He was kill'd by *Clovis*, King of *France*, at the Battle of *Tolbiac*, near *Poictiers*, in the Year 507; after he had reign'd 32 Years.

GESALIC ascended the Throne in the Year 507. *Theodoric*, King of the *Ostrogots*, in *Italy*, sent him 80000 Men against the *French*, who join'd to the *Visigots*, gain'd the Battle, and re-conquer'd *Gascony* and *Languedoc*. *Gesalic* was kill'd on the Borders of the River *Durance*, in the Year 511; after he had reign'd 4 Years.

AMALARIC ascended the Throne in the Year 511, under the Tutelage of *Theodoric*, King of the *Ostrogots*; and afterwards reign'd as Major, in the Year 526. He was an *Arian*, brutish, and passionate. He maltreated cruelly *Clotilde*, his Queen, Daughter of *Clovis*, King of *France*. She sent to her Brother *Childebert* a Handkerchief dy'd with her Blood, which *Amalaric* had spilt. *Childebert*, to be reveng'd of it, invaded *Spain* with a powerful Army, and defeated *Amalaric*, who was kill'd as he was going to take Sanctuary in a Church, in the Year 531; after he had reign'd 20 Years.

THEUDIS possess'd himself of the Throne, in the Year 531. He was kill'd by a Man who affected to be out of his Senses, in the Year 548; after he had reign'd 15 Years, and 5 Months.

THEUDISILE ascended the Throne in the Year 548. He abandon'd himself to all Sorts of Vices and Cruelties, and was massacred by his Subjects at a Feast, in 550; after he had reign'd 1 Year, and a Half.

AGILA ascended the Throne in the Year 550. He was impious and cruel, and was kill'd at *Merida*, by the Intrigues of *Athanagilde*, who had already defeated his Troops, plunder'd his Riches, and kill'd his Son; after 4 Years Reign.

ATHANAGILDE ascended the Throne in 554. He was brave and intrepid, and wag'd War against the *Romans*. He died in the Year 568; after he had reign'd 14 Years.

LISUBA ascended the Throne in the Year 568. He reign'd but one Year, and died in the Year 569.

LEUVIGILDE ascended the Throne in the Year 569. He was brave and enterprizing, and gain'd several Victories; but he was very cruel, and caus'd his own Son, *Ermenegilde*, to be put to Death, because he had abjur'd *Arianism*, and embrac'd the orthodox Faith. He died in the Year 586; after he had reign'd 18 Years

RECAREDE, the first of the Name, succeeded him, in the Year 586. He was brave and just, and quitted *Arianism*, to embrace the orthodox Faith, with the Assistance of St. *Leander*, Bishop of *Seville*. He died in the Year 601; after he had reign'd 15 Years

LIUBA II. succeeded his Father in 601. He was but 20 Years of Age when he was kill'd by *Witeric*, his Successor; after 2 Years Reign.

WITERIC succeeded him in the Year 603. He wanted to re-establish *Arianism*, and his Life was soil'd with all Sorts of Crimes. He was ston'd to Death in his Palace, and his Body dragg'd thro' the Streets with Ignominy; after 7 Years of Tyranny.

GONDEMAR ascended the Throne in the Year 610. He granted, that Churches should be sacred Sanctuaries, against all Sorts of Pursuits. He waged War against the *Vascons*, *Romans*, and other People, with much Glory. He died in the Year 612; after he had reign'd 2 Years.

SISEBUT ascended the Throne in the Year 612. He was brave, wise, and religious. He defeated the *Romans* in several Encounters, and died in the Year 621; after he had reigned 8 Years and a half.

RECAREDE II. ascended the Throne in the Year 621. He reign'd but 3 Months, and died the same Year.

SUINTILLE ascended the Throne in the Year 621. He had Wit and Prudence. He wrested from the *Romans* the few Places they had left, and thereby deserv'd the Title of first Monarch of *Spain*. He died in the Year 631; after he had reign'd 10 Years.

SISENAUD ascended the Throne in the Year 631. He had a great deal of Piety, and died in the Year 635; after he had reign'd 5 Years.

CHINTILE ascended the Throne in the Year 636. He was very religious, and died in the Year 640; after 4 Years Reign.

TULGA ascended the Throne in the Year 640. He was pious, just, prudent, and brave. He died in the Year 642; after 2 Years, and 4 Months Reign.

CHINDASVINTHE ascended the Throne in the Year 642. He govern'd, with a great deal of Prudence and Justice, the Kingdom he had acquir'd by Tyranny. He vanquish'd the *Gascons* and *Navarrois*, and corrected the Laws of the *Goths*. He died in the Year 649; after he had reign'd 7 Years.

RECESVENDE ascended the Throne in the Year 649. He was pious, just, and a Lover of Peace. Under his Reign there happen'd some Prodigies: The Stars were seen in the Heavens at Noon-day, and the Sun was eclipsed in an extraordinary Manner. He died the 1*st* of *September* of the Year 672; after he had reign'd 23 Years and a half.

VAMBA ascended the Throne in the Year 672. He was brave, prudent, just, severe, and very religious. He died in the Year 682; after he had reign'd 8 Years, and 1 or 2 he pass'd in the Solitude of a Monastery.

ERVIGE ascended the Throne in the Year 680. He lov'd Justice and Piety, and had much Courage and Prudence. He died in the Year 687; after he had reign'd 7 Years. Under his Reign happen'd a cruel Famine in *Spain*.

EGILA ascended the Throne in the Year 687. He was pious, and died in the Year 701; after he had reign'd 15 Years.

VITIZA ascended the Throne in the Year 701. His Palace became the Asylum of all Sorts of Crimes. He kill'd, with a Club, *Favila*, a Man of Quality; and put out the Eyes of *Theofrede*. After 10 Years Reign, *Roderic*, in his Turn, put out *Vitiza*'s Eyes, who died miserable at *Cordua*.

RODERIC ascended the Throne in the Year 711. He surpass'd, in Crimes, all his Predecessors. He debauch'd *Cava*, Daughter of the Earl *Julian*, Governor of *Ceuta*, who was brought up in the Palace among other young Ladies of her Rank, while her Father was on an Embassy in *Africa*. *Julian*, to be reveng'd of that Affront, call'd the *Moors*, who came with immense Forces. The King perish'd in a Battle, after 2 Years Reign; *Spain* is conquer'd, and the Empire of the *Visigots* extinct: Therefore the Kings of *Spain* cannot trace the Origin of their Monarchy from another which was extinct long before theirs began.

Note, That the next Monarchy, for Antiquity, and which has continu'd, without Interruption, from their first King *Pharamond*, to the present King *Lewis* XV; is the *French* Monarchy, and is, at present, the most antient Monarchy in the whole World, and acknowledg'd as such by all other Sovereigns; who therefore have been all oblig'd to give the Precedency to the King of *France* in all publick Acts, Ceremonies, *&c.* all the neighbouring Princes having been his Vassals, in their Turn. But before we proceed to the *Chronology* of the Kings of *France*, 'tis necessary to observe, that they are divided into three *Lines*, or Races. The first Race is that of the MEROVINGIANS, who had *Merovee* for their Chief, and which contain

contain 22 Kings; and lasted 331 Years. The second of the CARLOVINGIANS, containing 13 Kings; and lasted 235 Years. The third of the CAPETIANS, contains 31 Kings; and lasted 735 Years. We'll begin their *Chronology* with the first Race.

CHRONOLOGY *of the Kings of* France, *of the first Race*, viz. *of the* Merovingians, *under* 22 *Kings*; *during* 331 *Years*.

PHARAMOND, or VARAMOND, began to reign over the *Francs*, or *French*, in the Year 420, or 421. between the Death of *Marcomir*, whose Son, some Authors pretend, he was, and the Death of *Susnon*, 17 Years had been elaps'd; during which, 'tis not known who commanded over the *Francs*. But in that Interval they defeated *Godegischile*, King of the *Vandals*, assisted *Constantine* and *Jovinus*, who had usurp'd the Empire; whose Ruin, notwithstanding, they could not hinder; and plunder'd twice the City of *Treves*. *Pharamond* reign'd 8 or 9 Years.

Note, That *Pharamond* is thought the Founder of the *French* Monarchy, and the Author of the SALICK LAW, *i. e.* of the *Salians*, (which was the Name of the *French* in those Days) which excludes Women from the Succession to the Throne, tho' all the *French* Authors are not of that Opinion.

CLODION, his Son, call'd *the Chevelu*, because of his long Hairs, which was not the Custom of the *French*, who always wore it very short, succeeded him, in 428, or 429. He fix'd the Seat of his Kingdom on the Borders of *Tungria*, at a Castle, at present call'd *Inspurg*, between the Towns of *Wesel* and *Duseldorph*. In the Beginning of his Reign he invaded the Country of *Artois*, and routed some *Roman* Forces, who would oppose his Designs. He penetrated into *Germany*, and conquer'd the *Saxons* and *Turingians*, and took the Cities of *Mayence*, *Triers*, and *Cologne*; but while the *French* were assembled for the Wedding of some of them, in a Place call'd *Helene*, suppos'd to be the same call'd at present *Hesdin*; *Majorian*, a *Roman* Captain, surpriz'd them, kill'd most of them, and made the rest Prisoners. *Ætius*, afterwards, forced them to quit the *Belgick Gaul*; but *Clodion* took, also, his Revenge afterwards; for he expell'd the *Roman* Garrisons from the Cities of *Arras*, *Tournay*, and *Cambray*, and transferr'd the Seat of his Empire into the last, where he was bury'd, after he had subdued *Theroüene*, and the whole Country situated between the *Escaud* and the *Somme*. Some give him 18 Years Reign, and others 23.

MEROVEE (from whom the Kings of the first Race have took the Name of *Merovingians*) was elected by the *French* at *Amiens*, in *Picardy*, for their King. Some say, that he was the Son of *Clodion*, and preferr'd before his other Brothers for his Bravery. Others pretend, that he was only *Clodion*'s Kinsman. The *French* Historians consider him as the first Founder of the *French* Monarchy as hereditary. He changed the Name of *Gaul* into that of *France*. His Reign began in 448, and he fix'd his Residence near *Strasbourg*. He cross'd and re-cross'd the *Rhine* several Times, and at last resolv'd to wage War against the *Romans*. But as *Attila* invaded, then, the *Gauls*, and had even routed him from *Cologn*, he chang'd his Design, and join'd with *Ætius*, the *Goths*, and the King of the *Alans*, to oppose their common Enemy. They followed him as far as *Chalons*, and in those spacious Plains of *Champagne* was fought that famous Battle where *Ætius* acted as General, with the Consent of the other Kings, who paid that Deference to his consummate Experience, and great Valour. In that Battle *Attila* lost 160000 Men, and was forced to fly. This Victory procured a favourable Opportunity to the *French* for extending their Conquests over the *Romans* and *Goths*; for *Merovee* taking Advantage of *Ætius*'s Absence, render'd himself Master of several Places, either by Force, or Amity; the one's being not capable to resist him, and the other's being glad to pass under the Domination of a new Master; from which they expected to reap some Advantages. After *Merovee* had reign'd 9 or 10 Years, full of Glory for his Conquests, he died, and left his Kingdom to his Son *Childeric*.

CHILDERIC I. succeeded his Father *Merovee*, in the Year 458. This Prince, in the Beginning of his Reign, was so debauch'd, negligent, and oppressive to his People in the Imposition of Tributes they were over-loaded with; that having excited a great Sedition against him, they forced him to fly his Kingdom, and elected for King, in his Place, *Gilles*, a *Roman* Senator, Captain of the *Roman Gendarmerie* in *Gaul*. But *Guinamaud*, Confident, and faithful Servant of *Childeric*, found Means to insinuate himself into the Confidence of his Successor, and by his Advice engaged him to treat the *French* worse than *Childeric* had done, and to prefer a despotick Power to their Affection, which was uncertain. This was calculated by *Guinemaud* to give the *French* a Disgust for a foreign Yoke, and make them wish for the Return of their legitimate Prince. In Fact, his Design succeeded as he expected; the *French* re-called *Childeric*, who expell'd *Gilles* from his Dominions, leaving him only the City of *Soissons* for his Residence. His Adversity render'd him wiser, and after his Return he extended by his Victories and Conquests the Limits of his Dominions, and did all that could endear him to his Subjects, and oblige them to mourn his Death, which happen'd at his Return from an Expedition into *Germany*, when he was seiz'd with a Fever, and died in the 45*th* Year of his Age; of which he had reign'd 26 Years.

Note, That *Childeric* had of Queen *Basine* (who had left her Husband *Basin* King of *Thuringe*, to follow *Childeric* who married her) *viz.* one Son called *Clovis*, and three Daughters, *Audiflede*, who married *Theodoric*, King of the *Ostrogots*, *Albofleda*, and *Santilde*. These two last embraced the *Christian* Religion with their Brother *Clovis*.

CLOVIS succeeded his Father *Childeric* in the Year 481, or 485; while but 15 Years of Age. He signalized the Beginning of his Reign by the Victory he gained over *Siagrius*, Son of that *Gilles* who had usurp'd the Throne from his Father. He took the City of *Soissons*, which was the best Fortress the *Romans* occupied in the *Belgick Gaul*. By that Victory ended the Domination of the *Romans*, which *Julius Cæsar* had established in the *Gauls*, on this Side *Lyons* and the Mountains of *Auvergne*. *Clovis* married *Clotilde*, Niece of *Gondebaud*, King of the *Bourgignons*, on Condition he should embrace the *Christian* Religion. In 496, in a Battle against the *Germans*, his Forces gave Ground, and were routed; he invoked the God of his Wife, and vowed, that if he would be pleased to deliver him from that Peril, he would be baptized. In Consequence thereof, he gained the Victory, and accomplished his Vow, in receiving the Baptism on *Christmas-day*, in the Church of *Rheims*, by the Hand of St. *Remy*, Bishop of that See. In 507, he declared War against *Alaric*, King of the *Visigots*, whom he entirely defeated, 5 or 6 Leagues off *Poictiers*. *Clovis* killed *Alaric* with his own Hands. He died at *Paris* the 26*th* of *November* 511, and was buried in the Church of St. *Peter* and St. *Paul*, which he had built, called at present St. *Genevieve*.

Note, That *Clovis* left 4 Sons, *viz.* *Thierri*, King of *Mets*, or of *Austrasia*; *Clodomir*, King of *Orleans*; *Childebert*, King of *Paris*; and *Clotaire*, King of *Soissons*.

CHILDEBERT I. aged 13 or 14 Years, began to reign in the Year 511. In 534, *Childebert* and *Clotair*,

tair, having joined their Forces, took *Gondemer*, King of the *Bourgignons*, Prisoner, and rendered themselves entire Masters of his Dominions, in the Year 558. *Childebert* returning from an Incursion into *Champagne*, died.

Note, That *Childebert*'s two Daughters, whom he had left of his Wife *Ultrogothe*, were excluded from the Succcession to the Throne, as decreed by the *Salick Law*; and that *Clotaire*, *Childebert*'s Brother, was placed upon it.

CLOTAIRE I. out-liv'd his 3 eldest Brothers, and re-unites, in his Person, the whole Succession of *Clovis*, in the Year 558. In the Year 560, he caus'd his Son *Chrame*, who had often revolted against him, to be burnt. He dy'd of a Fever at *Compiegne*, in the *51st* Year of his Reign. We must confess, that this Prince had several very good Qualities; he was brave, liberal, and learned; but he had also several very great Vices, which his Virtues cannot excuse: For his Ambition was out of Measure, and his Cruelty barbarous, as it appear'd in the Death of his Nephews, Sons of *Clodomir*, whom he kill'd with his own Hand. *Chrame* his Son deserv'd to be punish'd; but his Wife and Daughters were innocent, and were not to perish with him as they did; but Impudicity was his favourite Vice.

Note, That *Lotharius* left 4 Sons, *viz. Charibert*, King of *Paris*; *Gontran*, King of *Orleans* and *Burgundy*; *Sigebert*, King of *Austrasia*; and *Chilperic*, King of *Soissons*.

CHARIBERT reign'd 9 Years, and dy'd in 570, or 572, according to *Baronius*; after he had reign'd 9 Years. *Fortunate* praises *Charibert* as a Prince good, wise, pious, pacifick, liberal, just, and a religious Observer of his Word; but others say, that he eclipsed all those Virtues by his Impudicity, which violated all Laws, divine and human.

Note, That *Charibert* left 3 Daughters, *viz. Bertefiede*, *Crodielde*, and *Berthe*. The 2 first were made Nuns; and the 3*d*, *viz. Berthe*, was given to *Ethelbert*, King of *Kent* in *Great Britain*, who was an Idolater, but whom she persuaded to embrace the *Christian* Religion.

CHILPERIC I. succeeded his Brother in the Year 575. He received the melancholy News of the Death of his Son *Theodebert*, kill'd in a Battle in *Poitou*. *Fredegonde*, his Concubine, caus'd *Sigebert* to be stabbed. The *French* raised the Siege of *Tournay*; the Neustry re-enter'd, under the Obedience of *Chilperic*. The infamous *Fredegonde* had *Clovis*, Son of *Chilperic* by his Queen *Andovere*, assassinated, and throw'd into the River; she afterwards caus'd the Queen herself to be strangled, and her Daughter *Basine* to be shut up in the Monastery of *Poitiers*, after she had been ravished by her Satellites. In 583, the Plague desolated all *France*, and particularly *Paris*. In 1584, *Chilperic* was assassinated in the Court of his Palace at *Chelles*, by the Intrigues of the ungrateful and cruel *Fredegonde*, his Wife, and of *Landri de la Tour*, her Gallant; after he had reign'd 23 Years. He was buried in the Church of St. *Vincent*, in the Suburbs of *Paris*, at present St. *Germain des Pres*; and his Tomb is yet seen there, but it is not the antient one: For in the Year 643, there was found in a Portico of that Monastery, the true Sepulchre of *Chilperic*, and of *Fredegonde* his Wife, made of common Stone, and the Bones whole. On that of *Chilperic* there were written in old Letters, these Words, in *Latin*; *In no Time I will not have the Bones of* Chilperic *taken from this Place*. *Gregory* of *Tours* speaks of him as of the *Nero* of his Time. *Fortunate*, on the contrary, commends his Valour, Wit, Learning, Eloquence, Justice, and Piety. My Opinion is, that neither is to be credited, in all they say of him; and that he was not so absolutely bad as represented by *Gregory*; nor so good as mention'd by *Fortunate*.

Note, That of so many Sons born to *Chilperic* of several Wives, none was left but one of *Fredegonde*, and who was but 4 Months old when *Chilperic* died, and had no Name yet.

CLOTAIRE II. an Infant, succeeded his Father *Chilperic* in 584. *Fredegonde*, his Mother, who was Regent of the Kingdom during his Minority, putting herself at the Head of his Army, gain'd two memorable Battles against the confederated Forces of *Teodebau* and *Thierri*, Sons of *Childebert*, King of *Austrasia* and *Burgundy*; in which two Encounters, *Fredegonde* did the Office of a General, with a Courage above her Sex. In 616, he caused *Brunehaud* to be condemn'd to Death, accused of having killed 10 Kings; who, accordingly, after she had been tortur'd for 3 Days successively, was ty'd to the Tail of a wild Mare, which dragg'd her thro' the Streets, till her Brains were dash'd out, at a Place near the Street St. *Honore*, at *Paris*, call'd at present *La Croix du Tiroire*, remarkable for a Gibbet erected there for the Execution of all the Criminals of the Province of *Normandy*. In 623, *Clotaire* gave to his Son *Dagobert*, aged 15 Years, one Part of the Kingdom of *Austrasia*, under the Conduct of *Pepin* the Elder. In 628, *Clotaire* dy'd, and was bury'd at St. *Germain des Pres*. He was a great Prince, and reign'd, after the Death of *Thierri*, 14 Years, over all *France*. He left two Sons, *Dagobert*, and *Aribert*; but not both of the same Mother.

DAGOBERT I. succeeded his Father *Clotaire* in 629. He abandoned himself to his Amours, and to a sordid Avarice, monstrous in a Prince, who was but 21 Years of Age. He was reprimanded by St. *Amand*, Bishop of *Tongres*; he grew more moderate in his Pleasures. In the Year 638, the whole Kingdom enjoying a perfect Tranquillity without and within, he assembled all the Lords at that Time at his Court, and recommended to their Fidelity his Wife *Nantilde*, and his Son *Clovis*, whom he committed to the Care of *Ega Maire* of the Palace of *Neustria*. Afterwards he was carried, according to his Desire, to the Abbey of St. *Dennis*, where he died, aged 38 Years; after he had reigned 16 Years. He was buried in the same Abbey, on the right Side of the Altar. M. *Du Saussaye*, Bishop of *Toul*, ranks him among the most pious Princes; and the Jesuit *Bolland* says, that he is called Saint, in several Manuscripts. The Monk *Aymoin* speaks of him as of a Prince very exact in the Administration of Justice, very charitable, and very liberal to Churches.

Note, That the *Mairs du Palais* will henceforwards govern the Affairs of State, according to their Caprice, and private Interest.

CLOVIS II. the first *Feneant*, or lazy King, (the 10 other Kings who remain of the same Race being of the same Character) succeeded his Father in 643. In 645, a great Famine having desolated *Neustria*, *Clovis* took the Silver that the Shrine of St. *Dennis* was cover'd with, to buy Subsistance for the Poor. He was then but 11 or 12 Years old. In 649, *Erchinoald*, *Mair du Palais*, married his Slave *Batilde* to King *Clovis*. In 655, *Clovis*, aged 20, or 22 Years, having his Brain disorder'd, by frequent Convulsions, died, and was buried at St. *Dennis*; after he had reigned 17 Years.

Note, That *Clovis* II. left of his Queen *Batilda*, 3 Sons, *viz. Clotaire*, *Chideric*, and *Thierri*.

CLOTAIRE III. succeeded his Father in the Year 655, while he was but 5 Years of Age, in the Kingdom of *Neustria* and *Burgundy*, under the Conduct of

of the Queen his Mother, and of *Erchinoal, Maire du Palais.* He died in 668, aged 17 Years; after he had reigned 14 Years. He had no Children, and no Body knows where he was buried.

CHILDERIC II. succeeded his Brother *Clotaire* in 669. In the Year 670, the whole *French* Monarchy was re-united under *Childeric*, who reigned alone. At first, he behaved like a good and prudent Prince; but Adulators having corrupted his good Inclinations, he plunged himself in all Sorts of Debaucheries. In 673, on his Return from Hunting, he was assassinated by a Lord of his Court, call'd *Bodellon*, who, some Time before, he had ordered to be ty'd to a Stake, and whipp'd. Queen *Belechilde*, his Wife, and a Son yet very young, underwent the same Fate. *Childeric* was then 21 Years of Age; those of his Reign are not justly known. He left no Children. Towards the End of the last Century, his Tomb was found in the Abbey of St. *Germain des Pres*.

Note, That after the Murder of *Childeric* there was an *Interregnum* of a few Months, and a great Confusion throughout the whole Kingdom.

THIERRI I. aged 23 Years, was taken from the Monastery of St. *Dennis*, by the Lords of *Neustria* and *Burgundy*, to be placed on the Throne. He reigned in Indolence and Voluptuousness. In the Year 691, he died, aged 40 Years; 4 of which he had passed under the Power of *Pepin, Maire du Palais.*

CLOVIS III. eldest Son of *Thierri*, and of Queen *Clotilda*, was placed on the Throne by *Pepin*, Sovereign in *Austrasia*, in the Year 691. He died in 695, aged 15 Years; after he had reigned 4 Years.

CHILDEBERT II. called *the Younger*, Brother of *Clovis*, was placed on the Throne by *Pepin*, who governed him with a still more absolute Power than he had done his Brother. In the Year 711, *Childebert*, aged 28, died the 15*th* of *April*, and was buried in the Church of St. *Stephen* at *Couci*.

Note, That *Childebert* II. left two Sons, *Dagobert*, and *Childeric* who was brought up a Clergyman, and called *Daniel*.

DAGOBERT II. was installed on the Throne by *Pepin*, by the Council, and with the Approbation of the States. In the Year 715, *Dagobert* died, after he had been the Tool of the *Maires du Palais* 4 or 5 Years. He left a Son, called *Thierri*, yet in his Cradle, who was called *Ofchelles*, because brought up there.

CLOTHAIRE IV. of the Royal Blood, whom some make a Descendant of *Dagobert*, was made King by *Charles, Maire du Palais*, in the Year 716; but he died the same Year. His Tomb is at *Couci* in *Vermandois*.

CHILPERIC II. was Son of *Childebert*. He was taken from his Monastery, where he was called *Daniel*, by *Rainfroy*, placed on the Throne, and called *Chilperic*, in the Year 719; but *Charles Martel* had him proclaimed King in the three Kingdoms, in the Year 721. He died at *Noyon*, where he was buried.

THIERRI II. of *Chelles*, Son of *Dagobert* II. is placed on the Throne by *Charles*, in the Assembly of the States, and in the Year 721. *Charles* wanted always the Simulacher of a King, with whom he used to amuse the People, while he reserved the whole Authority to himself. In 738, *Thirri* died, aged, perhaps, 23; after 17 Years of an imaginary Reign.

Note, That in 732, *Charles* defeated the *Saracens*, whom *Eudes*, Duke of *Aquitaine*, had invited to invade *France*. Their General, *Abderame*, was killed in the Fight, with more than 100000 of his Forces. *Charles* placed no other King on the Throne after *Thierri*'s Death, but continued to govern the whole Kingdom, without assuming the Title of King, for the Space of five Years. He died at the Castle of *Cerisi*, or *Crecy*, near *Noyon*; after he had reign'd in *France* under the Name of two Kings, *viz. Chilperic* II. and *Thierri*.

CHILPERIC III. call'd *the Stupid*, ascended the Throne in 743. In 751, he was degraded.

Note, That the *French*, after so many Idiots and lazy Kings, wanted a real King: Therefore *Pepin, Maire du Palais*, assembled a Parliament, compos'd of the Prelates and Lords of the Kingdom, where he was chosen King; and *Childeric*, the last of the *Merovingian* Race, who had not been married, was confin'd in the Monastery of *Siteau*, where he died 2 Years afterwards. Thus ended the first Race of the Kings of *France*, who had reign'd 331 Years, and had 22 Kings, if we reckon but those of *Paris*; and 35, if we reckon those who had that Title, either in *Austrasia*, where there was but one who resided at *Metz*, or in *Neustria*, where there were sometimes three, who had their Seats at *Orleans, Soissons*, and *Paris*. Four of those Kings were Idolaters, and the others *Christians*.

PEPIN *le Bref*, or the Short, was crown'd King by *Bonifacius*, Archbishop of *Mayence*, in the Cathedral of *Soissons*, and anointed with Oil, as were the Kings of *Israel*, in the Year 751. In 752, his first military Expedition, after his Coronation, was against the *Saxons*, whom he render'd tributary. In 755, he went into *Italy*, at the repeated Intreaties of Pope *Stephen* III. to oblige *Astolph*, King of *Lombardy*, to the Restitution of the *Exarchate* of *Ravenna*; which the Pope pretended *Astolph* had usurp'd. In 756, *Pepin* presented the See of *Rome* with that *Exarchate*, compos'd of the following Towns and Cities, *viz. Ravenna, Bologna, Imola, Faenca, Forsy, Cebenna, Bibia, Ferrara*, and *Adria*; the *Pentapole*, with *Rimini, Pesaro, Conca, Fano, Siniguillia, Ancona*, and some other Places. *Leo* of *Osty* makes this Donation more ample, and adds to it several other Cities and Provinces; as that of *Venice* and *Istria*, the Dutchies of *Spoleto* and *Benevent*. That Donation, which is as real, and as religious as that of *Constantine the Great*, which was, perhaps, fabrick'd at the same Time, is false, and sacrilegious, render'd the Pope a great temporal Prince, but a very indifferent Successor of the Apostles, and serv'd only to introduce Pomp, Luxury, and Vanity, in the Church, which was founded on Humility. In 768, *Pepin* having conquer'd all *Aquitaine*, died of a Dropsy, the 24*th* of *September*, at St. *Dennis* in *France*, aged 53, or 54 Years; of which he had reign'd 17 and a Half, reckoning from the Time of his Election.

Note, That *Pepin* was married but once, and that to *Berthe*, call'd *Long-foot*, Daughter of *Caribert*, Earl of *Laon*; of whom he had four Sons, *viz. Carloman, Charles, Pepin*, and *Gilles*; and three Daughters, *viz. Rotaide, Adelaide*, and *Gisele*. The last of the Sons was sent young to the Monastery of *Mont Soracles*. *Pepin* died, aged 3 Years. The Kingdom was left to the two others, *Carloman* and *Charles*, who were crown'd in the Month of *October* following; *Carloman* at *Soissons*, and *Charles* at *Noyon*. The two eldest Daughters, *Rotaide* and *Adelaide*, died young. *Gisel* retir'd into a Monastery. Some Genealogists give him five or six Sons, and as many Daughters more; among whom, say they, *Berthe* was married to *Melon*, Earl of *Anglers*, and Father of the famous *Roland*, so renown'd in our Romances; and *Cheltnede* to *Rene*, Earl of *Genoa*, who was the Father of *Oger* the *Dane*, one of the twelve Peers of the *Round Table*.

Note, also, That it was in *Pepin*'s Time that the *Turks* began to make themselves known, by invading *Armenia*. The Emperor *Heraclius* employ'd them against *Chosroes*, and they made a great

great Diversion, by entering into *Persia*, a Part whereof paid them a Tribute for several Years.

CHARLES, call'd *the Great*, and, by Corruption, *Charlemagne*, ascended the Throne in 768. His first Care was, to secure to himself *Aquitaine*, which his Father had conquer'd, and which he erected 11 Years afterwards into a Kingdom, for *Louis*, his younger Son. *Carloman*, his Brother, died near *Langres*, in the Month of *November*, aged 28 Years; and was buried at St. *Remi*, at *Rheims*. In 774, *Charlemagne* having conquer'd the *Lombards*, and taken their King *Didier* Prisoner, was crown'd King of *Lombardy*, at the Borough of *Modenessa*, near *Milan*, by the Archbishop of that great City, who anointed him, and put on his Head the Iron Crown, with which the Emperors are crown'd to this Day; and which *Tuedelaine*, Daughter of *Guribald*, Duke of *Bavaria*, had caus'd to be made in 593, to crown her Husband *Agiluf*. *Charles* put, then, the Pope in Possession of all the Provinces and Towns, given to the Holy See by King *Pepin*. He gave the Government of the Dutchy of *Benevent* to *Arichisse*, Son-in-law of *Didier*; that of the Dutchy of *Spoleto* to *Hildebrand*; and that of the Dutchy of *Frioul* to *Rotgand*; and provided the other Provinces with Governors. In 776, he brought the *Saxons* to Reason. In 781, he caus'd his Son *Pepin* to be crown'd King of *Italy*; and his younger Son, *Louis*, King of *Aquitaine*. *Charles*, the eldest, whom *Charlemagne* kept near him, had nothing. In 790, he founded the University of *Paris*, which is the Mother of all the other Universities in *Europe*. In 796, he built his fine Palace of *Aix la Chapelle*; in 800, the Pope engag'd the *Romans* to ask *Charlemagne* for their Emperor; who was crown'd, accordingly, on *Christmas-day* of the same Year, in the Church of St. *Peter* at *Rome*. In 814, he died of a Fever, the 28*th* of *January*, aged 72 Years; the 14*th* of his Empire, and the 48*th* of his Reign. Of all his legitimate Sons, none were left but *Louis*, who succeeded to all the Dominions of his Father.

LOUIS, call'd *the Gentle*, ascended the imperial Throne in 814. His first Cares were the Celebration of the Obsequies of the deceased Emperor his Father, and the Reformation of the Court; by expelling from it all Women kept in it only for Diversion. In 816, he was crown'd Emperor, and his Wife, *Herminarde*, Empress, by Pope *Stephen*, at *Rheims*, in 817. He associated *Lothaire*, his eldest Son, to the Empire; gave *Aquitaine* to *Pepin*, and *Bavaria* to *Louis*, both on the Title of a Kingdom. In 819, *Louis* having been a Year a Widower, married, for his 2*d* Wife, *Judith*, Daughter of *Velpon*, Duke in *Bavaria*. In 823, the Empress *Judith* was deliver'd of *Charles the Bald*. In 829, the Emperor infatuated of his Wife, and of his Son *Charles*, gave to that Child *Rethia*, and a Part of the Kingdom of *Burgundy*, his other Brothers present, who were irritated at it. In the Year 840, *Louis* died of a Fluxion on his Lungs, under his Tents near *Mayence*, the 20*th* of *June*, in the 64*th* Year of his Age; of his Empire 27; having been before 22 Years King of *Aquitaine*. He was buried in the Abbey of St. *Arnould* at *Metz*, by his Brother *Dreux*, Bishop of that See. *Louis* was of a sweet Temper, and much addicted to Clemency; for which he was call'd *the Gentle*: But he was too easy, and too credulous. So that by his too great Meekness, tho' he lov'd Justice above all Things, he committed sometimes Violence and Injustice; referring too much to his Counsellors, whose Intentions were not so good as his. He was laborious, sober, vigilant, and liberal; and perfectly well instructed in the Sciences. He had also a perfect Knowledge of the Laws of his Kingdom, which he took great Care to have observ'd.

Note, That *Louis the Gentle* was twice married. Of his first Wife *Hermengarde*, Daughter of the Duke of *Ingerran*, he had three Sons, *Lothaire*, *Pepin*, and *Louis*; and three Daughters, *Adelais*, marry'd first to *Conrad* Earl of *Paris*, and afterwards to *Robert le Fort*; *Gisel*, who married *Everard* Duke of *Frioul*, Father of that *Berenger*, who was King of *Italy*; *Heldegarde* married the Earl *Theodore*; and *Alpais* Wife of the Earl *Begon*. Of his second Wife *Judith*, he had only *Charles the Bald*, who succeeded him in the Kingdom of *France*.

CHARLES *the Bald*, succeeded his Father *Louis* in the Kingdom of *France*, in the Year 840. The very Beginning of his Reign was disturbed by the Emperor *Lothaire* his Brother, who had falsly imagin'd, that his Quality of eldest Brother, and of Emperor, render'd him Sovereign over his Brothers. In 841, the 15*th* of *June*, there was a Battle fought between the four Sons of *Louis the Gentle*, the most obstinate, and the most bloody, which had been fought ever since the Beginning of the *French* Monarchy. There was 100,000 *Frenchmen* kill'd in it: Victory declar'd in favour of the two younger Brothers, *Charles* and *Louis*; and the two eldest *Lothaire* and *Pepin* were beaten. In the Year 875, he was crown'd Emperor at *Rome* by Pope *John* VIII. and King of *Lombardy* at *Pavia*, by *Anspert* Archbishop of *Milan*. In 876, he raised a formidable Army to invade the Dominions of *Louis the Germanick*, who was but lately dead. Tho' *Louis* his Successor and lawful Heir, had sent him Embassadors to represent to him the Injustice of his Pretensions, which Remonstrances being not minded by *Charles*, his Army, tho' much stronger than that of *Louis*, was totally routed, and he forced to fly. The 3 Brothers establish'd themselves by this Victory in the Succession of their Father, divided it between them, *Carloman* the Eldest, had for his Portion the Kingdom of *Bavaria*, of which depended *Pononia*, *Carinthia*, *Bohemia*, and *Moravia*; *Louis*, the second, had *Germany*, and Part of the Kingdom of *Lorrain*; and *Charles* the Country of the *Grisons*, of the *Switzers*, *Swabia*, *Alsace*, and the other Part of *Lorrain*. In the Year 877, *Charles* was poison'd by his Physician, (as we have heretofore mention'd in the Chronology of the Emperors of the *West*) and died aged 55 Years. He left but one Child living, who was *Louis le Begue*, or the *Stoterer*, who succeeded him.

Note, That in 842, under *Charles the Bald*'s Reign, the *Normans* came from the North, and ravag'd all the Coast of *France*. Their Ravages in *Gascony*, the second *Aquitaine*, and *Neustria*, are incredible. They penetrated as far as *Paris*, which was then but the Island of the Palace, as it is call'd at present. But as they could not take it, they discharg'd their Fury on all the neighbouring Places, and plunder'd, especially the Abbey of St. *Germain des Prez* of all its Riches and Ornaments. They even surpassed the *Goths*, *Vandals*, and *Saracens* in their Disorders, Murders, Sacrileges, and Devastations, so that it was added, in those Days, to the Litanies, *A furore Normanorum libera nos Domine*, From the Fury of the *Normans*, deliver us O Lord.

LOUIS II, call'd *le Begue*, or the *Stoterer*, was crown'd in the City of *Rheims*, the 8*th* of *December*, 877, by *Hincmar* Archbishop of that See. He died at *Compeign* on *Good Friday*, the 19*th* of *April*, 879, aged 35 Years; and was bury'd in the Abbey of St. *Corneil*, after he had reign'd one Year, and seven Months.

Note, That *Louis le Begue*, left three Sons, *Louis* and *Carloman* of *Hansgarde*, a Woman of a mean Extraction; and *Charles the Simple* of *Alix*, Daughter of an *English* Prince; she was deliver'd six Months after the Death of the King her Husband.

Louis III. and *Carloman* ascended the Throne together in 879. In 882 *Louis* fell sick at *Tours*, and came to die at the Abbey of St. *Dennis*, in the Month of *August*, after he had reign'd 3 Years. In the Year 884, *Carloman* was wounded by a wild Boar, while he was hunting, after he had reign'd 5 Years. He was bury'd at St. *Dennis*. These two Kings made a great Slaughter of the *Normans*.

Note, That *Charles*, call'd *the Simple*, was then but 7 Years old, therefore was not taken to succeed his Brothers, *France* wanting at that Time, a Man to govern them, and not a Child; which made them take the Oath to *Charles le Gros*, Emperor in *Italy* and in *Germany*. He was Son of *Louis* King of *Germany*, and Grandson of *Louis the Gentle*.

Charles III. call'd *the Gros*, began to reign in 884. He was a little crazy, occasion'd by his imagining he had seen the Devil. He died the 8*th* of *January*, in 882, and was buried in the Monastery of *Richenoue*, in an Island of the Lake of *Constance*.

Note, That of all the Race of the *Carlovingians*, there were but two Princes left, *viz.* *Arnoul* who was a Bastard, and *Charles* a Child; therefore the *French* Lords elected for King in the Assembly of *Compeigne*, *Eudes* Earl of *Paris*, and Duke of *France*.

Eudes was crown'd by *Walter* Archbishop of *Sens*, in 888. In 889, to shew himself worthy of that Choice, he went to attack the *Normans*, who ravaged *Burgundy*. On the Feast of St. *John*, he kill'd 19000 of them, near the Wood of *Montfaucon*. In 893, several Lords of *Neustria*, who had refus'd to acknowledge *Eudes* for King, went to fetch *Charles the Simple* from *England*, where his Mother had carried him.

Charles IV. call'd *the Simple*, was crown'd at *Rheims*, the 17*th* of *January*, 893, by *Foulques* Archbishop of that See, who wrote in his Favour to *Arnold* King of *Germany*, to *Guy* the new Emperor, and to Pope *Formosus*, who before he had received *Foulques*'s Letters, had sent Legates into *France*, viz. *Paschalis* and *John* Bishops, to assemble a Synod at *Vienna*. In his Answer to *Foulques*'s he not only approves the Coronation of *Charles*, but informs him likewise how he is to act against *Eudes*. He even wrote to *Eudes* himself, forbidding him to disturb *Charles*, and desiring the Archbishops and Bishops to exhort him to a Peace, at least to a Truce, during which *Foulques* cou'd come to *Rome*. During two Years the Parties of *Eudes* and *Charles* were at War, with various Success; but *Charles* was oblig'd at last to divide the Kingdom with his Competitor; and their Differences lasted till the Death of *Eudes*, which happen'd the 3*d* of *January*, 898. He left but one Son of Queen *Theoderade* his Wife, call'd *Arnoul*. This took the Title of King of *Aquitaine*, but Death depriv'd him soon of it, without his having been marry'd; and, in my Opinion, before he could be of Age to be marry'd. 'Tis said that *Eudes*, on his Death-bed, recommended to his Brother *Robert*, and to all the other Lords, to acknowledge King *Charles*, who he hoped would endeavour to render himself capable to reign by his Virtue, as he was by his Birth. The *French* Lords having assembled after *Eudes*'s Death, elected *Charles* for their King. In 923, *Charles* being forsaken by every Body, the Lords elected *Roul* Duke of *Burgundy*.

Roul, a fair Prince and of great Merit, was crown'd at St. *Medard* of *Soissons*, the 13*th* of *July*, 923. He died the 15*th* of *January*, 936, in the 14*th* of his Reign, in the City of *Auxerre*. His Tomb is at St. *Colomb* of *Sens*. He was a Prince, liberal, brave, religious, and very just. He left no Children.

Note, That *Charles the Simple*, thro' his too great Simplicity was arrested at *Peronne*, and confin'd at *Château-Thierri*. He ended his Captivity, and his Misfortunes at *Peronne*, the 7*th* of *October*, 929; and was bury'd at St. *Fourci*, in the same City.

Louis IV. call'd *d'Outremer*, or from beyond Sea, of the Blood of *Charlemagne*, whom his Mother *Agine*, Widow of *Charles the Simple*, had brought up in *England*; and was call'd by the *French* Lords to the Succession of the Kingdom, succeeded. He was anointed at *Laon* by *Artold* Archbishop of *Rheims*, the 20*th* of *June*, 936. In 944, he was taken Prisoner by *Egrold*, chief of the *Normans*, and the Year following set at Liberty. *Louis d'Outremer* going from *Laon* to *Rheims*, riding after a Wolf he met with on the Road, was thrown from his Horse with such Violence, that he was bruised all over by the Fall. This universal Bruise chang'd into a sort of Leprosy, which caus'd his Death, the 15*th* of *October*, 954, at *Rheims*, where he is buried in the Church of St. *Remi*; after he had reign'd 18 Yeats.

Note, That of five Sons *Louis* IV. had of his Wife *Gerberge*, there were but two left, *viz.* *Lothaire*, and *Charles* to whom nothing was given of the Kingdom, which henceforward was no more divided equally between the Brothers, the eldest only having the Title of King.

Lothaire was crown'd at *Rheims* the 12*th* of *November*, 954, by the Archbishop *Artold*. In 967, he gave his Sister *Matilda* to *Conrad* King of *Burgundy*, and for Dowry the City and Earldom of *Lyons*. In 985, *Lothaire* had his Son *Louis* crown'd to reign with him. He had already match'd him to a Princess of *Aquitaine*, call'd *Blanche*. *Lothaire* died the 12*th* of *March*, 986, of Poison, given to him by his own Wife, in the 33*d* Year of his Reign, of his Age 45. He was a warlike Prince, active, careful of his own Affairs, and worthy of better Subjects.

Louis *the Feneant*, or Idle, aged 20 Years, succeeded him in 986, under the Conduct of *Hugues Capet*, who was his first Cousin. In 987, *Louis* died like his Father, by the Crime of *Blanche* of *Aquitaine* his Wife, after he had reign'd alone very near 16 Months.

Note, That with *Louis*'s Reign, ended the *Carlovingian* Race, after it had lasted 236 Years, under a Succession of eleven Kings, for two among those were not of that Race, *viz.* *Eudes* and *Roul*. From this we'll proceed to the

Chronology *of the third Race of the Kings of* France, *called* Capetians, *under thirty one Kings, during 733 Years.*

Hugues Capet, in great Esteem among the *French*, and who was almost Master of the whole Kingdom, assembled the Lords at *Noyon* towards the End of *May*, 987, and had himself proclaim'd King. From thence he went to *Rheims*, where he was anointed and crown'd by the Archbishop *Adalberon*. Six Months after his Coronation, he obtain'd, in an Assembly of the Lords at *Orleans*, that his Son *Robert* should be associated to the Throne, who accordingly was anointed King the 1*st* of *January*, 988. *Hugues* was truly religious, Protector of the Church, and of the Ecclesiasticks. He died the 29*th* of *August*, 996, in the 55*th* Year of his Age, of which he had reign'd 9, and some Months. He was buried at St. *Dennis*. He left but one only Son, *Robert*.

Note, That the same Year died *Richard Sans Peur*, or without Fear, Duke of *Normandy*, at his Palace of *Fecamp*.

Robert, well made of Body and Mind, began to

to reign alone the 29th of *August*, 996. He was educated in Piety and Learning, which he cultivated all his Life-time; he enjoy'd a Peace of 30 Years, after some slight Wars. *Robert* had his eldest Son *Hugues*, a Prince of great Hopes, tho' not yet 10 Years of Age, accomplish'd, crown'd at *Compeigne*, on *Whit-Sunday*, of the Year 1017. In 1028, the 17th of *September*, the young King *Hugues* died in the Flower of his Age, regretted by all *Europe*. *Robert* caused his Son *Henry* to be crown'd, to fill up the Place of *Hugues*; tho' Queen *Constance* did all she could to place *Robert* the Younger on the Throne. In 1033, *Robert* died of a Malady, the 20th of *July*, aged 61 Years, of which he had reign'd 45, and a half, *viz.* 9 and a half with his Father, and 36 since his Death.

Note, That the Reign of *Robert* was a Reign of Justice and Peace, but that great Prince had the Affliction to see thrice the Famine, and afterwards the Plague, ravage his Dominions. In 1033, the Famine was so cruel, that there were People who digged up dead Bodies to eat them. Little Children were stolen; and Travellers were laid wait for at the Entrance of Woods and Forests to be devour'd. Besides *Henry* who succeeded him, he had two other Sons, *viz.* *Hudes*, and *Robert* who was Duke of *Burgundy*, and has made the first Branch of the Dukes of *Burgundy*, from whom descend, according to some Chronologers, the Kings of *Portugal*.

Henry I. began to reign alone the 20th of *July*, 1033. He had no greater Enemy than his own Mother. He defeated several Times her Forces, and obliged her at last to live in Peace with him. Towards the latter End of the Year 1060, *Henry* was seiz'd with a small Fever, of which he died at *Vitri* near *Paris*, after he had reign'd 28 Years, and 4 Months, since the Death of his Father.

Note, That *Henry* I. besides *Philip*, who reign'd after him, had two other Sons, *viz.* *Robert* who died a Child, and *Hugues* made Earl of *Vermandois*, and who has made the Branch of the Earls of *Vermandois*.

Note also, That under *Henry* the First's Reign, *i. e.* in 1038, the *Normans* under the Conduct of *Fierabras*, *Tancrede*'s eldest Son, expelled the *Saracens* from *Sicily*, and atchieved incredible Feats of War.

Philip I. betwixt 7 and 8 Years of Age, succeeded his Father under the Regency of *Baudouin*, Earl of *Flanders*. When come of Age, he emancipated himself to a great many Disorders. Being disgusted with his Wife *Berthe*, he repudiated her, under Pretence of Consanguinity, tho' he had of her a Son called *Louis*, and a Daughter call'd *Constantia*. Being broken thro' the Excesses of his Voluptuousness he died at *Melun*, the 26th of *July*, 1108, aged 56 Years, of which he had reign'd 48 Years, and 2 Months. He is buried at the Abbey of St. *Benedict* on the *Loire*.

Note, That under *Philip* the First's Reign, *i. e.* in 1096. was preach'd the first Croisade, by *Peter l'Hermite*, where more than 300,000 Men took the Cross, and listed themselves for the Conquest of the *Holy Land*. This War was call'd *Croisade*, because of the Cross which the Officers and Soldiers wore on their left Breast, or Shoulders. *Godfrey* of *Bouillon* commanded the Christian Army. In 1099, began the Kingdom of *Jerusalem*, *Godfrey* of *Bouillon* being the first King thereof. Tho' he refused to wear a golden Crown; where, said he, his blessed Lord and Saviour had wore but one of Thorns. In 1101, was preach'd the second Croisade, where more than 300000 *French*, *Germans*, and *Italians* went. *Baudouin du Bourg*, Earl of *Flanders*, succeeded his Cousin *Godfrey* of *Bouillon*, in the Kingdom of *Jerusalem*.

Louis le Gros, aged 27 Years, succeeded *Philip* I. the 26th of *July* 1108. He was brave, active, vigilant, and undertook, at the Beginning of his Reign, to stop the Oppressions, and License of the Lords, who were so many Petty-Tyrants; in which he succeeded. *Louis*, more broken by Fatigues, than Years, had his eldest Son *Philip* crown'd at *Rheims*, on *Easter-Sunday*, the 14th of *April* 1129. in the Presence of *Henry*, King of *England*, his Vassal. In 1131. the young King, *Philip*, was kill'd in riding thro' the Streets of *Paris*, by his being thrown off his Horse. King *Louis* had his other Son crown'd, call'd also *Louis*. Pope *Innocent*, who was then holding a Council at *Rheims*, anointed him, the 25th of *October*. *Louis* died of a *Diarrhea* at *Paris*, the 1st of *August* 1137, in the 30th Year of his Reign, and the 58th of his Age. His Body was carried to St. *Dennis*. He left, of his Wife *Alix*, six Sons, and one Daughter.

Louis *the Younger*, aged 19 Years, succeeded him the 1st of *August* 1137. He begun by working to establish the publick Security and Justice. In 1148, *Louis* went into the Holy Land. St. *Bernard* had preach'd that Croisade by the Pope's Order, but without Success. In 1179, *Louis*, grown old, had Prince *Philip*, his Son, anointed, and crown'd at *Rheims*, on *All-Saints* Day. *Louis* died of the Palsy at *Paris*, the 18th or 20th of *September* 1180, he being very near 64 Years old; of which he had reign'd 43. His Body is at St. *Dennis*. He was a very great Prince, pious, charitable, just, liberal, and brave; but very little fortunate in his Enterprizes.

Philip II. Augustus, aged 15, succeeded him the 18th or 20th of *September* 1180. He begun his Reign by an Edict publish'd in 1181, against the Blasphemers of the Name of God. He pursued the *Hereticks*, and expell'd the *Jews* from his Dominions. He treated, in the same Manner, the Comedians, Jugglers, and Players of Interludes, to whom he forbad the Entrance of his Court. In 1190, he went to the Conquest of the Holy Land, from which he return'd sick of a Malady which was the Cause of his losing his Hairs and Nails, in 1190. In 1223, *Philip* died at *Mante*, the 25th of *July*, aged 58 Years; of which he had reign'd 44. His Tomb is at St. *Dennis*.

Note, That *Philip Augustus* left several Children. Prince *Louis*, by his first Wife, reign'd after him. Of all the Kings of the third Race, *Philip* acquir'd most Land to the Crown, and more Authority to the Kings his Successors.

Louis VIII. call'd *the Lion*, aged 36, after the Death of his Father, was anointed, and crown'd, at *Rheims*, with his Wife *Blanche* of *Castile*, the 10th of *August* 1226. He enter'd into a League against the *Albigenses*; at his Return he was poison'd, and died at the Castle of *Montpelier*, in *Auvergne*, on *Sunday*, in the Octave of *All-Saints*. He was buried at St. *Dennis*, near his Father. He left 9 Sons.

Louis IX. or *St. Louis*, aged 11 Years, and 6 Months, appointed in Virtue of his Father's Will, succeeded him, in 1226, under the Regency of *Blanche* of *Castile*, his Mother, a brave and able Princess, who caused him to be crown'd at *Rheims*, the first of *December*. In 1244, *Louis* took the Resolution to go to the Conquest of the Holy Land, but could not put his Design in Execution, till 4 Years afterwards. He arriv'd in *Cyprus* the 25th of *September* 1248, where he stay'd all the Winter. In 1249, *St. Louis* took *Damieta* of the *Saracens*. In 1250, he gain'd two great Battles over the *Infidels*, where he did several incredible Feats of great Valour, *Robert*, his Brother, was kill'd. *St. Louis* was entirely defeated the 5th of *April*, by *Melec-Sala*, Son of *Meledin*. He is

taken Prisoner, with his two other Brothers, *Alphonse* and *Charles*. He paid his Ransom, and was set at Liberty. Queen *Blanche*, griev'd at his Misfortunes, ended her Days at *Melun*, the 26*th* of *November* 1252, aged 65. In 1254, the King returned into *France*, from which he had been absent 6 Years. He applied himself to the Reformation of Manners, to protect the Defenceless, to nourish the Poor, to adorn the Churches, and to abolish the Impositions introduced by the Exigency of Affairs. In 1259, he oblig'd *Henry*, King of *England*, his Sons, Brothers, and Successors, to renounce for ever the Sovereignty of *Normandy*. In 1270, he return'd to the Holy Land to make a new Effort against the *Saracens*, and left the Administration of his Kingdom to *Matthew*, Abbot of St. *Dennis*, and *Simon*, Earl of *Neele*, and left *Paris*, the 1*st* of *March*. He pass'd into *Africa*, and besieg'd *Tunis*. The Plague got into his Army, of which he was attacked himself, and ended his glorious Toils, by the Death of the Elect, the 25*th* of *August*.

Note, That *St. Louis* left 8 Children, *viz.* 4 Sons, and 4 Daughters: *Philip*, who reign'd after him, and was call'd *Le Hardi*, or *Bold*; *John*-*Tristan*, and *Peter*, who died in their Childhood; and *Robert*, Earl of *Clermont* in *Bauvoisis*, who was married to *Beatrix*, Daughter and Heiress of *Agnes of Bourbon*, and of *John* III. Son of *Hugues*, Duke of *Burgundy*. This *Agnes* was Heiress of *Archambault*, Lord of *Bourbon*. Of this Marriage of *Robert of Clermont*, and of *Beatrix*, Daughter of *Agnes of Bourbon*, is issu'd the Branch of *Bourbon*, who came to the Crown 300 Years afterwards, by King *Henry* IV. or *the Great*.

Philip III. call'd *Le Hardi*, quitted the Siege of *Tunis* to return into *France*, to take Possession of the Kingdom, in the Year 1270. He was a brave, good, liberal, and very pious Prince, but too credulous, and easily deceiv'd. Under his Reign the Kingdom enjoy'd 14 Years Peace. He died at *Perpignan*, the 6*th* of *October* 1285, aged 45 Years; of which he reign'd 16.

Note, That besides *Philip*, who reign'd after him, *Philip* III. had another Son, *viz. Louis*, Earl of *Evreux*. From him is issu'd the Branch of the Earls of *Evreux*, into which the Crown of *Navarre* was carry'd by Marriage; and of *Charles*, Earl of *Valois*, Father of *Philip* VI. of *Valois*, who reign'd; and of *Charles*, who has made the Branch of *Alençon*.

Philip IV. call'd *the Fair*, succeeded his Father *Philip* III. the 6*th* of *October* 1285. He was crown'd and anointed at *Rheims*, with the Queen his Wife, by the Archbishop *Peter Barbet*, the 6*th* of *January* 1286; the King was then but 17 Years of Age. He was likewise King of *Navarre*, by his Wife *Jeanne*, Queen of *Navarre*, and Countess of *Brie* and *Champagne*. He had great Differences with *Boniface* VIII. Pope, who excommunicated him because he had raised the Coin of his Kingdom above its intrinsick Value; and *Philip*, in his Turn, caus'd *Boniface* to be taken Prisoner at *Avignon*. *Philip* died at *Fontainbleau*, where he was born, the 24*th* of *November* 1314, in the 48*th* Year of his Age; of which he had reign'd 29. His Tomb is at St. *Dennis*. He left 3 Sons, *viz. Louis Hutin*, *Philip the Long*, and *Charles the Fair*; who reign'd after one another, and left no male Children. *Philip the Fair* had also 3 Daughters.

Louis X. *Hutin*, succeeded his Father, the 24*th* of *November* 1314. In 1316, he died of Poison, at the *Bois de Vincennes*, about the End of *May*; after he had reigned 19 Months. He was but 28 Years old.

Note, That after *Hutin*'s Death, *Philip the Long* was Regent of the Kingdom for the Space of 5 Months, without a King; because *Louis* X. had left his Wife big with Child, who was deliver'd of a Son, who was call'd *John*, the 15*th* of *November*, who died 8 Days after his Birth, and was buried at St. *Dennis*.

Philip V. call'd *the Long*, succeeded his Brother, and was crown'd at *Rheims* the 9*th* of *January* 1317. He died at *Vincennes* of a quartan Ague, the 3*d* of *January* 1322. He liv'd 31 Years, of which he reign'd 5, or 6 Weeks. His Body was carried to St. *Dennis*.

Charles IV. call'd *the Fair*, came to the Crown after his two eldest Brothers, and was anointed at *Rheims*, the 11*th* of *February* 1322. He died at *Vincennes*, the first of *February* 1328, aged 34 Years; after he had reign'd 6 Years, and 1 Month.

Note, That *Charles* IV. tho' he had been thrice married, left no Sons to succeed him; therefore ended the Posterity of *Philip the Fair*, and the Regency was given to *Philip*, eldest Son of *Charles* Earl of *Valois*, who was the next Heir Male of the deceas'd King. The Queen Widow, who was left with Child, being brought to Bed of a Daughter, the Lords of the Kingdom declar'd that the Crown belong'd to *Philip*, in Virtue of the *Salick* Law.

First Branch collateral.

Philip VI. of *Valois*, was anointed, with his Wife, the 28*th* of *May*, *Trinity Sunday*, of the Year 1328. He was call'd *the Fortunate*, because Death had carried off his three Cousins, to place him on the Throne. In 1346, he lost a Battle against *Edward*, King of *England*, in which perish'd, on the *French* Side, 30000 Foot, and 1200 Horse. *Philip* was forced to fly. In 1349, *Humbert*, Dauphin of *Viennois*, made a Donation to King *Philip*, of *Dauphiny*, to be for ever annex'd to the Crown of *France*, on Condition that the eldest Son of the King should bear the Title, and the Arms of *Dauphin*. In 1350, *Philip* died at *Nogent le Roy*, the 22*d* of *August*, in the 57*th* Year of his Age, and in the 23*d* of his Reign. He left, among his Children, *John*, who reign'd after him.

John I. aged 42 Years, was anointed at *Rheims*, with his second Wife *Jeanne* of *Boulogne*, the 26*th* of *September* 1350. This Prince came to the Crown at a very good Age; he had a great deal of Experience, was very brave, had 4 Sons capable to draw their Swords, and with all these Advantages his Reign prov'd unfortunate, because of his Impetuosity, and his vindictive Humour. In 1356, *John* lost the Battle against *Edward*, King of *England*, near *Poitiers*, and was taken Prisoner, with one of his 4 Sons. *Charles Dauphin* took the Quality of Lieutenant of the Kingdom during the Absence of the King his Father, who died in *England* the 8*th* of *April* 1364, aged 52. He had reign'd 13 Years, and 8 Months. His Body was brought over to St. *Dennis*, the 7*th* of *May*. The following fine Words are attributed to him; that *if Faith and Truth were banished from among the rest of Mankind, they should be found in the Mouths of Kings.*

Note, That *John* I. besides his Son *Charles*, who succeeded him, had 2 others, *viz. Louis*, Duke of *Anjou*, and Earl of *Maine*, who has made the Branch of the Dukes of *Anjou* Kings of *Naples*; and *Philip* Duke of *Touraine*, and afterwards of *Burgundy*, who has made the second Branch of the Dukes of *Burgundy*.

Charles V. call'd *the Wise*, was anointed at *Rheims*, the 19*th* of *May* 1364. In 1369, *Charles* de-

declar'd War against *Edward*, King of *England*. In 1372, the *English* were beaten, and lost several Places in *France*. *Bertrand du Guesclin*, my Countryman, a *Briton*, render'd himself illustrious by his Victories, and ruinated the Affairs of the *English* in *France*. *Charles* died at the Castle of *Bauté*, on the *Mayne*, the 16*th* of *September* 1380, of the Poison which *Charles the Bad*, King of *Navarre*, caused to be given to him. He was then but 24 Years of Age, and in the 6*th* Month of the 17*th* Year of his Reign. Tho' he deserv'd the greatest Praises, he would suffer none. His Tomb is seen at St. *Dennis*.

Note, That *Charles the Wise* left 2 Sons, *viz.* *Charles*, who succeeded him; and *Louis*, Duke of *Orleans*.

CHARLES VI. call'd *the Beloved*, succeeded him the 16*th* of *September* 1380. His Reign was long and unfortunate, a King weak of Mind, had a bad Mother, and to the full as bad a Wife, ambitious Uncles, violent Ministers, and seditious Subjects, were the Cause of all the Miseries which desolated the Kingdom of *France* under his Reign. Before him, the Kings of *France* had *Flower-de-luces*, without Number, for their Arms; he reduced them to three, without we could ever learn why, or wherefore. The *English*, assisted with *Charles*'s rebellious Subjects, conquer'd the greatest Part of his Kingdom, tho' in 1383 they lost a Battle. In 1392, the violent Heat of the Sun, during the Month of *August*, to which the King expos'd himself too much, turn'd his Brain, already much weaken'd by the Debauchery of his Youth; and what contributed more than any Thing to the entire Loss of his Senses, was, his having imagined that he had seen a Spectre, who cry'd to him, *Stop, King! where art thou a going? Thou art betray'd*; and then disappear'd. *Charles*, more stupid than ever, ended his Life at *Paris*, the 21*st* of *October* 1422, and was carry'd to St. *Dennis*. He had liv'd 52 Years, and reign'd 42. He had 6 Sons, the younger of whom, call'd *Charles*, out-liv'd, and succeeded him.

CHARLES VII. call'd *the Victorious*, by his loyal Subjects, and, at the Beginning of his Reign, King of *Bourges*, by the Rebels, because, in Fact, he had very little left of the whole Kingdom, besides that Place, was crown'd at *Poitiers*, in the Beginning of *November* 1422. He was not fortunate in the first Years of his Reign; the *English* having desolated his Dominions, laid Siege to *Orleans*, the 12*th* of *October* 1422. *Jeanne D'Arc*, call'd *the Maid of Orleans*, promised the King, pretending to be sent by God, to oblige the *English* to raise the Siege of *Orleans*, and to have him anointed at *Rheims*. The Success verify'd her Promises. She enters *Orleans*, the Inhabitants take Courage, they sally out on the *English*, whom they force to raise the Siege, the 12*th* of *May* 1429. *Rheims*, which was yet in the Power of the Enemies, open'd its Gates, and *Charles* was anointed on a *Sunday* the 7*th* of *July*. He beat the *English* out of *France*, and died of Hunger, abstaining from eating, for Fear of being poison'd, at *Meux* in *Berri*, the 22*d* of *July* 1461, towards the Middle of his 60*th* Year, and at the End of the 39*th* of his Reign. Two of his Sons out-liv'd him, *viz.* *Louis*, who reign'd, and *Charles*.

LOUIS XI. succeeded his Father the 22*d* of *July* 1461. He reign'd without a Council, without Justice, and without Reason. In 1469, he sent for into *France*, St. *Francis* of *Paula*, Instituter of the Order of the *Minimes*. He did all he could near that Saint, to engage him to prolong his Days; but the good Man, who knew very well it was not in his Power, exhorted him to think rather of the other World, than of this. *Louis* dy'd the 29*th* of *August* 1483, at his Castle of *Plessis les Tours*, aged 61; and the 22*d* Year of his Reign. He is bury'd at our Lady of *Clery*, as he had order'd it. He had 3 Sons of his 2*d* Wife, but none out-liv'd him but *Charles*, his Successor.

CHARLES VIII. call'd *the Affable*, aged 13 Years, and 11 Months, succeeded him the 29*th* of *August* 1483. In 1494, he perform'd several glorious military Exploits in *Italy*; he enter'd *Florence* the same Day the celebrated *Picus* of *Mirandola*, that great Prodigy in all Sorts of Sciences, dy'd. The young King, in 4 Months, run throughout all *Italy*, and is receiv'd every where as sovereign Lord, and conquer'd the whole Kingdom of *Naples* in 15 Days. He enter'd *Naples* the 22*d* of *February* 1493, and departed from it the 20*th* of *May*. He soon lost all his Conquests in *Italy*, thro' his Negligence. He dy'd of an Apoplexy, at *Amboise*, the 6*th* of *April* 1498; he was then but 27 Years, and 9 Months old; of which he had reign'd 14, and a Half. None of his Children attain'd the Age of 4 Years.

Second Branch collateral.

LOUIS XII. call'd *the Father of his People*, aged 36 Years, and accomplish'd, succeeded him the 6*th* of *April* 1498. He was Duke of *Orleans*, Son of *Charles* who was Son of *Louis*, and 2*d* Son of King *Charles* V. The 27*th* of *May* he was anointed at *Rheims*; the 1*st* of *July* crown'd at St. *Dennis*, and the next Day made his Entry at *Paris*. He took the Title of King of *France*, King of the two *Sicilies*, and Duke of *Milan*. In 1499, he conquer'd the *Milanese*, and made his Entry at *Milan*, in the Habit of a Duke. In 1500, he divided with the King of *Arragon* the Conquest of the Kingdom of *Naples*. In 1503, two Battles lost by the *French* ruinated all their Affairs in the Kingdom of *Naples*. In 1512, the *French* lost *Milan*, and every Thing turn'd to their Disadvantage in *Italy*. In 1514, the King marry'd *Mary*, Sister of *Henry*, King of *England*. He dy'd of a *Diarrhea*, at his Palace *Des Tournelles*, at *Paris*, the 1*st* of *January* 1515, aged 53 Years; of which he had reign'd 17. He left no Issue Male.

Third Branch collateral.

Note, That for Want of Issue Male the Scepter pass'd to the collateral Line. *Louis* I. Duke of *Orleans*, Son of *Charles* V. had two Sons; *Charles*, who was Duke of *Orleans* after him; and *John*, Earl of *Angoulesm*. Of *Charles* came King *Louis* XII. and of *John* another *Charles*, who was Father of *Francis*, Duke of *Valois*, to whom passed the Kingdom after *Louis* XII.

FRANCIS I. the Father of Learning, aged 20 Years, and 4 Months, was anointed at *Rheims* the 25*th* of *January* 1515. He took the Title of Duke of *Milan* with that of King of *France*. He crossed the *Alps* to recover the *Milanese*, in which he made great Progresses. He had an Interview with the Pope at *Bologna*; they abolish the *Pragmatick Sanction*, and make the *Concordat*, whereby the Pope grants to the King the Right of Nomination to the Bishopricks and Abbeys of the Kingdom of *France*; and the King grants to the Pope the *Annates* of those great Benefices. In 1519, after *Maximilian*'s Death, the King aspir'd to the Imperial Crown; he expell'd the *Imperialists* from *Provence*, pursued them into *Italy*, and besieged *Pavia*: He is made Prisoner before *Pavia*, where his Army is beaten, and where he had behaved like a Hero, as he was; he is carried into *Spain*. In 1539, he was set at Liberty by Virtue of a Treaty made with the Emperor. In 1539, he gave Passage through *France* to the Emperor *Charles* V. to go into *Flanders*, and shewed him all the Honours possible. *Francis* died of a Fever, both as a Christian and an Hero, in the Castle of *Rambouillet*, the last Day of *March*, 1547. During his Funeral Pomp he was proclaimed publickly in the Hall of the Palace, *a Prince meek in Peace, victorious in War, Father and Restorer of the good Letters, and of the liberal Arts.* Of his three Children he left behind him but *Henry*, who succeeded him.

HENRY

HENRY II. aged 29 Years, came to the Crown on his Birth-Day, *viz.* the last Day of *March* 1547, and was anointed the 25*th* of *July* following at *Rheims*, by *Charles* of *Lorain*, Archbishop of that See. In 1552, he took all *Lorain*, and rendered himself Master of *Metz*, *Toul*, and *Verdun*. He took several Places in *Luxembourg*, *Rochemars*, *Danvilliers*, *Yvoy*, and *Montmedi*. In 1559, the 30*th* of *June*, the latter End of the third Day of a Tournament, in the Street of St. *Anthony* at *Paris*, given on Occasion of the Marriage of the King's Daughter; the King, who had already broke several Lances, took a Fancy to run against the Earl of *Montgomery* with his Bever up. It happen'd that *Montgomery*, having broke his Lance against the King's Breast-Plate, struck him again above the Eyebrow of the Right Eye, with the Stump he had left in his Hand. The King died of it 11 Days afterwards, the 10*th* of *July*, 1559, aged 40 Years and 4 Months, and the 13th of his Reign.

Note, That *Catherine* of *Medicis*, his Wife, gave *Henry* II. 10 Children; four Sons, *viz. Francis*, *Charles*, *Henry* and *Francis*, the three former reigned after one another, and all four died without Issue.

FRANCIS II. aged 16 Years and 6 Months, succeeded his Father the 10*th* of *July*, 1559. He gave the Direction of his Affairs to the *Guises*, *i. e.* the Intendency of the War to the Duke, and that of the Finances to the Cardinal. *Francis* was anointed at *Rheims* the 21*st* of *September*, of the same Year 1559, with great Magnificence and Pomp. He died of an Abscess in his Head, the 5*th* of *December* 1560, aged 17 Years, 10 Months and a half; after he had reigned one Year and five Months wanting five Days. He left no Children of his Wife, *Mary* Queen of *Scotland*.

CHARLES IX. aged 10 Years and 5 Months, succeeded his Brother *Francis* the 5*th* of *December* 1560. He convened the Assembly of the States at his Accession to the Crown. Without the *Guises* the antient Religion had been abolished in *France*. In the Year 1572 the King took the Resolution to exterminate all the *Calvinists*. This Massacre lasted seven whole Days, the two first since the *Sunday* Feast of St. *Bartholomew*, till *Tuesday*, in its greatest Fury; the four others with a little less Heat; there were very near 5000 Persons killed in *Paris*. A gold Wire-Drawer boasted that he had killed 400 for his Share. A Butcher said that he had killed 150 in one Night. The *Calvinists* lost in that Butchery, which could be warranted by no Laws divine or human, their Princes, and several Persons of Quality, which weakened considerably their Party. In 1573 *Charles* presses *Henry* his Brother, who had been elected King of *Poland*, to depart for his Kingdom. The Distemper he had been long afflicted with confined him to his Bed, the 8*th* of *May* 1574, at *Vincennes*, where he died the 30*th* of the same Month, on *Whitsunday*; he had lived 25 Years wanting a Month, and reigned 13 Years and a half, wanting 5 Days. He had no Children of Queen *Elizabeth*, of *Austrich*, his Wife, except a Daughter, who died in the sixth Year of her Age.

Note, That there was an Interregnum of 3 Months, during which, the Queen-Mother sent a Courier to *Poland*, to inform her beloved Son of the Death of the King, and to desire him to return as soon as possible, to take Possession of his Kingdom, to which he was called by the Death of his Brother.

Henry III. aged 23, on his Return from *Poland*, arrived the 5*th* of *September* at *Pont Bauvoisin*, where the Queen-Mother went to receive him. Here began a Reign, called very justly *the Reign of Favourites*; because all Favours were for 4 or 5 Persons, who obseded the King. In 1580 the *Calvinists* went to war against the King, who attempted to bring them to their Duty by fair Means; in which he succeeded very well. In 1588 the King took the Design to destroy the Chiefs of the League, and especially the Duke of *Guise*, who perceived it very well. He caused the Duke of *Guise* to be massacred at *Blois*, (the King himself, being armed, ready to act his Part in that scandalous and bloody Tragedy) and the Cardinal his Brother, in the Month of *December*. In 1589 the Pope issues out a *Monitoire* against *Henry*, he is attacked at *Tours* by the Duke of *Mayenne*, and delivered by the King of *Navarre*. He besieged *Paris*, which he reduces to the last Extremity. The King is stabb'd at St. *Clou*, with a Knife, by *James Clement*, a Dominican Friar, and died of his Wound the next Day, which was the 2*d* of *August*, the King being then 30 Years and 11 Months old, of which he had reigned 15 and 2 Months.

Note, That *Henry* III. leaving no Children, with him ended the Branch of *Valois*, who had reigned 161 Years, reckoning from *Philip* VI. and given 13 Kings to *France*.

HENRY IV. called the *Great*, aged 35 Years and 8 Months, heretofore King of *Navarre*, succeeded *Henry* III. his distant Relation, the 2*d* of *August*, 1589. The *French* believing that the Quality of *Most Christian* is essential to a King of *France*, desire *Henry* IV. to come to the Crown by abandoning the *Calvinist* Religion, in which he had been educated. In 1592, the King, after several Wars, and several Combats, gives his Consent for his being instructed in the *Roman* Religion. In 1609, the King formed great and marvellous Designs; but in 1610, *Francis Ravaillac*, that abominable Monster, born at *Angoulesm*, finding the King's Coach stopp'd in the middle of the Street of *La Feronnerie*, stabb'd that incomparable Prince twice with a Knife, of which he died instantly, without speaking one Word. *Henry the Great* was then 56 Years and a half old, of which he had reigned 21 and 9 Months.

Note, That *Henry* IV. had, of *Mary* of *Medicis*, 3 Sons and 3 Daughters, *viz. Louis*, who reigned after him; the second, who had no Name yet, before he was 4 Years of Age, and was called Duke of *Orleans*, a Title given afterwards to *Gaston*, *John Baptist*, his next Brother. His three Daughters were *Elizabeth*, married to *Philip* IV. King of *Spain*; *Christian*, who married *Victor Amadeus*, Prince of *Piedmont*, afterwards Duke of *Savoy*; and *Henrietta Maria*, married to the unfortunate King of *England*, *Charles Stuart*.

LOUIS XIII. call'd *the Just*, aged 9 Years, succeeded his Father the 14*th* of *May*, and was anointed the 17*th* of *October* following, at *Rheims*, by the Cardinal of *Joyeuse*. In 1615, he marry'd *Anne* of *Austriche*, Infanta of *Spain*. In 1620, he brought the *Calvinists* to Reason, who had revolted in some Places. In 1628, the King took *Rochelle*, after one Year's Siege; which discourag'd much the *Calvinist* Party. The great Capacity of Cardinal *Richlieu*, entirely in the King's Interest, contributed much to strengthen the State. To him the Kingdom of *France* was indebted for several signal Victories. The King dy'd at St. *Germain en Laye*, in the Flower of his Age, the 14*th* of *May* 1643, on *Ascension-Day*. He was but 41 Years, 4 Months, and 18 Days old; of which he had reign'd 32.

Note, That *Louis* XIII. left 2 Sons, *viz. Louis* whom God gave to *France* after 23 Years Marriage; and Monsieur *Philip* of *France*, who made the Branch of *Orleans*; to whom *France* is indebted for that perfect and excellent Model of all the princely, heroical, and *Christian* Virtues, without any Mixture of the least Imperfection, the present Duke of *Orleans*, his Grandson.

Louis XIV. call'd *the Great*, succeeded his Father the 14th of *May* 1643, at the Age of 4 Years and a Half. His Minority was disturb'd by several Civil Wars, all calm'd to his Advantage and Glory, by the Dexterity of his Minister, Cardinal *Mazarin*. His Reign, which was the longest that has ever been in any Monarchy, was a Texture of so great a Number of prodigious Events, that a whole Volume would scarcely suffice to make a Detail of them. He abolish'd Duels, which used to carry off the Flower of the *French* Nobility, and to lacerate the very Bosom of the Kingdom. He banish'd *Calvinism*, which had made his Predecessors sit uneasy on the Throne. He promoted and encourag'd all Arts and Sciences, more than ever did *Augustus* himself. He rewarded Merit, when he could possibly come to the Knowledge of it, with a profusely liberal Hand. He had a vast natural Genius for all Sorts of Arts and Sciences, and was Master of several which he had never learn'd; and I may justly say, that his natural Capacity supply'd in him the Want of a liberal Education. He could discover in any Arts the most hidden Imperfection, and the greatest Masters used to tremble, when they were oblig'd to perform before him, or to present him with some of their Master-pieces. This glorious Prince has carry'd the Glory of Monarchy to the highest Pitch of Grandeur. He never gave the least Mark of Weakness, but towards the latter End of his Reign, when he had the mean Complaisance to leave the entire Management of his Affairs to that perfidious and wicked Woman *Maintenon*, who brought the *French* Monarchy on the Brink of its Ruin, and eclipsed all its Glory, by placing at the Head of the *French* Armies, Generals who had no other Merit than that of being her Creatures; and in the Direction of the Finances, Scoundrels and Leaches, who minded nothing else but how to fatten themselves with the Substance of the Subjects, and the Blood of the poor Soldiers, who, I have heard my Brother say, who was then Lieutenant-Colonel of Horse, that they have been forced to come to a Battle, when they had been without Bread for 48 Hours before; tho' in that very War *Louis* gain'd his Point, which was, that of placing *Philip* V. his Grandson, on the *Spanish* Throne; notwithstanding all the Efforts of the grand Alliance to oppose it. In 1660, he marry'd *Mary Theresa*, of *Austria*, of whom he had *Louis* Dauphin, who gave 3 Princes to *France*, *viz.* the Duke of *Burgundy*, who bore the Title of Dauphin at the Death of his Father, and Father of the present King of *France*, *Louis* XV; the Duke of *Anjou*, at present King of *Spain*, by the Name of *Philip* V; and the Duke of *Berry*. *Louis* XIV. dy'd at *Versailles*, the 1st of *September* 1715, aged 77 Years; of which he had reign'd 72 Years, and a Half. He is deposited at St. *Dennis*.

Louis XV. who was yet but 10 Years of Age, succeeded his Great-grandfather *Louis* XIV. the 1st of *September* 1715, under the Regency of his Great-uncle *Philip*, Duke of *Orleans*, one of the most accomplish'd Princes of his Time; dreaded by the Enemies of *France*, and belov'd and respected by her Allies. He laid the Foundation, by his Treaty of the Quadruple Alliance, of that famous Project (which that inimitable Minister, the Cardinal *De Fleury*, has executed since with so great a Dexterity, in the Time of the most profound Peace, and without exhausting the Wealth, or Blood of the Subjects) Divide et Impera. In Fact, the Cardinal *Fleury*, by his consummate Wisdom, Prudence, and Sagacity, has brought the most formidable Enemies of *France* to that low Ebb, *Louis* XIV. had attempted, during the whole Course of his long Reign, to reduce them to, and in which Enterprize he had lavish'd away immense Treasures, and Millions of Lives. Sole Master of the Ballance, not of *Europe* only, but even of the whole World, he is continually employ'd in weighing the true Interest of his Prince, against those of the other Sovereigns of *Europe*, and finds always the Secret to make the one over-ballance the other, even to that Excess, as to reduce them to the Impossibility of ever bringing that Ballance to its former Equilibrium. His Voice is more formidable to the Enemies of *France*, and makes a greater Conquest than the thundering one of the most numerous Artillery; and he gains, by his Dexterity, and pacifick Means, more Victories than the greatest Heroes could at the Head of the most formidable Army. The King, his Master, one of the best who ever ascended the *French* Throne, is so well convinced that his faithful and disinterested Minister, has nothing else in View than the Advancement of his Glory, and the Happiness of his Subjects, that he reposes on him, all the Cares of his Kingdom; and if it was possible that he conceiv'd the least Jealousy of him, 'twould be because he might reasonably suspect that the Minister divides, with his Prince, the Hearts of the Subjects; or rather, because 'tis almost impossible to distinguish which of the two is best belov'd, or which deserves most their Gratitude, the Prince for making Choice of so good a Minister, who infinitely surpasses all that is recounted of *Mæcenas*, or the Minister for answering so well that Choice.

The next Monarchy, for Antiquity, is the *Scotch* Monarchy. Therefore,

Chronology *of the Kings of* Scotland.

Eugene, the first King of *Scotland* all *Chronologers* have any Knowledge of, began to reign in the Year 427. He defeated often the *Romans*, and expell'd them from his Kingdom, the Limits whereof he extended by his Conquests. He died in the Year 449; after he had reign'd 22 Years.

Dongard I. succeeded him, in the Year 449. He was prudent and couragious. He dy'd in the Year 453; after he had reign'd 5 Years.

Constantine I. succeeded him, in the Year 453. He was couragious, but very impudick. He was assassinated, in the Year 469; after 15 Years Reign.

Gongalle I. succeeded him, in the Year 469. He signaliz'd himself by his Bravery and Prudence; and gain'd several Victories. He dy'd in the Year 501; after he had reign'd 32 Years.

Gorane succeeded him, in the Year 501. He was just, pious, and inclin'd to Mansuetude. He was massacred in the Year 535; after he had reign'd 34 Years.

Eugene II. succeeded him, in the Year 535. He was prudent, just, and brave. He dy'd in the Year 558; after he had reign'd 23 Years.

Gongalle II. succeeded him, in the Year 558. He was couragious, and very liberal to the Churches. He dy'd in the Year 568; after he had reign'd 10 Years.

Kinatelle succeeded him, in the Year 568, and dy'd in the Year 570; after 2 Years Reign.

Aldan succeeded him, in the Year 570. He vanquish'd several Nations, and govern'd his Kingdom with a great deal of Prudence. He died in the Year 604; after he had reign'd 30 Years.

Chennes succeeded him, in the Year 604. He dy'd in the Year 605; after he had reign'd 1 Year.

Eugene III. succeeded him, in the Year 605. He was pious, wise, just, and brave. He dy'd in the Year 622; after he had reign'd 17 Years.

Ferchard I. succeeded him, in the Year 622. He was impious, and abandon'd to all Sorts of Vices. He dy'd in the Year 636; after 17 Years Reign.

Donalde I. succeeded him, in the Year 636. He was good, judicious, just, and a Lover of Peace. He dy'd in the Year 650; after he had reign'd 16 Years.

Ferchard II. succeeded him, in the Year 650. He was a very bad, and vicious Prince. He dy'd in the Year 668; after he had reign'd 18 Years.

Malduin succeeded him, in the Year 668. He was brave, and judicious; and, what's rare in Princes, a religious Observer of his Word. He dy'd in the Year 688; after he had reign'd 20 Years.

Eugene IV. succeeded him, in the Year 688. He had a great deal of Courage, Prudence, and Dexterity;

rity; and gain'd several Victories. He dy'd in the Year 692; after he had reign'd 4 Years.

EUGENE V. succeeded him, in the Year 692. He was brave, laborious, and intrepid. He spent the whole Time of his Reign in War against the *Picts*. He dy'd in the Year 702; after 4 Years Reign.

AMBARCELETE succeeded him, in the Year 702. He was one of the most virtuous Princes of his Time before he ascended the Throne; but after his Coronation he abandon'd himself to all Sorts of Vices. He was kill'd in the Year 704; after 2 Years Reign.

EUGENE VI. succeeded him, in the Year 704. He was prudent, brave, and a Friend to the Learned. He dy'd in the Year 721; after he had reign'd 17 Years.

MORDACHE succeeded him, in the Year 721. He was wise and judicious, and maintain'd himself in Peace. He dy'd in the Year 730; after he had reign'd 9 Years.

ETAVIN succeeded him, in the Year 730. He was a very virtuous Prince, who govern'd his Dominions with a great deal of Prudence and Clemency. He dy'd in the Year 761; after he had reign'd 31 Years.

EUGENE VII. succeeded him, in the Year 761. He lov'd Justice, and very well civiliz'd his Dominions; but living in a despicable Indolence, he plunged himself in all Sorts of Crimes. He was assassinated in the Year 764; after he had reign'd 3 Years.

FERGUS II. succeeded him, in the Year 764. He was vicious, and abandon'd to all Sorts of Debauchery. He dy'd in the Year 767; after 3 Years Reign.

SOLVATHIE succeeded him, in the Year 767. He was brave, generous, prudent, and a Lover of Peace. He dy'd in the Year 787; after 20 Years Reign.

ANCHAJE succeeded him, in the Year 787. He was a religious Prince, prudent, and a Lover of Peace. He gain'd several Victories, and dy'd in the Year 819; after he had reign'd 31 Years.

GONGALLE II. succeeded him, in the Year 819. He was a very good Prince, and a very sincere Friend. He dy'd in the Year 824; after 5 Years Reign.

DONGALLE I. succeeded him, in the Year 824. He was brave, just, severe, and a very good Friend. He was drowned in the Year 830; after he had reign'd 6 Years.

ALPIN succeeded him, in the Year 830. He was brave, and gain'd several Victories; but was beaten, at last, taken Prisoner, and kill'd by the *Picts*, in the Year 833; after 3 Years Reign.

KENNETE II. succeeded him, in the Year 833. He gain'd several great Victories, extended the Limits of his Dominions, and lov'd Justice. He dy'd in the Year 857; after he had reign'd 21, or 24 Years.

DONALDE II. succeeded him, in the Year 857. He was a Coward, lazy, voluptuous, and unworthy Prince. He dy'd in the Year 858; after he had reign'd 1 Year.

CONSTANTINE II. succeeded him, in the Year 858. He publish'd several very good Laws, and defeated the *Danes*. He dy'd in the Year 874; after 16 Years Reign.

ETHE succeeded him, in the Year 874. He was an inconstant, cowardly, and vicious Prince. He dy'd in the Year 875; after he had reign'd 1 Year.

GREGORY I. succeeded him, in the Year 875. He was just, prudent, brave, severe, and gain'd several Victories over the *Danes* and *Picts*. He dy'd in the Year 892; after he had reign'd 18 Years.

DONAGALLE II. succeeded him, in the Year 892. He was very prudent, and very brave. He dy'd in the Year 903; after 11 Years Reign.

CONSTANTINE III. succeeded him, in the Year 903. He was unfortunate in his Wars, and dy'd in the Year 943; after he had reign'd 40 Years.

MALCOLM I. succeeded him, in the Year 943. He lov'd Peace, and was assassinated in the Year 958; after he had reign'd 15 Years.

INDULFE succeeded him, in the Year 958. He was brave, judicious, a religious Observer of his Word, and gain'd several great Victories. He dy'd in the Year 967; after 9 Years Reign.

DUFFE succeeded him in the Year 967; he was vigilant, laborious, just, gentle, and full of Courage: He died in the Year 972, after 5 Years Reign.

CULENE succeeded him in the Year 972; he was given to Wine and Women, and had no Courage: He died in the Year 986, after 14 Years Reign.

KENNETE III. succeeded him in 986; he was brave, judicious, and just: He died in the Year 994, after he had reigned 8 Years.

CONSTANTINE IV. succeeded him in 994, and died in 995, after he had reigned one Year.

GRIME succeeded him in 995; he was a Tyrant, abandoned to all Sorts of Vices: He died in the Year 1003, after 9 Years Reign.

MALCOLM II. succeeded him in the Year 1003; he was very just, and gained several great Victories by his Bravery, but he was cruel and avaricious: He died in the Year 1033, after 30 Years Reign.

DONALDE III. succeeded in the Year 1033; he was good, honest, brave, generous, and gained several great Victories: He was killed in 1040, after he had reigned 7 Years.

MACBETH rendered himself Master of the Throne in 1040; he usurped the Kingdom by his Valour, and reigned with a great deal of Cruelty and Tyranny: He died 1057, after he had reigned 17 Years.

MALCOLM III. succeeded him in the Year 1057; he was prudent, religious, just and gentle: He died in 1094, after he had reigned 36 Years.

DONALDE IV. usurped the Crown in 1094, and died the same Year, after 6 Months Reign.

EDGAR succeeded him in the Year 1094, and died in 1105, after 11 Years Reign.

ALEXANDER I. succeeded him in 1105, he was prudent, just, and religious; he died in 1124, after 19 Years Reign.

DAVID I. succeeded him in the Year 1124; he was chaste, pious, just, liberal, and pacifick: He died in the Year 1153, after he had reigned 29 Years.

MALCOLM IV. succeeded him in the Year 1153; was prudent, and a great Politician: He died the 9th of *December*, of the Year 1165, after 12 Years Reign.

WILLIAM, called the *Lion*, succeeded him in the Year 1165; he wanted Prudence, and was unfortunate in all his Wars: He died in the Year 1214, after he had reigned 49 Years.

ALEXANDER II. succeeded him in the Year 1214; he was brave, and died in the Year 1246, after 32 Years Reign.

ALEXANDER III. succeeded him in 1246; he was brave and judicious, just, severe, and loved tenderly his People; but too easy, and too credulous: He died in 1299, after 30 Years Reign.

Note, That there was an Interregnum of seven Years.

ROBERT BRUCE I. came to the Crown in the Year 1306; he was brave, generous, wise, and famous, by his great Victories: He died in the Year 1329, after he had reigned 23 Years.

DAVID II. succeeded him in the Year 1329; he was prudent, just, meek, and full of Courage; but he was unfortunate in his Enterprises, having been made Prisoner by the King of *England*: He died the 7th of *May*, 1370, after 39 Years Reign.

ROBERT II. Son of *Walter Stuart*, great Senescal of *Scotland*, succeeded in 1370; he was prudent and brave: He died in the Year 1390, after 20 Years Reign.

ROBERT III. succeeded him the 13*th* of *August* 1390; he was an extraordinary good Prince, who died of Sorrow for the Imprisonment of his Son, the 17*th* of *March* 1406, after he had reigned 16 Years.

JAMES I. succeeded him in the Year 1406; he was just, prudent, and brave: He died in the Year 1437, after he had reigned 31 Years.

JAMES II. succeeded him in the Year 1437; he was

was prudent, wise, a great Politician, and very brave: He died in 1460, after he had reigned 23 Years.

JAMES III. succeeded him in the Year 1460; he was a great Admirer of Learning, and of the Learned, and was not without Courage, but he had but very little Prudence: He died in 1488, after he had reigned 28 Years.

JAMES IV. succeeded him in the Year 1488; he was just, good, pious, brave, pacifick, loved his People, but was a little too severe: He died in 1513, after he had reigned 25 Years.

Note, That under *James* the IVth's Reign, towards the Year 1490, a Monster was born, who, from the Navel downwards, was in every particular like a Man, but from the Navel upwards, the Body was separated into two half Bodies, each with his Head, Breast, Arms, and other necessary Parts. The King caused him to be brought up with a great deal of Care; he learned several Languages, and the Musick, in which he excelled. When he was pricked in one Leg, the Pain was felt in both Heads; but when prick'd on the Arm, the Pain was not sensible, but in that Head on that Side of the Arm prick'd. The two Heads used to speak to one another, and consulted on the common Good of the Body, were sometimes of a different Opinion, and disputed together. That Monster lived 28 Years.

JAMES V. succeeded him in the Year 1513; he loved Justice, Peace, and his Religion, and had a great deal of Zeal and Courage: He died in the Year 1542, after he had reigned 29 Years.

MARY STUART succeeded him in 1542; this Princess, who, though of an extraordinary Merit, was the most unfortunate of her Time; *Elizabeth* brought her on a Scaffold, as a Victim, which she sacrificed to her Interest and Ambition. *Mary* ended her Life, without renouncing her Religion, in the Year 1587, after she had reigned 45 Years.

JAMES VI. her Son, succeeded her in the Year 1587; he was a good Grammarian, but his Interest smothered within him the Resentment he should have shewed for the violent Death of his Mother: He died in 1625, after he had reigned 45 Years.

Note, That ever since King *James* VI. the Kingdoms of *England* and of *Scotland* have been under the Denomination of one and the same King.

Note also, That from *Scotland* we'll travel as far as *Lombardy*, since it is the next Monarchy for Antiquity; therefore,

CHRONOLOGY *of the Kings of the* Lombards.

The LOMBARDS, thus called, because they used to wear long Beards, descended from the *Goths*, and their first Habitation was *Scandinavia*, which a great Part of them deserted, in the Time of *Theodosius the Great*, if we believe *Paul the Deacon*. In *Augustus*'s Time they inhabited the Continent of *Germany*, on the Borders of the *Elbe*, and they are reckoned among the *Chauces*, the *Semnons*, and the *Sueves*, under *Tiberius*, who had defeated them before he came to the Empire. They sided with *Arminius* for the Cause of the publick Liberty, under *Marcus Aurelius*. They crossed the *Danube*, and after they had been defeated by *Vindex* and *Candidus*, they concluded a Peace with the *Romans* by their Ambassadors. From that Time the History does not mention what they have done. *Justinian* entered into an Alliance with *Vachon* their King, and *Theodebert* married his Daughter. They had two great Wars with the *Gepides* their Neighbours. *Audoin*, their Prince, terminated the first happily, and *Alboin*, his Son, ended the second by the Ruin of that Nation. 'Twas he who carried the War into *Italy*; he came out of his Country with a great Army, composed of *Bulgarians*, *Gepides*, *Sarmatians*, *Hungarians* and *Sueves*; that at *Narses*'s Intreaties, to be revenged of the Empress, as recounted by *Paul the Deacon*, but inspired by his Ambition, and attracted by the Desire, to settle in a better Country than his own. The *Lombards* had served *Justinian* against the *Goths*, and during that Time they had exercised strange Cruelties in all the Places through which they passed. *Alboin* however, entring *Italy* as a Conqueror, endeavoured to make them live with some Order, to gain the Love of the People; therefore,

ALBOIN is reckoned the first King of the *Lombards* in *Italy*, where he began to reign in 568; he was a Tyrant, cruel, inhuman, and Blood-thirsty: His Wife caused him to be killed in 574, to be revenged for his having obliged her to drink in the Skull of her own Father *Chunimundus*, whom he had killed; *Rosemunde* (for this was the Name of *Alboin*'s Queen) conceived from thence so great an Horror against her Husband, that she took the Resolution to have him dispatched. She opened her Mind to *Helmiges*, the King's Gentleman of the Horse, who advised her to communicate her Design to *Peredee*, a Man of Quality and great Authority, but he nobly and generously refused to give his Consent to the Parricide of his Prince, and left the Queen in a great Dilemma; for she was afraid he would discover her Design to *Alboin*. In this Extremity she had Recourse to another Crime, which she thought would facilitate the Perpetration of the first. She knew that *Peredee* used to lie with one of her Women, therefore the Queen placed herself in that Woman's Bed, one Night she knew *Peredee* was to come to lie with her; and when he had enjoyed the Queen, thinking all the while he was in Bed with his Mistress, she made herself known to him, and told him, that after what had passed, there was no longer Room for Deliberation, that he must either kill *Alboin*, or *Alboin* must have him killed. This unfortunate Meeting engaged him in a Murder very much against his Inclination. The Queen took the Occasion, while *Alboin* was asleep in the Afternoon, to introduce the Conspirators into his Chamber, who attacked him. The Queen had took the Precaution to tie his Sword, which he kept always at his Bed's Side, to the Scabbard, that he could not draw it to defend himself. He disputed his Life a long Time, with a Stool, but he was forced at last to yield; therefore he was killed.

Note, The infamous Queen, his Widow, after this execrable Murder, fled to *Ravenna* with *Helmiges*, one of the Conspirators, whom she married; and *Longimes*, who commanded in the Place as Exarch, received her favourably. Some Time afterwards being fallen in Love with her, he promised to marry her, if she would make away with *Helmiges*; the Desire of that Marriage, which flattered her Vanity, made her consent to this second Murder; which to execute, she chose the Time when *Helmiges* came out of the Bath, and gave him a poisonous Draught; and which, as it began soon to operate, *Helmiges*, who then suspected her, drew his Sword, and forced her to drink the Rest of the Poison, which was left in the Cup. Thus died that wicked Woman, who used to make a Jest of Mens Lives to gratify her Ambition.

CLEPHIS was elected to succeed *Alboin*, in the Year 574; and was killed by one of his Servants, in the Year 575.

Note, That after *Clephis*'s Death there was an Interregnum, which lasted 10 Years, for thirty of their principal Chiefs divided the Towns of *Italy* they had taken, where they committed all Sorts of Violences.

AUTHARIS was proclaimed King towards the Year 586;

586; he was a Protector of *Arianism*, but however very brave, and fortunate enough in his military Exploits: He died the *5th* of *September*, in the Year 591, after he had reigned 5 Years.

THEODELINDE, Queen of the *Lombards*, *Autharis*'s Widow, kept the Government of the Kingdom, and had *Agiluphe*, Duke of *Turin*, crowned King; whom she engag'd to embrace the Catholick Religion in the Year 592. She had a great deal of Prudence, Virtue and Piety, and governed those Dominions 'till the Year 626, after 31 Years Reign.

AGILUPHE, Duke of *Turin*, became, in the Year 586, King of the *Lombards* in *Italy*, by his Marriage with *Theodelind*, Queen of those People. This Prince was rich, potent, and brave, but he exercised grea Ravages in the Exarchate of *Ravenna*, and in the Neighbourhood of *Rome*, which St. *Gregory* deplores in his Homilies on the Prophet *Ezekiel*: He died in the Year 616, after he had reigned 25 Years.

ADALVALD, his Son, succeeded him under the Regency of *Theodelinde*, his Mother, in the Year 616, but being fallen into a Demency, after he had reigned 10 Years with his Mother, the *Lombards* deposed him in the Year 620.

ARIOVALD was crowned in the Year 620; he professed *Arianism*, and died in the Year 632, after he had reigned 12 Years.

ROTHARIS succeeded him in the Year 632; he was barbarous, cruel, and never kept his Word: died in the Year 647, after he had reigned 15 Years and 4 Months.

RODOALD succeeded him in the Year 647; he was a cruel and impudick Prince; and was killed by a Man, whose Wife he had debauched, in the Year 651, after he had reigned 4 Years.

Note, That *Rodoald*'s Wife having been falsly accused of Adultery, a Man of his Court, called *Carell*, asked Leave of the King to justify the Queen's Innocence, in a single Combat against the Accuser, which the King granted; hence the Origin of single Combats, which afterwards were practised all over *Europe*, and especially in *France*. They were permitted by theKings of the first Race, and their late Successors could never exterminate them, but by the Severity of their Edicts. All the *French* Nobility were possessed with the Rage which the Devil inspir'd them with, against the Interest of their Salvation, and of their Life, which they exposed to the Fate of Arms, which is often unjust.

ARIPERT I. succeeded *Rodoald* in the Year 651; he was gentle, just, and pious: He died in the Year 656, after he had reigned 5 Years.

Note, That *Aripert* left two Sons, *Perthaut* and *Godebert*, who quarrelled together.

GRIMOALD, Duke of *Bevenent*, laying hold of the Division of the two Brothers, rendered himself Master of the Kingdom of *Lombardy*, in the Year 656; he had a vast deal of Wit, Courage, and Prudence: He died towards the Year 667, after he had reigned 9 Years.

PARTHORIT re-ascended the Throne in the Year 667; he was a religious Prince, Lover of Justice, and liberal to the Poor: He died in the Year 683, after he had reigned 16 Years.

CUNIBERT succeeded him in the Year 683; he was a beautiful Prince, extraordinary good, and very brave: He died in the Year 701, after 6 Years Reign.

LUITBERT, his Son, an Infant, succeeded him under the Regency of *Asprand*; and reigned but 8 Months, for he died the same Year, 701.

RAGINBERT, Duke of *Turin*, usurped the Throne of *Lombardy* in the Year 701; he was brave and ambitious, but unjust and cruel: He reigned but three Months in the same Year.

ARIPERT II. ascended the Throne in 702; he was cowardly, and inconstant. He dy'd in the Year 712, after he had reign'd 10 Years.

ARISPRAND succeeded him in the Year 712; he was a brave Prince, and reign'd but 3 Months.

LUITPRAND succeeded him, in the Year 713; his Life was a Mixture of Vices and Virtues; and *Paul* the Deacon, praises him for his Wisdom, Piety, Justice, and Chastity; but he was easily persuaded to commit Acts of Violence, which himself was the first to condemn, when left to himself.

RACHIS, Duke of *Friuli*, ascended the Throne in the Year 745; he broke, without Reason, the Treaty of Peace he had concluded with the Pope, and besieg'd *Perouse*. The Pope having made to him several Remonstrances on that Subject, he thereby not only engag'd him to raise the Siege, but even to quit the Throne, and embrace the monastick Life, in the Monastery of *Mont Cassin*; which happen'd in the Year 750, after he had reign'd 5 or 6 Years. His Wife and Daughter retir'd, likewise, into a Monastery.

ARISTULPHE, or ASTOLPHE, succeeded him in the Year 750; he was brave, and had conquer'd almost all *Italy*, but was unfortunate towards the latter End of his Reign; for he was defeated by *Pepin*, King of *France*, who depriv'd him of all his Conquests, which he restor'd to the Pope. He was kill'd in hunting, in the Year 756, after he had reign'd 7 Years.

DIDIER was elected King of *Lombardy*, in the Year 756; he was a cruel Prince, without Religion, and was vanquish'd by *Charlemagne*, who brought him Prisoner, with his Wife and Children, into *France*, in the Year 774, after he had reign'd 18 Years. In him the Kingdom of the *Lombards*, in *Italy*, was extinct, which had lasted 200 Years.

Note, That from *Lombardy* we'll return into *Spain*, and take a View of the *Genealogical Tree* of the Kings of *Leon*, or of *Oviedo*.

GENEALOGY *of the Kings of* Leon, *or of* Oviedo.

PELAGIUS, the first of the Name, began to reign in that small Part of the Dominions of *Roderic*, the last King of the *Wisigoths*, call'd *Oviedo*, in the Year 717; he was famous for his Prudence, Courage, Victories, Conquests, good Conduct, and his Piety. He dy'd in the Year 437, after he had reign'd 18 or 20 Years.

FAVILLA succeeded him, in the Year 737; he reign'd but 2 Years, having been kill'd by a Bear, which he was pursuing in hunting, in the Year 738, or 739.

ALPHONSE I. succeeded him, in the Year 739; he was pious, and re-conquer'd from the *Moors* Part of *Spain* and *Portugal*. He dy'd in the Year 753, after he had reign'd 19 Years.

FROILA I. succeeded him, in the Year 753; he was brave, generous, and gain'd several Victories. He defeated *Joseph*, General of the *Moors*, who left 54000 of his Army kill'd in the Field; but he became cruel, and caused his own Brother *Biram* to be assassinated. *Aurelius*, his other Brother, kill'd him, in his Turn, after he had reign'd 11 Years.

AURELIUS possess'd himself of the Kingdom, in the Year 766; he was pusillanimous and cruel. He bought Peace from the *Moors*, by paying to them a shameful Tribute of a certain Number of young Girls, whom he caus'd to be deliver'd to *Abderam*, their Governor. He dy'd in the Year 773, after 7 Years Reign.

SILO ascended the Throne in the Year 773, and did nothing worthy of being recorded. He dy'd in the Year 783, after he had reign'd 8 or 10 Years.

MAUREGAT expell'd *Alphonse*, the legitimate Heir, and usurp'd the Throne, in the Year 783; he signaliz'd his Infamy by paying a Tribute of 50 young Women of noble Extraction, and 50 of a lower Rank; for which detestable Action he was abhorr'd both

both by God and Man. He dy'd in the Year 789, after he had reign'd 6 Years.

WEREMOND succeeded him, in the Year 789; he had receiv'd the Order of Deacon, and was very pious. He dy'd in the Year 791, after 2 Years Reign.

ALPHONSE II. call'd *the Chaste*, succeeded him, in the Year 791; he was pious and brave; he refused generously to pay the infamous Tribute to which *Maugregat* had oblig'd himself: He signaliz'd himself, besides, by the Victories he gain'd over the *Moors*, and by the taking of *Lisbon*. He dy'd in the Year 822, or 824, after he had reign'd 33 Years.

RAMIRE I. succeeded him, in the Year 824; he was a great Hero, and his Reign was render'd glorious by the great Victory he gain'd over the *Moors*, in the Battle of *Claucio*, where 60000 of the Enemies were slain. He dy'd the 1*st* of *February* of the Year 850, after he had reign'd 26 Years.

ORDONE I. succeeded him in the Year 850; he was just, prudent, brave, and pious. He vanquish'd the *Cantabrians*, and often beat the *Saracens*. He dy'd the 27*th* of *May* of the Year 852; after he had reign'd 12 Years, and 6 Months.

ALPHONSE III. call'd *the Great*, succeeded him, in the Year 862; he was brave, wise, pious, and illustrious by his Victories and Conquests. He dy'd in the Year 910, after he had reign'd 48 Years.

GARCIAS dethron'd his Father, in the Year 910, and took Prisoner *Ayola*, King of the *Moors*. He dy'd in the Year 913, after he had reign'd 3 Years.

ORDONE II. succeeded him, in the Year 913; he was the first who took the Title of *King of Oviedo*. He imitated the Virtues of *Alphonse* his Father; he was once vanquish'd by the *Saracens*, or the *Moors*, but he vanquish'd them, in his Turn, several Times. He caused 4 Earls of *Castile* to be kill'd very unjustly, and dy'd in the Year 921, after he had reign'd 10 Years.

FROILA II. usurp'd the Crown of his Nephews *Alphonse* and *Ramire*, in the Year 923; he exercised an infinite Number of Cruelties towards the most illustrious Persons; he was always without Peace, among his own Subjects. He dy'd in 924, after he had reign'd 1 Year.

ALPHONSE IV. call'd *the Monk*, succeeded him, in the Year 924; he was ambitious and indolent, and dy'd in 931, after 7 Years Reign.

RAMIRE II. render'd himself Master of the Throne in the Year 931; he was brave, and gain'd several grear Victories; he defeated twice, the *Arabs*, kill'd 80000 of them in a Battle, and took Prisoner *Abenayre*, one of their Kings; but he was unjust towards his Brother, whom he forced to enter into a Cloyster. He dy'd in the Year 950, after he had reign'd 19 Years.

ORDONE III. ascended the Throne in the Year 950; he was brave, and a great Politician, but unjust and vindictive. He dy'd in the Year 955, after he had reign'd 5 Years, and 7 Months.

ORDONE IV. call'd *the Bad*, ascended the Throne in 955; he was cruel and pusillanimous, and was killed in a Battle near *Cordua*, in the Year 956, after he had reign'd 1 Year.

SANCHO I. call'd *the Fat*, succeeded him, in the Year 956; he was brave, and wise. He treated with an *Arabian* Physician to have Part of his Fat taken off; but the Physician perfected so well what he had promised, that he found the Secret to render *Sancho*, very soon, a perfect *Skeleton*, by putting him in his Tomb, or rather killing him, in the Year 967, after 12 Years Reign.

RAMIRE III. ascended the Throne in the Year 967; he was so cruel, passionate, and so much plunged in Debauchery, that his Subjects were forced to depose him. He dy'd in 982, after he had reign'd 15 Years.

WEREMOND II. call'd *the Gouty*, ascended the Throne in the Year 982; he was prudent, brave, and gain'd several Victories, but voluptuous. He dy'd in the Year 999, after he had reign'd 17 Years.

Note, That under *Weremond* II's Reign, *Almansar*, General of the *Saracens*, took *Barcelona*, the City of *Leon*, and a great Number of others, and routed the *Christians*; who having rally'd their Forces, defeated him in a pitch'd Battle, in which 70000 of his Men were slain.

ALPHONSE V. succeeded him, in the Year 1000; he was just, pious, zealous for the Church, wise, and brave; and gain'd a great Victory over the *Moors*. He was kill'd with an Arrow at the Siege of *Visco*, in *Portugal*, after he had reign'd 28 Years.

WEREMOND III. succeeded him, in the Year 1027; he was brave, generous, prudent, but unfortunate in his Enterprizes. He was kill'd at *Lantade*, where he had thought to have cut to Pieces the Army of his Cousin *Ferdinand*; and thus dy'd in the Year 1037, after 10 Years Reign. He was the last King of *Leon*, and *Ferdinand* re-united in his Person the Kingdom of *Castile*, *Leon*, the *Asturias*, and *Navarre*.

Note, That after my frequent Journeys from one Kingdom to another, which are very fatiguing, and expensive, it is proper I should take some Repose; during which, I'll examine the *Genealogy* of the Kings of *England*; besides, it falls in Order, as to its Antiquity, since all the small Kingdoms *Great Brittain* was divided into, were re-united in one, in the Year 801. Therefore,

CHRONOLOGY *of the Kings of* England.

EGBERT I. began to re-unite, under his Domination, all *England*, which was then divided into several small Kingdoms; to which he gave the Name of *England*. He defeated the *Danes*, who had invaded three Times, successively, his Dominions, in the Year 830. He dy'd in the Year 836, after he had reign'd 37 Years.

ETHELULPHE succeeded his Father *Egbert*, in the Year 836; he was very wise, and very brave. He dy'd in the Year 857, after he had reign'd 21 Years.

ETHELBALD, his Son, succeeded him, in the Year 857; he had once already endeavour'd to have himself acknowledg'd King, during his Father's Absence, who was gone to *Rome*; but he was frustrated in his Attempt. He dy'd, after he had reign'd 2 Years.

ETHELBERT succeeded him, in the Year 859, or 860; he was gentle, prudent, and brave. He dy'd in the Year 863, or 866, after he had reign'd 5 Years.

ETHELRED succeeded him, in the Year 866; he was brave and just. Under his Reign the *Danes* ravag'd *England*, against whom he fought nine Battles in one Year. In one, fought near *Reading*, he gain'd a compleat Victory over them; but in another, near *Basing*, he receiv'd a mortal Wound, of which he dy'd in 872, after he had reign'd 6 Years.

ALFRED, an accomplish'd Prince, succeeded him, in the Year 872; he oblig'd the *Danes* either to quit his Dominions, or to be baptiz'd. He founded the University of *Oxford*, the second, for Antiquity, in all *Europe*, and dy'd in 900, after he had reign'd 20 Years.

EDWARD I. succeeded him; he render'd himself famous for his Prudence, Piety, and the good Laws he made; he signaliz'd, likewise, his Valour, against the *Danes* and the *Britons*. He dy'd in the Year 923, or 924, after he had reign'd 24 Years.

ADELSTAN succeeded him, in the Year 923, or 924; he had a vast deal of Wit and Courage, was a great Admirer of Learning, and of the Learned, gain'd several great Victories, was pious, and liberal to Churches. He dy'd, after 16 or 17 Years Reign.

EDMOND I. succeeded him, in the Year 941; he was just, pious, and brave. He gain'd several Victories over the *Danes*, and dy'd in the Year 946, after he had reign'd 6 Years.

EDRED was crown'd King at the Demise of *Edmond*, his Brother, in the Year 946; he protected the Good,

Good, and chastised with Severity the Profligate. He maintained his Authority against the Revolt of those of *Northumberland*, and defeated them in a Battle. He took special Care to promote Religion and Piety, and dy'd, with the Reputation of a Saint, in the Year 955.

EDWIN, his Nephew, succeeded him, in the Year 655; he was impious, incestuous, and cruel; and hated of his Subjects, who revolted against him. He dy'd in the Year 959, after he had reign'd 4 Years.

EDGARD succeeded him, in the Year 959; he was religious, just, prudent, and pacifick; and tho' of a low Stature, very great in Courage and Valour. He ordered *Ludwal*, Prince of *Wales*, to deliver every Year 300 Wolves, instead of a Tribute which King *Adelstan* had imposed upon him, to free his Dominions from those wild and voracious Creatures. He dy'd in the Year 975, after he had reign'd 16 Years.

St. EDWARD II. succeeded him, in the Year 975; he was meek, pious, just, prudent, and brave. He was killed by the Perfidy of his Mother-in-law *Alfred*, who wanted to place her Son *Ethelred* on the Throne, in the Year 979, after he had reign'd 3 Years.

ETHELRED came thus to the Throne, by the Crime of his Mother, in the Year 979, and that Crime brought upon *England* an infinite Number of Calamities: For the *Danes* invaded the Kingdom, where they committed great Ravages. *Ethelred* was a negligent, proud, and avaricious Prince. The Day of his Coronation there was seen, all over *England*, a Cloud, one Half like Blood, and the other Half like Fire. He gave secret Orders, throughout all his Dominions, that on the 30*th* of *November* all the *Danes* found among them should be massacred; which Orders were executed in the Year 1002. He dy'd in the Year 1016, after he had reign'd 27 Years.

EDMOND II. began to reign in 1016; he was good, just, prudent, brave, and gained great Victories. He divided his Kingdom with *Canute*, and dy'd some Time afterwards, in 1017.

CANUTE I. who succeeded him in 1017, is celebrated for his Piety, Courage, Prudence, and Conquests. He dy'd in the Year 1036, after he had reign'd 20 Years.

HAROLD succeeded him, in the Year 1036; he was a vicious Prince, abandoned to all Sorts of Crimes. He dy'd in the Year 1040, after he had reign'd 4 Years.

CANUTE II. succeeded him, in the Year 1040; he was cruel and avaricious. He had the Body of his Brother dug up, and thrown into the *Thames*. He dy'd at Table at *Lambeth*, of the Fumes of a Debauch, in the Year 1042, after he had reign'd 2 Years.

St. EDWARD III. call'd *the Confessor*, succeeded him, in the Year 1042; he was prudent, brave, good, just, grateful, and very religious. He dy'd in the Year 1066, after he had reigned 23 Years.

Note, That under *Edward the Confessor*'s Reign there fell so great a Quantity of Snow, that a vast Number of Animals dy'd of Hunger. The Year following happened a violent Earthquake, accompanied with Lightning, which burnt the Corn in the Fields, and caused a great Famine.

WILLIAM THE CONQUEROR, Duke of *Normandy*, came into *England* in the Year 1066, and having defeated *Harold*, elected King by the *English*, ascended the Throne. The Defeat of *Harold*'s Army was so great, that 68000 of his Men were slain in the Field of Battle. *William* abolished the *English* Laws, and established those of *Normandy*; after which, he returned into *France*, took and plundered *Mantes*, and died at *Rouen*, in 1087, after he had reigned 21 Years; during which happened a frightful Earthquake, contagious Maladies, Inundations, and incredible Conflagrations.

WILLIAM II. call'd *Rufus*, succeeded his Father, in the Year 1087; he was brave, liberal, inconstant, in his Enterprises, had but little Judgment, and persecuted the Bishops. While he was hunting in *New Forest*, *Tirel*, one of his Servants, wounded him unawares, with an Arrow, of which Wound he died in 1099.

Note, That under *Rufus*'s Reign happened an Earthquake, in which the Sea overflowed its Limits, and in that Inundation the Estate of the Earl of *Godwin*, in *Kent*, was entirely swallowed up; the same which we call at present the *Goodwin-Sands*; and near *Abingdon* a Source sprung up, which run 15 Days, and caused the Plague and the Famine.

HENRY I. seized on the Treasures of his Father, by which means he was preferred to *Robert*, his eldest Brother, then absent in the Holy Land, where he helped to take the City of *Jerusalem*. *Robert*, at his Return into *England*, was maltreated by *Henry*, who caused his Eyes to be put out: *Henry* died in 1111, after he had reigned 35 Years.

Note, That under *Henry* I. a Lady, called *Juga*, left a Ham, a Year, for every Husband and Wife, who should have passed a Year and a Day in the conjugal State, without having repented and violated the Laws of Marriage, of which they were to take an Oath.

STEPHEN OF BLOIS I. succeeded him in the Year 1135; his Reign was accompanied with continual Troubles, and he had several very great Differences with the Empress *Matilda*, who had been declared Heiress of *Henry* I. her Father: He died in the Year 1154, after he had reigned 19 Years.

HENRY II. Son of *Matilda*, succeeded him in the Year 1154; he was a Prince adorned with several very great and excellent Qualities, he conquered *Ireland*, he had very great Differences with *Thomas Becket*, Archbishop of *Canterbury*. *Henry* had the Displeasure to see his own Children revolt against him: He died in the Year 1189, and reigned 34 Years.

Note, That under *Henry* II's Reign there fell in the *Isle of Wight*, a Rain of Blood, which lasted two Hours. Fishermen took up in their Nets, on the Coast of *Suffolk*, a Monster, covered all over with Hairs, who had a human Form, and who escaped from them, and re-plunged into the Sea.

RICHARD I. succeeded him in the Year 1189; he was brave, and signalized his Zeal for the Faith, by carrying his Arms into the Holy Land, where he wag'd War against the Enemies of the Christian Name: He died in the Year 1199, after he had reigned 10 Years.

JOHN I. succeeded him in the Year 1199; he was an unfortunate Prince, and lost *Normandy*, which was re-united to the Crown of *France*: He was hated by his Subjects, who revolted against him; the extreme Sorrow he conceived for it caused his Death, which happened the 19*th* of *October*, in the Year 1216, after he had reigned 15 Years.

HENRY III. succeeded him in the Year 1216; he died the 16*th* or 20*th* of *November* 1272, and reigned 65 Years.

EDWARD I. succeeded him in the Year 1272; he was vigilant, brave, just, and very fortunate in his Enterprises: He defeated at *Berwick* the *Scotch*, in a pitch'd Battle, where 70,000 of them were kill'd in the Field: He died in 1307, after 34 Years, 7 Months, and 21 Days Reign.

EDWARD II. succeeded him, in the Year 1307; he proved unfortunate in his War against the *Scotch*, who, with 30,000 Men, defeated 100,000 *English* in a Pitch'd Battle near *Bannoksborough*: He was inhumanly treated by his own Son, and died of a violent Death,

Death, the 29th of *January* 1327, after 20 Years of a Reign continually disturbed by domestick Divisions.

EDWARD III. succeeded him in the Year 1327; he gained the famous Battle of *Creci*, where the *French* lost 30,000 Men, and 1500 Persons of Note. The next Day the *English* cut again 7000 *French* to Pieces. In that Battle fought in the Year 1346, there was no Quarter given. *David*, King of *Scotland*, having entered *England* at the Head of an Army of 60,000 Men, was beaten, and himself taken Prisoner. In 1356 Prince *Edward*, Son of *Edward* III. gained the famous Battle of *Poitiers*, where *John*, King of *France*, was taken Prisoner. *Edward* III. died the 21st, or 23d of *June* 1377, after he had reigned 51 Years.

RICHARD II. succeeded him in the Year 1377; he was brave and loved Glory: He died in the Year 1399, after he had reigned 22 Years.

HENRY IV. ascended the Throne by a Regicide, having caused his own King to be killed, in the Year 1399; his Reign was a Texture of perpetual Revolutions, which filled *England* with Blood and Miseries: *He died the 20th of March* 1413, after he had reigned 13 Years and a Half.

HENRY V. succeeded him in the Year 1415; he gained over the *French*, in 1415, the glorious Victory of *Agincourt* in *Picardy*: He died in 1422, after he had reigned 9 Years.

HENRY VI. ascended the Throne in the Year 1422; his Reign proved unfortunate, and was disturbed with civil Wars: He died the 21st of *May* 1461, after he had reigned 39 Years.

EDWARD IV. succeeded in the Year 1461; he was a very fine Prince, brave, and liberal: He defeated in a Battle *Henry* VI. who retreated into *Scotland*, and was afterwards killed in the *Tower* of *London* by *Edward*'s Order, after a Life mixed with Prosperity and Adversity. *Edward* died the 9th of *April* of the Year 1483, after he had reigned 22 Years.

RICHARD III. Duke of *Gloucester*, having killed the young *Edward*, Son of *Edward* IV. and published that *Edward* IV. was a Bastard, usurped the Throne in 1483: he was a Hypocrite, impious, cruel, and plung'd in all Sorts of Vices: He was vanquished and killed by *Henry* Earl of *Richmond* in the Year 1485.

HENRY VII. gained the Throne by the Defeat of *Richard* III. in the Year 1485; he was very pious, loved Learning, and the Learned: He died the 21st of *April* 1509, after he had reigned 24 Years.

HENRY VIII. his Son, succeeded him, in the Year 1509; he had a vast deal of Wit and Capacity, but was turbulent and inconstant. The Pope had given him the Title of *Defender of the Faith*, for his having wrote a Book against *Luther*, tho' afterwards he made a Divorce with the Church of *Rome*; declaring himself Head of the Church of *England*. He dy'd the 28th of *January* 1547, after he had reign'd 39 Years, and 9 Months.

EDWARD VI. his Son, succeeded him, in the Year 1547. Under his Reign *Lutheranism* was introduc'd in *England*, and the Mass abolish'd. He dy'd in the Year 1553, after he had reign'd 6 Years.

MARY succeeded him, in the Year 1553. She marry'd *Philip* II. King of *Spain*, and restor'd the Exercise of the *Catholick* Religion. She dy'd of the Dropsy, in the Year 1558, after she had reign'd 5 Years.

ELIZABETH, her Sister, succeeded her, according to their Father *Henry* VIII's Testament, in the Year 1551. She had a vast Knowledge, spoke five or six Languages, was a great Politician, and had several other excellent Qualities; but she caused *Mary Stuart*, Queen of *Scotland*, whom she had detained Prisoner for several Years, to be beheaded, which was an Insult offered to the Majesty of the Throne, and on which the Honour and Glory of all crown'd Heads were interested, tho' none of them resented it. *Elizabeth* dy'd the 4th of *April* 1603, after she had reign'd 40 Years, and in the 70th of her Age.

JAMES I. succeeded her, in the Year 1603; he was prudent, learned, and a Lover of the Learned. He dy'd in the Year 1625, after he had reign'd 22 Years.

CHARLES I. succeeded him, in the Year 1625; he was an extraordinary good Prince, very much inclined to Clemency, and brave; but he wanted one of the most essential Qualities of a great Prince, which is Firmness; and his Weakness made him sacrifice his first Minister, the Earl of *Strafford*, to the Fury and Rage of the declared Enemies of Monarchy; which unpolitical Step gave so violent a Shake to his Crown, that it made it fall with his Head. This his unhappy Catastrophe happened the 30th of *January* 1649, after he had reign'd 24 Years.

Note, That *Oliver Cromwell* took the Reins of the Government under the Title of *Lord Protector of the Commonwealth of* England; and, in some Measure, obliged the greatest Powers of *Europe* to acknowledge him as such; tho', in Fact, they could not consider him otherwise than as an Usurper, and a detestable *Regicide*, who had dy'd his sacrilegious Hands in the innocent Blood of his legitimate Sovereign. *Cromwell* had certainly all the Qualities capable to adorn a Throne, had he been born for it; for he was brave, prudent, grateful, wise, a great Politician, and liberal without Prodigality: But his extravagant Ambition, Hypocrisy and Cruelty, which made him sacrifice to his Security the Lives of so many of his Fellow-Subjects, on which he had not the least Right, and which was the same Thing as murdering them in cool Blood, eclipsed all his Virtues, and must render his Memory infamous throughout all Ages. He dy'd the 3d of *September* 1658.

CHARLES II. succeeded his royal martyred Father, the 30th of *January* 1649, but was kept from his Dominions by his revolted Subjects till 1660; when he was restored to his Throne by the prudent Conduct of *Monk*, General of the Army of the Mock-Commonwealth in *Scotland*. *Charles* was certainly a wise and prudent Monarch, notwithstanding what his Enemies can say to the contrary; who sacrilegiously and shamefully rake his Ashes, to find out the few Infirmities he had in common with the rest of Mankind, to make use of them to eclipse the Radiancy of the excellent Qualities his royal Soul was adorn'd with. By his wise Conduct, he maintained Plenty, Commerce, and Peace; and, what's to be wonder'd at, himself upon the Throne, which a formidable Party formed against him, wanted to make him quit, perhaps in the same Manner his Father had done. I cannot help thinking but it was really their Design, especially when I read, in the Annals of those Times, that they put all in Use to force him to quarrel with *France*, thereby to be left at their Mercy, when they should begin to deal with him as they had done with his Father: But *Charles* was too wise to be deluded by those fanatical Artifices; he knew perfectly well that his Father had ruined himself by sending Succours to the revolted *Calvinists* at *Rochelle*; and that thereby he deprived himself of the powerful Succours he might have expected from *France*, or to keep his Subjects in their Duty to him, or to bring them to Reason, after they had revolted. *Charles* II. dy'd the 16th of *February* 1685, after he had reign'd 36 Years, and 7 Days.

JAMES II. his Brother, succeeded him, the 16th of *February* 1685; he was a brave and learned Prince, but unfortunate. He retired into *France*, where he dy'd, at St. *Germain en Laye*, the 13th of *February* 1701.

WILLIAM and MARY, after King *James*'s Retreat into *France*, were proclaimed King and Queen of *England* in 1689. *William* III. was certainly one of the greatest Heroes of his Time, but often beaten by

by the *French*. His Wisdom was as great as his Magnanimity, and both contributed much to the keeping him on the Throne, notwithstanding all the Efforts of his Enemies, and, perhaps, of some of his former Friends, who can never like long the same Face, let it be ever so beautiful. Queen *Mary* dy'd in 1695, and King *William* dy'd the 8*th* of *March*, 1702.

ANNE, Queen of *Great Brittain*, succeeded him, the 8*th* of *March* 1702. She has been one of the greatest Ornaments of the *British* Throne. She entered into that grand Alliance formed by all the other Powers of *Europe*, against *France* alone, and her Forces had a very great Share in those several Victories which the grand Allies, by their Conduct and Courage, and thro' the Weakness of the *French* Ministry at that Time, and the Perfidy of a wicked Woman, gained over the *French* Armies, commanded then by Generals, *à la Maintenon*, as they were called in *France*; *i. e.* Generals, either without Courage, or Experience. Queen *Anne* united *England* to *Scotland*, a Project which some of her Predecessors had form'd, but had found very difficult in the Execution. She dy'd the 1*st* of *August* of the Year 1714, after she had reigned 12 Years, 4 Months, and 23 Days.

GEORGE I. of the most illustrious House of *Hanover*, succeeded her, the 1*st* of *August* 1714. Speaking without Flattery, and with the unanimous Consent of all *Europe*, he was one of the most excellent Princes of his Time; for he was extreamly good, very much inclined to Clemency; very brave, wise, judicious, prudent, and a great Politician. All these excellent Qualities, which he possessed to a supreme Degree of Perfection, rendered him the Idol of his *German* Subjects, who had Discernment enough to be sensible of their inestimable Value. They respected him as their Sovereign, and loved him as their Father, that Love having never suffered the least Diminution. For it was as great when they lost him, as when he began to reign over them. He dy'd on his Journey to *Hanover*, the 11*th* of *June* 1727, after he had reign'd 12 Years, 10 Months, and 10 Days.

GEORGE II. his Son, succeeded him, the 11*th* of *June* 1727; he governs his Subjects with so much Moderation and Prudence, that his happy Reign is the only one, ever since the Revolution, which has not been disturb'd by *Plots*, or *Conspiracies*; which is owing, in Part, to the unfeigned Love of his Subjects; and in Part to his great Wisdom, in avoiding, as much as possible, a War with the most formidable of his Neighbours, by whom the Malecontents, under his Predecessors, were countenanced, and expected to be supported; which is, perhaps, the Reason why the few Malecontents to be met with under his Majesty's auspicious Reign, would be glad to engage him, under frivolous Pretences, in such a dangerous War, to have Occasion from thence to act according to their destructive Schemes. But the King is too great a Politician, and knows too well his own Interest, and that of his People, to be ignorant that the most prosperous War is always oppressive to a trading Nation; and that the greatest Conquests, on the Continent, have never been worth, to *England*, a Voyage of one of their *East-India* Ships. The *British* Arms have acquired so great a Reputation in past Ages, and the Courage of the *English* Nation is so well known throughout the whole World, that they have no Need to put their Commerce at Stake, to signalize it a-new. Those who pretend that their sincere Love for their Prince, and the Welfare of their Country, make them wish for a War, are Impostors. 'Tis ridiculous to suppose, that the Differences on the Continent can affect *England*, while the Nation shall be united, and have those inexpugnable Ramparts which can defy the strongest Efforts of the most formidable Enemies of the *British* Name.

Note, That from *England* we'll pass into *Navarra*, which is the next Monarchy for Antiquity, and which began in 825. Therefore,

CHRONOLOGY *of the Kings of* Navarre.

ENEGO ARISTA I. began to reign in the Year 825; he was a brave and enterprizing Prince, who render'd himself famous by his Victories and Conquests. He dy'd in the Year 850, after he had reign'd 25 Years.

XIMENES INNIGO succeeded him, in the Year 850; he was very couragious, and gain'd several Victories over the *Moors*. He dy'd in the Year 851, after he had reign'd 1 Year.

Note, That some *Chronologers* place after him INNIGO XIMENES, who reign'd some Time.

GARCIAS INNIGO succeeded him, in the Year 852; he was prudent and brave. He dy'd in the Year 870, after he had reign'd 18 or 19 Years.

SANCHO I. call'd *Garcias*, succeeded him, in the Year 870; he was vigilant, laborious, and full of Courage. He dy'd in the Year 905, after he had reign'd 35 Years.

GARCIAS II. succeeded him, in the Year 905; he was brave, generous, and gentle. He dy'd in the Year 925, after he had reign'd 20 Years.

SANCHO II. call'd *Abarcara*, succeeded him, in the Year 925; he took *Alva* from the *Moors*, and the Country of the *Basques* from the *Gascons*. He was kill'd in a Battle in the Year 962, after he had reign'd 37 Years.

GARCIAS III. call'd *the Quaker*, succeeded him, in the Year 962; he us'd to tremble at the Beginning of a Fight, tho' afterwards he was one of them who gave greater Marks of Courage. He dy'd at the Beginning of the 10*th* Century.

SANCHO III. call'd *the Great*, succeeded him, in the Year 1000; he was a virtuous Prince, who by his Valour and Prudence render'd himself famous in War, and illustrious by his Piety and Justice. He possess'd *Castile*, together with *Navarre*, and dy'd in the Year 1034, after he had reign'd 33 Years.

GARCIAS IV. call'd *the Brave*, succeeded him, in 1034; he had a great deal of Courage and Generosity. He was kill'd in a Battle in the Year 1054, after he had reign'd 20 Years.

SANCHO IV. call'd *the Wise*, succeeded him, in the Year 1054; he was prudent, couragious, and just. He was kill'd at the Siege of *Ramora*, in the Year 1074, after he had reign'd 20 Years.

SANCHO V. succeeded him, in the Year 1074; he was a great Warrior, a great Politician, and Protector of the *Catholick* Religion. He was kill'd with an Arrow at the Siege of *Huesca*, after he had reign'd 20 Years.

PETER I. succeeded him, in the Year 1094; he was prudent, brave, and render'd himself famous by his Victories against the *Moors*. He dy'd in 1108, after he had reign'd 14 Years.

ALPHONSE I. succeeded him, in 1108; he reign'd with Glory and Honour, and gave, on all Occasions, Marks of his Valour and Courage. He was kill'd by the *Moors* in a Battle, in the Year 1134, after he had reign'd 16 Years.

GARCIAS V. succeeded him, in the Year 1134; he was brave and intrepid, and dy'd in the Year 1150, after he had reign'd 15 Years.

SANCHO VI. call'd *the Wise*, succeeded him, in the Year 1150; he was just, prudent, brave, and maintain'd various Wars against his Neighbours, whom he defeated in several Encounters. He dy'd in the Year 1194, after he had reigned 43 Years.

SANCHO VII. call'd *the Recluse*, because of his Infirmities, which oblig'd him to keep within the Castle of *Tonelle*, succeeded him in 1194; he gave several Marks of his Grandeur, and of his Virtue. He dy'd without Children, in the Year 1234, after he had reigned 40 Years.

BLANCHE I. succeeded him, in the Year 1234. This Princess marry'd *Thibaud* V. Earl of *Champagne*, and

and of their Marriage was born *Thibaud* VI. King of *Navarre*, who succeeded her.

THIBAUD I. call'd *the Great*, succeeded him in 1234; he was brave, generous, and a great Admirer of Poetry. He dy'd in the Year 1254, after he had reigned 20 Years.

THIBAUD II. succeeded him in the Year 1254; he was brave, pious, and meek. He died in *Sicily*, on his Return from the Holy Land, where he had accompanied St. *Louis*, King of *France*, in the Year 1270, after he had reigned 16 Years.

HENRY I. call'd *the Gross*, succeeded him in the Year 1270; he was a good Prince, but was suffocated by his Fat, in the Year 1274, after he had reigned 3 Years.

JEANNE I. succeeded him in the Year 1274; she was marry'd in 1284, to *Philip* of *France*, afterwards King *Philip the Fair*. This Princess had several very good Qualities; she founded the College of *Navarre* at *Paris*, in 1303, and dy'd in 1304.

PHILIP I. *the Fair*, King of *France*, began to reign in *Navarre* in the Year 1284; he was a brave, generous, liberal, and magnificent Prince, much inclin'd to Severity. He died the 29*th* of *September* 1314, after he had reigned 30 Years.

LOUIS HUTIN I. succeeded him in the Year 1314; he was brave, just, and pious. He dy'd in the Year 1316, after he had reign'd 2 Years.

PHILIP II. *the Long*, succeeded him in the Year 1316; he was brave, pious, and made several Conquests. He dy'd in 1321, after he had reign'd 5 Years.

CHARLES I. *the Fair*, succeeded him in the Year 1321; he was brave, liberal, gentle, and enterprizing, and never did any Thing without Advice. He died in the Year 1328, after he had reign'd 7 Years.

JEANNE II. of *France*, Queen of *Navarre*, only Daughter of King *Louis* X. call'd *Hutin*, succeeded him in 1316. She was marry'd in 1316, to *Philip*, Earl of *Evreux*. She had a great deal of Prudence, Wisdom, and Virtue. She dy'd the 6*th* of *October* 1349.

PHILIP III. Earl of *Evreux*, call'd *the Good*, and *the Wise*, succeeded in the Year 1428; he was brave, generous, prudent, gentle, just, and pious. He died in the Year 1343, after he had reign'd 15 Years.

CHARLES II. call'd *the Bad*, succeeded him in the Year 1343. It seem'd as if he had been born for the Scourge of his Subjects. Being attack'd with the Leprosy, at *Pampelune*, his Physicians order'd that a Sheet should be dipp'd in Brandy, and the King's Body wrapp'd up in it, and the Cloth sew'd round him; But a Servant, instead of cutting the Thread, approach'd a lighted Candle to burn it, which having set the Cloth on Fire, the King perish'd amidst the Flames, before it could be extinguish'd, in the Year 1386, after he had reign'd 43 Years.

CHARLES III. call'd *the Noble*, succeeded him in the Year 1386; he was meek, honest, just, prudent, religious, and lov'd tenderly his Subjects. He died in the Year 1425, after he had reigned 40 Years.

BLANCHE II. succeeded him in the Year 1425. She had marry'd, in 1420, *John* II. King of *Arragon*. This virtuous Princess died in the Year 1441, after she had reign'd 16 Years.

JOHN, King of *Arragon*, succeeded in the Year 1441; he maintain'd several Wars against his Subjects, and was unfortunate in his Enterprizes. He died the 19*th* of *January* 1479, after he had reigned 38 Years.

ELEONORA of *Navarre* succeeded him in the Year 1479, and reign'd but 14 Days.

FRANCIS PHOEBUS, Earl of *Foix*, succeeded her in the Year 1479; he was the finest, and most beautiful Prince of his Time. He died young, in the Year 1483, after he had reigned 4 Years.

CATHERINE succeeded him in the Year 1483, and died in 1517.

JOHN D'ALBRET II. succeeded her in the Year 1484; he marry'd *Catherine* of *Foix*, Sister and Heiress of *Francis Phœbus*. *John* was a good Prince, brave, just, and very pious. He died the 26*th* of *June* 1516, after he had reigned 32 Years.

Note, That *John* having disoblig'd the Court of *Rome*, the Pope, by a Power which no Body knows but himself, and which *Christ* renounc'd while upon Earth, gave the Kingdom of *Navarre* to *Ferdinand*, King of *Castile*; who accordingly render'd himself Master of, or, to speak more justly, usurp'd it.

HENRY D'ALBRET succeeded in the Year 1516; he had a vast deal of Courage, but prov'd unfortunate. He was kill'd at the Siege of *Rouen*, after he had reign'd 39 Years. He left for his Heiress *Jeanne* of *Albret*, who brought for her Dowry that Kingdom to *Anthony* of *Bourbon*, Duke of *Vendome*, who marry'd her, and became thereby King of *Navarre*.

Note, That ever since *Ferdinand* who conquer'd *Navarre*, all the Kings of *France*, to whom that Kingdom came by *Henry* IV. King of *Navarre*, and afterwards King of *France*, and also all the Kings of *Spain*, have wore the Title of King of *Navarre*. The lower *Navarre* belongs to *France*, and the higher to *Spain*.

Note, likewise, That the *Danish* Monarchy being next, for Antiquity, to that of *Navarre*; I am oblig'd, according to my Design, to give in this Place the *Chronology* of the Kings of *Denmark*.

CHRONOLOGY *of the Kings of* Denmark.

HAROLD I. was the first King of *Denmark*, and began to reign about the Year 930; he was a good Prince, just, and religious. He died in the Year 980, after he had reign'd 50 Years.

SUENON succeeded him in the Year 980; he render'd himself famous by his Courage, Victories, and Conquests; but he was cruel, and inconstant in his Enterprizes. He died in the Year 1014, after he had reign'd 34 Years.

CANUTE I. call'd *the Great*, succeeded him in the Year 1014, and reign'd in *Denmark*, *Norway*, and in *England*. He was illustrious by his Prudence, Courage, Piety, Victories and Conquests; he also made Laws for the Reformation of Manners, and dy'd in the Year 1035, after he had reign'd 21 Years.

CANUTE II. succeeded him in the Year 1035; he was cruel, avaricious, and vindictive. He died in the Year 1045, after he had reign'd 10 Years.

MAGNUS, the *Norwegian*, succeeded him in the Year 1045; he was prudent, just, and religious. He dy'd in the Year 1049, after he had reign'd 4 Years.

SUENON II. succeeded him in the Year 1049; he was wise and brave, and dy'd in the Year 1074, after he had reign'd 25 Years.

HAROLD II. succeeded him in the Year 1074; he had little or no Merit, and dy'd in the Year 1076, after he had reign'd 2 Years.

CANUTE III. succeeded him in the Year 1076; he was brave, just, and pious. He dy'd in the Year 1085, after he had reign'd 9 Years. Others place his Death in 1081.

OLAUS I. succeeded him in the Year 1085; his Reign was full of Miseries. He dy'd in the Year 1095, after he had reign'd 10 Years.

ERIC III. succeeded him in the Year 1095; he was brave and pious, and made several Conquests. He dy'd in the Isle of *Cyprus*, on a Journey to *Jerusalem*, after he had reign'd 7 Years.

NICOLAS I. succeeded him in the Year 1102; he prov'd unfortunate in his Enterprizes and Battles, and dy'd in 1135, after he had reign'd 33 Years.

ERIC IV. ascended the Throne in the Year 1135; he render'd himself Master of the Kingdom by his Prudence, Courage, and Victories. He dy'd in the Year 1139, after he had reign'd 4 Years.

ERIC V. succeeded him in the Year 1139; he was prudent, brave, just, meek, and religious. He dy'd in the Year 1147, after he had reign'd 8 Years.

CANUTE IV. succeeded him in the Year 1147; he was brave and judicious, gain'd several Victories, and made several Conquests. He dy'd in 1155, after he had reign'd 8 Years.

SUENON IV. succeeded him in the Year 1155; he was brave and intrepid, but very cruel. He dy'd in 1157, after 2 Years Reign.

WALDEMARE I. succeeded him in the Year 1157; he gain'd several great Victories by his Courage and Prudence, extended the Limits of his Dominions by his Conquests, and was a very just and religious Prince. He dy'd in the Year 1185, after he had reign'd 28 Years.

CANUTE V. succeeded him in the Year 1185; he was prudent and brave, and made several Conquests on the *Vandals*. He dy'd in 1202, after he had reign'd 18 Years.

VALDEMARE II. succeeded him in the Year 1202; he was illustrious by his Courage, Prudence, Victories and Conquests. He dy'd in 1242, after he had reign'd 40 Years.

ERIC VI. succeeded him in the Year 1242; he was kill'd by his Brother *Abel*, who had him thrown into the Sea, in the Year 1250, after he had reign'd 8 Years.

ABEL I. ascended the Throne, after he had kill'd his Brother, in the Year 1250; he was a very cruel Prince. The *Frisons* defeated him in a Battle, where he lost his Life, in the Year 1252, after he had reign'd 2 Years.

CHRISTOPHER I. succeeded him in the Year 1252; he was cruel, unjust, and impious. He dy'd in 1259, after he had reign'd 7 Years.

ERIC VII. succeeded him in the Year 1259; he had a vast deal of Courage, and gain'd several Victories. He was assassinated in the Year 1286, after he had reign'd 27 Years.

ERIC VIII. succeeded him in the Year 1286; he was brave, and gain'd several Victories. He dy'd in 1321, after he had reign'd 35 Years.

CHRISTOPHER II. succeeded him in the Year 1321; he increas'd his Dominions by his Conquests, and was bold and couragious, but very bad, and very cruel. He died in the Year 1333, after he had reign'd 12 Years.

VALDEMARE III. succeeded him in the Year 1333; he was unfortunate in his Wars. He dy'd in 1376, after he had reign'd 42 Years.

MARGUERITE succeeded him in the Year 1376; she marry'd *Aquinus*, King of *Norway*, and render'd herself illustrious by her Courage, Prudence, Conduct, and Virtue. She died in the Year 1412, after she had reign'd 37 Years.

Note, That at that Time the Kingdom of *Norway* was united to that of *Denmark*.

ERIC IX. succeeded her in the Year 1412; his Cruelties, and indolent Life, render'd him odious to his Subjects, who depos'd him. He was learned, and brave enough. His Deposition happen'd in the Year 1438, after he had reign'd 26 Years.

Note, That to ERIC IX's Deposition succeeded an Anarchy, which lasted 6 Years.

CHRISTOPHER III. Duke of *Bavaria*, began to reign in *Denmark* in the Year 1439; he was a good Prince, and very brave. He dy'd in 1448, after he had reign'd 9 Years.

CHRISTIAN I. succeeded him in the Year 1448; he was good, honest, prudent, brave, and very religious. He died in 1482, after he had reign'd 34 Years.

JOHN I. succeeded him in the Year 1482; he was gentle, prudent, and brave. He dy'd in 1513, after he had reigned 32 Years.

CHRISTIAN II. succeeded him in the Year 1513; he was cruel, blood-thirsty, and impious, for which he was call'd the *Nero* of the North. He was depos'd in the Year 1523, after he had reigned 10 Years.

FREDERICK I. Duke of *Holstein*, usurp'd the Kingdom in the Year 1523; he introduc'd *Lutheranism* in his Dominions, which he govern'd with a great deal of Prudence and Moderation. He died in the Year 1534, after he had reigned 11 Years.

CHRISTIAN III. succeeded him in the Year 1534; he was good, meek, moderate, learned, and a Friend to the Learned. He died in the Year 1559, after he had reigned 24 Years.

FREDERICK II. succeeded him in the Year 1559; he was brave, fortunate, learned, and a Friend to the Learned. He dy'd the *4th* of *April* 1588, after he had reigned 29 Years.

CHRISTIAN IV. succeeded him in the Year 1588; he render'd himself illustrious by his Courage, Prudence, and great Exploits. He dy'd in the Year 1648, after he had reigned 60 Years.

FREDERICK III. succeeded him in the Year 1648; he was brave, judicious, liberal, and gain'd several great Victories. In 1669, he receiv'd, from the States of *Denmark*, the Power to leave hereditary, in his House, the Crown which before had been elective; and dy'd the *9th* of *February* 1670, after he had reigned 22 Years.

CHRISTIAN V. Son of *Frederick* III. succeeded him the *9th* of *February* 1670; he govern'd his Kingdom as a brave and enterprizing Prince. He wag'd War against the *Swedes*, and took some Places from them.

FREDERICK IV. succeeded him; he was one of the most accomplish'd Princes of his Time. He died the *12th* of *October* 1730, aged 59 Years.

CHRISTIAN VI. succeeded him the *12th* of *October* 1730; he was born the *9th* of *December* 1690.

Note, That from *Denmark* we'll pass into *Muscovy*, which is the next Monarchy for Antiquity.

CHRONOLOGY *of the Great Dukes of* Muscovy, *or Emperors of* Russia.

WOLODIMIRE I. Duke, or Prince of that Country, was converted to the *Christian* Religion in the Year 988; he took the Name of *Bazile* in his Baptism. He was cruel, and impudick; but after he had embrac'd the *Christian* Faith, he became chaste, just, gentle, brave, and famous for his Victories and Conquests. He dy'd in the Year 1015, after he had reigned 27 Years.

JORESLAS I. succeeded him in the Year 1015, but we know nothing of the Detail of his Actions, no more than how long he reign'd, nor when he dy'd.

WZEVOLD I. reign'd after him, but his Actions and his Life are as little known as those of his Predecessor.

WOLODIMIRE II. reign'd after him; he was a Prince illustrious by his Courage, Prudence, Victories, and Conquests. He died in the Year 1146.

WZELVOD II. reign'd after him, and afterwards 7 other Princes, whose Names are not known, except those of GEORGE I. and DEMETRIUS I. of whom we know nothing else.

GEORGE II. reign'd afterwards; he grew famous by his Misfortunes, having been kill'd by *Baty*, Emperor of *Tartary*, in 1237, after the same Emperor had conquer'd all his Dominions, which he render'd tributary, and sent Governors into it, during 260 Years.

JORESLAS II. Brother of *George* II. and *Alexander* I. reign'd in that Condition, but we know nothing of them but their Name.

DANIEL I. transferr'd the Seat of his Empire to *Moscow*, which he inclos'd with Walls, had a Castle built, and he was the first who took the Name of great Prince of *Wolodimire*, and of *Moscow*.

JOHN

JOHN I. call'd *Naleta*, *i. e.* the Purse, because he us'd to wear one, to give Alms to the Poor.

SIMEON, JOHN II. DEMETRIUS II. and BAZILE II. who liv'd in 1400; GEORGE III. and BAZILE III. are Princes whose Actions are unknown to us, and of whom we know nothing else but their Names.

JOHN BASILIDES, call'd *the Great*, succeeded them about the Year 1477; he shook off the Yoke of the *Tartars*, whom he defeated in several Encounters, and render'd himself famous by his Prudence, Courage, and Victories. He dy'd about the Year 1492, after he had reign'd 42 Years.

BASILE IV. succeeded him in the Year 1492; he was a Prince cruel, blood-thirsty, vicious, and of no Word. He dy'd in the Year 1533, after he had reign'd 23 Years.

JOHN BASILIDES II. succeeded him in the Year 1533; he was a cruel Monster, blood-thirsty, impudick, and wild; who, notwithstanding, made great Conquests. He dy'd the 28*th* of *March* 1584, after he had reign'd 51 Years.

THEODORE I. succeeded him in the Year 1584; he was pious, meek, just, and prudent. He dy'd in the Year 1598, after he had reign'd 14 Years.

BORIUS HODRINUS succeeded him in the Year 1598; he was very brave, defeated several Times the *Tartars*, but he was cruel, and ungrateful towards those who had placed him on the Throne, whom he caused to be poisoned. He dy'd the 13*th* of *April* 1605, after he had reign'd 7 Years.

DEMETRIUS succeeded him in the Year 1605; he was liberal and brave. He dy'd in 1606, after he had reign'd 1 Year.

JOHN BASILE, call'd *Suiski*, succeeded him in the Year 1606; his tyrannical Conduct made him hated by his Subjects. He dy'd in 1611, after he had reign'd 5 Years.

LADISLAS I. Prince of *Poland*, succeeded him a Year before he dy'd, *viz.* in 1610; he was brave, generous, liberal, and very wise. He dy'd in 1613, after he had reign'd 3 Years.

MICHAEL FEDEROWITZ succeeded him in the Year 1613; he was brave, bold, and enterprizing, but very cruel. He gain'd several great Victories, and made several Conquests. He dy'd the 12*th* of *July* 1645, after he had reign'd 32 Years.

ALEXIS MICHAEL succeeded him in the Year 1645; he maintain'd several Wars against his Neighbours, and had Courage enough; but he was cruel, and never kept his Word. He dy'd in the Year 1676, after he had reign'd 31 Years.

ALEXIS II. succeeded him in the Year 1676; he divided his Dominions with his Brother *Peter*, and both took the Quality of Czars, *i. e. Cæsars*, or Emperors of *Muscovy*.

PETER I. call'd *the Great*, began to reign alone at the Death of his Brother *Alexis*.

MARTHA MATWEIWNA succeeded the 8*th* of *February* 1725, by the Disposition of her Husband *Peter the Great*'s Will. Her extraordinary Merit, which from a mean Extraction had raised her to the Throne, has render'd her one of the greatest Princesses of her Time. To her vast Capacity, wise Councils, Dexterity, prudent Conduct, and Courage, the Emperor her Husband was indebted, in Part, for his Grandeur and Glory; the Success of his Arms, and the Rapidity of his Conquests. She dy'd the 17*th* of *May* 1727, aged 38 Years.

PETER ALEXOWITZ, Grandson of *Peter* I. succeeded her the 17*th* of *May* 1727, and dy'd the 30*th* of *January* 1730, aged 14 Years.

ANNE-IWANOWNA, Dutchess of *Courland*, succeeded him the 30*th* of *January* 1730; she pursued with a great deal of Courage the Scheme *Peter* I. had form'd, of rendering himself both formidable and necessary to the Princes his Neighbours, in Hopes to give them the Laws afterwards. She assisted the Emperor in placing the present King of *Poland* on the Throne, to the Exclusion of *Stanislaus*, who had been duly elected. She found the Secret under the specious Pretence of sending Succours to the Emperor, on the *Rhine*, in his last War with *France*, to make her Forces acquainted with the Roads of *Germany*, that they should not be *Strangers to them in Case of Need*. She made Use of *Peter* I's Testament to ascend the Throne, but conceal'd it, as to her Successor to it. She was a Mixture of Virtue and Vice, and dy'd the 17*th* of *October* 1740, aged 48 Years.

JOHN III. an Infant, 3 Months old, Son of the Dutchess of *Brunswick*, Niece of the deceased Empress *Anne Iwanowna*, and Consort of Duke *Anthony Ulrick*, succeeded the 17*th* of *October* 1740, first under the Regency of the Duke of *Courland*, and afterwards under that of the Dutchess his Mother; but by a surprizing, and unexpected Revolution, was dethroned, the 6*th* of *December* 1741.

ELIZABETH-PETROWNA, second Daughter of *Peter the Great*, by *Martha-Matweiwna*, ascended the Throne by a sudden Revolution, the 6*th* of *December* 1741; she had been set aside by the Will of the Empress *Anne-Iwanowna*, tho' called to the Succession by that of the Empress her Mother, whose rare Merit, and excellent Perfections, this Empress has inherited, which render her worthy of the Throne she is intituled to by her Birth.

Note, That tho' it is not very agreeable to travel in those icy Climates during the Winter; I must, notwithstanding, take a Tour into *Norway*, since it is the next Monarchy for Antiquity. Therefore,

CHRONOLOGY *of the Kings of* Norway.

SUCIN, or SUENON I. King of *Norway*, began to reign in the Year 998; he was a wise, prudent, moderate, judicious, and brave Prince. He dy'd in the Year 1011, after he had reign'd 13 Years.

St. OLAUS succeeded him in the Year 1011; he acted with a great deal of Zeal for the Establishment of the *Christian* Religion in his Dominions, and had all the Virtues of a great King. He dy'd in the Year 1031, after he had reign'd 20 Years.

SUENON II. succeeded him in the Year 1031; he had a vast deal of Wit, Eloquence, and Courage. He dy'd in 1039, after he had reign'd 8 Years.

MAGNUS I. succeeded him in the Year 1039; he was brave and generous, and maintain'd several great Wars. He dy'd in the Year 1055, after he had reign'd 16 Years.

HEROLD, or ERVOLD, succeeded him in the Year 1055; he was brave, and had Prudence. He dy'd in the Year 1070, after he had reign'd 15 Years.

MAGNUS II. succeeded him in the Year 1070; he was a Prince of extraordinary Merit, who dy'd in 1110, after he had reign'd 40 Years.

MAGNUS III. succeeded him in the Year 1110; he had several great Wars to maintain, in which he gave Proofs of his Courage and Prudence; but as he was unfortunate, and voluptuous, he was expell'd from his Dominions in the Year 1138, after he had reign'd 28 Years.

HEROLD II. ascended the Throne in the Year 1138; his Reign was full of Wars and Divisions, which he pacify'd by his Courage and good Conduct; but he was voluptuous. He dy'd in the Year 1148, after he had reign'd 10 Years.

MAGNUS III. was restor'd in 1148, and dy'd in the Year 1158, after he had reign'd 10 Years.

INGO, call'd *Gibbas*, succeeded him in the Year 1158; he was good, and courageous. He died in the Year 1176, after he had reign'd 18 Years.

Note, That there was an *Interregnum* of 4 Years.

MAGNUS IV. began to reign in the Year 1180; he was prudent, just, and religious. He dy'd in the Year 1232, after he had reign'd 52 Years.

AQUIN

AQUIN I. succeeded him in the Year 1232; he was cruel, and impious, and had not the least good Quality. He died in the Year 1263, after he had reigned 31 Years.

OLAUS, call'd *Angofanus*, succeeded him in the Year 1263; he did nothing considerable, and died in 1280, after he had reigned 17 Years.

ERIC I. succeeded him in the Year 1280; he was brave and pious. He died in the Year 1300, after he had reigned 20 Years.

AQUIN II. succeeded him in the Year 1300; he was good, and couragious. He died in the Year 1315, after 15 Years Reign.

MAGNUS V. succeeded him in the Year 1315; his Vices and Debaucheries were the Cause of his being deposed, He died in the Year 1326, after he had reigned 11 Years.

AQUIN III. was placed on the Throne in the Year 1326; he was a Prince of extraordinary Merit, brave, generous, wise, and full of Piety. He dy'd in the Year 1328, after he had reigned 2 Years.

MAGNUS VI. succeeded him in the Year 1328; he render'd himself illustrious by his Prudence, Courage, and good Conduct. He died in the Year 1375, after he had reigned 47 Years.

OLAUS III. succeeded him in the Year 1375; he did nothing remarkable, and died in the Year 1389, after he had reigned 13 Years.

MAGUERITE, Wife of *Aquin* IV, Queen of *Denmark*, *Sweden*, and *Norway*, succeeded him in the Year 1389; she rendered herself illustrious by her Piety, Prudence, Virtue, and good Conduct. She died in the Year 1412, after 23 Years Reign.

ERIC of *Pomerania*, *Marguerite*'s Nephew, succeeded her in her Dominions in the Year 1412; he was learned and brave, but he became cruel, lazy, and addicted to Vice. He was deposed in 1438, after he had reign'd 26 Years.

CHRISTOPHER III. King of *Denmark*, succeeded in the Year 1439, and ever since the Kings of *Denmark* have possessed *Norway*.

Note, That the most antient Monarchy next to *Norway*, is *Poland*. Therefore,

CHRONOLOGY *of the Kings of* Poland.

BOLESLAS I. obtained from the Emperor *Otho* the Title and the Crown of King in 999, according to *Polish* Authors; which is contradicted by *Baronius*, who pretends, that the *Poles* ask'd since that Crown from the Pope, in the Time of the Emperor *Henry*. But, however, *Boleslas* did all he could to promote the *Christian* Religion, and the Interest of his Subjects, and render'd himself illustrious by his Victories and Conquests. He was a very great Prince, religious, liberal, brave, and judicious. He died in the Year 1025, after he had reigned 26 Years.

MISCISLAS I. succeeded him in the Year 1025; Authors give him the Title of indolent and unfortunate, tho' he gain'd some Advantages over his Enemies, of which he reap'd no Fruit, thro' his bad Conduct. He died in the Year 1034, after he had reigned 9 Years.

CASIMIRE I. succeeded him in the Year 1034; he regulated perfectly well his Kingdom, and added some Provinces to it. He civiliz'd the *Poles*, took a particular Care to make Religion flourish in his Dominions, and was a brave, religious, and charitable Prince. He died in the Year 1059, after he had reigned 25 Years.

BOLESLAS II. call'd *the Bold*, succeeded him in the Year 1059; he was very virtuous in his Youth, very zealous for his Religion, very just, and return'd always victorious from his Enemies; but he abandon'd himself afterwards to Vice, committed Sacrileges and Tyrannies, and became very cruel, and very dissolute. He died in the Year 1082, after he had reigned 22 Years.

LADISLAS, or ULADISLAS I. succeeded him in the Year 1082; his Prudence and Moderation inclined him to love Peace and Tranquillity, tho' he was a Hero who had gain'd several great Victories over his Enemies. He died the 16*th* of *July* 1102, after he had reigned 20 Years.

BOLESLAS III. call'd *Wry-Lip*, succeeded him in the Year 1192; he re establish'd, and honour'd by his great Actions, the Name of *Boleslas*, which his Uncle had render'd odious. He was just, religious, brave, liberal, and without Reproach. He was in 47 Combats, or Battles, from which he came victorious; but was defeated in 1138, in *Russia*. He fell sick, and dy'd, in 1139, after he had reign'd 37 Years.

LADISLAS II. succeeded him in the Year 1139; he was very ambitious, and having enter'd into a War with his own Brothers, he was almost always vanquish'd, and oblig'd to fly into *Germany*. He was deposed, and his Brother put in his Place, who abandon'd him in *Silesia*. He dy'd in the Year 1146, after he had reigned 7 Years.

BOLESLAS IV. call'd *Curled Head*, succeeded his Brother in the Year 1146; he was a brave and religious Prince, who gain'd several Victories over the rebellious *Prussians*, and oblig'd them to be baptiz'd. He dy'd in the Year 1173, after he had reign'd 27 Years.

MISCISLAS II. call'd *the Older*, succeeded him in the Year 1173; his Avarice, and little Care to keep his Word, oblig'd his Subjects to depose him; and he was unfortunate in his Enterprizes. He dy'd in 1177, after he had reign'd 4 Years.

CASIMIRE II. call'd *the Just*, succeeded him in the Year 1177; he lov'd Piety and Justice, and was brave, judicious, modest, and much inclin'd to ease his Subjects, whom he tenderly lov'd. He dy'd in the Year 1194, after he had reign'd 17 Years.

LESCUS, call'd *the White*, succeeded him in the Year 1194; he was placed on the Throne in Consideration of his Father *Casimire*, but he did nothing worthy of being recorded; and his Reign was disturbed by Wars and Divisions. He was deposed in the Year 1202.

LADISLAS III. call'd *L'Asconogue*, or Thick Legs, was plac'd on the Throne in the Year 1202; he was a Prince of a great deal of Wit, Dexterity, Eloquence, and Courage. He dy'd in 1206, after he had reign'd 4 Years.

L'ESCUS was restored to his Throne in the Year 1206; he was disturbed a-new by several great Wars, and died in 1226, after he had reign'd 20 Years.

BOLESLAS V. call'd *the Chaste*, succeeded him in the Year 1226; he was meek, just, religious, very chaste, and pacifick. He dy'd in the Year 1279, after he had reign'd 53 Years.

L'ESCUS, call'd *the Black*, succeeded him in the Year 1279; he rendered himself illustrious by his Prudence, Courage, Victories, and Conquests; but was extreamly vindictive. He dy'd in the Year 1289, after he had reign'd 10 Years.

BOLESLAS VI. Duke of *Massovia*; and HENRY, Duke of *Doratislavia*, rendered themselves Masters of the regal Power, and were Regents, from the Year 1289, to 1295.

PREMISLAS I. ascended the Throne in the Year 1295; he was brave, liberal, judicious, and a Lover of true Glory. He dy'd in 1296, after he had reigned 8 Months.

LADISLAS IV. called *Ostic*, or the Short, succeeded him in the Year 1296; he was a Warrior, and a Politician; but his violent and cruel Conduct made him hated by his Subjects, who deposed him in the Year 1300, after he had reigned 4 Years.

VENCESLAS, King of *Bohemia*, called *the Saint*, was placed on the Throne in the Year 1300; the *Poles*, charmed with his rare Merit, elected him for their King. He dy'd the 23*d* of *June* of the Year 1305.

LADISLAS IV. called *Ostic*, was restored to his Throne

Throne in the Year 1305; he governed with Prudence ever since, extended the Limits of his Dominions, rendered himself formidable to his Enemies, and was esteemed one of the greatest Princes of his Time. He dy'd the 10*th* of *March* 1333, after he had reigned 28 Years.

CASIMIRE III. called *the Great*, succeeded him in the Year 1333; he was pacifick, and magnificent in the Churches and Hospitals he founded; and caused to be built a great Number of Castles and Fortresses. He had, besides, a very great Dexterity to make himself beloved by every Body, and had Justice impartially administered. He died the 8*th* of *September* of the Year 1370, after he had reigned 37 Years.

LOUIS, King of *Hungary*, of the House of *Anjou*, succeeded him in the Year 1370; he undertook several Wars, which he terminated happily, and was always victorious, wise, religious, and very zealous for the Propagation of the Faith. He died in the Year 1380, after he had reign'd 10 Years.

LADISLAS V. called *Jagelon*, Great Duke of *Lithuania*, came to the Throne of *Poland* by his Marriage with *Hadwige*, Daughter of *Louis*, King of *Hungary*, who had been elected Queen of *Poland*, on Condition she should marry the Person who should be chosen by the Grandees of the Kingdom for her Husband. *Ladislas* marry'd her, and began to reign in 1386. He rendered himself illustrious by his Prudence, Courage, Moderation, and Victories. He dy'd the 13*th* of *May* 1434, after he had reign'd 48 Years.

LADISLAS VI. King of *Hungary*, succeeded him in the Year 1434; he was a very brave, wise, and judicious young Prince. He was killed at the Battle of *Varnes* in the Flower of his Youth, very worthy by his Courage and Piety, of a happier Fate. All *Europe* mourned the Death of that young Conqueror, which happened the 11th of *November*, 1444, after he had reigned 10 Years.

CASSIMIRE IV. succeeded him in the Year 1444; he chastised severely the Knights of the Teutonick Order, and forced them to sue for Peace; he conquered *Dantzick*, and other Provinces, and was famous for his Valour, Prudence, Victories and Conquests. He died the 7th of *June*, 1492, after he had reigned 48 Years.

JOHN ALBERT succeeded him in the Year 1492; this Prince was learned, especially in History, liberal to his Soldiers, generous, and very brave; but very little fortunate in his Wars. He died the 7th of *June*, 1501, after he had reigned 9 Years.

ALEXANDER I. succeeded him in the Year 1501; he was melancholick and sullen, but very good and happy; he used to give with Pleasure, even so far as to prevent the Desires of those, who wanted to ask him some Favour, which is an excellent Quality in a Prince, not to be met with in this Age. He dy'd in the Year 1506, after he had reigned 5 Years.

SIGISMOND I. succeeded him in the Year 1506; he gave on all Occasions, very great Proofs of his Courage and Prudence, and his Reputation was very well established; he render'd himself illustrious by his Piety, Justice, Victories, and Conquests; and was valued and respected by all the Princes of his Time. He dy'd in the Year 1548, after he had reign'd 42 Years.

SIGISMOND II. call'd *Augustus*, succeeded him in the Year 1548; he conquer'd *Livonia*, and shewed, by the Protection he granted to the Learned, and by his Prudence and Courage in the Field, that he was very worthy of the Praises bestowed on him by the Authors of his Time. He dy'd the 7*th* of *July* 1573, after he had reign'd 24 Years.

HENRY of *France*, Duke of *Anjou*, was elected King of *Poland* in the Year 1573; he was a young Hero, illustrious by his Courage and Victories. He possessed that Crown but 5 Months, having quitted it for that of *France*, devolv'd to him by the Death of his Brother, *Charles* IX.

STEPHEN BATHORY, Prince of *Transilvania*, was plac'd on the Throne in the Year 1575; he render'd himself illustrious by his military Exploits, Prudence, Courage, and Zeal for his Religion; but he was a little too much inclin'd to Severity. He dy'd in the Year 1587, after he had reign'd 11 Years.

SIGISMOND III. King of *Sweden*, succeeded him in the Year 1587; he was brave and pious, but unfortunate in his Wars, which prov'd very tedious and disadvantagious. He dy'd in the Year 1632, after he had reign'd 45 Years.

LADISLAS SIGISMOND succeeded him in the Year 1632; he gave particular Marks of his Valour and Piety, signaliz'd his Courage in the Wars against the *Muscovites*, and by the Defeat of *Osman*, Emperor of the *Turks*, having kill'd more than 150000 *Turks* in several Encounters. This Prince lov'd Virtue, spoke several Languages, and had join'd to his Valour a perfect Love of Justice. He dy'd in 1648, after he had reign'd 15 Years.

JOHN CASIMIRE succeeded him in the Year 1648; he was wise, brave, and prudent, and was in 17 or 18 Battles, which he gain'd almost all. He dy'd the 14*th* of *November* 1669, after he had reign'd 20 Years.

MICHAEL KORIBUT WIESNOWISKI succeeded him in the Year 1669; he was a meek, pious, easy, and credulous Prince. He dy'd in 1674, after he had reign'd 4 Years.

JOHN SOBIESKI, called *the Great*, was placed on the Throne of *Poland* in 1674, notwithstanding the Crowd of Pretenders to that Crown, put on his Head as a just Reward for his Valour. *Poland* was indebted to him for its Security and Liberty; and *John*, who had been the Arm of the Republick, deserv'd to be her Chief; in which high Station he became the Glory, Admiration, and Father of his Subjects. This Prince, born to be the Buckler of the Nations most exposed to the Fury of the *Ottomans*, was found every where to disconcert their Measures, and oppose their Enterprizes; and every Body knows that he contributed more than any other Prince to the miraculous Deliverance of *Vienna*, tho' the Emperor had done all he could to oppose his Election.

FREDERICK AUGUSTUS, Elector of *Saxony*, succeeded him, by the Intrigues of the Pope, and of *William* III. King of *England*, who at that Time join'd together against the *French* Interest in *Poland*, and succeeded, in giving the Exclusion to the Prince of *Conti*, whom the late King of *France*, *Louis* XIV. had set up for a Candidate to that Throne. *Frederick* was not only capable to govern the *Poles*, but even the whole Earth; for he had found the Secret to join in his Person to his most illustrious Birth, all the most excellent Qualities which can adorn a Throne; for he was learned, wise, and a profound and consummate Politician. He rivall'd, in Courage, the greatest Heroes of past Ages, and even surpassed *Titus* himself in Liberality; but he was unfortunate in his Wars against *Charles* XII. King of *Sweden*, who dethron'd him; tho' during that Hero's Captivity in *Turkey*, *Frederick* found Means to re-ascend it again, and to maintain himself upon it, to his Death.

FREDERICK III. his Son, (tho' *Stanislaus Lisinski*, one of the greatest Heroes of his Time, and the most accomplish'd Prince, had been duly elected) reigns at present in *Poland*, having been plac'd on the Throne by the united Forces of the late Emperor of *Germany*, and of the late Czarina, *Anne*, Dutchess of *Courland*.

Note, That from *Poland* we'll pass into that delightful and fertile Kingdom *Hungary*, where we can regale ourselves with some Bottles of *Tockay*.

CHRONOLOGY *of the Kings of* Hungary.

STEPHEN I. began to reign in the Year 1000, according to some *Chronologers*; but it is more certain that

AQUIN I. succeeded him in the Year 1232; he was cruel, and impious, and had not the least good Quality. He died in the Year 1263, after he had reigned 31 Years.

OLAUS, call'd *Angofanus*, succeeded him in the Year 1263; he did nothing considerable, and died in 1280, after he had reigned 17 Years.

ERIC I. succeeded him in the Year 1280; he was brave and pious. He died in the Year 1300, after he had reigned 20 Years.

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MISCISLAS I. succeeded him in the Year 1025; Authors give him the Title of indolent and unfortunate, tho' he gain'd some Advantages over his Enemies, of which he reap'd no Fruit, thro' his bad Conduct. He died in the Year 1034, after he had reigned 9 Years.

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LADISLAS II. succeeded him in the Year 1139; he was very ambitious, and having enter'd into a War with his own Brothers, he was almost always vanquish'd, and oblig'd to fly into *Germany*. He was deposed, and his Brother put in his Place, who abandon'd him in *Silesia*. He dy'd in the Year 1146, after he had reigned 7 Years.

BOLESLAS IV. call'd *Curled Head*, succeeded his Brother in the Year 1146; he was a brave and religious Prince, who gain'd several Victories over the rebellious *Prussians*, and oblig'd them to be baptiz'd. He dy'd in the Year 1173, after he had reign'd 27 Years.

MISCISLAS II. call'd *the Older*, succeeded him in the Year 1173; his Avarice, and little Care to keep his Word, oblig'd his Subjects to depose him; and he was unfortunate in his Enterprizes. He dy'd in 1177, after he had reign'd 4 Years.

CASIMIRE II. call'd *the Just*, succeeded him in the Year 1177; he lov'd Piety and Justice, and was brave, judicious, modest, and much inclin'd to ease his Subjects, whom he tenderly lov'd. He dy'd in the Year 1194, after he had reign'd 17 Years.

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L'ESCUS was restored to his Throne in the Year 1206; he was disturbed a-new by several great Wars, and died in 1226, after he had reign'd 20 Years.

BOLESLAS V. call'd *the Chaste*, succeeded him in the Year 1226; he was meek, just, religious, very chaste, and pacifick. He dy'd in the Year 1279, after he had reign'd 53 Years.

L'ESCUS, call'd *the Black*, succeeded him in the Year 1279; he rendered himself illustrious by his Prudence, Courage, Victories, and Conquests; but was extreamly vindictive. He dy'd in the Year 1289, after he had reign'd 10 Years.

BOLESLAS VI. Duke of *Massovia*; and HENRY, Duke of *Doratislavia*, rendered themselves Masters of the regal Power, and were Regents, from the Year 1289, to 1295.

PREMISLAS I. ascended the Throne in the Year 1295; he was brave, liberal, judicious, and a Lover of true Glory. He dy'd in 1296, after he had reigned 8 Months.

LADISLAS IV. called *Ostic*, or the Short, succeeded him in the Year 1296; he was a Warrior, and a Politician; but his violent and cruel Conduct made him hated by his Subjects, who deposed him in the Year 1300, after he had reigned 4 Years.

VENCESLAS, King of *Bohemia*, called *the Saint*, was placed on the Throne in the Year 1300; the *Poles*, charmed with his rare Merit, elected him for their King. He dy'd the 23*d* of *June* of the Year 1305.

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Throne in the Year 1305; he governed with Prudence ever since, extended the Limits of his Dominions, rendered himself formidable to his Enemies, and was esteemed one of the greatest Princes of his Time. He dy'd the 10*th* of *March* 1333, after he had reigned 28 Years.

CASIMIRE III. called *the Great*, succeeded him in the Year 1333; he was pacifick, and magnificent in the Churches and Hospitals he founded; and caused to be built a great Number of Castles and Fortresses. He had, besides, a very great Dexterity to make himself beloved by every Body, and had Justice impartially administered. He died the 8*th* of *September* of the Year 1370, after he had reigned 37 Years.

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LADISLAS V. called *Jagelon*, Great Duke of *Lithuania*, came to the Throne of *Poland* by his Marriage with *Hadwige*, Daughter of *Louis*, King of *Hungary*, who had been elected Queen of *Poland*, on Condition she should marry the Person who should be chosen by the Grandees of the Kingdom for her Husband. *Ladislas* marry'd her, and began to reign in 1386. He rendered himself illustrious by his Prudence, Courage, Moderation, and Victories. He dy'd the 13*th* of *May* 1434, after he had reign'd 48 Years.

LADISLAS VI. King of *Hungary*, succeeded him in the Year 1434; he was a very brave, wise, and judicious young Prince. He was killed at the Battle of *Varnes* in the Flower of his Youth, very worthy by his Courage and Piety, of a happier Fate. All *Europe* mourned the Death of that young Conqueror, which happened the 11th of *November*, 1444, after he had reigned 10 Years.

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JOHN ALBERT succeeded him in the Year 1492; this Prince was learned, especially in History, liberal to his Soldiers, generous, and very brave; but very little fortunate in his Wars. He died the 7th of *June*, 1501, after he had reigned 9 Years.

ALEXANDER I. succeeded him in the Year 1501; he was melancholick and sullen, but very good and happy; he used to give with Pleasure, even so far as to prevent the Desires of those, who wanted to ask him some Favour, which is an excellent Quality in a Prince, not to be met with in this Age. He dy'd in the Year 1506, after he had reigned 5 Years.

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SIGISMOND II. call'd *Augustus*, succeeded him in the Year 1548; he conquer'd *Livonia*, and shewed, by the Protection he granted to the Learned, and by his Prudence and Courage in the Field, that he was very worthy of the Praises bestowed on him by the Authors of his Time. He dy'd the 7*th* of *July* 1573, after he had reign'd 24 Years.

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SIGISMOND III. King of *Sweden*, succeeded him in the Year 1587; he was brave and pious, but unfortunate in his Wars, which prov'd very tedious and disadvantagious. He dy'd in the Year 1632, after he had reign'd 45 Years.

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JOHN CASIMIRE succeeded him in the Year 1648; he was wise, brave, and prudent, and was in 17 or 18 Battles, which he gain'd almost all. He dy'd the 14*th* of *November* 1669, after he had reign'd 20 Years.

MICHAEL KORIBUT WIESNOWISKI succeeded him in the Year 1669; he was a meek, pious, easy, and credulous Prince. He dy'd in 1674, after he had reign'd 4 Years.

JOHN SOBIESKI, called *the Great*, was placed on the Throne of *Poland* in 1674, notwithstanding the Crowd of Pretenders to that Crown, put on his Head as a just Reward for his Valour. *Poland* was indebted to him for its Security and Liberty; and *John*, who had been the Arm of the Republick, deserv'd to be her Chief; in which high Station he became the Glory, Admiration, and Father of his Subjects. This Prince, born to be the Buckler of the Nations most exposed to the Fury of the *Ottomans*, was found every where to disconcert their Measures, and oppose their Enterprizes; and every Body knows that he contributed more than any other Prince to the miraculous Deliverance of *Vienna*, tho' the Emperor had done all he could to oppose his Election.

FREDERICK AUGUSTUS, Elector of *Saxony*, succeeded him, by the Intrigues of the Pope, and of *William* III. King of *England*, who at that Time join'd together against the *French* Interest in *Poland*, and succeeded, in giving the Exclusion to the Prince of *Conti*, whom the late King of *France*, *Louis* XIV. had set up for a Candidate to that Throne. *Frederick* was not only capable to govern the *Poles*, but even the whole Earth; for he had found the Secret to join in his Person to his most illustrious Birth, all the most excellent Qualities which can adorn a Throne; for he was learned, wise, and a profound and consummate Politician. He rivall'd, in Courage, the greatest Heroes of past Ages, and even surpassed *Titus* himself in Liberality; but he was unfortunate in his Wars against *Charles* XII. King of *Sweden*, who dethron'd him; tho' during that Hero's Captivity in *Turkey*, *Frederick* found Means to re-ascend it again, and to maintain himself upon it, to his Death.

FREDERICK III. his Son, (tho' *Stanislaus Lisinski*, one of the greatest Heroes of his Time, and the most accomplish'd Prince, had been duly elected) reigns at present in *Poland*, having been plac'd on the Throne by the united Forces of the late Emperor of *Germany*, and of the late Czarina, *Anne*, Dutchess of *Courland*.

Note, That from *Poland* we'll pass into that delightful and fertile Kingdom *Hungary*, where we can regale ourselves with some Bottles of *Tockay*.

CHRONOLOGY *of the Kings of* Hungary.

STEPHEN I. began to reign in the Year 1000, according to some *Chronologers*; but it is more certain that

that it was only about the Year 1020, when the Emperor *Henry* II. gave him the Title of King. *Stephen* apply'd himself entirely to establish the *Christian* Religion in *Hungary*, and for that Reason is consider'd as the Apostle of that Country, and his holy Life has merited him a Place in the Catalogue of Saints. He dy'd the 15*th* of *August* 1038, after he had reign'd 38 Years.

PETER the *German* succeeded him in the Year 1038. His too great Affection for the *Germans*, and his bad Inclinations, caused his Deposition by the *Hungarians*, in the Year 1042, after he had reign'd 4 Years.

OVON, or ABAN, was raised to the Throne in the Year 1042. He was unfortunate during his Reign, and *Peter* the *German* invaded his Dominions, where he could not maintain himself, having been deposed in 1044, after he had reign'd 2 Years.

PETER the *German* was restor'd by the Emperor *Henry* III. in the Year 1044. His bad Conduct, and his Vices, made him hated by his Subjects; who having surpriz'd him while he was a hunting, put out his Eyes, in the Year 1046, after he had reign'd 2 Years.

ANDREW I. succeeded him in the Year 1046. He was ambitious, cruel, blood-thirsty, deceitful, and without Religion. He dy'd in the Year 1061, after he had reign'd 15 Years.

BELA I. took Possession of the Kingdom in 1061. He made some very good Laws, but he supplanted his Brother on the Throne, and was cruel and ambitious. He dy'd in 1063, after he had reign'd 2 Years.

SOLOMON I. succeeded him in the Year 1063. He was brave and pious, but unfortunate at the latter End of his Reign. He dy'd in the Year 1074, after he had reign'd 11 Years.

GIEZA, or GEYCZA I. plac'd himself on the Throne in the Year 1074. He was unjust and ambitious, and usurp'd the Crown of his Kinsman *Solomon*. He dy'd in 1077, after he had reign'd 3 Years.

LADISLAS I. succeeded him in the Year 1077. He render'd himself illustrious by his Zeal, Piety, Prudence, Courage, Victories, and Conquests. He dy'd with the Reputation of a Saint, the 30*th* of *July* of the Year 1095, after he had reign'd 18 Years.

COLOMAN, or COLNAN, succeeded him in the Year 1095. He was taken from a Cloyster, where he had been confin'd, to ascend the Throne. He gain'd some Advantages over his Enemies, and was brave; but so cruel, that he caused the Eyes of his Brother to be put out. He dy'd in the Year 1114, after he had reign'd 19 Years.

STEPHEN II. call'd *Thunderbolt*, or *Lightning*, succeeded him in the Year 1114. He maintain'd a War against the *Venetians*, *Poles*, *Russians*, and *Bohemians*, whom he always vanquish'd, and gave on all Occasions great Marks of his Piety, Courage, and Prudence. He abdicated the Crown, to become Monk, in the Year 1132, after he had reign'd 18 Years.

BELA II. succeeded him in the Year 1132. He govern'd his Dominions with an extraordinary Prudence and Piety, and was a brave and generous Prince. He dy'd with the Reputation of a Saint, in 1141, after he had reign'd 9 Years.

GIEZA II. succeeded him in the Year 1141. He was brave, generous, enterprizing, and maintain'd several Wars. He dy'd in the Year 1161, after he had reign'd 20 Years.

STEPHEN III. succeeded him in the Year 1161. He prov'd successful enough in his Wars, and defeated his Enemies in several Encounters, by his Prudence and Courage. He dy'd in 1172, after he had reign'd 11 Years.

STEPHEN IV. succeeded him in the Year 1172. He was an unjust and irreligious Prince, and dy'd in 1173, after he had reign'd 5 Months.

BELA III. succeeded him in the Year 1173. He was just, pious, and very brave. He dy'd in the Year 1195, after he had reign'd 23 Years.

EMERI succeeded him in the Year 1195. He was unfortunate in his Wars, tho' he had Courage enough. He dy'd in 1204, after he had reign'd 8 Years.

LADISLAS II. succeeded him in the Year 1204, and dy'd in the Year 1205, after he had reign'd 6 Months.

ANDREW II. call'd *the Jerosolimitam*, succeeded him in the Year 1205. He had several Wars to maintain, out of which he extricated himself pretty well, and acquir'd a vast deal of Glory, by his Bravery, and great Exploits; but he was of an uneasy Temper, and had but little Judgment. It is said, that it is from him the *Hungarian* Nobility have those Privileges they are so jealous of. King *Andrew* dy'd in 1235, after he had reign'd 30 Years.

BELA IV. succeeded him in the Year 1235. He was a very brave Prince, but very unfortunate; for he had the Displeasure to see his own Son revolt against him. He dy'd in 1260, after he had reigned 25 Years.

STEPHEN V. succeeded him in the Year 1260. He conquer'd *Mysia*, and render'd it tributary; vanquish'd the Kings of *Bohemia* and *Bulgaria*, and was brave and judicious, but very cruel and ungrateful towards his Father, whom he attempted to dethrone. He dy'd the first of *August* 1272, after he had reigned 12 Years.

LADISLAS III. succeeded him in the Year 1272. He was much addicted to Women; he plunder'd the Churches, and render'd himself the Object of the publick Hatred by his Debaucheries and Impiety. He dy'd in 1290, after he had reign'd 18 Years.

ANDREW III. call'd *the Venetian*, succeeded him in the Year 1290. He was illustrious for his Prudence, Courage, Victories, and Conquests. He dy'd in 1310, after he had reign'd 20 Years.

CHARLES ROBERT, or CHAROBERT, succeeded him in the Year 1310. His Government was so easy, that the *Hungarians* confessed they had never a more gentle Prince in Time of Peace, nor more brave in Time of War. He added great Provinces to his Dominions, and gain'd several great Victories. He dy'd in the Year 1342, after he had reigned 32 Years.

LOUIS I. of the House of *Anjou*, succeeded him in the Year 1342. He was a very brave Prince, wise, active, vigilant, zealous for the Propagation of the Faith, and for the Church, always victorious, but vindictive, and a little inclined to Cruelty. He dy'd in 1382, after he had reign'd 40 Years.

CHARLES III. call'd *the Short*, succeeded him in the Year 1383. He was an ungrateful Prince, very cruel, and inhuman. He dy'd in the Month of *September* in the Year 1387, after 3 Years Reign.

SIGISMOND, Emperor, of the House of *Luxemburg*, succeeded him in the Year 1387. He was liberal, generous, brave, a Friend to the Learned, and a great Prince in Time of Peace, but unfortunate in Time of War. He dy'd in 1438, after he had reign'd 51 Years.

ALBERT of *Austria* succeeded him in the Year 1438. He was a very good Prince, meek, patient, liberal; and had form'd Designs very advantagious to the Church. He dy'd in the Year 1440, after he had reign'd 2 Years.

LADISLAS IV. succeeded him in the Year 1440. He was prudent, couragious, moderate, and illustrious for his Victories. He dy'd in 1445, after he had reign'd 4 Years.

JOHN CORVINUS, call'd *Huniade*, succeeded him in the Year 1445. He was one of the greatest Heroes of the Age; and his Name was so formidable to the *Turks*, that even the Children of those *Infidels* could not hear it pronounc'd without trembling; and they commonly call'd him *John the Russian*. *Mahomet* II. shew'd an extreme Displeasure for the Loss of *Huniade*; and Pope *Calistus* III. mourn'd for the Death of that great Man, which happen'd in the Year 1452, after he had reign'd 8 Years.

LADISLAS V. succeeded him in the Year 1452. This Prince was very brave, and very religious, and great

great Things were expected from his wise Conduct. He dy'd in 1458, after he had reign'd 6 Years.

MATTHIAS CORVINUS succeeded him in the Year 1458. This great Hero knew every Thing a Prince ought to know. His Reign was glorious, in Peace and War. He render'd himself formidable to his Enemies, and was not in the least inferior to the great Merit of *John Corvinus*, his Father. He dy'd in 1490, after he had reign'd 32 Years.

LADISLAS VI. succeeded him in the Year 1490. He gain'd, by his Dexterity and Valour, the Kingdom of *Hungary*, and eluded happily, either by his Prudence, or his Arms, the Designs of other Pretenders. But his Felicity was not of a long Duration; for he soon saw all his Dominions in a fatal Confusion. He dy'd in 1516, after he had reign'd 25 Years.

LOUIS II. call'd *the Younger*, succeeded him in the Year 1516. He was a young Prince, who had a great deal of Courage; but he was drown'd, or kill'd, in a March, in the Flower of his Youth, in the Year 1526, the tenth of his Reign, after he had been defeated in a Battle by *Soliman*, Emperor of the *Turks*, who enter'd *Buda*, and carry'd away a great Number of Prisoners.

FERDINAND I. of *Austria*, Emperor of the West, succeeded him in the Year 1526. He marry'd *Anne*, Daughter of *Ladislas* VI. King of *Hungary*, and Sister of *Louis* II. called *the Younger*, who dy'd without Issue. Ever since that Time, till now, the Emperors of that House have always possessed that Kingdom.

Note, That the Arch-dutchess, Consort of the present Duke of *Tuscany*, and eldest Daughter of that accomplish'd Prince the late Emperor *Charles* VI. has been crown'd Queen of *Hungary*, and is at present in Possession of that Kingdom by Right of Inheritance. Her Virtue, Piety, Courage, Constancy amidst the greatest Confusion, and all her other excellent Qualities, without the least Mixture of Imperfection, capable to adorn the first Throne of the Earth, and which render her the Admiration of the Age; can flatter the *Hungarians* with the Hopes of enjoying, under that amiable Princess's auspicious Reign, a still greater Happiness than that they were blessed with under the most accomplish'd, and the best of their Kings.

Note, likewise, That from *Hungary*, we'll pass into the Kingdom of *Castile*, which is the next Monarchy for Antiquity.

CHRONOLOGY *of the Kings of* Castile.

SANCHO III. call'd *the Great*, King of *Navarre*, began to reign in *Castile*, and was the first King thereof, in 1029. He was a virtuous Prince, illustrious for his Justice, Piety, and Victories. He dy'd the 18*th* of *October* of the Year 1035, after he had reign'd 6 Years.

FERDINAND I. *the Great*, succeeded him in the Year 1035. He was just, prudent, couragious, a great Conqueror, and a wise General. He dy'd in the Year 1065, after he had reign'd 30 Years.

SANCHO II. succeeded him in the Year 1065. He was couragious, but cruel and unjust. He was assassinated in the Year 1072, after he had reign'd 7 Years.

ALPHONSE VI. call'd *the Brave*, succeeded him in 1072. He was a very pious Prince, and rendered himself Master of *Toledo*, *Madrid*, and several other Places of the *Moors*. He dy'd in the Year 1109, after he had reign'd 37 Years.

ALPHONSE VII. call'd *the Warrior*, or *the Fighter*, succeeded him in the Year 1109. He was in 29 Battles, and took *Cordua*, *Saragossa*, and several other Places from the *Moors*. He dy'd in 1122, after he had reign'd 14 Years.

ALPHONSE VIII. succeeded him in the Year 1122. He signalized himself by his Piety and Valour. He re-conquered all that the Kings of *Navarre* and *Arragon* had usurped of his Dominions during his Minority. He defeated *Almanzor*, who had entered *Spain*, at the Head of an Army of 400000 Men. He dy'd after he had reign'd 35 Years.

SANCHO III. the *Wish'd-for*, succeeded him in the Year 1157. He was a Prince of very great Hopes, and very virtuous; but he dy'd in 1158, after he had reign'd 1 Year.

ALPHONSE IX. called *the Good*, or *the Noble*, succeeded him in the Year 1158. He governed his Dominions with a great deal of Clemency and Wisdom; he instituted the Order of the *Knights of St. James*, and dy'd in 1214, after he had reign'd 55 Years.

HENRY I. succeeded him in the Year 1214. He was but eleven Years of Age when he was placed on the Throne of his Father, under the Regency of his Mother *Eleonora*. He was killed by a Tile falling from the Top of a House, after he had reign'd a Year and a Half.

FERDINAND III. succeeded him in the Year 1216. He re-united the Crowns of *Leon* and *Castile*, took *Cordua*, the Kingdom of *Murcia*, and *Seville*, possessed by the *Moors*; so that believing nothing impossible to him, he was raising Forces for the Conquest of the Kingdom of *Morocco*, but he dy'd in the Year 1252, after he had reign'd 35 Years. His Piety obtained him the Name of Saint, and he was canonized the 15*th* of *February* 1671.

ALPHONSE X. called *the Wise*, or *the Astrologer*, succeeded him in the Year 1252. He rendered himself illustrious by his rare Knowledge, in History, Philosophy, and Mathematicks; and by the great Advantages he gained against the *Moors*. He had the Displeasure of being maltreated, and almost deposed by his own Son. He died in the Year 1284, after he had reign'd 32 Years.

SANCHO IV. took Possession of the Throne in the Year 1284. He was brave, bold, and enterprizing; but cruel, impious, and ungrateful to his Father, whom he wanted to dethrone. He dy'd in 1295, after he had reign'd 11 Years.

FERDINAND IV. ascended the Throne in the Year 1295. He pacified the Troubles of his Dominions by his Prudence and Courage, and gained several Victories over his Enemies; but he is blamed for his Cruelty. He dy'd in 1312, after he had reign'd 17 Years.

ALPHONSE XI. succeeded him in the Year 1312. He was celebrated for his Courage, Prudence, Victories, and Conquests. He died of the Plague, which seiz'd his Camp, at the Siege of *Gibraltar*, in the Year 1350, after he had reign'd 38 Years.

Note, That under *Alphonse* XI's Reign was fought that famous Battle where the Kings of *Castile* and *Arragon*, having united their Forces, the *Moors* were beaten in such a Manner, that 200000 of them were kill'd in the Field of Battle.

PETER I. call'd *the Cruel*, ascended the Throne in the Year 1350. He was wild, brutish, and without Religion. He was kill'd at the Siege of *Montrel*, in the Year 1369, after he had reign'd 19 Years.

HENRY II. usurp'd the Throne in the Year 1369. He was a prudent and couragious Prince, who gain'd several great Victories, beating often his Enemies, whom he obliged, at last, to sue for Peace. He dy'd the 30*th* of *May* 1379, of a Rheumatism, or for having put on poison'd Boots, which had been presented to him by the Prince of the *Moors*. He reigned 10 Years.

JOHN I. succeeded him in the Year 1379. He was not fortunate in the Wars he undertook. He dy'd the 9*th* of *October* 1390, of a Fall from his Horse, while a Hunting; or in another Diversion given to him by the *African* Knights.

HENRY III. succeeded him in the Year 1390. He was just and brave, but his continual Maladies hinder'd

hinder'd him from acting. He dy'd in the Year 1406, after he had reign'd 16 Years.

JOHN II. succeeded him in the Year 1406; he opposed couragiously the Kings of *Navarre* and *Arragon*; he defeated the *Moors* of *Granada*, whose King was indebted to him for his Restoration, and gave, on all Occasions, Marks of his Prudence, Courage, and Equity. He dy'd the 20*th* of *August* of the Year 1454, after he had reign'd 48 Years.

HENRY IV. succeeded him in the Year 1454; he was prudent, liberal, and a good Politician, but very unjust. He was persecuted by his own Subjects, who wanting to depose him, dressed his Statue in royal Robes, and undressed it afterwards. The Rebels elected for King his Brother *Alphonse*, which caused a Civil War. *Henry* died the 2*d*, or 11*th* of *December* 1474, after he had reigned 20 Years.

Note, That the States of *Castile* acknowledg'd for Heiress of the Kingdom his Sister *Isabella*, who marry'd *Ferdinand* V. King of *Arragon*; which made the Re-union of the Crowns such as we see it at this Day. Therefore,

FERDINAND V. call'd *the Catholick*, succeeded him in 1474, and re-united the Dominions of *Castile* and *Arragon*, by his Marriage with *Isabella*, the legitimate Heiress. He expell'd entirely the *Moors* from *Spain*, and dy'd in 1504, after he had reign'd 42 Years in *Arragon*, and 30 in *Castile*.

Note, That it was under *Ferdinand* V. that *Christopher Columbus* made the first Discovery of *America*.

PHILIP I. call'd *the Fair*, Arch-Duke of *Austria*, Son of the Emperor *Maximilian*, succeeded in the Kingdom of *Castile* and *Arragon*, in the Year 1504, in Right of his Wife *Jeanne* of *Arragon*, Daughter and Heiress of *Ferdinand*, and *Isabella* of *Castile*. He was a meek, pacifick, and religious Prince; and died at *Burgos*, for having over-heated himself at Tennis, in the Year 1516, after he had reign'd 12 Years.

CHARLES I. succeeded his Father in the Year 1516; he was a great Prince, and fortunate in almost all his Projects. He possessed all the Kingdoms of *Spain*, except *Portugal*. After a long Reign, he abdicated in Favour of his Son *Philip* II. and retreated into the Monastery of St. *Just*, of the Order of St. *Jerome*. He reign'd 42 Years as King of *Spain*, and 39 as Emperor. He died 3 Years after his Retreat, in the Year 1558, of his Age 58.

PHILIP II. succeeded him; he had several Wars to maintain during his Reign; he join'd the Kingdom of *Portugal* to his Dominions, but lost the 7 United Provinces, after a tedious War. Some call him a great Prince, but I am not of their Opinion; for he was cruel, and very ungrateful, towards his Father. He lived 71 Years, reigned 43, and died in 1598.

PHILIP III. succeeded him in the Year 1598; he was just, and religious, and rendered himself Master of several Places in *Africa*. He reform'd the Laws, and expell'd the rest of the *Moors* from *Spain*, to the Number of 900000 Men. He concluded a Peace with the States of the united Provinces, and died the 31*st* of *March* 1621, aged 43 Years, of which he had reigned 23.

PHILIP IV. succeeded him in the Year 1621; he was not always fortunate in his Designs; the *Portuguese* revolted from him, and chose a new King. He dy'd the 17*th* of *September* 1665, after he had reigned 44 Years, 7 Months, and 15 Days.

CHARLES II. succeeded him in the Year 1665; he was of a very precarious Health; he maintain'd several Wars against *France*, and died without Issue in the Year 1700, after he had reign'd 34 Years.

PHILIP V. Duke of *Anjou*, second Son of *Louis* of *France*, and Grandson of *Louis* XIV. succeeded him in Virtue of *Charles*'s Will; and forced, by his Constancy and Valour, the grand Allies, and his rebellious Subjects, to acknowledge him for legitimate King of *Spain*, notwithstanding the strong Opposition of his Competitor *Charles* VI. the late Emperor, whom they had proclaim'd King of *Spain*, by the Name of *Charles* III. He is a judicious, prudent, polite, learned, and brave Prince, notwithstanding what some of our *Conundrums* are often pleased to say to the contrary; for they sometimes represent him so weak, as to be entirely govern'd by the Queen; and when they are in one of their atrabilary Humours, they either make him abdicate a second Time, or have his Life despair'd of.

Note, That *Philip* V. had once abdicated the Crown in Favour of his eldest Son Don *Louis*, by his first Wife, a Princess of *Savoy*; but I am more inclin'd to attribute that Abdication to a Principle of the most refin'd Politicks, than to one of Devotion. For knowing perfectly well that he had renounced the Succession to the Throne of *France*, as King of *Spain*, he thought he could be no longer oblig'd by that Treaty, after his Abdication; and therefore could claim that Succession, in Case the present King of *France*, then an Infant, and of a very precarious Health, should die without Issue. *Louis* died the 31*st* of *August* 1724, and *Philip*, at the pressing Sollicitation of the great Council of *Castile*, re-ascended the Throne, which he has kept ever since.

Note, likewise, That the most antient Monarchy, next to *Castile*, is that of *Arragon*. Therefore,

CHRONOLOGY *of the Kings of* Arragon.

RAMIR I. began to reign in *Arragon* in 1035; he was brave and judicious, and conquer'd several States, which he join'd to his own. He was kill'd in a Battle against *Sancho* IV. King of *Castile*, in the Year 1067, after he had reigned 32 Years.

SANCHO I. succeeded him in the Year 1067; he was a prudent and brave Prince, who gain'd several Victories. He besieg'd *Huesca*, where he was mortally wounded; and died in the Year 1094, after he had reigned 27 Years.

PETER I. succeeded him in the Year 1094; he render'd himself illustrious by his Prudence and Courage. He defeated the *Moors* near *Huesca*, the Siege whereof he and his Brother continu'd, to obey the Command of their dying Father. In the Defeat of the *Moors*, *Peter* took Prisoners four of their Princes. 'Tis from thence that the Kings of *Arragon* plac'd four *Moors* Heads in their Arms, and four Crosses. He died in the Year 1104, after he had reigned 10 Years.

ALPHONSE I. succeeded him in the Year 1104; he was brave and bold, and a great Warrior, having been in 29 pitch'd Battles. He perish'd in 1134, in that of *Sariniena*, where he was vanquish'd by the *Moors*, after he had reign'd 30 Years.

RAMIR II. succeeded him in the Year 1134; he was meek, prudent, religious, and pacifick. He died in the Year 1138, after he had reigned 4 Years.

BERENGARIUS I. succeeded him in the Year 1138; he was brave, generous, and prudent. He died in the Year 1162, after he had reigned 24 Years.

ALPHONSE II. call'd *the Chaste*, succeeded him in the Year 1162; he was a Prince of a very great Merit, wise, virtuous, and brave. He died in the Year 1196, after he had reigned 34 Years.

PETER II. succeeded him in the Year 1196; he favour'd the *Albigenses*, and was defeated and kill'd in the Battle of *Muret*, by *Simon* of *Montfort*, in the Year 1213, after he had reigned 17 Years.

JAMES I. call'd *the Victorious*, succeeded him in the Year 1213; he took the Kingdom of *Valencia* from the *Moors*, and defeated them in 30 pitch'd Battles. He had a vast deal of Virtue, but lov'd a little too much the Fair Sex. He liv'd 70 Years, and dy'd in the Year 1276, after he had reigned 63 Years.

PETER

PETER III. succeeded him in the Year 1276; he died in the Year 1285, after he had reigned 9 Years, of a Wound he receiv'd at *Gironne*, in fighting against the *French*.

ALPHONSE III. call'd *the Benefactor*, succeeded him in the Year 1285; he was brave, liberal, pious, and famous for his Victories and Conquests. He expell'd entirely the *Moors* from the Islands of *Majorca* and *Minorca*, and died in the Year 1291, after he had reigned 5 Years.

JAMES II. succeeded him in the Year 1291; he was just, prudent, and a good Politician. In an Assembly of the States of the Kingdom, he had decreed, that *Arragon*, *Valencia*, and *Catalonia*, could never be separated. He conquer'd *Sicily*, establish'd the Order of *Monteza*, and died in the Year 1327, after he had reign'd 37 Years.

ALPHONSE IV. call'd *the Gentle*, succeeded him in the Year 1327; he neglected nothing of what he thought could contribute to the Felicity of his Dominions, and was brave, judicious, and just. He dy'd in the Year 1336, after he had reigned 8 Years.

PETER IV. call'd *the Ceremonious*, succeeded him in the Year 1336; he conquer'd the *Rousillon*, and lov'd the Learned. He died in the Year 1388, after he had reigned 52 Years.

JOHN I. succeeded him in the Year 1388; his Weakness render'd him despicable to his Subjects. He died of having been frighten'd by a Spectre, he imagin'd to have seen in Hunting, in the Year 1395, after he had reign'd 7 Years.

MARTIN I. took Possession of the Throne in the Year 1395. Fortune, which favour'd him at first, deserted him afterwards. He died in the Year 1410, after he had reign'd 15 Years.

FERDINAND I. ascended the Throne in the Year 1410; he govern'd with a vast deal of Prudence, Justice, and Piety. He dy'd in the Year 1416, after he had reign'd 6 Years.

ALPHONSE V. call'd *the Wise*, succeeded him in the Year 1416; he lov'd Learning, and the Learned, and was a Prince worthy of great Praises. He conquer'd the Kingdom of *Naples*, which has been since united to the Crown of *Spain*. He died in the Year 1458, after he had reign'd 42 Years.

JOHN II. who succeeded him in the Year 1458, was the last King of *Arragon*. He came to the Crown of *Navarre* by his Marriage with *Blanche*, Heiress of that Kingdom, and united *Arragon*, the Kingdom of *Navarre*, and that of *Naples* and *Sicily*. He dy'd in the Year 1479, after he had reigned 21 Years.

Note, That from *Arragon* we'll travel as far as *Bohemia*, the next Monarchy for Antiquity. Therefore,

CHRONOLOGY *of the Kings of* Bohemia.

URATISLAS, or LADISLAS I. began to reign in 1061; he was a very brave Prince, who gain'd several Victories. He dy'd in the Year 1092, after he had reign'd 31 Years.

CONRAD I. succeeded him in the Year 1092; he did nothing worthy our Notice, and dy'd in the Year 1093, after he had reign'd 1 Year.

BERETISLAS I. succeeded him in the Year 1093; he was very religious, and render'd himself illustrious by his Courage, Victories, and Conquests. He died in the Year 1100, after he had reigned 7 Years.

BORZIVAGE, or BORIVORI I. succeeded him in the Year 1100; he was made King of *Bohemia* by the Emperor *Henry* IV. but the States of the Kingdom would not acknowledge him. He was expell'd and restor'd three different Times, and at last forced to fly into *Germany* in the Year 1107, after he had reigned 7 Years.

SUATOPLOOK succeeded him in the Year 1107; he was illustrious for his Courage, Prudence, and Victories. He dy'd in the Year 1109, after he had reigned 2 Years.

LADISLAS II. succeeded him in the Year 1109; he render'd himself famous by his Valour, Prudence, and the signal Victories he gain'd over the *Poles*. He dy'd in the Year 1125, after he had reigned 16 Years.

SOLESLAS, or SOBIESLAS I. succeeded him in the Year 1125; he render'd himself illustrious by his Valour and military Exploits, against the *Saxons*, *Poles*, and other People. He dy'd in the Year 1140, after he had reign'd 15 Years.

LADISLAS III. succeeded him in the Year 1140; he vanquish'd the *Moravians* in several Encounters, and was a brave and prudent Captain. He dy'd in the Year 1174, after he had reign'd 35 Years.

SOLESLAS, or SOBIESLAS II. succeeded him in the Year 1174; he was taken out of Prison to be plac'd on the Throne, and was deposed in the Year 1178, after he had reign'd 4 Years.

FREDERICK, call'd BEDRICH, succeeded him in the Year 1178; he was deposed by his Subjects, and afterwards restor'd. He dy'd in the Year 1190, after he had reign'd 12 Years.

CONRAD II. succeeded him in the Year 1190; he dy'd in the Year 1192, after he had reign'd 2 Years.

WENCESLAS I. succeeded him in the Year 1192; he was no otherwise remarkable, but by his bad Fortune. He was made Prisoner, and forc'd to abdicate the Crown. He dy'd in the Year 1193, after he had reign'd 1 Year.

BEZETISLAS HENRY succeeded him in the Year 1193; he govern'd his People happily enough, and was a good Prince, who dy'd in the Year 1196, after he had reign'd 3 Years.

LADISLAS IV. succeeded him in the Year 1196; he was a good Prince, who reign'd but 5 Months, and abdicated, in Favour of his Brother, the same Year 1196.

PRIMISLAS, or OTTOCARUS I. succeeded him in the Year 1196; he render'd himself famous by his Valour, Prudence, Victories, and Conquests, and by his great Moderation; having refused the Empire and the Crown of *Hungary*, which had been offer'd to him at one and the same Time. He dy'd in 1231, after he had reign'd 35 Years.

WENCESLAS II. succeeded him in the Year 1231; he refused, likewise, the Empire, and the Kingdom of *Hungary*, but accepted that of *Poland*, from which he expell'd the Emperor *Albert*; and render'd himself famous by his Courage, Prudence, and military Exploits. He dy'd in the Year 1253, after he had reign'd 24 Years.

OTTOCARUS II. succeeded him in the Year 1253; he was one of the greatest Princes of his Time, illustrious by his Prudence, Valour, Moderation, and Justice. He refused the Empire, and dy'd fighting against the Emperor *Rodolphus* I. the 26*th* of *August* 1278, after he had reign'd 25 Years.

WENCESLAS III. succeeded him in the Year 1278; he was wise, moderate, brave, and just. He dy'd in the Year 1305, after he had reign'd 27 Years.

WENCESLAS IV. succeeded him in the Year 1305; he was assassinated at *Olmuts*, (where our *Conundrums* had took, lately, the King of *Prussia* Prisoner, but have had the Complaisance to release him since) as he was going to take Possession of the Kingdom of *Bohemia*, in the Year 1306, after he had reign'd 1 Year.

RODOLPHUS I. succeeded him in the Year 1306, and dy'd in 1307, after he had reign'd 1 Year.

HENRY I. Duke of *Carinthia*, succeeded him in the Year 1307; his cruel and tyrannical Conduct render'd him odious to his Subjects, who deposed him in 1310, after he had reign'd 3 Years.

JOHN of *Luxemburg* succeeded him in the Year 1310; he added several Provinces to his Dominions, and gave, on all Occasions, great Marks of his Valour and Courage. He dy'd in the Year 1346, after he had reign'd 36 Years.

CHARLES of *Luxemburg*, Emperor, succeeded him in the Year 1346; he signaliz'd his Courage at the Battle of *Crecy*, where he receiv'd three Wounds;

 but

but he was ambitious, and greedy of Money. He dy'd in the Year 1378, after he had reign'd 32 Years.

WENCESLAS of *Luxemburg*, Emperor, succeeded him in the Year 1378; he was as deform'd in his Mind, as he was in his Body; negligent, lazy, and addicted to all Sorts of Vices, which render'd him unworthy of the Throne. He dy'd in the Year 1418, after he had reign'd 40 Years.

SIGISMOND of *Luxemburg* succeeded him in the Year 1418; he was a well-made Prince, liberal, generous, brave, and a Friend to the Learned. He spoke several Languages, and was a very great Prince in Time of Peace, but unfortunate in Time of War. He dy'd in the Year 1437, after he had reign'd 19 Years.

ALBERT of *Austria* succeeded hem in the Year 1437; he was a good Prince, meek, patient, liberal, and very religious. He died in the Year 1440, after he had reigned 3 Years.

LADISLAS V. succeeded him in the Year 1440; he dy'd in his Youth, and unmarry'd, in the Year 1458, after he had reigned 18 Years.

GEORGE PODERBRACHE succeeded him in the Year 1458; he was a very couragious Prince, who had gain'd several Victories; but impious, and without Religion. He dy'd in the Year 1471, after he had reigned 13 Years.

LADISLAS VI. succeeded him in the Year 1471; he had Wit, Dexterity, Valour, and Prudence. He died in the Year 1516, after he had reigned 45 Years.

LOUIS, call'd *the Younger*, succeeded him in the Year 1516; he was a very brave young Prince, who died in 1526, after he had reigned 10 Years.

FERDINAND of *Austria*, Emperor of *Germany*, succeeded him in the Year 1526; he marry'd *Anne*, Daughter of *Ladislas* VI. King of *Bohemia*, and Sister of *Louis* call'd *the Younger*, dead without Posterity, to whom *Ferdinand* succeeded; ever since the Emperors of the House of *Austria*, have always possessed that Kingdom, of which *Charles Albert*, Elector of *Bavaria*, the present Emperor, has took Possession, after the Death of the late Emperor *Charles* VI. and has been crown'd King of *Bohemia*.

Note, That from *Bohemia* we'll pay a Visit to his *Neapolitan* Majesty, and beg Leave to inspect into the *Chronology* of his royal Predecessors. Therefore,

CHRONOLOGY *of the Kings of* Naples *and* Sicily.

Note, That there have been Kings of *Naples*, of different Nations, which I divide into four Races. The first Race is that of the *Normans*; the second that of the Kings of the House of *Suabia*; the third those of the House of *France*, of the first and second Branch of *Anjou*; and the fourth those of the House of *Arragon*.

NORMAN KINGS.

ROGER, call'd *Crooked-back*, began to reign in *Naples* in the Year 1085; he render'd himself illustrious by his Prudence, Courage, Victories, and Conquests. He dy'd in the Year 1102, after he had reigned 17 Years.

ROGER II. ended the Conquest of *Sicily*, from which he expell'd entirely the *Saracens*. He died in the Year 1129, after he had reigned 27 Years.

ROGER III. succeeded him in the Year 1129; he carry'd his Arms into *Africa*, and forc'd the King of *Tunis* to pay him Tribute, and was famous for his Valour, Prudence, and great Conquests. He dy'd in 1152, after he had reign'd 24 Years.

WILLIAM I. succeeded him in the Year 1152; he reign'd with so much Injustice, Avarice, Tyranny and Impiety, that he was call'd *William the Bad*. He took and plunder'd *Tanes* in *Egypt*, and defeated a Fleet of *Greeks*. He dy'd in 1166, after he had reign'd 14 Years.

WILLIAM II. called *the Good*, succeeded him in the Year 1166; he had Qualities quite different from those of *William* I. his Father. He undertook a successful War against *Andronicus*, Emperor of *Constantinople*, and dy'd without Issue, in the Year 1189, after he had reign'd 23 Years.

TANCREDE THE BASTARD succeeded him in the Year 1189; he was brave and intrepid, and a prudent and wise Captain. His Eyes having been put out, he was confin'd for Life. He dy'd in 1192, after he had reign'd 3 Years.

WILLIAM III. succeeded him in the Year 1192; the Emperor *Henry* VI. render'd himself Master of his Dominions, and caused his Eyes to be put out. He died in 1194, after he had reign'd 2 Years.

Note, That *Constance*, Daughter of *Roger*, King of *Sicily*, marry'd the Emperor *Henry* VI. in the Year 1186, and carry'd the Kingdoms of *Naples* and *Sicily* into the House of the Princes of *Suabia*. Therefore,

CHRONOLOGY *of the Kings of the House of* Suabia.

HENRY VI. Emperor, took Possession of *Sicily* in 1194; he went, at first, into the Holy Land; but had afterwards great Differences with the Popes. He dy'd in 1197, after he had reign'd 3 Years.

FREDERICK II. Emperor, succeeded him in the Year 1197; he spoke six different Languages, and had a quick and penetrating Wit. He dy'd in 1250, after he had reign'd 53 Years.

CONRAD succeeded him in the Year 1250; he was brave, and govern'd with Prudence the Empire in his Father's Absence. He dy'd in 1257, after he had reigned 7 Years.

CONRADIN succeeded him in the Year 1257; he was a young Prince. *Charles* of *Anjou* having met him in the Field of *Lis*, the 23*d* of *August* 1262, near the Lake *Tucian*; *Conradin* was defeated, and taken, with *Frederick* his Cousin, and beheaded on a Scaffold at *Naples*, in the Year 1268, after he had reign'd 11 Years.

MAINFROY, Bastard of the Emperor *Frederick* II. usurp'd the Kingdom of *Sicily* from *Conradin* in the Year 1254; having invaded the States of the Church, he was excommunicated, and perish'd in a Battle he lost against *Charles* of *Anjou*, in 1265, after he had reign'd 11 Years.

Note, That Pope *Clement* IV. gave, in 1265, the Investiture of the Kingdom of *Naples* and *Sicily* to *Charles* of *France*, Earl of *Anjou* and *Provence*, who was crown'd in 1266. But, in my Opinion, the holy Father gave what he had no Right to, and which he could not have refused, since *Charles* was already Master of the two Kingdoms; and that Investiture was but a mere Ceremony, which *Charles* judg'd necessary to flatter the Pope's Ambition, and hinder him from bringing on his Back some new Enemies, who could have hinder'd him from perfecting the Conquest of the two Kingdoms.

CHRONOLOGY *of the Kings of* Naples *of the House of* France, *of the first Branch of* Anjou.

CHARLES I. of *France*, took Possession of that Crown in the Year 1266; he was meek, brave, just, liberal, and very pious. He dy'd in the Year 1285, after he had reign'd 19 Years.

CHARLES II. call'd *the Lame*, succeeded him in the Year 1285; he govern'd his Subjects with a marvellous Clemency, was zealous for the Church, brave, liberal, and generous. He dy'd in 1309, after he had reign'd 25 Years.

ROBERT, call'd *the Wise*, and *the Good*, succeeded him

him in the Year 1309; he was prudent, liberal, brave, magnificent, pious, and lov'd the Learned. He dy'd in 1343, after he had reign'd 34 Years.

JEANNE I. Daughter of *Charles* of *Anjou*, Duke of *Calabria*, began to govern these Dominions in 1343; she had a vast deal of Wit, lov'd Learning and the Learned, was liberal, well made, prudent, wise, and pious. She died the *5th* of *May* 1382, after she had reign'd 39 Years.

Note, That *Jeanne* I. adopted by her Will, made the *29th* of *June* 1380, *Louis* of *France*, Duke of *Anjou*, Son of King *John*, who made the second Branch of *Anjou*; but notwithstanding this Disposition, *Charles* of *Duras*, her Cousin, took Possession of the Throne, which caused a great War. To neglect nothing, I mention the Names of the one, and of the other.

CHARLES III. call'd *of the Peace*, or *the Short*, who had caused Queen *Jeanne* to be kill'd, ascended the Throne in 1382; he was ungrateful, cruel, inhuman, and perfidious. He was wounded by an Assassin, and dy'd, in the Year 1386, after he had reign'd 4 Years.

LADISLAS, call'd *Lancelot*, succeeded him in 1386; he was brave, generous, and liberal; but had so many Faults, that his bad Qualities eclips'd all his good ones. He dy'd in 1414, after he had reign'd 28 Years.

JEANNE II. or JANELLE, succeeded him in the Year 1414; she had lost her Honour and Reputation by her licentious Life, and dy'd in 1435, after she had reign'd 20 Years. She had adopted *Rene* of *Anjou*, which Adoption gave him a double Right.

CHRONOLOGY *of the Kings of* Naples *of the second Branch of* Anjou.

LOUIS I. of *France*, Duke of *Anjou*, came to the Crown in the Year 1382; he was a brave Prince, laborious, active, liberal, and who had render'd himself illustrious by his military Exploits. He dy'd in 1384, after he had reign'd 2 Years.

LOUIS II. Duke of *Anjou*, succeeded him in 1384; he was sincere, pious, liberal, lov'd his People, and had no Malice; but he knew not how to make Use of his Victories. He dy'd in 1417, after he had reign'd 23 Years.

LOUIS III. succeeded him in the Year 1417; he was brave, gentle, and very religious. He died in 1434, after he had reign'd 17 Years.

RENE, call'd *the Good*, succeeded him in the Year 1434; he was unfortunate in his military Enterprizes, but was a fine Prince, good, very witty, and very ingenious. He dy'd the *10th* of *July* 1480, after he had reign'd 46 Years.

CHARLES IV. succeeded him in the Year 1480; he was a gentle and couragious Prince. He instituted *Louis* XI. King of *France*, his universal Heir, and dy'd in 1482, after he had reign'd 2 Years.

CHRONOLOGY *of the Kings of* Naples *of the House of* Arragon.

PETER III. King of *Arragon*, marry'd, in 1262, *Constance*, Daughter of the *Bastard Mainfroy*, and caused all the *French* to be massacred in *Sicily*, in the Year 1282; where he establish'd himself. He dy'd in 1286, after he had reign'd 4 Years.

JAMES I. succeeded him in the Year 1286; he was prudent, just, and a good Politician, but unfortunate in his Wars. He dy'd in 1327, after he had reign'd 41 Years.

FREDERICK of *Arragon* succeeded him in the Year 1327, and dy'd in 1328, after he had reign'd 1 Year.

PETER II. succeeded him in the Year 1328; he was ambitious, and nevertheless lov'd the Learned. He dy'd in 1342, after he had reign'd 15 Years.

LOUIS succeeded him in the Year 1342; he did nothing remarkable, and dy'd young, in 1355, after he had reign'd 12 Years.

FREDERICK II. call'd *the Simple*, succeeded him in the Year 1355; he was weak, and of little or no Merit. He dy'd in 1368, after he had reign'd 11 Years.

MARY, Daughter of *Peter* IV. King of *Arragon*, began to reign in the Year 1368; she was marry'd to *Martin*, King of *Arragon*, who dy'd in 1409, after he had reign'd 41 Years.

MARTIN succeeded in 1409, and dy'd in 1410, after he had reign'd 1 Year.

BLANCHE, *Martin*'s Widow, succeeded him in the Year 1410, and dy'd in 1412, after 2 Years Reign.

FERDINAND of *Castile*, call'd *the Just*, succeeded him in the Year 1412; he reigned with much Wisdom, Courage, and Piety; and dy'd in 1416, after he had reigned 4 Years.

JEANNE II. Queen of *Naples*, adopted in 1420, *Alphonse*, King of *Arragon*, whom she disinherited 3 Years afterwards, for his Ingratitude.

Note, That it is on that Adoption that the last Kings of *Naples* found their Right. Therefore,

CHRONOLOGY *of the last Kings of* Naples.

ALPHONSE V. King of *Arragon*, adopted in 1420. Authors speak of him with Honour; he loved the Learned, and was very learned himself. He dy'd in 1458, after he had reign'd 38 Years.

FERDINAND I. succeeded him in the Year 1458; he dy'd of an Apoplexy, in the *71st* Year of his Age, the *25th* of *January* of the Year 1494, after he had reign'd 36 Years.

ALPHONSE II. succeeded him in the Year 1494; his cruel and wild Humour made him hated of his Subjects. He abdicated in 1495, in Favour of *Ferdinand* II. his Son, and turn'd Monk, after he had reigned 1 Year. He dy'd in the Monastery of the *Olivetans*, at *Messina*.

CHARLES VIII. King of *France*, conquer'd the Kingdom of *Naples*, to which he had a Right, in 1495; he was a very good Prince, brave, pious, and illustrious for his Victories and Conquests. He dy'd in 1498, and possessed that Crown but one Year.

FERDINAND II. succeeded to *Alphonse* in 1495; he was weak, and without Courage. He dy'd in 1496, after he had reign'd 1 Year.

FREDERICK succeeded him in the Year 1496; King *Louis* XII. of *France*, and *Ferdinand*, King of *Castile*, expell'd him from his Dominions, under Pretence of making Use of it, as a commodious Port, to wage War against the *Turks*, as their Ambassadors were order'd to expose it to the Pope. He dy'd in 1501, after he had reigned 5 Years.

LOUIS XII. King of *France*, render'd himself Master of Part of those Dominions, in the Year 1501; he was brave, liberal, gentle, a Friend to Learning and the Learned, and lov'd tenderly his Subjects. He possessed that Crown but 2 Years, and lost it in 1503.

FERDINAND V. King of *Arragon*, succeeded him in the Year 1503; he was a wise Prince, and a great Politician. He dy'd in 1516, after he had reigned 13 Years.

CHARLES V. King of *Arragon*, succeeded him in the Year 1503; he was a wise Prince, and a great Politician. He dy'd in 1516, after he had reign'd 13 Years.

CHARLES VI. of the House of *Austria*, succeeded him in the Year 1516, and dy'd in 1558, after he had reign'd 42 Years.

Note, That the Kings of *Spain* have possessed those Dominions ever since, except in that long War between the House of *France*, and that of *Austria*, for the *Spanish* Throne; the Result whereof was, that the Kingdom of *Naples* should be left

to the Emperor *Charles* VI. who loſt it in 1734, when it was conquer'd, in a few Weeks, by Don *Carlos*, Infant of *Spain*, the preſent King of the two *Sicilies*, one of the moſt accompliſh'd Princes of the Age; a young Hero, who commanded his Armies in Perſon, while but 17 or 18 Years of Age; brave, liberal, wiſe, prudent, meek, and religious.

Note, likewiſe, That from *Naples* we'll embark ourſelves for *Portugal*, which Monarchy began in 1139.

CHRONOLOGY *of the Kings of* Portugal.

ALPHONSE I. began to reign in *Portugal* the 27*th* of *July* 1193; he render'd himſelf illuſtrious by his Courage, and Victories againſt the *Moors*, eſpecially by that he gain'd in the Plain of *Ourick*; by his Zeal for his Religion, and his Love for Learning. He dy'd the 9*th* of *November* 1185, after he had reign'd 46 Years.

SANCHO I. ſucceeded him in the Year 1185; he had a great deal of Wit and Courage, of which he gave ſeveral Inſtances, againſt the Kings his Neighbours, who had attack'd him, and againſt the *Moors*. He dy'd in the Year 1212, after he had reign'd 27 Years.

ALPHONSE II. ſucceeded him in the Year 1212; he render'd himſelf famous by his Valour and Courage; but he treated his Brothers with Cruelty. He dy'd in 1233, after he had reign'd 21 Years.

SANCHO II. call'd *Capel*, ſucceeded him in the Year 1233; he was expell'd from his Dominions for his Cowardice, and dy'd in 1246, after he had reign'd 13 Years.

ALPHONSE III. ſucceeded him in the Year 1246; he maintain'd all his Wars with a great deal of Courage. He dy'd in 1279, after he had reign'd 33 Years.

DENNIS I. call'd *the Father of his Country*, ſucceeded him in the Year 1279; he built, or rebuilt 44 Towns, or Cities, in *Portugal*, founded the military Order of *Chriſt*, and was the moſt fortunate Prince of his Time. He dy'd the 7*th* of *January* 1325, after he had reign'd 46 Years.

ALPHONSE IV. call'd *the Brave*, and *the Lofty*, ſucceeded him in the Year 1325; he render'd himſelf illuſtrious by his Courage, Prudence, and Victories. He dy'd in 1357, after he had reign'd 32 Years.

Note, That under *Alphonſe*'s Reign happen'd frightful Earthquakes at *Liſbon*, which threw down ſeveral Edifices. The Admiral of *Portugal* loſt his Life by that Accident.

PETER *the Juſt* ſucceeded him in the Year 1357; he made himſelf beloved by his Subjects. He uſed to ſay, after the Example of *Titus*, that the Days ſpent without doing Good to ſome Body, were loſt. He dy'd in 1367, after he had reign'd 10 Years.

FERDINAND ſucceeded him in the Year 1367; he was unfortunate in his Wars, and a Slave to his Pleaſures. He dy'd in the Year 1385, after he had reign'd 17 Years.

JOHN I. call'd *the Father of his People*, ſucceeded him in the Year 1385; he was illuſtrious for his Courage, Prudence, Clemency, and Conqueſts in *Africa*, where he render'd himſelf Maſter of *Ceuta*. He dy'd in 1433, after he had reign'd 49 Years.

EDWARD I. ſucceeded him in the Year 1433; he was unfortunate. The Princes, his Sons, paſſed into *Africa*, and beſieg'd *Tangier*; but were beſieged, in their Turn, and obliged to quit *Africa*. *Edward* dy'd of Sorrow in 1438, after he had reign'd 5 Years.

ALPHONSE V. called *the African*, ſucceeded him in the Year 1438; he was brave, and made great Conqueſts in *Africa*. He dy'd in 1481, after he had reign'd 43 Years.

Note, That under his Reign the *Portugueſe* diſcovered the Coaſt of *Guinea*.

JOHN II. called *the Great*, and *the Severe*, ſucceeded him in the Year 1481; thro' this great Prince's Means the apoſtolical Miſſionaries were admitted into *Africa*, and the *Indies*, to preach the Goſpel. He took a particular Care of the Navigation on the Ocean; he procur'd the Diſcovery of the Cape of *Good Hope*, and of the Kingdom of *Manicongo*. Under his Reign the Commerce of Spices began. He dy'd in 1495, after he had reign'd 14 Years.

EMANUEL *the Great* ſucceeded him in the Year 1495; he expell'd the *Moors* from his Kingdom. *Vaſco de Gama* diſcover'd, under his Reign, ſeveral unknown Countries in *Ethiopia* and *America*. He dy'd in 1521, after he had reign'd 26 Years.

JOHN III. ſucceeded him in the Year 1521; he was very pious, very brave, and made great Conqueſts. He ſent St. *Francis Xavier* to *Japan*, but did a great Evil by eſtabliſhing that helliſh Tribunal the *Inquiſition*. He dy'd in 1557, after he had reign'd 35 Years, and 6 Months.

SEBASTIAN ſucceeded him in the Year 1557; he had a vaſt deal of Zeal for his Religion, and of Courage. He went twice into *Africa*, and loſt himſelf in a Marſh, the Day of the Battle of *Alcacer*, in fighting againſt the King of *Fez*, and of *Morocco*, where the *Chriſtians* were entirely defeated, in 1578, after he had reign'd 22 Years.

HENRY, *Cardinal*, ſucceeded his Grand-nephew, *Sebaſtian*, in the Year 1578; he was a good, pious, learned, and wiſe Prince. He died in 1580, after he had reign'd 1 Year, 5 Months, and 5 Days.

PHILIP II. King of *Spain*, pretended that the Kingdom of *Portugal* belong'd to him, by Repreſentation of the Empreſs his Mother, becauſe ſhe was the eldeſt of the Grandmother of the Princes of *Braganza*; and, in Conſequence thereof, render'd himſelf Maſter of that Kingdom in 1580. He dy'd in 1598, after he had reign'd 18 Years.

PHILIP III. King of *Spain*, ſucceeded him in the Year 1598; he was religious, meek, and lov'd Juſtice. He dy'd in 1621, after he had reign'd 23 Years.

PHILIP IV. King of *Spain*, ſucceeded him in the Year 1621; he was eſteem'd for his Prudence and Wiſdom, but was not always fortunate. He loſt that Kingdom in 1640, after he had reign'd 19 Years.

JOHN IV. call'd *the Fortunate*, Prince of *Braganza*, Son of Donna *Catherina*, was proclaim'd King by the *Portugueſe* in the Year 1640; he was wiſe, judicious, brave, affable, active, vigilant, and lov'd the Learned. He dy'd in 1656, after he had reign'd 16 Years.

ALPHONSE HENRY ſucceeded him in the Year 1656; he gain'd ſeveral ſignal Advantages over the *Spaniards*, in 1659, 1663, and 1664; but was depoſed for his bad Qualities, and Want of Capacity, in 1668, and conducted to the Iſlands *Terceres*, after he had reign'd 12 Years.

PETER II. Regent of the Kingdom, ſucceeded, at his Brother *Alphonſe*'s Death. In 1683, the Marriage of *Alphonſe*, which had been before contracted with *Mary Elizabeth* of *Savoy*, was declar'd null, by the Imbecillity of the King; after which, *Peter*, *Alphonſe*'s Brother, married the Queen, his Siſter in-law. He took the Title of Prince Regent of the Kingdom as long as his Brother lived, and was declared King in 1683. After the Death of *Alphonſe*, he married, for his ſecond Wife, *Mary Sophia Elizabeth*, of *Newburg*, from whom he had ſeveral Children. He dy'd in 1706.

DON JOHN V. ſucceeded him in the Year 1706, and is one of the moſt accompliſhed Princes of the Age, and the greateſt Politician.

Note,

Note, That having thus ran through the several Countries of the World, and paid a Visit to every Court, except to that of *Rome*, and of *Constantinople*, I am at a Stand, which of these two last I shall visit first; for if I act as a *Christian*, and consider the great Number of worthy and holy Personages, who have been seated on St. *Peter*'s Chair, and have watered with their Blood the fertile Fields of the *Christian* Church, I should prefer the Court of *Rome*, not only to that of *Constantinople*, but likewise to all, the most flourishing, most potent, and most antient Monarchies of the whole Earth; but if on the other Side, I be silly enough to take the Pope for the Scarlet Whore, or that frightful Beast the Fanaticks, *through a Principle of a truly* Christian *Charity*, are pleased to frighten us with, as soon as we are susceptible of any Fear, I should fly from her to *Constantinople*, for fear of being gored with one of her Horns; but however, as it would not be the *first frightful Beast I have encountered with*, and have conquered, if not by my Courage, at least by my Constancy; and it would be Pusillanimity in me to stop, when almost arrived at the End of my Career, I'll face the old Jade, as they call her, and trace all her Pedigree; therefore,

CHRONOLOGY *of the* Popes.

Note, That St. *Jerome*, St. *Cyprian*, St. *Augustine*, and *Sidonius Apollinaris* observe, that the Title of *Pope*, at present so much hated among us, was antiently given to all Bishops; they were also addressed under the Term, *Holiness*, and *Beatitude*, and their Churches called Apostolical *Sees*. Father *Le Cointe* says, in his Annals, that it was only in the eleventh Century, that *Gregory* VII. first appointed, in a Synod held at *Rome*, that the Title, *Pope*, should be restrained to the Bishop of *Rome*, as a particular Distinction, and Prerogative. The *Pope* is chosen by the Cardinals out of their own Body; his *See* is at *Rome*, whence he issues out his Orders, called *Briefs* and *Bulls*, throughout the Catholic World; so that in Fact, the Tile, *Pope*, is, in itself, rather respectable, than despicable or hateful: But to proceed:

St. Peter, Prince of the Apostles, proved the Truth of the Gospel by his Virtues, the Strength of his Doctrine, and the great Number of his Miracles. He founded the Church of *Antioch* in the Year 37 or 38, of the Christian Æra: In 43 or 45, he came to *Rome*, the 2d or 3d of the Empire of *Claudius*; where he established his See the 18th of *July*; and died Martyr the 29th of *June*, of the Year 69, or 68 according to others; the 13th of *Nero*, after he had governed that Church 24 Years, 5 Months and 11 Days, according to *Baronius*; or 25 Years accomplished according to *Eusebius*, whom St. *Jerome* has followed.

Linus, born in *Tuscany*, was set at the Helm of St. *Peter*'s Bark, while agitated by a violent Tempest in *June*, 68 or 69; and after he had governed it during 11 Years and 3 Months, according to some, and 2 Months and some Days, according to others, he lost his Life, by a glorious Martyrdom, the 23d of *September*, of the Year of *Christ*, 80; of *Vespasian*, 9. The Acts of the Passion of St. *Peter* and St. *Paul*, which bare his Name, are full of Errors, and spurious.

Cletus succeeded him in the Year 80, according to St. *Jerome*, St. *Epiphanius*, and the common Belief of the *Roman* Church: On the contrary, St. *Ireneus*, *Eusebius* and *Nicephorus*, pretend, that *Anacletus* took his Place; and *Optatus* and *Augustine* are for *Clement*. I willing espouse the Opinion which is the most followed, and which is in Favour of *Cletus*. He was also Disciple of St. *Peter*; and ended his Life as his two Predecessors had done, the 27th of *April* of the Year 93; of *Domitian* 10, after 12 Years and 7 Months of his Pontificate. The Book of the Lives of Popes, which several quote under the Name of *Damasus*, say, that he ordained 25 Priests throughout the several Wards of *Rome*; and that he was the first who used in his Letters these Words, *Greeting, and Apostolical Blessing*.

Clement, antient Disciple of St. *Peter*, was elected in his Place, in the Year 94; he was a *Roman* born, but not of the Family of the *Cæsars*, as writes *Eucherius*, who mistakes him for another *Clement* of consulary Extraction. Under his Pontificat, *Domitian* excited the second Persecution against the Church, that of *Nero* having been the first. 'Twas thought that Hell could not have produced a Monster more cruel than the first *Nero*; but this second one surpassed him in all Things; for he would be an Eye-witness of the Torments, which the other contented himself with ordering. *Clement* established seven Notaries in *Rome*, to collect the Acts of the Martyrs; to preserve the Memory of their Triumphs over the Enemies of the Christian Name; but those Collections were lost during the Persecution of *Diocletian*, which attacked the Books of the *Christians*, as well as their Lives. He was thrown into the Sea with an Anchor tied at his Neck, the 23d of *November* of the Year 102; of *Trajan*, 3; after 9 Years, 6 Months, and 6 Days of his Pontificate. In two Ordinations, he created 10 Priests, 11 Deacons, and 15 Bishops, for several Places.

Anacletus, born at *Athens*, was placed on his Chair, (which had been vacant for some Time, and which had, then, *nothing agreeable, nor capable to flatter an ambitious Spirit, but was only a sure Pledge of Martyrdom, and a Place of Toils and Fatigues*) the 3d of *April*, of the Year of *Christ* 104; of *Trajan*, 5. St. *Epiphanius* does not reckon him among the *Roman* Pontiffs; and St. *Ireneus*, *Eusebius*, and almost all others, mistake *Cletus* for him; but 'tis certain that they have been two distinct Persons; which can easily be proved by the Difference of their Country, and of the Time of their Pontificate. *Anacletus* died a Martyr the 13th of *July*, of the Year 112; of *Trajan*, 13; after 9 Years, 3 Months, and 10 Days Pontificate; during which he ordained 3 Deacons, 5 Priests, and 6 Bishops.

Evaristus, a *Greek* born, and Son of a *Jew*, succeeded him 13 Days after his Death, by an undisturbed Election, the 26th of *July*, of the Year 112; of *Trajan*, 13: St. *Ireneus*, *Eusebius* and St. *Epiphanius* say, that he succeeded immediately St. *Clement*; but *Optatus* and St. *Augustine* place him after *Anacletus*, and I am of their Sentiment. He divided the Titles of *Rome* (*i. e.* the Houses where the Christians used to assemble, to celebrate the sacred Mysteries,) to particular Priests, who were to take Care of those Houses: He ordered besides that 7 Deacons should stand round a Bishop while he preached, as well for the Majesty of the Gospel, as for the Security of his Person. He died a Martyr the 26th of *October*, of the Year of *Christ*, 121; of *Adrian*, 2; after 9 Years, 3 Months, and 10 Days Pontificate; during which, in two Ordinations, held in the Month of *December*, he created six Priests, two Deacons, and five Bishops, for the Government of several Churches.

Alexander, a *Roman* born, took the Helm of the apostolical Vessel the 23d of *November*, of the Year 121; of *Adrian*, 2; and died a Martyr the 3d of *May*, of the Year 132; of *Adrian*, 13; after 10 Years, 5 Months, and 20 Days Pontificate; during which he celebrated three Ordinations, in the Month of *December*, in which he ordained 6 Priests, 2 Deacons, and 5 Bishops.

Sixtus I. born a *Roman*, succeeded *Alexander*, the 28th of *May*, of the Year 133. St. *Cyrille* of *Jerusalem*, *cat.* 4. St. *Epiphanius*, *Exposit. fidei Christ.* 22, 23. *Theophile* of *Alexandria*, *Epist.* 3. St. *Jerome*, *in cap.* 10. *Daniel.* St. *August. contra Faust. c.* 5. *Theodoret*, *Lib.* 5. *hæret. fab. c.* 29. The fourth Council

Council of *Toledo*, *c.* 10. 8, 9. ſay, that he regulated by a Decree, the Faſt of Lent, eſtabliſhed before by the Apoſtles, in Imitation of that of *Chriſt* in the Deſart. He died a Martyr the 6th of *April*, of the Year 142; of *Antoninus*, 3; after 9 Years, 10 Months, and 8 Days Pontificate; during which, in the Month of *December*, he ordained 11 Prieſts, 4 Deacons, and as many Biſhops. *Rufinus*, ſome Centuries after the Death of this Pope, attributed to him, or to *Sixtus* II, a Book written by *Sixtus*, a *Pythagorean* Philoſopher; an Impoſture for which he is reprimanded by St. *Jerome*, and which puzzled much St. *Auguſtine*, for the Explanation of a Paſſage which the *Pelagians* had extracted from it, before he had diſcovered the Suppoſition.

Telesphorus ſucceeded him the 8th of *April*, of the Year 142; of *Antoninus*, 3. He ordered that the *Hymn of the Angels*, *Gloria in Excelſis*, ſhould be ſung during the Celebration of the ſacred Myſteries, and that on *Chriſtmas Eve* the Liturgy ſhould be celebrated at Midnight: He held four Ordinations in the Month of *December*, in ordaining twelve Prieſts, or 15 according to others, 8 Deacons, and 13 Biſhops. *Calvin*, where was you while thoſe Biſhops were eſtabliſhing, in the very Infancy of Chriſtianity; what thou and thy Partiſans have called ſince, the *Reign of Antichriſt?* Or where was that ſmall Number of the Elect hidden, from whom thou pretendedſt to derive thy Church? *Teleſphorus* died a Martyr the 5th of *January*, of the Year 154; of *Antoninus*, 15; after 12 Years, 8 Months and 29 Days Pontificate.

Hyginus, born a *Greek*, and by Profeſſion a Philoſopher, was elected to govern the Church in *Teleſphorus*'s Place, the 13th of *January*, of the Year 154; of *Antoninus*, 15: He ordered that Temples and Oratories ſhould not be conſecrated without the Celebration of the ſacred Myſteries, and that the Materials once employed in it, ſhould not be employed afterwards to prophane Uſes. He died the 2d of *January*, 158, after 4 Years wanting two or three Days Pontificate; during which in three Ordinations held in the Month of *December*, he ordained 15 Prieſts, 5 Deacons, and 6 Biſhops.

Note, That the Diſtinction of the Orders of the Clergy, is attributed to *Hyginus*, which muſt not be underſtood of the Inſtitution of the Hierarchy, done by the Apoſtles, but of ſome Reformation.

Pius I. an *Italian*, born at *Aquileia*, ſucceeded to his Zeal as well as to his Dignity, the 15th of *January*, 158; of *Antoninus*, 19. Antient Authors do not agree among themſelves, on this immediate Succeſſion; for *Optatus* and St. *Auguſtine* will have *Anicetus* to have been elected after *Hyginus*, and to have been ſucceeded by *Pius* I. On the contrary, St. *Irenæus*, who lived at that Time, *Tertullian*, *Euſebius*, St. *Epiphanius*, and all the *Greeks* of the following Centuries, place *Pius* before *Anicetus*. *Pius* ordered that the Feaſt of *Eaſter* ſhould be celebrated on the *Sunday* next after the 14th of the Moon of *March*. He died a Martyr the 11th of *July*, 167; of *Marcus Aurelius*, 5; after he had governed the Church 9 Years and 6 Months; during which he celebrated 5 Ordinations, and ordained 18 Prieſts, 25 Deacons, and 12 Biſhops, to govern ſeveral Churches. The Book of the *Roman* Pontiffs, ſays, that he ordered that thoſe coming from the Herely of the *Jews* ſhould be baptized, which Cardinal *Baronius* interprets of that of *Cerinthus*, who in all Likelihood had invented a new Form of Baptiſm.

Anicetus, born a *Syrian*, ſucceeded *Pius* I. in the Government of the Church, the 25th of *April*, 167; of *Marcus Aurelius*, 5: The Sects of the *Gnoſticks* appeared in his Time. He died a Martyr the 17th of *April*, of the Year 175; of *Marcus Aurelius*, 13; after he had governed the Church 9 Years; during which he celebrated 5 Ordinations in the Month of *December*, and ordained 17 Prieſts, 4 Deacons, and 9 Biſhops, in ſeveral Places: 'Tis ſaid that he forbid the Clerks wearing long Hair; but this Prohibition is more antient in the occidental Churches. *Tonſura Clericalis*, is in the Opinion of *Iſidorus*, Biſhop of *Seville* in *Spain*, of apoſtolical Tradition, in which he is followed by ſeveral other Authors.

Soterus, an *Italian*, born at *Fundi* in *Campania*, 7 Days after *Anicetus*'s Death, according to ſome Authors, or 17 according to others, was elected in his Place, in the Year 175; of *Marcus Aurelius*, 13. He died a Martyr, during the Perſecution of *Marcus Aurelius*, the 22d of *April*, 179; of *Marcus Aurelius*, 17. In three Ordinations he ordained 18 Prieſts, 9 Deacons, and 11 Biſhops, in ſeveral Places.

Eleutherius, a *Greek*, born at *Nicopolis*, and Son of *Abundius*, who had been Deacon of *Anicetus*, ſucceeded *Soterius* 12 Days after his Death, the Year 179; of *Marcus Aurelius*, 17; and died the 26th of *May*, 194; of *Commodus*, 13; after 15 Years and 23 Days Pontificate; during which he held eight Ordinations, in the Month of *December*, and ordained 12 Prieſts, 8 Deacons, and 15 Biſhops, in ſeveral Places.

Victor I. an *African*, was elected in his Place the 1ſt of *June*, 194. He died a Martyr the 28th of *July*, 203, after he had governed the Church 9 Years, 1 Month, and ſome Days; during which, in two Ordinations, held in the Month of *December*, he ordained 4 Prieſts, 7 Deacons, and 12 Biſhops, in ſeveral Places. The *Scotch* Hiſtorians ſay, that he ſent Evangeliſts into *Scotland*, where they baptized their King *Donaldus*, and the greateſt Part of the Nobility of the Country.

Zephirinus ſucceeded him in the Apoſtolical Chair, the 8*th* of *Auguſt*, 203, of *Severus* 8: In his Time began the fifth Perſecution againſt the Chriſtians, according to *Oroſius*, or the ſixth, according to *Severus Sulpicius*. During which, *Leonides*, Father of the famous *Origen*, ſuffered Martyrdom at *Alexandria*, to which his Son, yet very young, wanted to accompany him, and it was but with the greateſt Difficulty he was hindered from preſenting himſelf before the Perſecutors. *Zephirinus* died the 26*th* of *Auguſt*, of the Year 221, of *Heliogabalus* two, after 18 Years and 18 Days of his Pontificate; during which he celebrated four Ordinations, and ordained 13 Prieſts, 7 Deacons, and 13 Biſhops in ſeveral Places.

Calliſtus I. a *Roman* born, ſucceeded him the Beginning of *September*, 221, of *Heliogabalus* two: He is thought to have inſtituted or confirmed the Faſt of the *Ember-Weeks*; he died a Martyr, the 14*th* of *October*, 226, after five Years, one Month, and twelve Days of his Pontificate; in five Ordinations celebrated in the Month of *December*, he ordained 16 Prieſts, 4 Deacons, and 8 Biſhops in ſeveral Churches.

Urbanus I. born at *Rome*; ſix Days after *Calliſtus*'s Death, and the 21*ſt* of *October*, 226, of *Alexander* 4, ſucceeded him in the paſtoral Government, which could not be deſired, but by thoſe who had no Value for this Life. 'Tis ſaid that he introduced in the Miniſtry of the Altar the Uſe of ſilver Chalices and Plates: He died a Martyr the 23*d* of *May*, of the Year 232, of *Alexander* 9; after he had governed the Church ſix Years, ſeven Months, and four Days, according to Cardinal *Baronius*, or nine Years, according to *Euſebius*'s Supputation, or 8 Years, 11 Months, and 12 Days, according to the Book of the Roman Pontiffs, attributed to *Damaſus*. In five Ordinations held in the Month of *December*, he ordained 9 Prieſts, 5 Deacons, and 8 Biſhops for ſeveral Places.

Pontianus, was elected to ſucceed *Urbanus* (in the ordinary Manner of that golden Age, where Piety and Learning were the ſole Degrees to aſcend the Epiſcopal Chair) the latter End of *June*, 233, of *Alexander* 10: He died a Martyr in the Beginning of the Perſecution of *Maximinus*, the 19*th* of *November* 238, in the ſixth Year began of his Pontificate. During which, in two Ordinations, he had ordained ſix Prieſts, five Deacons, and ſix Biſhops.

Anterus, a *Greek*, ſucceeded him the Beginning of *December*, 238, of *Maximinus* one, but he had ſcarce

scarce been seated on the Apostolical Chair, when he left it empty one Month after his Election, *viz.* the 3*d* of *January*, 239, of *Maximinus* 2, by a glorious Martyrdom.

FABIANUS succeeded him the 15*th* of *January*, 239, of *Maximinus* 2; he divided into 14 Wards the City of *Rome*, where he appointed Persons to write the Acts of the Martyrs: He died during the Persecution of *Decius* the 20*th* of *January*, 253, of *Decius* one, after he had governed the Church for the Space of 15 Years. After his Death the See of *Rome* was vacant for a whole Year.

CORNELIUS, a *Roman* born, was placed on the *Roman* Chair the last Day of *April*, 254, of *Decius* 2; he was very pious, and very learned; under his Pontificate began the Schism of the *Novatians*, which to exterminate in its Infancy, *Cornelius* assembled a Synod, at *Rome*, of 60 Bishops, and of as many Priests and Deacons, who with an unanimous Consent condemned *Novatus* and his Partisans. *Cornelius* died, by Order of the Emperor *Gallus*, the 14*th* of *September*, of the Year 255, of *Gallus* and *Volusianus* 2, after he had governed the Church for the Space of two Years only.

LUCIUS succeeded him the 21*st* of *October* 255; he resisted couragiously the Violences of the Emperors *Gallus* and *Volusianus*, who caused him to be put to Death, the 4*th* of *March*, 256, of *Gallus* and *Volusianus* 3, after one Year, or very near two, according to others, of his Pontificate; in two Ordinations held in the Month of *December*, he ordained four Priests, four Deacons, and five Bishops for several Churches.

STEPHEN I. a *Roman* born, was elected to supply his Place, or rather *Lucius* dying left him, says *Eusebius*, the Government of his Church, which he took the 9*th* of *April* 256. He had great Differences with St. *Cyprian* on the Reiteration of Baptism, and died a Martyr, during the Persecution of the Emperor *Valerian*, the 2*d* of *August*, of the Year 260, of *Valerian* 6, after two Years, three Months, and 22 Days of his Pontificate; in two Ordinations celebrated in the Month of *December*, he ordained 6 Priests, 5 Deacons, and six Bishops, for the Government of several Churches.

SIXTUS II. succeeded him the 24*th* of *August*, 260; he supported with an invincible Courage the violent Attacks of Hell, from which it seemed as if all the Devils were come out to persecute the Church. *Sixtus* died a Martyr the 6th of *August*, in the the Year 261, after 11 Months and 13 Days of his Pontificate.

DENYS, a *Greek* born, was elected to govern the *Roman* Church, 36 Days after the Death of *Sixtus*, in the Year 261; of *Valerian* and *Gallian*, 7. He died the 26th of *December*, of the Year 272; of *Aurelian*, 3; after he had governed the Church 11 Years, 3 Months, and 14 Days; during which, in two Ordinations, held in the Month of *December*, he ordained 12 Priests, 6 Deacons, and 7 Bishops.

FELIX, a *Roman*, was elected in his Place the 31st of *December*, of the Year 272. He died the 30th of *May*, 275; of *Aurelian*, 5, after 2 Years and 5 Months of his Pontificate; or, according to *Eusebius*, 5 Years. In two Ordinations he ordained 9 Priests, 5 Deacons, and five Bishops; and built a Church on the Road, called *Aurelia*.

EUTICHIAN was chosen to succeed him, the 4th of *June*, 275: He died a Martyr the 8th of *December*, 283; of *Carus*, 1; after he had governed the Church 8 Years, 6 Months and 4 Days; during which he celebrated 5 Ordinations, on the Month of *December*, and ordained 14 Priests, 5 Deacons, and 9 Bishops, to govern several Churches.

CAJUS, or GAJUS, an *Esclavon* born, and a-kin to the Emperor *Diocletian*, succeeded him the 17th of *December*, of the Year 283; of *Carus*, 1: Under his Pontificate the Church was persecuted in all the Provinces of the World. He died the 22d of *April*, of the Year 296; of *Diocletian*, 13; after 12 Years, 4 Months, and 5 Days of his Pontificate: He celebrated 4 Ordinations in the Month of *December*, and ordained 25 Priests, 8 Deacons, and 5 Bishops.

MARCELLINUS, a *Roman*, succeeded him the 3*d* of *May*, 296. He died the 16*th* of *April*, 304, after 7 Years, 11 Months, and 26 Days of his Pontificate.

MARCELLUS succeeded him at the End of *November*, 304; he divided *Rome* into 25 Parishes, and died the 16*th* of *January*, of the Year 309, after 4 Years, 1 Month, and 25 Days of his Pontificate.

MELCHIADES succeeded him the 3*d* of *October*, of the Year 311; he acquitted himself, in the best Manner, of all the Duties of a true Pastor of the Church, and ordered that no Christian should fast *Sunday* nor *Thursday*, to avoid having any Thing in common with the *Pagans*, who celebrated those Days as sacred: He died the 10*th* of *December* 313, after he had governed the Church 2 Years, 2 Months, and 7 Days.

SILVESTER I. succeeded him the 1*st* of *February* 314; he engag'd the Emperor *Constantine the Great*, to assemble the Council of *Nice* against *Arius*, and died the 31*st* of *December*, 335, after 21 Years and 11 Months of his Pontificate.

Note, That as we are to see no longer any of those violent Persecutions which had been excited under the *Pagan* Emperors against the Christian Religion, and which had made of the *Roman* See a School for Martyrdom, adorned with no other Purple than that dy'd in the Blood of those truly Apostolical Pastors placed upon it; we'll perceive soon that Ambition, Pride, Vanity, *&c.* will introduce themselves, into that sacred Sanctuary, where none but Patience, Humility, Merit, Virtue, Disinterestedness, Compassion, and all other Christian Perfections were admitted; so that the *Roman* Church will soon appear, rather like the Court of a great Emperor, than the transitory Mansion of the Successors of those who had no permanent Habitation upon Earth, and whose divine Master used to complain, that he had not so much as a Place to rest his sacred Head upon. Could ever St. *Peter* believe, was he to rise from the Dead, and be introduced to the *Pope*, that such a Person, environ'd with so much Magnificence and Grandeur, is his Successor? Or would he not rather mistake him for another *Caiaphas*, and think himself well off, if he could be admitted, *in atrio*, to warm himself among his Guards and other Servants, to the Risk, perhaps of being exposed once more to deny his divine Master, for Fear of reflecting on his Vicar, by his being obliged to confess that *Christ*, while upon Earth, did not use to live in so much Pomp and Magnificence? For it is ridiculous to suppose that Splendor and Power are absolutely necessary for the Support of the Christian Religion; otherwise, how had she maintained herself during those violent Tempests she was agitated with in her Infancy, while only founded on Patience, Humility and Poverty? What has Christianity, which is the Kingdom of *Christ* (which Kingdom himself says, is not of this World) to do with worldly Affairs? Why should his Vicar keep Armies on Foot, to defend temporal Dominions, when the supreme Head of the visible and invisible Church would not command Legions of Angels to defend his own Life? Why should that Vicar have the Presumption to dispose of *Empires*, and Kingdoms, when the Sovereign of Heaven and Earth would submit himself to the Temporal Powers, and pay Tribute to *Cesar*? Why should he amass immense Treasures, when *Christ* sent his Apostles throughout the whole Earth, without Purse or Money, and gave them for a general Maxim, to despise worldly Riches? These are Truths found in the same Place, where Bishops search for their spiritual Power.

MARK

MARK succeeded *Silvester* the 16*th* of *January* of the Year 336, and dy'd the 7*th* of *October* of the same Year, after 8 Months, and 22 Days, Pontificate.

JULIUS I. succeeded him the 27*th* of *October* of the Year 336; he opposed generously the Hereticks of his Time, and dy'd the 21*st* of *April* 352, after he had govern'd the Church 15 Years, 5 Months, and 17 Days.

LIBERIUS succeeded him the 8*th* of *May* of the Year 352; the *Arians* banish'd him because of his Zeal for the Faith; he subscribed to the Condemnation of St. *Athanasius*, but he repair'd that Fault by rejecting the Decrees of the Synod of *Rimini*. He dy'd the 9*th* of *September* 367, after 15 Years, 4 Months, and 2 Days Pontificate.

FELIX II. was substituted to *Liberius*, who had been banished to *Berea*, in the Year 355; 'tis said that he suffered Martyrdom.

DAMASUS I. succeeded him the 15*th* of *September* of the Year 367; he rendered himself illustrious by his Piety, Zeal, and his Doctrine. He dy'd the 11*th* of *December* 384, after he had governed the Church 17 Years, 2 Months, and 27 Days.

SIRICIUS succeeded him the 11*th* of *January* of the Year 385; he was commendable for his Virtues in the Government of the Church, and he dy'd the 22*d* of *February* of the Year 398, after 13 Years, 1 Month, and 14 Days Pontificate.

ANASTASIUS I. succeeded him the 14*th* of *March* 398; he applied himself to pacify the City of *Rome*, disturb'd by the Errors of *Origen*. St. *Jerome* says, that the Earth was not worthy to possess him; and that he was carry'd off when God wanted to punish the City of *Rome*, for Fear he should have hinder'd it by his Prayers. He dy'd the 27*th* of *April* of the Year 402, after 4 Years, 1 Month, and 13 Days Pontificate.

INNOCENT I. succeeded him the 18*th* of *May* of the Year 402; he govern'd the Church with all the Capacity, Integrity, and Zeal, which could be expected of a good Pastor; and dy'd the 2*d* of *March* of the Year 417, after 14 Years, 9 Months, and 26 Days Pontificate.

ZOSIMUS succeeded him the 22*d* of *March* of the Year 417; he condemn'd the Heretick *Celestius*, and dy'd the 26*th* of *December* of the Year 418, after 1 Year, 9 Months, and some Days Pontificate.

BONIFACIUS I. a *Roman*, succeeded him the 28*th* of *December* of the Year 419; there was between him and St. *Augustine* a perfect Correspondence, and a great Friendship. He died the 25*th* of *October* of the Year 423, after 4 Years, 9 Months, and 28 Days Pontificate.

CELESTINUS I. succeeded him the 3*d* of *November* 423; he order'd that the Psalms of *David* should be sung before the Communion, which was not practised before, when the Gospel, and the Epistles of St. *Paul* were only read. He dy'd the 6*th* of *April* 432, after he had govern'd the Church 8 Years, 5 Months, and 3 Days. *Socrates* says, that he took the Churches from the *Novatians* at *Rome*, and oblig'd their Bishop to make his Assemblies in private Houses.

SIXTUS III. a Priest of the *Roman* Church, succeeded him the 26*th* of *April* 432; his Doctrine, and his Zeal for the orthodox Faith, render'd him Praiseworthy. He dy'd the 28*th* of *March* 440, after 7 Years, and 11 Months Pontificate. In one Ordination he ordain'd 21 Priests, 12 Deacons, and 52 Bishops, for several Places.

LEO I. call'd *the Great*, succeeded him the 10*th* of *May* 440; he surpassed all the Hopes which had been conceiv'd of his Wit, Courage, Piety, and Eloquence. He dy'd the 11*th* of *April* 461, after 20 Years, and 11 Months Pontificate.

HILARIUS succeeded him the 12*th* of *November* of the Year 461; he was couragious, just, had a great deal of Zeal, and neglected none of his Duties, as a Bishop. He dy'd the 10*th* of *September* 467, after he had govern'd the Church 5 Years, 9 Months, and 29 Days. He celebrated one Ordination in the Month of *December*, of 25 Priests, and 22 Bishops.

SIMPLICIUS succeeded him the 20*th* of *September* 467; he hinder'd, by his Vigilance, the Progress of the Hereticks. He wrote several Epistles to several Bishops, for the Regulation of the ecclesiastical Discipline; and order'd, that the Oblations, and Revenues of the Church, should be divided into four Parts, two for the Maintenance of the Bishop and his Clerks, and two for the Reparations of the Churches, and the Subsistence of the Poor; but this last Clause smells so much of Popery, that it is not regarded at present, the Poor being the least Sharers of Church Revenues: Nay, they cannot so much as have a small Corner in a Church-yard for a Burying-place, without paying for it.

FELIX III. succeeded him the 8*th* of *March* 483; he govern'd the Church with all the Zeal, Capacity, and Piety, which could be expected of a good Pastor. He dy'd the 25*th* of *February* 492, after 8 Years, 11 Months, and 20 Days Pontificate.

GELASIUS I. born in *Africa*, succeeded him the 2*d* of *March* 492; *Gennadius* says, *Lib. de Script. c.* 94. that he wrote several Treatises on the Sacraments, and on the holy Scriptures; several Hymns, in Imitation of St. *Ambrose*, Bishop of *Milan*; and an excellent Book against *Nestorius* and *Eutiches*, which is lost. His Charity to the Poor was extreme, and by his Alms he reliev'd the City of *Rome*, afflicted by Famine.

ANASTASIUS II. succeeded him the 28*th* of *November* 496; he did all he could to bring back the Hereticks to the Belief of the Church. He dy'd the 16*th* of *November* 498, after he had govern'd the Church 1 Year, 11 Months, and 23 Days.

SIMMACHUS, of the Kingdom of *Sardinia*, succeeded him the 2*d* of *December* 498, he was troubled in the Government of the Church by the Schism of *Laurence*, Anti-pope; and gain'd his Enemies by his Virtue and Patience. He dy'd the 19*th* of *July* of the Year 514, after 15 Years, 7 Months, and 27 Days Pontificate. He celebrated four Ordinations, in the Months of *December* and *February*; in which he ordain'd 92 Priests, 16 Deacons, and 117 Bishops, for several Churches. He order'd, that every *Sunday*, and all the Feasts of Martyrs, there should be sung at Mass the angelical Hymn, *Gloria in Excelsis*; which is observ'd to this Day.

HORMISDAS, a Deacon of the *Roman* Church, was elected in his Place, with the unanimous Consent of the Clergy, the 27*th* of *July* 514; he was an Example of Moderation, Patience, and Charity. He accomplish'd the Reconciliation of the oriental with the occidental Church, and dy'd the 6*th* of *August* 523, after 9 Years, and 10 Days Pontificate.

JOHN I. succeeded him the 13*th* of *August* 523; he was very zealous for the Peace of the Church. He died of Miseries and ill Usage in Prison, at *Ravenna*, where *Theodorick*, King of the *Lombards*, had confin'd him, the 27*th* of *May* 526, after he had govern'd the Church 2 Years, 9 Months, and 14 Days.

FELIX IV. a *Samnite* born, and Son of *Castorius*, succeeded him the 12*th* or 14*th* of *July* 526; he govern'd the Church with a great deal of Zeal, Piety, and Prudence; and died the 12*th* of *October* 529, after 3 Years, 2 Months, and 14 Days Pontificate.

BONIFACIUS II. born a *Roman*, tho' his Father was a *Goth*, was elected the 15*th* of *October* 529; but as the Senate could not agree with the People, and that there was a Division in the Clergy for this Election; the Schismaticks assembled in the *Basilica* of *Constantine*, and created Pope, the Deacon *Dioscorus*. *Athalaric* supported this last Election, wanting, by the Example of *Theodorick*, to dispose, at his Pleasure, of the *Roman* See: And there would have been a Schism in the Church, if it had not been prevented by *Dioscorus*'s Death. *Bonifacius* shew'd a little too much of the Levitical Resentment, on that Occasion; for he excommunicated *Dioscorus* after his Death, perhaps when *Dioscorus* was in Heaven, *Agapet*, his Successor,

gave him the Absolution, and restor'd him to the Communion of the Church; which, in my Opinion, was but a ridiculous Farce, with Regard to a Man who was no longer *in via*, but *in termino*; and, consequently, could neither be excommunicated, nor restor'd to the Communion of the Faithful, which he was in no Need of. *Bonifacius* having seen the Trouble that happen'd at his Election, and fearing the like after his Death; assembled at *Rome* a Synod of Bishops, to find out a Remedy which was as dangerous as the Evil itself; for he design'd the Deacon *Vigilius* for his Successor. This was violating the Canons which forbid Succession in the Episcopacy, which takes the Freedom of Election from those it belongs to; therefore this Novelty was revok'd by another Synod assembled soon after. *Bonifacius* dy'd the 17*th* of *October* 531, after 2 Years, and 26 Days Pontificate.

JOHN II. call'd *Mercury*, Son of *Projectus*, and born at *Rome*, on the Mount *Celius*, succeeded him the 20*th* or 22*d* of *January* 532; he dy'd the 26*th* of *April* 535, after he had governed the Church 3 Years, and very near 4 Months.

AGAPETUS succeeded him the 4*th* of *May* 535; he was intrepid, zealous, pious, and very charitable. He dy'd at *Constantinople*, the 22*d* of *April* 536, after 10 Months, and 18 Days Pontificate.

SILVERIUS succeeded him the 17*th* of *May*, or 20*th* of *June* 536; he was always persecuted, and ended his Life in Exile, where he dy'd of Hunger, the 20*th* of *July* 540, after 4 Years Pontificate.

VIGILIUS succeeded him in 540; he acquitted himself of his Duties with a great deal of Courage, Piety, Zeal, and Faith. He dy'd the 10*th* of *January* 555, after 15 Years Pontificate.

PELAGIUS I. succeeded him the 16*th* of *April* 555; he took vast Care of the Church; for the Interest thereof, he signalized his Prudence, Conduct, and Resolution. He dy'd the 2*d* of *March* 559, after 3 Years, 10 Months, and 18 Days Pontificate.

JOHN III. Son of *Anastasius*, a Man of Quality, succeeded him the 27*th* of *July* 559; we know nothing of the Detail of his Actions, but only that in two Ordinations he ordain'd 38 Priests, 15 Deacons, and 61 Bishops. He dy'd the 13*th* of *July* 572, after 12 Years, 11 Months, and 16 Days Pontificate.

BENEDICT I. succeeded him the 16*th* of *May* 573; in his Time *Rome* was afflicted with Famine, and *Benedict* shew'd himself, on that melancholy Occasion, a true Father of the Poor. He dy'd the 31*st* of *July* 577, after 4 Years, 2 Months, and 5 Days Pontificate.

PELAGIUS II. succeeded him the 10*th* of *November* 577; he was so charitable, that he made an Hospital of his House, to entertain the Sick. He dy'd the 8*th* of *February* of the Year 590, after 12 Years, 2 Months, and 29 Days Pontificate.

GREGORY *the Great* succeeded him the 3*d* of *September* of the Year 590; he was illustrious by his Birth, (being the Son of *Gordian*, a Senator) his Piety, profound Doctrine, and Erudition; and was yet greater by his Holiness and Capacity, than by his Elevation in the Church. He opposed, with an apostolical Courage, the Enterprizes of secular Princes, and enrich'd the *Christian* World with his excellent Writings. He dy'd the 12*th* of *March* of the Year 604, after he had govern'd the Church 13 Years, 6 Months, and 10 Days.

Note, That Pope *Gregory the Great* sent *Augustine* the Monk into *Great Britain*, in the Year of *Christ* 602, to preach the Gospel to the *English*, who had render'd themselves Masters of that Kingdom; and where he converted a vast Number of People, and, among the rest, their King *Adelbert*. *Gregory* caused *Augustine* to be consecrated Archbishop of *Canterbury*, by *Virgilius* of *Arles* in *Provence*, and sent him the *Pallium*, or archiepiscopal Mantle. He design'd, likewise, the Bishops, who were to be establish'd, giving the Pre-eminence to those of *Canterbury* and *York*. He also sent Vessels of Gold and Silver, and other necessary Ornaments, for the Celebration of Divine Service; and wrote a Letter to King *Adelbert*, in which he praises his Zeal for the Establishment of the *Christian* Religion, and exhorts him to employ all his Power for the Destruction of Idolatry in his Kingdom. Thro' the Queen's Means, *Augustine* recover'd an old Church which the antient *Christians* had built at *Canterbury*, and which he re-edified, and consecrated, in Honour of our Lord and Saviour *Jesus Christ*, and where he establish'd his episcopal See, and that of his Successors; having been ever since the primatical See of the whole Kingdom. The Prelates of *Ireland* (which shews that there was then an establish'd Church in *Ireland*) consulted *Gregory* the same Year 602, to know if they were to re-baptize the *Nestorians*, who return'd to the Church. He answer'd, *Epist.* 61. *lib.* 9. that according to the antient Custom of the Church, they were not to be baptiz'd anew, if they had been already baptiz'd in the Name of the blessed Trinity; but instructed, only, in the Mystery of the Incarnation, in which they err'd believing that there were two Persons in *Christ*, as well as two Natures.

SABINIAN succeeded him the first of *September* 604, and dy'd the 9*th* of *February* 605, after 5 Months, and 19 Days Pontificate.

Note, That under *Sabinian*'s Pontificate, *Augustine* instituted the See of *London*, and appointed *Mellitus* for its first Bishop, and *Justus* to that of *Rochester*.

BONIFACIUS III. succeeded him the 25*th* of *February* 606; he dy'd the 12*th* of *November* of the same Year, after 8 Months, and 23 Days Pontificate.

Note, That *Bonifacius* III. to maintain himself on his episcopal Chair, (which being grown already a good fat Benefice, attended with a great deal of Power, Magnificence, and Grandeur, and free from those Dangers and Toils it was subject to, in the Infancy of *Christianity*, had began to excite the nice Appetite of the Levitical Tribe) corrected an Abuse which had been introduc'd among the *Roman* Clergy, who, while their Bishops were yet living, used to treat of the Election of his Successor, and for that Purpose made Cabals. *Bonifacius* therefore assembled a Synod of 72 Bishops, 34 Priests of the *Roman* Church, and 2 Deacons: In this Assembly he made a Constitution, by which he forbad, under Pain of Excommunication, to treat of the Successor of a living Pope. This Constitution is not observ'd at present by the Cardinals, who assemble, and make Cabals for the Election of a Pope, when they see attack'd with any Malady him whom they want dead.

BONIFACIUS IV. succeeded him the 18*th* of *September* 607; he obtain'd from the Emperor *Phocas* the *Pantheon*, (built by *Marius Agrippa*, *Augustus*'s Son-in-law, in Honour of all the Gods) and consecrated it to the Service of the true God, under the Invocation of the blessed Virgin, and all the Martyrs; and is yet one of the most magnificent Churches of *Rome*. He died the 8*th* of *May* 614, after 6 Years, 8 Months, and 13 Days Pontificate.

DEODATUS, a *Roman*, succeeded him the 13*th* of *November* of the Year 614; he was extremely pious. He died the 8*th* of *November* 617, after 2 Years, 11 Months, and 26 Days Pontificate.

Note, That I have read one of his Epistles written to *Gordian*, Bishop in *Spain*, with Respect to Husbands and Wives, who, thro' Ignorance, had

 stood

stood Godfathers and Godmothers to their own Children, on *Easter* Eve, which was the Time when Baptism was administer'd. He answers, that he has found in the Archives of the *Roman* Church, that the same Thing had happen'd formerly in the Churches of *Isauria*, *Ephesus*, and *Jerusalem*; on which the Bishops of those Cities had consulted the See of *Rome*, to know if Husbands and Wives, to which such a Thing had happen'd, had a Right to use the Liberty of Marriage as before; and that the holy Fathers of blessed Memory, *Julius*, *Innocent*, and *Celestinus*, with several Bishops and Priests, assembled in the Church of the blessed Apostles, had forbidden marry'd People standing, henceforward, Sponsors for their own Children, at their Baptism; and order'd that those who had stood should be parted, *à Toro*, as having contracted an Affinity between them.

BONIFACIUS V. succeeded him the 29*th* of *December* 617; he was a *Neapolitan* born, and it was said of him, particularly, that he was the meekest, and most affable of all Men. He dy'd the 25*th* of *October* 625, after 7 Years, 10 Months, and 1 Day Pontificate.

HONORIUS I. succeeded him the 14*th* of *May* 626; his Love for the Peace of the Church was the Cause of his being deceiv'd by the *Monothelites*, (whose Heresy I'll mention under its proper Head). He dy'd the 12*th* of *October* 638, after 12 Years, 4 Months, and 27 Days Pontificate.

SEVERINUS succeeded him the 29*th* of *May* 640; he was extremely good, and charitable to the Poor. He signaliz'd his Zeal, in condemning the *Ecthesis*, or Edict publish'd by the Emperor *Heraclius*, in Favour of the *Monothelites*. He died the 2*d* of *August* of the same Year, after 2 Months, and 4 Days Pontificate; tho' *Anastasius* gives him 12 Years, and 4 Days; but I am apt to think it is a Mistake in the Impression.

JOHN IV. born in *Dalmatia*, succeeded him the 31*st* of *December* 640; the first Thing he did was to condemn, also, publickly, the *Ecthesis*, notwithstanding all the Menaces of the Emperor. He employ'd vast Sums of Money for the Redemption of Captives, and dy'd the 21*st* of *October* 642, after 1 Year, 9 Months, and 13 Days Pontificate.

THEODORUS I. succeeded him the 25*th* of *November* 642; he opposed, with a great Zeal and Constancy, both Heresy, and Hereticks; and that learned and pious Pontiff promoted, as much as it was in his Power, the Good of the Church. He died the 14*th* of *May* 649, after 6 Years, 5 Months, and 18 or 20 Days Pontificate.

MARTIN I. born at *Todi* in *Tuscany*, succeeded him the 1*st* of *July* 649; he was very zealous for the *Catholick* Religion, and very severe towards the Impious. He died a Martyr, in Exile, after incredible Fatigues and Sufferings, the 6*th* of *September* 655, after 6 Years, 1 Month, and 26 Days Pontificate.

EUGENIUS I. succeeded him in the Year 655; he was very liberal to the Poor, and order'd, that at his Death all his Effects should be distributed to them. He was meek, affable, and very gracious. He died the 2*d* of *June* 656, after 8 Months, and 18 Days Pontificate.

VITALIAN, born at *Segni* in *Campania*, succeeded him the 31*st* of *July* 656; he took a particular Care of the Church, and died with the Reputation of a Saint, the 27*th* of *January* 671, after 14 Years, and very near 6 Months Pontificate.

ADEODATUS succeeded him the 9*th* of *April* 671, and dy'd the 26*th* of *June* of the Year 676, after 5 Years, 2 Months, and 17 Days Pontificate.

Note, That the second Year of *Adeodatus*'s Pontificate was remarkable by the Death of King *Oswald*, who reign'd in one Part of *England* with a great deal of Piety and Glory.

DOMNUS, or DOMNIONUS, succeeded him the 1*st* of *November* 676, and died the 11*th* of *April* of the Year 678, after 1 Year, 5 Months, and 10 Days Pontificate.

AGATHON succeeded him the 16*th* of *June* of the Year 678; he was meek, honest, liberal, gracious, and obliging to every Body, without neglecting the Affairs of the Church. He dy'd the 10*th* of *January* of the Year 682, after 3 Years, 6 Months, and 25 Days Pontificate.

Note, That under *Agathon*'s Pontificate, in the Year 680, was assembled, by the Emperor *Constantine Pogonatus*'s Orders, the first Council, call'd *in Trullo*, because the Place of the Assembly was a Hall of the Palace built in Form of a *Cupola*. In the 13*th* Session of that Council, (which is the 6*th* general one in the universal Belief of the Church from that Time to that of *Luther*, and from *Luther* to this, among the *Roman Catholicks*) Pope *Honorius* was anathematiz'd, as having favour'd the Heresy of the *Monothelites*, in his Epistle to *Sergius*, Patriarch of *Constantinople*, and a *Monothelite*; which Condemnation has been a great Subject of Dispute among Authors ever since. This Dispute consists in two Points; the first is, if *Honorius* has been an Heretick, or no: And the second, if the sixth Council has condemn'd him, in Fact; or if the Acts of that Council have been falsified by *Theodorus*, Patriarch of *Constantinople*. 'Tis what Cardinal *Baronius* pretends has happen'd, and which he endeavours to prove in his Annals, with all the Dexterity of his Genius, and with his Eloquence. But it might be said, with all the Respect due to so great a Man, that his Pre-occupation in Favour of the Infallibility of the Popes, and his Zeal for their Authority, have engag'd him to defend *Honorius* against the Reproach of Heresy, and to maintain the Falsification of the Acts of the Council, by *Theodorus*, with more Warmth than Solidity and Sincerity. *Baronius*, to support his Sentiment, writes, that *Theodorus* of *Constantinople* had been anathematiz'd in the 6*th* Council, and that to blot out that Spot, he put the Name of Pope *Honorius*, instead of his; but he does not give the least Proof of that Condemnation, and no Historian has inform'd us of the Reason why *Theodorus* quitted the Patriarchate a little before the Council; besides, there is not the least Appearance that it was for the Heresy of the *Monothelites*, since *George*, who was put in his Place, favour'd that Heresy; and what hinder'd his Deposition was, his renouncing it, and acquiescing to the Decisions of the Council. *Theodorus* did the same Thing, therefore there was no Subject to depose him. But let it be granted that *Theodorus* was deposed, according to *Baronius*'s Sentiment, supported by no Proofs; he had nothing else to do but to blot out his Name from among those of the other Persons who had been condemn'd, because he could have expected that perhaps it could not have been perceiv'd, but to make the Condemnation pronounced against him fall on so eminent a Person as the Bishop of the first See of the *Latin* Church, who had not been mention'd in the Council, had been the most extravagant Enterprize in the World, and the most contrary to his Design, which was of hiding himself, since he had then revolted against him the whole occidental Church; the Examen of *Honorius*'s Letters, and his Condemnation, are found in more than 14 or 15 Places of the Council, there are whole Pages where Mention is made of him, and he is always distinguish'd by his Quality of Pope, and of Bishop of *Rome*. So that *Theodorus* had been oblig'd to falsify not only one Place of the Council, but a great many more. All that can be said on this

Occasion

Occasion in Favour of the Church, is, that there is a great Difference between the Pope and the Church, the Pope being considered by all the *Roman Catholick* Schools as capable of Error, tho' not the Church. The Faculty of Theology of *Paris* is of that Sentiment, and there is nothing determined, yet, for the universal Church, on that Question: Therefore it would be a Temerity in me to do it myself. Pope *Agatho* does not say in his Letter that none of his Predecessors have been Hereticks; but only that *the apostolical Church of* Rome *has never deviated from the Truth.*

LEO II. born in *Sicily*, succeeded *Agatho* in the Year 683. He was very well versed in all Sorts of Sciences, and especially very learned in Musick. He reform'd that of the Church, which was very irregular; took a particular Care of the Orphans, Widows, and Poor, and dy'd with the Reputation of a Saint, the 28*th* of *June* 684, after 1 Year, 10 Months, and 14 Days Pontificate.

BENEDICT II. succeeded him the 10*th* of *August* 684. His Doctrine and Piety raised him to the episcopal Chair, and *Constantine Pogonatus* had so profound a Respect for his Virtue, that he left to the *Roman* Clergy the Liberty of electing their Bishop, without being oblig'd to have Recourse, for the future, to the Authority of the Emperor, or of his Exarch. He dy'd the 7*th* of *May* 685, after 8 Months, and 17 Days Pontificate.

JOHN V. succeeded him the 22*d* or 23*d* of *July* 685. He dy'd the 2*d* of *August* 686, after 1 Year, and 11 Days Pontificate.

CONON succeeded him the 20*th* of *October* 686. He was very virtuous, and dy'd the 13*th* of *October* 687, after 11 Months, and 23 Days Pontificate.

SERGIUS I. succeeded him the 26*th* of *December* 687. He was learned, pious, charitable, and very zealous for the Interest of the Church. He dy'd the 9*th* of *September* 701, after 13 Years, 8 Months, and 14 Days Pontificate. The *Pontifical* observes, that he order'd that at the Time of the Fraction of the Bread for the Communion, there should be sung, *Agnus Dei qui tollis peccata mundi miserere nobis.*

JOHN VI. succeeded him the 30*th* of *October* 701. He dy'd the 10*th* of *January* 705, after 3 Years, 2 Months, and 12 Days Pontificate.

JOHN VII. succeeded him the 1*st* of *March* 705, and dy'd the 18*th* of *October* 707, after 2 Years, 7 Months, and 17 Days Pontificate.

SISINUS succeeded him the 18*th* of *January* 708, and dy'd the 7*th* of *February* of the same Year, after 20 Days Pontificate.

CONSTANTINE I. succeeded him the 7*th* of *March* 708. He was the first Pope whose Feet were kissed by a crown'd Head; for at an Interview he had at *Nice* of *Nicomedia*, with the Emperor *Justinian*, the Emperor, with the Diadem on his Head, prostrated himself, and kissed the Pope's Feet. *Constantine* died the 9*th* of *April* 714, after 6 Years, 1 Month, and 2 Days Pontificate.

GREGORY II. a Deacon, and Library-keeper of the Church, succeeded him the 22*d* of *May* 714. He was a Person of a profound Doctrine, and great Piety. He excommunicated the Emperor *Leo* the *Isaurian*, and dy'd the 11*th* of *February* 731, after 16 Years, 8 Months, and 20 Days Pontificate.

GREGORY III. succeeded him the 16*th* of *February* 731. He was, says the Library-keeper *Anastasius*, a very good and prudent Prelate, very well instructed in the divine Scriptures, a great Preacher, an inviolable Conservator of the *Catholick* and Apostolical Faith, a strenuous Defender and Emulator of the orthodox Doctrine, a Friend of the Poor, a Redeemer of Captives and Prisoners, a Protector of Widows and Orphans, and a Director of those who would live religiously. He dy'd with the Reputation of a Saint, the 28*th* of *November* 741, after 10 Years, 3 Months, and 10 Days Pontificate.

Note, That it was under *Gregory* III's Pontificate that *Iva*, King of the occidental *Saxons* in *England*, establish'd in his Kingdom one Penny out of an hundred on every House, to be paid yearly to the apostolical See; which Penny was call'd, afterwards, St. *Peter's Pence.* It was also the same Pope who gave first, in his Letter to *Charles Martel*, where he implores his Succour against the *Lombards*, the Title of *Most Christian*; which the Kings of *France* have preserv'd ever since, and which they highly deserve, if it was but for their truly royal Generosity for *Christian* Princes in Affliction, who have always fled to the Court of *France* for Refuge, and by whom they have been maintain'd, in all the Splendor and Magnificence agreeable to their high Rank and Dignity. I have seen five of those Princes at once in *France*, one of whom I had the Honour of being intimately acquainted with, *viz.* the late Prince *Ragotzki*, of *Transilvania*; who was pleased to tell me, that the late King *Louis the Great* would often give him more than he wanted, or would accept.

ZACHARIAS succeeded *Gregory* III. the 2*d* or 6*th* of *December* 741. He was illustrious by his Doctrine and Holiness. *Photius* has observ'd, in his *Bibliotheca*, that he translated into *Greek* the four Books of Dialogues of St. *Gregory the Great.* He dy'd the 15*th* of *January* 752, after 10 Years, 3 Months, and 10 Days Pontificate.

STEPHEN II. was elected to supply his Place the 27*th* of *March* 752, but 3 Days after his Election he lost his Speech at once, and dy'd the next, of an Apoplexy.

STEPHEN III. succeeded him the 30*th* of *May* 752. The Tyranny and Violence of the *Lombards* oblig'd him to retire into *France*, where he was receiv'd by King *Pepin* with all the Honour and Respect imaginable. *Anastasius* writes, that the King walk'd by the Pope on Foot, leading his Horse by the Bridle; but there is a very great Appearance that this Author writes rather according to the Custom of his Time, than according to Truth. He dy'd the 26*th* of *April* of the Year 757, after 5 Years, and 20 Days Pontificate.

PAUL I. his Brother, was elected to supply his Place the 28*th* of *May* 757. Under his Pontificate the Pope attain'd to that Pitch of temporal Grandeur he enjoys at present, *proh Dolor!* by the Munificence of *Pepin*, King of *France.*

STEPHEN IV. succeeded him the 5*th* of *August* 758. *Anastasius* says, that he was learned in the sacred Scriptures, perfectly well acquainted with the ecclesiastical Traditions, and persever'd constantly in their Observation. He died the 1*st* of *February* 772, after 3 Years, 5 Months, and 28 Days Pontificate.

ADRIAN, a *Roman* Citizen, succeeded him the 10*th* of *February* 772. He knew how to join Humility with his profound Erudition, and his Mansuetude with his Zeal for the ecclesiastical Discipline. *Eginhart* says, that *Charlemagne* was sensibly afflicted at his Death, and shed Tears for him, as for a very dear Friend, and as if he had lost his Brother, or Son. *William* of *Malmesbury* relates, that he sent Alms as far as *England*, and desir'd the King of the *Mercians* to order that Prayers should be said for him in his Kingdom. He dy'd the 26*th* of *December* of the Year 795, after 23 Years, 10 Months, and 17 Days Pontificate.

LEO III. born at *Rome*, Son of *Asappius*, succeeded him the 17*th* of *December* 795. He was learned, modest, charitable, and compassionate. He crown'd *Charlemagne* Emperor of the West, and dy'd the 12*th* of *June* 816, after 20 Years, 7 Months, and 17 Days Pontificate.

STEPHEN V. of a very noble Family, succeeded him the 22*d* of *June* 816. He came into *France*, where he anointed and crown'd the Emperor *Louis the Gentle*, in the Abbey of St. *Remy* at *Rheims*. *The-*

gan, an Author of those Times, writes, that *Louis* prostrated himself all along on the Ground at the Pope's Feet; and that in getting up he saluted the Pope with these Words of the Psalmist, *Blessed be he that cometh in the Name of the Lord*; and that the Pope answer'd, *Blessed be the Lord our God, who has granted to our Eyes to see a second King* David. *Stephen* dy'd soon after his Return to *Rome*, the 25*th* of *January* 817, after 7 Months, and 3 Days Pontificate.

PASCHALIS I. succeeded him the 27*th* of *January* 817. He was learned, pious, meek, and adorn'd with all the Virtues agreeable to his pastoral Solicitude. He dy'd the 13*th* of *May* 824, after 7 Years, 3 Months, and 16 Days Pontificate.

EUGENE II. succeeded him the 15*th* of *May* 824. *Anastasius* calls him a Man of great Holiness, and full of the Grace of the Holy Ghost. He died the 7*th* of *August* 827, after 3 Years, 2 Months, and 23 Days Pontificate.

VALENTINE succeeded him the 8*th* of *August* 827, and dy'd 40 Days after his Election, the same Year.

GREGORY IV. a *Roman*, succeeded him the 24*th* of *September* 827. A Person, says *Anastasius*, very meek, dextrous, learned, pious, eloquent, firm in his Faith, very well instructed in the divine Letters, the Father of the Poor and of Widows, who desir'd nothing terrestrial, had no Inclination for Things created, and wish'd for nothing but to be in Heaven. He order'd that the Feast of *All Saints*, which was celebrated at *Rome* only, should also be kept throughout the *Christian* World. He dy'd the 25*th* of *January* 844, after 16 Years, and 4 Months Pontificate.

SERGIUS II. a *Roman*, and a Man of Quality, succeeded him the 10*th* of *February* 844. He was yet more considerable, by his Piety and Doctrine, than by his Birth. He was the first who granted Indulgences to those who visited certain Churches; and died the 12*th* of *April* 847, after 3 Years, 2 Months, and some Days Pontificate.

LEO IV. succeeded him the 12*th* of *April* 847. There are some of his Epistles found in the Decretal, and, among the rest, one to the Bishops of *England*, and three others, to *Vernon*, Duke of *Britanny*; to *Charles the Bald*, King of *France*; and to *Ebroin* and *Aldefridus*, Bishops. He dy'd with the Reputation of a Saint, the 17*th* of *July* 855, after 8 Years, 3 Months, and 5 Days Pontificate.

Note, That *Marianus Scot*, or *the Scotch*, places the Death of *Leo* IV. the 7*th* of his Pontificate, and the Fable of the Election of Pope *Joan*. *Sigebert* has wrote it after him, and several modern Authors mention it; but the Historians of that Fable are all to be suspected, and agree neither on the Name of that Popess, nor of her Nation. They relate it in the following Manner: 'An *English* Woman, stolen out of her Country by a Priest who lov'd her, came to live at *Mayence*, where she was deliver'd of a Daughter call'd, afterwards, *Gerberte*. This Daughter having a vast deal of Wit, learn'd the *Belles Lettres* in her Youth, and enter'd, under a Man's Disguise, in the Abbey of *Fulde*. Some Time afterwards she went to *Athens*, where she made so great a Proficiency in the Sciences, and especially in Theology, that returning since to *Rome*, she found but very few Persons who could equal her in Doctrine. This gain'd her such a Reputation, that after *Leo* IV's Death she was elected in his Place, and took the Name of *John* VIII. but God, unwilling to suffer long such a monstrous Impiety, permitted that having been got with Child by her Camerier, she was deliver'd in the open Street, near the *Colisæum*, as she went in Procession; and dy'd on the Spot. Therefore, say they, the Popes never pass thro' that Street; and after the Election of a Pope, he is plac'd on a pierced Chair, to discover his Sex.' This Fable is full of Impertinencies; there are no contemporary Writers who mention it; and *Marianus*, who is the first who speaks of it, is justly suspected, as well as *Sigebert*, of Passion against the Popes. Even those separated from the *Roman* Church, in these last Centuries, have undeceiv'd themselves on that Subject, and consider it as an Imposture. *Blondel*, an eminent Minister, has composed a small Book, on Purpose to refute it, which he does very pertinently. The Authors who relate it contradict one another; some of them give her the Name of *Gilberte*, others call her *Agnes*, *Isabella*, *Margaret*, *Dorothy*; one makes her an *English* Woman born, another a *German*. They do not agree better among themselves on the Name of Papacy she took; one says that it was that of *John* VII. another that of *John* VIII. another that of *John* IX. There is the same Diversity for the Year in which she appear'd; these mark the Year 753, those the following Year, others the Year 857, others 858, and others 859. There are some who assign the Year 654. They differ as much with Regard to the Duration of her Pontificate; one says it lasted a Year, another a Year and four Days; these make it of two Years and a Half, those two Years only; and some four Months. Truth is one, but Falshood cannot agree with itself. I must add, that if that Election had happen'd in the *Roman* Church, *Photius*, who invented so many Calumnies against her, had not forgot an Event so injurious to her. But, however, neither he, nor the Emperor *Michel*, a Favourer of his Schism, and a capital Enemy of the *Roman* Church, say not one Word of it. It is certain, by the Testimony of several irreproachable Authors, that there was no Pope between *Leo* IV. and *Benedict* III. *Nicholas*, in his Epistle to the Synod, says, *Hincmar* has persuaded *Benedict*, at the Beginning of his Consecration, to confirm the Council; and by *Hincmar*'s Answer to *Nicholas* it appears, that *that* Confirmation was made the same Year of *Leo*'s Death. The Words of *Anastasius* are formal; for he says, that as soon as *Leo* was dead, the *Roman* Clergy, Senate, and People, assembled, and proclaim'd *Benedict* Pope. *Ado* says, that *Leo* dying, *Benedict* was substituted.

BENEDICT III. succeeded him in *July* 855. *Anastasius* says, that he was a Man eminent for his Doctrine, sweet in Conversation, pacifick, compassionate, and very humble. He dy'd the 8*th* or 12*th* of *April* of the Year 858, after 2 Years, 6 Months, and some Days Pontificate.

NICHOLAS, call'd *the Great*, succeeded him the 24*th* of *April* 858. *Rheginon* says, that ever since *Gregory the Great* no Pope had been comparable to him; for he commanded over Kings and Tyrants, and brought them under his Authority, as if he had been Lord of the whole Earth. No Pope had carry'd so high as he did, the pontifical Authority in the Church, nor spoke as he did of the Power of the *Roman* See. *Anastasius* writes, that not only several Nations, but even the Elements mourn'd for him at his Death, which happen'd the 13*th* of *November* 867, after 9 Year, 6 Months, and 20 Days Pontificate.

ADRIAN II. succeeded him the 14*th* of *December* 867. He was 75 Years old when elected Pope, but he was much more venerable by his Virtue, than by his Age. He imitated the high Style of his Predecessor *Nicholas*, when he spoke to crowned Heads, which was, perhaps, loftier than became a Successor of the Apostles, who should be meek and humble, and not affect a Power which *Christ* himself had renounced while upon Earth. He dy'd the 1*st* of *November* 872, after 4 Years, 10 Months, and 17 Days Pontificate.

JOHN VIII. succeeded him the 14*th* of *December* 872.

872. He restored to the patriarchal See of *Constantinople*, *Photius*, who had been deposed, and excommunicated in a Council where the Legates of his Predecessors had presided. He dy'd the 15*th* of *December* 882, after 10 Years Pontificate.

MARIN, or MARTIN II. succeeded him the 29*th* of *December* 882. He gave singular Marks of his prudent Conduct, of his Zeal for the Advantage of the Church, and of his solid Piety. He dy'd the 18*th* of *January* 884, after 1 Year, and 2 Days Pontificate.

ADRIAN III. succeeded him the 20*th* of *January* 884. He refused, with a great Constancy, his Communion, to *Photius* of *Constantinople*; and dy'd the 9*th* of *May* 885, after 1 Year, 3 Months, and 19 Days Pontificate.

STEPHEN VI. succeeded him the 27*th* of *May* 885. He acquir'd, by his Virtues, the Title of most holy and generous Extirpator of all Vices. He maintain'd the Interest of the Church against *Basil* the *Macedonian*, Emperor of the East, and dy'd the 21*st* of *May* 890, after 6 Years, and some Days Pontificate.

FORMOSUS succeeded him the 31*st* of *May* 890. He was a very good Prelate, persecuted during his Life, and even after his Death; which happen'd the 14*th* of *December* 896, after 6 Years, and very near 6 Months Pontificate.

STEPHEN VII. succeeded him the 14*th* of *December* 896, or the 8*th* of *January* 897. He condemn'd, thro' an Excess of Rigour, the Memory of Pope *Formosus*, and dy'd the 8*th* of *January* 900, after 3 or 4 Years Pontificate.

THEODORE II. succeeded him in the Year 901. His Pontificate lasted but 20 Days, and he dy'd the same Year.

JOHN IX. succeeded him in the Year 901. He annull'd all that had been done against the Memory of Pope *Formosus*, and condemn'd the Election of *Boniface* VII. He dy'd in the Year 905, after 3 Years, and 15 Days Pontificate.

BENEDICT IV. succeeded him in the Year 905, and dy'd in the Year 905, or 906, after some Months Pontificate.

LEO V. succeeded him in the Year 905, or 906, and occupied but 40 Days St. *Peter*'s Chair.

CHRISTOPHER succeeded him in the Year 906, and was confin'd in a Monastery, after 7 Months Pontificate.

SERGIUS III. succeeded him in the Year 907. He was dissolute, and vicious. He dy'd in the Year 910, after 3 Years, and 4 Months Pontificate.

ANASTASIUS III. succeeded him in the Year 910. He govern'd the Church with a great deal of Prudence, and liv'd without Reproach. He dy'd in the Year 912, after 2 Years, and 20 Days Pontificate.

LANDON succeeded him in the Year 912, the 28*th* of *December*. His Pontificate lasted but 2 Months, according to some; or 4 Months, and 22 Days, according to others.

JOHN X. succeeded him the 24*th* of *January* 913. He took a great Care to expel the *Saracens* from the Dominions of the Church, and defeated them in 915. He dy'd in the Year 928, after 15 Years, and very near 3 Months Pontificate.

LEO VI. succeeded him in the Year 928. He govern'd the Church but 6 Months, and 15 Days, dying the Beginning of *November* 929.

STEPHEN VIII. succeeded him in the Year 929. He was extremely virtuous, and died the 8*th* of *December* 931, after 2 Years, 1 Month, and 15 Days Pontificate.

JOHN XI. succeeded him in the Year 931. He dy'd in the Year 936, after 4 Years, and 10 Months Pontificate.

LEO VII. succeeded him in the Year 936. He loved Peace and Justice, and govern'd with a great deal of Clemency. He dy'd the 6*th* of *June* 939, after 3 Years and a Half Pontificate.

STEPHEN IX. succeeded him the 7*th* of *June* 939, and died at the Beginning of the Year 943, after 3 Years, 4 Months, and 5 Days Pontificate.

MARIN, or MARTIN III. succeeded him the 4*th* of *February* 943. He reform'd the Clergy, repair'd the Churches, took Care of the Poor, and forgot none of the Duties of a good Prelate. He died the 14*th* of *May* 946, after 3 Years, 4 Months, and 13 Days Pontificate.

AGAPET II. succeeded him in the Year 946. He convok'd several Synods for the Affairs of the Church, and dy'd the 27*th* of *December* 955, after 9 Years, 7 Months, and 10 Days Pontificate.

JOHN XII. succeeded him in the Year 955. He was call'd, before, *Octavian*; and took, then, the Name of *John*. Ever since, the Popes have almost always chang'd their Names. He dy'd the 14*th* of *May* 964, after 9 or 10 Years Pontificate.

BENEDICT V. succeeded him in the Year 964. He was persecuted by the Emperor *Otho*, who sent him Prisoner to *Hamburg* in *Germany*; where he dy'd the 10*th* of *June* 965, after 1 Year's Pontificate.

JOHN XIII. succeeded him in the Year 965. He establish'd the blessing of Bells, and his Conduct was esteem'd a little too severe. He dy'd the 18*th* of *September* 972, after 6 Years, 11 Months, and 15 Days Pontificate.

DOMNUS, or DOMNIONUS II. succeeded him the 20*th* of *September* 972. He liv'd but 3 Months after his Election, and dy'd the 19*th* of *December* of the same Year.

BENEDICT VI. succeeded him the 20*th* of *December* 972, and dy'd in the Year 974, after 1 Year, 3 Months, and some Days Pontificate.

BENEDICT VII. succeeded him the 11*th* of *May* 975. He govern'd very well the Church, and his rare Virtues made him belov'd of every Body. He died the 10*th* of *July* 984, after 9 Years Pontificate.

JOHN XIV. succeeded him in the Year 984. He dy'd the 20*th* of *August* 985, after 1 Year, and some Months Pontificate.

JOHN XV. succeeded him in the Year 985, and dy'd the 7*th* of *May* 996, after 10 Years, 4 Months, and 12 Days Pontificate.

GREGORY V. succeeded him the 13*th* of *July* 996. 'Tis imagin'd, that in the first Synod he assembled, he caused to be publish'd a Bull, or Constitution for the Electors of Emperors. He dy'd the 18*th* of *February* 999, after 2 Years, 8 Months, and 6 Days Pontificate.

SILVESTER II. succeeded him in the Year 999. He was a *Frenchman* born, call'd *Gerbert*, of the Order of St. *Benedict*. He had a very bright Genius, was perfectly well versed in Mathematicks and other Sciences. He is praised by the best Authors of his Time, and calumniated 80 Years after his Death by schismatical Writers. He dy'd the 12*th* of *May* 1003, after 4 Years, and 2 or 3 Months Pontificate.

JOHN XVI. succeeded him the 7*th* of *June* 1003. Some say, that in his Time the Election of Pope was taken from the People, to be entirely given to the Clergy. He dy'd in the Year 1003, after 5 Months Pontificate.

JOHN XVII. succeeded him the 20*th* of *November* 1003. He procur'd the Union of the *Greek* Church with the *Latin*, and dy'd the 18*th* of *July* 1009, after 5 Years, 7 Months, and 18 Days Pontificate.

SERGIUS IV. succeeded him the 31*st* of *August* 1009. He was learned, and charitable; and died the 13*th* of *May* 1012, after 2 Years, 8 Months, and 13 Days Pontificate.

BENEDICT VIII. of the House of the Earls of *Tusculano*, succeeded him the 7*th* of *June* 1012. He expell'd the *Saracens* and *Greeks*, who had render'd themselves Masters of Part of *Italy*. He dy'd the 27*th* of *February* 1024, after 11 or 12 Years Pontificate.

JOHN XVIII. succeeded him the 30*th* of *April* 1024. He was Son of *Gregory*, Earl of *Tusculano*, and Brother of *Benedict* VIII. He dy'd the 8*th* of *November* 1033, after 9 Years, and 8 Months Pontificate.

BENEDICT IX. succeeded him in the Year 1033. He was Son of *Alberic*, Earl of *Frescati*. He abdicated his Dignity, not so much by a Principle of Virtue, as thro' Fear, in the Year 1044, after 10 Years, and some Months Pontificate.

GREGORY VI. call'd, before, *John Gratian*, succeeded him the End of *April* 1044. He dy'd in the Year 1046, after 2 Years, and 8 Months Pontificate.

CLEMENT II. a *Saxon* born, call'd *Suidger*, or *Suinger*, succeeded him in the Year 1046. He was made Pope at the Council of *Sutri*. He assembled a Council at *Rome*, to retrench Simony, and other Abuses committed in the Church; and dy'd the 9*th* of *October* 1047, after 10 Months Pontificate.

DAMASUS II. call'd *Popon*, succeeded him the 17*th* of *July* 1048. He dy'd 23 Days after his Election, in the same Year.

LEO IX. call'd, before, *Brunon*, of the House of the Earls of *Asbourg*, succeeded him the 12*th* of *February* 1049. He was eminent for his Science and Piety, and has merited a Place in the Catalogue of Saints. He dy'd the 16*th* of *April* 1054, after 5 Years, 2 Months, and 7 Days Pontificate.

VICTOR II. call'd, before, *Gebehard*, a *German*, succeeded him the 13*th* of *April* 1055. He contributed all in his Power towards procuring an Union of the *Christian* Princes. He dy'd the 28*th* of *July* 1057, after 2 Years, 3 Months, and 15 Days Pontificate.

STEPHEN X. call'd *the Great*, Brother of *Godfrey* Duke of *Lorrain*, succeeded him the 2*d* of *August* 1057. He was learned, wise, and very pious. He dy'd with the Reputation of a Saint, the 28*th* of *April* 1058, after 8 Months Pontificate.

NICHOLAS II. call'd *Gerard of Burgundy*, a *Frenchman*; or, according to others, a *Savoyard*, succeeded him in the Year 1059. He appeased several Troubles in the City of *Rome*, and in the ecclesiastical State, by his Prudence and good Conduct; and dy'd the 3*d* of *July* 1061, after 2 Years, and 6 Months Pontificate.

ALEXANDER II. call'd before *Anselme*, born in the *Milanese*, succeeded him the first of *October* 1061. He favour'd *William the Conqueror*, Duke of *Normandy*, in his Conquest of *England*, and dy'd with the Reputation of a Saint, the 22*d* of *April* 1073, after 11 Years, 6 Months, and 22 Days Pontificate.

GREGORY VII. call'd, before, *Hildebrant*, succeeded him the 22*d* of *April* 1073. His Life was irreproachable and exemplary, tho' he be accused by some Authors of having been bold, enterprizing, and haughty, because he began to assert the Authority of the *Roman* See. He dy'd the 25*th* of *May* 1085, after 12 Years, 1 Month, and 3 Days Pontificate.

VICTOR III. call'd *Didier*, born at *Benevent*, and Abbot of *Montcassin*, succeeded him the 24*th* of *May* 1086. His sole Merit raised him to the highest Posts. He had a great deal of Piety and Erudition. He dy'd the 16*th* of *September* 1087, after 1 Year, 3 Months, and 24 Days Pontificate.

URBANUS II. was a *Frenchman*, of the House of *Chastillon* on the *Marne*. He had been a Monk of the Order of St. *Benedict*, and was elected the 12*th* of *March* 1088. He govern'd the Church with a great deal of Judgment and Piety, and dy'd the 29*th* of *July* 1099, after 11 Years, 4 Months, and 8 Days Pontificate.

PASCHAL II. call'd *Rainier*, born in *Tuscany*, succeeded him the 12*th* of *August* 1099. He was humble, pious, vigilant, and full of Courage to maintain the Rights of the Church. He dy'd the 12*th* of *January* 1118, after 18 Years, 5 Months, and some Days Pontificate.

GELASIUS II. call'd *John*, born at *Gayeta*, of the Order of St. *Benedict*, succeeded him the 25*th* or 26*th* of *January* 1118. He was pious, virtuous, and learned. He dy'd the 29*th* of *January* 1119, after 1 Year, and 4 Days Pontificate.

CALISTUS II. call'd, before, *Guy of Burgundy*, was the 5*th* Son of *William the Great*, Earl of *Burgundy*. He was elected in the Month of *February* 1119, and was learned, pious, modest, humble, just, and one of the greatest Popes that has govern'd the Church. He dy'd the 13*th* of *December* 1124, after 5 Years, 10 Months, and 13 Days Pontificate.

HONORIUS II. call'd *Lambert*, succeeded him the 21*st* of *December* 1124. He was humble, pious, vigilant, and firm in his Designs. He dy'd the 14*th* or the 24*th* of *February* 1130, after 5 Years, and very near 2 Months Pontificate.

INNOCENT II. call'd *Gregory Papareſus*, succeeded him the 14*th*, or the 24*th* of *February* 1130. He was wise, pious, skilful, and very zealous for the Church. He dy'd the 24*th* of *September* 1143, after 13 Years, 7 Months, and 10 Days Pontificate.

CELESTINUS II. call'd *Guy du Chatel*, succeeded him the 25*th* of *September* 1143. He dy'd the 8*th* of *March* 1144, after 5 Months, and 13 Days Pontificate.

LUCIUS II. call'd, before, *Gerrard of Caccianimici*, born at *Bologna*, succeeded him the 14*th* of *March* 1144. He had Wit, Judgment, Prudence, Learning, and Piety; and dy'd the 25*th* of *February* 1145, after 11 Months, and 14 Days Pontificate.

EUGENE III. call'd *Peter Bernard*, born at *Pisa*, a Monk of the Order of *Cisteaux*, was elected the 25*th* of *February* 1145. He was prudent, learned, vigilant, and very pious. He dy'd the 8*th* of *July* 1153, after 8 Years, 4 Months, and 13 Days Pontificate.

ANASTASIUS IV. a *Roman*, call'd *Conrad*, and a regular Canon of the Order of St. *Augustine*, succeeded him the 9*th* or 10*th* of *July* 1153. He had Probity, Prudence, and Conduct; and was very liberal to the Poor. He dy'd the 2*d* of *December* 1154, after 1 Year, 4 Months, and 24 Days Pontificate.

ADRIAN IV. an *Englishman*, call'd *Nicholas Hastifragus*, or *Break-spear*, succeeded him in the Year 1154. He was very wise, vigilant, couragious, just, learned, and very zealous for the Interest of the Church, of which he was the invincible Defender. He dy'd the first of *September* 1159, after 4 Years, 8 Months, and 9 Days Pontificate.

ALEXANDER III. born at *Sienna*, call'd *Rowland Rainuci*, succeeded him the 5*th* or 6*th* of *September* 1159. He dy'd the 27*th* of *August* 1181, after 21 Years, 11 Months, and 21 Days Pontificate.

LUCIUS III. born at *Lucca*, call'd *Humbaldo Allucingoli*, of a noble Family, succeeded him the 29*th* of *August* 1181, and dy'd the 25*th* of *November* 1185, after 4 Years, 2 Months, and 18 Days Pontificate.

URBANUS III. call'd *Lambert Crivelli*, Archbishop of *Milan*, succeeded him the 25*th* of *November* 1185, and dy'd of Sorrow for the taking of *Jerusalem* by *Saladin*, the 20*th* of *October* 1187, after 10 Months, and 25 Days Pontificate.

GREGORY VIII. call'd *Albert* of *Mora*, born at *Benevent*, succeeded him the 6*th* of *January* 1188. He dy'd the 25*th* of *March* 1191, after 3 Years, 2 Months, and 10 Days Pontificate.

CELESTINUS III. call'd *Hyacint Bobo*, succeeded him the 12*th* of *April* 1191. He died the 8*th* of *January* 1198, after 6 Years, 2 Months, and 28 Days Pontificate.

INNOCENT III. of the House of the Earls of *Segny*, or *Signie*, succeeded him the 12*th* of *January* 1198. He dy'd the 16*th* of *July* 1215, after 18 Years, 6 Months, and 9 Days Pontificate.

HONORIUS III. a *Roman*, call'd before *Cencius Savelli*, succeeded him the 17*th* of *July* 1215. He dy'd the 18*th* or 19*th* of *March* 1227, after 10 Years, and 8 Months Pontificate.

GREGORY IX. call'd *Hugolin*, or *Hugetin*, of the House of the Earls of *Segny*, succeeded him the 21*st* of *March* 1227. He dy'd the 22*d* of *August* 1241, after 14 Years, 5 Months, and 3 Days Pontificate.

CELESTINUS IV. call'd *Geofroy*, of the House of *Castiglione* of *Milan*, succeeded him the 22*d* of *September* 1241. He dy'd the 8*th* of *October* of the same Year, after 18 Days Pontificate.

INNOCENT IV. born at *Genoa*, call'd *Sinibal*, of the

the House of *Fiesque*, of the Earls of *Lavagno*, succeeded him the 24*th* of *June* 1243, and dy'd the 7*th* of *December* 1254, after 11 Years, 5 Months, and 14 Days Pontificate.

ALEXANDER IV. of the House of the Earls of *Signie*, succeeded him the 21*st* of *December* 1254. He was prudent, judicious, and full of Wit. He died the 25*th* of *May* 1261, after 6 Years, 5 Months, and 4 Days Pontificate.

URBANUS IV. a *Frenchman*, call'd *James Pantaleon*, succeeded him the 29*th* of *August* 1261. He dy'd the 2*d* of *October* 1264, after 3 Years, 1 Month, and 4 Days Pontificate.

CLEMENT IV. a *Frenchman*, call'd *Guy le Gros*, succeeded him the 5*th* of *February* 1265. He dy'd the 29*th* of *November* 1268, after 3 Years, 9 Months, and 25 Days Pontificate.

Note, That *Clement* IV. being dead at *Viterbo*, the Cardinals were 2 Years without being able to agree on the Election of a Successor; and Things were carried to such a Pass, that they were upon the Point of breaking up without being able to come to any Conclusion at all. The Inhabitants of *Viterbo* being appriz'd of their Design, by the Advice of St. *Bonaventure*, then at *Viterbo*, shut the Gates of their City, and lock'd up the Cardinals in the pontifical Palace adjoining to the Cathedral, till they were brought to a better Understanding. Hence arose the Custom which has since prevail'd, of shutting up the Cardinals in a single Palace, till they have elected the Pope. Such was the Origin of what has been since call'd *Conclave*; which Name is also given to the Place wherein the Election of the Pope is perform'd, which is now at St. *Peter*'s, in the *Vatican*; tho' *Gregory* X. and *Clement* V. appointed it should always be held in the Place where the last Pope should die. While the Affair is in Hand, if it be in Winter, the Walls and Windows are all mur'd up, excepting a single Pane, to give a little Light. In Summer, the Windows are not clos'd, but the great Door of the Hall is secured with 4 Locks, and 4 Bolts, an Aperture being left, however, to supply the imprison'd Prelates with Victuals. In the Hall, which is very ample, there are Cells, or Stalls, erected for as many Cardinals as are to be present at the Election; the Cells being only separated by Deal Boards. The Cells are mark'd with the Letters of the Alphabet, and are distributed to the Cardinals by Lot: Each Cardinal puts his Arms on the Cell that falls to his Share. After the Assembly has continu'd 3 Days, they are only allow'd one Dish for a Meal; after 5 Days, only Bread and Water; tho' this Rule is not over-religiously regarded. Each Cardinal is allow'd two *Conclavists*, or Servants, to attend him, and to be shut up with him. It is a popular Proverb in *Italy*, *Chi entra Papa, esce Cardinale*; he who enters Pope, comes out Cardinal; *q. d.* he who, according to common Report, will be elected Pope, ordinarily is not. That Election is perform'd by the Cardinals four different Ways: The first by the holy Spirit, as they call it; when the first Cardinal who speaks having given his Vote for any Person, proceeds to the Adoration, and proclaims him Pope, as by a sudden Inspiration of the Holy Ghost; in which Case he is deem'd duly elected, if all, or at least two Thirds of the Assembly be consenting thereto. The second by Compromise, when the whole College pitches on three Cardinals, to whom they give a Power of nominating the Pope; which Power expires upon the burning out of a Candle lighted on that Occasion. The third by Way of Poll, or Scrutiny, which last is the most usual; the Cardinals throwing seal'd Tickets, wherein their Votes are written, into a Chalice, or Cup, plac'd on the Altar. Two Thirds of the Votes are requir'd to determine an Election by Scrutiny. The fourth is by Way of Accession, when the Votes being too much divided to elect any Body, some of the Cardinals desist from their first Suffrage, and accede, that is, give their Voices to him who has already the Majority by Scrutiny. The Way of Accession, however, is always added to the Scrutiny; it being the constant Practice for all the Cardinals to give their Voices after the last Scrutiny, to him whom they find to have the Plurality already. So that all Elections of Popes are with the unanimous Consent of all the Cardinals, which Cardinals are ecclesiastical Princes, who compose the Pope's Council, or Senate. In their first Institution they were only the principal Priests, or Incumbents of the Parishes of *Rome*; in the primitive Church, the chief Priest of a Parish, who immediately follow'd the Bishop, was call'd *Presbyter Cardinalis*, to distinguish him from the other inferior Priests, who had no Church, nor Preferment. The Term was first apply'd to them in the Year 150; others say, under Pope *Silvester*, in the Year 300. These *Cardinal Priests* were alone allow'd to baptize, and administer the Eucharist. When the *Cardinal Priests* became Bishops, their *Cardinalate* became vacant, they being then supposed to be raised to a higher Dignity. Under Pope *Gregory*, *Cardinal Priests*, and *Cardinal Deacons*, were only such Priests or Deacons as had a Church or Chappel under their Care; and this was the original Use of the Word. *Leo* IV. in the Council of *Rome* held in 853, calls them *Presbyteros sui Cardinis*; and their Churches, *Pariochias Cardinales*. The Cardinals continu'd on this Footing till the 11*th* Century; but as the Grandeur and State of his Holiness became exceedingly augmented, he would have his Council of *Cardinals* make a better Figure than the antient had done. It is true, they still preserv'd their antient Titles; but the Thing express'd by it was no more. It was a good while, however, e're they had the Precedence over Bishops, or got the Election of the Pope into their Hands; but when they were once possessed of those Privileges, they soon had the red Hat, and Purple; and growing still in Authority, became at length superior to the Bishops, by the sole Quality of being Cardinals. More of this under the Title *Clergy*.

GREGORY X. born at *Placentia*, of the Family of the *Visconti*, succeeded *Clement* IV. the first of *September* 1271. He dy'd the 10*th* of *January* 1276, after 4 Years, 4 Months, and 10 Days Pontificate.

INNOCENT V. call'd before *Peter* of *Tarantaise*, a Friar of the Order of St. *Dominick*, was elected the 21*st* of *January* 1276. He dy'd the 22*d* of *June* of the same Year, after 5 Months, and 5 Days Pontificate.

ADRIAN V. born at *Genoa*, call'd *Othoboni* of *Fiesque*, succeeded him the 11*th* or 12*th* of *July* 1276. He dy'd the 39*th* Day after his Election.

JOHN XIX. call'd *John Peter*, Cardinal of *Frascati*, born at *Lisbon* in *Portugal*, succeeded him the 13*th* of *September* 1276. He dy'd the 20*th* of *May* 1277, after 8 Months, and 8 Days Pontificate.

NICHOLAS III. a *Roman*, call'd *John Cajetan*, of the House of *Urbini*, succeeded him the 25*th* of *November* 1277, and dy'd the 22*d* of *August* 1280, after 2 Years, 9 Months, and 3 Days Pontificate.

MARTIN IV. a *Frenchman*, call'd *Simon de Brie*, succeeded him the 22*d* of *February* 1281. He dy'd with the Reputation of a Saint, the 28*th* of *March* 1285, after 4 Years, 1 Month, and 7 Days Pontificate.

HONORIUS IV. call'd *James Savelli*, born at *Rome*, succeeded him the 2*d* of *April* 1285. He dy'd the 3*d* of *April* 1287, after 2 Years, and 1 Day Pontificate.

NICHOLAS IV. call'd *Father Jerom*, of the Order of St. *Francis*, succeeded him the 22*d* of *February* 1288. He granted several very great Privileges to the Order of St. *Francis*, which the secular Clergy, and Bishops in particular, have often complain'd of since. He died the 4*th* of *April* 1292, after 4 Years, 1 Month, and 14 Days Pontificate.

CELESTINUS V. call'd *Peter* of *Mourrhon*, Institutor

tutor of the Order of the *Celestines*, succeeded him the *5th* of *July*, 1294; he was a very pious Man, more proper for a solitary Life, than for the Affairs of this World; therefore he abdicated voluntarily the Pontificate, the *13th* of *December* of the same Year, after he had governed the Church 5 Months and 3 Days.

BONIFACE VIII. called *Benedict Cajetan*, succeeded him the *24th* of *December*, 1294; he was bold, haughty, and ambitious: He had the Insolence to excommunicate *Philip the Fair*, King of *France*, and the criminal Presumption to give his Kingdom to the first Invader. It was said of him, that *he entered the Church like a Fox, reigned like a Lion, and died like a Dog*, at *Avignon*, where he had been made Prisoner by the Army *Philip the Fair* had sent against him; which fatal Catastrophe happened the *11th* of *October*, 1303, after 8 Years, 9 Months, and 18 Days Pontificate.

BENEDICT XI. called *Nicolas Bocasin*, of the Order of St. *Dominick*, succeeded him the *22d* of *October*, 1303; he render'd himself illustrious by his profound Piety, Prudence, and good Conduct: He revok'd the Sentence of Excommunication, fulminated by his Predecessor against the King of *France*, and died with the Reputation of a Saint, the *6th* or *7th* of *July* 1304, after 8 Months and 17 Days Pontificate.

CLEMENT V. a *Frenchman*, called *Bernard de Hout*, or *Dagout*, succeeded him the *5th* of *June*, 1305; he had Wit, Learning, and Judgment; he established his Seat at *Avignon*, and died the *20th* of *April* 1314, after 8 Years, 10 Months, and 16 Days Pontificate.

JOHN XX. a *Frenchman*, called *D'ossa*, whose Extraction is not known, and therefore supposed very mean, succeeded him the *17th* of *August* 1316; he was raised to the pontifical Chair for his great Merit; but he is accused of having favoured the Errors of the Millenaries. He died the *4th* of *December* 1334, after 18 Years, 3 Months, and 28 Days Pontificate.

BENEDICT XII. of the Order of *Cisteaux*, a *Frenchman* born, called *James Fournier*, or *Dufour*, succeeded him the *20th* of *December* 1334. He died the *25th* of *April* 1342, after 7 Years, 4 Months and 6 Days Pontificate.

CLEMENT VI. a *Frenchman*, called *Peter Roger*, a Monk of the *Chaize-Dieu*, in *Auvergne*, succeeded him the *7th* of *May*, 1342; he was learned, judicious, and had a prodigious Memory; for which he was indebted to a great Blow he had received on the Head. He died the *6th* of *December*, 1352, after 10 Years, 6 Months and 29 Days Pontificate.

INNOCENT VI. a *Frenchman*, called *Stephen Dalbret*, succeeded him the *18th* of *December* 1352; he apply'd himself to the Reformation of the Manners of his Court, and wanted to have *Petrarque* for his Secretary; but that learned Man excused himself on Account of his great Age. He died the *12th* of *September* 1362, after 9 Years, 8 Months, and 16 Days Pontificate.

URBANUS V. a Benedictine Monk, and a *Frenchman*, called *William of Grisac*, succeeded him the *28th* of *October*, 1362, and died with the Reputation of a Saint, the *19th* of *December* 1370, after 8 Years, 1 Month and 23 Days Pontificate.

GREGORY XI. called *Peter Roger*, of the House of *Beaufort*, a *Frenchman*, succeeded him the 30th of *December*, 1370; he rendered himself illustrious by his Learning and Piety. St. *Catherine* of *Sienna*, came to him at *Avignon*, in the Year 1376, and the Year following he returned to *Rome*, and brought back to it the apostolical Chair, which had been transferred to *Avignon* 72 Years. He did the *27th* of *March* 1378, after 7 Years, 2 Months and 23 Days Pontificate.

URBANUS VI. called *Martinus Pregnani*, born at *Naples*, succeeded him the *8th* of *April* 1378; he was learned, haughty, and severe; and his Severity, says *Sponde*, was the Cause of the Schism which happened under his Pontificate. He died in the Month of *October* 1389, after 11 Years, 6 Months and 8 Days Pontificate.

BONIFACE IX. called *Peter Thomacelli*, born at *Naples*, of a noble Family, succeeded him the *2d* of *November* 1389; he instituted the Annates on Benefices. He died the *1st* of *October*, 1404, after 14 Years and 11 Months Pontificate.

INNOCENT VII. called *Cosmo Meliorati*, succeeded him the *17th* of *October* 1404, and died the *6th* of *November* 1406, after 2 Years and 22 Days Pontificate.

GREGORY XII. born at *Venice*, called *Ange Corario*, or *Coratio*, succeeded him the *30th* of *November* 1406, and was depos'd in a Council the *5th* of *June* 1409, after 2 Years, 6 Months and 5 Days Pontificate.

ALEXANDER V. called *Peter Philargie*, of the Order of St. *Francis*, succeeded him the *16th* of *June*, 1409; he was so liberal to Persons of Merit, and to the Indigent, that he reserved nothing for himself, but the Desire of doing good; and had so great a Capacity and Merit, that he surpassed all the Hopes which had been conceived of him. He died the *23d* of *May* 1410, after 10 Months and 8 Days Pontificate. This Pontiff used to say to his Friends, *I have been a rich Bishop, a poor Cardinal, and a mendicant Pope.*

JOHN XXI. called *Balthazar Cossa*, of *Naples*, succeeded him the *17th* of *May*, 1410; he had Wit, Courage, and a great Constancy in his Adversities; and tho' he had sacrific'd all his Revenues to procure the Peace of the Church, he was deposed, in the Council of *Constance*, the *29th* of *May* 1415, after 5 Years Pontificate.

MARTIN V. called *Otho*, or *Eudes Colonna*, succeeded him the *11th* of *November* 1417. He died the *20th* of *February* 1431, after 13 Years, 3 Months and 12 Days Pontificate.

EUGENE IV. a *Venetian*, called *Gabriel Gondolmeiro*, succeeded him the *3d* of *March*, 1431. under his Pontificate the *Greeks* embraced the Belief of the *Latins*, and the *Armenians*, with the *Æthiopians*, followed their Example. He died the *25th* of *February* 1447, after 15 Years, 11 Months, and 16 Days Pontificate.

NICOLAS V. called *Thomas Sazzano*, succeeded him the *6th* of *March* 1447; he procured the Peace of the Church, and ended the Schism too, whereby it was lacerated. He died of Sorrow for the taking of *Constantinople* by the *Turks*, the *24th* of *March*, 1455, after 8 Years and 19 Days Pontificate.

CALISTE III. called *Alphonso of Borgia*, a *Spaniard*, succeeded him the *8th* of *April* 1455. He died the *6th* of *August* 1458, after 3 Years, 3 Months, and 19 Days Pontificate.

PIUS II. called *Bartholomew Picolomini*, succeeded him the *19th* of *August* 1458. He died the *14th* of *August* 1464, after 5 Years, 11 Months, and 27 Days Pontificate.

PAUL II. called *Peter Barbo*, succeeded him the *28th* of *August* 1464. He died the *25th* of *July*, 1471, after 6 Years, 10 Months, and 26 Days Pontificate.

SIXTUS IV. called *Francis de la Roüere*, of the Order of St. *Francis*, succeeded him the *9th* of *August*; he was so liberal, that he refused nothing of what was asked him. He died the *13th* of *August* 1484, after 13 Years and 5 Days Pontificate.

INNOCENT VIII. a *Genoese*, called *John Baptiste Cibo*, succeeded him the *29th* of *August* 1484, and died the *25th* of *July* 1492, after 7 Years, 10 Months, and 27 Days Pontificate.

ALEXANDER VI. of the House of *Borgia*, succeeded him the *11th* of *August* 1492; he had some very great Perfections, mixed with Imperfections and Vices. He died the *18th* of *August* 1503, after 11 Years and 8 Days Pontificate.

PIUS III. called *Francis Todeschini*, succeeded him the *22d* of *September* 1503. He died the *18th* of *October*, of the same Year, after 26 Days Pontificate.

JULIUS II. of the House of *La Roüere*, succeeded him the *31st* of *October* 1503; he was vigilant, laborious, magnificent, but of an impetuous Spirit; he began the new Church of St. *Peter*; and died the *21st* of *February* 1513, after 9 Years, 3 Months, and 21 Days Pontificate.

Leo X. of the House of *Medicis*, succeeded him the 11*th* of *March* 1513; he was learned, Friend and Protector of the Learned, liberal and magnificent, but a little too profuse of Indulgences; he condemned the Doctrine of *Luther*, in 1520, finished the Church of St. *Peter*, and died the 2*d* of *December* 1521, after 9 Years, and 20 Days Pontificate.

Adrian VI. a *Dutchman*, called *Florent*, succeeded him the 9*th* of *January* 1522; he had been Tutor of *Charles* V. Emperor. He died the 14*th* of *September* 1523, after 1 Year, 8 Months, and 6 Days Pontificate.

Clement VII. of the House of *Medicis*, succeeded him the 29*th* of *November* 1523; he had formed vast Designs for the Good of the Church, but could not put them in Execution, because of the great Calamities *Christendom* was afflicted with during his Pontificate. He died the 26*th* of *September* 1534, after 10 Years, 10 Months, and 7 Days Pontificate.

Paul III. a *Roman*, called *Alexander Farnese*, succeeded him the 13*th* of *October* 1534; in his Time *Calvin* published his *Institution*. *Paul* opened the Council of *Trent*, in the Year 1545, which ended in 1569; he died the 10*th* of *November* 1543, after 15 Years and 28 Days Pontificate.

Julius III. a *Roman*, called *John Mary du Mont*, succeeded him the 8*th* of *February* 1550; he was firm, intrepid, and severe. He died the 23*d* of *March* 1555, after 5 Years, 1 Month, and 16 Days Pontificate.

Marcellus II. called *Marcellus Cervin*, succeeded him the 9*th* of *April* 1555. He died 21 Days after his Election, the 30*th* of the same Month.

Paul IV. called *John Peter Caraffa*, succeeded him the 25*th* of *May* 1555; he expelled from *Rome* his Nephews, who abused his Authority; and died the 18*th* of *August* 1559, after 4 Years, 2 Months, and 24 Days Pontificate.

Pius IV. a *Milanese*, called *Ange Medicis*, or *Mediquin*, succeeded him the 26th of *December* 1559. He died the 9*th* of *December* 1565, after 5 Years, 11 Months, and 15 Days Pontificate.

Pius V. called *Michael Gisleri*, of the Order of St. *Dominick*, succeeded him the 7*th* of *January* 1565; he was vigilant, laborious, learned, just, gentle, charitable, very pious, and very religious. He died the Death of the Elect, the 1*st* of *May* 1572, after 6 Years, 3 Months, and 24 Days Pontificate.

Gregory XIII. of *Bologna*, called *Hugues Boncompagno*, succeeded him the 13*th* of *May* 1572; and died the 10*th* of *April* 1585, after 12 Years, 10 Months, and 29 Days Pontificate.

Sixtus V. called *Felix Peretti*, of the Order of St. *Francis*, succeeded him the 24*th* of *April* 1585; he was vigilant, laborious, learned, eloquent, pious, just, severe, an Enemy to Vices, and Friend to Virtue, to Letters, and to the Learned, and full of Wit. He excommunicated *Henry* III. King of *France*, for the Massacre of the Duke of *Guise* at *Blois*, and fulminated a *Monitoire* against him. He died the 27*th* of *August* 1590, after 5 Years, 4 Months, and 3 Days Pontificate.

Urbanus VII. a *Roman*, called *John Baptist Castanea*, succeeded him the 15*th* of *September* 1590, and died 13 Days after his Election, the 23*d* of *September*, of the same Year 1590.

Gregory XIV. born at *Milan*, called *Nicolas Fondrate*, succeeded him the 5*th* of *December* 1590. He died the 15*th* of *October* 1591, after 10 Months and 10 Days Pontificate.

Innocent IX. of *Bologna*, called *John Anthony Fachineti*, succeeded him the 29*th* of *October* 1591, and died the 30*th* of *December* of the same Year, 2 Months after his Election.

Clement VIII. called *Hipolitus Aldobrandini*, succeeded him the 30*th* of *January* 1592. He died the 3*d* of *March* 1605, after 13 Years, 1 Month, and 3 Days Pontificate.

Leo XI. of *Florence*, of the House of *Medicis*, but not of that of the Great Duke of *Tuscany*, succeeded him the 1*st* of *April* 1605, and died the 27*th* of the same Month, in the same Year.

Paul V. born at *Sienna*, called *Camillus Borghese*, succeeded him the 17*th* of *May* 1605. He died the 28*th* of *January* 1621, after 15 Years, 8 Months, and 12 Days Pontificate.

Gregory XV. called *Alexander Ludovisio*, succeeded him the 9*th* of *February* 1621. He died the 8*th* of *July* 1623, after 2 Years and 5 Months Pontificate.

Urbanus VIII. born at *Florence*, called *Matteo Barberini*, succeeded him the 6*th* of *August* 1623. He died the 29*th* of *July* 1644, after 21 Years Pontificate.

Innocent X. called *John Baptist Pamphilio*, succeeded him the 15*th* of *September* 1644; he condemned the five Propositions of *Jansenius*; and died the 7*th* of *January* 1655, after 10 Years Pontificate.

Alexander VII. of *Sienna*, of the House of *Chigy*, succeeded him the 7*th* of *April* 1655. He died in 1667, after 12 Years, 1 Month, and 15 Days Pontificate.

Clement IX. called *Julius Rospigliosi*, succeeded him in the Year 1667. He died the 9*th* of *December* 1669, after 2 Years, 5 Months, and 19 Days Pontificate.

Clement X. called *Emile Altieri*, born at *Rome*, succeeded him the 29*th* of *April* 1670, and died the 22*d* of *July* 1676, after 6 Years, 2 Months, and 23 Days Pontificate.

Innocent XI. called *Benedict Odescalchi*, succeeded the 21*st* of *September* 1676; he was called the Protestant Pope, because he entered into all the Measures of the Prince of *Orange*, afterwards *William* III. King of *England*: He condemned the Heresy of *Molinos*, and died in 1689, after 13 Years Pontificate.

Alexander VIII. called *Ottoboni*, succeeded him; he assisted powerfully the Christian Princes, confederated against the *Turks*. He died in 1691, after 1 Year and 5 Months Pontificate.

Innocent XII. called *Pignatelli*, succeeded him in 1691. He died after 9 Years Pontificate.

Clement XI. called *Francis Albani*, succeeded him in 1700; he was but 51 Years old when elected; he was a Pontiff of an extraordinary Merit, profound Learning, and vast Capacity. He died the 19*th* of *March* 1721, after 21 Years Pontificate.

Innocent XIII. succeeded him, and died the 7*th* of *March* 1724, after 3 Years Pontificate.

Benedict XIII. succeeded him: All *Europe* can witness, that he was one of the most worthy Successors of the Apostles, and that *non quesivit quæ sua sunt, sed quæ Jesu Christi*. He died the 21*st* of *February* 1730, after 6 Years Pontificate.

Clement XII. succeeded him in 1730, and died *February* the 6*th*, 1740, after 9 Years Pontificate.

Benedict XIV. succeeds him.

Note, That I give here an uninterruped Succession of Popes, to shew, that through their Means, we have had transmitted to us, from the *Apostles*, whose legitimate and immediate Successors the first Popes were, without Contradiction, a true apostolical Mission, and a valid Ordination, or Imposition of Hands; without which 'tis frivolous to pretend, that there is a true Ministry, as I design to shew, in its proper Place, by undeniable Proofs and convincing Arguments. The Ambition, Pride, Supineness, and all other Imperfections of some Popes, could never be a Bar to that Power they have received immediately from the Apostles, of the Imposition of Hands, and of appointing Ministers to govern the Christian Church, else no Christian Church could pretend to a true Episcopacy, since they have all received it, especially the *Western* Churches, from the Bishops of *Rome*, as they are obliged to confess themselves: The Church of *England* has Recourse to it, to prove the immediate Succession of its Bishops from the Apostles. There have certainly been some Differences in the *Roman* Church, with

Regard to the Election of their Bishops, and those Differences have often caused a Schism, by setting up anti-Popes; but those anti-Popes could not interrupt the Succession, since their Ordination was valid, if not licite; and there was always, besides, at the same Time, a Bishop, licitly ordained. I have deferred mentioning those Schisms caused by anti-Popes in the *Latin* Church, to ease the Memory of my Reader, and to avoid Confusion, by making in this Place a *Chronology* of them, different from that of those canonically ordained; therefore,

CHRONOLOGY *of anti-Popes.*

NOVATIAN, first *anti-Pope*, lived in 251, in the Time of *Cornelius*, legitimate Pontiff; he contracted a Friendship with *Novatus*, Bishop in *Africa*, and caused the first Schism in the Church. *Novatian* was a learned and eloquent Man, but vain and ambitious, and added since Hersey to his Revolt.

ARSICINUS, or *Arcinus*, a Deacon of the Church of *Rome*, a second *anti-Pope*, was consecrated Bishop in the Year 367, by some factious, at the same Time, *Damasus* I. had been duly elected: He was an ambitious, cruel, vindictive, and passionate Man, who was banished from *Rome*, after the Emperor *Valentinian* had approved the Election of *Damasus*.

EULALIUS, Archdeacon of the Church of *Rome*, *anti-Pope*, was elected against *Boniface* I. in the Year 418; he had a turbulent and seditious Spirit, whom the Emperor *Honorius* banished from *Rome* the same Year.

LAURENTIUS, *anti-Pope*, was opposed to *Simmachus*, elected Pontiff, in the Year 498; to end the Schism, both Parties chose, for Arbiter of their Differences, *Theodoric*, King of the *Goths*, though an *Arian*, who judged in Favour of *Simmachus*, and *Laurentius* subscribed the first the Election of the true Pope; but having caused since new Troubles, the Council of the *Palme*, held in 502, deposed him, and sent him into Exile.

DIOSCORUS, a Deacon of the Church of *Rome*, was unjustly placed on St. *Peter*'s Chair as concurrent of Pope *Boniface* II. in the Year 530; he was a *Simoniac*, who died few Days after his Election.

PETER, Arch-Priest of *Rome*, caused a Schism in the Church after the Death of *John* V. in the Year 686. *Theodorus*, a Priest, was his Competitor, one having been elected by the Clergy, and the other by the Army; but this Disorder was dissipated by the Creation of *Conon*, legitimate Pontiff, made with the Consent of both Parties.

THEODORUS, false Pontiff, caused another Schism after *Conon*'s Death, in 1687, for *Conon* having bequeathed to the Clergy, and to the Monasteries, the Sums, Pope *Benedict*, one of his Predecessors, had left, *Theodorus* wanting to be Master of that Money, and the Arch-Deacon *Paschalis* formed a Schism: One Part of the People elected *Theodorus*, and the other *Paschalis*; but *Theodorus*, being before-hand with his Companion, took Possession of the Inside of the pontifical House of *Lateran*, and abandoned the Outside to *Paschalis*. As each Party was determin'd to keep Possession, and were preparing to fight, the chief Magistrates, the first Captains of the Army, a great Part of the Clergy, and particularly the Priests, with most of the Citizens, elected *Sergius*, and forced the Factious to quit their Posts.

THEOPHILACTE, Arch-Priest of *Rome*, was given for Competitor to Pope *Paul* I. in the Year 757, which caused a short Schism in the Church.

CONSTANTINE, *anti-Pope*, was intruded on the apostolical Chair after Pope *Paul* I's Death, in 761; he was unworthy of that Dignity, which he exercised with a tyrannical Empire, during 1 Year and 1 Month: He fled from *Rome* after the canonical Election of Pope *Stephen* III.

ZINZIMUS, *anti-Pope*, placed himself on the pontifical Chair after *Paschalis* I. in 824, and wanted to oppose the Election of *Eugene* II. but he was forced to retreat at the News that the Emperor *Louis the Gentle* had sent his Son *Lotharius* to *Rome*, to chastise him.

JOHN, a Deacon of the *Roman* Church, wanted to usurp the *Roman* See, in the Year 844, but was excluded from it, for his Temerity and Ambition.

SERGIUS, a Deacon of the Church of *Rome*, a violent and ambitious Spirit, was *anti-Pope* in the Year 890, while *Formosus*, legitimate Pontiff, filled the Chair.

BONIFACE VI. *anti-Pope*, who, 'tis said, was created, 2 Days after *Formosus*'s Death, the 16*th* of *December*, 896, was expelled 15 Days afterwards; he was a very bad Man, who died the 3*d* of *January* 897.

ROMANUS GALESINE, false Pontiff, occupied St. *Peter*'s Chair in the Year 900; he was a violent, passionate, ambitious, and cruel Man, who held the See but 4 Months and 20 Days.

LEO VIII. *anti-Pope*, called *Francon*, possessed the See by Force, during 1 Year and 1 Month, having caused *Benedict* VI. to be confined in Prison, in the Year 974; this false Pontiff was expelled; he stole Part of the Treasure of the Church, and retired to *Constantinople*, from whence he returned after the Death of *Benedict* VII. in 985, then he caused *John* XIV. who had succeeded *Benedict* VII. to be killed; and this *anti-Pope* possessed again by Force the apostolical Chair, during 4 Months, in 985, he died the same Year.

JOHN XVI. false Pontiff, usurped the Chair in the Year 996, or 997; 'tis said that he was learned, and had composed several Works: He died in the Year 996, the first Day of *June*.

GREGORY, *anti-Pope*, was elected by some *Romans*, who expelled from the City *Benedict* VIII. in 1013. *Benedict* was restored by the Emperor, *Henry the Saint*, and *Gregory* banished the same Year.

SILVESTER III. *anti-Pope*, was elected against *Benedict* IX. in the Year 1043, or 1044, but was expelled in the Year 1044, after three Months of a false Pontificate.

JOHN XX. thus called by some, who pretend that Pope *Benedict* IX. finding himself unworthy of the Pontificate, resigned it to *John*, Arch-Priest, who must be distinguished from Pope *Gregory* VI.

BENEDICT X. *anti-Pope*, raised against Pope *Nicholas* II. duly elected in 1059; 'tis said that he died of Sorrow, for his Fault, the 9*th* of *April*, of the same Year, 1059.

CADALOUS, or CADOLUS, false Pontiff, was opposed to *Alexander* II. duly elected in 1061; he was condemned in the Council of *Mantua*, assembled in the Year 1064.

GUIBERT, *anti-Pope*, under the Name of *Clement* III. was opposed to *Gregory* VII. in 1080; 'twould be impossible to say what Disorders he caused in the Church: He died in the Year 1100.

BURDIN, or BOURDIN, was of *Limoges* in *France*; he caused himself to be created *anti-Pope*, under the Name of *Gregory* VIII. in the Year 1118, while *Gelasius* II. governed the Church: His Crimes rendered him so odious, that he was very ill used by the Soldiers; and it was with very great Difficulty that he escaped with his Life, in 1121.

ANACLET II. or *Peter of Leon*, *anti-Pope*, excited a Schism against the legitimate Election of *Innocent* II. in the Year 1130; he was insolent, ambitious, and avaricious; he plundered the Treasures of the Church, and died Excommunicate in 1138.

GREGORY, *anti-Pope*, under the Name of *Victor*, was opposed against *Innocent* II. legitimate Pontiff, in 1138; he was forsaken by every Body, and submitted himself to *Innocent*, to procure Peace to the Church, in the same Year.

OCTAVIAN, *anti-Pope*, in 1159, under the Name of *Victor* IV. in the Time of *Alexander* III. legitimate Pontiff; he was a Tyrant, cruel and ambitious, who died Phrenetick about the Year 1164.

GUY of CREME, *anti-Pope*, under the Name of *Paschalis* III. in 1164; he caused great Disorders in the Church, and died six Years afterwards in 1170.

JOHN, Abbot of *Stirum*, *anti-Pope*, under the Name of *Callistus* III. was opposed to *Alexander* III. legitimate Pontiff, in the Year 1140; he was degraded in the Council of *Venice*, in 1177, and in 1178 he came to throw himself at the Pope's Feet, who forgave him, and received him with Kindness.

CLEMENT VII. thought *anti-Pope*, was elected the 21st of *September*, 1378; he was a Person of an extraordinary Merit, illustrious for his Science, Piety and Virtue; he died the 16*th* of *September* 1394.

BENEDICT III. *anti-Pope*, called *Peter Moon*, was elected the 22*d* of *September* 1390; he was vain, ambitious, perfidious, false, and without Religion, who would never give Peace to the Church, and died in 1424, after he had lived 30 Years in the Schism.

CLEMENT VIII. *anti-Pope*, called *Gilles De Munion*, was elected by two Cardinals only in 1424; he was proud, ambitious, and vindictive: He hastened his Election, to be revenged of Pope *Martin* V. legitimate Pontiff, but the 27*th* of *July* 1439, he deposed himself to procure Peace to the Church.

FELIX V. *anti-Pope*, called *Amadeus* VIII. Duke of *Savoy*, was opposed to *Eugene* IV. legitimate Pontiff, the 5*th* of *November*, 1439; he abdicated in the Year 1449, with a marvellous Submission; he had all the Qualities necessary to govern the Church, with Prudence and Holiness. Pope *Nicholas* V. in whose Favour he abdicated, made him a Cardinal, and Dean of the sacred College, and Legate in *Germany*, and approved all he had done during 9 Years he had kept the See. *Felix* died with the Reputation of a Saint, the 7*th* of *January*, 1451.

Note, That I had almost forgot the *Chronology* of the Kings of *Sweden*; but as that Monarchy is the latest, that of the *Turks* excepted, it cannot be out of its Place, if I insert the *Chronology* of the Kings of *Sweden* immediately before that of the Emperors of the *Turks*, since there are but 118 Years Difference between both; therefore,

CHRONOLOGY *of the Kings of* Sweden.

COMUT I. began to reign in *Sweden*, in the Year 1182, or 1183; he was ambitious, cruel and unjust; though some Historians say that he reigned with a great deal of Glory and Felicity: He died about the Year 1192, or 93, after 20 Years Reign.

SWERCHER, or *Suercho*, succeeded about the Year 1192, or 93; he was a brave and judicious Captain, and gained several great Victories over the *Danes* and *Bohemians*: He died in the Year 1210, after 17 Years Reign.

ERIC I. succeeded him in the Year 1210; he was fortunate in his Enterprises, and famous for his Courage, Prudence, and Victories: He died in 1218, after 8 Years Reign.

JOHN I. succeeded him in the Year 1218, or 20; he was a good and religious Prince, and his People had been extremely happy if he had reigned longer: He died about the Year 1222, after 4 Years Reign.

ERIC II. called the Stutterer, succeeded him in the Year 1222; his wise Conduct and great Piety gained him the Esteem of all the World, and he was fortunate in several military Expeditions: He died in the Year 1250, after 28 Years Reign.

VALDEMAR succeeded him in the Year 1250, or 51; he was an unjust Prince, inhuman, abandon'd to his Pleasures, and who lost Part of his Dominions: He died about the Year 1277, after 26 or 27 Years Reign.

MAGNUS I. rendered himself Master of the Throne, in the Year 1277; he was unjust towards his Brother, whom he dethroned; he died in the Year 1290, after 13 Years Reign.

BIRGER succeeded him in the Year 1290; he governed, in the Beginning of his Reign, with a great deal of Wisdom, but abandon'd himself afterwards to such Violences against the Churches and his Subjects, that he was expelled from his Dominions, and afterwards confined Prisoner: He died in the Year 1319, after 29 Years Reign.

MAGNUS II. called *Smerch*, succeeded him in the Year 1319. The Tyranny, Imposts, and Debaucheries of this Prince caused his Deposition, in the Year 1363, after 44 Years Reign.

ALBERT, Duke of *Meckelbourg*, succeeded him in the Year 1363; Idleness precipitated him into the Misfortune which had accelerated the Ruin of his Predecessors. The Nobility, who had raised him on the Throne, wanted his Destruction, and waged a cruel War against him; and *Marguerite*, Queen of *Denmark* and *Norway*, having attacked him, gave him a furious Battle, in the Year 1387, where he lost both his Crown and Liberty, after he had reigned 25 Years.

MARGUERITE, Queen of *Norway*, and of *Denmark*, became also Queen of *Sweden*, in the Year 1388; she was a Princess, whose Prudence, Virtue, and Courage, had nothing of the Weakness of her Sex; and who re-united in her Person, in the Year 1394, the Kingdoms of *Denmark*, *Sweden*, and *Norway*; which she left the same Year to her Nephew, *Eric* of *Pomerania*, and died in the Year 1412, after 7 Years Reign.

ERIC III. Duke of *Pomerania*, and *Marguerite*'s Nephew, succeeded her in the Year 1394; his Cruelties, and his indolent and lazy Life rendered him odious to his Subjects, who deposed him in the Year 1438, after 44 Years Reign.

CHRISTOPHER I. Duke of *Bavaria*, succeeded him in the Year 1438; though his Domination was easy enough, and he had Courage enough; he was nevertheless hated by his Subjects: He died in the Year 1448, after 10 Years Reign.

CHARLES CANUT I. succeeded him in the Year 1448; he rendered himself famous, not only by his Justice and Prudence, but likewise for his great Knowledge in Philosophy, and the Mathematicks: He died in 1470, after 22 Years Reign.

CHRISTIAN I. of *Denmark*, succeeded him in the Year 1470; he governed his Subjects with Prudence, and was a good, honest, and very religious Prince: He died in 1481, after 11 Years Reign.

JOHN II. succeeded him in the Year 1481; the little Care he took to observe the Promises he had made to the *Swedes* caused his Deposition: He died the 20*th* of *February* 1513, after 30 Years Reign.

STENO STURE was raised to the Throne in 1513; he was a brave and experienced Captain, who gained several Victories over his Enemies: He died in the Year 1519, or 1520, after 7 Years Reign.

CHRISTIAN II. King of *Denmark*, became King of *Sweden* in 1520; he exercised incredible Cruelties against the principal Lords, both ecclesiastick and secular of his Dominions, whom he caused to be killed at a Feast, where he had invited them; and this Barbarity, joined to his other Tyrannies, caused his Deposition, in 1523, after 3 Years Reign.

GUSTAVUS I. was elected King of *Sweden* 1523. This Kingdom, which had been elective before, became Hereditary in the House of *Gustavus*, who introduced Lutheranism in his Dominions: He was cruel, avaricious, and impious; but however a pretty good Politician: He died in 1560, after 37 Years Reign.

ERIC IV. succeeded him in the Year 1560; he had some very good Qualities, he loved the learned, and was learned himself, but very cruel, vindictive, mistrustful and voluptuous: He was deprived of his Dominion in 1568, after 8 Years Reign.

JOHN III. succeeded him in 1568; he was a wise and brave Prince, whose Reign was extremely peaceable: He was then a Catholick, having abjured Lutheranism before Father *Anthony Possevin*, a Jesuit.

SIGISMOND I. succeeded him in the Year 1592; he was brave and religious, but lost his Crown in 1604, after 12 Years Reign.

CHARLES II. ascended the Throne in 1604; he was brave, judicious, and waged War with various Success

Succeſs againſt the *Poles*, *Danes*, and *Muſcovites*. The Loſs of *Colmar*, which the *Danes* took from him in 1611. made him die of Sorrow the ſame Year, after he had reigned 7 Years.

GUSTAVUS ADOLPHUS ſucceeded him in the Year 1611; he was a brave, liberal, and generous Prince, and made ſo many Conqueſts, that he render'd himſelf formidable to all *Europe*, and conquered in two Years and a half, two Thirds of *Germany*, from the *Viſtula* to the *Danube*, and *Rhine*. He was killed in the Battle of *Lutzen* in 1632, aged 38 Years, of which he had reign'd 21. Cardinal *Richlieu* had made uſe of him to clip the Wings of the Houſe of *Auſtria*, in which he ſucceeded pretty well; but acted afterwards, as almoſt all Miniſters do, who are but ſeldom grateful to thoſe who have ſerved them faithfully, whom they moſt commonly abandon when their Turns are ſerv'd; though I am not of the Opinion of ſome Authors, who lay the Death of *Guſtavus* to *Richlieu*'s Charge.

CHRISTINE, *Guſtavus*'s Daughter, ſucceeded him in 1632; ſhe governed the Kingdom of *Sweden* with a vaſt deal of Reputation till the Year 1654, when ſhe abdicated voluntarily the Crown, to practiſe the catholick Religion, and retir'd into *France*; ſhe had made a very great Proficiency in all Sciences, ſpoke ſeveral Languages, and *Latin* in Perfection. She died at *Chambor*, near *Blois*, in *France*.

CHARLES GUSTAVUS took the Reins of the Government in 1654; he was a brave, bold, and enterprizing Prince, and had done great Things if he had lived longer; but he died in 1660, after 6 Years Reign.

CHARLES XI. ſucceeded him in the Year 1660; he governed with much Courage and Wiſdom, having gained ſeveral Battles againſt his Enemies.

CHARLES XII. ſucceeded him. This Prince ſurpaſſed *Alexander* in Courage and Intrepidity, as much as he did in Virtue, Sobriety, and Conſtancy, amidſt the greateſt Difficulties: He had but one great Imperfection, which was that of putting too great a Confidence in his prime Miniſter *Piper*, who (bribed by the Allies, afraid that *Charles*, at the Head of his victorious Armies, ſhould be tempted to make a powerful Diverſion in favour of *France*,) perſuaded him to turn his Arms againſt the Czar, repreſenting to him, the Conqueſt of *Muſcovy* rather eaſier, than had been that of *Poland* and of the Electorate of *Saxony*; therefore that perfidious Wretch carried that young Hero, who himſelf thought nothing impoſſible to his Valour, to fight, not againſt Men only, but likewiſe againſt the Climates and the Seaſons, and was the real Cauſe of that Check he received in 1709 at *Pultowa*, where, after he had done incredible Feats of War, having loſt all his Army, he was forced to fly to the *Turks* for Refuge, where he remained a conſiderable Time. He was killed at the Siege of *Frederickſhall* in *Norway*, where he commanded in Perſon; but if by the Enemies, or by his own Men, is what, I ſuppoſe, will never be known. Therefore 'tis a great deal better to draw the Curtain over that dark Scene, than to conſider it with too much Attention.

FREDERICK Landgrave of *Heſſe-Caſſel*, his Brother-in-law, ſucceeds him.

Note, That from *Sweden* we'll paſs to *Conſtantinople*, and pay a viſit to the *Grand Signior*, as one of his Chronologers; therefore,

CHRONOLOGY *of the Emperors of the* Turks.

OTTOMAN, or OSMAN, firſt Emperor of the *Turks*, in 1300, was Son of *Ortogul*, whom ſome imagine to have been a Perſon of mean Extraction, and others, one of the principal and moſt diſtinguiſhed among the *Turks*. *Ottoman* came to the Sovereignty after the Death of *Aladin*, Sultan of *Iconium*, which he divided with the other Chiefs of the Sultans; he render'd himſelf Maſter of ſeveral Provinces in *Lower Aſia*, and ſhew'd himſelf an experienc'd Captain in the Wars he undertook againſt the *Chriſtians*, and againſt thoſe of his Nation. He reigned 27 Years, and died in 1326, aged 69.

ORCHAN ſucceeded his Father in 1326, after he had vanquiſh'd his two Brothers, who wanted to deprive him of what his Father had left him: He extended his Conqueſts in the Provinces of *Aſia*, from *Myſia* to the *Helleſpont*; he render'd himſelf Maſter of *Nice*, and *Nicomedia*. This Prince eſtabliſhed the Militia of the *Janiſſaries*, and diſciplin'd Forces, ordering that the Soldiers ſhould wear red Caps, and Officers white.

SOLIMAN I. ſucceeded him in 1358; his Death is variouſly related; what's certain is, that *Soliman* render'd himſelf Maſter of *Adrianople*, and of ſeveral other Places, and would have carried his Conqueſts very far, if Death had not prevented him, in carrying him off young; ſome ſay, by falling from his Horſe in Hunting, and others of Malady.

AMURATH I. *Soliman*'s Brother, was called *the Illuſtrious*; he gained 32 Battles, and followed the Deſigns of his Brother, by puſhing his Conqueſts towards *Europe*; the *Genoeſe* facilitated them, for a ſordid Intereſt. *Amurath* inſtituted the Militia of the *Spahis*, and divided the Provinces into *Timars*, which are Portions of Land aſſigned to every Horſeman, for his Maintenance, on the Charge, of being ready to take the Field at the firſt Order of the Sultan; the Weakneſs of *Paleologue*, Emperor of *Conſtantinople*, procur'd him Means to extend his Conqueſts in *Europe*; he ravaged the Coaſts of *Macedonia*; croſſed the Streight of *Gallipoli*; defeated the Prince of the *Bulgarians*, and was killed with a Lance, or a Poniard.

BAJAZET aſcended the Throne at his Brother's Death, whom he caus'd to be ſtrangled in 1392; he was called the Lightning, or Thunder, for the Rapidity of his Conqueſts; he ravag'd *Macedonia*, overrun *Albania*, plunder'd *Theſſalia*, and threw all the Chriſtian Princes into a Conſternation; but that Lightning was ſtopt in its Career by *Tamerlane*, Emperor of the *Mogols*, who after he had appeas'd the Troubles of his Dominions, turn'd his Arms againſt *Bajazet*, whom he took, ſhutting him up in an Iron Cage, againſt which he daſh'd out his Brains, through an Exceſs of Deſpair.

MAHOMET I. aſcended the Throne after the Death of his three Brothers, *Joſhua*, *Muſulman*, and *Moſes*, in 1413. The *Turks* do not place theſe three Princes among their Emperors. *Mahomet* fixed the Seat of his Empire at *Adrianople*; he raiſed the Siege of *Bagdat*, and brought under his Obedience the *Pont*, and *Cappadocia*, and reſtored the Empire, which had receiv'd a Check under the Reign of his Father, to its former Luſtre. *Mahomet* died of an Apoplexy.

AMURATH II. ſucceeded his Father *Mahomet* in 1421: *Muſtapha* his Uncle, whom the Emperor *Emanuel* had ſet at Liberty, diſputed the Empire with him; but having been vanquiſhed, *Amurath* turned his Arms againſt the Emperor of *Conſtantinople*, and came to lay Siege before that Place, which the *Marſhal of Boucicaut*, a *Frenchman*, forced him to raiſe. *Amurath* render'd himſelf Maſter of *Theſſalonica*, and *Sperandovia*, raiſed the Siege from before *Belgrade*, and was beaten by *Huniades*, Governor of *Tranſilvania*, but he had his *Revanche* in the Battle of *Varne*, where *Ladiſlaus* was killed, and his Head carried to *Burſa*. *Scanderberg*, Prince of *Albania*, who was indebted for his Education to *Amurath*, became his moſt cruel Enemy, and made all the Proſperity of the Arms of *Amurath*, over whom he gained ſeveral Battles, miſcarry before the City of *Croy*.

MAHOMET II. to ſecure the Tranquillity of his Empire within, cauſed his Brothers to be ſtrangled: 'Tis this Prince who deſtroyed the Empire of the *Eaſt*, by taking *Conſtantinople* in 1453, that of *Trebiſonde* in 1461, and render'd himſelf Maſter of twelve Kingdoms. In 1456, he was forced to raiſe the Siege of *Belgrade*, defended by *Huniades*. *Scanderberg* expelled

pelled him from *Albania*, which could not hinder him from carrying the Terror every where he run, like Lightning. Death, which overtook him near *Nicomedia*, secured *Italy*, which he threaten'd.

BAJAZET II. ascended the Throne in 1481; he was disturbed at the Beginning of his Reign by his Brother *Rizin*, who having been beaten, retreated to *Rhodes*, and from thence to *Italy*; he was employed near the Sultan, to obtain of him that he would leave the *Christians* at Peace. *Bajazet* took *Lepante* from the *Venetians*, and *Modon* in the *Morea*. His Troops beaten in *Ægypt*, and the Revolt of the Janissaries, caused his Deposition. The Officers put in his Place his Son *Selim*, who caused his Father to be poison'd by his Physician.

SELIM I. ascended his Throne in 1512. The domestick Divisions engaged him, at the Beginning of his Reign, to conclude a Peace with the *Venetians*, and *Hungarians*, his Neighbours, who alone could have made a powerful Diversion, which had hinder'd him from crushing the King of *Persia* and the Soldan of *Ægypt*; he render'd himself Master of many Places in *Persia*, and of *Grand Cairo* in *Ægypt*, taking the Sultan thereof Prisoner, which put an End to the Empire of the *Mamelus*. He died of the Stone while he was preparing to besiege *Rhodes*.

SOLIMAN II. called *the Magnificent*, ascended the Throne in 1520; he was one of the greatest Princes of his Time. The Division among *Christian* Princes, caused by the Doctrine of *Luther*, facilitated his Conquests: He took *Belgrade* in 1521, *Rhodes* the Year following, gain'd the Battle of *Mohas* in 1526, and enter'd *Buda* in 1529; from thence he came to lay Siege to *Vienna*, which he was forced to raise, and came to die before *Righet*, defended by Count *Serin*, who died on the Breach.

SELIM II. ascended the Throne in 1566; he exposed himself to be dethroned at the Beginning of his Reign, for his Avarice: His Generals render'd themselves Masters of the Island of *Cyprus* in 1570; they lost the famous Battle of *Lepante*, of which the *Christian* Princes took Advantage: Three Years afterwards *Selim*'s Troops retook *Tunis*, from which they expelled the *Christians*.

AMURATH III. ascended the Throne in 1574; he began his Reign, by causing five of his Brothers to be put to Death, and waged War against the King of *Persia*, at the Sollicitation of *Lejac*, who promis'd him that he would be victorious; but his Prediction proved false: He gain'd some small Advantages in *Hungary* against the Emperor *Rodolphus*.

MAHOMET III. ascended the Throne in 1595; he plunged himself into all Sorts of Pleasures, abandoning the Care of his Affairs to the Sultaness *Valide*; he caused ten of his Father's Sultanesses, big with Child, to be thrown into the Sea, and twenty of his Brothers to be strangled; he lost *Transilvania*, and the Places of *Strigonia*, *Albe-Royal*, and the lower Town of *Buda*, taken by *Mansfield*, the Arch-Duke *Matthias*, and the Duke of *Merceur*, a *Frenchman*. *Mahomet* sacrific'd his own Mother and Friends, to the Fury of the *Janissaries* and *Spahis*, and died of the Plague.

ACHMET I. ascended the Throne, by the Death of his Brother *Mahmud*, whom *Mahomet* had caused to be strangled, in 1603; his Infancy, and the Government of Women, facilitated to the *Sophi* of *Persia* the retaking of *Tauris* and *Ertzerum*. *Selim* conquer'd *Transilvania*, and other Places in *Hungaria*; his Moderation is admired, for having suffered his Brother to live, whom he declared his Successor.

MUSTAPHA I. was placed on the Throne, according to the Disposition of his Brother's Will, in 1617; but as he was without Wit, or Experience, the Janissaries depos'd him a few Months after, and plac'd *Osman* his Nephew on the Throne.

OSMAN was put in his Uncle *Mustapha*'s Place in 1618, and *Mustapha* confined Prisoner. The bad Success of the War, he would undertake against the King of *Poland*, because of the *Cossacks*, caused a Sedition, at his Return, which engaged the Janissaries and Spahis to take his Uncle *Mustapha* out of Prison, and to confine *Osman*, who was killed in his Prison. *Bethleem Gabor* made himself Prince of *Transilvania*, and was acknowleg'd for such by the Emperor.

AMURATH IV. *Osman*'s Brother, a young Prince, about 15 or 16 Years of Age, was placed on the Throne, at the second Deposition of *Mustapha*, in 1622; the Beginning of his Reign was disturbed by the Revolt of *Abassa*, a very long and dangerous one, and which *Abassa* coloured with the specious Pretence of taking a just Revenge of the Death of *Osman*, who, he said, had appeared to him while at his Prayers in a *Mosque*, and commanded him to sacrifice to his *Manes* 50,000 Janissaries, or Spahis. He began his Reign by the Siege of *Bagdat*, which the Grand Vizier, who commanded, was forced to raise, and which cost him his Head. He concluded a Peace with the *Poles* and the *Cossacks*, and turned all his Forces against the King of *Persia*; he took *Ertzerum*, by the Treason of the Governor, whom he admitted afterwards into his most intimate Confidence; he besieged *Bagdat* in Person, and set Fire to the first Cannon which was fired against the Town, which he took, after a vigorous Defence, by Capitulation, promising to save the Lives of 50,000 Men who were in the Place at the Time it was surrender'd; but reflecting afterwards, that the same Condescension had been the Cause of the Loss of *Ertzerum*, he ordered they should be all massacred in one Night, which was punctually executed; he found the Secret, by his Intrepidity and Courage, and by his Severity in punishing the Factious, to appease all the domestick Divisions, always to his Advantage; for though the *Turks* had often attempted to depose him, they could never succeed in their Enterprize. *Amurath* died of a Debauch he had made with his Favourites *Brianchi* a *Venetian*, and the Governor of *Ertzerum*. He was very brave of his Person, but cruel and avaricious; he had so great an Aversion for *Tobacco*, that he made several very severe Edicts against using it. As he used to walk in Disguise through the Streets of *Constantinople*, and to frequent publick Houses, to hear what was said of him, he order'd a Man's Arms to be cut off, whom he had seen taking Snuff, and another to be impaled, with a Roll of *Tobacco* round his Neck, whom he had seen smoaking; he caused three of his Brothers to be put to Death, and wished the Race of the *Ottomans* had ended in him. He had appointed by his Will, the Cham of *Tartary* for his Successor.

Note, That the Sultaness *Valide*, after *Amurath*'s Death, assembled a Grand Divan, where she had represented to the Basha's of the Bench, and to all the great Officers of the Empire, the great Inconveniencies of calling a Foreigner to the Succession, especially while they had yet a Prince of the illustrious Blood of the *Ottomans*; who being indebted to them for his Crown, would be obliged, in Gratitude, to render his Government agreeable and easy. Those Insinuations had the desired Effect; *Amurath*'s Will was cancell'd, and his Brother *Ibrahim* declared legitimate Successor.

IBRAHIM ascended the Throne in 1640; he refused the Entrance of his Chamber to those who came to salute him Emperor, thinking that was an Artifice of his Brother *Amurath*, to discover how he would take the News of his Accession to the Throne, to have Occasion from thence, to put him to Death; and could not be persuaded they were in earnest, till he had seen the dead Body of *Amurath*. This Emperor abandon'd all his Affairs to the Grand Vizier, and plunged himself in all Sorts of Pleasures. His having debauch'd the Daughter of the Mufti, and neglected her afterwards, occasion'd his Deposition; he was confin'd in his former Prison, and soon after strangled.

Note, That under this effeminate Prince was formed by the *Turks* that grand Project of the Conquest of the Island of *Candy* belonging to the *Venetians*. The Occasion of that War was this: The *Cuslir Aga*, or Chief of the black Eunuchs of the Seraglio, had bought a Slave, for a Maid, who was with Child when he bought her, which the *Aga* having perceived, he gave her to his Steward, where she was brought to Bed of a Son. Some Time after her Delivery the *Aga* had the Curiosity to see her Son, on the Report that he was a very fine Child, and was so much taken with him, that he ordered he should be brought up, as if he had been his own Son; and when five or six Years old, was introduced by the *Aga* to *Ibrahim*, who likewise took so great a Fancy to him, that he loved him better than his own Children, which so irritated the Sultaness, Mother of his eldest Son *Mahomet*, who reigned after *Ibrahim*, by the Name of *Mahomet* IV. that she formed the Resolution to have the *Aga* and his adopted Son dispatch'd; which being perceived by the *Aga*, he begged Leave of the Emperor to go in Pilgrimage to *Mahomet*'s Tomb, and to pass, afterwards, the Remainder of his Days in *Egypt*, with his Son and Family, which was granted, not without a great Reluctancy on the Part of the Sultan. Accordingly the *Aga* loaded a great Galeon, and two other Ships, with all the Riches he had amassed under three Reigns, and which were immense. While at Sea they were attacked by the Galleys of *Malta*; and after a very smart and long Engagement, during which the *Aga*, though brought up in the Effeminacy of the Seraglio, behaved like a Hero; the three *Turkish* Ships were taken and carried to *Malta*, from whence it was soon rumoured throughout all *Europe*, that the Galleys of the Religion had took one of the Sultan's Sons, whom he was sending to *Mecca*; for in Fact the Eunuch's Son was thought and treated as such at *Malta*. *Ibrahim* being informed of the Misfortune happening to his Eunuch, resented it to such a Degree, that in all Appearance nothing could satisfy him but the entire Ruin of the Order of *Malta*; and it was soon rumoured among the *Turks*, that their Emperor, to be revenged of that Affront, would throw that Island into the Sea. *Ibrahim*, in the Excess of his Rage, sent for the Bayle of *Venice*, then residing at *Constantinople*, and reproached him, in the most bitter Terms, with the Republick having violated the Treaties then subsisting between her and the Porte, by her Subjects having given Entrance into their Ports, and Provisions to those Galleys which had took the Galeon; for in Fact those Gallies wanting fresh Water, they had been supplied with it at *Valone*, but the Person who had done him that Piece of Kindness had been put to Death by Orders of the Republick, as soon as she could be informed of it, for Fear the Porte should have took Occasion from thence to quarrel with her. The Bayle excused his Principals as much as it was in his Power, and in such a Manner that *Ibrahim* appeared to be satisfied with his Excuses, and to have turned all his Thoughts of Revenge on *Malta*. Accordingly great military Preparations were made throughout the whole *Ottoman* Empire, to push that Revenge to the last Extremity; and the *Turks* themselves were so well perswaded that they were designed against the Island of *Malta*, that a *Dervis*, who had kept Company to *Ibrahim* in his Prison, and was deeply in his Confidence, did all he could to dissuade him from that Enterprise, which he called rash, shewing him the great Difficulty of succeeding therein, and in particular, that the Island of *Malta* was a continual Rock, in which Works could not be carried on, but with almost insuperable Difficulties: That the Conquest of the whole Island could not be accomplished in one Year; that during the Winter the Troops could have nothing to shelter themselves against the Inclemency of the Season, nor receive any Succours, because of the tempestuous Sea, which renders that Island inaccessible in that Season. But *Ibrahim* seemed so firm in his Resolution, as not to be persuaded to alter it, on any Consideration whatever. That Project was conducted with such a Secrecy, that the Bayle could never discover, notwithstanding all the Pains he took for it, the real Designs of the *Turks*; nay, the Porte, to take off all Umbrage on the Side of the Republick, cajoled him more than ever; but, however, the *Venetians*, who could not think themselves secure, and the *Turks* wanted they should, armed, likewise, at all Events, and sent Ammunitions, Provisions and Troops into *Candia*. When every Thing was ready for the Expedition, *Ibrahim* went himself on Board, the *Capitan Basha* presented him with a Scimeter set with Jewels, and delivered him his Instructions sealed up, forbidding him to open them 'till he was arrived at a certain Latitude, and telling all the Officers that he had Rewards for those who should behave as became the Honour of the *Ottoman* Arms, and Punishments for those who should act otherwise. The *Venetians* began to think by the Course the *Turkish* Fleet steered at first, that the Expedition was really intended against *Malta*, and that they had nothing to fear; but when they heard that it was seen beyond the Latitude of *Serigo*, they were convinced that the Storm was a going to fall on *Candia*, as it did, After the *Turks* had landed their Forces, they besieged *Canea*, which they took in 1644, with a great Slaughter of the Inhabitants, and Garrison. The pretended Son of the Sultan was brought up at the Expence of the *Order of Malta*, but when the Grand-Master saw that the Port took no Notice of him, he was neglected, and obliged at last to enter into the Order of the Dominican Friars; and he is the same who ran throughout all *Europe*, by the Name of Father *Ottoman*, for he thought himself *Ibrahim*'s Son, if no Body else did.

MAHOMET IV. was placed on the Throne, at the Deposition of his Father, in the Year 1649, being then but 7 Years of Age, and reigned 38 Years; his Mother *Zaim* had the Regency, and by her Dexterity took *Achmet Coprogli* out of Prison, to make him Grand-Vizir. 'Tis to the great Capacity of that excellent Minister, *Mahomet* IV. was indebted for the Success of his Enterprises; the Principal whereof were, the taking of the Island of *Tenedos*; the Deposition of *Ragotski*, Prince of *Transilvania*, in 1661; the taking of several Places in *Hungaria*; the Conquest of the Island of *Candia* in 1669; which Enterprise had begun under *Ibrahim*; that of *Caminieck*. His Forces were beaten in 1664 by the *French*; at the Passage of the *Raab*, in *Poland*, in 1673, by *Sobieski*. The Grand Vizir, *Cara Mustapha*, was beaten before *Vienna* by the same *Sobieski*, King of *Poland*, and forced to raise the Siege, which cost him his Life, in 1683, at *Belgrade*, where he was strangled by the Order of the Grand Seignor. He was a-Bed when the *Bostangi Bachi* brought him those Orders; the first was to deliver up the Seals of the Empire, which *Cara Mustapha* having called for, he kissed them, wrapped them up in a Linnen-Cloth, and delivered them to the *Bostangi*, who afterwards presented him with the other Order, wherein the Sultan asked for his Head; at which News *Mustapha*, without the least Emotion, asked only for a few Moments to recommend himself to God, and to his Prophet, which being granted, he got up, and kneeled on a Carpet, on his Bed-Side, and presented his Neck to four Mutes, who tied the silken String round it, but as they were going to do their Office, he bid them stop, to have Time to pull the Carpet from under his Knees, saying, that it was not allowed by the *Alcoran*, that a good Musulman should bend Knee on a Carpet, when executed; after which he was strangled. The bad Successes of *Mahomet* IV. and the Loss of several Places in *Hungary* were followed by his Deposition.

SOLIMAN III. ascended the Throne in 1687; he fainted

fainted away when taken out of Prison to be saluted Emperor: The Porte reaped no great Benefits by this Change; because the Sultan was a perfect Stranger to the Affairs of the Empire. The Grand Vizier *Mustapha Coprogli*, retook *Belgrade*, *Nissa*, and *Ridin*, from the *Imperialists*.

ACHMET II. *Soliman*'s Brother, with whom he had been a Prisoner ascended the Throne in 1691; he frustrated the Hopes which had been conceived of him; his Armies were beaten in *Hungary* by Prince *Lewis* of *Baden*, whom he had reduced to Despair; *Coprogli* was wounded there, and went to die at *Belgrade*. *Achmet* died of Sorrow, for his being incapable to sustain the Weight of his Affairs, which were in a great Disorder.

MUSTAPHA ascended the Throne in 1695; he was eldest Son of *Mahomet* IV. he was mistrustful, and inclined to Cruelty; in 1695 he commanded his Army in Person, and gained a Battle against General *Veterani*: Prince *Eugene* took a glorious Revenge of that Affront in 1697, by the Victory he gained on the Borders of the *Tibisk*; the Army of the Sultan was cut to Pieces, and the Grand Vizier found among the Dead. This Victory obliged the Grand Signior to conclude a Peace in 1699, which was signed at *Carlowitz*; the *Venetians* were comprised in it.

ACHMET III. succeeded him; under his Reign the *Turks* were defeated by Prince *Eugene* at *Peterwaradin*, the 5*th* of *August* 1716, and at *Belgrade*, the 16*th* of *July* 1717, and the Peace concluded between the Emperor and the *Turks* at *Passarowitz*. This Prince had a very good Taste for Learning, and wanted to have established the Art of Printing throughout the *Ottoman* Empire; but as Ignorance is the chief Support of *Mahometanism*, he was frustrated in his Attempt by a Sedition, excited by the Mufti and other Chiefs of that ridiculous Sect, in which the Sultan was deposed.

MAHOMET V. succeeds him; his Armies have always been victorious; in the late War the late Emperor *Charles* VI. undertook, in Conjunction with *Russia*, contrary to his real Interest, and when his Finances had been almost entirely exhausted, against the *Turks*, who in 1738 took *Usitza* and *Orsova*; and in 1739 gained the Battles of *Kroska* and *Panchova*, and retook *Belgrade*.

Note, That after we have paid a Visit to all the Courts of the World, from its Beginning to our present Time, it will not be improper to take a View of those Fields, where some of those Heroes we have mentioned in the Course of our *Chronology*, have signalized their Valour and Courage, in several Battles, Combats, *&c.* And to proceed with some Order in that curious Detail, I'll divide those great Events into two *Epochas*; in the first I'll give the *Chronology* of the most memorable Battles, Combats, Routs, *&c.* from the Foundation of *Rome* to the Birth of *Christ*; and in the second, of those from the Birth of *Christ* to our present Time; therefore,

CHRONOLOGY *of the most memorable* Battles *since the Foundation of* Rome *to the Birth of* Christ.

BATTLE, fought in the Year of *Rome* 264, where *Valerius Publicola* and *Brutus*, Consuls, defeated the proud *Tarquin*, who had been expelled from *Rome*; *Brutus*, and *Aruns*, one of *Tarquin*'s Sons, killed one another.

BATTLE of *Marathon*, fought in the Year of *Rome* 264, where *Miltiades*, *Aristides*, and *Themistocles*, Generals of the *Athenians*, who had but 12000 Men, defeated the Army of the King of *Persia*, composed of 500,000 Men.

BATTLE of *Micale* in *Ionia*, fought in the Year of *Rome* 274, where *Xantippus*, Father of *Pericles* and *Leotichides*, defeated the Army of the *Persians*; at the same Time *Pausanias* and *Aristides* defeated *Mardonius* near the City *Platea* in *Bœotia*.

BATTLE of *Coronea* in *Achaia*, fought in the Year of *Rome* 307, where *Tolmides*, General of the *Athenians*, lost the Battle and his Life.

BATTLE of *Thorone* in *Thracia*, fought in the Year of *Rome* 332; where the *Lacedemonians*, commanded by *Bracidas*, defeated the *Athenians*, commanded by *Cleon*; the two Generals were killed near the River.

BATTLE of *Allia*, fought in the Year of *Rome* 375; where *Brennus*, General of the *Gauls*, defeated the *Roman* Army, and render'd himself Master of *Rome*, except of the Capital, where *Manlius* retreated, and saved his Country, by the Time he gave to *Furius Camillus* to succour him.

BATTLE of *Leustra* in *Beotia*, fought in the Year of *Rome* 383; where *Epaminondas*, General of the *Thebans*, defeated the *Lacedemonians*; *Cleanbrotes* was killed in it.

BATTLE of *Mantinea*, fought in the Year of *Rome* 383; where *Epaminondas*, General of the *Thebans*, vanquish'd the *Athenians* and *Lacedemonians* allied; *Epaminondas* was wounded in pursuing the Victory, and died some Time afterwards.

BATTLE of *Amina*, at present called *Teveronna*, fought in the Year of *Rome* 393; where the *Romans* defeated the *Gauls*; young *Manlius* tore from off the Neck of one of the Priests of the *Gauls* a golden Chain, whence he was called *Torquatus*

BATTLE of *Cheronea* in *Bœotia*, where *Philip*, King of *Macedon*, Father of *Alexander the Great*, defeated the Army of the *Athenians*, and render'd himself Master of *Athens*; *Demosthenes* fought there with a great deal of Courage; and *Alexander*, yet but 15 Years of Age, saved the Life of his Father.

BATTLE of *Granicus*, a River of *Natolia* in *Asia*, near which *Alexander the Great* defeated *Darius*, who had advanced to dispute with him the Passage; *Darius* had 200,000 Men, and *Alexander* but 40,000; there were 48,000 either killed or taken of *Darius*'s Side.

BATTLE of *Issus*, a City in *Cilicia*, fought in the Year of *Rome* 421, near which *Alexander* beat *Darius*, who lost very near 100,000 Men; his Mother, his Wife, two Daughters, and his Son, aged six Years, were found among the Prisoners.

BATTLE of *Arbella*, a City in *Assyria*, fought in the Year of *Rome* 423; where *Alexander the Great* defeated him, for the third Time: *Darius* was killed soon after by *Bessus*; for which Regicide, *Bessus* was punished by *Alexander*'s Orders.

BATTLE, fought in the Year of *Rome* 427; where *Alexander the Great* defeated *Porus*, King of the *Indies*, one of the greatest Heroes of his Time; Victory declared in *Alexander*'s Favour, but it was after *Porus* had been put out of Combat by his Wounds.

BATTLE of *Heraclea*, fought in the Year of *Rome* 474; where *Pyrrhus*, King of the *Epirotes*, defeated the *Roman* Army, commanded by *Valerius Levinus*.

BATTLE of *Ascoli* in the *Pisentin*, fought in the Year of *Rome* 475; where the same *Pyrrhus* lost the last Battle he fought against the *Romans*: *Fabricius*, Consul, who commanded the *Romans*, informed *Pyrrhus* before the Battle, that his Physician had offered to poison him.

BATTLE of the *Tesin*, fought in the Year of *Rome* 536; where *Hannibal*, General of the *Carthaginians*, defeated the Consul *Cornelius Publius Scipio*, who was extremely wounded, and whose Son, but 15 Years of Age, saved his Life.

BATTLE of *Trebia* near *Placentia*, fought in the Year of *Rome* 536; where *Hannibal* defeated a second Time the *Roman* Army, commanded by Consul *Sempronius*, who was come to *Scipio*'s Succour.

BATTLE near the Lake of *Tratimena*, at present called *Perouse*, fought in the Year of *Rome* 537; where *Hannibal* defeated the *Roman* Army commanded by the Consul *Flaminius*, who was killed in it.

BATTLE of *Cannes* in *Pacille*, fought in the Year of *Rome* 538; where *Hannibal* defeated, for the fourth Time, the *Roman* Army commanded by *Paulus Emillius* and *Terrencius Varro*; *Emillius* was killed in the Combat. *Hannibal* sent to *Carthage* three Bushels of Rings

Rings of the *Roman* Knights who had been killed in the Battle.

BATTLE in *Spain*, fought in the Year of *Rome* 542, where *Asdrubal*, Brother of *Hannibal*, General of the *Carthaginians*, defeated the *Roman* Army commanded by *Cneus* and *Publius Scipio*, who were killed in it.

BATTLE of *Porli* near *Bologna*, fought in the Year of *Rome* 547; where the Consuls *Claudius Nero* and *Livius Salinator* defeated the Army of the *Carthaginians*, commanded by *Asdrubal*, who had been expelled from *Spain* by young *Scipio*, and was coming to the Succour of his Brother *Hannibal*; *Asdrubal* was killed in it, and the *Roman* General caus'd his Head to be cut off and thrown into the Camp, which made *Hannibal* despair of ever vanquishing the *Romans*.

BATTLE of *Thermopiles*, fought in the Year of *Rome* 562; where *Acilius Glabrio*, a *Roman* Consul, defeated *Antiochus the Great*, King of *Syria*, who fled into *Asia*.

BATTLE, fought in the Year of *Rome* 593; where *Judas Maccabees* was killed by *Bacchides*, General of *Demetrius*, King of *Syria*, *Maccabees* being overpower'd by the great Number of the Enemy.

BATTLE of *Izere* in *Dauphine*, fought in the Year of *Rome* 633; where the Consul *Quintus Fabius Maximus* defeated *Bituitus*, King of *Auvergne*; he beat afterwards the *Allobroges*, called at present *Savoyards*, render'd himself Master of *Dauphiny*, and of Part of *Languedoc*, of which he compos'd the Province of *Narbonne*.

BATTLE, fought in the Year of *Rome* 649; where the *Cimbres* and the *Tuetons*, People come out of *Jutbland*, to the Number of 50,000 Men, defeated the *Roman* Army commanded by *Servilius Cepio*; there were 150,000 Men on the Side of the *Romans* killed in the Field.

BATTLE of *Aix* in *Provence*, fought in the Year of *Rome* 652; where the Consul *Marius* defeated, for the fourth Time, the *Tuetons* and *Ambrarians*, People of *Germany*; 200,000 of them were left dead on the Field of Battle, and 80,000 taken Prisoners.

BATTLE, fought in the Year of *Rome* 716; where *Pompey* defeated, for the last Time, *Mithridates*, King of *Pontus*, whom he attacked in the Night.

BATTLE of *Pharsalia* in *Thessalia*, fought in the Year of *Rome* 721, where *Julius Cæsar* defeated *Pompey*, and thereby put an End to the *Roman* Civil War.

BATTLE of *Philippi* in *Macedonia*, fought in the Year of *Rome* 722, where *Cassius* and *Brutus* were defeated by *Augustus* and *Anthony*; *Cassius* and *Brutus* killed themselves through Despair.

SEA FIGHT at *Actium*, in the Gulf of *Lepanthe*, fought in the Year of *Rome* 423, where *Augustus* defeated the Fleet of *Mark-Anthony*, and *Cleopatra* Queen of *Ægypt*; *Anthony* killed himself soon after, and *Cleopatra* caused herself to be stung by an Asp in *Alexandria*, where she was besieged. By this Victory, *Augustus* became the sole Master of the *Roman* Empire.

SEA FIGHT, fought in the Year of *Rome* 728, between *Augustus* and young *Pompey*; where, after a bloody Combat, *Augustus* defeated and burnt the Fleet of young *Pompey*.

Note, That our second *Epocha* is from the Birth of *Christ* to our present Time; therefore,

CHRONOLOGY *of the most memorable* Battles, *ever since the Birth of* Christ *to this present Time.*

BATTLE in *Masia*, fought in the Year of *Christ* 254, where the Emperor *Decius* was defeated by the *Goths*, and killed in a March.

BATTLE of *Pontemolle*, fought in the Year of *Christ* 312, where *Constantine the Great* defeated the Tyrant *Maxentius*, near the Gate of the People; *Maxentius* was drowned in the *Tiber*.

BATTLE of *Murse* in *Pannonia*, at present *Hungary*, fought in 351, where *Magnentius* and *Decentius* were vanquished by the Emperor *Constantius*; *Magnentius* fled into *France*, where he disputed the Empire till his Death.

BATTLE of *Die* in *Dauphiny*, fought in 353, where the Emperor *Constantius* defeated the Tyrant *Magnentius*, who killed himself at *Lyons*.

BATTLE of *Adrianople*, fought in 378, where the Emperor *Valens*, an *Arian*, was defeated by the *Goths*.

BATTLE of *Aquilea*, fought in 394, where the Emperor *Theodosius the Great*, defeated the numerous Army of the Tyrant *Eugene*.

BATTLE of *Ravenna*, fought in 489, where *Theodoric*, King of the *Ostrogoths*, defeated *Odoacer*, King of the *Herules*.

BATTLE of *Tolbiac*, fought in 496, 10 Leagues off *Cologn*, where *Clovis*, King of *France*, defeated a numerous Army of *Germans*.

BATTLE, fought in 533, where *Belissarius*, General of the Emperor *Justinian*, defeated and took Prisoner *Gilimer* King of the *Vandals*, in *Africa*, and put an End to their Domination.

BATTLE, fought near *Rome* in 552, where *Narses*, General of the Emperor *Justinian*, defeated and killed *Totila*, King of the *Goths*.

BATTLE of *Xeres* in *Andalousia*, fought in 731, where *Tarif*, General of *Alit Miramolen*, King of the *Saracens*, defeated *Don Roderigo*, the last King of the *Goths* in *Spain*; the Fight lasted three Days, and there were more than 100,000 *Christians* killed in it. That Victory caused the Loss of *Spain*, which the *Moors* possessed during 700 Years, and which they had conquer'd in 7 Years.

BATTLE of *Ronceveaux*, fought in 778, where the Army of *Charlemagne* King of *France*, and Emperor, commanded by *Roland* his Nephew, was defeated, and *Roland* killed.

BATTLE of *Asturias*, fought in 783, where *Alphonso* II. King of *Leon*, defeated the *Moors* or *Saracens*.

BATTLE of *Fontenai* in *France*, fought in 841, where *Lewis the Germanick*, and *Charles the Bald*, defeated the Emperor *Lotharius* their Brother.

BATTLE of the *Lis*, fought in 961, where *Otho* I. Emperor, defeated an Army of *Huns*; *Conrad the Wise* was killed in it.

BATTLE, fought in 982, at *Bassantello* in *Calabria*, where the *Greeks*, joined with the *Saracens*, defeated the Emperor *Otho* II.

BATTLE of *Florines*, fought in 1015, where *Godfrey*, Duke of *Lorrain*, defeated, between the *Sambre* and the *Meuse*, two Rivers, *Lambert* Duke of *Brabant*.

BATTLE of *Pont-levoy*, fought in 1016, where *Foulques* III. called the *Black Earl of Anjou*, defeated *Eudes*, first Earl of *Blois* and *Chartres*.

BATTLE of *Mervet* near *Dordrecht*, fought in 1018, where the *Frisons* defeated the Army of *Godfrey* Duke of *Lorrain*.

BATTLE of *Barleduc*, fought in 1037, where the Emperor *Conrad* II. called *the Salick*, defeated and killed *Eudes* Earl of *Champagne*.

BATTLE of *Benevent*, fought in 1053, where *Robert Guichard*, Prince of *Poüille* and *Calabria*, defeated the Army of *Leo* IX. where the Pope commanded in Person, and was taken Prisoner.

BATTLE of *Hervuert*, between the *Meuse* and the *Vahal*, fought in 1062, where *Florent*, Earl of *Holland*, defeated the Earl *Hermand* of *Tuiesk*, General of the Army of the Confederates.

BATTLE of *Hastings*, fought in 1066, where *William the Conqueror*, Duke of *Normandy* in *France*, defeated and killed *Harold*, who had been placed on the Throne of *England* contrary to the Disposition of the Testament of *Edward the Simple*.

First BATTLE of *Cassel*, fought in 1071, where *Robert the Frison*, Usurper of the Earldom of *Flanders*, defeated the Army of *Philip* I. King of *France*, who supported the Interest of *Arnold*, Earl of *Flanders*, his Vassal who was killed in it.

BATTLE of *Spolete*, fought in 1094, where *Matilda*, Sovereign of *Tuscany*, *Parma*, *Placentia*, and of

of the Province called, at present, St. *Peter's Patrimony*, defeated the Emperor *Henry* IV. who was marching towards *Rome*, to be revenged of Pope *Urban* II.

Battle of *Alcoras*, fought in 1096, where *Peter* I. King of *Arragon*, Son of *Sancho*, defeated four Kings of the *Moors*.

Battle of *Antioch*, fought in 1098, where *Hugues the Great*, *Philip* I. King of *France*, *Godefroy* of *Bouillon*, &c. defeated the Army of the *Saracens*, composed of 450,000 Foot, and 200,000 Horse.

Battle of *Ascalons*, fought in 1099, where *Godfrey* of *Bouillon*, King of *Jerusalem* defeated the *Saracens*.

Battle of *Tincheb-Bray*, in *Normandy*, fought in 1106, where *Henry* I. King of *England*, defeated the Army of *Robert*, called *Courte-Cuisse*, Duke of *Normandy*, who was taken Prisoner.

Battle of the *Plain* of *Airick* in *Portugal*, fought in 1139, where *Alphonse* I. defeated five Kings of the *Moors*.

Second Battle of *Antioch*, fought in 1150, where *Noradin*, Prince of *Aleppo*, defeated and killed *Raimond* of *Poitiers*, Prince of *Antioch*.

Battle of *Alarços*, near *Sierra Morena*, in the Province of *La-Mancha*, fought in 1195, where *Alphonse* IX. King of *Castille*, was defeated by *Mazamuto*, King of the *Moors* or *Saracens*.

Battle of *Adrianople*, fought in 1205, where *Baudoin*, Earl of *Flanders*, elected Emperor of *Constantinople*, was defeated and taken by *Calo*, Prince of the *Bulgarians*, who had him put to Death some Time afterwards.

Battle of *Muradar*, fought in 1212, where *Alphonse* IX. King of *Castille*, defeated *Mahomet the Green*, King of *Morocco*.

Battle of *Bovines*, between *Lisle* and *Tournay*, fought in 1214, where *Philip Augustus*, King of *France*, defeated the Emperor *Otho* IV. *John* King of *England*, *Ferrand* of *Portugal*, Earl of *Flanders*, and *Renaud*, Earl of *Bologne*, all leagu'd against him.

Battle of *Alcaçar*, in *Portugal*, fought in 1217, where the *Portuguese*, assisted by the *French*, *English*, and *Flemish*, who were a going to the Holy Land, defeated a numerous Army of *Moors*.

Battle of *Taillebourg*, fought in 1242, where *Louis* IX. King of *France*, defeated the Army of *Henry* III. King of *England*.

Battle of *Frankfort*, fought in 1247, where *Henry* of *Thuringe*, King of the *Romans*, defeated *Conrad*, his Concurrent to the Empire.

Battle of *Massoura*, in *Egypt*, fought in 1250, where St. *Louis*, King of *France*, was taken Prisoner by *Melec Sala*, who commanded an Army of *Saracens*.

Battle of the *Lac Ficino*, fought in 1268, where *Charles* I. King of *Naples*, defeated and took Prisoner *Conradin*, Grandson of the Emperor *Frederick* II. and *Frederick* of *Austria*, whose Heads he caused to be cut off in the publick Place of *Naples*.

Battle fought in 1278, near *Vienna*, in *Austria*, where *Rodolphus* I. Emperor, defeated and killed *Ottocarus*, King of *Bohemia*.

Battle of *Woringue*, fought in 1288, where *John*, Duke of *Brabant*, defeated the Army of *Sifridus*, Elector of *Cologne*, and took him Prisoner, with the Earls of *Guelderland* and *Nassau*.

Battle of *Furnes*, fought in 1297, where *Robert*, Earl of *Artois*, who commanded the Army of *Philip the Fair*, King of *France*, defeated *Guy* of *Flanders*, who had declared for *Edward* I. King of *England*.

Battle fought near *Spire*, in 1298, where the Emperor *Adolphus* of *Nassau*, who had been deposed, was defeated and killed by *Albert* of *Austria*, elected in his Place.

Battle of *Coustray*, called of the gilded Spurs, fought in 1302, where *John*, Earl of *Namur*, defeated the Army of *Philip the Fair*, King of *France*.

Battle of *Mons*, in *Puele*, between *Lisle* and *Douay*, fought in 1304, where *Philip the Fair*, King of *France*, took his Revenge of *Coustray*, and defeated the *Flemish*, commanded by *William* of *Juliers*, *John* of *Namur*, *Robert* of *Nevers*, and the Earl of *Thian*.

Naval Fight of *Zizicrea*, a maritime Town of *Zelandia*, fought in 1304, where *Robert* of *Lauria*, Admiral of *Philip the Fair*, King of *France*, defeated the *Flemish* Fleet.

Battle of *Muldorf*, in *Bavaria*, fought in 1322, where the Emperor *Louis* of *Bavaria*, defeated *Frederick* of *Austria*, called the *Fair*, his Concurrent.

Second Battle of *Cassel*, fought in 1328, where *Philip* of *Valois*, King of *France*, defeated the *Flemish*, who had revolted against *Louis* of *Creci*, Earl of *Flanders*.

Sea-Fight near *L'Esclise*, in 1340, between the Fleet of *Philip* of *Valois*, King of *France*, and that of *Edward* III. King of *England*, where that of *France* was beaten.

Battle of *Creci*, fought in 1346, where *Edward* III. King of *England*, defeated entirely the Army of *Philip* of *Valois*, King of *France*.

Battle of *Poitiers*, fought in 1356, where *Edward*, Prince of *Wales*, Son of *Edward* III. King of *England*, defeated and took Prisoner, *John*, King of *France*, who was supported but by his fourth Son, *Philip*, the others having retreated.

Battle of *Auray*, in *Britanny*, fought in 1364, where *Bertrand du Guesclin*, and the Earl of *Auxerre*, Generals of *Charles* V. King of *France*, defeated the Army of *Charles* of *Blois*, composed of *English* and *Britons*.

Battle of *Cocherel*, in *Britanny*, fought in 1364, where *Bertrand Du Guesclin*, defeated *John* of *Grailli*, who commanded an Army of *English* and *Navarreans*.

Battle of *Nachara*, fought in 1367, where *Edward*, Prince of *Wales*, who supported the Party of *Don Pedro*, King of *Castille*, defeated the Earl of *Trastamare*, who commanded the *Castillans*, who had espoused the Party of *Henry*.

Battle of *Montiel*, fought in 1369, where *Henry* of *Trastamare*, assisted by *Bertrand du Guesclin*, and the *French* Forces, defeated and killed *Don Pedro the cruel*. *Henry* ascended the *Spanish* Throne by Election.

Battle of *Rosebeck*, between *Ypres* and *Courtray*, fought in 1382, where *Charles* VI. King of *France* defeated the *Flemish*, who revolted against *Louis* of *Male*, their Prince.

Battle of *Aliubarotti*, in *Portugal*, fought in 1385, where *John* I. natural Son of King *Ferdinand*, defeated *Henry* I. King of *Castille*, who had married *Beatrix*, legitimate Heiress of the Kingdom.

Battle of *Sempach*, near *Lucerne*, in *Switzerland*, fought in 1386, where the *Switzers* defeated and killed *Leopold*, Duke of *Austria*, called the *fine Gendarme*.

Battle of *Nicopolis*, fought in 1396, where *Bajazet*, I. Emperor of the *Turks*, defeated *Sigismond*, King of *Hungary*, who was afterwards elected Emperor.

Battle of *Angolia*, in *Asia*, fought in 1401, where *Tamerlane*, Prince of the *Tartars*, defeated the victorious Army of *Bajazet* I. Emperor of the *Turks*, and took him Prisoner.

Battle of *Roche-Seche*, fought on the Borders of the *Garigliano*, in the Kingdom of *Naples*, in 1411, where *Louis*, Duke of *Anjou*, defeated *Lancelot*, his Competitor to the Kingdom of *Naples*.

Battle of *Agincourt*, fought in 1415, where *Henry* V. King of *England*, defeated the Army of *Charles* VI. King of *France*, who had forced him to fight, through Despair; the Dukes of *Alençon*, of *Lorain*, of *Bar*, of *Brabant*, of *Nevers*, the Constable *D'Albert*, *Boucicault*, Marechal of *France*, and the Admiral *D'Ampierre*, were found among the Slain.

Battle of *Bauge* in *Anjou*, fought in 1421, where *John*, Earl of *Bouchan*, *John Stuart*, Scotch, and the Marechal of *La Fayette*, who commanded the *French*, defeated the Duke of *Clarence*, brother of *Henry* V. King of *England*.

Battle fought in 1422, where *John Zisca*, General

Rings of the *Roman* Knights who had been killed in the Battle.

BATTLE in *Spain*, fought in the Year of *Rome* 542, where *Asdrubal*, Brother of *Hannibal*, General of the *Carthaginians*, defeated the *Roman* Army commanded by *Cneus* and *Publius Scipio*, who were killed in it.

BATTLE of *Porli* near *Bologna*, fought in the Year of *Rome* 547; where the Consuls *Claudius Nero* and *Livius Salinator* defeated the Army of the *Carthaginians*, commanded by *Asdrubal*, who had been expelled from *Spain* by young *Scipio*, and was coming to the Succour of his Brother *Hannibal*; *Asdrubal* was killed in it, and the *Roman* General caus'd his Head to be cut off and thrown into the Camp, which made *Hannibal* despair of ever vanquishing the *Romans*.

BATTLE of *Thermopiles*, fought in the Year of *Rome* 562; where *Acilius Glabrio*, a *Roman* Consul, defeated *Antiochus the Great*, King of *Syria*, who fled into *Asia*.

BATTLE, fought in the Year of *Rome* 593; where *Judas Maccabees* was killed by *Bacchides*, General of *Demetrius*, King of *Syria*, *Maccabees* being overpower'd by the great Number of the Enemy.

BATTLE of *Izere* in *Dauphine*, fought in the Year of *Rome* 633; where the Consul *Quintus Fabius Maximus* defeated *Bituitus*, King of *Auvergne*; he beat afterwards the *Allobroges*, called at present *Savoyards*, render'd himself Master of *Dauphiny*, and of Part of *Languedoc*, of which he compos'd the Province of *Narbonne*.

BATTLE, fought in the Year of *Rome* 649; where the *Cimbres* and the *Tuetons*, People come out of *Jutbland*, to the Number of 50,000 Men, defeated the *Roman* Army commanded by *Servilius Cepio*; there were 150,000 Men on the Side of the *Romans* killed in the Field.

BATTLE of *Aix* in *Provence*, fought in the Year of *Rome* 652; where the Consul *Marius* defeated, for the fourth Time, the *Tuetons* and *Ambrarians*, People of *Germany*; 200,000 of them were left dead on the Field of Battle, and 80,000 taken Prisoners.

BATTLE, fought in the Year of *Rome* 716; where *Pompey* defeated, for the last Time, *Mithridates*, King of *Pontus*, whom he attacked in the Night.

BATTLE of *Pharsalia* in *Thessalia*, fought in the Year of *Rome* 721, where *Julius Cæsar* defeated *Pompey*, and thereby put an End to the *Roman* Civil War.

BATTLE of *Philippi* in *Macedonia*, fought in the Year of *Rome* 722, where *Cassius* and *Brutus* were defeated by *Augustus* and *Anthony*; *Cassius* and *Brutus* killed themselves through Despair.

SEA FIGHT at *Actium*, in the Gulf of *Lepanthe*, fought in the Year of *Rome* 423, where *Augustus* defeated the Fleet of *Mark-Anthony*, and *Cleopatra* Queen of *Ægypt*; *Anthony* killed himself soon after, and *Cleopatra* caused herself to be stung by an Asp in *Alexandria*, where she was besieged. By this Victory, *Augustus* became the sole Master of the *Roman* Empire.

SEA FIGHT, fought in the Year of *Rome* 728, between *Augustus* and young *Pompey*; where, after a bloody Combat, *Augustus* defeated and burnt the Fleet of young *Pompey*.

Note, That our second *Epocha* is from the Birth of *Christ* to our present Time; therefore,

CHRONOLOGY *of the most memorable* Battles, *ever since the Birth of* Christ *to this present Time.*

BATTLE in *Mæsia*, fought in the Year of *Christ* 254, where the Emperor *Decius* was defeated by the *Goths*, and killed in a March.

BATTLE of *Pontemolle*, fought in the Year of *Christ* 312, where *Constantine the Great* defeated the Tyrant *Maxentius*, near the Gate of the People; *Maxentius* was drowned in the *Tiber*.

BATTLE of *Murse* in *Pannonia*, at present *Hungary*, fought in 351, where *Magnentius* and *Decentius* were vanquished by the Emperor *Constantius*; *Magnentius* fled into *France*, where he disputed the Empire till his Death.

BATTLE of *Die* in *Dauphiny*, fought in 353, where the Emperor *Constantius* defeated the Tyrant *Magnentius*, who killed himself at *Lyons*.

BATTLE of *Adrianople*, fought in 378, where the Emperor *Valens*, an *Arian*, was defeated by the *Goths*.

BATTLE of *Aquilea*, fought in 394, where the Emperor *Theodosius the Great*, defeated the numerous Army of the Tyrant *Eugene*.

BATTLE of *Ravenna*, fought in 489, where *Theodoric*, King of the *Ostrogoths*, defeated *Odoacer*, King of the *Herules*.

BATTLE of *Tolbiac*, fought in 496, 10 Leagues off *Cologn*, where *Clovis*, King of *France*, defeated a numerous Army of *Germans*.

BATTLE, fought in 533, where *Belissarius*, General of the Emperor *Justinian*, defeated and took Prisoner *Gilimer* King of the *Vandals*, in *Africa*, and put an End to their Domination.

BATTLE, fought near *Rome* in 552, where *Narses*, General of the Emperor *Justinian*, defeated and killed *Totila*, King of the *Goths*.

BATTLE of *Xeres* in *Andalousia*, fought in 731, where *Tarif*, General of *Alit Miramolen*, King of the *Saracens*, defeated *Don Roderigo*, the last King of the *Goths* in *Spain*; the Fight lasted three Days, and there were more than 100,000 *Christians* killed in it. That Victory caused the Loss of *Spain*, which the *Moors* possessed during 700 Years, and which they had conquer'd in 7 Years.

BATTLE of *Ronceveaux*, fought in 778, where the Army of *Charlemagne* King of *France*, and Emperor, commanded by *Roland* his Nephew, was defeated, and *Roland* killed.

BATTLE of *Asturias*, fought in 783, where *Alphonso* II. King of *Leon*, defeated the *Moors* or *Saracens*.

BATTLE of *Fontenai* in *France*, fought in 841, where *Lewis the Germanick*, and *Charles the Bald*, defeated the Emperor *Lotharius* their Brother.

BATTLE of the *Lis*, fought in 961, where *Otho* I. Emperor, defeated an Army of *Huns*; *Conrad the Wise* was killed in it.

BATTLE, fought in 982, at *Bassantello* in *Calabria*, where the *Greeks*, joined with the *Saracens*, defeated the Emperor *Otho* II.

BATTLE of *Florines*, fought in 1015, where *Godfrey*, Duke of *Lorrain*, defeated, between the *Sambre* and the *Meuse*, two Rivers, *Lambert* Duke of *Brabant*.

BATTLE of *Pont-levoy*, fought in 1016, where *Foulques* III. called the *Black Earl of Anjou*, defeated *Eudes*, first Earl of *Blois* and *Chartres*.

BATTLE of *Mervet* near *Dordrecht*, fought in 1018, where the *Frisons* defeated the Army of *Godfrey* Duke of *Lorrain*.

BATTLE of *Barleduc*, fought in 1037, where the Emperor *Conrad* II. called *the Salick*, defeated and killed *Eudes* Earl of *Champagne*.

BATTLE of *Benevent*, fought in 1053, where *Robert Guichard*, Prince of *Poüille* and *Calabria*, defeated the Army of *Leo* IX. where the Pope commanded in Person, and was taken Prisoner.

BATTLE of *Hervuert*, between the *Meuse* and the *Vahal*, fought in 1062, where *Florent*, Earl of *Holland*, defeated the Earl *Hermand* of *Tuiesk*, General of the Army of the Confederates.

BATTLE of *Hastings*, fought in 1066, where *William the Conqueror*, Duke of *Normandy* in *France*, defeated and killed *Harold*, who had been placed on the Throne of *England* contrary to the Disposition of the Testament of *Edward the Simple*.

First BATTLE of *Cassel*, fought in 1071, where *Robert the Frison*, Usurper of the Earldom of *Flanders*, defeated the Army of *Philip* I. King of *France*, who supported the Interest of *Arnold*, Earl of *Flanders*, his Vassal who was killed in it.

BATTLE of *Spolete*, fought in 1094, where *Matilda*, Sovereign of *Tuscany*, *Parma*, *Placentia*, and of

of the Province called, at present, St. *Peter's Patrimony*, defeated the Emperor *Henry* IV. who was marching towards *Rome*, to be revenged of Pope *Urban* II.

Battle of *Alcoras*, fought in 1096, where *Peter* I. King of *Arragon*, Son of *Sancho*, defeated four Kings of the *Moors*.

Battle of *Antioch*, fought in 1098, where *Hugues the Great*, *Philip* I. King of *France*, *Godefroy* of *Bouillon*, &c. defeated the Army of the *Saracens*, composed of 450,000 Foot, and 200,000 Horse.

Battle of *Ascalons*, fought in 1099, where *Godfrey* of *Bouillon*, King of *Jerusalem* defeated the *Saracens*.

Battle of *Tincheb-Bray*, in *Normandy*, fought in 1106, where *Henry* I. King of *England*, defeated the Army of *Robert*, called *Courte-Cuisse*, Duke of *Normandy*, who was taken Prisoner.

Battle of the *Plain* of *Airick* in *Portugal*, fought in 1139, where *Alphonse* I. defeated five Kings of the *Moors*.

Second Battle of *Antioch*, fought in 1150, where *Noradin*, Prince of *Aleppo*, defeated and killed *Raimond* of *Poitiers*, Prince of *Antioch*.

Battle of *Alarços*, near *Sierra Morena*, in the Province of *La-Mancha*, fought in 1195, where *Alphonse* IX. King of *Castille*, was defeated by *Mazamuto*, King of the *Moors* or *Saracens*.

Battle of *Adrianople*, fought in 1205, where *Baudoin*, Earl of *Flanders*, elected Emperor of *Constantinople*, was defeated and taken by *Calo*, Prince of the *Bulgarians*, who had him put to Death some Time afterwards.

Battle of *Muradar*, fought in 1212, where *Alphonse* IX. King of *Castille*, defeated *Mahomet the Green*, King of *Morocco*.

Battle of *Bovines*, between *Lisle* and *Tournay*, fought in 1214, where *Philip Augustus*, King of *France*, defeated the Emperor *Otho* IV. *John* King of *England*, *Ferrand* of *Portugal*, Earl of *Flanders*, and *Renaud*, Earl of *Bologne*, all leagu'd against him.

Battle of *Alcaçar*, in *Portugal*, fought in 1217, where the *Portuguese*, assisted by the *French*, *English*, and *Flemish*, who were a going to the Holy Land, defeated a numerous Army of *Moors*.

Battle of *Taillebourg*, fought in 1242, where *Louis* IX. King of *France*, defeated the Army of *Henry* III. King of *England*.

Battle of *Frankfort*, fought in 1247, where *Henry* of *Thuringe*, King of the *Romans*, defeated *Conrad*, his Concurrent to the Empire.

Battle of *Massoura*, in *Egypt*, fought in 1250, where St. *Louis*, King of *France*, was taken Prisoner by *Melec Sala*, who commanded an Army of *Saracens*.

Battle of the *Lac Ficino*, fought in 1268, where *Charles* I. King of *Naples*, defeated and took Prisoner *Conradin*, Grandson of the Emperor *Frederick* II. and *Frederick* of *Austria*, whose Heads he caused to be cut off in the publick Place of *Naples*.

Battle fought in 1278, near *Vienna*, in *Austria*, where *Rodolphus* I. Emperor, defeated and killed *Ottocarus*, King of *Bohemia*.

Battle of *Woringue*, fought in 1288, where *John*, Duke of *Brabant*, defeated the Army of *Sifridus*, Elector of *Cologne*, and took him Prisoner, with the Earls of *Guelderland* and *Nassau*.

Battle of *Furnes*, fought in 1297, where *Robert*, Earl of *Artois*, who commanded the Army of *Philip the Fair*, King of *France*, defeated *Guy* of *Flanders*, who had declared for *Edward* I. King of *England*.

Battle fought near *Spire*, in 1298, where the Emperor *Adolphus* of *Nassau*, who had been deposed, was defeated and killed by *Albert* of *Austria*, elected in his Place.

Battle of *Coustray*, called of the gilded Spurs, fought in 1302, where *John*, Earl of *Namur*, defeated the Army of *Philip the Fair*, King of *France*.

Battle of *Mons*, in *Puele*, between *Lisle* and *Douay*, fought in 1304, where *Philip the Fair*, King of *France*, took his Revenge of *Coustray*, and defeated the *Flemish*, commanded by *William* of *Juliers*, *John* of *Namur*, *Robert* of *Nevers*, and the Earl of *Thian*.

Naval Fight of *Zizicrea*, a maritime Town of *Zelandia*, fought in 1304, where *Robert* of *Lauria*, Admiral of *Philip the Fair*, King of *France*, defeated the *Flemish* Fleet.

Battle of *Muldorf*, in *Bavaria*, fought in 1322, where the Emperor *Louis* of *Bavaria*, defeated *Frederick* of *Austria*, called the *Fair*, his Concurrent.

Second Battle of *Cassel*, fought in 1328, where *Philip* of *Valois*, King of *France*, defeated the *Flemish*, who had revolted against *Louis* of *Creci*, Earl of *Flanders*.

Sea-Fight near *L'Escluse*, in 1340, between the Fleet of *Philip* of *Valois*, King of *France*, and that of *Edward* III. King of *England*, where that of *France* was beaten.

Battle of *Creci*, fought in 1346, where *Edward* III. King of *England*, defeated entirely the Army of *Philip* of *Valois*, King of *France*.

Battle of *Poitiers*, fought in 1356, where *Edward*, Prince of *Wales*, Son of *Edward* III. King of *England*, defeated and took Prisoner, *John*, King of *France*, who was supported but by his fourth Son, *Philip*, the others having retreated.

Battle of *Auray*, in *Britanny*, fought in 1364, where *Bertrand du Guesclin*, and the Earl of *Auxerre*, Generals of *Charles* V. King of *France*, defeated the Army of *Charles* of *Blois*, composed of *English* and *Britons*.

Battle of *Cocherel*, in *Britanny*, fought in 1364, where *Bertrand Du Guesclin*, defeated *John* of *Grailli*, who commanded an Army of *English* and *Navarreans*.

Battle of *Nachara*, fought in 1367, where *Edward*, Prince of *Wales*, who supported the Party of *Don Pedro*, King of *Castille*, defeated the Earl of *Trastamare*, who commanded the *Castillans*, who had espoused the Party of *Henry*.

Battle of *Montiel*, fought in 1369, where *Henry* of *Trastamare*, assisted by *Bertrand du Guesclin*, and the *French* Forces, defeated and killed *Don Pedro the cruel*. *Henry* ascended the *Spanish* Throne by Election.

Battle of *Rosebeck*, between *Ypres* and *Courtray*, fought in 1382, where *Charles* VI. King of *France* defeated the *Flemish*, who revolted against *Louis* of *Male*, their Prince.

Battle of *Aliubarotti*, in *Portugal*, fought in 1385, where *John* I. natural Son of King *Ferdinand*, defeated *Henry* I. King of *Castille*, who had married *Beatrix*, legitimate Heiress of the Kingdom.

Battle of *Sempach*, near *Lucerne*, in *Switzerland*, fought in 1386, where the *Switzers* defeated and killed *Leopold*, Duke of *Austria*, called the *fine Gendarme*.

Battle of *Nicopolis*, fought in 1396, where *Bajazet*, I. Emperor of the *Turks*, defeated *Sigismond*, King of *Hungary*, who was afterwards elected Emperor.

Battle of *Angolia*, in *Asia*, fought in 1401, where *Tamerlane*, Prince of the *Tartars*, defeated the victorious Army of *Bajazet* I. Emperor of the *Turks*, and took him Prisoner.

Battle of *Roche-Seche*, fought on the Borders of the *Garigliano*, in the Kingdom of *Naples*, in 1411, where *Louis*, Duke of *Anjou*, defeated *Laucelot*, his Competitor to the Kingdom of *Naples*.

Battle of *Agincourt*, fought in 1415, where *Henry* V. King of *England*, defeated the Army of *Charles* VI. King of *France*, who had forced him to fight, through Despair; the Dukes of *Alençon*, of *Lorain*, of *Bar*, of *Brabant*, of *Nevers*, the Constable *D'Albert*, *Boucicault*, Marechal of *France*, and the Admiral *D'Ampierre*, were found among the Slain.

Battle of *Bauge* in *Anjou*, fought in 1421, where *John*, Earl of *Bouchan*, *John Stuart*, Scotch, and the Marechal of *La Fayette*, who commanded the *French*, defeated the Duke of *Clarence*, brother of *Henry* V. King of *England*.

Battle fought in 1422, where *John Zisca*, General

ral of the *Hussites* in *Bohemia*, defeated the Emperor *Sigismond*, who narrowly escaped being taken Prisoner.

Battle of *Verneuil*, fought in 1424, where the Duke of *Beauford*, Regent of *France*, for the *English*, defeated the Forces of *Charles* VII. King of *France*.

Battle of *Grenada*, fought in 1431, where *John* II. King of *Castille*, defeated the Army of *Mahomet the Left-handed*, King of the *Moors*.

Sea-Fight near the Island of *Ponce*, in 1435, where *Rene* of *Anjou*, King of *Naples*, defeated and took *Alphonse* V. called the *Magnanimous*, King of *Arragon*.

Battle of *Cassovia*, a Plain in the Province of *Servia*, where *John Huniade*, King of *Hungary*, attacked the Army of the *Turks*, commanded by *Amurath* II. and *Mahomet* II. Father and Son. *Huniade*, though inferior of two Thirds, had the Advantage at first, but not sustained himself to the End.

Battle of *Formigny*, fought in 1450, where the Constable, *Arthur*, Earl of *Richmond*, who commanded the Forces of *Charles* VII. King of *France*, defeated General *Xiriel*, who commanded the *English*.

Battle of *Castillon*, in *Perigord*, fought in 1453, where *Charles* VII. King of *France*, defeated the famous *English* General *Talbot*; the General *Talbot* and his Son were killed in the Fight.

Battle of *Grave*, on the *Escaut*, between *Ghent* and *Oudenard*, fought in 1453, where *Philip the Good* defeated the Army of those of *Ghent*, who had revolted.

Battle of *Wakefield*, where *Marguerite* of *Anjou*, Daughter of *Rene*, King of *Naples*, Queen of *England*, defeated and killed *Richard*, Duke of *York*.

Battle of *Mont-Lhery*, fought in 1465, where *Louis* XI. King of *France*, assisted in Person, and *Charles the Bold*, Earl of *Charolois*, which begun with a great Fury, but ended without any Advantage on either Side.

Battle of *Morat*, fought in 1476, where the *Switzers* defeated, for the second Time, *Charles the Bold*, Duke of *Burgundy*, who lost his Cannon, Baggage, and the Equipages of his Houshold; the large Diamond of *Burgundy* was found in the Dust, and sold afterwards for two Crowns.

Battle of *Tiramare*, in *Albania*, fought in 1476, where *Contarini*, General of the *Venetians*, was defeated and killed by *Omar Bassa*, General of *Mahomet* II.

Battle of *Nancy*, fought in 1477, where *Charles the Bold*, Duke of *Lorain*, was defeated and killed by *Rene*, Duke of *Lorain*, assisted by the *Switzers*.

Battle of *Guinegasta*, fought in 1479, where *Maximilian*, Arch-Duke of *Austria*, defeated the Army of *France*, commanded by *Crevecœur d'Esquerdes*.

Battle of *Leicester*, fought in 1485, where *Henry* VII. Earl of *Richmond*, defeated and killed *Richard* III. Usurper of the Crown of *England*, and Murtherer of his two Nephews; that Victory gave the Crown to the Earl of *Richmond*, to whom it belong'd lawfully.

Battle of *St. Aubin du Cormier*, in *Britanny*, fought in 1488, where *Louis* of *La Trimouille*, General of the Army of *Charles* VIII. King of *France*, defeated and took Prisoner, the Duke of *Orleans*, afterwards King of *France*, and the Earl of *Nassau*.

Battle of *Fornoue*, near *Placentia*, fought in 1495, where *Charles* VIII. King of *France*, defeated, in Person, with a small Army of 8000 Men only, the Army of the confederated Princes of *Italy*, consisting of 50,000 Men, and commanded by the Marquis of *Mantua*, and the Earl of *Cajas*.

Battle of *Cerignoles*, in *Abruzzo*, fought in 1503, where *Gonzalvo* of *Cordua*, called the *Great Captain*, defeated the *French* for the first Time, and killed the Duke of *Nemours*, who commanded them.

Battle of *Giera-Dadde*, or *Aignadel*, fought in 1509, where *Louis* XII. King of *France*, who commanded in Person, defeated the Army of the *Venetians*.

Battle of *Ravenna*, fought in 1512, where *Gaston de Foix* defeated the Army of the Princes of *Italy*, confederated against *Louis* XII. King of *France*. The Cardinal of *Medicis*, Legate of Pope *Julius* II. the Marquis of *Pescaire*, and *Peter* of *Navarre*, were made Prisoners. *Gaston* was killed in it at the Age of 22 Years, for having advanced with a Handful of Men to force the Rear-Guard.

Battle of *Flodden* in *England*, fought in 1513, where *James* IV. King of *Scotland*, was killed with 8000 of his Subjects.

Battle of *Navarre*, fought in 1513, where the *Switzers* defeated the Army of *Louis* XII. King of *France*, commanded by *Louis* of *la Trimouille*, and *James Trivulce*.

Battle of *Zalderam*, near *Tauris*, fought in 1514, where *Selim* I. Emperor of the *Turks*, defeated *Ismael*, Sophi of *Persia*.

Battle of *Marignan*, in the *Milanese*, fought in 1515, where *Francis* I. King of *France*, defeated, in Person, the *Switzers*, and laid all that Night on the Carriage of a Cannon.

Battle of *Aleppo*, fought in 1516, where *Selim* I. defeated *Campson*, Sultan of *Egypt*, who was smothered, at the Age of 77 Years, by his Soldiers, who fled.

Battle of the *Bicoque*, in the *Milanese*, fought in 1522, where the Marquis of *Pescaire* and *Prosper Colonna*, defeated the Mareschal *Lautrec*, and the Mareschal *Lescur*, his Brother, who commanded for *Francis* I. the Troops of the *Milanese*.

Battle of *Pavia*, fought in 1525, where *Francis* I. King of *France*, was made Prisoner, with a great Number of Lords. *Lanoi* had him conducted to *Madrid*.

Battle of *Mohas*, fought in 1526, where *Soliman* II. Emperor of the *Turks* defeated and killed *Louis*, the last King of *Hungary* and *Bohemia*, aged 22 Years.

Battle of *Cerisole*, in *Piedmont*, fought in 1544, where *Francis* of *Bourbon*, Duke of *Anguien*, Prince of the Blood of *France*, aged 25 Years, defeated the Marquis *Du Guast*, who commanded the *Spanish* Army.

Battle of *Mulberg*, on the River *Elbe*, fought in 1546, where *Charles* V. Emperor, defeated in Person, the Army of the Protestants: The Elector, *Frederick*, of *Saxony*, Chief of the Party, was made Prisoner.

Battle of *Esseck*, in *Hungary*, fought in 1553, where the *Turks* defeated the Army of *Ferdinand* I. King of the *Romans*, Brother of the Emperor *Charles* V.

Battle of *Marcian*, fought in 1554, where *John James*, of *Medicis*, Marquis of *Marignan*, General of the Army of *Charles* V. defeated that of *France*, commanded by *Peter Strozzi*.

Battle of *Renti*, fought in 1554, where *Francis*, Duke of *Guise*, who commanded the Van-Guard of the Army of *Henry* II. King of *France*, defeated that of the Emperor *Charles* V. as he was coming in Person to the Succours of *Renti*.

Battle of *St. Quintin*, where *Emanuel Philbert*, Duke of *Savoy*, Governor of the *Low-Countries*, defeated the Army of *Henry* II. King of *France*, commanded by the Constable of *Montmorency*.

Battle of *Gravelines*, fought in 1558, where the *Comte* of *Egmont*, General of the Army of *Philip* II. King of *Spain*, defeated the Army of *Henry* II. commanded by the Mareschal *De Thermes*, who was made Prisoner.

Battle of *St. Denis*, near *Paris*, fought in 1567, where the Constable, *Anne* of *Montmorency*, routed the Army of the *Calvinists*, commanded by *Louis* of *Bourbon*, Prince of *Conde*, and the Admiral *Coligni*, the Constable, died of his Wounds.

Battle of *Gemmingen*, in *Friseland*, fought in 1568, on the River *Ems*, where the Duke *D'Albe*, Governor

Governor of the *Catholick Low-Countries*, defeated the Army of the Proteſtants, commanded by *Ludovic* of *Naſſau*, Brother of *William* Prince of *Orange*.

Battle of *Jarnac*, in *Xaintonge* in *France*, fought in 1569, where the Duke of *Anjou*, afterwards *Henry* III. King of *France*, defeated the Army of the *Calviniſts*, commanded by the Prince of *Conde*, who was cowardly and perfidiouſly killed by *Monteſquiou*, againſt the Laws of Arms.

Battle of *Montcontour*, fought in 1569, where the ſame *Henry* Duke of *Anjou* defeated the Admiral *Coligni*, who commanded the *Calviniſts*.

Sea Fight of *Lepante*, fought in the Gulf of the ſame Name in 1571, where *John of Auſtria*, natural Son of the Emperor *Charles* V. commanding the Fleets of Pope *Pius* V. of *Philip* II. King of *Spain*, of the Republick of *Venice*, of *Malta*, and of *Genoa*, defeated all the maritime Forces of the *Ottoman* Empire.

Battle of *La Bruiere*, of *Mooex* near *Nimeguen*, fought in 1574, where *Sancho* of *Avilla*, General of the *Spaniſh* Forces, defeated and killed *Ludovic* and *Henry of Naſſau*, and *Chriſtopher* Prince Palatine General of the *United Provinces*.

Battle of *Alcacer* in *Africa*, fought in 1578, where *Sebaſtian*, King of *Portugal*, was defeated and killed by the *Moors*.

Battle of *Alcantara*, fought in 1580, where *Ferdinand* of *Toledo*, Duke of *Albe*, General of the Forces of *Philip* II. King of *Spain*, defeated *Don Antonio* of *Portugal*, Prior of *Crato*, who cauſed himſelf to be proclaimed King of *Portugal*.

Battle, fought in 1588, where *Maximilian*, Archduke of *Auſtria*, Brother of the Emperor *Rodolphus*, was made Priſoner by *Sigiſmond* King of *Sweden*, with whom he diſputed the Crown of *Poland*.

Battle of *Pontcharra*, fought in 1591, where the Duke of *Les Diguieres*, commanding the *French* Forces, defeated the Army of *Charles Emanuel*, Duke of *Savoy*, commanded by his Baſtard Brother.

Battle of *Dourlens*, fought in 1595, where the Count of *Fuentes*, Governor of the *Low Countries*, defeated the *French* Army commanded by the Count of *St. Paul*, the Duke of *Bouillon*, and the Admiral of *Villars*.

Battle of *Newport*, fought in 1600, where Count *Maurice* defeated the Archduke *Albert*, Governor of the *Low Countries*.

Battle of *Prague*, fought in 1620, where *Maximilian*, Duke of *Bavaria*, General of the Forces of *Ferdinand* II. Emperor, defeated *Frederick*, Elector Palatine, who had been elected King of *Bohemia* by the Proteſtants.

Battle of *Wimpfen* in the *Palatinate*, fought in 1622, where Count *Tilly*, General of the Forces of the Emperor *Ferdinand* II. defeated the Marquiſs of *Baden Dourlac*.

Battle of *Fleurus* in the Province of *Namure*, fought in 1622, where Count *Tilly*, General of the Emperor *Ferdinand* II. defeated *Chriſtian* of *Brunſwick*, and the Baſtard *Mansfeld*.

Battle of *Statlo*, fought in 1623, where Count *Tilly*, General of the Emperor *Ferdinand* II. defeated *Chriſtian* of *Brunſwick*, Biſhop of *Halberſtat*.

Battle of *Nitra* in *Hungary*, fought in 1624, where Count *Heſterhazi*, Palatine of the Kingdom, General of the Forces of the Emperor *Ferdinand* II. defeated the Army of *Bethleem Gabor*, Prince of *Tranſilvania*, who had cauſed himſelf to be crowned King of *Bohemia*.

Battle of *Lectheren*, in the Dutchy of *Brunſwick*, fought in 1626, where Count *Tilly*, General of the Emperor *Ferdinand* II. defeated *Chriſtian* IV. King of *Denmark*.

Battle of *Alborg* in the North of *Jutland*, fought in 1627, where Count *Sliex*, General of the Emperor *Ferdinand* II. defeated *Baudits* and *Calembourg*, Generals of *Chriſtian* IV. King of *Denmark*.

Battle of *Wolgaſt* in *Pomerania*, fought in 1628, where the Duke of *Friſeland* or *Walſtein*, General of the Emperor *Ferdinand* II. defeated *Chriſtian* IV. King of *Denmark*, who eſcaped narrowly being taken Priſoner, with his Brother and Son.

Battle of *Leipſich*, fought in 1631, where *Guſtavus Adolphus*, King of *Sweden*, defeated Count *Tilly*, General of the Emperor *Ferdinand* II. who had gained 14 Battles.

Battle of *Altemberg*, fought in 1632, where *Guſtavus Adolphus*, King of *Sweden*, was beaten by *Maximilian*, Duke of *Bavaria*, and General *Walſtein*.

Battle of *Lutzen*, fought in 1632, where *Guſtavus Adolphus*, King of *Sweden*, aged 38 Years, was killed; *Papenheim* was alſo killed, and the Field of Battle left to the *Swedes*.

Battle of *Stenau* in *Sileſia*, fought in 1633, where *Walſtein*, General of the Emperor *Ferdinand* II. defeated the Forces of the Elector of *Saxony*.

Firſt Battle of *Nortlingen*, fought in 1634, where *Ferdinand* II. King of *Hungary*, and the *Cardinal Infant*, defeated the *Swediſh* Army commanded by the Duke of *Weimar* and Marſhal *Horn*.

Battle of *Maſſo* in the *Valteline*, fought in 1635, where the Duke of *Rohan*, General of the *French* Army, defeated that of the Emperor *Ferdinand* II. commanded by the Baron *Furnemond*.

Battle of *Tangermund*, fought in 1636, where the Count *de Hasfelt*, General of the Emperor *Ferdinand* II. defeated the *Swediſh* Army commanded by *John Banier*.

Battle of *Wiſtoch*, fought in 1636, where the *Swedes* under General *Bannier*, defeated the *Imperialiſts* and *Saxons*.

Battle of *Dorſten* in *Weſtphalia*, fought in 1636, where the Marſhal *Goetz*, one of the Generals of the Emperor *Ferdinand* II. defeated the Army of *Heſſe*, commanded by *Melander*, known ſince under the Name of Count *Holtzappel*.

Battle of the Plain of *Witten Weyel* in *Alſatia*, fought in 1638, where the Duke of *Weymar*, the Viſcount of *Turenne*, and the Count of *Guebriant*, a *Briton*, and my Grandfather on my Mother's Side, defeated the *Imperial* Army commanded by the Generals *Savelli* and *Goetz*.

Battle of *Sedan*, fought in 1641, where the Earl of *Soiſſons*, Prince of the Blood of *France*, and General *Lamboi*, defeated the Army of *Lewis* XIII. King of *France*, commanded by the Marſhal of *Chatillon*; the Earl of *Soiſſons* was killed after the Battle.

Battle of *Sileſia*, where the Count of *Torſtenſon*, General of the *Swediſh* Army, defeated the Duke *Francis Albert* of *Saxe-Lawembourg*, who commanded the *Imperialiſts*.

Battle of *Honecourt* near the *Catelet*, fought in 1642, where *Don Franciſco de Melo*, Governor of the *Low Countries*, and the Baron *de Bec*, defeated the Count *de Guiche*, afterwards Marſhal of *Gramont*.

Battle of *Brittenfels* near *Leipſich*, fought in 1642, where the Count of *Torſtenſon*, General of *Sweden*, defeated the Archduke *Leopold*, who commanded the *Imperial* Army.

Battle of *Rocroy*, fought in 1643, where *Lewis* of *Bourbon*, ſecond of the Name, aged 20 Years, only, defeated *Don Franciſco de Melo*, Governor of the *Low Countries*; the Count of *Fontaines* was killed at the Head of a Battalion of 6000 natural *Spaniards*; *L'Hoſpital* and *Gaſſion* were Lieutenant-Generals in the *French* Army.

Battle of *Fribourg*, fought in 1644, where *Lewis* of *Bourbon*, ſecond of the Name, Prince of *Condé*, defeated the *Bavarians* intrenched in the *Black Foreſt* in *Briſgau*, and commanded by General *Merci*.

Battle of *Janxau* in *Bohemia*, fought in 1645, where Count *Torſtenſon*, General of the *Swedes*, defeated the Generals *Goetz*, *Hatsfeld*, and *Bruai*, who commanded the Forces of the Emperor *Ferdinand* III. *Goetz* and *Bruai* were killed, and *Hasfeld* made Priſoner.

Battle of *Mariendal* in *Franconia*, fought in 1645, where the Baron *Merci* and *John de Weth*, Generals of the Emperor *Ferdinand* III. ſurpriſed and defeated the Viſcount of *Turenne*, who commanded the *French* Army.

BATTLE of *Balaguer* in *Catalonia*, fought in 1645, where the Count of *Harcourt*, General of the *French* Army, defeated the *Spaniards*, commanded by *Don Philip* of *Silva*, and *Don Andre Cantelmo*.

Second BATTLE of *Nortlingen*, fought in 1645, where the Prince of *Condé*, General of the *French* Army, defeated the Baron *Merci*, one of the greatest Captains of his Time, who commanded the Forces of the Emperor and of the Elector of *Bavaria*.

BATTLE of *Trancheron* near *Cremona*, fought in 1648, where *Francis*, Duke of *Modena*, and the Marshal of *Plessis Praslin*, Generals of the *French* Army, defeated the Marquiss *Caracene*, Governor of the *Milanese*.

BATTLE of the Plain of *Lens* in *Artois*, fought in 1648, where the Prince of *Condé*, who commanded the *French* Army, defeated the Archduke *Leopold*.

BATTLE of *Rethel*, fought in 1650, where the Marshal of *Plessis Praslin*, afterwards Duke and Peer of *France*, defeated the *Spanish* Forces, those of *Lorrain*, and those of the Party of the Princes, commanded by the Viscount of *Turenne*, who escaped narrowly being taken Prisoner; *Du Plessis Praslin* had one of his Sons killed in it. This Battle procured the Marshal Staff to the Marquis of *Villequier* and of *Hoquincourt*.

BATTLE of *Worcester*, fought in 1651, where *Cromwell* defeated the Army of *Charles* II. King of *Great Britain*, who narrowly escaped.

BATTLE of *Jaroslau*, fought in 1658, where the General *Charneski*, who commanded the Armies of *Casimir* V. King of *Poland*, defeated the *Swedes*.

BATTLE of the *Dunes*, fought in 1658, where the Viscount of *Turenne* defeated the *Spanish* Army, commanded by Don *Juan* of *Austria*, natural Son of *Philip* IV. King of *Spain*.

BATTLE of *Estremos* in *Portugal*, fought in 1663, where the Count of *Schomberg*, afterwards Marshal of *France*, General of the Army of *Alphonso* VI. King of *Portugal*, defeated that of *Spain* commanded by Don *Juan* of *Austria*.

BATTLE of *Rabab* or of *St. Godard*, fought in 1664, where 6000 *French*, commanded by the Count of *Coligni* and the Duke of *La Füeillade*, sent to the Succour of the Emperor *Leopold*, defeated the *Turks* who had crossed the River, and by that Defeat, saved *Hungary* and *Germany* from an Invasion.

BATTLE of *Villa Viciosa* in the Province of *Estramadura*, fought in 1665, where the Count of *Schomberg* defeated the Marquiss of *Caracene*, who commanded the *Spanish* Forces.

SEA FIGHT off *Soltzbay* in the North of *England*, fought in 1672, between the *French* and *English* Fleets, commanded by the Duke of *York*, afterwards King of *England*, and the Count *d'Estrees*; and the *Dutch* Fleet, commanded by the Admirals *Tromp* and *Ruyter*; this Fight lasted long, was bloody, and without Advantage on either Side.

SEA FIGHT near *Blanckzemberg*, fought in 1673, where the Prince Palatine, who commanded the *English* Fleet, and the Count *d'Estrees*, Vice-Admiral of *France*, attacked Admiral *Ruyter*, who commanded the *Dutch* Fleet; *Ruyter* lost three Ships, and retreated.

SEA FIGHT before the *Texel*, in 1673, where the *French* and *English* Fleets, commanded by the Prince Palatine, and the Count *d'Estrees*, fought against the Admirals *Ruyter* and *Tromp*, without either of them claiming the Victory.

BATTLE of *Chockin* in *Podolia*, fought in 1673, where *John Sobieski*, Grand Marshal of *Poland*, and afterwards King, defeated entirely the *Turks* commanded by the Bassas *Ussain*, *Soliman*, and *Caplan*; this Victory gave the Crown to *Sobieski*.

BATTLE of *Zeintzheim*, fought in 1674, where the Viscount of *Turenne*, General of the *French*, defeated the Forces of the Emperor, commanded by the Duke *Charles* of *Lorrain*, and the General *Caprara*.

BATTLE of *Senef* betwen *Neville* and *Charleroy*, fought in 1674, where the Prince of *Condé* defeated the Rear-guard of the Army of the Confederates, commanded by Prince *Vaudemont*, and pursued the main Battle, which was retrenched in the Village of *Senef*, and in that of *Fay*; there were a great many killed on both Sides; but the Prince of *Condé* took whole Regiments Prisoners. This Battle lasted four Hours by Day-light, four Hours by Moon-light, and four Hours in the Dark.

BATTLE of *Enthein* near *Strasbourg*, fought in 1674, where the Viscount of *Turenne* defeated one Part of the *Imperial* Army, commanded by the Duke of *Lorrain*, *Bournonville*, and *Caprara*, and forced the other to retire with Precipitation under the Cannon of *Strasbourg*.

BATTLE of *Altheinheina*, fought in 1675, where *Montecuculi*, General of the Army of the Emperor, hoping to take Advantage of the Death of the Viscount of *Turenne*, attacked the *French* Army commanded by the Count of *Lorge* and the Marquiss of *Vaubrun*, but was defeated on the Borders of the *Rhine*. The Marquiss of *Vaubrun* was killed, and *de Lorge* made the *German* Army re-cross the *Rhine*, which gained him the Staff of Marshal of *France*.

BATTLE of *Triers*, fought in 1675, where the Princes of the House of *Brunswick* and *Lunenburg*, and other Princes confederated against *France*, defeated near *Consarbrug*, the Marshal of *Crequi*, who threw himself into *Triers*, where he did all that could be expected of a brave Man, reduced to Despair, to save the Place.

BATTLE of *Leopold*, fought in 1675, where *John Sobieski*, King of *Poland*, defeated Part of the *Turkish* Army, commanded by *Ibrahim* Basha and Sultan *Noradin*.

SEA FIGHT before the Town of *Angoulsta* in *Sicily*, in 1676, between the *French* Fleet, commanded by *du Quesne*, and those of *Spain* and *Holland*, commanded by *Ruyter*; *Ruyter* died a few Days afterwards of his Wounds.

BATTLE of *Lunden* in *Scania*, fought in 1676, where *Charles* IX. King of *Sweden*, defeated the Army which *Christian* V. King of *Denmark*, commanded in Person.

Third BATTLE of *Cassel*, fought on *Palm Sunday* 1677, where *Philip* of *France*, Duke of *Orleans*, commanding the *French* Army, defeated *William* Prince of *Orange*, afterwards King of *England*, as he was coming to the Succour of *St. Omer*.

SEA FIGHT between the *French* and *Dutch* Fleets, in 1677, near the Island *Tobago*, where the Count *d'Estrees*, Vice-Admiral, and afterwards Marshal of *France*, defeated the *Dutch* Fleet, commanded by *Binck*, who was killed.

BATTLE of *Spoüille* in *Catalonia*, fought in 1677, where the Marshal of *Noailles*, commanding the *French* Forces, defeated the *Spaniards* commanded by Count *Monterey*, Viceroy of that Province.

BATTLE of *Malmoe* in the Province of *Scania*, fought in 1677, where *Charles* IX. King of *Sweden*, and *Christian*, King of *Denmark*, fought without Advantage on either Side.

COMBAT of *Vaccia* on the *Danube*, between *Buda* and *Grats*, in 1684, where Prince *Charles* of *Lorrain*, Generalissimo of the Armies of the Emperor *Leopold*, defeated a Body of 2000 *Turks*, and took the Town of *Vaccia*, where Part of the *Turks* were fled.

BATTLE of *Hangebesth*, two Leagues off *Buda*, fought in 1684, where Prince *Charles* of *Lorrain* defeated the Serasquier Bassa, who was coming to the Succour of *Buda*.

BATTLE of *Harsa* near *Mohas*, fought in 1687, where Prince *Charles* of *Lorrain* defeated the *Grand Vizier*.

BATTLE of *Fleurus* in the the Country of *Namure*, fought the 1*st* of *July* 1690, where the Marshal Duke of *Luxembourg* defeated the Army of the Allies commanded by the Prince of *Waldeck*.

SEA FIGHT in the *Channel*, in 1690, where the Count *Tourville*, afterwards Marshal of *France*, defeated the *English* and *Dutch* Fleet.

BATTLE of *Stafard* in *Piedmont*, fought in 1690, where *Catinat*, afterwards Marshal of *France*, gained a compleat Victory over the Duke of *Savoy*.

VICTORY gained by the Prince of *Baden*, in 1691, near *Salankemen* in the *Lower Hungary*, against the *Turks*.

COMBAT of *Leuse* in the *Hainault* and the *Brabant*, the 18th of *September* 1691, where 28 Squadrons of the Troops of the King of *France*'s Houshold defeated 75 Squadrons of the Forces of the Allies; the Duke of *Luxembourg* was at the Head of the *French* Troops.

SEA FIGHT in 1692, between the *French*, and the *English* and *Dutch* Flects, where several *French* Ships were burnt, and especially that of the Admiral, called the *Royal Sun*.

BATTLE of *Steinkirk*, where the Marshal of *Luxembourg*, though surprized, defeated the Duke of *Bavaria*, the Prince of *Vaudemont*, and *William* III. King of *England*, who came towards the End of the Fight.

BATTLE of *Marsalle* in *Piedmont*, fought in 1693, where Marshal *Catinat* defeated the Duke of *Savoy*.

BATTLE of *Neervinde* in *Flanders*, fought in 1693, where the Marshal of *Luxembourg* attacked *William* the Third, King of *England*, in his Intrenchments, defended by two Forts, and forced him with the Loss, on the Side of the Allies, of their Cannon, Baggage, and a vast Number of Slain.

VICTORY gained by Prince *Eugene* on the *Turks* in *Hungary*, in 1697.

BATTLE of *Fridlingen*, between *Brisac* and *Huningue*, fought in 1702, where the Count of *Villars*, who commanded the *French* Army, defeated the Prince of *Baden*, who commanded that of the Empire. This Victory gain'd him the Staff of Marshal of *France*.

First BATTLE of *Hochstet* in *Bavaria*, fought in 1703, where the Marshal of *Villars* defeated General *Stirum*.

BATTLE of *Spire*, fought in 1703, where the Marshal *Tallard* defeated the Prince of *Hesse-Cassel*, who was coming to the Succour of *Landau*.

Second BATTLE of *Hochstet*, where the Army of the Allies, commanded by Prince *Eugene* and the Duke of *Marlborough*, defeated the *French* Army commanded by the Marshals *Tallard* and *Marsin*. *Tallard* was taken Prisoner, with a great Number of Officers.

COMBAT of *Cassano* in the *Milanese*, near the *Adda*, fought in 1705, where the Duke of *Vendosme*, who commanded the *French* Army, defeated Prince *Eugene*, who commanded that of the Emperor.

Signal VICTORY gained in 1706, by General *Renschild*, who commanded the *Swedish* Forces, over the *Muscovites* and *Saxons*, near *Frawstad*.

BATTLE of *Ramelies*, fought in 1706, where the Allies, commanded by the Duke of *Marlborough* and Mr. *d'Averquerque*, gained over the *French*, commanded by *Villeroy (Grand Marshal Enpinture)* a compleat Victory, which was followed by the Conquest of a great Part of *Brabant* and *Flanders*.

A Compleat VICTORY gained by Prince *Eugene* and the Duke of *Savoy*, in 1706, over the *French* near *Turin*, where *Marsin* was killed, and the Duke of *Orleans* wounded. This Victory was followed by the Rendition of the *Milanese*.

BATTLE of *Almanza* in *Spain*, fought in 1707; where the Duke of *Berwick*, who commanded the *French* and *Spanish* Army, defeated entirely that of the Allies, commanded by my Lord *Galway*.

BATTLE of *Audenard*, in 1708, where the Allies attacked the *French* and put them to Flight.

BATTLE of *Pultowa* in *Muscovy*, fought in 1709; where the Czar *Peter* I. gained a compleat Victory over *Charles* XII. King of *Sweden*, who having been wounded, and lost all his Forces, was forced to fly into *Turky*.

BATTLE of *Taniers*, in 1709, where the Allies commanded by Prince *Eugene* and the Duke of *Marlborough*, attacked the *French* commanded by the Marshals *Villars* and *Boufflers*, in their Intrenchments, and after a bloody Fight, forced them, and put them to Flight, This Victory was followed by the Siege, and the Taking of *Mons*.

COMBAT of *Villa-Viciosa* in *Spain*, in 1710, between the *Spaniards* and the Allies, who were obliged to retreat.

ROUT of the Allies at *Denain*, the 14*th* of *July* 1712, by the Marshal *Villars*, which was followed by the re-taking of *Douay* and *Bouchain* by the *French*.

BATTLE of *Peterwaradin*, the 5*th* of *August* 1716, where Prince *Eugene* defeated the *Turks*.

BATTLE of *Belgrade*, the 16th of *July* 1717, where Prince *Eugene* defeated the *Turks*; which Victory was followed by the taking of *Belgrade* by the *Imperialists*.

BATTLE of *Parma*, *June* 29, 1734, where Count *de Cogny*, afterwards Marshal of *France*, defeated the *Imperialists*, commanded by Count *Merci*: *Merci* was killed in the Field of Battle, with 10,000 of his Forces.

BATTLE of *Guastalla*, *August* 19, 1734, where *Charles Emanuel*, King of *Sardinia*, commanding the Confederates, defeated the *Imperialists*.

BATTLE of *Krotska* in *Hungary*, *July* 22, 1739, where the *Turks* defeated the *Imperialists*.

BATTLE of *Panchova*, *July* 30, 1739, where the *Turks* defeated the *Imperialists*.

VICTORY obtained over the *Turks* by Count *Munich* near *Astroshitza*, *September* 17, 1739, which was followed by the Taking of *Chockzim*.

BATTLE of *Molwitz* in *Silesia*, *April* 10, 1741; where *Charles Frederick*, King of *Prussia*, defeated in Person the *Austrians*.

BATTLE of *Wilmanstrand* in *Finland*, *August* 17, 1741, where 16000 *Muscovites* made shift to beat 6000 *Swedes*.

Note, That I defer mentioning the several Republicks of *Europe*, till I come to my Treatise of *Government* under the Letter *G*.

CHURCH.

CHURCH is an Assembly of Persons united by the Profession of the same Faith, and of the Participation of the same Sacraments.

Father *Quesnel* defines the Church, *An Assembly of the Children of God, dwelling in his Bosom, adopted in* Christ, *subsisting in his Person, redeemed by his Blood, acting by his Grace, and expecting the Kingdom to come.*

According to the first Definition, a *Church* cannot subsist, nor even be considered as such, without these three essential Conditions; *viz.* 1. It must be visible, since it is an Assembly of Persons, which Assembly 'tis impossible should be invisible, else it could not be an Assembly of Persons: 2. It must be *one*, since those Persons must all profess the same Faith, and participate of the same Sacraments: 3. It ought to be known, for if it was unknown, we could not have Recourse to it in our Controversies, since the Church ought to be Judge of those Controversies.——The *Catholicks* add two other Conditions to these three, *viz.* That a *Church* must be infallible in its Decisions, else we could never be secure in our Faith, and have a *visible Chief* under the invisible one; who is *Christ* himself.

The same *Catholicks* divide the *Christian Church* into three

three different *Churches*, *viz.* the *triumphant Church*, which is that of the Faithful, already in Glory; the *militant Church*, which is that of the Faithful here on Earth; and the *patient Church*, which is that of the Faithful in Purgatory. The *Church* of *England* confesses the two first *Churches*, and rejects the third; and several of the *Protestant* Sects admit but of one, compos'd of *the Blessed* in the celestial Mansions, and of the Elect here upon Earth; and thereby render the *Christian Church invisible*. For it is as impossible for us to have a certain and determinate Knowledge of the *Elect* here on Earth, as it is for mortal Eyes to see a glorify'd Body in Heaven.

But, however, the *Visibility* of the *Christian Church* is granted as *Conditio sine quâ non*, even by *Calvin*, *Lib.* 1. *Instit. c.* 1. *sect.* 2. and by *Philip Melanchton*, in his Examen of those to be ordain'd, *Titul. de Eccles.* where he speaks thus: *Ecclesia visibilis in hac vitâ, est cætus visibilis amplectentium incorruptam Evangelii doctrinam, & rectè utentium Sacramentis, in quo cætu filius Dei efficax est, & multos regenerat ad vitam æternam*; *i. e.* That the visible Church, in this World, is one visible Assembly of those who profess the uncorrupted Doctrine of the Gospel, and make a right Use of the Sacraments; in which Assembly the Son of God operates with Efficacy, and regenerates several to everlasting Life. Which Visibility of the Church could be prov'd by the following Arguments:

1. That *Church* ought necessarily to be *visible*, in which Bishops and Pastors must visibly govern their Flock, visibly teach, preach, admonish, administer the Sacraments, correct Sinners, and separate from their Communion the refractory, or obstinate; and likewise, where the Flock must acknowledge their Pastors, obey their Precepts, follow their Instructions, and receive the Sacraments from them; but all this is transacted in the true *Christian Church*, then the true *Christian Church* ought necessarily to be *visible*. The Minor is evidenc'd from Scripture; Mat. xviii. 17. *Tell it unto the Church; but if he neglects to hear the Church, let him be unto thee as an Heathen, and a Publican.* And Acts xx. 28. *Take Heed, therefore, unto yourselves, and to all the Flock, over which the Holy Ghost has made you Overseers, to feed the Church of God, which he has purchas'd with his own Blood.* And Heb. xiii. 17. *Obey them that have the Rule over you, and submit yourselves; for they watch for your Souls, as they that must give Account.*

2. That *Church* must be visible, in which Councils are convok'd and assembled, where Canons are made, and religious Controversies decided and terminated; which all happen in the true *Christian Church*; for the Apostles convok'd the Council of *Jerusalem*, where the following Constitution was made. Acts xv. 28, 29. *For it seem'd good to the Holy Ghost, and to us, to lay upon you no greater Burthen, than these necessary Things; that you abstain from Meats offer'd to Idols, and from Blood, and from Things strangled, and from Fornication.* And since the Time of the Apostles were celebrated the general Councils of *Nice*, *Constantinople*, *Ephesus*, *Chalcedon*, &c. which are receiv'd as œcumenical, by almost all *Christian* Sects.

3. *Christ* compares his *Church*, in the Gospel, to a Net thrown into the Sea, which gathers all Sorts of Fishes; to a nuptial Banquet, where good and bad are invited; to ten Virgins, five of whom are wise, and five foolish; to a Sheep-fold, where are found *Ewes* and *Rams*; which can't be understood but of a visible *Church*, in which there is a Mixture of good and bad *Christians*.

4. This Visibility of the *Church* has been foretold by the Prophet. Psal. xviii. 6. *He plac'd his Tabernacle in the Sun*, *i. e.* as St. *Augustine* explains it, *in manifestatione posuit Ecclesiam suam*, not *in occulto*; *i. e.* He has plac'd his *Church* in Sight, not in the Dark. And *Epist.* 166. *ad Donatistas*, *Ipsa est Ecclesia in sole posita, id est, in Manifestatione, omnibus nota usque ad Terminos Terræ.* The same can be confirm'd by this Passage; Mat. v. 14, 15. *A City that is set on a Hill cannot be hid, neither do Men light a Candle and put it under a Bushel, but on a Candlestick, and it gives Light unto all that are in the House.* Where, by the City which can't be hid, and by the Candle which gives Light to all that are in the House, the *Church* is understood. Whence the same St. *Augustine*, *Lib.* 4. *De unitate Ecclesiæ*, *c.* 16. *Non est*, says he, *operta Ecclesia quia non est sub Modio, sed supra Candelabrum. Et de illa dictum est: Non potest civitas abscondi supra montem posita. Sed Donatistis velut operta est, qui audiunt tam lucida & manifesta testimonia, quæ illam toto orbe demonstrant, & malunt clausis oculis offendere in montem, quam in eum ascendere*; *i. e.* The *Church*, says he, is not hidden, because not put under a Bushel, but on a Candlestick; and of that *Church* 'tis said, that a City set on a Hill can't be hid. But it is as if it was hidden to the *Donatists*, who hear so many clear and manifest Testimonies, whereby it is demonstrated to the whole World, and nevertheless prefer stumbling against that Mountain, to the ascending it. And *Epist.* 170. *ad Sever. Facile tibi est attendere & videre Civitatem super montem constitutam*; *i. e.* 'tis very easy for thee to consider, and see the City that is set on a Hill.

5. The Visibility of the *Church* is evidenc'd by our Symbol of Faith, where we say, *We believe in the holy Catholick Church*; which, in the Opinion of *Calvin* and *Melanchton*, as well as of the *Catholicks*, must be understood of a visible *Church*; who all agree that it is an Article of Faith to believe that there is a visible *Church*; and, in Fact, tho' we see with our Eyes a Multitude of Persons, of whom a visible *Church* is compos'd; we notwithstanding can't see, but only believe that the true Doctrine of *Christ*, and of the Apostles, is profess'd by that Multitude. Whence the Visibility of the *Church* falls, in Part, under our Senses, and Part under our internal Faith: We see with our Eyes the Persons that are in the *Church*, and believe, with our internal Faith, that the Doctrine of the Gospel is profess'd, and preserv'd among them.

These convincing Proofs of the Visibility of the *Church*, as an Article of Faith, are, in my Sentiment, a satisfactory Answer to this thread-bare Sophism objected against it; *What's an Object of our Faith, is not visible; but the Church is an Object of our Faith: Then the Church is not visible.* The major Proposition must be thus understood; what's an Object of our Faith, is not visible, on that Side which falls under our Faith, tho' it can be visible on the other Side which does not fall under our Faith; of which we have several Examples. *V. gr.* The Apostles saw in *Christ* his Humanity, and believ'd his Divinity; we see, in Baptism, the external Water, and Ablution, and we believe the internal Virtue of regenerating, and washing off the original Sin; in the Bible we see the Paper, Writing, and the Book itself; and we believe that it contains the Word of God: I say the same Thing of the *Church*. There is something in it which we see, and some other Things which we believe; we believe that in the *Church* the true Gospel of *Christ* is profess'd, preach'd, and preserv'd; and we see in it Men, external Rites, and Sacraments.

This Sentiment is supported, and confirm'd by that of the antient Fathers. St. *Augustine*, *Epist.* 166. *ad Donatist.* delivers himself in these Words: *In Scripturis didicimus Christum, in Scripturis didicimus Ecclesiam, has Scripturas communiter habemus; quare non in eis Christum & Ecclesiam, communiter retinemus? Ecce Scriptura communis. Ecce ubi novimus Christum, ibi novimus Ecclesiam. Si Christum ipsum tenetis, ipsam Ecclesiam quare non tenetis? Si in ipsum Christum quem legitis & non videtis, tamen Scripturarum veritatem creditis, quare Ecclesiam negatis, quam legitis & videtis?* *i. e.* In the Scriptures we learn, that there is a *Christ*, and in the same Scriptures we learn, that there is a *Church*. We have always those Scriptures, why don't we believe always in *Christ*, and the *Church*? See, the Scriptures are common; see, where we acquire a Knowledge of *Christ*, there we acquire a Knowledge of the *Church*. If you believe in *Christ*, why should you not believe in the *Church*? If you

believe in *Christ*, because you read of him in the Scripture, tho' you do not see him; why will you deny the *Church*, which you see and read?

To avoid Prolixity, I forbear enumerating the other Fathers who all acknowledge a *visible Church*; as *Irenæus*, *Optatus*, *Fulgentius*, *Eusebius Cæsariensis*, &c. All confess, from the Gospel, that *Good* and *Bad* are mix'd promiscuously together in the *Church*; and all declare, that the *Church* can't subsist without the Predication, and the Administration of the Sacraments.

But, however, I will explain myself in still-clearer Terms; therefore I ask, if the City of *London*, for Example, is visible, or not? I hope no Body will deny its Visibility, which is not different from that of the *Church*; which I prove thus: There are three Things to be consider'd in the *Church*: 1. The Multitude, or the Assemblage of those who are in the *Church*. 2. The external Government of the Pastors of the *Church*, in teaching, preaching, admonishing, &c. their Flock, and administring the Sacraments to them. 3. The internal Faith and Charity whereby they are united together. The same can be said of the City of *London*, where there is, 1. A Multitude, or Assemblage of Inhabitants. 2. An external Government, under the Direction of civil Magistrates. 3. An internal Affection, which procures their mutual Union. The two first are visible in the *Church*, as well as in the City of *London*; and the third is invisible in both: For we cannot see if those who are in the *Christian Church* have an internal Faith and Charity, but only believe it, by their professing outwardly that Faith and Charity. Likewise, I see in the City of *London* the external Order, and just Œconomy of the Government, but I can't see the internal Union which subsists, or ought to subsist between the Inhabitants: But, however, if, notwithstanding the Deficiency of Sight, in this single Particular, the City of *London* is really visible; why should not the *Church* be visible, since it has the very same Marks of *Visibility*.

Jesus Christ himself, to give us a perfect Notion of the Visibility of his *Church*, and to convince us of the indispensible Necessity of its being visible, would never do any Thing while here upon Earth, with Regard to the first Establishment of that *Church*, but in the Assembly of his Apostles, and oftentimes of all his Disciples. They were all in Company with him when they receiv'd their Mission for preaching the Gospel, and when he instituted the Sacrament of the Eucharist, he would have them all assemble to receive his last Orders when he ascended into Heaven, as well as when he sent the Holy Ghost to them. He does not say to St. *Peter* in particular, that he will be with him till the latter End of the World, but says it to them all, *Ecce ego vobiscum sum usque ad consummationem seculi*.

The Visibility of the *Church* was not disputed until that *seamless Gown of Christ* began to be lacerated by Heresy and Schism: For then those who wanted to separate themselves from the *Church*, or rebel against it, by advancing Dogma's contrary to the generally receiv'd Doctrine of the *Church*, fearing the Censure, and perhaps Punishment which their sacrilegious Temerity deserv'd, were glad to protest against a Tribunal, where they knew they should find just, impartial, and discerning Judges, who would discover their Errors, which otherwise they could disguise to the Eyes of the ignorant Multitude, under a specious, or rather false Appearance of Truth and Piety; tho' several of them, if not all, have acknowledg'd that Visibility at the Beginning of their Rebellion: For when they have seen their Errors, at first, condemn'd by an inferior Tribunal, they have appeal'd from the Legality of that Tribunal, to another they thought superior to it, and have address'd it even in the most submissive Terms; and when they have found the former Judgment pronounc'd against them confirm'd by that Tribunal, they have likewise rejected its Authority, which they had so solemnly acknowledg'd at first; they have appeal'd from it to the whole visible *Church* assembled, and having been condemn'd likewise by that universal and visible *Church* assembled, they have had Recourse, for their last Refuge, and to have some plausible Reason to continue in their Obstinacy, to an invisible Judge, whose Sentence they knew could not be pronounc'd till the last Day, when we shall be all call'd to our last Account. Is not that Contradiction in their Conduct sufficient to convince us of their Error; and that for them to call to an invisible Tribunal, whose Decrees can't be known in this World, is trifling with God, and Men?

Those who pretend, with *Quesnel*, and his Partizans, that the *celestial Jerusalem* (by which they understand the *Church* of *Christ*) is compos'd of none *but of the Angels in Heaven, and of the Elect and Just on Earth*, excluding from it all the Sinners, deny tacitly the Visibility of the *Christian Church*, since the Angels, being spiritual Substances and Subsistances, are invisible; and the Elect on Earth, tho' corporeal Substances, as invisible, as to their Election, of which the Elect themselves can have but a moral Certitude, which Certitude can't constitute a material Being so as to render it the Object of our external Senses. For tho' there may be in a Society a vast Number of Elect, and we even see with our Eyes those Elect; we see them only as individual of the same Species, and not as Elect; since it would be impossible for us to make a just Difference between those who are Elect, and those who are not of that Number; therefore all we can know of their Election, is nothing but mere Conjecture, and which, to the utmost, can be the Object of our Faith alone: For tho' we believe that there are Elects in that Society, we can't point out those who are of that Number. Consequently, that *Church* compos'd of Angels and the Blessed in Heaven, and of the Elect upon Earth, is invisible.

This visible *Church* is *one*, *holy*, *catholick*, *apostolick*; *Christ's Spouse*, and *the House of God*.

This UNITY, which I propose as the second essential Quality constitutive of the *Christian Church*, does not consist in the Union of all the different *Churches*, under one and the same Chief; but in an unanimous Consent, with Respect to the Articles of our Faith, as contain'd in sacred Writ; and to the Participation of the same Sacraments, as instituted by *Christ*.

Even in the very Infancy of *Christianity*, and in the Apostles Times, there were different *Christian Churches*, if we consider a *Church* as a particular Society, assembled in a particular Place, and under the Government of a particular Bishop, or Pastor. In that Sense there was the *Church* of *Jerusalem*, govern'd by the Apostle St. *James*; that of *Antioch*, by St. *Peter*; that of *Ephesus*, by St. *John*, &c. and even those *Churches* differ'd in the Discipline, and in their Rites. For that of *Jerusalem* had retain'd some of the ceremonial Laws, to engage the *Jews* to embrace the *Christian* Religion, with less Repugnance; while the *Churches* establish'd among the *Gentiles* had entirely rejected them: But then they all agreed in the same Belief, in Matters of Faith, and in the Participation of the same Sacraments. They all believ'd that the *Church* of *Jerusalem*, that of *Antioch*, *Rome*, *Ephesus*, &c. were all but one and the same *Church* of *Christ*, tho' under different Appellations, with Respect to the different Names of the Nations, among which this *Church* had been establish'd; which tho' compos'd of so many different Members, made but one and the same mystick Body.

In Process of Time, when the *Church* began to flourish, even amidst the most violent Persecutions, so as to want another Sort of Government, those several *Churches* were brought under a chief Pastor, distinguish'd by the Name of Patriarch; who commonly fix'd his Seat in the Center of his Province, that his Suffragans might have Recourse to him with a greater Facility, when they wanted either his Advice, or Succour, in the Exigency of their Affairs. Thus St. *Peter* founded, according to the best Tradition, the Patriarchate of *Antioch*, to which he submitted all the *Churches* of the East, and even that of *Jerusalem*, founded

founded by *Jesus Christ* himself, together with *Cesarea*, which was the Metropolis of *Palestina*. Those Patriarchs were made in Imitation of the Governors of Provinces, and the Authority of these was the same, with respect to the Ecclesiastical Government, as that of those with respect to the Civil Government, *i. e.* That the Authority, or Jurisdiction of Patriarchs, extended no farther than the Convocation of Synods, and to see the Decrees, or Canons, of those Councils, or Synods, observed throughout their Patriarchate, as the Governors of Provinces were to cause the *Imperial* Decrees to be observed throughout their Government. Those Patriarchs pretended to no Infallibility, and no Power as Patriarchs, *quoad coactionem*, but only *quoad directionem*, and considered themselves no otherwise than *Primi inter Pares*. Those Patriarchs had under them Metropolitans, Archbishops, and Bishops; and were themselves Patriarchs, Archbishops, and Bishops, and thus had three Sorts of Jurisdiction; for as Patriarchs, they governed the Provinces their Patriarchates were composed of, *viz.* The Patriarch of *Rome* governed as such all the *Western* Church, and extraordinarily that of *Africa*, as Archbishop. The *Churches* which *Rufinus* calls *Suburbican*, and which we have called since *Suffragan*; and as Bishop he governed his own particular Diocess of *Rome*: In the same Manner the two other Patriarchs of *Antioch*, and of *Alexandria*, exercise their respective Jurisdictions. And though the *Christian Church* was thus divided into several Patriarchates, and those Patriarchates again divided into Archbishopricks, and Bishopricks; they nevertheless made but one and the same Catholick and Apostolical *Church*, because they all professed the same Doctrine, and all participated of the same Sacraments.

If any Differences or Controversies happen'd in their Patriarchate, in point of Faith, or of Discipline, they did not presume to compose or terminate those Differences, or decide those Controversies by themselves, or with the Advice of their Council, but they would assemble a Synod of all the Bishops of their Patriarchate, where the Points in Dispute were fairly stated, and impartially controverted, and the Parties heard in their own Defence with a great deal of Christian Patience, Charity, and Compassion, and afterwards acquitted or condemned, according to the Dictates of the Holy Ghost, so holy an Assembly was almost always inspired by. The Decisions, or Canons made in those Synods, were sent to the other Patriarchs, who likewise assembled in their Turn a Synod of their respective Provinces, where those Decisions were carefully examined, and approved, or rejected, according as they were more or less agreeable to the Word of God; without the Difference of Sentiment of those different Synods, when it happened, could ever be capable to break the Unity of the Church.

Therefore I am of Opinion, that the same Unity could yet be preserved, and if lost, restored in the *Christian Church*, though that Church was divided into several Patriarchates, as it was then, and under a different ecclesiastical Discipline, provided they all professed the same Faith, and all participated of the same Sacraments. I mean, for Example, that the *Anglican*, *Gallican*, *Spanish*, *Roman*, and other Churches, under their respective Patriarchs, could preserve the Unity among them, and smother all those Differences which has so long prepared Matter of Laughter for the Enemies of the *Christian* Name, if they could all be prevail'd upon to lay aside all Motives of Animosity, Pride, Self-Interest, *&c.* and to agree all on a Profession of Faith; which would terminate at once all our Controversies, and make us once more, *Unum ovile, & unum pecus.* The Pope, on his Side, to facilitate that Reconciliation, and restore that Unity, should renounce some of his pretended Prerogatives, as Supremacy, which he must know perfectly well is but an Usurpation, and his Infallibility, which the Apostles of *Christ*, and his Disciples have never pretended to. He should desist likewise from proposing for Objects of our Faith, all that is not implicitly or explicitly contained in the holy Writs, nor of divine Institution; therefore all that is of ecclesiastical Institution should be left at our Option, to believe or not believe; contenting himself with being *Primus inter Pares*, as the Bishop of that Church, which has been the Mother of all the *Western* Churches.

The other Churches, to contribute, on their Side, all in their Power to that happy Re-union, should once more respect and consider the Bishop of *Rome* as the Patriarch of all the *West*, and give him the Precedence in all general Synods or Councils, which could not be assembled without his Consent, and where he should have the first Place; not by any Right of Supremacy, but of Antiquity; considering seriously, that they have received their Mission from his Predecessors; that all the *Christian Churches* of the *West* have been founded by them, and that there is no Episcopacy but what's derived from them. There is no *Church* in the whole *Christian* World, (I mean of those which have renounc'd the Communion of that of *Rome*) nearer that Re-union, than the Church of *England*, since it differs but very little from it in Matter of Faith, as I'll shew plainly, when I come to treat of those different Articles, in Controversy, under their respective Heads.

I would have both Churches consider, that, according to the Sentiment of the Apostle, to the *Ephesians*, *c.* 4. *v.* 5. there is but *one Lord, one Faith, and one Baptism*, and that those who recede from the Unity of that Faith, are properly speaking Sectaries and Hereticks. I would have them both follow the Advice of the same Apostle to the *Romans*, *c.* 16. *I beseech you, Brethren*, says he, *mark them which cause Divisions and Offences, contrary to the Doctrine which you have learned, and avoid them.* And in the First to the *Corinthians*, *c.* 1. *v.* 10. *Now I beseech you Brethren, by the Name of our Lord Jesus Christ, that ye all speak the same Thing, and there be no Divisions among you; but that ye be perfectly joined in the same Mind, and the same Judgment.* And again to the *Hebrews*, *c.* 13. *v.* 9. *Do not let yourselves be deceived by various and foreign Doctrines.*

The *Roman Church*, to procure that Unity, so desirable in the *Christian Church*, and following these salutary Advices of St. *Paul*, should ease all the other *Churches*, which are still in Communion with her, of that heavy, and almost insupportable Yoke, she has had the Presumption to add to that of *Christ*, which, though stiled a *Yoke* by himself, is nevertheless *a light and easy one*; *Jugum meum suave est*, says he, *et onus meum leve.* She should reasonably consider, that when our blessed Lord, and tender Father of the Faithful, left us his Testament, at his Departure from us to return to his Father, he left us likewise in it all the Precepts, and salutary Advices, necessary to guide us through the same blessed Road, and to bring us to the same salutary End. That his Apostles, the sacred Depositors and Interpreters of that Testament, have forbid us to make the least Alteration in that last Will of their divine Master, assuring us at the same Time, that what's contained in it, is sufficient to procure an eternal Felicity. Why then should Men have the Temerity, to render difficult and thorny, by a monstrous *Dedalus* of obligatory Precepts, a Road, which *Christ* himself has replenished, as much as he judged it consistent with our Salvation? Why should they attempt to render burdensome a Yoke which himself would render easy and supportable. He knew so well the Infirmity of human Nature, that it was never his Intention we should be obliged to the Practice of any other Precepts, but those we have received immediately from him, which though very easy, he was conscious were yet above our natural Strength, if not assisted by a supernatural Grace; which he never refuses to those who ask for it. Could it be then possible, that he would condemn as Refractories, or separate from this *Church*, those who, obeying with all due Respect, and a becoming Submission, his divine Commands, and following the Road he has been pleased himself to shew them, refuse to enter those intricate and difficult Paths, which Men have had the Presumption

Presumption to environ it with? Could it be possible that we should be accus'd of breaking the Unity, while we endeavour to observe as much as it is in our Power what has been desir'd of us, by him who has establish'd that Unity among us?

The *Christian Church* is also call'd *holy*, for these Reasons; 1. Because no Body can enter that *Church*, or be made Member thereof, but by his being wash'd, and sanctify'd by Baptism; according to St. *Paul*, 1 Cor. vi. 11. *And such were some of you; but you are washed, but you are sanctified, but you are justified in the Name of the Lord Jesus, and by the Spirit of our God.* 2. Because all the *Church*'s Institutions, as her Ceremonies, Sacraments, and Doctrine, are conducive to Sanctity; for they are calculated so that we should either become Saints, or increase, or persevere in Sanctity. 3. Because out of the *Church* there can be no Sanctity. 4. Because *Christ*, who is the Chief of the *Church*, and her Spouse, is the Saint of Saints. *Calvin* adds to it, *Lib.* 4. *Instit. c.* 1. § 27. that the *Church* is call'd Saint, because she makes a daily Proficiency in Sanctity, and aspires to the greatest Degree of Sanctity; and tho' there be several corrupted Members in the *Church*, she can, nevertheless, be call'd Saint, either for the Reasons above-mention'd, or because there are a great Number of Saints in it.

In *Quesnel*'s Opinion, and in that of his Partizans, who exclude all Sinners from the *Church*, she is so holy as to have attain'd to the last Degree of Sanctity; since they say, that *all the Promises of Christ to his Church regard necessarily the Saints, who are the true Members of his mystick Body, of which he is the Chief.* That *Sinners have no Part in it*, and are abandon'd to the Care of *a general Providence.* They pretend to support their Sentiment by this Passage of St. *Paul* to the *Hebrews*, chap. xii. ver. 22, 23. *But you are come unto Mount Sion, and unto the City of the living God, the heavenly Jerusalem, and to an innumerable Company of Angels. To the general Assembly and Church of the First born, which are written in Heaven, and to God the Judge of all, and to the Spirits of just Men made perfect.* And by this other of St. *Augustine*, *De Baptismo contra Donatist. lib.* 3. *c.* 17. *n.* 22. *That the Sinners cannot be in the Body of Christ, which is the Church, because he cannot have Members damned.* But they do not, or rather will not consider, that St. *Augustine* speaks in this Place of those who had been separated from the *Church* for their Heresy or Schism, which was the Case of the *Donatists*, who notwithstanding pretended that they were still in the Communion of the *Church*. This Sentiment of the *Quesnelists* is contrary to the other Passages we have quoted to prove the Visibility of the *Church*.

The *Church* is also call'd *Catholick*, or universal, for three Reasons: 1. With Respect to the Place, its being diffus'd throughout the whole World. Mark xvi. 15. *And he said unto them, go ye into all the World and preach the Gospel to every Creature.* 2. With Regard to Time, because it will last for ever. Dan. ii. 44. *And in the Days of these Kings, shall the God of Heaven set up a Kingdom which shall never be destroy'd. And it shall stand for ever.* 3. With Respect to those who are to be sav'd; for all those to be sav'd, are to be sav'd in the *Church*. In all these consists the Difference between the *Church* of *Christ*, and the Synagogue of the *Jews*, which was not *catholick* nor universal in either of these Manners. Not in the first, because not diffus'd throughout the whole World, but only throughout *Palestina*; not in the second, because it has lasted but a certain Time, *viz.* to the Death of *Christ*; not in the third, because Men could be sav'd out of the Synagogue, as the *Ninevites*, and others.

The *Church* is call'd *apostolick*, 1. Because it had its Beginning in the Apostles. 2. Because it has been propagated throughout the whole World by the Apostles. Rom. x. 18. *Their Sound went into all the Earth, and their Words unto the Ends of the World.* 3. Because she follows the Doctrine of the Apostles. Gal. i. 8. *But though we, or an Angel from Heaven, preach any other Gospel than that we preach to you, let him be Anathema.* Lastly, Because she retains the Succession of Bishops from the Apostles; as it appears from *Tertullian*, in his Book of the Prescriptions against Hereticks, Chap. 20, and the two next following.

She is call'd *the Spouse of Christ*, because *Christ* is united to her by an indissoluble Knot. Hosea ii. 19. *And I will betroth thee unto me for ever.* And Ephesians v. 31, 32. *For this Cause shall a Man leave his Father and Mother, and shall be joined unto his Wife, and they two shall be one Flesh. This is a great Mystery, but I speak concerning Christ and the Church.* This Spouse has three Privileges, *viz.* 1. Fecundity, as it appears from Gal. iv. 31. *So then, Brethren, we are not Children of the Bond-woman, but of the Free.* 2. She remains always a Virgin, from 2 Cor. xi. 2. *For I have espoused you to one Husband, that I may present you as a chaste Virgin to Christ.*

The *Church* is call'd *the House of God*; for tho' God be every where, and fills the Heavens and Earth by his Immensity, according to that of Jer. xxiii. 24. *I fill Heaven and Earth, says the Lord.* He is, notwithstanding, in a particular Manner in the *Church*, as in his House, to direct and govern every Thing within it. He has himself took the Pains to build that House on a sure Foundation. Mat. xvi. 18. *And upon this Rock I will build my Church, and the Gates of Hell shall not prevail against it.* In it he begets his Children by Baptism, instructs them by the Predication of the Gospel, feeds them with the Eucharist, and cures them by Repentance. In it he has Vessels of all Kinds. 2 Tim. ii. 20. *Of Gold, and of Silver, and also of Wood, and of Earth.* And in it he celebrates the nuptial Banquet, *Mat.* xxii. 2.

Lastly, The *Church* is call'd *the Column of Truth*; because by her Firmness and Stability she supports her Children, lest they should deviate from the Truth. Tho' *Beza* says, in his Commentary, that the *Church* is call'd *the Column of Truth*, because Truth can't be found any where else. And *Calvin*, *Lib.* 4. *Instit. c.* 1. § 10. because the *Church* is the faithful Keeper of the Truth of God. Or, as he expresses himself in the Commentary, *Quia veritatem præconio suo celebrat, quia puram, & sinceram retinet, quia ad posteros transmittit.*

One of the greatest Difficulties concerning the *Church*, and which is still a very great Subject of Controversy among us, is to know if one can be saved out of the visible *Church*. The antient Fathers hold for the Negative. St. *Augustine*, *Lib. De Unitate Ecclesiæ*, *c.* 19. says, *A ipsam vero salutem, ac vitam æternam nunc pervenit, nisi qui habet caput Christum. Habere caput Christum nemo poterit, nisi qui in corpore ejus fuerit, quod est Ecclesia.* *i. e.* That no Body can be sav'd, nor arrive at the eternal Life, but he who has *Christ* for Chief; and that none can have *Christ* for Chief, but he who is in his Body, which is the *Church*. And in his 50*th* Epistle to Count *Boniface*, towards the End, *Ecclesia Catholica sola est Corpus Christi, cujus ille caput est, Salvator corporis sui. Extra hoc corpus neminem vivificat Spiritus Sanctus.* *i. e.* The sole *Catholick Church* is the Body of *Christ*, himself being the Head thereof, the Saviour of his Body. Out of that Body none is vivify'd by the Holy Ghost. And a little lower, *Non habent itaque Spiritum Sanctum qui sunt extra Ecclesiam.* *i. e.* Those who are out of the *Church*, have not the Holy Ghost. And in his 152*d* Epistle to the *Donatists*, *Quisquis ergo ab hac Catholica Ecclesia fuerit separatus, quantumlibet laudabiliter se vivere existimet, hoc solo scelere, quod à Christi unitate disjunctus est, non habebit vitam, sed ira Dei manebit super eum.* *i. e.* Whoever will be separated from that *Catholick Church*, tho' he may imagine to lead an irreproachable Life; by that sole Crime of his being separated from the Union of *Christ*, he shall not have Life, but he'll remain the Object of the Wrath of God. And St. *Gregory*, *Lib.* 14. of his *Morals*, *c.* 2. *Sancta universalis Ecclesia prædicat salvari veraciter, nisi intra se, non posse: Asserens, quod omnes, qui extra ipsam sunt, minime sal-*

ſalventur. i. e. That the holy univerſal *Church* teaches that no Body can be ſav'd, but within her: Aſſuring us, that all thoſe who are out of her, are not ſav'd.

Calvin is of the ſame Sentiment, *Lib.* 4. *c.* 1. § 4. *Verum*, ſays he, *quia nunc de viſibili Eccleſia diſſerere propoſitum eſt, diſcamus, vel uno matris Elogio, quam utilis ſit nobis ejus cognitio, imo neceſſaria, quando non alius eſt in vitam ingreſſus, niſi nos ipſa concipiat in utero, niſi pariat, niſi alat ſuis uberibus: Denique ſub cuſtodia, & gubernatione ſua nos tueatur, donec exuti carne mortali, ſimiles erimus Angelis. i. e.* But, ſays he, becauſe we have form'd the Deſign to ſpeak, at preſent, of the Viſibility of the *Church*, we muſt learn how advantagious it is, nay, even neceſſary for us, to be acquainted with her, ſince we can't gain Admittance into the celeſtial Manſions, unleſs ſhe conceives us in her Boſom, brings us to Light, and ſuckles us with her own Breaſts; and afterwards takes us under her Care and Government, till being diveſted of the Rags of our Mortality, we ſhall be render'd ſemblable to Angels. And a little lower, *Extra ejus gremium nulla eſt ſperanda peccatorum remiſſio, nulla ſalus. i. e.* Out of her Boſom there are no Remiſſion of Sin, nor Salvation to be expected. And again, v. 22. *Tria*, ſays he, *hæc nobis obſervanda ſunt, primum quantalibet Sanctitate polleant filii Dei, hac tamen conditione ſemper eſſe quamdiu in mortali Corpore habitant, ut ſine peccatorum remiſſione conſiſtere nequeant coram Deo. Deinde hoc Beneficium ſic eſſe Eccleſiæ proprium, ut non aliter eo fruamur, quam ſi permaneamus in illius Communione. Tertio per Eccleſiæ Miniſtros, & Paſtores nobis diſpenſari, vel Evangelii predicatione, vel Sacramentorum adminiſtratione. i. e.* There are three Things, ſays he, which we are to conſider in this Place: 1. That whatever Sanctity the Children of God may be poſſeſs'd of, they can't ſtand before God during this tranſitory Life, without the Remiſſion of Sins. 2. That *that* Benefit of the Remiſſion of Sin, belongs in ſuch a Manner to the *Church*, that we can't otherwiſe enjoy it but by remaining in her Communion. 3. That it is adminiſter'd to us by the Paſtors and Miniſters of the *Church*, or in the Predication of the Goſpel, or in the Adminiſtration of Sacraments.

And *Philip Melanchthon, in Examin. Ordinand. Tit. de Eccleſ. Non loquimur*, ſays he, *de Eccleſia ut de Idea Platonica, ſed monſtramus Eccleſiam juxta dictum, dic Eccleſiæ; hic neceſſe eſt intelligi viſibilem Eccleſiam. i. e.* We do not ſpeak of the *Church*, ſays he, as of a *Platonick* Idea, but we ſhew the *Church* according to theſe Words, *Tell it to the Church.* Here we muſt underſtand a viſible *Church.* And afterwards he aſks if it be neceſſary, for to be ſav'd, to be a Member of that *Church*; and he anſwers, *Prorſus neceſſe eſt*, certainly 'tis neceſſary.

St. *Auguſtine*, *Serm.* 181. *De Tempore*, aſſigns ſeveral Reaſons for it: The firſt, becauſe in the *Church* alone is receiv'd the true Euchariſt. The ſecond, becauſe none but thoſe who work in the Vineyard receive the Salary. The third, all thoſe who were not in *Noah*'s Ark, were drown'd by the Deluge. The fourth, a Member which is not join'd to the Body, can't have Life. The fifth, a Branch cut off from the Tree can't grow. The ſixth, a Brook ſeparated from its Source, grows dry. Others add this ſeventh Reaſon; *Chriſt* is the Spouſe of the *Church*, but *Chriſt* is not an Adulterer, and does not beget Children but of his Spouſe the *Church:* Therefore no Body can be the Son of *Chriſt* who does not acknowledge the *Church* for his Mother. Which Sentiment is confirm'd by St. *Cyprian*, *Lib. De Unit. Eccleſ.* when he ſays, *Non habet Deum Patrem qui Eccleſiam, non habet Matrem. i. e.* He who has not the *Church* for his Mother, has not God for his Father. And St. *Auguſtine*, *Lib.* 4. *De Symbol. ad Catechum. c.* 13. *Si quis abſque Eccleſia inventus fuerit, alienus fuerit a numero filiorum, nec habebit Deum Patrem, qui Eccleſiam noluerit habere Matrem. i. e.* If any Body is found out of the *Church*, he muſt be conſider'd as a Stranger to the Sons of God; becauſe he that will not have the *Church* for his Mother, ſhall not have God for his Father.

This Sentiment is alſo authoriz'd by the Prophecy of *Iſaiah*, Chap. 60. Ver. 11, 12. *Therefore thy Gates ſhall be open continually, they ſhall not be ſhut Day nor Night, that Men may bring unto thee the Forces of the Gentiles, and that their Kings may be brought. For the Nation and Kingdom that will not ſerve thee, ſhall periſh.* By which Words, he propheſies two Things; the one, that the *Church* of *Chriſt* ſhall be viſible, and open to all Nations, if they will enter; the other, that all thoſe who will not enter, ſhall periſh.

The Latitudinarians will imagine this Doctrine very ſevere, and have Recourſe to their uſual Subterfuge, *Do not judge, if you will not be judged*; pretending, that it is cruel, inhuman, and contrary to that extenſive and impartial Charity on which the *Chriſtian Church* is founded, to believe that none can be ſav'd out of the Boſom of that *Church.* But I would aſk them, if it would be an Act of Charity in a Perſon who ſees another running into a Precipice, or laying hold of a Piſtol to ſhoot himſelf, to ſtand an idle Spectator of that raſh Action, and not endeavour to prevent it as much as it is in his Power? Would not that Perſon, acting thus, be acceſſory to the Death of the other? And could he be receiv'd to plead as an Excuſe, that he ſuffer'd him to kill himſelf thro' an Exceſs of Charity, becauſe, if he had acted otherwiſe, he had oppos'd his Inclinations? Sure the Latitudinarians will agree with me in this Caſe, that it had been a greater Act of Charity to have ſav'd that Man's Life. But what is a tranſitory Life, when compar'd to the everlaſting one? And ſince it is ſo well prov'd by Scripture, that out of the *Church* none can obtain that everlaſting Life, could it be an Act of Charity to indulge our Fellow Creatures in a contrary Sentiment? But they will perſevere in that Sentiment; and becauſe they will perſevere in an erroneous Sentiment, we muſt entertain them in it, by a criminal Complaiſance, which we have the ſacrilegious and fanatical Temerity to plaiſter with the ſacred Name of *Chriſtian* Charity. We let them endeavour *to run thro' the Windows like Thieves and Robbers*, while we can ſo eaſily ſhew them the *Door open to them.* We would agree with them that they can be ſav'd out of the *Church*, while we have ſo many clear, formal, and undeniable Proofs of the contrary in Scripture. The Paſſage they quote to ſupport their Error, cannot be underſtood of forming a juſt Judgment founded on Laws and Equity, but of judging temerarily of our Neighbours, by Motives of Malice, Spite, Jealouſy, Envy, *&c.* we would not have the Preſumption to ſay, that a Judge who pronounces Sentence againſt a Perſon, agreeable to the known Laws of his Country, and ſupported by unqueſtionable Evidences, ſhould not judge, leſt he ſhould be judg'd in his Turn; elſe what would become of a Commonwealth? Why, then, ſhould we deſire to act with Regard to our eternal Felicity, otherwiſe than we do for the Preſervation of our temporal one? The ſacred Scriptures are our Laws as *Chriſtians*, and the *Church*, and the antient Fathers, the Interpreters of thoſe Laws; and ſince we find in thoſe Laws, in formal Terms, the Condemnation of thoſe who are out of the *Church*, why ſhould we have the Temerity, by a pretended Principle of Charity, to acquit them, ſince it is the Scripture that condemns them, not we? And we do nothing elſe, on that Occaſion, than to repeat the Judgment of the Scripture; whereas, when we indulge them in their Error, we pronounce our own Judgment, which has no other Foundation than a criminal and perfidious Complaiſance.

I would not be miſunderſtood in this Place, nor be ſuppos'd to inſinuate, that *that Church* out of which no Body can be ſav'd, be any particular *Church*; *v. gr.* not the *Roman Church*, nor the *Anglican*, *Gallican*, &c. no; but I mean the univerſal *Church*, profeſſing the ſame orthodox Doctrine, and participating

pating of the ſame Sacraments; that true Doctrine contain'd in ſacred Writ, and preach'd by *Chriſt*'s Apoſtles, their Diſciples, and their Succeſſors. Thoſe Sacraments inſtituted by *Chriſt* himſelf, and adminiſter'd to us by thoſe who have receiv'd a lawful Miſſion by the Impoſition of Hands of Biſhops, who are the legitimate Succeſſors of the Apoſtles. For it is contrary to the receiv'd Principles of the *Chriſtian Church*, to believe that every Enthuſiaſt can claim any juſt Right to that Power of the Impoſition of Hands, or to an extraordinary Miſſion which has ended in the Apoſtles, and who ſupported or evidenc'd that Miſſion by Virtue of operating Miracles, which the *Proteſtants* are of Opinion has likewiſe ceas'd in them. Therefore none can derive the Power of preaching the Goſpel, and adminiſtring the Sacraments, but from an ordinary Miſſion, which none can receive but by the Impoſition of Hands of thoſe who have receiv'd it by an uninterrupted Succeſſion, which has been preſerv'd in the *Chriſtian Church* from the Time of the Apoſtles till now: Therefore I compare thoſe who pretend otherwiſe, to *Corah*, *Dathan*, and *Abiram*, who had the ſacrilegious Preſumption to offer Incenſe, contrary to God's Command, who had reſerv'd that Honour to the Tribe of *Levi* alone; ſince St. *Paul* forbids, in his Epiſtle to *Timothy*, any Body aſſuming that Honour, but thoſe who are call'd to it like *Aaron*; *Nemo aſſumat ſibi honorem niſi qui vocatus fuerit tanquam Aaron*. For my Part, I can't conceive the Reaſons of thoſe who by a formal Obſtinacy, rather than by a Scruple of Conſcience, as they are pleas'd to call it, have the Preſumption to ſeparate themſelves from the *Church* of *England*, and to preach the Goſpel, and adminiſter the Sacraments, without a lawful Miſſion. What can they find amiſs in the *Church* of *England?* Is the Government, or the Rites of that *Church*, different from that of the primitive *Church?* Or which of the two is more like the primitive *Church*, the *Church* of *England*, which, like the primitive *Church*, has her Hierarchy compos'd of Primates, Archbiſhops, Biſhops, *&c.* or theirs, which has nothing like it? The *Church* of *England*, which, by an uninterrupted Succeſſion of Paſtors, has the Power tranſmitted to her Paſtors, from the Apoſtles, of the Impoſition of Hands, without which there can be no lawful Miniſtry; or, to ſpeak more properly, no Miniſtry at all, and conſequently no Sacraments; or theirs, which has no other Miſſion but what their pretended Miniſters have uſurp'd, or receiv'd from thoſe who have none to ſend them? To pretend that there can be a *Chriſtian Church* without a Hierarchy, is to oppoſe the antient Practice of the *Church*; and to teach that Biſhops, and other Prelates, are *the Rags of the Whore of* Babylon, or *the Vicars of* Antichriſt, is a Contradiction of what is expreſs'd ſo often, and in formal Terms, in the Epiſtles of St. *Paul*. They can't accuſe the *Church* of *England* of Superſtition, ſince ſhe has aboliſh'd all that could ſmell of it, and what was the moſt erroneous, and the moſt obſcure in the *Chriſtian* Belief, reſerving but a ſimple and eaſy Worſhip. They can't find any Thing in it impoſing on the too great Credulity of the Vulgar; all is tranſacted in it with a *Chriſtian* Simplicity and Decency. Her Paſtors do not claim a greater Power than that they have receiv'd from *Chriſt* thro' the Channel of his Apoſtles and their Succeſſors. What, then, can hinder them from conforming to that *Church?*

To this they'll object, that they are not ſeparated from the *Church* of *England*, ſince that tender Mother receives into her Boſom all *Chriſtian* Sects, on no other Condition than that they ſhall proteſt againſt the *Church* of *Rome*, which is ſufficient, ſay they, for to be Members of that *Church*; that even, in my own Opinion, the Difference of Diſcipline is not ſufficient to form a Schiſm in the *Church*; that I would not pretend to ſay that the *Church* of *Africa* was ſchiſmatical, becauſe ſhe had a Diſcipline different from the other *Churches*, or that the *Gallican Church* has made a Divorce with the *Roman*, becauſe ſhe differs from her in ſeveral Points of Diſcipline: No, but I would be rightly inform'd, if the Conſecration of Biſhops, a legitimate and uninterrupted Succeſſion among them, and the Ordination of Prieſts by Biſhops, be Points of Diſcipline only? If that Succeſſion, Conſecration, and Ordination, be indiſpenſibly neceſſary to perpetuate a valid and legitimate Miniſtry in the *Church?* If that Miniſtry can ſubſiſt without a viſible Miſſion from the Biſhop, by the Impoſition of Hands; and if that Impoſition be not a Sign of the inviſible Miſſion of the Holy Ghoſt? If a ſingle Example can be produc'd, in the Eccleſiaſtical Hiſtory, of Miniſters made ſuch, without that Impoſition of Hands by Biſhops? If, in the Times of the Apoſtles, other Miniſters, but thoſe on whom they had impos'd their Hands, were ſent to preach the Goſpel? If, after their Deaths, their Diſciples follow'd another Practice? If even the Hereticks of the primitive *Church* were not always jealous of having Biſhops among them? If the *Novatians* had not always their Biſhops? And if *Arius*, who was but a ſingle Prieſt, ever attempted to impoſe his Hands on his Partizans, and to give them their Miſſion? If, after a Biſhop was elected by his Flock, the Preſbytery attempted to conſecrate him; or if, rather, he was not ſent to his Metropolitan to be conſecrated by him, or others appointed by him, before he could exerciſe his epiſcopal Functions? And if he who ſhould have had the Preſumption to act otherwiſe, had not been conſider'd, not only as an Intruder, but as no Biſhop at all? If ſo, that an ordinary Miſſion, by Ordination of the Biſhop, is abſolutely neceſſary to perpetuate a Miniſtry in the *Church*, and that there can be no *Church* without a Miniſtry; how can thoſe who reject that Ordination be accounted Members of the *Church* of *England?* Since that Ordination is not an indifferent Ceremony, but a very eſſential one; whereas, without it, there can be no valid Miniſters of the Sacraments, and conſequently no *Church* at all. As for the Example of the *African*, *Gallican*, *&c. Churches*, they can't be brought in Defence of Preſbytery alone; for tho' they differ'd among themſelves in ſome Points of Diſcipline, they never did it in this eſſential one; and they always follow'd, in the Conſecration of Biſhops, and Ordination of Prieſts, the preſent Practice of the *Church* of *England*, which is that of the primitive *Chriſtian Church*, from which thoſe *Churches* had thought to deviate in a very eſſential Point, if they had acted otherwiſe. But I'll falſely ſuppoſe, for a Moment, with them, that the Impoſition of Hands is but an indifferent Ceremony, (for they would not pretend that it is an Error, elſe they would be as Criminals, to ſide with the *Church* of *England*, as they would think themſelves were they to fornicate with the Whore of *Babylon*, as they are pleas'd to ſtile the *Roman Church* in the Tranſports of their uncommon *Chriſtian* Zeal) why ſhould we make a Sort of Schiſm with that *Church*, for a Thing which in itſelf is but indifferent; when Unity is one of the moſt eſſential Characteriſticks of the *Chriſtian Church?* ſince an indifferent Thing can't in the leaſt affect their Conſcience, whereas Diſunion is always a Breach of Charity, and a Breach of Charity more or leſs criminal, according as it is more or leſs wide, or more or leſs attended with Scandal. But I have ſome very good Inſtances that the *Preſbyterians* think the Ordination by Biſhops not only indifferent, but even criminal; of which this is a flagrant one.

Paſſing one *Sunday*, in Sermon-time, by the *French Church* near St. *James*'s Park, which is one of thoſe that have conform'd to the *Church* of *England*; my Curioſity led me to enter it, thoſe Gentlemen being commonly provided with very good Orators: I ſaw in the Pulpit a young Miniſter, who was not, to ſpeak impartially, quite a St. *John Chryſoſtome*, and who by his Diſcourſe I underſtood to have but lately paſs'd from the Preſbytery to the Epiſcopacy; for he was telling his Auditors how long he had been ſtruggling againſt the Remorſe of his Conſcience, before he could ſubmit himſelf to the Impoſition of Hands

by a Bishop; which he had never done, had he not been forc'd to it, at last, by the importunate Intreaties of his Friends; insinuating, thereby, that he had rather have follow'd, on that Occasion, the Dictates of some private Views, than those of his Conscience. Which made me conclude, that if the Conscience of that honest Ecclesiastick revolted so much against that Step, he must have thought it not indifferent, but criminal; and if criminal, how could he determine himself, on any Consideration whatever, (*considering his over-scrupulous Piety*) to take it?

But if even Ordination by a Bishop was but an indifferent Thing in itself, and incapable of forming a Schism in the *Church*, several Sects, who reject it, could not yet pretend to be Members of the *Church* of *England*, since most of them differ from it in Point of Faith, *v. gr.* most of them consider the Sacrament of Baptism as a mere Ceremony, and some reject it entirely, as vain, or needless; whereas the *Church* of *England* considers it as a Sacrament, absolutely necessary, as well for our Initiation into the *Christian Church*, as for our Regeneration, by the Ablution of original Sin: But those who consider Baptism otherwise, are not initiated into the *Christian Church*, and consequently cannot be made Members of the *Church* of *England*; even that *Church*, by that Article of her Belief, has put herself out of Power to receive them as such. Of what *Church* are they Members, then? Of their own *Church?* But their *Church* is no *Church* at all, since, according to the first Principles of the *Christian Church*, and her common Belief from the Apostles to this present Time, they have no Ordination, and consequently no Ministry; without a Ministry they can have no Sacraments; and without Sacraments there can be no *Church*.

There is a great Controversy between the *Catholicks* and *Protestants* about the Infallibility of the *Church*, which I will not pretend to terminate; but as I must be an impartial Historian, I'll relate, in this Place, their different Sentiments on that Subject. The *Catholicks* condemn, as Hereticks, those who deny the Infallibility of the *Church*; and the *Protestants* treat, in the same Manner, those who assert it: Which of them is in the Right, the Reader may judge, by the Arguments and Proofs us'd on both Sides to support their respective Opinions.

The *Roman Catholicks* say, that when they assert the Infallibility of the *Church*, they do not understand by *Church* any particular Part of the *Church*, but the universal *Church*. They confess, that a Part of the *Church* can err, *i. e.* some Members of that *Church* can err. *Arius* has err'd, say they, in denying the Divinity of *Christ*; *Macedonius* has err'd, in denying the Divinity of the Holy Ghost; *Nestorius* has err'd, in asserting, that there were two Persons in *Christ*; *Eutyches* and *Dioscorus* have err'd, in admitting but one Nature in *Christ*; the *Pelagians* have err'd, in denying original Sin, and the Necessity of Grace; the *Donatists*, and several others, have err'd; for which Errors they have been condemn'd by the *Church*, and separated from it as putrid Members.

The *Protestants*, on their Side, and the *Church* of *England* in particular, say, that the *Church* can, not only err, but has err'd, in Fact, ever since the five first Centuries; and some of them pretend, that it has even entirely been extinct ever since that Time, to that of *Luther* and *Calvin*; not that the Members the visible *Church* was compos'd of, have perish'd, but only their Faith, and true Religion.

But the *Catholicks* endeavour to refute that Sentiment, even by the Concession of their Adversaries; who agree, first, (say they) that the Visibility of the *Church* is an Article of Faith, which *Church* is holy, and *catholick*; that in that Sense must be understood this Article of the Symbol, *I believe the holy catholick Church*. But, continue they, the Articles of Faith are always true, and never false; therefore 'tis always true that there is a visible holy *catholick Church*; and conclude, that it is equally false that the whole visible *Christian Church* has err'd after the first five Centuries; and that for several Ages there has been no visible *Church* of *Christ*; otherwise it could not have been licit to say, then, *I believe the holy catholick Church*.

2. The same *Catholicks* pretend, that the Enemies of the *Church* of *Rome* confess, likewise, that the visible *Church* is the Spouse of *Christ*; whence they form two Arguments, one from the Part of the Spouse, who has join'd the visible *Church* to himself, as his perpetual Spouse, by an indissoluble Knot; according to the Apostle, *Ephes.* v. 31. and *Hosea*'s Prophecy, Chap. ii. Ver. 19. *And I will betroth thee unto me for ever*; and that therefore he can't be parted from her. The other from the Part of the Spouse who has oblig'd herself to keep the conjugal Fidelity to her Spouse, and to live in a perpetual Subjection to him; as the Apostle seems to insinuate, when he says, *As the Church is subject to Christ, so, likewise, Wives must be subject, in all Things, to their Husbands.* As if he was to say, the *Church* is like the Model of Subjection and Fidelity, to which Women are oblig'd to conform themselves; but the *Church* could not be a Model of Fidelity, if after a certain Number of Years she could desert her Spouse, and become an Adulteress. Whence St. *Cyprian*, *Lib. De Unitat. Eccles. Adulterari non potest sponsa Christi; incorrupta est, & pudica.* *i. e.* The Spouse of *Christ* can't be an Adulteress, but she is undefil'd, and pure.

3. They say that the visible *Church* is the House of God, of which *Christ* says in the Gospel, Mat. xvi. 18. *And upon this Rock I will build my Church, and the Gates of Hell shall not prevail against it.* Where, say they, again, he promises two Things: 1. That he will build his *Church* upon a Rock; and, 2. That the Gates of Hell shall not prevail against it. In both he makes Allusion to what St. *Matthew* says, Chap. 7. Ver. 24. that *that* Architect is wise who builds a House on a Rock; and foolish who builds it on Sand: Giving this Reason for it, that when the Rains descend, and the Floods come, and the Winds blow, and beat upon that House, it falls not, because it is founded upon a Rock; which can't be said of one built on the Sand, which falls when expos'd to any of these Accidents. That therefore *Christ* was willing to imitate the wise Architect, and build his *Church* on a Rock, that it may not be shaken, or ruinated, by the Impetuosity of the Winds. From whence they conclude, that it appears hence, that those offer a very great Injury to *Christ*, that say the *Church* he has edify'd can fall, and, in Fact, is fallen. For, continue they, it would follow hence, that it was not built on a Rock, but on the Sand, and, consequently, that *Christ* was an imprudent, and not a wise Architect; and even that he had been guilty of Falshood, since he had promis'd to edify his *Church* on a Rock, and had not done it; and that the Gates of Hell should not prevail against it, and they have prevail'd.

The *Roman Catholicks* fourth Argument for the Infallibility of the *Church*, is, that the visible *Church* is call'd *the Column and Support of Truth* in a triple Sense. 1. Because she is a firm and stable Column, which can't deviate from Truth. 2. Because, even in *Calvin*'s Opinion, she is the Repository of Truth, and conveys it to Posterity. 3. Because, according to *Beza*'s Interpretation, Truth can be found no where in this World, but in the *Church*. Whence they form a triple Argument: 1. Say they, If the *Church* be a firm and stable Column, which can't deviate from the Truth, certainly she can't err in the Faith. 2. If she be the faithful Guardian of Truth, she can never lose that Truth thro' her Fault; and if she loses it, she is not the faithful Guardian of our Faith. 3. If the Truth can be found no where else but in the visible *Church*, and that visible *Church* has fail'd after the first five Centuries of the *Church*; therefore the Truth must have been lost ever since. Neither can that Truth be recover'd again, continue they, unless the *Church* could be restor'd, which could not be done

done but by an extraordinary Mission, as that of the Apostles, supported by Miracles, which those who pretend to have re-edify'd that *Church*, and found that Truth bury'd in its Ruins, could never pretend to operate, since they were of Opinion that the Power of operating Miracles was confin'd to the Apostles, and was lost long before the falling of the visible *Church*. Tho', continue again the *Catholicks*, the Reformers wanted as much that Power to re-edify the *Church*, as ever the Apostles did to build it first. For, say they, how could *Luther* and *Calvin*, for Example, convince the World that what they preach'd was the same Truth which was profess'd in the *Church* in the first five Centuries of *Christianity*, and which had been so long bury'd under its Ruins, but by Miracles? Could the *Jews* have been persuaded that the sacred Fire which had been hid so long, during their Captivity, was found, had it not lighted of itself, and by a Miracle? How could any reasonable Person be persuaded, otherwise than by Miracles, that the Faith which *Luther* and *Calvin* preach'd, was the Faith of the primitive *Church*; and that *that* Faith which had been hid so long, had not been so much disfigur'd by the Enemies of *Christianity*, as not to be known but by a Miracle? Who could ever be made to believe, but by Miracles, that the *Church* re-edify'd by those two new Apostles, was the primitive *Church*; especially when they began to raise it in a Manner so different from that of the Apostles of *Christ*, who cemented the primitive *Church* with their own Blood; whereas *Luther* and *Calvin* cemented theirs with the Blood of those who attempted to oppose them? Thus speak the *Roman Catholicks*.

Their fifth Argument is, that no Body can be sav'd out of the visible *Church*, which, they say, is the Opinion of *Calvin* himself, (and which is true enough, as it appears by his own Words above quoted) but there were always some sav'd; then there was always a visible *Church*: And therefore 'tis false to say that the *Church* has not existed for several Centuries; for if it had not existed, no Body could have been sav'd. Therefore all our Ancestors (continue they) ever since that pretended Ruin of the *Church*, to its Restoration by *Luther* and *Calvin*, have been damn'd; but who would believe it?

They pretend, that these first five Arguments are taken from what their Adversaries have granted; or, to speak in clearer Terms, that they are founded on the very Sentiment of their Adversaries: But, not contented with it, they have also Recourse to the Scripture, and to the antient Fathers.

They take the first Argument of the Scripture from *Isa.* liv. where, they say, the Prophet speaks of nothing else, in that Place, but of the Fecundity, Amplitude, or Extent, Strength, Perpetuity, and Victory of the *Church* over the Hereticks, and her other Enemies. And that, among the rest, he speaks to her, in God's Person, in these Terms, Ver. 4. *Fear not, for thou shalt not be ashamed; neither be thou confounded, for thou shalt not be put to Shame.* And Ver. 10. *For the Mountains shall depart, and the Hills be removed, but my Kindness shall not depart from thee, neither shall the Covenant of my Peace be removed. i. e.* (say the *Catholicks*) That tho' the Mountains should depart, and the Hills be remov'd; the Kindness of God, and the Covenant of his Peace, which he has contracted with the *Church*, should, notwithstanding, remain fix'd, and irrevocable. And Ver. 11, 12. *Behold I will lay thy Stones with fair Colours, and lay thy Foundations with Saphires. And I will lay thy Windows of Agate, and thy Gates of Carbuncles, and all thy Borders of pleasant Stones. i. e.* (continue the same *Catholick* Interpreters) I will lay thy Foundations so strong, as to be capable to defy the most violent Tempests; and I will provide thee Gates and Ramparts which shall be inexpugnable. And Ver. 17. *No Weapon that is formed against thee shall prosper; and every Tongue that shall rise against thee in Judgment, thou shalt condemn. i. e.* (according to the very same Interpreters) All the Adversaries whom the Devil will raise against thee, shall not prevail; and all Hereticks who will resist thee, in the Cause of Faith and Religion, thou shalt condemn.

The second Argument they borrow from the Scripture, are the very Words of *Christ* himself, which, they pretend, confirm the Prophecy of *Isaiah*. Mat. xvi. 18. *And the Gates of Hell shall not prevail against it.* Which St. *Augustine* explains, *Lib.* 1. *ad Catechum. c.* 6. when he says, *Ipsa est Ecclesia sancta, Ecclesia vera, Ecclesia catholica, contra omnes hæreses pugnat; pugnare potest, expugnari tamen non potest. Hæreses omnes de illâ exierunt, tanquam sarmenta inutilia de vite præcisa. Ipsa autem manet in radice suâ, in vite suâ, in charitate suâ, portæ Inferorum non vincent eam. i. e.* That's the holy *Church*, the only *Church*, the true *Church*, the *Catholick Church*, which opposes all Heresies; she can conquer, but can't be conquer'd. All Heresies have been expell'd from her, as the needless Sarments are cut off the Vine; but she always stands fast to her Root, to her Vine, and to her Charity. The Gates of Hell shall never prevail against her. Where St. *Augustine* (say always the *Roman Catholicks*) speaks, manifestly, of the visible *Church*, which Hereticks have deserted, since they can't desert the invisible one, which is compos'd of the Elect only, in which they have never been: Therefore, conclude they, in St. *Augustine*'s Opinion, the visible *Church*, is *one, true, holy, catholick*, which can't be conquer'd, and against which the Gates of Hell can't prevail.

They likewise deduce their third Argument from the Words of *Christ*. Mat. xxviii. 19, 20. *Go ye, therefore, go and teach all Nations, baptizing them in the Name of the Father, and of the Son, and of the Holy Ghost. And lo I am with you always, even unto the End of the World.* As if *Christ* had said, (say the *Catholicks*) Behold I send you throughout the whole World, that you may preach the Gospel to Pagans and Infidels, and administer the Sacraments. You'll be expos'd to great Dangers and Adversities, because the Devil, who has his Proselytes every where, will excite violent Persecutions against you: But keep up your Courage, for I will never desert you, but will be with you, and your Successors, to the latter End of the World. I who have promis'd you, before, that *I would not leave you Orphans*, John xiv. 18. I, who told you, *Be of good chear, I have overcome the World*, John xvi. 33. I, against whom *the Prince of this World can avail nothing*, John xiii. 30. I, to whom my Father has promis'd, *I will put thine Enemies for thy Foot-stool*, Psal. cxx. 2.

St. *Augustine*, say they, makes Use of the same Testimony, *Conc.* 2. *in Psal.* 102. *contra Donatis.* where he introduces the *Church* speaking thus with *Christ*: *Quid est quod nescio qui recedentes a me murmurant contra me? Quid est quod me periisse contendunt? Certe enim hoc dicunt, quod fui, & non sum. Annuntia mihi exiguitatem dierum meorum; quamdiu ero in isto sæculo? Annuntia mihi propter illos qui dicunt, fuit, & jam non est, apostatavit, & periit Ecclesia de omnibus gentibus, &, annuntiavit. Ecce ego vobiscum sum omnibus diebus usque ad consummationem sæculi. i. e.* Why should not I know that those who depart from me murmur against me? Why should the Reprobates publish that I have perish'd? For it is certain that they say that I have been, and am no more. Let me know the Exiguity, or Shortness of my Days, and how long I shall remain in this World. Let me know it, to satisfy those who are pleas'd to say she has been, and is no more; the *Church* has apostatiz'd, and has perish'd; when *Christ* has said, *And lo I am with you always, even unto the End of the World.* Consider, continue they, how St. *Augustine* wounds the *Lutherans* and *Calvinists* thro' the Side of the *Donatists*, who say, likewise, what the *Donatists* us'd to say, the *Catholick Church* has been, but is no more; she has apostatiz'd, and perish'd; and against whom the *Catholicks* pretend to borrow these Expressions of St. *Augustine*, Why should not I know that those who depart from me, murmur against me?

Why ſhould Reprobates pretend that I have periſhed? Have you not ſaid, O Lord, *and lo I am with you always, even unto the End of the World?* Certainly you have not ſaid it, only, that I'll be with you for the Space of five hundred Years, and then deſert you, till the Time of *Luther* and *Calvin*.

Laſtly, the *Catholicks* employ againſt the *Lutherans* and *Calviniſts*, all the Arguments uſed by St. *Auguſtine* and the other Fathers againſt the *Donatiſts*, pretending that they all agree together in ſeveral Particulars; and that the *Donatiſts* uſed to ſpeak of the *Church* in the ſame Terms, the *Lutherans* and *Calviniſts* have ſpoke of it ſince. The *Donatiſts*, ſay they, publiſhed, that the *Catholick Church*, which before had been diffuſed throughout the whole World, periſhed afterwards by the Crime of the Biſhop *Cæcilianus*, and remained only in that Part of *Africa*, which adhered to the *Donatiſts*; as proved by St. *Auguſtine*, *lib. de hæres. c.* 69.

The *Lutherans* and *Calviniſts*, continue the *Catholicks*, teach almoſt the ſame Doctrine; for they affirm firſt, that the *Catholick Church*, which for the firſt five hundred Years, had been diffuſed throughout the World, periſhed afterwards, by the Crimes of the Pope (whom they call *Antichriſt.*) Secondly, that it ſo entirely periſhed, that it could never be found afterwards entire, in *Europe*, *Aſia*, or in *Africa*; but was every where an Adultery and an Apoſtate. Thirdly, that notwithſtanding it had been revived, at laſt, in that Part of *Europe* which adhered to *Luther*. In the firſt and third Articles, continue the *Roman Catholicks*, they are ſemblable to the *Donatiſts*, and worſe in the ſecond; therefore, conclude they, all that was written by St. *Auguſtine*, and the other Fathers, againſt the *Donatiſts*, can more properly be adapted to the *Luthetherans* and *Calviniſts*.

To all this, *Proteſtants* object; 1. That the Synanagogue of the *Jews* has often deviated from the Faith; and therefore the Church can alſo deviate from the Faith. They prove the Antecedent thus: The Synagogue has deviated firſt from the Faith in the Time of *Moſes*, when *Aaron* and all the People adored the golden Calf, *Exod* xxxii. 4. Secondly in the Time of *Helias*, when there was not a faithful Perſon left upon Earth, except *Helias*, which himſelf complains of, 1 Kings xix. 14. *The Children of Iſrael have forſaken thy Covenant, thrown down thine Altars, and ſlain thy Prophets with the Sword, and I even I only am left, and they ſeek my Life to take it away.* Thirdly, in the Time of *Iſaiah*, and of *Jeremiah*, when they all deſerted the Worſhip of the true God, Iſaiah i. 3. *The Ox knoweth his Owner, and the Aſs his Maſter's Crib: But Iſrael doth not know, my People doth not conſider.* And Jeremiah ii. 3. *For my People have committed two Evils: They have forſaken me the Fountain of living Waters, and hewed them out Ciſterns, broken Ciſterns, that can hold no Water.* And the Second of Chronicles xv. 13. *Now for a long Seaſon Iſrael has been without the true God, and without a teaching Prieſt, and without Law.* Fourthly, in the Time of *Chriſt*, when the Synagogue was entirely aboliſhed.

The *Catholicks* do not deny the Antecedent of this Argument, but reject ſeveral of the Proofs brought in Support thereof. 1. They pretend that it is falſe that the Synagogue was fallen from the true Faith in the Time of *Moſes*, by the Adoration of the golden Calf; for but one Part only, and not the whole Synagogue deviated, then, from the true Worſhip; ſince neither *Moſes*, nor the *Levites*, nor the Prieſts, abandon'd the true God, as it appears, Exod. xxxii. 26. *Then Moſes ſtood in the Gate of the Camp, and ſaid, who is on the Lord's Side, let him come unto me; and all the Sons of Levi gathered themſelves together unto him.* There were then 22000 of the Sons of *Levi*, as 'tis ſeen, *Numb.* iii. 39.

As for the Paſſages taken from the Firſt of *Kings*, *Iſaiah*, and *Jeremiah*, to prove that the Synagogue had deviated from the Truth, in the Time of thoſe Prophets; the *Catholicks* anſwer to them by a Diſtinction; for they ſay, that at that Time there were two Kingdoms belonging to the Synagogue; one the Kingdom of *Judah*, compoſed of two Tribes; and the other that of *Iſrael*, compoſed of ten Tribes. That this laſt, almoſt from its firſt Eſtabliſhment, under the firſt King *Jeroboam*, had begun to adore publickly the Idols, 1 *Kings* xii. 18. and had remained in that State till the Captivity, according to this Paſſage, 2 Kings xvii. 22, 23. *For the Children of Iſrael walk'd in all the Sins of Jeroboam, which he did, they departed not from them: Until the Lord remov'd Iſrael from his Sight, as he had ſaid by all his Servants the Prophets: So was Iſrael carried away out of their own Land to Aſſyria.* Notwithſtanding which (ſay the *Catholicks*) there was always a certain Number of Perſons, in that Kingdom, who had abſtain'd from Idolatry, and adored the true God, even in the Time of *Helias*; for when he thought he was left alone, he receiv'd an Anſwer from God; 1 Kings xix. 18. *Yet I have left me ſeven thouſand in Iſrael, all the Knees which have not bowed unto Baal, and every Mouth which hath not kiſſed him.*

The *Jewiſh* Religion, continue they, was practis'd in another Manner in the Kingdom of *Judah*; for ſome of their Kings were good, and adored the true God, as *Aſa*, *Jehoſaphat*, *Hezekiah*, *Joatham*, *Azarias*, and *Joſias*, in whoſe Reigns Religion was preſerv'd pure and undefiled; others bad, and idolatrous, as *Achaz*, *Manaſſes*, *Amon*, &c. which notwithſtanding, it appears that Sacrifices were always offered in the Temple of *Solomon*, according to the Law of *Moſes*, till the Captivity of *Babylon*.

Moreover the *Catholicks* confeſs, that the Synagogue periſhed at the Time of *Chriſt*, not by deviating from the true Faith ſhe profeſſed before, but becauſe ſhe was then repudiated with her Ceremonies, and Sacrifices, and ſucceeded by the Church of *Chriſt*. But it does not follow from thence (ſay the *Roman Catholicks*) that *Chriſt*'s Church is to be repudiated likewiſe; on the contrary, 1. Becauſe, as they have ſaid before, the Synagogue was repreſented by *Abraham*'s Maid Servant, who was repudiated, and the *Church* by *Abraham*'s Wife, who was not repudiated. 2. The Reaſon why the Synagogue was repudiated, is, that ſhe was neither perfect, nor ſufficient for our Salvation, according to this Paſſage, Heb. vii. 19. *For the Law made nothing perfect:* And in that Senſe the Ceremonies and Sacraments of the Synagogue are called by the Apoſtle, Gal. iv. 9. *Weak and beggarly Elements.* But, conclude they, the *Church* of *Chriſt* is perfect, and ſufficient to Salvation; becauſe her Sacraments, which have been inſtituted by *Chriſt*, have the Virtue of Juſtification. Whence St. *Auguſtine*, in Pſalm lxxxiv. *Sacramenta*, ſays he, *novi Teſtamenti dant ſalutem: Sacramenta veteris Teſtamenti promiſerunt Salvatorem*; *i. e.* The Sacraments of the New Teſtament give Salvation: The Sacraments of the Old Teſtament promiſed the Saviour. Thirdly, the Synagogue contained a Shadow of what was to happen, *Heb.* 10. The *Church* contains the Light, which is *Chriſt*. *John* i. 9. But the Shadow muſt neceſſarily diſappear when Light appears. Therefore, the Synagogue muſt have vaniſh'd at the Arrival of *Chriſt*'s *Church*. Fourthly, the Synagogue was inſtituted for Servants; and the Church for the Children; but Servants receive their temporal Salaries from their Maſters, and are diſmiſſed; whereas the Children ſucceeded to the Eſtate; which is inſinuated by the Apoſtle, Gal. iv. 30. *Caſt out the Bond-Woman and her Son: For the Son of the Bond-woman ſhall not be Heir with the Son of the Free-woman.* And *v.* 13. *So then Brethren we are not Children of the Bond-woman, but of the Free.*

The ſecond Objection of the *Proteſtants* againſt the *Church*'s Infallibility, is, that the Church will deviate from the Faith in the Time of Antichriſt; as foretold by the Apoſtle, 2 Theſſ. ii. 3. *For that Day ſhall not come, except there come a falling away firſt,* (*i. e.* a falling away from the Faith) *and that Man of Sin be revealed*; *i. e.* the Antichriſt, *&c.* But the Antichriſt is already revealed, who is the *Roman* Pontiff;

tiff; therefore the *Church* is already fallen away from the Faith.

The *Catholicks* anſwer, that the *Minor* of this Argument is manifeſtly falſe; and pretend that the *Major* can be underſtood in two Senſes. Firſt, of the falling away of all the Faithful: Secondly, of the Defection of ſome. In the firſt Manner, they ſay, that the *Major* is falſe, not only in their Sentiments, but even in that of their Adverſaries, who ſay themſelves, that the Antichriſt is come already; and deny, notwithſtanding, that all the Faithful have deviated from the Faith, ſince they reckon themſelves the Society of the Faithful; in the laſt Manner, the *Major* is true, continue they, becauſe ſome of the Faithful will fall away from the Faith, in the Time of Antichriſt; which is not ſurpriſing, ſince even in the Time of the Apoſtles, and ever ſince, in all the Ages of the Church, there have always been ſome *Chriſtians* who have deviated from the Faith; as the *Nicolaites*, *Marcionites*, *Novatians*, *Arians*, *Donatiſts*, *Pelagians*, *Severians*, &c.

They add further, that it is not very certain, that the Apoſtle brought to prove this *Major*, ſpeaks in this Place of the Defection from the Faith. Several are of Opinion, that he ſpeaks only of the Defection from the *Roman* Empire; as St. *Jerome*, *Epiſt.* 151. *Ad algas. Queſt.* 2. *Niſi, inquit, venerit diceſſio primum, quod Græce dicitur apoſtaſia, ut omnes gentes quæ Romano imperio ſubjacent, recedant ab eo: & niſi Romanum imperium fuerit antea deſolatum, & Antichriſtus præciſſerit Chriſtus non veniet, qui ideo venturus eſt ut Antichriſtum deſtruat. i. e.* Unleſs the Defection happens firſt, in *Greek* called *Apoſtacy*; that all the Nations ſubject to the *Roman* Empire revolt from it; and unleſs the *Roman* Empire had been deſolated before, and the Antichriſt had preceded, *Chriſt* will not come, who is to come to deſtroy the Antichriſt. *Tertullian*, ſay they, *Lib.* 1. *de Reſurrect. carn. c.* 24. and ſeveral others, in their Commentaries on this Paſſage of St. *Paul*, are of the ſame Sentiment; but, conclude they, let it be what it will of the Senſe of the Apoſtle, 'tis certain that not the whole Church, but only ſome Members of it, will fall away from the Faith, in the Time of the *Antichriſt*, which, ſay they, does nothing againſt them. The third Objection of the *Proteſtants* is taken from the Paſſage of *Daniel*, *c.* 9. *v.* 27. *And in the Midſt of the Week he ſhall cauſe the Sacrifice and the Oblation to ceaſe.* Which the *Proteſtants* interpret of the Defection of the *Roman Church*.

But, ſay the *Catholicks*, this neither can by no Means be underſtood of the Defection of the *Roman Church*; for if the Sacrifice and Oblation of that *Church* are to ceaſe at the Coming of the *Antichriſt*, as that Sacrifice and that Oblation ſubſiſt yet, and has ſubſiſted for a great Number of Centuries, it follows hence, that the *Antichriſt* is not come yet, and conſequently that the Pope cannot be the *Antichriſt*, tho' the *Proteſtants* conſider him as ſuch. But however, ſay they again, there are other very clear Teſtimonies to the contrary; which are thoſe heretofore quoted. Why, aſk they, do not our Adverſaries believe them? Why will they preſer this intricate one of *Daniel* to all others? In this, continue they, they imitate the *Donatiſts*; who, to ſhew that the *Church* of *Chriſt* was to be found no where elſe but in *Africa*, quoted this Paſſage of the *Canticles*, *c.* 1. *v.* 4. *Tell me, O thou whom my Soul loveth, where thou feedeſt, where thou makeſt thy Flock to reſt at Noon*; or while the Sun is in the South: Whence they reaſoned thus; the *Church* reſts in the South; but *Africa* is in the South; then the *Church* reſts in *Africa*; and therefore there's no *Church* out of *Africa*: Which ſilly Argument is refuted by St. *Auguſtine*, *Lib. de unit. Eccleſ. c.* 16. By this other ſtrong Argument, *Scrutamini Scripturas canonicas*, ſays he, *& eruite aliquid manifeſtum quo demonſtretis Eccleſiam in ſola Africa remanſiſſe*, &c. *aliquid proferte quod non egeat interprete, nec unde convincamini quod de alia re dictum ſit, at vos illud ad veſtrum ſenſum detorquere conemini. Videtis enim nunc illud unicum quod proferre conſueviſtis. Ubi paſcis, ubi cubas in Meridie, quem ad modum excuſſis omnibus ejuſdem loci verbis, longe aliud indicat quod vos putatis, & ſi hoc ſonaret quod vultis, Maximianiſtæ vos in eo vincerent. Magis enim Meridies provincia Bizantium, Tripolis, ubi illi ſunt, quam Numidia, ubi vos præpolletis. Ita ergo ipſi poſſunt germanius, & diſtinctius gloriari de Meridie, ut eos excludere ab hac Sententia non poſſitis, niſi in illis verbis verum ſenſum & Catholicum teneatis. Aliquid ergo proferte, quod non contra vos verius interpretetur, ſed quod interprete omnino non egeat. Sicut interprete non eget, Terra tua urbis Terrarum, &c. Sicut non eget interprete, Convertentur ad Dominum univerſi fines terræ, &c. Sicut non eget interprete, eritis mihi Teſtes in Jeruſalem, & in tota Judæa, & Samaria, uſque in totam Terram, &c. i. e.* Search the Canonical Scriptures, and take from them ſomething clear, whereby you could prove evidently, that the *Church* is no where elſe to be found but in *Africa*, &c. Produce ſomething which wants no Interpretation, and whence you could be convinced, that it has been ſaid of ſomething elſe, and you endeavour to give it your own Senſe: For at preſent you ſee none but this, which you quote on all Occaſions; *where you feed, and where you reſt, in the South.* Even as if, having taken off all the other Words of that Paſſage, it indicates quite other Things than you imagine: But if even it was to be underſtood in your own Senſe, the *Maximianiſts* have a greater Right to apply it to themſelves, for the Province of *Bizantium*, and *Tripoli*, where they are, is more South than *Numidia*, where you are; and can ſo juſtly and diſtinctly boaſt of the South, that you cannot exclude them from that Paſſage, but by giving to it its genuine and catholick Senſe. Therefore produce ſomething, which not only, could not be ſo well interpreted againſt you, but wants no Interpreter at all. *As the whole World is your Earth*, &c. wants no Interpretation: As *all the Extremities of the Earth will be converted to the Lord*, &c. wants no Interpretation: As, *you will be Witneſſes to me in Jeruſalem, in all Judea, Samaria, and as far as the whole World*, &c. wants no Interpretation.

In the ſame Manner the *Catholicks* endeavour to refute the Objections of their Adverſaries. Search the Canonical Scriptures, ſay they, and take from it ſomething clear, which could prove, that the Church has deviated from the Faith; ſomething which wants no Interpretation: As, *The Gates of Hell ſhall not prevail againſt it*, wants no Interpretation: As, *And lo I am with you always, even unto the End of the World*, wants no Interpretation: As, *I have prayed for thee, that thy Faith ſhould not fail*, wants no Interpretation: As, *The Church is the Column of Truth*, wants no Interpretation: And ſeveral other ſuch Paſſages, which are evident of themſelves, and wants no Interpretation: For that quoted by our Adverſaries, conclude they, out of *Daniel*, *He ſhall cauſe the Sacrifice and the Oblation to ceaſe*, cannot favour them, unleſs they be themſelves the Interpreters of it: For no body elſe interprets it of the Defection of the *Chriſtian Church*, as they do, but of the Defection of the Synagogue of the *Jews*.

The fourth Objection of the *Proteſtants*, is taken from that the *Church* is compared to the Moon by the Scriptures, and the Fathers; but the Moon fails ſometimes; then the *Church* is ſubject to the ſame Inconveniency.

The *Catholicks* exclaim loudly againſt this Objection; and accuſe thoſe who make uſe of it, with being rebellious Sons of the *Church*; who, when they can find ſo great a Number of clear and evident Teſtimonies, to prove the Innocence and Integrity of their Mother, ſearch Occaſion for calumniating her; and give a forced and malicious Senſe, to what the Fathers have ſaid with a good Intention. Let it be ſo, ſay they, that the Church is ſemblable to the Moon; but in what is ſhe ſemblable to it? Is it in that ſhe fails like the Moon? Or is it not rather, aſk they, in the following Particulars?

1. As the Moon, in the Beginning of the Month,

is ſmall, and afterwards increaſes by Degrees, till it be full and perfect; likewiſe the *Church*, in the Beginning of her Origin, was confin'd to a very ſmall Part of the Earth, and afterwards increas'd to that Degree, as to be diffus'd throughout the whole World. According to St. *Auguſtine* on the 19*th* Verſe of the 104*th* Pſalm; *He appointeth the Moon for Seaſons.* Where he ſays, *Intelligimus ſpiritualiter Eccleſiam creſcentem de minimo; & quando obſcura erit Eccleſia? Quando nondum apparebat, &c. Modo quam cæcus eſt, qui plena Luna errat? i. e.* We underſtand, ſpiritually, the *Church* increaſing from little; but when was the *Church* darken'd? When did ſhe not appear, *&c.* How blind is he who errs, or loſes himſelf in a full Moon?

2. Say they, again, as the Moon receives its corporal Light from the Sun; ſo, likewiſe, the *Church* receives the Light of Faith and Sanctity from *Chriſt.* According to the ſame St. *Auguſtine* in Pſal. xi. *Luna*, ſays he, *intelligitur Eccleſia, quæ ſuum lumen non habeat, ſed ab unigenito Dei filio, qui multis locis in Sanctis Scripturis allegorice, Sol appellatus, illuſtratur. i. e.* By the Moon, ſays he, is underſtood the *Church*, which has no Light of herſelf, but is irradiated by the only Son of God, call'd, by way of Allegory, in ſeveral Places of the ſacred Scriptures, the Sun. And *Philo, Epiſcop. Carpath. in Cant. Cantic. Lunæ comparatur Eccleſia*, ſays he, *propterea quod, quicquid habet divini Luminis, id a juſtitiæ Sole immobili & divino accepit. i. e.* The *Church* is compar'd to the Moon, becauſe all the divine Light ſhe poſſeſſes, ſhe has receiv'd from that immoveable and divine Sun of Juſtice.

3. The ſame *Catholicks* conclude, that as the Moon is ſubject to change, ſo is the *Church*, in this Life; for ſometimes ſhe enjoys Peace, and ſometimes ſhe has Perſecutions; but that ſhe never fails. Which they prove from St. *Ambroſe, Lib.* 4. *Examer. c.* 2. *Eccleſia tempora ſua habet perſecutionis & pacis. Nam videtur ſicut Luna deficere, ſed non deficit. Obumbrari poteſt, deficere non poteſt. i. e.* The *Church* has her Intervals of Peace and Perſecution; for ſhe ſeems to fail, like the Moon, but never fails. She can be overſhadow'd, but can never fail.

The *Catholicks* add to this, that they are ſurpriz'd that their Adverſaries alledge this ſingle Similitude in Prejudice of the *Church*; while ſo many of her's are found in the Scriptures, which can be alledg'd in her Favour and Commendation. For the *Church* is not only call'd *Moon*, by way of Allegory, in the Scriptures, and the Fathers; but ſhe is likewiſe call'd *Sun, an incloſed Garden, a Paradiſe, a beautiful Column, the City of God, the Land of the Living, a Woman adorned with the Sun, a Queen decked in golden Attire*; which Similitudes are all honourable.

The ſame *Catholicks* would prove, if they could, that this viſible *Church*, which they conſider as infallible, is the *Roman*, or *Pontifical Church*; which they attempt to effect in the following Manner.

Note, That in this Treatiſe of the *Church*, I am neither a *Proteſtant*, nor a *Catholick*, but only an impartial Hiſtorian, who eſpouſes no Party, and contents himſelf with relating Things as he finds them, without the leaſt Addition or Diminution; being perſuaded, that thoſe who have Truth on their Side, can't take it amiſs if I ſtate fairly, and candidly, the Sentiment of their Adverſaries, and all they can alledge to ſupport it; ſince Truth appears always with a greater Luſtre, when compar'd with Falſhood; and nothing but Sophiſm and Error can be provok'd at what can be ſaid on either Side. I know, perfectly well, that it is high Treaſon, in *England*, to maintain the Supremacy of the Pope; and, really, I reject it myſelf; and if I mention it, I do it only as an Hiſtorian.

The *Catholicks* conſider, in this Place, the *Roman Church* in two different Manners: 1. As the ſole particular *Church* of *Rome*. 2. For the Society of *Chriſtians*, diſpers'd throughout the whole World, who have adher'd, in former Ages, and adhere yet to that *Church*; in this laſt Senſe (ſay they) ſhe has various Names: 1. She is call'd *catholick*, or univerſal, becauſe diffus'd throughout the whole World. 2. Pontifical, becauſe ſubject to the Pope. 3. *Roman*, from the nobleſt Part.

Therefore the *Catholicks* ſpeak, in this Place, of the *Roman Church* as taken in the laſt Senſe, and pretend, that ſhe is the true *Church* of *Chriſt*, to which they attribute the Properties heretofore mention'd, and prove their Aſſertion thus: The viſible *Church* of *Chriſt* can't fail, or err in the Faith, ſay they; therefore there has been always among us a viſible *Church* of *Chriſt* from the Time of the Apoſtles, without any Interruption, or Error; but no viſible *Church*, except the *Roman*, or Pontifical, has remain'd without Interruption, or Error; then (conclude they) the ſole *Roman*, or Pontifical, is the viſible *Church* of *Chriſt.* They prove the *Minor* by Induction, becauſe (ſay they) the *Judaick Church* has been abrogated, and repudiated by *Chriſt*'s Death. The *Turkiſh*, or *Mahometan*, has not always been; the *Calvinian* and *Lutheran* is new, for it began, continue they, at the Reformation, made by *Luther* and *Calvin*; therefore, in their Opinion, the ſole Pontifical has remain'd from the Time of the Apoſtles till now. Elevated with the pretended Strength of this Argument, they challenge the Reform'd to ſhew them another *Church*, which has laſted ſo long; they aſk her Name, in what Part of the World ſhe was to be found, or is to be found yet; what Paſtors, or Biſhops ſhe had, or has yet, *&c.*

To this ſome of the Reform'd anſwer, that indeed the *Church* of *Chriſt* has been, for ſeveral Centuries, ſo much corrupted and vitiated, that there were no other faithful to be found in it, but the Children who had the Benefit of Baptiſm.

The *Catholicks* do not ſeem much ſatisfy'd with this Reaſon, for they are bold enough to have Recourſe to the Confeſſion of *Auſbourg*, Art. 7. and to the Apology of the ſame; and to *Calvin. Lib.* 4. *Inſtit. c.* 1. § 9, 10, 11. to find there the true Marks of the *Church* of *Chriſt*, which are the Predication of the Goſpel, and the legitimate Adminiſtration of the Sacraments: And then conclude, that theſe two Marks of the *Church* of *Chriſt*, given by the *Auguſtinian* Confeſſion, and *Calvin* himſelf, do not ſuit a *Church* compos'd of Children only, who can neither preach the Goſpel, nor adminiſter the Sacraments; and conclude, again, that therefore a *Church* compos'd of Children only, can't be the *Church* of *Chriſt.*

Others employ a ſtronger Argument againſt the *Catholicks*, that there have been always in the *Church* ſome good *Chriſtians*, who have oppos'd and contradicted the Pope, of whoſe Number have been, at different Times, *John Wickliff*, *John Hus*, *Luther*, *Calvin*, &c.

The *Catholicks* ſeem very little daunted at this, for they have the Preſumption to aſk again, Who were thoſe few *Chriſtians* who for ſeveral Ages before *John Wickliff* had the Courage to contradict the Pope? And then go on, in the ſame Stile, If the Reform'd don't know them, ſay they, why ſhould they affirm it? But if they do, we ſhould be glad to know their Names, their Places of Abode, and other neceſſary Circumſtances. 2. They pretend, that the *Church* of *Chriſt* is not of a worſe Condition than the Synagogue was, ſince the *Church* is the Miſtreſs, and the Synagogue the Servant, *Gal.* iv. 12. But the Synagogue, ſay they, has never been deſerted to that Exceſs, as to produce but few hearty and honeſt *Jews*; ſince even in *Elijah*'s Time, when it was thought the moſt forlorn, there could have been found in it, yet, 7000 honeſt *Jews*, who had not bow'd their Knees before *Baal*, *Rom.* ix. 4. Hence they aſk, Why their Adverſaries could imagine that the *Church* of *Chriſt* has been once ſo deſerted, that but two or three good *Chriſtians* could be found in it; which, they pretend, is manifeſtly repugnant to the Scripture, which witneſſes,

neſſes, *Iſa.* liv. 1. that the *Church* of *Chriſt* has been far more fecund, and of a greater Extent, than ever was the Synagogue of the *Jews*.

The *Church* of *England* has no Recourſe to theſe intricate Arguments; for ſhe proves, that the *Church* of *Chriſt* has always been viſible in theſe Kingdoms, ever ſince the Apoſtles till now; ſince her Biſhops are the legitimate Succeſſors of thoſe firſt Biſhops ſent by the Apoſtles themſelves, or their Diſciples, to preach the Goſpel, and eſtabliſh the *Church* of *Chriſt* in *Great Britain*; that, in Fact, ſhe has ſhook off the Yoke of the Pope, but that a blind Obedience to him (eſpecially ſince he has uſurp'd a deſpotick Power, which is not at all agreeable to the Meekneſs, Abnegation, Diſintereſtedneſs, and Humility of the Goſpel) is not an eſſential Quality of the *Church* of *Chriſt*. As for the other Points, ſeveral are of Opinion that they are ſo trifling, if well underſtood, that it would be a very eaſy Matter to procure a Reconciliation between the *Church* of *England* and that of *Rome*.

The *Catholicks* urge further, againſt the *Proteſtants*, that if it is true that the univerſal *Church* can err, it follows hence, that theirs can alſo err; and that therefore none among them can be ſecure of their Faith. For (continue the *Catholicks*) the *Proteſtants* either follow their own *Church*, or the *Church* of the *Catholicks*. If they follow their own *Church*, they have nothing certain, ſince their *Church* is ſubject to Error; if they differ from the *Catholick Church*, they muſt be ſtill more perplex'd; for if their whole *Church* can err, much more can every one of them in particular.

The *Catholicks* pretend to ſupport this their Argument by two Principles eſtabliſh'd by the *Proteſtants* themſelves; 1. That the Pontifical *Church* has not deviated from the Faith all at once, but only by Degrees; ſo that having, at laſt, entirely renounc'd the Faith, ſhe is become an Adultereſs. 2. That this Defect has been at firſt ſo hidden, that no other Circumſtances of it could be aſſign'd; but at laſt, after ſeveral Centuries, that Defect has been diſcover'd, and expos'd to publick View by *Luther* and *Calvin*. From theſe two *Proteſtant* Principles the *Catholicks* draw this Concluſion; what has happen'd to the Pontifical *Church*, can happen, likewiſe, to the Reform'd *Church*; but the Pontifical *Church*, in the Opinion of our Adverſaries (ſay they) has by Degrees, and ſecretly, deviated from the Faith, without being capable of diſcovering it: Therefore the reform'd *Church* can likewiſe by Degrees, inſenſibly, ſecretly, the *Proteſtants* not minding it, deviate from the Truth. Who knows, continue they, if ſhe has not deviated already, and they not minding it? And how could they mind it, ſince, in their Opinion, the Defection is ſecret and hidden?

The *Catholicks* ſign Victory, at this Argument, which, they pretend, is ſo convincing, that it is unanſwerable; but they are much miſtaken: For a *Proteſtant* will tell them, that the *Church* can't err, nor deviate from the Truth, as long as ſhe follows the Word of God. To this the *Catholicks* anſwer, 1. By a Repetition of their former Argument, thus: What has happen'd to the Pontifical *Church*, can happen, likewiſe, to the Reform'd *Church*; but the Pontifical *Church*, as the *Proteſtants* will have it, has inſenſibly and ſecretly abandon'd the Word of God, without the Members of that *Church* could be aware of it: Therefore the Reform'd *Church* can in the ſame Manner, *i. e.* inſenſibly and ſecretly abandon the Word of God, before the Members of that *Church* could be ſenſible of it.

2. They aſk the *Proteſtants* whence it can appear, if the Reform'd *Church*, or the Pontifical, follows the Word of God, or not? We *Catholicks* (ſay they) ſtand for our *Church*, and the *Proteſtants* for theirs; who will be capable to decide the Queſtion? Let the *Proteſtants* produce (continue they) an infallible Judge capable to terminate the Difference. The *Proteſtants* (ſay they, again) will aſſign the Word of God for Judge, or the *Church*, or every Member of that *Church*, or ſome of them: But if they aſſign the Word of God, we have conquer'd, ſay the *Roman Catholicks*; for the Word of God declares preciſely, that *the Church is the Column of Truth*, that *the Gates of Hell ſhall not prevail againſt her*. Which is alſo our Sentiment, ſay they; therefore if the Cauſe is to be determin'd by that Judge, we have gain'd it; but if the *Proteſtants* appoint the *Church* for Judge, they act againſt themſelves; for the Sentence of the *Church* is either infallible, or fallible: If infallible, thoſe err, who pretend that ſhe is ſubject to Error; if it is fallible, they err again; becauſe, when they ought to aſſign one infallible Judge, they aſſign the *Church*, which, they ſay, is fallible, and ſubject to Error. Laſtly, If they aſſign for Judge every Member of the *Church*, or ſome of them, the Deceit is greater; for if the whole *Church* is ſubject to Error, much more the Members of that *Church* are ſubject to it. Thus reaſon the *Roman Catholicks*.

But the *Proteſtants* anſwer, that there are two *Churches*, one viſible, where the Good are mix'd with the Bad; and another inviſible, compos'd of the Elect only; that the viſible *Church* is ſubject to Error, but not the inviſible.

The *Catholicks* pretend, that this Reaſoning, inſtead of favouring the Cauſe of the *Proteſtants*, makes againſt it: For, ſay they, all the Elect, whom the *Proteſtants* place in the inviſible *Church*, are alſo in the viſible one; therefore, if the whole viſible *Church* is ſubject to Error, all the Elect are likewiſe ſubject to Error; or if they are not, neither is the viſible *Church* ſubject to it. That all the Elect are in the viſible *Church*, not even our Adverſaries, ſay they, can deny; and the Reaſon of it is evident, ſince *Calvin*, *Melanchthon*, and other chief Reformers, agree (as is ſhew'd by their very Words, in the Article of the Viſibility of the *Church*) that no Body can be ſav'd but in the viſible *Church*; but all the Elect are ſav'd, therefore all the Elect are in the viſible *Church*.

Of what they have ſaid on this Subject of the Infallibility of the *Church*, which they believe, they form this *Dilemma*: Either the viſible *Church* has err'd in the Faith, before *Luther* appear'd, or has not err'd; if the whole *Church* has err'd, all, and every *Chriſtian*, muſt likewiſe have err'd, even the Elect: Therefore there was, at that Time, no Faith to be found upon Earth. Whence, then, has *Luther* himſelf receiv'd his Faith? If the *Church* has not err'd, why do our Adverſaries, aſk they again, imagine that ſhe has err'd?

To this the *Proteſtants* anſwer, that *Luther* did not receive his Faith from the *Church*, which had certainly err'd; but from the Word of God, which he found in the Scripture. The *Roman Catholicks*, in their Turn, aſk the *Proteſtants* where *Luther* found thoſe Scriptures? If it was in the viſible *Church*, which had err'd, or in the inviſible one, which he could not ſee? That if he found the Scriptures in the viſible *Church*, which had err'd, how could he be ſure that the Scriptures contain'd the Word of God, and that thoſe Scriptures had not been falſify'd, adulterated, and fill'd up with Romances, by that Adultereſs which had been ſo long intruſted with it, and where ſhe could have made what Alterations ſhe pleas'd to ſerve her own wicked Purpoſes? But the *Proteſtants* do not pretend that the Scriptures have been adulterated by the *Church*, which has fail'd; but that they have receiv'd them from her, ſuch as ſhe had receiv'd it from the firſt Founders of the *Chriſtian* Religion? How do they know that, aſk again the *Roman Catholicks*? And that all that's expreſs'd in ſo clear and formal Terms in it, as to want no Interpreter, and which favour the Belief of that fallen *Church*, has not been inſerted in it by her, to diſguiſe the Truth, and oblige its future Aſſerters to have Recourſe to puzzling and lame Interpretations? Or rather, how do they know that it is the Scripture at all? Is it by a divine Inſpiration, or by the Tradition of that fallen *Church*? They never pretended, ſay again the *Roman Catholicks*, that they had receiv'd the Scripture by Inſpiration;

ration; it must be then by the Tradition of that fallen *Church*; but how can the *Protestants*, with a safe Conscience, trust to her in that Particular, and pretend that she has erred in every thing else?

Some of the reformed *Churches*, as well as the *Roman*, pretend that the *Christian Church*, being a mystical Body, composed of several Members, cannot subsist, without a Head, or a Chief; that the Name of *Head* can be taken in two Manners: First, properly, for the natural Head of the human Body; whose Office is to direct and govern the several Members of the Body. Secondly, metaphorically, for the moral Head or Chief of a Commonality; whose Office is to direct and govern the Subjects who are Members of the Commonality. In this last Sense is understood the Head of the *Church*; therefore the Question is, who is the Head, Chief, Director, or Governor of the *Church?* The *Church* of *England* acknowledge two Heads of the *Church:* First, *Christ*, who, while upon Earth, was, and is still, the supream Head of the *Church*. Secondly, the King. The *Catholicks* admit of three Heads of the *Church:* First, *Christ* with the *Church* of *England*, who likewise in her Sentiment, was, while upon Earth, and is still the supreme Head of the *Church*. Secondly, *Peter*, who after *Christ*'s Ascension into Heaven, was the second Head of the *Church*, or which is the same, was the Vicar of *Christ*, in the Government of his *Church*. Thirdly, the Bishop of *Rome*, who after *Peter*'s Death, has succeeded him in that Government.

Therefore the *Catholicks* say, that there be two Heads of the *Church*; the first Head, which is *Christ*; and the second, which is St. *Peter* and his Successors: But in a different Manner: First, because *Christ* is not only the Chief of the *Church Militant*, but likewise of the *Triumphant*, *Ephes.* i. 2. And the Pope Chief of the *Militant* only. Secondly, say they, *Christ* is the Chief, both visible and invisible; because he governs the *Church* in a visible and invisible Manner; and the Pope in a visible one only: Which they prove in the following Manner:

Christ, say they, while upon Earth, was the visible and invisible Head of the *Church*. Visible, because he governed it in a visible Manner: Invisible, because in an invisible one: Which they explain by the Similitude of the Head of a natural Body: For, say they, the natural Head governs the human Body in two Manners: First, by an internal Influence; because from the Head, as from a Source, or Principle, flow the sensitive Spirits to all the other Members; whence it happens, that the other Members cannot preserve Life, and perform their respective Functions without it. Secondly, by an external Direction, which consists, in that the Head, by the Understanding, Will, Sight, Hearing, and other Senses, which it possess eminently, direct the other Members in their Actions, that they may not commit any Error.

Likewise *Christ*, say they, while upon Earth, has governed the Church in two Manners: First, by the internal Impulsion of his Grace; John i. 16. *And of his Fulness have we all received, and Grace for Grace.* And Ephes. iv. 7. *But unto every one of us is given Grace, according to the Measure of the Gift of Christ.* Secondly, by an external Direction, and Government. For as a King governs a Common-wealth in a visible and external Manner, ordering, admonishing, reprimanding, punishing, and promoting to Posts and Preferments; likewise *Christ*, while upon Earth, has governed the *Church* in an external and visible Manner; ordaining Ministers and Priests, making the evangelical Laws, teaching, admonishing, reprimanding, *&c.* Which the Apostles explain by another Similitude; Ephes. v. 22. 23. *Wives submit yourselves unto your own Husbands, as unto the Lord: For the Husband is the Head of the Wife, even as Christ is the Head of the Church*; *i. e.* As to the external Government; for as a Wife is obliged in external Actions, to govern herself according to the Direction, or Command of her Husband, her Chief; likewise the *Church*, according to the Laws and Commands of *Christ*.

Christ, continue the *Roman Catholicks*, being at present in Heaven, remains nevertheless the invisible Chief of the *Church*, and will remain so to the latter End of the World; but is not the visible Chief; because he governs still, and will govern the *Church* in an invisible Manner, *viz.* by the internal Impulsion of his Grace, and the Direction of the Holy Ghost; Matt. xxviii. 20. *And lo I am with you always, even unto the End of the World.* Though he does not govern it in a visible Manner; because he is no more visible among us, as he was before his Ascension. Whence St. *Augustine*, *Tract.* 50. *in Joan.* towards the End; *Secundum presentiam Majestatis semper habemus Christum; secundum presentiam carnis, recte dictum est Discipulis me autem non semper habebitis, habuit enim illum Ecclesia; secundum presentiam carnis, paucis diebus; modo fide tenet, oculis non videt. i. e.* We have always *Christ* present in Majesty; but as to his corporal Presence, it was rightly said to the Disciples; You will not have me always; for the *Church* has had him but few Days present in his Flesh; at present she possesses him by Faith, but does not see him with her Eyes.

Hence it follows, conclude the *Catholicks*, that, besides *Christ* who is present in Heaven, the *Church* must have some visible Chief to supply the Place of *Christ*: For as in a King's Absence, a Regency is appointed to supply his Place, in the Government of his Kingdom; especially if the King is to be absent for some considerable Time; The same may be said of the *Church* during *Christ*'s Absence; for this Reason; that the Government of the *Church* must remain the same as first instituted by *Christ:* But *Christ* himself before his Ascension instituted a visible Government under a visible Chief; therefore that Government must remain the same; for as he was the visible Chief before his Ascension, likewise after his Ascension, there must be some other visible Chief in his Place; otherwise the Government of the *Church*, and the *Church* herself would be changed.

They confirm this their Sentiment, by the Analogy of the Synagogue, and of the *Church*, in this Manner: The Synagogue of the *Jews* was a Type of the *Church* of *Christ*; but the Synagogue was governed by a visible Chief, *viz.* the High-Priest to whom all others were subordinated; as it appears from the Books of *Exodus*, *Leviticus*, and *Deuteronomy*; therefore the *Church* must always be governed by a visible Chief.

To this it's objected, that the Analogy consists, in that as the Synagogue had a Chief, *viz.* the High-Priest; likewise the *Church* hath a Chief, *viz. Christ.* The *Catholicks* answer, that in this Place there is a double Analogy; one, with Regard to the internal Impulsion of Grace; the other, with Regard to the external Government. That the first Analogy consists in this; that as *Christ* by his foreseen Merits has conferred an internal Grace on the Synagogue; likewise by his Merits already exhibited, he bestows his Grace more abundantly on the *Church*. The last Analogy consists, in that, as *Moses*, the Mediator of the Old Testament, was the first visible Chief of the Synagogue, with respect to the external Government; likewise *Christ* the Mediator of the New Testament, was the first visible Chief of the *Church*, with Regard to the external Government. Again, as after *Moses*'s Death, the visible Government of the Synagogue has always continued; likewise after *Christ*'s Ascension, the visible Government of the *Church* has always continued.

From both Analogies the *Roman Catholicks* (I mean some among them) draw the following Inferences, 1. That the invisible Chief of the Synagogue, and of the *Church*, with Regard to the internal Impulsion of Grace, was the same, *viz. Christ.* 2. That the visible Chief of the Synagogue, and of the *Church*, with Respect to the external Government, was different; for

for the visible Chief of the Synagogue, in her Beginning, was *Moses*, to whom succeeded the legitimate High Priests: But the visible Chief of the *Church* in her Beginning, was *Christ*, to whom have succeeded, say they, *Peter* and his Successors. 3. That *Moses* was the Figure of *Christ* with Regard to the external Government: For, as *Moses* was Legislator, Mediator, and Prince in the Old Testament; likewise *Christ* was Legislator, Mediator, and Prince in the New. 4. That the High Priests of the Old Testament, were the Types or Figures of the Pontiffs of the New Testament; for as those presided over all the *Jews* in the external Government, likewise these over all the *Christians*.

From these Conclusions, Part of the *Catholicks* infer the Primacy of *Peter*, and take Occasion from it, to stile him the Vicar of *Christ*; which they prove thus:

We have sufficiently proved already, say they, that after *Christ*'s Ascension, there ought to have been a visible Chief, to supply his Place in the Government of the *Church*; and we affirm, say they again, that the Apostle St. *Peter* has been that Chief, since the antient Fathers call him *Christ's* Vicar, the Prince, and *Coryphæum* of the Apostles, the Prince and Chief of the *Church*, the Pastor of *Christ*'s Flock, the Pastor of Pastors, and not without Reason, urge they, since *Christ* committed to him the Care of his Sheep, or of the whole *Church*, when he said, *Feed my Sheep*. Whence St. *Bernard*, continue they, *L.* 2. *de consider. ad Eugen. Pap. c.* 8. *Tu es*, says he, *cui oves creditæ sunt, sunt quidem & alii gregum Pastores, sed tu tanto gloriosius, quanto & differentius præ cæteris nomen hæreditasti. Habent illi sibi assignatos greges, singuli singulos, tibi universi crediti, uni unius, nec modo ovium, sed & pastorum tu unus omnium Pastor, unde id probem, quæris? ex verbo Domini. Cui enim, non dico Episcoporum, sic etiam Apostolorum sic absoluti & in discrete totæ commissæ sunt oves? Si me amas, Petre, pasce oves meas, quas, illius, vel illius Populi, civitatis, aut Regionis, aut certi Regni? Oves meas, inquit, cui non planum, non dessignasse aliquas, sed assignasse omnes? Nihil excipitur, ubi distinguitur nihil. i. e.* You are, says he, the Person to whom the Care of the Sheep has been committed: There are also other Pastors of Flocks; but you have further more gloriously, as differently from all the rest, inherited that Name. Those have particular Flocks assigned to them, every one of them, his: But you have been made the Pastor of all, one Pastor of one Flock; not only the sole Pastor of all the Sheep, but likewise of all the other Pastors. Do you ask how I prove this? By the Lord's Word: For to whom, I do not say of the Bishops only, but also of the Apostles, has the Care of all the Sheep been so absolutely, and without Restriction, committed? If you love me *Peter*, feed my Sheep. Which his, or of that People, City, Country, or certain Kingdom? My Sheep, says he. Who do not see plainly, that he has not particularized some Sheep, but has assigned all? Nothing is excepted, where nothing is distinguish'd. The same *Catholicks* pretend that St. *Ambrose*, *Serm.* 46. *de Pœnitent. Petri.* at the End; and *Gregory*, *Lib.* 4. *Epist.* 32. to the Emperor *Mauricius*, and others speak in the same Manner.

These *Catholicks* endeavour to confirm this pretended Primacy of *Peter*, by his Prerogatives; not that each of those Prerogatives could be sufficient to assert that Primacy, and its Eminence over the other Apostles; but they do it, say they, when taken together. Those Prerogatives, say they again, are these in particular. 1. That *Christ* changed not the Names of the other Apostles, but that of *Peter*. 2. That when the Names of the Apostles are mentioned in the Scripture, that of *Peter* is always put first. 3. That the Scripture speaks of *Peter* as of the Prince of the Apostles, and of the others, as his Inferiors. 4. That *Peter* speaks always in the Name of the other Apostles, as their Chief. 5. That among all the other Apostles, the first Revelation of *Christ*'s Divinity was made to *Peter* alone. 6. That to *Peter* alone was promis'd the Stability of Faith. 7. That *Christ* would only pay the Tribute for himself and *Peter*. 8. That after his Resurrection, he appeared first to *Peter* alone. 9. That to *Peter* only, he said absolutely, *Feed my Sheep*. 10. That *Peter* of his own Authority convoked the others for the Election of a new Apostle, to re-implace the Traitor *Judas*. 11. That he first preached the Gospel to the *Jews* after the Coming of the Holy Ghost. 12. That he operated the first Miracle among the *Jews*, in Confirmation of the Gospel. 13. That he preached first the Gospel to the *Gentiles*, and that he was favoured alone with the Vision of their Vocation. 14. That he declared first his Sentiment in the Council of *Jerusalem*.

But at the same Time, these *Catholicks* observe, that some of those Prerogatives, *viz.* the first eight, have preceded the Primacy of *Peter*, or were Signs of his future Primacy, or previous Dispositions to it. That the ninth, in which 'tis said, *Feed my Sheep*, was an actual Collation of the Primacy; and the rest were the Effects, or Functions of the Primacy already obtained.

But all the *Catholicks* are not of that Sentiment; for a vast Number of the most sensible among them, do not believe that the *Church* wants a visible Chief, much less, *Peter*'s Primacy; as least, in that Sense it is understood by the others, *i. e.* as if the Government of the *Church* was purely monarchical, and *Peter* had been established the visible Chief thereof, to govern it at his Pleasure, and with a despotick Power, without the Advice of the other Apostles, as several of his Successors have attempted to do since, and in which they have pretty well succeeded; if not much to the Advantage of the *Church*, at least to their own private one.

Those who reject the Primacy of St. *Peter*, and of his Successors, confess three Sorts of Power in *Christ*, *viz.* of supreme Authority, of Excellence, and of pure Ministry. They call the Power of Authority, that Power he has as the Son of God, and consubstantial to his Father; for which Reason, the sole Glory of obeying, or, as they speak in the Schools, *Potestas obedientialis*, or the obediential Power, is left to the Creatures, Rom. xix. 20. *O Man, who art thou that replieſt against God? Shall the Thing formed say to him that formed it, why hast thou made me thus?* The Power of Excellence is due likewise to the same Son of God, as he is both God and Man, the Founder of the *Church*, Legislator, Institutor of the Sacraments, *&c.* Therefore in Consideration of this Power, *Christ* can exercise a regal and absolute Empire in the *Church*, which he has redeemed with his own precious Blood, vivified, and notwithstanding would have her for his Spouse, not for his Hand-maid, *Ephes.* v. And which is to be attributed to his Mercy and immense Charity; especially when he is pleas'd to make, by his Grace, the *Church* his Spouse, which was naturally a Slave, and us the Children of God. These two first Powers, which are essential and natural to *Christ*, he has communicated to no body; but only the third Sort, which is that of pure Ministry, and Humility, which he would likewise take upon him, debasing himself, and becoming of an absolute Master, Servant and Minister, to confound and destroy, by his Example, the Pride, Ambition, and Wisdom of this World, *that no Flesh should glory in his Presence*, 1 Cor. i. 29. If therefore *Christ* protests often in the Scripture, that he *is come into this World to serve, and that to be served*, and has gave the Example to his Disciples, that they may follow him their Lord and Master; Luke xxii. 25, 26. *The Kings of the Gentiles exercise Lordship over them. But ye shall not be so; but he that is greatest among you, let him be as the younger; and he that is chief as he that doth serve.* By which Expressions he opposes Domination to Ministry, as contrary to it. Certainly, say these *Catholicks*, when that good Master would have his Apostles to be like meek, and secund Sheep, beloved by every body, and offensive to no body; his sole Design was, that they should not provide for their own Security, but be indebted for their Confer-

Conservation to God alone; and use no other Arms, Right, or Domination, in the Promulgation and Conservation of the Evangelical Law, but the Sanctity of their Lives, their Piety, Humility, and the Observance of God's Commandments, in which consists the whole Power of the *Church*. Therefore (conclude they) all that has any Respect, in the Scripture, to the *Power of the Keys*, can be referr'd to this meek, spiritual, and ministerial Authority. As this, Mat. xvi. 18. *Thou art Peter, and upon this Rock I will build my Church, and the Gates of Hell shall not prevail against it.* And this other, John xxi. 16. *Feed my Sheep.* Which is not at all to be understood of an absolute Monarchy, as *Bellarmine* interprets it, when he says, that *feed my Sheep* is the same as if *Christ* had said, *Govern with a regal Power.* As if the *Church* had receiv'd a Power from *Christ* to command, and force absolutely to execute what she orders. Which regal Authority is contrary (as they have said already) to the spiritual Ministry. Whence they conclude, once again, that the Pope, and other Ecclesiasticks, are the Vicars of *Christ*, in that single ministerial Authority, not in an absolute one.

They observe, further, that the whole Body of the *Church* is form'd of the Charity and Communion of the Saints; for which Reason, the *Church* is not to be govern'd by a particular Person, but by a common and universal Consent, which constitutes or forms the Communion of Saints; which can't appear surprizing, since the proper Signification of the Word *Church* is a Society, or the Communion of Saints. Whence Mat. xviii. 19. *Again I say unto you, that if two of you shall agree on Earth as touching any Thing that they shall ask, it shall be done for them of my Father which is in Heaven. For where two or three are gathered together in my Name, there am I in the midst of them.* Which Clause, *if two of you shall agree on Earth, where two or three are gathered together in my Name*, &c. excludes, say they, Singularity and absolute Monarchy. As likewise this Passage of St. *John* xvii. 20. when *Christ*, for that Communion of Saints, Unity, and universal Consent, prays thus to his Father: *Neither pray I for these alone, but for them also which shall believe on me through their Word. That they all may be one, as thou, Father, art in me, and I in thee; that they also may be one in us: That the World may believe that thou hast sent me; and hast loved them as thou hast loved me.* Whereby it appears, continue they, that Unity, and an universal Consent, are assign'd by *Christ* for the Cause and Incentive whereby Men are persuaded to believe the Gospel, and that *Christ* has been sent into the World by his Father; and this Unity and Communion is much more marvellous, in that it is not done by an absolute and monarchical Power, as in temporal Monarchies, which force to execute what they command, but only by hierarchical Acts, *i. e.* by the Persuasion of the divine Word, and the Administration of Sacraments. And it must be worthy our Admiration, say they again, when we see Men agree freely, and with Unanimity in the same Sentiment and Communion, without having been compell'd to it by any external Force. In this very Thing (conclude they) consists the whole Authority of the *Catholick Church* throughout the whole World. Which Sentiment they support by the Authority of *Vincentius* of *Lerins*. *In ipsâ Ecclesiâ Catholicâ*, says he, *magnopere curandum, ut id teneamus quod ubique, quod ab omnibus creditum est: Hoc est vere proprie Catholicum, quod ipsa vis nominisque ratio declarat: Quæ omnia vere universaliter comprehendit. i. e.* In the same *Catholick Church*, says he, we must take a particular Care to believe what is believ'd every where, and by all; for this is what's truly and properly *catholick*, as the Strength of the Name declares it, which universally includes all. And St. *Augustine*, *Distinct.* 9. *Can. in Canonic. Tenebit igitur hunc modum in Scripturis Canonicis, ut eas quæ ab omnibus recipiuntur Ecclesiis, præponat eis quæ quædam non accipiunt, &c. i. e.* He must observe this Method, with Respect to the canonical Scriptures, to propose those which have been receiv'd by all the *Churches*, to them who do not receive some, *&c.* Likewise, 2 *Quest.* 7 *Can. Quanto facilius, & quod per universæ Ecclesiæ Statuta firmatum est, vel unius Episcopi Authoritati, vel unius Provinciæ concilio præferendum. i. e.* How easier and stronger are the Decrees of the universal *Church*, and how preferable they are to what has been done by a single Bishop, or in the Synod of a Province. And *Lib. contr. Epist. Fundament. Manich. c.* 5. *Evangelio non crederem nisi me Catholicæ Ecclesiæ commoveret Authoritas. i. e.* I would not believe in the Gospel, if I was not excited to it by the Authority of the *Catholick Church*. And St. *Gregory*, *Distinct.* 15. *Can. Sicut Sancti Evangelii*, says, *Se ideo quatuor prima Concilia Generalia, velut quatuor Evangelia venerari, quod universali consensu constituta & recepta essent. i. e.* That he has the same Veneration for the four first general Councils, as he has for the Gospel, because they have been regulated, and receiv'd with an universal Consent. The Result of these Proofs is, say they again, that the Communion of Saints, which is the End propos'd in the Government of the *Church*, can't be absolutely, nor monarchically forc'd, or commanded, but establish'd freely, and meekly, with an universal Consent.

They urge, further, that they do not read in the *Acts of the Apostles* that St. *Peter* had ever acted as a King, or a Monarch, but that all was transacted with an unanimous Consent, and free Suffrages; either when it was decreed that another Apostle should be elected to re-implace *Judas*, *Acts* i. or when the seven Deacons were to be elected, Chap. vi. or when Measures were taken to appease the Hatred of the *Jews* against St. *Paul*, Chap. xxi. or when the Apostles were assembled on Occasion of the Observance of the Ceremonies of the Law of *Moses*, Chap. xv. for these four Councils, or famous Assemblies, were convok'd, say they, by the Apostles. Tho' they confess, that in the Dispute about the Observance of the Ceremonies of the *Jews*, St. *Peter* spoke first, and in the following Terms: *Men and Brethren, you know how that a good while ago, God made Choice among us, that the Gentiles by my Mouth should hear the Word of the Gospel, and believe; and God, which knows the Heart, bear them witness, giving them the Holy Ghost, even as he did unto us; and put no Difference between us and them, purifying their Hearts by Faith. Now, therefore, why tempt you God, to put a Yoke upon the Neck of the Disciples, which neither our Fathers nor we are able to bear? But we believe that through the Grace of the Lord Jesus Christ we shall be saved, even as they*, &c. Acts xv. 7, 8, 9, 10, 11. By which Discourse of St. *Peter*, the Dispute was terminated, and the Council concluded, by St. *James*, Bishop of *Jerusalem*, in these Words: *Men and Brethren hearken unto me, Simon has declared how God at the first did visit the Gentiles to take out of them a People for his Name; and to this agree the Words of the Prophet, as it is written, After this I will return*, &c. *Wherefore my Sentence is, that we trouble not them which from among the Gentiles are turned to God; but that we write unto them, that they abstain from Pollutions of Idols, and from Fornication, and from Things strangled, and from Blood*, Acts xv. 13, 14, 15, 19, 20. Whence it appears, conclude they, that the Sentiment of St. *James* was as weighty, as concluding, and as obligatory, in the first Council of *Jerusalem*, as that of St. *Peter*; or rather was a Confirmation of that of St. *Peter*, tho' pronounc'd in as decisive a Manner as that of St. *Peter*, who claim'd no other Right in the Council than that of Precedency, which Right, this Sort of *Roman Catholicks* pretend, likewise, to be of divine Institution, or, as they call it, *Jure Divino:* But they say that *that* Right of Precedency differ'd widely from that absolute and monarchical Power which *Peter*'s Successors usurp'd, by Degrees, soon after the *Church* began to flourish, and enjoy Peace and Tranquillity, tho' solemnly condemn'd, as well by the Practice of the primitive *Church*, as by the first general Councils; which they prove by the following Passages, extracted from

from those Councils: *Coun. Nic. Can. 6. Antiqui mores serventur qui sunt in Ægypto, Lybia, & Pentapoli, ut Alexandrinus Episcopus horum omnium habeat potestatem: Quandoquidem & Episcopo Romano hoc est consultum: Similiter & in Antiochia, & in aliis Provinciis, sua privilegia, ac suæ dignitates & auctoritates Ecclesiis serventur; illud autem est omnino manifestum quod si quis absque Metropolitanorum sententia factus sit Episcopus, eum magna Synodus definit non esse Episcopum. Quod si quidem communi omnium Electioni, quæ & rationi consentanea & ex regula Ecclesiastica facta est, duo vel tres propter suam, qua delectantur, contentionem contradicant, vincant, plurium Suffragia, &c. Quoniam obtinuit consuetudo & antiqua Traditio, ut qui est in Ælia Episcopus honoretur; habeat honoris consequentiam Metropoli propria dignitate servata. i. e.* Let the antient Customs be observ'd, that those who are in *Egypt*, *Lybia*, and *Pentapolis*, be subject to the Bishop of *Alexandria*; since this is agreeable to the Bishop of *Rome*. Likewise, those of *Antioch*, and of the other Provinces, must preserve their Privileges, and the Dignity and Authority of their *Churches*. This must be manifestly known, that if any Body has been made a Bishop without the Consent or Approbation of his Metropolitan, the Council declares him no Bishop; but if he be made by a general Election, agreeable to Reason, and to the Regulations of the *Church*, tho', perhaps, there be two or three who, for Contradiction Sake, refuse to agree with the rest, the Plurality of Suffrages must prevail, *&c.* because it is the Custom, and an antient Tradition, that the Bishop of *Jerusalem* should be honour'd: He must, in his Turn, respect his Metropolitan, as far as becomes his own Dignity.

This Canon of the Council of *Nice* consists of three Parts, say they. The first is an Explication of the Privileges of the Primacies, or Patriarchates; which Name, *Patriarchate*, say they again, and the Patriarchs, was invented some Time after the Council of *Nice*, and first made Use of in the Council of *Chalcedon*. The second Part relates to the Election of Bishops, and their Confirmation by the Metropolitan of the Province. And the third Part considers the Privileges of the *Church* of *Jerusalem*.

They examine the first Part of that Canon first, and find decreed in it, that every *Church* should preserve her Privileges, Dignity, and Authority, according to the Custom of the Place; which is also confirm'd by the 31*st* and 32*d* Canons of the Council of *Antioch*, in these Terms: *Episcopus ab alia Parochia in aliam ne transeat, nec se sua sponte ingerens, nec a populi vi adactus, nec ab Episcopis coactus. Maneat autem in ea quam a Deo sortitus est, Ecclesia, & ab ea non recedat, secundum decretum prius ea re editum. Episcopus in alienam Civitatem, quæ ei subjecta non est, non ascendat, nec in regionem quæ ad eum non pertinet, ad alicujus Ordinationem, nec Presbyterum vel Diaconum constituat, in locis alio Episcopo subjectis, &c. i. e.* A Bishop ought not to pass from one Diocese into another, neither of his own Accord, nor if forc'd by the People, nor if oblig'd to it by other Bishops; but must remain in that *Church* which he has receiv'd from God, according to the Decree heretofore made on that Subject. A Bishop must not go to a City which is not subject to him, nor into a Country which is not of his Diocese, to ordain, nor make a Priest, or a Deacon, in Places which are of another Diocese, and subject to another Bishop, *&c.* To this they add the 8*th* Canon of the first Council of *Ephesus*, against the Ambition of the Bishop of *Antioch*, conceiv'd in these Terms: *Nullus Religiosorum Episcoporum Provinciam, aliam quæ non multis retro annis, & ab initio, sub sua vel eorum manu fuerit, invadat: Sed si quis invaserit, & sibi per vim submiserit, eam reddat, ne Sanctorum Patrum Canones transiliantur: Nec sub Sacerdotalis muneris prætextu, secularis potestatis fastus subeat; ne libertatem paulatim imprudentes amittamus, quam nobis proprio sanguine dedit Dominus Jesus Christus omnium hominum Liberator. Sanctæ ergo & universali Synodo visum est, ut unicuique Provinciæ pura & inviolata Serventur Jura, quæ ab initio, multis retro annis habet secundum consuetudinem, quæ jam olim servata est. i. e.* None of the most religious Bishops are to invade another Province, which has not been for many Years before, and from the Beginning, under his, or his Predecessors Jurisdiction: And if he has invaded it, or brought it, by Violence, under his Authority, he must surrender it, lest he should transgress the Canons of the holy Fathers. Neither is he, under Pretence of his episcopal Functions, to usurp a secular Power, lest we should lose by Degrees, and thro' our Imprudence, our Liberty, which our Lord *Jesus Christ*, the Liberator of all Men, has acquir'd to us with his own Blood. Therefore it is the Will of the holy and universal Council, that the Rights of each Province should be preserv'd pure and inviolable, which they enjoy'd from the Beginning, and many Years before, according to antient Custom.

They add the *Glossary* to this Canon of the Council of *Ephesus*, conceiv'd in these Terms, *Dist.* 65. *Dicitur in hoc Canone quod secundum antiquam consuetudinem honor proprius reservetur per suas Provincias Alexandrino Patriarchæ: Qui similis est Romano. i. e.* It is said in that Canon, that according to antient Custom a proper Honour and Deference must be shewn to the Patriarch of *Alexandria*, throughout all his Provinces; which Patriarch of *Alexandria* is semblable to that of *Rome*. Where it must be observ'd, say they, that the Fathers of *Nice*, *Antioch*, and *Ephesus*, speak of a Custom introduc'd, in Process of Time, not of a divine Right, or a papal Monarchy, (which is very justly observ'd) since the Distribution of the *Christian* World into Dioceses, which they called afterwards Patriarchates, is only of an human *positive Right*. Which Quotations, from the Scripture, the antient Custom of the *Church*, and the general and œcumenical Councils, are cited by this Sort of *Catholicks*. That the Supremacy of St. *Peter*, as Chief of the Church of *Christ*, was only a Primacy of Precedency, in the Ministry of the *Church*, and not an absolute or despotick Power, he could have claim'd over the other Apostles and Disciples of *Christ*, such as his Successors have usurp'd since over all other Patriarchs, Metropolitans, Bishops, *&c.* of the *Christian* World; which despotick, or monarchical Authority, and Power, (say they) was not attributed to the *Roman Church*, by her Adulators, till the *Christian Church* was confin'd to few Nations; *i. e.* about 600 Years ago. They say further, that those who pretend that a monarchical Government is best, and most perfect, deceive themselves and others; without considering, that there is a very great Difference between a spiritual and temporal Government. Because, as in a temporal Government all is transacted with an absolute Power or Authority, it is easier executed in a monarchical, than in any other Government; but the same can't be said of the spiritual Government of the *Church*, where the Communion of Saints of different Nations throughout the whole World, can't be forc'd, or commanded with a monarchical Power, but only can be persuaded and establish'd meekly, by *hierarchical Acts*. Therefore it must be observ'd here, that the *Church* is not to be govern'd according to the Caprice of ambitious Men, but according to the Precepts which *Christ* was pleas'd to leave us in the Gospel; where a monarchical Government is absolutely forbidden in these positive Terms; Luke xxii. 25, 26. *The Kings of the Gentiles exercise Lordship over them, but you shall not be so.* Which is not even deny'd (say they) by *Gerson*, tho' a very great Asserter of the Pope's Supremacy; who, speaking of the State of the Prelates, *Considerat.* 13. expresses himself in these Terms: *Status Episcopalis*, says he, *habet rationabiliter Monarcham supremum, scilicet Papam ratione unitatis fidei & Sacramentorum; sed hoc non ita perspicuum est, esse debere in institutione Christi & pro utilitate universalis Ecclesiæ respectu dispensationis bonorum temporalium, & Jurisdictionum contentiosarum seu coercivarum, quæ diversis legibus seu decre-*

decretalibus, aut Statutis pro diversitate locorum, & temporum regi debent, sicut & alia mere temporalia, Regalia, & Imperialia. Hinc bene dictum est, quod quælibet Provincia in suo sensu abundat. *i. e.* It is very reasonable that the episcopal State, says he, should have a supreme Monarch, *viz.* the Pope, with Regard to the Unity of Faith, and the Sacraments; but this is not so evident as if it should be of a divine Institution, and for the Utility of the universal *Church*, with Respect to the Distribution of temporal Estates and Contentions, or coercive Jurisdictions, which is to be order'd by different Laws and Decrees, according to the Diversity of Places and Times, like those which are purely temporal, either regal or imperial. Hence it is well said, that each Province abounds in its Sense. By this Testimony of *Gerson*, say they, as the natural Right is asserted, likewise the absolute Monarchy is destroy'd.

The same *Gerson*, *De Potestat. Eccles. Consider.* 4. shews, say they again, that the *Roman* Pontiff can't oblige, by his Laws, neither the universal, or a particular *Church*, without their Consent. Thereby they believe, that he strengthens the aristocratick Government, as to its Substance, such as it was settled by the Canons of the Council of *Nice*; and insinuates, that the Unity of Faith, and of the Sacraments, is to be establish'd by an universal Consent, and the Communion of Saints gain'd in an easy and gentle Manner, not extorted by an absolute Power.

The GALLICAN CHURCH, tho' the King of *France* be call'd, by the Popes themselves, *Most Christian King*, and *the First born of the Church*, seems to have been always of this last Sentiment, and to have rejected, as abusive and oppressive, that absolute, or rather tyrannical Supremacy of the Court of *Rome*, so contrary to the common and natural Right of Nations, and even to that *Christian* Liberty on which *Christ* has founded his *Church*, which he has acquir'd to us by his Blood, and which we ought to be jealous of, by the Advice of the Fathers of the Council of *Ephesus*. *Ne clam paulatim*, say they, *libertas amittatur, quam nobis donavit sanguine suo Dominus noster Jesus Christus omnium hominum liberator.* Which Liberty consists in the Observance of the antient Canons, and antient Customs of the *Church*, oppos'd to a monstrous Heap of Decretals of Popes, calculated for the Support of that monstrous Colossus of the Pope's Grandeur, and to tyrannize over *Christian* Consciences.

Nay, the *French* have always been so far from acknowledging that Supremacy of the Pope, in the Sense 'tis understood beyond the *Alps*, that the Kings of *France* are consider'd as the Head, and Chief of the *Gallican Church*, and *Christ*'s Vicar in his Kingdom; as it appears by several antient Acts of their Jurisdiction in that Quality, in the several Ages of the *Church*, and very particularly in the *Memoirs of the Affairs of the Knights Templers*, in the Treasury, *Temp.* 1. *Num.* 37. *Dominus noster Franciæ Rex, Domini Regis Jesu Christi in Regno suo, Vicarius temporalis totus & integer, id est cum omnibus Membris suis, Prælatis, Capitulis, Clero, & Ecclesia, Baronibus, & Militibus, communitatibus, & fidelibus populis Regni sui.* *i. e.* Our Lord the King of *France*, sole and entire temporal Vicar of the Lord King *Jesus Christ*, in his Kingdom; that is to say, with all its Members, Prelates, Chapters, the Clergy, and the *Church*, Barons, and Knights, Commonalty, and all the faithful People of his Kingdom. And *John Juvenalis Ursini*, Archbishop of *Rheims*, in his Remonstrance to King *Charles* VII. p. 326. *And as chief and first Ecclesiastick of your Kingdom, call your Prelates, and those of your Blood*, &c. And a little lower, *You can preside in the Council of your Church of* France; *and, with the Advice of those of your Blood and Council, conclude*, &c.

Father *Paul*, in his Answer to a Book written by Cardinal *Bellarmine*, in Answer to a Treatise of *Gerson*, with Regard to the Excommunication publish'd at *Rome* in 1606, at the Time of the Differences between Pope *Paul* V. and the Republick of *Venice*; refuting a Passage of *Bellarmine*, where that Cardinal asserts strenuously the Pope's Supremacy, speaks thus: *Dalle qual cose puo ciascun vedere, che e verissimo quanto l'Author dice, che la liberta Gallicana e fondata sopra li Canoni Antichi, se ben non, e vero, che sia stabilita sopra quelli solamente, ma ancora sopra la legge naturale, e sopra ogni Equita, et ragione; se puo anco vedere, che non e vero quello che Bellarmino dice, cioe, che al Tempo presente non si puerla piu della Liberta, della Chiesa Gallicana in Francia anzi quel floridissimo et potentissimo Regno, si come le ha Conservate per lo Passato, cosi le conserva hora con studio. Et confrontando queste con la Liberta che la Republica Reignosce da Dio, et intende con tutte la forze sue conservare si videra che no e differente, se non quanto la diversita delle Regioni ricerca: Anzi vedera che la Republica non usa molte delle sue naturali Liberta, che poterebbe usare, per monstrar piu abundante reverenza versa la S. Sede: Per il che ogn' uno immediate scoprira quanto sia lontano della verita la Conclusione ultima che fa il nostro Authore, che la Liberta la qual vuole la Republica, sia contraria alli Canoni vecchi, et nuovi.* *i. e.* Therefore every Body can see that it is very true what the Author, *Bellarmine*, says, that the *Gallican* Liberty is founded on the antient Canons; but that it is not true, that it is establish'd on that only, but likewise on a natural Right, and on all Equity and Reason: 'Tis likewise very easy to discover, that it is not true what that *Bellarmine* says, *viz.* that at present there is no mention made, in *France*, of that Liberty of the *Gallican Chair*, since that flourishing, and most powerful Kingdom, preserves it with as much Care, at present, as they did in past Ages. And with comparing that with the Liberty which the Republick (of *Venice*) acknowledges to have receiv'd immediately from God, and designs to preserve with all her Might, since she sees that there is no other Difference between both, but what results from the Difference of the Countries, who could not see, also, that the Republick does not make Use of that natural Right as she could do, to shew thereby her great Respect for the *holy See*. By which it appears, how far this last Conclusion of our Author deviates from the Truth, that the Liberty claim'd by the Republick is contrary to all Canons, both antient and modern.

The Sentiments of the Doctors of the *Gallican Church* on the Pope's Supremacy, even in spiritual Affairs, are these:

1. *Non est Papæ obediendum, si aliquid facit ex quo presumitur vehementer turbari status Ecclesiæ, aut alia mala ventura.* *i. e.* The Pope is not to be obey'd if he commands any Thing which could disturb the Tranquillity, or the good Order of the *Church*, or cause other Evils. Whence 'tis concluded, he is neither infallible, since it is suppos'd he could do something contrary to the State of the *Church*; nor so absolute as he pretends, since he is to be resisted.

2. *Non est Papa solutus Dictamine rationis.* Whence 'tis conjectur'd, that he silences, sometimes, the Dictates of his Reason.

3. *Papa omnia potest, præmissa clave discretionis, ante clavem potestatis.* Which is a Sort of Supposition that he acts often without Discretion.

4. *Non est obediendum Papæ, si statuat aliquid unde oriatur scandalum, aut resultat detrimentum animarum, vel fraudetur pia intentio fundatorum.* *i. e.* The Pope is not to be obey'd, if he decrees something whence can issue a Scandal, or result the Detriment of Souls, or the Intention of Founders is frustrated. Which makes one conclude, that the Pope can be guilty of all those Faults.

5. *Si Papa aliquid faciat contra universale Statutum Ecclesiæ, est ei resistendum.* *i. e.* If the Pope acts contrary to the Rules of the universal *Church*, he is to be resisted.

6. *Si aliquid facit contra Doctrinam antiquorum Patrum, vel Sacrorum Canonum non est ei obediendum.* *i. e.* If the Pope commands any Thing contrary to the Doctrine of the antient Fathers, or of the sacred Canons, he is not to be obey'd. Which last Proposition

sition strikes at the very Root of the Pope's Infallibility and Supremacy, as Vicar of *Christ*, and St. *Peter*'s Successor; since he is suppos'd capable to err, in the most essential Points of the *Christian* Religion.

Neither is that scandalous, sacrilegious, and erroneous Opinion, that the Pope has Power to put a Kingdom under an Interdict, and absolve the Subjects of their Oath of Allegiance, under what Pretence soever, receiv'd in *France*. *Et vos ergo* (says *Hincmarus*, Archbishop of *Rheims*, in his Letter to Pope *Adrian*) *solis orationibus vestris regnum contra Normannos, & alias impetentes, defendite, & nostram defensionem nolite quærere: Et si vultis ad defensionem nostrum habere auxilium, sicut volumus de vestris orationibus habere adjutorium nolite quærere nostrum dispendium & petite Dominum Apostolicum, ut quia Rex & Episcopus simul esse non potest, & sui antecessores Ecclesiasticum ordinem quod suum est, & non rempublicam, quod regum est, disposuerunt. Non præcipiat nobis habere Regem qui nos in sic longinquis partibus adjuvari non possit contra subitaneos & frequentes Paganorum impetus; & nos Francos non jubeat servire cui servire nolumus, quia istud jugum sui antecessores nostris antecessoribus non imposuerunt, & nos illud portare non possumus, qui scriptum esse in Sanctis Libris audimus, ut pro libertate & hæreditate nostra usque ad mortem certare debeamus. Et si aliquis Episcopus aliquem Christianum contra legem excommunicat, sibi potestatem ligandi tollit: Et nulli vitam æternam potest tollere, si sua peccata illi eam non tollunt, &c.* *i. e.* And you, says he, content yourselves with defending the Kingdom against the *Normans*, and other Invaders, by your Prayers only; and if you want our Succours, for your Defence, as we want your Prayers for our Assistance, do not search to govern us, but only an apostolical Power; for he cannot be (*the Pope*) both a King and a Bishop; and his Predecessors have disposed of the ecclesiastical Order, which was theirs, and not of the Republick, which belongs to Kings. He ought not to impose a King upon us, who could not defend us against the sudden and frequent Incursions of the Pagans; and he must not command us *Frenchmen* to obey those we will not obey, because 'tis a Yoke which his Predecessors have never impos'd on our Predecessors, and which we will not submit ourselves to, when we read in the Scriptures that we ought to fight in Defence of our Liberty, and Inheritance, till Death. And if some Bishop presumes to excommunicate a *Christian* against the Law, he deprives himself, thereby, of the Power of Binding. And *he can deprive no Body of the Life everlasting, that is not deprivd of it by his own Sins*, &c.

Notwithstanding this Struggle, and couragious Opposition of the *Gallican* and other *Churches*, against that exorbitant Power, and extravagant Supremacy of the Popes, the Court of *Rome* continues still to maintain herself in it, and to assert those Usurpations which she calls Rights, asserted by a greater Insolence and Haughtiness than ever, by *Clement* VII. a Monk of the Order of *Cluny*; who having been rais'd to the apostolical Chair in the Year 1073, assembled a Synod of some *Italian* Bishops and Abbots, most of them of the same Order of St. *Benedict*; in which the following 27 Sanctions, or Dictates, as he calls them, were made, and which are read in the 11*th* Book, after the 55*th* Epistle of *Gregory*.

1. That the *Roman Church* has been founded by God alone. 2. That the Pope alone is call'd of Right the universal *Roman* Pontiff. 3. That he alone can depose or reconcile Bishops. 4. That his Legates take Place before all Bishops in a Council, tho' those Legates be of an inferior Order. 5. And can pronounce a definitive Sentence against the Bishops. 6. That we ought not to live in the same House with those who have been excommunicated by the Pope. 7. That he has alone the Power to make new Laws, according as the Exigency of Times requires it, and to assemble new People, to change collegiate *Churches* into Abbeys, and to divide rich Bishopricks, and unite two poor ones. 8. That the Pope alone can wear the imperial Arms, or Ensigns. 9. That Princes ought to kiss no Body's Feet but those of the Pope. 10. That no other Name but his should be recited in the *Church*. 11. That his is the sole Name in the World. 12. That he has Power to depose an Emperor. 13. That he has Power to cite Bishops to the *Roman* See, when he thinks fit. 14. That he can ordain whom he pleases, throughout the universal *Church*. 15. That a Person ordain'd by him, has the Precedence of others in the *Church*; and ought not to receive a superior Degree from a Bishop. 16. That no Synod ought to be call'd general, without his Orders. 17. That no Books ought to be consider'd as canonical, without his Sanction. 18. That no Body ought to repeal his Sentence, but that he can revoke the Sentences of all others. 19. That he can be judg'd by no Body. 20. That no Body should condemn those who appeal to the apostolical See. 21. That the great Causes of every *Church* ought to be revok'd to him. 22. That the *Roman Church* has never err'd, and, according to the Scripture, will never err. 23. That the *Roman* Pontiff, if he be canonically ordain'd, is unquestionably render'd holy thro' the Merits of St. *Peter*. 24. That Subjects can be accus'd by his Orders, or by his Leave. 25. That he can depose Bishops without a Council. 26. That none are to be accounted *Catholicks*, but those who agree with the *Church* of *Rome*. 27. That he can absolve the Subjects of bad Princes of their Oath of Allegiance. O NEFANDUM! Has ever any Sovereign, let him be ever so powerful and formidable, ever since the first Establishment of the most despotick Monarchy, claim'd such an unlimited Power? Or could God himself, omnipotent as he is, claim a greater? In these profane and sacrilegious *Dictates*, Ambition, Pride, Insolence, Tyranny, Oppression, *&c. &c.* and all that Hell itself could vomit upon Earth, to tyrannize over our Consciences, and enslave our Liberty, rival one another. Could it be possible that none but those who follow blindly and ignorantly those criminal Dictates, can lay any Claim to true *Christianity*, and be Members of the *Church* of *Christ*, of which he is himself the invisible Chief; that divine Chief, who, while conversing among Men, has gave them so many perfect Examples of Abnegation, Humility, Meekness, Disinterestedness, and Hatred, for all the Splendor and Pomp of this World? Or rather, can any Body, who professes that erroneous Doctrine, so contrary to the true Maxims of the Gospel, expect to be sav'd? Let it be, if they will, that the *Roman Church* ought to be consider'd as the Mother of all the *Christian Churches*, and respected as such, and as such have the Precedency of all the other *Churches*; can she reasonably claim any Thing else? Can she pretend to be the sole Guide of our Faith, and oblige us to believe what she proposes, even contrary to the *Christian* Truth, the antient Practice of the *Church*, and our Understandings; when the very Disciples of St. *Peter*, who next after him have been seated on his Chair, and consequently ought to have been better instructed of the Prerogatives that Apostle had receiv'd from his divine Master, have never imagin'd themselves invested with such an uncontroulable and unlimited Power? Have those primitive and holy Pastors of the primitive *Roman Church*, ever decided the least Difficulty relating to Faith by their own Authority, without a Synod, or Council? Have they ever appear'd in those Councils otherwise than as Members of that *Church*, whose invisible Chief was represented by the Books of the Gospel plac'd on a Throne in the Middle of the Assembly? Have ever any of them attempted to depose, or excommunicate Princes, for Crimes of Heresy; or absolv'd their Subjects of their Oath of Allegiance? On the contrary, had they not consider'd as Seditious and Rebels, those who had endeavour'd to persuade them that they were invested by *Christ* with such a Power? They could, it is true, have separated them from their Communion, or shut the Doors of their *Churches* against them, as St. *Ambrose*, Bishop of *Milan*, did to the Emperor *Theodosius*; but

but themselves had thought it a Crime, if they had refus'd to obey those Princes, as their Subjects. *Principibus etiam malis obediendum vult Deus*, says St. *Bernard*, *Epist.* 42. *i.e.* God will have us obey Princes, let them be ever so bad.

CHURCH is also us'd for a *Christian* Temple, built and consecrated to the Honour of God, under the Invocation of some particular Saint, whose Name is assum'd. In this Sense, *Churches* are variously denominated, according to their Rank, Degree, Discipline, *&c.* as Patriarchal *Church*, Metropolitan *Church*, Parochial *Church*, Cardinal *Church*, *&c.*

The PATRIARCHAL CHURCHES were antiently the five grand Sees of *Rome*, *Antioch*, *Alexandria*, *Jerusalem*, and *Constantinople*; each Patriarchate being compos'd of several Primacies, Metropolis's, and Dioceses. At the Time of the Council of *Nice* there were, but three Patriarchates, *viz.* *Rome*, *Antioch*, and *Alexandria*; the Limits whereof were regulated in that Council. The Title of Patriarch is also apply'd to the Chiefs of several *Churches* in the East, who live out of the Communion of the *Roman Church*. Such are the *Patriarch* of the *Armenians*, residing in the Monastery of St. *Gregory*; the *Patriarch* of the *Abyssinians*, call'd *Abuna*; the *Patriarchs* of the *Cophti*, of the *Jacobins*, &c. Each of these *Patriarchates* makes a separate *Church* by itself, and have each their different Belief.

There are two Kinds of *Armenians*, the one *Catholicks*, and subject to the Pope, having a *Patriarch* in *Persia*, and another in *Poland*; the other make a peculiar Sect, having two *Patriarchs* in *Natolia*.

The *Patriarch* of the *Cophti* resides at *Cairo*, but takes his Title from *Alexandria*. He has no Archbishop under him, but eleven or twelve Bishops. The rest of the Clergy, whether secular or regular, is compos'd of the Order of St. *Anthony*, St. *Paul*, and St. *Macarius*, who have each their Monasteries. Besides the Order of Priests, Deacons, and Subdeacons, the *Cophti* have likewise Archimandrites, the Dignity whereof they confer with all the Prayers and Ceremonies of a strict Ordination. This makes a considerable Difference among the Priests, and besides the Rank and Dignity it gives them with Regard to the Religious, comprehends the Degrees and Functions of Archpriests. By a Custom of 600 Years standing, if a Priest elected Bishop be not already Archimandrite, the Dignity must be conferr'd on him before episcopal Ordination.

The *Jacobites* are but few, and among those, too, there is a Division, some being of the *Roman Church*, and others entirely averse to it; each of which Party have their several *Patriarchs*, the one at *Caremit*, and the other at *Dezzapharan*. More of this under the Article *Clergy*.

CHYMISTRY.

CHYMISTRY, from the *Greek* χυμος, Juice; or from χεειν, to melt; or from the *Egyptian Chema*, or *Kema*, black; is the Art of separating the several Substances whereof mix'd Bodies are compos'd, by Means of Fire; and of composing new Bodies in the Fire by the Mixture of several Substances, or Ingredients.

Boerhaave defines *Chymistry*, an Art whereby sensible Bodies contain'd in Vessels, or capable of being contain'd therein, are so chang'd, by means of certain Instruments, and principally Fire, that their several Powers and Virtues are thereby discover'd, with a View to Philosophy, Medicine, *&c.*

Chambers calls this Definition of *Boerhaave* a scientifick one, and I call it a very prolix, ignorant, and insignificant Description, not a Definition. 1. It is too prolix for a Definition, which should always be as clear and concise as possible, consisting only of the *Genus*, and of the *Difference*. The Genus gives us to understand that *Chymistry* is an Art, and not a Science; and the Difference, that it is an Art which chiefly operates by Fire on *Mixts*, for the Separation of their several Substances. 2. It is insignificant, and even ridiculous, since we all know very well, without having Recourse to *Chymistry*, that all Substances are capable of being contain'd in Vessels, if the Vessels be large enough, and the Substances reduc'd to a proper Volume. 3. It is ignorant, because those Bodies which are the Object of *Chymistry*, are not call'd sensible Bodies, but natural Bodies, patient, or susceptible of Impression.

Therefore I imagine that *Chymistry* is defin'd, with a greater Accuracy, by me, the Art of unfolding and separating, by Fire, or other such powerful Agent, the different Substances whereof Animals, Vegetables, Fossils, or Minerals, are compos'd.

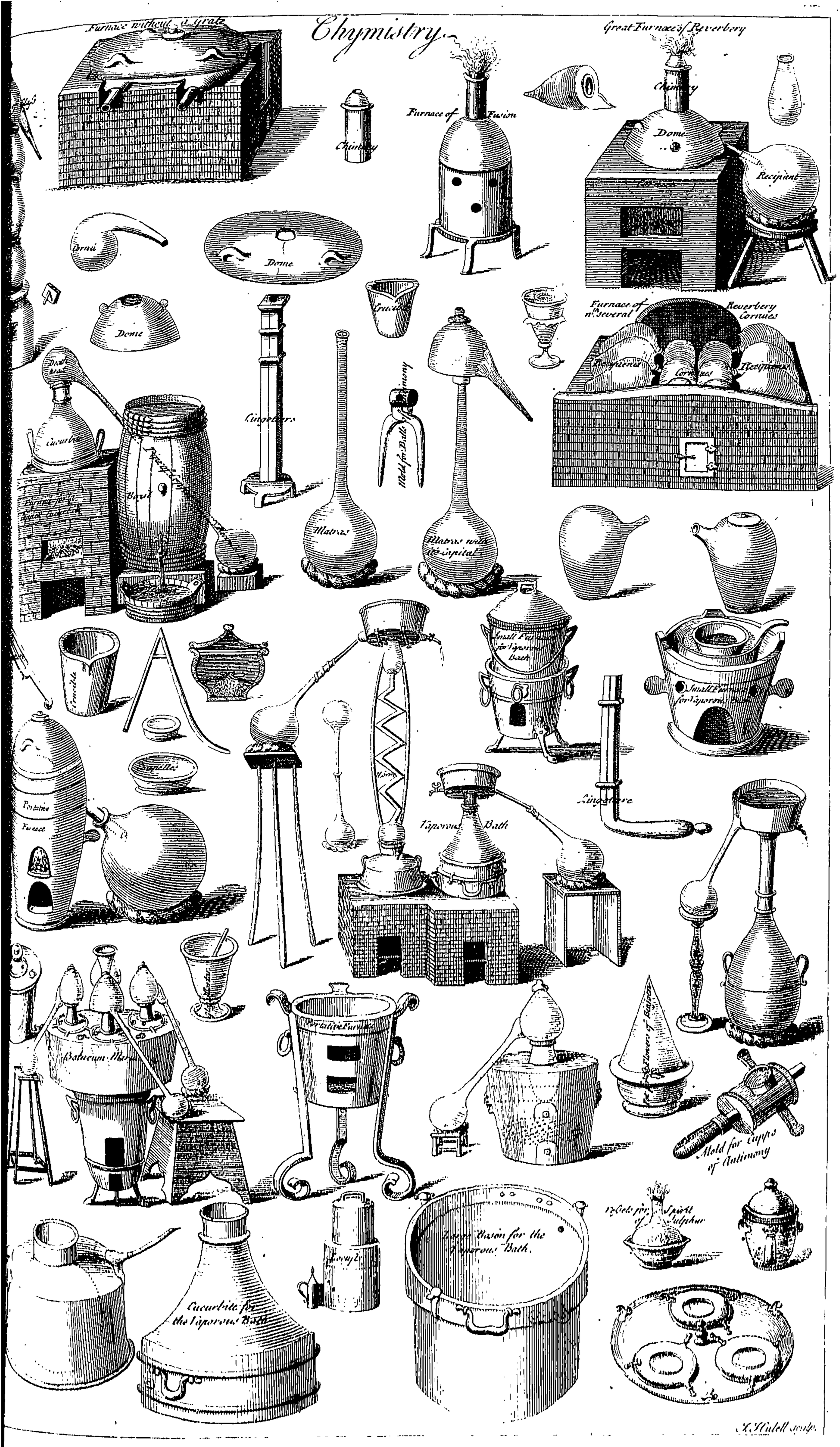
Chymistry, like the other Arts, has its particular Object, which is the natural Bodies mention'd in my Definition, call'd *Mixts*, because compos'd of several different Substances, which Substances, improperly call'd Principles, are five in Number, *viz.* *Water*, *Spirit*, *Oil*, *Salt*, and *Earth*. Of these five, three are *active*, *viz.* the *Spirit*, *Oil*, and *Salt*; and two *passive*, *viz.* the *Water* and *Earth*. The first three are call'd *active*, because, by their Elasticity, and continual Motion, they cause the whole Action of the *Mixt*; or, to speak more properly, are sole Agents in the *Mixt*; the two others, call'd *passive*, being of no other Use, than to stop, by their phlegmatick, terrestrial, and heavy Particles, the frequent Sallies, and too great Impetuosity of the *active*.

I say that these five Substances, the mixt, or natural Bodies, are analiz'd, or separated into by means of *Chymistry*, are improperly call'd Principles; for they can't be so but with Regard to our Understanding, and to our Manner of conceiving Things, in Sciences like *Chymistry*, which consist in the Demonstration of Things, as far as it can be carry'd by means of that Art, which can't be further than our Senses can reach; tho' it is very reasonable to suppose that these same Substances are still divisible into an infinite Number of other Parts, which should more properly be call'd Principles; since they must be in Fact the first Principles of those extracted in the *Analysis* of Mixts, or the most subtile and imperceptible Particles of those same Substances, which being in a continual Agitation, in those other more palpable Particles which fall under our Senses, can never be fix'd so as to make a certain sensible Substance, but always escape the Skill of the most perfect Artist, and his most accurate Operations.

It is a very great Question, among *Chymists*, as well as among Philosophers, if those Substances call'd Principles, and separated in the Analysis, reside really and naturally in the Mixts; or if they be form'd by a new Arrangement of Particles, acquir'd in the Rarefaction by Fire.

Those who are for those Substances being form'd in the Operation by a new Arrangement or Disposition of Particles, support their Opinion by pretending that the Fire makes a very great Impression on the Preparations, and that it often disguises the Substances in such a Manner, as to render them quite different from what they were before, so far as to appear to our Sight quite another Thing.

It is true, say those who maintain the contrary Opinion, that Fire, by its Activity and Violence, causes a very great Disorder in the *Mixt* it operates upon; that it lacerates, or rather destroys entirely that marvellous Fabrick which Nature itself had took Pleasure to


Chymistry
Furnace without a grate
Chimney
Furnace of Fusion
Great Furnace of Reverbery
Chimney
Dome
Recipient
Dome
Dome
Crucible
Furnace of n. Several
Reverbery
Cornues
Recipients
Cornues
Recipients
Cucurbite
Bath
Glass for Bitumen
Mold for Bulls of Antimony
Matras
Matras with its capital
Crucible
Capella
Portative Furnace
Limbs
Small Furnace for Vaporous Bath
Small Furnace for Vaporous
Vaporous Bath
Lingotiere
Balneum Maria
Mold for Cups of Antimony
Cucurbite for the Vaporous Bath
Glass Basin for the Vaporous Bath.
Relick for Spirit of Sulphur
J. Hulett sculp.

to erect, with so much Art and Skill, to give it a new Form, that thereby the several Parts of the Mixts, acquiring a Position contrary to their natural one, makes it appear quite different from what it was naturally, but that it does ensue thence, that those Principles, though thus disguised, are changed, since we see them and feel them, say they, in several Mixts, before they have passed through the Fire. For Example, in Olives, Almonds, Nuts, and several other Fruits and Seeds, which being pounded, and pressed, run with Oil, without the Assistance of Fire. The Turpentine, which is but a thick Oil, and several other pinguedinous Liquors, are extracted by only making Incisions in the Trunk and Roots of Trees: And what's the Fat of Animals, ask they, but an Oil, or Sulphur coagulated? 'Tis also evident, continue they, that there is Salt in the Mixts; for if a Plant be pounded and squeezed to extract its Juice, and that Juice be carried to a cool Place, for several Days, the Salt is found coagulated round the Vessel in small Crystals.

For my Part, I would be apt to follow the first Opinion, that the several Substances, separated in the *Analysis* of the Mixts, have been formed in the Operation; not that I would pretend, that those Substances were not *eminenter*, to speak the Language of a Philosopher, or originally in the Mixt before the Operation, but only that they were not those Substances, capable to fall under our Senses, in the same Form they have appeared after the Operations. I'll explain myself in still clearer Terms.

Therefore I'll say, that those Substances, separated in the *Analysis* of *Mixts*, had their first Principles in the different Particles the Texture of that Mixt had been formed of by Nature, in as much as those different Particles admitted of a new Position, without being annihilated, when put into a new and extraordinary Ferment, by a forcing Agent, more violent and active in its Operations. That in the great Revolution, caused in the Mechanism of the Mixt, by its *Analysis*, those Particles being transplanted from one Place to another, not only changed Place, but acquired likewise a new Form, thereby to be capable to enter into the Composition of a new Substance, which ought to present to our Eyes a quite different Object: That if it be a vegetable Body, for Example, which undergoes the Operation, the most subtile Particles, which by their Volatility, or Elasticity, served to carry the nutricious Juice thro' the organick Parts of the Plants, tho' imperceptible while in the Plant, becomes by the *Analysis* of that Plant, a palpable Spirit or Mercury, fixed by Fire, to a solid Substance, their Activity and natural Faculties being wrapt in some other Particles of the same *Mixt*, appropriated by the same Agent to that Use, and where they remain inactive, till agitated a-new by the same, or other Agents.

The *Oil* is formed of the most substantial Particles of the nutritive Juices, which being divested, and no longer agitated by those volatile Corpuscles, by Means whereof they were carried to the several Parts of the Plants for their Nutrition, follow the natural Propensities they have to each other, and being condensated by the Fire, are formed into that pinguedinous Substance we call *Oil*.

The *Salt* is a more perfect Exaltation, by Fire, of nitrous Particles of the Earth, than that whereby they had been ushered into the Plant, as well by the natural Heat of the Earth, the Influences of the Sun, and the Compression of the Atmosphere; or rather they are the heavier or most terrestrial Portion of those most subtile Particles, which accelerated the Motion of the whole nutritious Substance while in the Plants, and which by a *chymical* Rarefaction, appears to us in the Form of Salt; of which we'll be convinced if we consider that by a new Operation, that Salt can also be resolved into a spirituous Liquor; while on the contrary the other Substances of the Mixt, cannot be brought to that Degree of Volatility.

These are what *Chymists* call the three *active* Principles, tho' they be nothing else but a Transmutation of the several Substances of the Vegetables, into a new Form, and a Fixation of those Substances, which before the Operation existed promiscuously, each to its respective Existence, under its natural Form, each of them having their first Principles in the Earth, whence they have been exalted by natural Agents, for the Increase and Nutrition of the Mixt.

The other two Substances, called as improperly *passive* Principles, *viz.* Water and Earth, undergo no other Change, in the *Analysis*, but that of Separation, to which they were already disposed in the Plant, where they are never so perfectly united with the other Substances, as to be divested of their natural Activity and Ponderosity; for the one, *viz.* Water, having no other Motion but what it receives from the most subtile Particles of the other Substances, and being consequently uncapable to make the least Resistance, follows, in the *Analysis*, the first Rapidity of the most subtile of those Particles, in the *Analysis*, and being ushered by them to the Top of the Vessel, where they are forced to quit their Hold, thro' the Weakness of their Vehicles, exhausted in that first Ascent, fall through the Pipe into the Recipient; and the other, *viz.* the Earth, preserving still, in the Operation, its natural Ponderosity, which neither the Agitation of the igneous Particles, nor the Elasticity of the other Substances can move, suffer the Exaltation of the other Particles it was impregnated with, while it remains immoveable at the Bottom of the Vessel.

But besides these several Principles, the different Substances of the Mixt are composed of, there is an *universal* one, which is truly a Principle, as being the first Source or Origin of those other Principles; and which is really a Principle, since it prepares those other Principles, in the different *Matrices* of the Earth, and gives them their first Impulsion, of which their natural Motion afterwards is but a Participation. That *universal* Principle, is but the natural Warmth of the Earth, excited by the Influences of the Sun, in the *Matrices* it's fill'd with, for the Formation, Increase, and Production of that infinite Multitude of Embrio's designed to people the vegetative World. This is my own System of the several Principles of Mixts.

The first of the *active* Principles, called also *Mercury*, by Reason of its Volatility, and of its continual Motion, is never separated in the *Analysis*, without inveloping some other Substances, otherwise it could never be fixed, nor brought to any Consistence; therefore when wrapt in the most subtile oleaginous Particles, carried along with it in the Exaltation, 'tis called volatile Spirit, as are the Spirits of Wine, of Roses, of Rosemary, and of Juniper; because those oleaginous Particles, by moderating the natural, and too great Impetuosity of those Spirits, change it into what we call Volatility; and when that Volatility is embarrassed in Salts, which are heavier, and less susceptible of Motion, than the globulous Particles of the Oil, that Spirit is called *fixt*; because then the first active Principle is so much over-loaded, that it has but a slow Motion, when compared to its natural Rapidity; such are the acid Spirits of Vitriol, Allum, Salt, *&c.* For my Part, I am of Opinion, that in this last Kind of Spirits, the first Principle is but very imperfect; or rather would be apt to think, that what's called in them first Principles, are nothing else but a few saline Particles more perfectly exalted than others, which give a very slow Motion to the great deal of Phlegm they are wrapt in: And what would help to strengthening me in that Opinion, is, that after repeated Cohobations, that supposed first Principle appears annihilated, or so much drowned in a too great Quantity of Phlegm, as to be no longer discernable.

The Oil, called also *Sulphur*, because 'tis inflammable, and which is considered as the second Principle, is a sweet, subtile, and unctuous Substance, which comes out after the Spirit. Some are of Opinion, that this Oil lays hidden in the Mixt, to temperate the too great Acrimony of the Salts, which are superabundant in the nutritious Juices, and to stop the Pores of the Mixt, which otherwise would be too soon

subject to Corruption, by the too easy, and too frequent Intermission from the ambient Atmosphere of the humid Particles 'tis over-loaded with. I am of that Sentiment, with Regard that the oleaginous Particles separated in the *Analysis*, and which follow immediately the Spirit, or Mercury in its Exaltation, serve in the Mixt to temperate the too great Acrimony of the Salts, and to serve them as an *Envelople*, left in the Circulation of the nutritious Juice, their sharp and acute Angles should lacerate the organick Parts of the Plants, and render them, in Time, quite imbecile. But I'll never believe that the same Particles which in the Mixt do that Office, serve likewise to stop its Pores, to hinder a too free Admission of humid Particles, which could accelerate the Dissolution of the Mixt; for I am of Opinion, that the Pores of the Mixt are stopt by a coarse and fuliginous Substance, separated from the nutritive Juice, in its Circulation, as a Kind of Excrement, condensated and appropriated by Nature, not only to stop those Pores, but likewise for the Formation of the Bark, Rind, *&c.* of the Vegetable: That that glutinous Substance, gives in the *Analysis*, but a very small Quantity of that Oil which follows immediately the Spirit in the Distillation, and that the greatest Part of it remains with the *Caput mortuum*, at the Bottom of the Cornue, and which is nothing else but that fuliginous Matter the *Caput mortuum* is seen covered with. The Reason why the Plants which abound more with Oil, continue longer green, and resist better the bad Weather, is, that the Salts the nutricious Juices are impregnated with, are not left to themselves, as in the others where the oleaginous Particles are but in a small Quantity, and consequently cannot produce those dangerous Effects on the organick Parts of the Vegetable, capable to destroy its whole Mechanism; and as that Plant must abound likewise with a greater Quantity of that glutinous Matter we have mentioned, to stop its Pores, it consequently must resist better the Intemperies of the Seasons.

'Tis justly observed, that Oil is never extracted pure from the Mixts; for it is either mixed with Spirits, as the Oils of Rosemary and Lavender, which float on the Water, or is full of Salts ushered along with it in the Distillation, as the Oils of Box, Guaiacum, and Cloves, which are found precipitated at the Bottom of the Water, because of their Weight.

SALT is the heaviest of the active Principles, and commonly is extracted last: 'Tis an incisive and penetrating Substance; it gives its Consistence, and Weight to the Mixt; preserves it from Corruption, and excites different Tastes according to its different Mixtures. The *Salt* of Mixts is divided into three different Species, *viz.* into *fixt Salt*, *volatile Salt*, and *essential Salt*. The *fixt Salt* is that extracted by Calcination; which is done in this Manner: The calcinated Matter must be boiled in a considerable Quantity of Water, that the *Salt* may be dissolved; the Dissolution is passed through a grey Paper, and afterwards the Humidity is to be evaporated, till the *Salt* be found at the Bottom of the Vessel. The *Salt* of Plants extracted in this Manner, is called *lixivial Salt*. The *volatile Salt*, is that which is sublimated easily when heated, as the Salt of Animals: And the *essential Salt*, is that extracted from the Juice of Plants by Crystallization; this *Salt* is between the *fixt* and the *volatile*.

The WATER, called *Phlegm*, is the first of the passive Principles; it comes out in the Distillation before the Spirits, when they are fixt, and after when they are volatile: This *Water* is never extracted pure, for 'tis always impregnated with some of the active Principles, whereby its Virtue is commonly more detersive than that of natural *Water*; it serves to extend the active Principles, and to moderate their Agitation.

The EARTH, called *Caput mortuum*, or *Damnatum*, is the last of the passive Principles, and cannot be separated pure no more than the others, for it retains always obstinately some Spirits, and even after it has been deprived of them as much as possible, if it be left a long Time exposed to the Air, it contracts new ones.

It is to be observed, that these above-mentioned five Principles are easily found in Animals, and Vegetables, but not with the same Facility in Minerals: There are even some Minerals, as Gold, and Silver, out of which even two cannot be extracted, nor any Separation made, notwithstanding what those who seek so greedily, or so foolishly, or so knavishly, after the Salts, Sulphurs, and Mercuries of those Metals, can say to the contrary. *L'Emery* seems inclined to believe, that those Principles enter into the Composition of those Mixts, but says, that it cannot be inferred thence, that those Principles have remained in their first State, and can be extracted; for it might happen that those Substances, called Principles, are embarrassed in such a Manner, one within the other, that they cannot be separated without bruising their Figures, those Figures being the only Reason why they are called Spirits, Salts, and Sulphurs.

For my Part, I am of Opinion, that those Substances called Principles, in Minerals, are quite different from those called so in Animals, and Vegetables; though they all proceed from the same universal Principle, and are elaborated by the same primary Agents in their Formation: But the Matter procured by that universal Principle, for the Formation of those first Principles in Minerals, being prepared in a quite different Manner, and in Matrices quite different in Quality, Situation, *&c.* from those where the first Principles of Vegetables are elaborated; the primary Agents acting, besides, with a greater Power and Skill, form a Matter more perfect, more exalted, and better configurated in all its Parts; and which Parts being applied to one another in that perfect State, to form the Substance of the Mixt, and not being exposed to the same Changes and Alterations those Principles of the Vegetables are subject to, by their continual Motion through the Vegetable, for its Nutrition, they always preserve their first State of Perfection, since the apparent Mutation they undergo by Fire, in their Purification, rather add to that Perfection, than diminish it. Since that supposed Change is nothing else but a closer Co-adunation of their Parts, and a Separation of those *Scories*, they have contracted, by remaining too long in their Matrices. How could it be expected then that those Principles should be separated by Art, when Nature and Art have contributed, in Concert, all in their Power, towards rendering the Co-adunation of their Parts an accomplished Piece of Mechanism? How could Art alone attempt to separate what Nature and Art have so perfectly united? How could those Substances be divided, which are absorbed, or annihilated (if I may use that Expression) within one another, so as to become one and the same Thing. For in the Composition of Minerals, such as Gold, and Silver, there is not that Superfluity of those Substances they are composed of, which we discover in Vegetables, and Animals, even before their *Analysis*; for each of them is employed in it with Parcimony, and with that Œconomy, that none of them is predominant; for Example, there is no greater Quantity of saline Paricles than is necessary to fix the Mercury; nor no greater Quantity of Oil, than what's sufficient to provide each saline Particle with its Shaft, to blunt their sharp and acute Angles, and render them capable of being incorporated with the other Principles, without the least Danger to the whole Mechanism: As for the Phlegm, it has been so exhausted by the primary Agents, in the Formation of the whole, that it scarce retains the least Idea of it in the Mineral. The *Earth* has been so well elaborated, and so entirely separated from it coarser Corpuscles, that it is impossible it could be distinguished from the Mercury and Salt; therefore would not those Substances rather be destroyed than separated, since they are so perfectly and skilfully united, that though they be really different Substances, they nevertheless can never appear otherwise, after their Union, but one and

and the same Substance. Even in Glass, which every Body knows is made of Salt, its Figures are so much chang'd by Fire, that it can't produce any longer the Effects of Salt; and it is almost impossible to extract a true Salt from Glass by *chymical* Preparations.

There are three Sorts of that *Spirit* which is consider'd as the first active Principle of a natural Body; or rather, there are three Sorts of Liquors qualify'd with the Name *Spirit*, *viz.* the *Spirit* of Animals, the *ardent Spirit* of Vegetables, and the *acid Spirit*.

The first, as the Spirit of Hartshorn, is but a volatile Salt resolv'd in a small Quantity of Phlegm. The second, as the Spirit of Wine, Geneva, and Rosemary, is but an exalted Oil. And the last, as the Spirit of Vinegar, Tartar, and Vitriol, is but an acid essential Salt resolv'd into a Liquor by Fermentation and Fire. This last is call'd *Salt fluor*, because, in Fact, 'tis but a fluid Salt. Whence it appears, that these three Liquors, including all that's call'd Spirit, *Chymistry* could very well be without that Principle; for since the Spirit extracted from Animals is but a Salt resolv'd by a small Quantity of Phlegm; that the Spirit of Wine is nothing else but an exalted Oil; and the acid Spirit but a *Salt fluor*, or Fluid; nothing will be perceiv'd in those Liquors but Oil, Salts of a different Nature, and Water; so that the *Spirit*, or *Mercury* of the *Chymists*, is but a *Chimæra*, which serves only to puzzle the Mind, and render *Chymistry* difficult to be understood: For, in Fact, that Spirit, or *Mercury*, in Animals, is but the most volatile Particles of the nutritious Substance, exalted by the natural Heat of the Body, and wrapp'd in the most subtile Parts of those fuliginous Vapours, which form a Sort of ambient Atmosphere, wherewith they are environ'd; which volatile Particles being put into a new, and less moderate Effervescence, by a *chymical* Analysis break, in that excessive Agitation, their brittle Angles, by their violent Shocks against their phlegmatick *Capsulæ*, or Scabboards, lose thereby the greatest Part of their Activity, and, being no longer in a Condition to keep themselves in an exalted State, are forc'd to follow the Declivity of those *Capsulæ*, whereby they are usher'd in the Recipient. As for the *Spirit* of Vegetables, which we consider as an exalted Oil, 'tis likewise the most subtile Particles of the nutritious Juices exalted by the Impulsion of the natural Warmth of the Earth, and by the Attraction of the Sun Beams; but as these two Agents do not act so immediately on the nutritious Substance of the Vegetables, as the natural Warmth does act on that of Animals, and the ambient Atmosphere being more extended, and having, consequently, a greater Space for its Rarefaction, is not compos'd of so great a Quantity of those coarse and fuliginous Particles to be met with within the narrow Precincts of the animal Body; and consequently the volatile Particles meeting in their Passage with abundance of oleaginous Particles, (which naturally have a greater Propensity to Exaltation than the phlegmatick ones) which they usher along with them, and wherein they shut up themselves, and by a new, and extraordinary Effervescence, hook themselves in their Texture, and fall along with them into the Recipient. The acid Spirit is but the most subtile Part of the essential Salt of Vitriol, exalted by the igneous Particles 'tis impregnated with; which Exaltation subsists no longer than the igneous Particles are capable to support it; for when those Particles are exhausted, which is soon done, the Vitriol falls into the Recipient: Whence it happens, that the Distillation of those Matters, which are nothing else but a Dissolution of essential Salt in a great Quantity of *Phlegm*, is sooner perform'd than any other; for as their most subtile Particles have no other Faculty of Exaltation but what they borrow from Fire, the Rapidity of the igneous Particles is soon stopp'd, by the great Quantity of Phlegm they are environ'd with.

In this last Operation there is no Oil found, for what is properly call'd Oil of Vitriol, is but a greater Quantity of essential Salt better depurated of its Phlegm. Besides, 'tis not inflammable, and there is but the Oil in Mixts which can be said to be inflammable, and it is the more so, that the Salts with which it is intimately united, have been more or less volatiliz'd; for what we have call'd Spirit in the Oil, is but an essential or volatile Salt, which is not *inflammable* of itself, but serves only to rarefy and exalt the oleaginous Particles to render them more susceptible of Motion, and consequently of Inflammation; as when we mix Saltpetre with an oily or penguedinous Matter, that Matter takes Fire much sooner than when alone, tho' Saltpetre be not inflammable, as we'll prove in its proper Place. We have Examples of this in Spirit of Wine, Oil of Turpentine, and all other inflammable Liquors, which are but subtiliz'd Oils, and render'd ætherial by means of the volatile Salts which they contain. Wood itself, and other Parts of Vegetables, have a great deal of Salt semblable to Saltpetre; this Salt being intimately united with the Oil of those Mixts, renders them more combustible than if they were depriv'd of it. *Fat* is full of an acid volatile Salt, which is in great Abundance in all Animals; Wax, Rosin, and all the most combustible Matters, are impregnated with an acid Salt, either essential, or volatile.

In Fact, that acid Salt must be either essential, or volatile, to excite Inflammability; for if it was fix'd, it would produce a quite contrary Effect, for it would temperate, in some Measure, the too great Motion of the Particles of the inflammable Matter: And it is what we see happens when marine Salt is thrown into the Fire, to extinguish it. Common Sulphur furnishes us with another Example; this *Mixt* is compos'd of a Part truly sulphurous, or oleaginous; and of another saline or fix'd Acid, which is discover'd in the Anatomy made of it: The oleaginous Part takes Fire, and would exalt itself like other Oils, by a great white Flame; but the acid Part, 'tis loaded with, and which hinders its Exaltation, can't produce but a small blueish Flame: And a Proof of this is, that if you mix Saltpetre with Sulphur, as in the Preparation of *Sal Prunella*, because the volatile Salt of Saltpetre will volatilize the Salt of the Sulphur, a white Flame will rise with great Violence. Therefore the oleaginous Particles in the *Mixt* are the Principle of Inflammability, which Principle would remain unactive, if not excited by an essential or volatile Salt.

As for the Formation of Salt, which, in *Chymistry*, is consider'd as the second of the active Principles, I imagine that it proceeds from a natural Salt form'd in the rocky Matrices of the Earth, by an acid Liquor, which running thro' the Veins of Earth, came to disembogue itself into those Matrices, where it penetrates insensibly the Pores of the Stones, which it dilates and attenuates; and afterwards, by Fermentation, and a Coction of several Years, there is form'd what's call'd fossil Salt; which is likely enough, since with mixing acid with an alkaline Matter, we extract daily, by means of *Chymistry*, a Substance like Salt; but the Stone is an Alkali: And it may be added, that the Fermentation, or Coction, made in the Stone in so long a Time, perfects the Acid with the Parts of the Stone, to form a Salt of it; since there are found Mines and Rocks of *fossil Salt*, call'd *Gemma*, for its Transparency, in several Places; as in *Catalonia*, *Poland*, *Persia*, and the *Indies*; which is like that us'd for our Aliments, which we call *marine Salt*.

Saltpetre differs from the Salts abovemention'd, because it has a greater Quantity of Spirits; so that when a Part of it has been exalted, what remains is of the same Nature with the *Sal Gemma*. Saltpetre is form'd in the Stones, and in the Matrices of the Earth, by the Acidity of the Air; in the same Manner, *Sal Gemma* is form'd in Mines, by the acid Liquor abovemention'd; for that acid Liquor having penetrated the Stones, fixes itself thereon, and forms a Salt, semblable, at first, to *Sal Gemma*; but afterwards new acid volatile Spirits hook themselves there, mix with the former, and thereby render Saltpetre between volatile and fix'd.

Vitriols,

Vitriols, Allums, and other Salts found naturally in the Earth, can be explain'd according to the same Principle; for according as the acid Liquors find the Matrices of the Earth variously compos'd, they produce different Matters.

Three Sorts of Salts are extracted from Vegetables, *viz.* an *acid* one, call'd essential; another *volatile*; and the third *fix'd*. The first is, sometimes, semblable to Saltpetre, and sometimes to Tartar, according as it is more or less full of Earth. This Salt is extracted from the Juice of the Plant, as abovemention'd; for that Juice having been squeez'd out, and purify'd, 'tis put in a Vessel, in a cool Place, where it crystallizes itself round the Vessel. This Sort of Salt ought to be consider'd as the true Salt of the Plant, because the Means us'd in its Extraction are natural, and can't change its Nature; which can't be said of the two others, because there is a great Likelihood that the Violence of the Fire us'd in the Operation has disguis'd them; as it appears, likewise, by their Effects.

The second, or *volatile Salt* of Plants, is most commonly extracted from the fermented Seeds, or Fruits. It differs only, while yet in the Plant, from the essential Salt, in that its having been exalted higher by the Spirits, than the essential Salt, it has been render'd more volatile. The Fermentation excited in Fruits which have been pounded, helps much to the Volatilization of the Salt, because it throws it into Agitation, and gives it a greater Disposition towards freeing itself, than it had before. But it happens, that in the great Circulation, and perpetual Motion of that Salt, it mixes itself so well with the Oils, the Seeds and Fruits abound with, that it can't be separated by the Crystallization of the Juice, as that extracted from the other Parts of the Plant; Recourse must be had, then, to Fire: Therefore the Fruit, or Seed, which contains the *volatile Salt*, is distill'd thro' the *Cornue*; first, the Water, or Phlegm, appears; then an Oil; and at last, by increasing the Fire to a violent Degree, there comes into the Recipient a sharp Salt, of an ungrateful Smell, and which evaporates easily; whereby it appears that the Fire has chang'd, or procur'd something to that Salt; for while it was in the Plant it had no Smell near that brought along with it in the Distillation: But what shews yet more that it has been disguis'd, is, that *that* Salt being mix'd with an Acid, there appears, at the same Time, an Ebullition, or Effervescence, which lasts till the Salt be entirely penetrated, which would not happen, if it was in its natural State. This Ebullition has given it the Name of *volatile Alkali*, to distinguish it from the *fix'd Alkali*.

This *salt, volatile Alkali*, is a Part of the *acid essential Salt* heretofore mention'd, which having been first volatiliz'd, and afterwards press'd by the Violence of the Fire, has usher'd along with it a Portion of burnt Oil, and a terrestrial Matter calcined. This burnt Oil is what has render'd that Salt of an ungrateful Smell; and the terrestrial Matter, with which it has so intimately united itself, has chang'd its Nature by breaking its Points, and rendering it more porous than it was; 'tis that Dilatation of its Pores which renders that Salt susceptible of the Impressions of the acid Liquor, and causes the Ebullition; for the Points of the Acids, which are in a perpetual Agitation, enter the Pores of that Salt, and not finding in them an entire Liberty to move, they dilate and break their Parts with Violence, to have more Room for their Motion. It could happen, likewise, that *that* Chalk, or calcinated Earth, having retain'd some igneous Particles, and the Points of the Acid having begun to open the Pores of the Salt, these small igneous Bodies, which move with Impetuosity, push with Precipitation, in breaking their little Prisons, which might be the Cause of the violent Ebullition.

The last, or *fix'd Salt* of the Plants, remains united to the terrestrial Part, after the Distillation of the other Substances; and is extracted in this Manner: The Matter is taken out of the Cornue, and calcin'd at an open Fire, to be purify'd of the Soot, which renders it black; afterwards the Salt is extracted by Lixiviation, as heretofore mention'd. This Salt is call'd *fix'd*, when compar'd to others, because it can't be sublimated by Fire. It must be observ'd, that because a great Quantity of this Sort of Salt is extracted from a Plant call'd *Kali*, in *English Glass-wort*, the Name *Kali* has been given, by Similitude, to the *fix'd Salt* of all Sorts of Plants; and that because by mixing an acid Liquor with that Salt, there ensues an Ebullition, all volatile or fix'd Salts, and all terrestrial Matters which ferment with the acid, have been call'd *Kali*.

Several *Chymists* have imagin'd, that in those terrestrial Matters, in Minerals, Coral, Pearls, and generally in all Bodies which ferment with Acids, there was a salt *Alkali* hidden, which is one of the Principles of Fermentation. But *Van Helmont* was the first who refuted this Opinion, pretending, that the fix'd *Alkali's* did not thus pre-exist in their *alkaline Form*, but were Productions of the Fire, by whose violent Action Part of the Salt, which in the Concrete is all volatile, lays hold of some Part of the Sulphur of the same Body; and both melting together, are fix'd into an Alkali: Which Fixation he exemplifies by what happens when Saltpetre and Arsenick, tho' both volatile, being expos'd to the Fire, are flux'd by the Operation thereof, and made to fix each other.

M. *Geoffroy* carries the Point something further, and asserts, that all alkaline Salts whatever, both fix'd and volatile, are wholly the Effect of Fire; in that, before any Action of the Fire, they did not pre-exist in the Mixt wherein they afterwards appear.

M. *Lemery* is of the same Sentiment, and says, that there is no fix'd *Alkali* in the Plant, but that by Calcination the Fire has fix'd a Portion of the essential acid volatile Salt with *Terrestreities*, which have broke its Points, and render'd it porous, and in Form of Chalk; that it is because of these Pores that this Kind of Salt is so easily liquefy'd when expos'd to the Air.

Mr. *Boyle* is of the first Sentiment, and pretends, that the Instance of the *Egyptian Nitrum*, or Nitre, furnishes an Objection against the general Assertion of all Alkali's being artificial, or produc'd by Fire; and says, that he had some of this Salt sent him by the *English* Ambassador at the *Port*, and had found that Vinegar would work briskly on it, even in the Cold; whence, says he, it appears, that the *Egyptian* Nitre, acknowledg'd to be a native Salt, and made only by the Evaporation of the superfluous Water of the *Nile*, is yet of a lixivious Nature, or, at least, abounds with Particles that are so, tho' produc'd without any precedent Incineration, and the Matter of it expos'd to no Violence of the Fire, to make it afford an *Alkali*.

M. *Geoffroy* imagines, that *alkalizate Salts* are nothing else but *Acids* concentrated in little Molecules of Earth, and united with certain Particles of Oil, by means of Fire; that when an Acid, which we conceive in the general as a small, solid, pointed *Spiculum*, happens to be absorb'd, or concentrated in a small Portion of Earth, the whole becomes denominated a *solid, compound, neutral*, or *intermediate Salt*, by reason the Acid, thus inclos'd in a Sheath, can't excite the same Savour as when disengag'd therefrom, and yet excites a saline Taste, and for this Reason is compound.

That Fire is the only Agent capable of disengaging the Acid from the Earth it is thus invested withal. Upon this the Acid being lighter than the Earth, rises, and evaporates, leaving the Earth at the Bottom of the Vessel; which, for this Reason, is call'd *fix'd*, in Contradiction to the *Acid* which is *volatile*. This Earth, thus bereav'd of its Acid, is left with its Pores open and empty, which before were fill'd; and withal in sustaining the Action of Fire, it necessarily retains some of the Particles thereof, which gives it an acrimonious Taste, that mere Earth could never have. From this Taste it is call'd *Salt*, and from its Pores being open, it is call'd *alkali Salt*.

M. *Lemery* is of Opinion, that a *Salt* is discover'd to be *Alkali* by pouring an Acid over it; for presently, or soon after, there ensues a violent Effervescence, which lasts till the Acid finds, no longer, Bodies to be rarefy'd; which, he says, would make one conjecture that the *Alkali* is compos'd of stiff and brittle Particles, whose Pores are configurated in such a Manner, that the acid Points having enter'd them, they break and disperse all that could oppose their Motion, and, according as the Parts which compose that Matter are more or less solid, the Acids find more or less Resistance, and make a greater or lesser Effervescence: So that we see that the Effervescence which happens in the Dissolution of the Coral, is a great deal less violent than that made in the Dissolution of Silver.

There are as many different *Alkali's* as there are Matters which have different Pores, and that is the Reason why an Acid will make one Matter to ferment, and not another; for there must be a Proportion between the Points of the Acid, and the Pores of the Alkali. Thus Vinegar impregnates itself with Lead, which *Aqua fortis* can't dissolve. *Aqua fortis* dissolves *Mercury*, which is not to be penetrated by Vinegar. *Aqua Regalis* dissolves Gold, which *Aqua fortis* can't penetrate. *Aqua fortis*, on the contrary, dissolves Silver, and does not touch Gold, *&c.*

Acid Salts are but seldom effervescible with acid Liquors, because their Pores are so small that they can't be penetrated by common Acids; but there are sometimes Acids to be met with, whose Points are fine, and well enough proportion'd to find an Entrance into the small Pores of those Salts, and to cause an Effervescence. Then those Salts, tho' they be acid, might be call'd *alkali*, with Regard to those Sorts of Acids. 'Tis what happens to the marine Salt which is acid; for tho' it be not effervescible, neither with the Spirit of Salt, nor with the Spirit of Nitre, nor with the Spirit of Allum, nor with that of Vitriol; nevertheless, if it be mix'd with a very strong Oil of Vitriol, there will happen an Effervescence. It might be said, that acid Salts are *Alkali* with Respect to one another; for as there is no Body without Pores, and Acids are to be found of an extraordinary Subtilty, they are almost all to be penetrated.

This is likewise to be observ'd, that the Acid and the Alkali destroy one another, in such a Manner, in the Ebullition, that when an Acid has been pour'd over an Alkali, in a sufficient Quantity to penetrate all its Parts, it is no longer alkali, tho' it be wash'd to be depriv'd of its Acid; because its Pores are no longer dispos'd as they were before; and the Acid breaks its Points so, especially in the Alkali's which are very compact, that when extracted, it has lost almost all its Acidity, and retains only an Acrimony.

But what's that *Acid* so often mention'd in this Place? ACID is any Thing which affects the Tongue with a Sense of Sharpness and Sourness, which Sharpness consists in the pointed Parts of the *Acid*, which prick the Tongue. That this Sharpness of the *Acid* consists in its Points, is demonstrative, by that not only all acid Salts are crystalliz'd into Points, but likewise all Dissolutions of different Matters by acid Liquors, take that Figure in their Crystallization.

This *acid Salt* is found in three Kingdoms, or Families: 1. In the Mineral Kingdom, as the *Acid* of Nitre, Sulphur, *&c.* 2. In the Vegetable Kingdom, *Acid* produces Gooseberries, Barberries, Verjuice, *&c.* 3. In the Animal Kingdom, besides the *Acid* of the Stomach, there are acid Spirits hid under the oleaginous Parts of Animals.

Having thus examin'd the different Sorts of Salts contain'd in Minerals and Vegetables, we'll proceed to *Animals*, and find that they give us two Sorts of Salts, one volatile, and the other fix'd. The first is found in them in a greater Quantity than the other, because Animals abound in Spirits, which by their continual Circulation volatilizes it. This Salt is very little different from the volatile Salt of Seeds and Fruits, which is alike extracted thro' the Cornu. It has the same Taste and Smell, and its Virtues are very near the same; 'tis kept longer dry, because a greater Quantity of fix'd Salt has been exalted along with it. As for fix'd Salt, Animals give but a very small Quantity of it, and some of them give none at all; 'tis extracted like the fix'd Salts of Plants. These two Salts are *alkali*.

It must be observ'd, that there is no Salt which can be call'd *alkali*, neither in the Parts, nor in the Juices of Animals, which have not pass'd thro' the Fire; for that salt Serosity found in them, is but an acid Salt, and which proceeds from the Aliments the Animal has fed upon. And that Salt extracted from them which is call'd *alkali*, is but the same acid Salt disguis'd by Fire, which mixes with its terrestrial Matters in the same Disposition we have mention'd in speaking of the *Alkali* of Plants; but as there is a greater Motion, in Proportion, in Animals, than in the Seeds, the Spirits exalt almost all the Salt; which is the Occasion why we find less Salt fix'd in Animals, than in Plants.

But, however, there are terrestrial Matters in Animals which may be call'd *alkali*, because they cause the Precipitation of the Bodies dissolv'd by acid Liquors. Thus we see that Urine, when very hot, precipitates, with Ebullition, the *Mercury* dissolv'd by Spirit of Nitre, which can't proceed but from the terrestrial Matters of the Urine, which, being in a great Ferment by the Heat, breaks the Points of the Spirit of Nitre. And this Effect must not be attributed to the natural Salt of the Urine, since, in other Operations, it causes the Precipitation of Matters dissolv'd by *Alkali's*. For Example, Sulphur dissolved by Lime, is precipitated by Urine.

But suppose there could be found sometimes a salt *Alkali*, in Animals, their Origin should be attributed to the Circulation, which could have mix'd intimately with terrestrial Matters in the Pores of the acid Salts, and render'd it porous, as it is done by Fire. As to what's said, that the Bile makes an Effervescence as an *Alkali*, when pour'd over an Acid, 'tis for Want of having experienc'd it; because there is no Effervescence observ'd at first: Tho' it can't be said that the Acid excites no Fermentation at all in the Bile, Blood, and other Parts of the Body; for it can really excite that Fermentation very often, but it is a Fermentation like that excited in Beer, and other such Liquors.

From the active Principles of a natural Body, we'll pass to the Examen of the passive ones, which, as we have observ'd already, are the Phlegm, and the Earth.

The PHLEGM found in *Mixts*, is a Portion of the Water which has enter'd into their natural Composition with the other Principles. That Water serves in the *Mixts* to render the active Principles more fluid, and by temperating their Agitation, hinders them from being dissipated. 'Tis true, that if it be in too great Abundance in the *Mixt*, it weakens much the Principles, so that they appear as drown'd, but they are revivify'd by *Chymistry*.

This *Phlegm* would be like common Water, if the Fire, by means whereof 'tis separated, was not to exalt, and impregnate it always with a small Portion of the active Principles, whence it happens, that it retains some Virtue of the *Mixt* from which it has been extracted. The *Phlegm* is the Principle which comes out first in the Distillation of the *Mixts*, whose active Substances are intimately united, as in Vitriol, Nitre, Vipers, Hartshorn, Tartar, and Plants which are not odoriferous; because in these Sorts of Matters the *Phlegm* is loose, and is therefore push'd out with a greater Facility, by Fire; but it does not come out first when mix'd with disunited volatile Salts, as in the Spirit of Wine, and in several odoriferous *Mixts*; for then the oleaginous or saline volatile Substances being lighter than the *Phlegm*, the Fire exalts them first.

Several place *Phlegm* among the active Principles, because 'tis often a Dissolvent; that it heats Oil of Vitriol, and stimulates its Action, which makes it act more powerfully on the *Mars* than it would do without it; that it heats, and causes an Ebullition in Lime when pour'd cold over it, and produces several other

ſuch Effects: But in this Manner of Reaſoning, there would be no paſſive Principle; for the *Earth*, or *Caput mortuum*, acts likewiſe in its Manner, it extends what's mixed with it, it cauſes an Ebullition in Acids, it occaſions the Fermentations and Elaborations, which happens naturally, and by its Aſtriction, abſorbs and ſtops the Blood, and other Humours, which run with a too great Impetuoſity.

By *Paſſive Principle* muſt be underſtood a Subſtance which gives nothing of itſelf, but is in a Condition to receive, and in which the ſaline Subſtances extend themſelves, 'tis true, but cannot thereby contract the leaſt Virtue; ſo that when the Phlegm is a Diſſolvent, 'tis for a Matter which diſſolves eaſily of itſelf, and where the Diſſolvent has no need to penetrate. If it heats the Oil of Vitriol, and ſtimulates its Action on the *Mars*, 'tis becauſe the Particles of that ſtrong Acid which were too much confined, extend themſelves, and by their Extenſion, facilitate the free Motion of the igneous Corpuſcles, and help the acid Points to penetrate the Metal. If it heats and cauſes an Ebullition in quick Lime, 'tis becauſe the Parts of that calcinated Stone rarefy in the Phlegm, and procure the Egreſſion of the ſmall igneous Bodies incloſed in it, that they may ſally out with Violence; therefore thoſe Effects attributed to the Phlegm are but accidental.

The EARTH extracted from the Mixt, is often a Portion of that which has ſerved for a Matrix to them; it unites, diſſolves, and mixes itſelf with the other Principles, and afterwards fixes and ſtops them. A ſmall Quantity of it riſes, when the Subſtances ſublimate themſelves through the Pores of the Mixt, for its Nutrition. There is alſo *Earth* formed by the Coagulation, which makes the Mixtures of the Liquors impregnated with different Salts. The *Earth* ſerves as a Baſe, and a Foundation to the other Principles; 'tis the *Earth* which gathers them together, which unites them and gives them their Solidity; 'tis called *Caput Mortuum*, or *Terra Damnata*, after the active Principles have been extracted from it. This Name *Caput*, or Head, proceeds from that before 'tis ſeparated, it contains the eſſential Parts of the Mixt, juſt as the Head of the Animal contains the moſt ſubtile Spirits. As to the other Epithets given to it, of Death, and damned, 'tis to make us underſtand, that being diveſted of the active Principles, 'tis no longer in a Condition to produce any Effect of itſelf: But however, that poor *Earth* ſhould be treated with more Charity, and not damned ſo eaſily: No doubt but its Damnation proceeds from the ill Nature of ſome *Alchymiſt*, who having been diſappointed of what he expected to find in the Earth of Mixts, gave it his Malediction: For this *Earth* cannot be juſtly called thoſe bad Names, ſince it is almoſt impoſſible to ſeparate it ſo well from the other Principles, as to diveſt it entirely of them; therefore the Earths are different from one another, and can even be uſeful in ſeveral Occaſions: And if the Earth extracted from the Mixts, could even be entirely deprived of all Sorts of Impreſſion, it nevertheleſs could be yet of ſome Uſe, ſince it would always remain Alkaline, and proper to mortify the Acids.

After this general Idea of all the different Principles of *Chymiſtry*, and this particular Explanation of thoſe different Principles, it would be reaſonably expected, that I ſhould proceed to build my Laboratory, (tho' this Name of Laboratory ſounds but indifferently in my Ears, for I remember very well yet, that I was once buried under the Ruins of one, from which I was ſaved, but with great Difficulty:) But as I never deſigned that my Pupils, in every Art or Science, ſhould be Novices, when 'tis expected they ſhould be Maſters, nor that their whole Merit ſhould conſiſt in a great deal of Money, and very little Knowledge, and Skill. And I am reſolved that each *Chymiſt*, the firſt Time he ſteps into his Laboratory, ſhall make as good a Figure, and appear as well acquainted with it, as if he had ſpent his whole Life in it: I muſt inform him of every Particular he muſt know before he enters it; which are, beſides what we have already mentioned, the Signification of the different Terms of *Chymiſtry*; the different Sorts of Fire, and their different Degrees; the different Lutes, *&c.* We'll begin by an alphabetical Explication of the different Terms of *Chymiſtry*.

Explication of the different Terms of CHYMISTRY.

ÆTHIOPS *Mineralis*, is a Preparation of Mercury, and Sulphur, which is black, whence called *Æthiops*, *Æthipian*.

AL, is an *Arabick* Particle, which ſignifies *the*; but it is often employed at the Beginning of a Name, to expreſs an eminent, excellent, or great Thing.

ALCHYMY, *Alchymia*, from *Al* and χύω, *Fundo*, I melt, is that Sort of *Chymiſtry*, ſuppoſed to teach the Tranſmutation of Metals.

ALEMBICK, *Alembicum*, from the *Arabick Al*, and the *Greek* Αμβιξ, is a Kind of Veſſel.

ALKAEST, is a Name compoſed of two *German* Words, *Alge eſt*, *i. e.* all Spirit. *Van Helmont* pretends to be the Author of this Term, but he has borrowed it from *Paracelſus*: But however, by this Word is underſtood an univerſal Diſſolvent, which Diſſolvent has no other Exiſtence, but in the Imagination, ſince there is no ſuch Thing as an univerſal Diſſolvent.

ALKALY, is an *Arabick* Word, compoſed of the *Arabick* Particle *Al*, and *Kaly*, *Glaſs-wort*.

To ALKOOLISATE, or reduce into *Alkool*; this Word is *Arabick*, and ſignifies *to ſubtilize*, as when ſome Mixt is pounded into Powder, till the Powder be impalpable. This Word is alſo employed to ſignify a very pure Spirit; thus Spirits of Wine very well rectified, is called *Alkool of Wine*.

To AMALGAMATE, an *Arabick* Word, is to mix Mercury with ſome melted Metal; this Operation ſerves to render the Metal proper to be ſpread over ſome Works, or to reduce it into a very ſubtile Powder, which is done by putting the *Amalgama* into a Crucible, on the Fire, for thereby the Mercury exalting itſelf into the Air, leaves the Metal in an impalpable Powder, at the Bottom of the Crucible. Iron, nor Copper, can be *amalgamated*.

AQUA STYGIA, is *Aqua Regalis*, which Name is given to it, becauſe of its corroſive Quality, to compare it to the Water of a pretended River of Hell, which the antient Pagans called *Styx*.

AQUILA ALBA, is the *Mercurius Dulcis*: This Name ſeems to have been given to it, to expreſs a white Matter, which imitates, by its Sublimation, the Flight of an Eagle.

ATHANOR, or ATHANNOR, comes from *Tannaron*, an *Arabick* Word, which ſignifies an Oven: 'Tis a Furnace very commodious for the *chymical* Operations, which wants but a moderate, and very near even Fire, ſuch as Digeſtions; ſome call it a philoſophical Furnace, others Furnace of *Arcanes*.

To CEMENT, is a Manner of purifying Gold, which is done by ſtratifying that Metal with a hard Paſte, compoſed of one Part of Sal-armoniack, two Parts of common Salt, and four Parts of *Bole*, or Brick Duſt; the whole having been well mixed with a ſufficient Quantity of Urine, is called *Royal Cement*.

CHRYSULCA, χρυσος, *Aurum*, Gold; this Name has been given to *Aqua Regalis*, becauſe it diſſolves Gold.

CIRCULATION, is a Motion given to Liquors, in a Veſſel of *Encounter*, in exciting, through Means of the Fire, the Vapours to aſcend, and deſcend: This Operation is made to ſubtilize the Liquors, or to open ſome hard Body mixed with them.

To COAGULATE, is to give a Conſiſtence to Liquors, by conſuming on the Fire Part of their Humidity, or by mixing together Liquors of a different Nature, whoſe inſenſible Parts hook in one another.

To COHOBATE, an *Arabick* Term, which ſignifies reiterating the Diſtillation of the ſame Liquor, pouring to it the Matter left in the Veſſel: This Operation

tion is made to open the Pores, or to volatilize the Spirits.

CONCRETION, is a Thickening, or a Coagulation, or Induration, of a fluid, or liquid Matter, and when a Salt is diſſolved in a Lixivium, cryſtallizes itſelf.

To CONGEAL, is to leave a Matter which had been before put in Fuſion, take Conſiſtence in the Cold, as when a Metal, which has been melted in a Crucible, is left to cool, or when melted Wax, Fat, or Butter, are left to reaſſume their former Conſiſtence.

DEPART, or LINQUART, is a Separation of ſome Metal from another, with which it had been intimately mixed; for Example, when *Aqua Fortis* has been poured over a Mixture of Gold and Silver, the Silver is diſſolved, but the Gold being not diſſolved by that Diſſolvent, remains precipitated at the Bottom of the Veſſel.

DETONATION, is a Noiſe made when the volatile Parts of ſome Mixture ſally out with Impetuoſity, this is alſo called *Fulmination*.

DIGESTION is made, when a Body is left to ſteep in a proper Diſſolvent, at a very ſlow Heat, to be ſoftened.

To DISSOLVE, is to change ſome hard Matter into a liquid Form, by Means of a Liquor.

To DISTIL, *per Aſcenſum*, is to diſtil in the common Way, when Fire is put under the Veſſel which contains the Matter to be diſtilled.

To DISTIL, *per deſcenſum*, is to diſtil, by placing the Fire over the Matter to be diſtilled; for the Humidity being rarefied, and the Vapour coming from it, reduced to the Impoſſibility of following its natural Propenſity, is precipitated to the Bottom of the Veſſel.

To EDULCORATE, is to ſweeten ſome Matter impregnated with Salts, through Means of common Water.

EFFERVESCENCE, is an Ebullition made in a Liquor, without a Separation of its Parts, as when new Milk, or other ſuch Liquor, boil'd on the Fire, and after the Ebullition, remains as it was before.

To EVAPORATE, is to have a Liquor conſumed over the Fire, or in the Sun.

EXPRESSION, is when a Matter is ſqueezed ſtrongly, to extract its Juice, or ſome other Liquor 'tis impregnated with.

To EXTRACT, is to ſeparate the pure from the coarſer Part.

FERMENTATION, is an Ebullition cauſed by the Spirits, which ſearching an Iſſue to ſally out, and meeting with ſome terreſtrial and coarſe Parts, which ſtop their Paſſage, ſwell and rarefy the Matter till they be ſeparated from it, the Spirits divide, ſubtilize, and ſeparate the Principles, ſo that they render the Matter of a Nature different from what it was before.

To FILTRATE, is to clarify ſome Liquor, by ſtraining it through a grey Paper.

To FUMIGATE, is to make a Body receive the Smoak of another.

To GRANULATE, is to drop in cold Water a melted Metal, that it may be congealed in it.

To LEVIGATE, is to reduce on the Porphyry, a hard Body, into an impalpable Powder.

MAGISTERY, is a Name given by antient *Chymiſts* to certain white, and very light Precipitate, intimating that we ſhould underſtand thereby, a very ſubtile and curious Operation.

MENSTRUUM ſignifies, in *Chymiſtry*, a Diſſolvent; thus called, becauſe *Alchymiſts* have imagined, that the perfect Diſſolution of a Mixt was accompliſhed in one of their philoſophical Months, which is of forty Days.

To MORTIFY, is to change the exterior Form of a Mixt, as is Mercury: The Spirits are mortified likewiſe, when mixed with others which deſtroy their Strength.

PIGER HENRICUS, is the Furnace of *Athanor*; that Name has been given to it, becauſe its Fire can be guided by a lazy Artiſt, giving but very little Trouble.

To PRECIPITATE, is to ſeparate a Matter which had been diſſolved, that it may fall to the Bottom.

PROJECTION, is when a Matter to be calcinated is put by Spoonfuls into a Crucible.

To RECTIFY, is to ſeparate the Spirits by Diſtillation from the heterogeneous Particles which had been exalted along with them.

To REVERBERATE, is to determine the Flame of the Wood or Coal, lighted in the Furnace, to fall back on the Matter, by Means of a Dome placed over it.

To REVIVIFY, is to reſtore ſome Mixt, which had been diſguiſed by Salts or Sulphurs to its former State. Thus Cinnabar, and other Mercurial Preparations, are revivified into a liquid Mercury.

SCORIES, are the Scum of a Metal, or of a Mineral.

SALT-ACID, is a Salt confined within its Pores, which ordinarily do not ferment with Acids, and out of which is extracted by Diſtillation an acid Spirit, ſuch are Saltpetre, Vitriol, Alum.

SALT ALKALY, is properly the Salt of Glaſs-Wort, but every Salt which ferments with Acids, as Salt of Tartar, Salt of Wormwood, *&c.* is called by that Name.

SALT ESSENTIAL, is an acid Salt extracted from Plants by Cryſtalliſation.

SALT FIXED, is a Salt which ſuffers the Action of *Fire* without any conſiderable Diminution.

SALT FLUOR, or Fluid, is an acid Salt which remains liquid, or fluid, and is never condenſated but when it finds a terreſtrial Matter which corporifies it, the acid Spirits of Nitre, of Salt, of diſtilled Vinegar. This Salt is alſo called *Salt Principle*.

SALT SALTED, is a Salt Alkaly, drenched, and full of Acids, as the *Sal-gemma*, and Sea-Salt.

SALT VOLATILE, is a Salt which flies off, and is ſublimated by the leaſt Heat. Such are the Salts of Vipers, and of Hartſhorn.

To STRATIFY, ſignifies different Matters Couch over Couch. This Operation is made when it is wanted to calcinate a Mineral, or a Metal, with a Salt or ſome other Matter.

To SUBLIMATE, is to procure, by Means of Fire, the Aſcent of a volatile Matter to the Top of the Alembick, or to the Capital.

TRANSMUTATION, is when the Nature of a Mixt is changed into another more perfect; as if Copper or Pewter could be changed into Gold or Silver.

At preſent, that we have learned all the Chymical Terms (to uſe them *a propos*, and when Occaſion ſerves,) and their Signification, (that we may not uſe them like Aſſes, which often ſpeak a Language they do not underſtand) we muſt inform ourſelves of the different Sorts of Fire which are to be lighted in our Furnaces, and how to guide them. Therefore,

Different Sorts of Fires uſed in Chymiſtry, *and their different Degrees.*

Previouſly to this, we muſt know that Fire, in *Chymiſtry*, is the great Inſtrument, by which moſt of the Operations of that Art are performed. That the Diverſity of *Fire* makes a great Difference in the Reſult of the Experiment; ſo as the ſame Effect, *e. gr.* ſhall not ariſe, if an Experiment be made with the *Fire* of Spirit of Wine, and that of Pit-coal; to this Cauſe Mr. *Boyle*, in his Treatiſe of unexpected Failure of Experiments ſucceſsfully tried by ſome have not ſucceeded to others. That the *Fires* chiefly required by the *Chymiſts*, are ſuch as yield no Fæces or Remains; no Salt or Smoke; and ſuch alone are thoſe of the Sun, and of Spirit of Wine. Thoſe which come next in Purity, are Oil diſtilled *per Veſicam*; which loſe their Earth and Salt by their Boiling and Agitation in the Water; ſo that the oftner the Diſtillation is repeated, the purer they are rendered: After this Cancturff, the very Manner wherein the *Fire* is blown, is found to have ſome Effect: Thus *Acoſta*, *lib.* 4. *c.* 5. relates, that in *Peru*, when

when they would melt and separate their Silver from the Earth, &c. If the *Fire* be blown up with Bellows, the Fusion will not succeed, nor will any other Fire do but that blown by the Wind, raised from the Fall of some Water; so that they are forced to have Recourse to large Tubes, laid to the Feet of large Mountains, or Cataracts, to convey the Wind generated by the Fall of Water to their Work.

The DEGREE of *Fire*, or the Collection and Direction of *Fire*, to the Degree proper for each Operation, is almost the whole of *Chymistry*; for the Fire, *e. gr.* requisite to melt Metals, is by no Means proper for the distilling of Spirit of Wine.

Now the greater or less Force of *Fire* depends altogether on a greater or less Quantity thereof collected into a Focus: For, as to its Motion, it does not seem in our Power to alter it, or to make any Increase or Diminution of the Force of the *Fire* on that Account.

We *Chymists* use four principal Degrees of *Fire* in our Operations. The first is equal to the natural Heat of the human Body; or rather that of a Hen brooding on her Eggs; which is the Standard: And accordingly this first Degree is best measured by applying a Thermometer to a Hen; and some *Chymists*, by keeping a *Fire* continually to this Degree, by Means of a Thermometer, have hatched Chickens. By this Degree all our Digestions, easy Separations and Solutions, gentle Distillations, with all Fermentations and Putrefactions are to be performed. The second Degree of *Fire*, is that which gives a Man Pain, but does not destroy or consume the Parts, like the Heat of a scorching Summer's Sun, which chafes and inflames the Skin; and even sometimes raises Blisters. We'll use it in making Separations of the more ponderous Bodies, which the first Degree is not equal to; as also in some Fixations, particularly that of Mercury, which is rendered fixed by a gradual Introduction of such *Fire* among the Parts of Mercury. It makes the Serum of the Blood, and White of an Egg coalesce, and so occasions deadly Inflammations; and is too intense for any Digestion, Putrefaction, or Fermentation to be effected by. The third Degree of *Fire*, is that of boiling Water, which separates and destroys the Parts of Bodies. This Degree is perfectly stable; for Water, when once it boils, is at its utmost Degree of Heat, and cannot be raised a Jot further by any Augmentation of *Fire* or Fuel, as was first observed by M. *Amontons*. This Degree will serve to attenuate, separate, fix, and perform other Operations, where the two former would not be effectual. The fourth Degree is that which melts Metals, and destroys every Thing else. This Degree is too vehement to be estimated by the Thermometer, that Instrument not being able to endure it: So that it is only determinable by its Effects in the Fusion of Metals: As the Heat of boiling Water cannot be increased, so neither can that of melted Metals. We'll use this Degree in Abundance of Operations, and particularly about Minerals, where the three preceding Degrees are insufficient. This is the last Degree known to the antient *Chymists*.

The latest *Chymists* reckon a fifth Degree of *Fire*, *viz.* that whereby Gold is made to emit Fumes, and evaporate. This was first discovered in the Year 1690, by M. *Tschirnhausen*, whose burning Glass rendered every Thing, even Gold itself volatile.

Besides these five Degrees the *Chymists* have several intermediate ones, all which however may be reduced to the former.

As the DIGESTING FIRE, or *Venter Equi*, which is the Heat of a Dunghil.

The BALNEUM MARIÆ, which is when the Alembick, which contains the Matter to be heated, is placed in a Vessel full of Water, under which the *Fire* is lighted, which by heating the Water in the Vessel, heats likewise the Matter in the Alembick.

The VAPOROUS BATH, when the Vessel, which contains the Matter is heated by the Vapour arising from hot Water.

The SAND HEAT, or of Iron-Dust, or of Ashes, when the Vessel, containing the Matter to be heated, is environ'd at Bottom, and on the Sides, with Sand, Iron-dust, or Ashes, which is practis'd that the Vessel should be heated slowly.

The REVERBERATORY FIRE, when it is in a Furnace close a-top, by which the Fire is reflected back, and all round upon the Vessel.

The NAKED FIRE, which is the common Fire apply'd under a Vessel.

The WHEEL FIRE, which is lighted all round a Crucible, or other Vessel, to heat it all alike.

The FIRE OF THE LAMP, which is moderate and equal, and may be increas'd by the Addition of more Wick; us'd by Enamellers, &c. The Oil employ'd in the *Lamp* must be the best, and most proper to burn; for when too coarse, there are often form'd on the Wick, Mushrooms, which intercept the Light and Heat. To avoid these Accidents, the Oil can be purify'd in the following Manner: Take six Pounds of Oil, mix with it a Pound of Vitriol dry'd white, and in Powder; let this Mixture boil over a slow Fire, that the Vitriol may absorb the aqueous Humidity of the Oil; all the Vitriol will remain without being dissolv'd, and the Oil must be strain'd to be us'd.

The FIRE OF SUPPRESSION is made to distil *per descensum*. The Fire is lighted over the Matter so that the Humidity push'd by the Fire is precipitated to the Bottom of the Vessel.

INSOLATION is when a Matter is exposed to the Beams of the Sun, to be fermentated, or dry'd.

The HEAT OF QUICK-LIME humected, can serve for some Distillations, as when mix'd with *Sal Ammoniac* it causes to be distill'd from it, without Fire, a very subtile Spirit.

The GLASS-HOUSE FIRE, for vitrifying the Ashes of Vegetables.

The OLYMPICK FIRE, which is that of the Sun collected in a Focus, or burning Mirror, &c.

Note, That these intermediate *Fires* can be conducted thro' four different Degrees of Heat. To make a *Fire of the first Degree*, there wants but two or three lighted Coals, capable to produce a small Heat. For the *Fire of the second Degree*, there wants four Coals, which may heat sensibly the Vessel, but in such a Manner, that the Hand could bear it for some Time. The *Fire of the third Degree*, is a great Coal Fire. The *Fire of the fourth Degree*, is made of Coals and Wood together, capable to excite the most extreme Violence of Fire. The *Sand Heat*, of Iron-Dust, and Ashes, have their Degrees, ordinarily from the first to the third; but the *Fire of Iron-Dust* gives more Heat than the two others, because the Iron-Dust is easily made red-hot. The *Fire of Ashes* is the most moderate, because Ashes can't retain so great a Heat as the other Matters. The *Reverberatory Fire* has its Degrees from the first to the fourth; 'tis this Fire which commonly pushes with a greater Violence. The *Wheel Fire* is always a great Coal Fire, without Degrees, because it's never used but in Calcinations, Fusions, and under Vessels of a porous Earth, which resist easily to the most violent Fire. A Vessel is made to receive different Degrees of Heat from a lighted Lamp, by the different Distances of the Lamp from the Vessel; but when the Vessel is once hot, the Artist must continue to keep it to an even Heat, because the Wick of the Lamp burns always equally, in a small Furnace where 'tis plac'd. The *Balneum Mariæ*, and the *Vaporous Bath*, have likewise their Degrees; for according as the Water of the *Bath* is more or less heated, the Distillation is more or less accelerated. Therefore we may call it the Heat of Bath, or of Vapour, of the first Degree, when the Bath or Vapour are only a little more than Milk-warm, as they must be when Matters are put in Digestion in a Vessel. The Heat of the second Degree, when the Water of the Bath, or the Vapour of the Water, are so hot, as to be impossible to bear one's Hand in it, as they must

must be to procure a gentle Distillation. And the Heat of the third Degree, when the Water of the Bath boils, to accelerate the Distillation. The *Fire of Suppression* has likewise its Degrees; hot Ashes are only employ'd to excite a very moderate Heat, and this is its first Degree; at another Time the hot Ashes are mix'd with lighted Coals, and this is its second Degree; and at another on a small Bed of Ashes are plac'd several Coals very well lighted, and this is its third Degree. *Insolation* has also its Degrees, according to the Strength of the Sun the Matters are exposed to. The best *Insolation*, in *England*, is that made at the latter End of *June*, or in *July*; because then the Sun has more Strength than at any other Time. The *Heat of a Dunghil* has likewise its Degrees, according to the Bigness of the same, and its Situation; for a large *Dunghil* will give more Heat than a small one; and if that *Dunghil* be in a Stable, or any other warm Place, and cover'd, it will be hotter, and produce a greater Effect, for Digestions and Distillations, than another *Dunghil* of the same Bigness exposed to the Air. The *Heat of Quick-lime* has also its Degrees, and according as we want it stronger or weaker, it must be exposed, in Powder, to the Air, a shorter or longer Time, to weaken it, before 'tis used; or else 'tis employ'd quite quick, when we want its whole Heat.

We must know, likewise, the different Lutes we are to use to close the Apertures and Junctures of Vessels in Distillation, *&c.* Under Lute is comprehended any Sort of Cement, or Plaister, used either in the Construction of Furnaces, or in fitting to them Vessels of Glass, or Earth, which are to resist a violent Fire.

LUTES are made of Flour and Water; others of Quick-lime and Whites of Eggs; others of Iron-filings, Brick-dust, and Linseed-oil; others of Potter's Earth, River Sand, Horses Dung, Powder of broken Pots, *Caput mortuum* of Vitriol, Dross of Iron, beaten Glass, and Flocks of Wool mix'd with salt Water, or Bullock's Blood. The *Lute* used by *Lemery* was only two Parts of Sand, and one of Clay, temper'd together in Water; which does very well for joining the Noses of Retorts, and their Recipients, or Receivers, in distilling of volatile Spirits, *&c.* In distilling by the Alembick, or *Vessica*, or Copper Body, with its Head, or *Serpentine*, a wet Bladder serves very well to *lute* the Junctures of the Vessels; but for the Distillation of corrosive Spirits, as also to stop the Cracks of Glasses, *&c.* the following Composition is recommended, *viz.* Starch boil'd, or Fish-Glue dissolv'd in Spirit of Wine, with Flowers of Sulphur, Mastick, and Lime slack'd in Milk.

Having thus so far inform'd ourselves of what we are to do in our Laboratory, 'tis Time we should provide ourselves with all the different Vessels, and other Utensils, necessary for all our different Operations; such as *Alembicks*, *Cornues*, *Retorts*, *Pelicans*, *Recipients*, or *Receivers*, *Matrasses*, *Crucibles*, *Moulds* of several Sorts, *Lingotierres*, *Bells*, *Mortars*, and *Funnels* of Glass, *&c.*

ALEMBICK, from the *Arabick* Particle *al*, and the *Greek* αμβιξ, is a *chymical* Vessel consisting of a Matrass, fitted with a roundish Head, terminating in a sloping Tube, for the condensed Vapours to pass thro' in the Distillation. *Alembick* is properly understood of the whole Instrument of Distillation, with all its *Apparatus*; but in the proper Sense of the Word it's only a Part thereof, *viz.* a Vessel, usually of Copper, whereto a concave, globular, metalline Head is closely luted, so as to stop the rising Vapours, and direct them into its *Rostrum*, or Beak. The Heat of the Fire raising the volatile Parts of the Subject exposed in the Bottom of the Vessel, they are receiv'd into its Head, where they are condensed, either by the Coldness of the ambient Air, or by Water externally apply'd; and becomes a Liquor, which runs out at the Beak into another Vessel, call'd the *Recipient*. The Head, or Capital, of the *Alembick*, is sometimes incompassed with a Vessel full of cold Water, by way of a Refrigeratory; tho' this Intention is now more commonly answer'd by a *Serpentine*.

There are divers Kinds of *Alembicks*; an *open Alembick*, where the Head and Cucurbite are two separate Parts; a *blind Alembick*, or blind Head, where the Capital is seal'd hermetically upon the *Cucurbite*, which *Cucurbite* is an earthen or glass Vessel, of the Figure of a Gourd, or a Pear, wherein are put the Matters to be distill'd. It is also, sometimes, made of Tin, and sometimes of Brass tinn'd.

RETORT, is a kind of crooked Matrass, or a round-belly'd Vessel, either of Earth, or Glass, with a slender crooked Beak, or Nose, to which the *Recipient* is to be fasten'd. When the *Retort* is of Glass, it is usually lin'd with a Lute of Paste an Inch thick, to enable it to bear the Fire the better. The *Retort* serves to draw Spirits and Oils from Woods, Gums, Minerals, Earths, and other Matters which require a strong Fire.

The *Retort* is a kind of *Compendium*, or Improvement of the *Cucurbite* and *Bolthead*, answering all the Purposes of both, without the Assistance of a Capital, or Head, which the other frequently requires.

PELLICAN, is a kind of double Vessel, ordinarily of Glass, used in distilling Liquors by *Circulation*.

SERPENTINE, or *Worm*, is a Pipe of Copper, or Pewter, twisted into a Spiral, and ascending from the Bottom of the Alembick to the Capital, and serving as a Refrigeratory in the Distillation of Liquors.

RECIPIENT, or *Receiver*, is an Appendage of an Alembick, Retort, *&c.* being a Vessel luted to the Beak thereof, to receive the Liquor raised in Distillation, *&c.*

MATRASS, is a glass Vessel used in Distillation, and other Operations. The *Matrass* is made in Form of a Bottle, somewhat belly'd in the Middle, with a long narrow Neck. It is luted with Earth, when it is to be placed on a very hot Fire; when it is requir'd it should be stopp'd very close, we seal it hermetically.

CRUCIBLE, from the *French Creuset*, which signifies the same, is a little Vessel, ordinarily of Earth, sometimes Iron, without any Handle; wherein *Chymists*, Coiners, Goldsmiths, Glaziers, and other Artificers use to melt and calcine Gold, Silver, or other Metals, whereon they work. Earthen *Crucibles* are made of Potters Clay, with stone Potsherds pounded and sifted. They are of various Sizes, but generally of the same Form, which resembles that of an inverted Cone, or Pyramid. Iron *Crucibles* are in Form of little Buckets, without Handles, made of Iron well forg'd and hammer'd. The best, and strongest earthen *Crucibles*, are those made in *Germany*.

COPPEL, *Copel*, or *Coupelle*, is a Vessel used to try, and purify Metals. The *Coppel of May*, is a little flat Vessel, made of Vine Ashes, and Bones of Sheep's Feet calcin'd, and lixiviated, to separate the Salts, which would otherwise make it crackle. At the Bottom of the Vessel is a little Cavity fill'd with a kind of white Varnish, composed of Hartshorn, or Pike-bones, calcin'd, and diluted in Water. The Use of this Liquor is, that the Gold or Silver to be essay'd may be more conveniently lodg'd, and that the Button of the Essay may be separated the more easily.

LINGOTIERRE, or *Ingotierre*, is a Mould, or Cavity, wherein we cast our melted Metals, or *Regulus* of Antimony.

Our next Care is, to have our Laboratory stocked with all Sorts of Furnaces, proper to hold the Vessels abovemention'd, and to make our Operations with Ease. But, previously to it, we must know, that a Furnace, in *Chymistry*, is a Receptacle, either of Brick, Iron, or Stone, wherein the Fire necessary for the several Operations is contain'd, determin'd, and directed.

The FURNACE consists of several Parts; as a Place for the Vessel, or Body to be wrought on; a Hearth, or

or Hole for the Ashes; a Chimney; a Grate; a Door; a Dome; and a Fan, or else Registers, whereby to let in Air, to increase, and abate the Fire. The Perfection of a *Furnace*, consists in its maintaining a constant, equable Fire, and this easily temper'd, and at an easy Expence. To have the Expence easy, the whole Action of the Fuel must be employ'd on the Subject that is to undergo the Operation. It must be equable, since different Degrees of Fire have different Effects; so that if any given Degree would answer any given Intention, an Alteration of that Degree will prevent the Intention from taking Place: And on these Circumstances does all the Variety of *Furnaces* depend.

Furnaces are either fix'd, and immoveable, or portative, call'd also *catholick Furnaces*, or *universal*; as being proper for all Operations where the Body to be operated on is not too large.

The first Species of fix'd, or immoveable *Furnaces*, most in Use among us *Chymists*, is that call'd *Reverberatory Furnace*. It must be spacious enough to contain a great Retort, for the Distillation of acid Spirits, and several other Operations. It must be composed of Bricks join'd with a *Lute* made with one Part of Earth, as much of Horse-Dung, and two Parts of Sand, the whole diluted in Water. The Bricks ought to be raised in double Rows, that the *Furnace* being very thick, may retain the Heat longer. The Hole for the Ashes, or *Cendrier*, must be a Foot high, and the Door turn'd, if possible, on that Side the Air comes, that by opening it the Fire may be lighted, and increased. The Hearth ought not to be justly so high; two Iron Bars, of an Inch thick, must be placed upon it, which will serve to sustain the Retort; after which, the *Furnace* must be raised again, a Foot higher, that the Retort may be hid in it. A *Dome* must be adapted over it, with a Hole in the Middle, with its Cork, and a little Chimney, of a Foot high, to place over that Hole when it is uncork'd, and when it is wanted to excite a great Heat; for the Flame being kept up by means of that Chimney, it reverberates more of it on the Retort. The *Dome* must be composed of the same Paste we'll describe when we speak of the *portable Furnaces*.

Several *Furnaces*, of this Fabrick, will be wanted in our *Laboratory*, but they must be all made of a different Capacity, that we may work commodiously, according to the Bigness of the Vessel we are to place in it: For in order that the Fire should act powerfully on a Retort, there should be but a Finger's Breadth all round between the *Retort* and the *Furnace*. These *Furnaces* may serve, also, to distil through the Refrigeratory, for the *Balneum mariæ*, *vaporous Bath*, *Sand Heat*, &c. because the Alembick of Copper can be placed on the Bars, when we want to distil through the Refrigeratory. For the Sand Heat, the Sand must be put in an earthen, or iron Dish, which is likewise to be placed on the Bars.

There can be, likewise, a *Furnace* made to contain several Retorts, which are to be heated with the same Fire. This *Furnace* must be composed like those abovemention'd, but it must be large enough for the Retorts to be placed commodiously in it; and the Fire which is to be introduc'd through a single Door into the Hearth, may act on all the Vessels. If this *Furnace* is to contain six Retorts, it must be built in Length, and the Door placed at one End. In these great *Furnaces* there's no Need of a Grate, nor a Hole for the Ashes; because there is a great deal of Wood used, which burns sufficiently to heat the Retorts placed in it, provided that at the other End, opposite to the Door, there be a Hole left in the *Dome*, to give some Air to the Fire, and for the Evacuation of the Smoak. A *Furnace* without a Grate consumes a great deal less Wood and Coals than that with a Grate. The Hearth must be pretty spacious, and Iron Bars must be placed over it, to support the Retorts on all Sides. If the *Furnace* be with twelve Retorts, there must be six Iron Bars placed cross-wise; if only with six Retorts, there ought to be but three Iron Bars. The Aperture, or Entrance of the Hearth, must be shut with an Iron Door made on purpose, in order to direct the Fire as we want it, by opening and shutting the Door.

For the *Fusions*, there must be built a *Furnace* exactly like those abovemention'd, except that there is no Need of the two Iron Bars plac'd in the others to support the Vessels.

The PORTABLE, or *Portative Furnaces*, are to be compos'd of a Paste made of three Parts of broken earthen Ware, reduc'd into Powder, and two Parts of Loam, the whole diluted in Water: Their Construction must be like that of the *Reverberatory Furnaces*. Holes might even be made in them to run some Iron Bars through, to support the Retort; which Bars can easily be drawn out, when the *Furnace* is design'd to be us'd to put some Matter into Fusion.

It is likewise very proper we should have a *Portative Furnace* for Fusions, made of the same Matter with the others. It must be round, and plac'd on a Tripode, with a single Grate at the Bottom, and six Registers on the Sides, to give more Air to the Fire. A Dome, made of the same Matter, is to be plac'd atop, and a small Chimney of Earth, to place over the Hole of the Dome, to keep longer the Violence of the Fire.

There must be always some Sand, or broken earthen Ware, mix'd with the Paste us'd in the Construction of *Furnaces* either fix'd, or portative, for Fear of *Crevesses* when they dry; for those Matters render the Loam more porous.

A small *Iron Furnace*, with its Iron Pot, and a Lid of the same Metal, is very commodious for several Operations; for it may serve for the *Balneum mariæ*, or the *vaporous Bath*, in case we have no other. It may also be employ'd in a Distillation thro' an Alembick, at a Sand Heat, or of Ashes, or Filings of Iron.

We must also provide ourselves with a large *Iron Furnace*, on which we'll place a *Balneum mariæ* of Copper, to distil with four Retorts at the same Time. There will be in the Middle of this *Balneum mariæ* a Tube, the Top whereof must be made like a Funnel, to pour down hot Water. To reimplace that which is evaporated,

An *Iron Furnace*, with three Feet, is very necessary to heat or boil several Things. It must be garnish'd with a *Lute*, and Pieces of Brick, to keep the Fire longer in it.

'Tis also very proper to have a *small Furnace* made of Tin, which may serve in some Operations to be made with Lamp Fire. This *Furnace* must be round, of very near two Feet high, and a Foot Diameter. It must be compos'd of an Hearth, where the lighted Lamp is to be plac'd; the Hearth Half a Foot high. There ought to be round it, and by Intervals, five or six Holes, which will give Air to the Oil of the Lamp, that it may continue burning. This *Furnace* must support a Bason, of a little above Half a Foot high, and flat at Bottom. This Bason will serve as a *Capsula*, to contain the Sand, and the Vessel with the Matter in it. It must be cover'd with a Dome of the same Metal, of about a Foot and a Half high. The Lamp must have three Holes, thro' which three Cotton Wicks, imbib'd with, and entertain'd by the Oil of the Lamp, are to come out. This Lamp ought to be long enough to be taken off the Hearth, from Time to Time, to light the Wicks in case they are out, and to snuff them when there is any Mushrooms upon them, which only serve to damp the Flame, and intercept the Heat.

With all these necessary Cares, Expences, and Precautions, with the small Share of Knowledge we have acquir'd in *Chymistry*, methinks we are pretty well fitted out for an *Alchymist*; but, however, we want something else, still; for I am not of that select Sect compos'd of those extraordinary Men, who by the marvellous Secrets of their *Hermetick Art*, pretend that their Alembicks or Crucibles are a *Cornu-Copia*, by means whereof they pretend to extract an *Aurum potabile*, or *Elixir vitæ*, from nothing; we confess, ingenuously,

nuously, that we are not yet arriv'd to that Degree of Perfection in the *Hermetical Art*, and hope never will. For if we think ourselves capable to extract Spirits, Oils, Salts, *&c.* we will have Substances to extract them from, and some real Subjects to work upon, and not Smoak; for in our *Laboratory* we do not design to feed on Smoak, tho' it would be of very great Service at this present Time.

To find those Subjects, we shall be oblig'd to overrun three Kingdoms, not all at once, but one after another, *viz.* the *Mineral Kingdom*, the *Vegetable Kingdom*, and the *Animal Kingdom*; and to see those three Kingdoms, and have what each of them can furnish me with, for my intended Purpose; I need go no further than my *Laboratory*, where, by this Time, must have been brought, by my Orders, Minerals, Vegetables, Animals, and all Subjects for our Operations.

I'll pay my first Visit to the *Mineral Kingdom*, beginning, by informing my Pupils, that MINERAL is any Body, simple or compound, dug out of a subterraneous Place, or Mine, from which it takes the Denomination.

Some attribute the Formation of *Minerals* to the Action of the Sun without; some to the central Fire within; and some think the Cold does all, by uniting, condensing, and congealing certain Juices of the Earth.

Des Cartes takes *Minerals* to have been form'd from the Beginning of the World, and to have rang'd themselves, by the Laws of Gravity, above the Centre. In Process of Time, he supposes these to have been corroded by the acid Salts, *&c.* and abundance of the Parts thereof carry'd up along with those Salts by the subterranean Heat, and deposited in divers Parts of the Earth.

Tournefort supposes Seeds of *Minerals*, as of Animals and Vegetables; every Thing, according to him, comes from Eggs, even Stones; and the largest Rocks were originally no more than Grains of Sand.

L'Emery says, that all that's found petrify'd in the Earth, or upon the Earth, is call'd *Mineral*; that this Petrification is made by the Coagulation of the acid, or salt Waters, found in the Pores of the Earth; that this Petrification is different, according to the different Dispositions, or different Nature of that same Earth, and according to the Time Nature employs in its Formation. He pretends, likewise, that the Increase of *Minerals* proceeds from the Accumulation, or different Lays of congeal'd Waters agglutinated together; and that these Lays are the Occasion of contiguous Quarries having their *Sinus's* and Veins cross-wise, and not perpendicular. That those *Sinus's*, form'd in their Junctures, are of great Help to Stone-cutters, because by those Places they are easily separated into Tables; whereas it could not be cut if taken otherwise.

For my Part, I am of Opinion, that *Minerals* are form'd of the saline Particles of the Earth exalted by the central Fire within, and usher'd by a Vehicle form'd of a Part of those saline Particles resolv'd into a Sort of Spirit, and the Phlegm of the Earth, into a proper Matrix; where by the same central Heat, together with the powerful Influence of the Sun, they are elaborated, crystalliz'd, or condens'd; which makes me believe, that there is no other Difference between the Principles of *Minerals* and those of Vegetables, than that in the different Position, and Coadunation of their Particles. That Vehicle, after it has unloaded itself of its Burden, remains round the Matrix, to serve as a Refrigeratory during the Operation, otherwise the Condensation, being done with too much Precipitation, by those two powerful Agents, the Sun and the central Heat, would render the whole Composition imperfect, which is more or less so, as the several Agents are more or less regular in their Action, the acid Particles more or less proper to penetrate and hook in the alkaline; and the remote Causes, as the Matrix, ambient Atmosphere, the Refrigeratory, or *Balneum*, more or less ready to assist the immediate ones in their Operations.

Hence the Difference between *Minerals* and Metals, since *Minerals* are nothing but undigested Metals; which Indigestion proceeds either from the vitiated Conformation of the Matrix, or its disadvantageous Situation, in a Climate where the central Heat, and the Sun, can't act in Concert, nor with that Subordination among them, capable to bring the Subject they work upon to its due Perfection; the one being too quick in its Operation, and the other too slow; or that destroying by an excessive Heat, what the other, by a moderate one, has brought to a certain Degree of Perfection; or from the Subject itself, between the Particles thereof, there is not that just Œconomy requisite for a just Separation, and Direction, the mercurial ones being in too great Abundance, and too violently agitated, to be fix'd by the Acids, or those Acids in so great a Quantity, as to be rather capable to corrode and lacerate the Pores they penetrate, than to form of them a regular Mechanism. Or from the ambient Atmosphere, which being too thick and fuliginous, for Want of a due Rarefaction, impregnates the Matter preparing in the Matrix, with a too great Abundance of Phlegm, which obstructs the intimate Union of its Particles. Or by the too great Quantity of Water in the Refrigeratory, which damps the Heat of the two immediate Agents, and thereby hinders the Separation of the coarser Particles from the subtile ones, necessary to form a good Subject; or by its Scarcity, which leaving a too great Scope to those same Agents, makes them produce a Matter, adust, brittle, and of very little, or no Consistence. This is my System of the Formation of *Minerals*, and of the Difference found between them and Metals; and in this Sense, *Minerals* are but imperfect Metals, and Metals *Minerals* brought to their last Degree of Perfection.

There is the same Difference to be met between Metals, as between *Minerals* and Metals; which Difference proceeds, likewise, from the same different Sources. For the harder, more compact, and consequently more perfect Metals are, we may infer, hence, that they have been form'd of a more laudable Matter, in a more fecund, and better configurated Matrix, and well situated; and with a more graduate Heat. For the Separation of all heterogeneous Bodies, which in the Intention of that skilful Artist, Nature, were not to enter into the Composition.

Tho' all the Causes heretofore mention'd concur to render a Metal more or less perfect, the principal one, however, is the Situation of the *Matrix*, more or less advantageous; for from the Difference of that Situation ensues, necessarily, the Proportion of Distance of the two immediate Agents, or of one of them; for it may happen to be well enough situated with Regard to the subterraneous Heat, tho' not so with Regard to the Sun, and contrariwise. For if the subterraneous Heat operates alone on a good Subject, attended, otherwise, by the other necessary Circumstances, to render the Work perfect; that Work, in Fact, is perfect in its Kind, *i. e.* as far as that Heat, assisted therein, by the remote Causes, could carry it, but not of that Perfection design'd by Nature if that Heat had been quicken'd, and assisted in its Operation by the Influence of the Sun, of which it had not been depriv'd, had it been situated in another Climate. Therefore the Metal produc'd in that *Matrix*, is a Metal, 'tis true; but not that perfect Metal intended, which it had been had the Sun concurr'd with the subterraneous Heat, to dispose in a better Order its different Particles, to procure a closer, and more intimate Union among them, and make a more perfect Separation of the few heterogeneous Bodies which obstruct that Union and Separation. Hence that greater Facility found in the Separation of the Principles of imperfect Metals, as Iron, Copper, Lead, and Tin, than of those of perfect ones, such as Silver and Gold.

Another Difference between *Minerals* and Metals, is that Metals are malleable, and *Minerals* are not.

There are seven Metals, *viz.* Gold, Silver, Iron,

Tin, Copper, Lead, and Quickſilver; this laſt is not malleable, but when mixed with the other, but as it is conſidered as the firſt Principle, or Seed of *Metals*, 'tis ranked among them.

Aſtrologers pretend that there is ſo great an Affinity and Correſpondence between theſe ſeven *Metals* and the ſeven Planets, that they all act in Concert; they imagine that this Correſpondence is entertained by Means of an Atmoſphere ſubſiſting between the Planet, and the *Metal*, proceeding by an Emanation of Corpuſcles, or *Effluvia* from both, not different from that which ſubſiſts between Iron and the Magnet, and which acts very near in the ſame Manner; for as the Magnet has no Virtue of Attraction, but with Regard to Iron alone; likewiſe a Planet has no Influence, but on that *Metal* which repreſents it, on Reaſon of the Analogy ſubſiſting between the Configuration of their Pores, excluſively of all other Planets and *Metals*. For Example, the Effluvia of the Sun can find Admiſſion into the Pores of Gold, and reciprocally thoſe of Gold into the Pores of the Sun; but, ſay they, the Effluvia of the Sun cannot introduce themſelves into the Pores of Silver, nor the Corpuſcles of Silver into the Pores of the Sun; and thus of all the other Planets, becauſe of the different Configuration of their reſpective Pores; and becauſe, ſay they again, each *Metal* receives its Nouriſhment by the Influence of its Planet, and that Planet receives moſt carefully what flows from its *Metal*.

For theſe Reaſons, theſe over-wiſe Gentlemen have called the ſeven *Metals* by the Name of the ſeven Planets, which, they pretend, govern them, each in particular; and called Gold *Sun*, Silver *Moon*, Iron *Mars*, Quickſilver *Mercury*, Tin *Jupiter*, Copper *Venus*, and Lead *Saturn*.

They have likewiſe preſented thoſe Planets, with each its particular Day, to ſend their Influences on our Hemiſphere; thus they aſſure, that if an Artiſt works *Monday* on *Silver*, *Tueſday* on Iron, *Wedneſday* on Quickſilver, *&c.* he'll ſucceed a great deal better in what he has to do.

'Tis alſo their Opinion, that each of theſe ſeven Planets influence each principal Part of our Body; and as *Metals* repreſent thoſe Planets, they were proper and ſpecifick to cure thoſe Parts of their Maladies, and to maintain them in their natural Strength; thus they give Gold for the Heart, Silver for the Head, (and in this they are not much miſtaken, for in my Opinion, the Moon has a very great Influence on their Pericranium,) Iron for the Liver, Tin for the Lungs, and for the Matrice, Copper for the Reins, and Lead for the Melt.

Theſe extravagant Sentiments of the Influences of the Planets on *Metals*, &c. are without Foundation, and can be refuted by this ſingle Reflexion, that no Body has ſeen the Planets near enough to know if they be of the Nature of *Metals*, or to perceive any Corpuſcles falling from them on the Earth; beſides how could an Atmoſphere ſubſiſt between the Planet and the *Metal*, without which no ſuch Correſpondence kept between two natural Bodies, as to admit an Emiſſion, and Intromiſſion of *Effluvia*, when that Atmoſphere muſt have been broken (ſuppoſing there was ever one) as well by the rapid Courſe of the Planet, as by the different Changes or Mutations, from the Time it was firſt dug out of the Mine? But, why ſhould we have Recourſe to the Planets, which are at ſo vaſt a Diſtance from us, to explain the Effects produced by Remedies extracted from the *Metals*, while we can find them ſo eaſily in natural Cauſes?

After this ſhort Diſſertation on *Minerals* and *Metals*, and this Examen of their Principles, without which we could not have operated ſafely, and with Hope of Succeſs; we'll begin to work on *Metals*, as the moſt perfect, and among theſe we'll chooſe Gold firſt; ſince it was the firſt *Metal*, and as far as we know, the only one, on which that excellent *Chymiſt*, *Moſes*, operated, by reducing the golden Calf, fabricked by his Brother *Aaron*, (the firſt *Levite* who adored a golden Calf, though he was not the laſt) into Aſhes, which could not be done otherwiſe than by a Diſſolution and Precipitation of that *Metal* into a Powder by Means of Mercury.

Gold obtains the firſt Rank among the ſeven *Metals*, becauſe 'tis more perfect, heavier, and receives, according to Meſſieurs the Aſtrologers, the Influences of the Sun, which is the moſt beautiful of all the Planets: 'Tis alſo called the King of the *Metals*, for the ſame Reaſon. 'Tis a Matter very compact, malleable, uneven in its Parts, ſo that by means of a Microſcope, there are diſcovered in it Pores of different Figures.

Gold is found in ſeveral Mines, as well in *Europe* as in the other Parts of the World; but the greateſt Quantity of that *Metal* is brought to us from *Peru*. 'Tis environed with Water, and with Stones or Marcaſſites, very hard and broke but with great Difficulty to take off the *Gold*. Mercury is alſo employed to ſeparate it from the Mine, for it amalgamates itſelf eaſily with that *Metal*. Several Stones contain Particles of *Gold*, as thoſe called the *Golden Mine*, and the *Lapis Lazuli*. Grains of *Gold* are alſo found in Rivers, eſpecially in *Africa*, becauſe the Waters which paſs through the Mines, have carried it along with them. This is what we call *Gold Duſt*, brought over from *Guinea*.

Glauber tells us that there is a third Sort of *Gold*, ſcarce found any where but in the Drains of the Mountains of *Chili*, which they ſeparate from the Earth by waſhing; whence the Places where it is found or ſeparated are called *Lavadero's*. This Earth is uſually reddiſh, and very fine: At about ſix Foot deep it is mixed with Grains of large Duſt; and from hence commences the Stratum, or Bed of *Gold*: Between are Banks of ſoft blewiſh Stone, mixed with yellow Threads, which yet are not *Gold*, but only Pyrites, or Marcaſſites of *Gold*.

Gold is the moſt ductile and malleable of all *Metals*; our Gold-Beaters and Wire-Drawers furniſh us with Proofs of this Property; they every Day reduce *Gold* into Leaves or *Lamellæ*, inconceivably thin; yet without leaving the leaſt Aperture or Chaſm viſible to the beſt Microſcope, as even pervious to the Light, even by heating it ſeveral Days ſucceſſively, and triturating ſtrongly in a glaſs Mortar with a glaſs Peſtle, and adding to it, by Degrees, a ſmall Quantity of common Water, renders it ſo divided and ſo light, that the common Water will ſupport it and diſſolve it in ſuch a Manner, that it will run with the Water thro' the Pores of a common Filtre. 'Tis true that this Diſſolution will not be very perfect; but if it be kept ſome Years, ſome Particles of *Gold* will be found precipitated at the Bottom of the Veſſel. 'Tis to be obſerved that on the Filtre, through which this gilded Water has paſſed, there will remain a blewiſh Mud, which in all Appearance is a Portion of the *Gold*, the moſt difficult to be attenuated, mixed with ſome of the Glaſs ſeparated from the Mortar in the Trituration.

Under that falſe Suppoſition invented by Aſtrologers, that *Gold* receives the Influences of the Sun in a more particular Manner than the other Metals; and the Sun being conſidered as the Heart of the World, it has been ſuppoſed likewiſe that *Gold* taken inwardly ſtrengthens and rejoices the Heart, and purifies it of all its Impurities; therefore there have been invented ſeveral Operations to open that *Metal*, and to ſeparate its Salts and Sulphurs, which Operation which has been called beforehand *Aurum Potabile*, becauſe this Salt or Sulphur being diſſolved into a Liquor, could be taken like a Julep, and as that *Aurum Potabile* could be thereby diſtributed to all Parts of the Body, 'tis ſuppoſed that it would ſo expel from it all that interrupt Nature in its Functions, as to render the Perſon who ſhould take it free of Maladies, for a long Time, and thereby prolong his Life.

But this Reaſoning is without the leaſt Foundation, becauſe without amuſing ourſelves to refute once again thoſe imaginary Influences which have no other Exiſtance but in the empty Pericranium of Aſtrologers, there is nothing obſerved in *Gold* but a heavy and very hard Matter, the Principles hereof are very intimately united; and what makes us believe it, is, that it can not

not be diſſolved radically, to ſeparate from it Salt nor Sulphur. This *Gold* being reduced into very thin Leaves, operates no Changes in the human Body, when taken inwardly, and is voided in the ſame Nature it was taken, except when there is Mercury in the Body, for then *Gold* amalgamates itſelf with Mercury, and by that Amalgama the Mercury is fixed, and its Motion interrupted, therefore *Gold* is a good Remedy for thoſe who have took too much Mercury.

This general Obſervation I have made, that *Gold* taken alone inwardly operated no Changes in our Bodies, with Regard to our Health, is not a Conſequence that it remains as inactive, when united with ſomething elſe, ſince there are ſeveral very valuable Preparations of *Gold* made with Spirits, becauſe thoſe Spirits give it Determinations according to their Nature, and make it operate; for Example, in the *Aurum Fulminans*, which is *Gold* impregnated with ſome Spirits, which diſperſe its Particles with Violence when put in the Fire; which Operation is made in the following Manner.

Take what Quantity you pleaſe of *Gold* reduced into Filings, put it into a Viol, or Matraſs, pour over it three or four Times its Weight of *Aqua Regalis*, compoſed as we'll mention hereafter; place the Matraſs over a very moderate Sand-Heat, and leave it there 'till the *Aqua Regalis* has diſſolved as much *Gold* as it can contain, which you'll know by the Ebullitions being over; pour by Inclination the Liquor into a Glaſs; and if any of the *Gold* be left in the Matraſs, have it diſſolved, as before, with ſome *Aqua Regalis*. You muſt mix your Diſſolutions, and afterwards pour over the Mixture ſlowly, ſome volatile Spirit of Sal-Armoniack, or Oil of Tartar *per Deliquium*; there will happen an Effervescence with Heat, and you'll ſee the *Gold* precipitated at the Bottom of the Glaſs in a yellow Powder. Leave it to ſettle a long while, to loſe none of the *Gold*, pour over it as much common Water; then having poured by Inclination all the Liquor, you'll waſh your Powder with warm Water 'till 'tis grown inſipid; after which it muſt be dried on a Paper, at a very ſlow Heat, becauſe Fire catches it eaſily, and the Powder flies off with much Noiſe. If you have employed a Drachm of *Gold*, you'll extract four Scruples of *Gold Fulminans*, very dry; ſome call it *Chalk of Gold*.

This Preparation of *Gold* is preſcribed to provoke Sweat, and expel the malignant Humours by Perſpiration; 'tis adminiſtered in the Small Pox, from two to ſix Grains, in Lozenges, or in an Electuary. It ſtops Vomiting, and is likewiſe very proper to moderate the too violent Action of Mercury.

Note, That if in this Operation we uſe Filings of *Gold*, 'tis for no other Reaſon than to render the Diſſolution leſs difficult. The Effervescences which happens, proceeds from the violent Separation of the *golden* Particles, made by the *Aqua Regalis*, which Effervescence ceaſes when the *Aqua Regalis* has diſſolved all the *Gold* it could; and though the *Gold* be in the *Aqua Regalis*, 'tis ſo imperceptible, that there ſcarcely appears any Change in the Water, being as clear and tranſparent as before, with this ſingle Difference, that 'tis turned Yellow. This Diſſolution of *Gold* is a Suſpenſion made of its Particles, by the Points of the *Aqua Regalis*. Oil of Tartar, or Spirit of Sal-Armoniack, is uſed to cauſe the Precipitation of the *Gold*, becauſe both thoſe Liquors contain an alkaly Salt, which being mixed with Acids muſt ferment; and in this Fermentation the Points of the *Aqua Regalis*, which kept the *golden* Particles ſuſpended, being weakened, and thereby rendered incapable to keep up any longer thoſe *golden* Particles, muſt be carried by their own Weight to the Bottom of the Veſſel. We ought not to be ſurpriſed at the volatile Spirit of Sal-Armoniack weakening the *Aqua Regalis*, which is compoſed with Sal-Armoniack, ſince the Strength of the *Aqua Regalis* does not conſiſt in the Volatility of the Sal-Armoniack, but in that of the Sea-Salt, which is in it in a good Quantity, mix'd with *Aqua fortis*. If we be aſk'd why the Diſſolvents forſake the Bodies, they had diſſolv'd, to unite themſelves to another; why, for Example, the *Aqua Regalis* forſakes the Gold it had fill'd itſelf with, to be reimplac'd by the Alkali? I'll anſwer, that *Gold* being a very hard Matter, as we have already obſerved, the Points of the *Aqua Regalis* could not penetrate it but ſuperficially, tho' deeply enough, however, for each Point to ſupport each *golden* Particle it has penetrated, and no more; which appears, by ſome of the *Gold* being often left at the Bottom of the Veſſel, after all the acid Particles have charg'd themſelves with each its Weight of *Gold*; that thoſe Parts being thus over-loaded, and, in ſome Meaſure, in a violent State, are eaſily broken by the new Fermentation cauſed by mixing an Alkali with it; and by quitting their Hold, the *golden* Particles, with the ſharpeſt Part of thoſe Points left in their Pores, following their natural Propenſity downwards, are precipitated to the Bottom of the Veſſel. The acid Points thus blunted, remain for ever afterwards incapable of producing the ſame Effect. That Part of thoſe Points are left in the *golden* Particles, appears, at the Fulmination of the *Gold*, which, without theſe Points lodg'd in it, could never produce that Effect. The ſudorifick Virtue of the *Aurum fulminans* proceeds from its being volatiliz'd by the Heat of the Body, and thereby expell'd through its Pores. If thoſe Pores be dilated in ſuch a Manner that the *golden* Particles may paſs thro' them, without Difficulty, they only procure an inſenſible Perſpiration; but if they meet with ſome Obſtruction in their Paſſage, as when the Pores are ſtopp'd with Cold, they are ſudorifick. *Aurum fulminans* is alſo a very good Remedy for thoſe who have taken too great a Quantity of Mercury; becauſe being volatiliz'd by the Heat of the Bodies, it penetrates all its Parts, where it amalgamates, with all the Mercury it can meet with, and uſhers it out of the Body, through the Pores, by its ſudorifick Quality. This is the only Preparation of *Gold* of any Uſe in Medicine; therefore omitting all others as needleſs, we'll proceed to our Operations on *Silver*.

SILVER, the ſecond in Dignity among *Metals*, is the fineſt, pureſt, moſt ductile, and moſt precious of them, except Gold. 'Tis call'd *Moon*, becauſe of its Colour, and the Influences which Aſtrologers imagine it receives from the Moon.

Silver is ſeldom found alone in the Mine, but ordinarily mix'd with Copper, or Lead, or even with Gold. That naturally mix'd with Lead, is in a black Stone; but that mix'd with Copper is ordinarily environ'd with a white Stone, very hard, and in Form of Cryſtal. There are, however, ſome Pieces of pure *Silver* found in the Mines, and ſome of them ſo hard, that it can't be melted unleſs it be mix'd with a great deal of other *Silver*.

Silver can be adminiſter'd like Gold, in Maladies caus'd by having taken a too great Quantity of Mercury; for it amalgamates very well with it, and hinders its Motion; but what's romanced by Aſtrologers of its Properties for the Maladies of the Head, is without Foundation.

As the Purification of *Silver*, as well as of Gold, belongs more properly to Refiners, than to Alchymiſts, and that I have deferr'd mentioning that of Gold till I come to the Article *Refining*; I would do the ſame of *Silver*, if there was not ſomething in the Purification which has ſome medicinal Qualities: Therefore Gold is purify'd thro' the Coppel in the following Manner:

We'll take a Coppel made of Aſhes of Bones, or Horns, which we'll cover, and heat by Degrees, between Coals, till it be red-hot; which done, we'll put in it four or five Times as much Lead, when we have *Silver* to purify: We'll leave the Lead to melt, till it has fill'd up the Pores of the Coppel, which is ſoon done;

done; then we'll throw our *Silver* in the Middle, and it will melt presently; after which, we'll place Wood round the Coppel, and blow, to make the Flame reverberate over the Matter: The Impurities will mix with the Lead, and the *Silver* be left pure in the Middle of the Coppel. The Lead being full of these *Scoria* of *Silver*, will remain on the Sides of the Coppel; it may be taken off with a Spoon, and left to cool; 'tis what's call'd *Litharge*; which acquires various Colours, according to its Degree of Calcination; for it is sometimes call'd *Litharge of Gold*, and sometimes *Litharge of Silver*. If it be left in the Coppel, it passes thro' the Pores. The Fire must be continu'd till no more Smoak arises from the Coppel.

This Preparation separates *Silver* from all other Metals, except Gold, which resists the Copple; therefore these two Metals, by means of *Aqua fortis*, which is a very good Dissolvent for *Silver*, being thus dissolv'd, the Dissolution must be pour'd, by Inclination, into an earthen Vessel, in which has been plac'd before a Plate of Copper, and eighteen or twenty Times as much common Water, which is to be left to settle for several Hours; and when the Copper is perceiv'd to be cover'd with Powder of *Silver*, and the Water is chang'd blue, it must be filtrated; 'tis what's call'd *second Water*. This Water is proper to scarify Shankers, and corrode fungous Flesh. The *Silver* Powder must be dry'd, and can be reduc'd into an *Ingot*, by having it melted in a Crucible with some Saltpetre.

From this we'll pass to our *chymical* Preparations of *Silver*, beginning with that call'd *Crystals of Silver*, or *Vitriol of the Moon*.

This Operation is a *Silver* penetrated and reduc'd in Form of Salt, by the acid Points of Spirits of Nitre; which to perform, we cause two Ounces of *Silver* of Coppel to be dissolv'd in two or three Times as much Spirit of Nitre, pouring this Dissolution into a small Cucurbite of Glass, and causing a fourth Part of the Humidity to be evaporated at a very slow Sand Heat; and what remains being left to cool without moving it, Crystals will be form'd upon it, which must be separated from the Humidity; and having been dry'd, they are to be kept in a Vial very well cork'd. Then we'll have Half of the Liquor remaining evaporated, and crystalliz'd, as before; which Evaporations and Crystallizations must be reiterated, till all the *Silver* be extracted in Crystals.

These Crystals are used outwardly for Causticks, and administered inwardly, from one Grain to three, for the Dropsy, in some Waters appropriated to the Distemper. It purges the Serosities of the Abdomen.

Note, That for this Operation the *Silver* must be put in a pretty large Vial, or Matrass, and as much Spirit of Nitre pour'd upon it as is sufficient to dissolve the *Silver*, which is twice the Weight of the *Silver*, if the Spirit of Nitre be rectify'd; and three Times its Weight, if it be not rectify'd. The Vessel must be put to a very small Sand Heat, to hasten the Dissolution. When the Acids begin to penetrate the Body of the *Silver*, there happens an Ebullition, accompanied with a very considerable Heat; because those Points force with Violence the Obstacles which obstruct their Passage; which violent Motion causes the Heat and Ebullition, and rarefying the Spirit of Nitre, rises through the Neck of the Vessel a red Smoak, which must be avoided as being very offensive to the Breath. The Ebullition and Smoak last till the *Silver* is perfectly dissolv'd, after which, the Liquor grows clear and transparent, but of a blueish Colour; which Colour proceeds from the small Quantity of Copper always to be found in *Silver*; for if there was none, the Liquor would have no other Colour than that of Spirit of Nitre. It must be observ'd, that in all Crystallizations there ought not to be too much Humidity left, for Fear the Salts, being too much weakened, should not coagulate; nor too little, for then the Crystals, being confin'd within a too narrow Space, would fall confusedly one over another. The Crystals of *Silver* are dissoluble in Water, like Salt; their Strength depends on the Spirits of Nitre incorporated with them, which is the Cause of their being heavier than the *Silver* employed to make them. These Spirits penetrate, and lacerate the Flesh, on which those Crystals are apply'd, and excite the Fermentation of the Humours, when taken inwardly; whence it happens, that they purge by Stool. This purgative Quality of the Crystals of the *Moon*, proceeds from the Disposition of their Parts, and not from the Matters they are compos'd of; for *Silver* swallowed alone, produces no Effect in the Body, and is voided such as it was when taken; the Spirit of Nitre taken alone in Water, is aperitive, but does not purge by Stool.

Another *chymical* Preparation of *Silver*, is, the *Lapis infernalis*, or the perpetual Caustick, which is *Silver* rendered caustick by the Salts of Spirit of Nitre, in the following Manner:

We'll take as much as we please of refined *Silver*, which we'll put to be dissolv'd in a Vial, with twice or three Times as much of Spirit of Nitre; and put afterwards our Vial, thus fill'd, to a Sand-Heat, to have two Thirds of the Humidity evaporated, throwing what remains into a good *German* Crucible, and a pretty big one, because of the Ebullitions which will happen. This Crucible must be put to a small Fire, and left there till the Matter being much rarefied, falls down to the Bottom of the Crucible; then the Fire must be increased, and the Matter will become like Oil; at which Time it must be throw'd into a *Lingotiere*, or Mould, where it will coagulate. This *Lapis infernalis* is to be kept in a Vial well cork'd, and will be a perpetual Caustick, provided it is not left expos'd to the Air. If we have employ'd an Ounce of *Silver*, we shall have an Ounce and five Drachms of *Lapis infernalis*.

Note, That the caustick Virtue of the *Lapis infernalis* proceeds likewise from the corrosive Salts of the Nitre left in the *Silver*; and that if it be a greater Caustick than the Crystals of the same Metals, and made with the same Spirit, 'tis because the most acrimonious Part of that Spirit is that left after the Evaporation, and which the *Lapis infernalis* is made of; whereas in the Crystals the Spirit is weaker, because 'tis full of watery Particles. The Dissolution of *Silver* must be boil'd at a moderate Fire, because the Matter rarefies easily, and runs over the Crucible. We'll often look into the Crucible, especially towards the End of the Evaporation, so that as soon as the Matter has done boiling, we may throw it into the Mould; for if it was left longer on the Fire, the strongest Spirits would evaporate, and the Stone become less corrosive.

Our next Operation on *Silver*, is *Tinctura Lunæ*, or the Tincture of *Silver*, which is a Dissolution of the most rarefy'd Particles of *Silver*, in Spirits of Wine sharpen'd with a salt Alkali, in this Manner: We'll cause two Ounces of *Silver* to be dissolv'd in a Matrass, or a very slow Sand Heat, with four Ounces of Spirit of Nitre: We'll pour the Dissolution into a Cucurbite, or other Vessel of Glass, where we'll have before put a Pint of salt Water very well filtrated. The *Silver* will soon precipitate to the Bottom of the Vessel in a white Powder, which must be left to settle; after which, the Water is to be pour'd out by Inclination, and the Powder wash'd several Times with Spring-water, to take off the Acrimony of the Salts; and having been dry'd on Paper, put into a Matrass, pouring over it an Ounce of volatile Salt of Urine, and 24 Ounces of Spirit of Wine rectify'd on Tartar. This Matrass must be stopp'd with another, *i. e.* that the Mouth of the Matrass a-top must enter into the Neck of that which contains the Matter; and this is

what

what we call a *circulatory Vessel.* The Vessels must be well luted with a wet Bladder, and put in Digestion in a Dunghil, or some other such Heat, for the Space of 15 Days, during which Time, the Spirit of Wine will have taken a Sky Colour, when the Matrasses must be unluted, and the Liquor filtrated through a grey Paper, to be kept in a Vial very well cork'd.

This Tincture may be us'd for the Epilepsy, Palsy, Apoplexy, and all other Distempers of the Brain; 'tis also prescrib'd in malignant Fevers, and all other Maladies where it is necessary to expel the Humours by Perspiration. The Dose is from six to sixteen Drops, in a proper Liquor. The *Silver* Chalk left at the Bottom of the Vessel, can be revivify'd by means of the following Salts:

Take eight Ounces of Nitre, two Ounces of Crystal reduc'd into Powder, as much Tartar, and Half an Ounce of Charcoal; make of the whole a Powder, which you must put softly into a Crucible, made red-hot in the Fire: There will happen a great Detonation, which being over, you'll find your Matter melted, which you must pour into a heated Mortar, and leave it to cool: You'll have a Mass, which you must reduce into Powder, and mix an equal Weight of it with the *Silver* Chalk: Have this Mixture melted in a Crucible, the Chalk will return into *Silver:* Take your Crucible off the Fire, and break it, when cold, and then separate the *Silver* from the Salts.

Note, That this Operation seems to favour the Opinion of those who pretend that it is possible to separate the Principles of *Silver*; for they imagine, that this blueish Colour discover'd after the *Silver* has been a long Time in Digestion, in the volatile Salt of Urine, and the Spirit of Wine alkaliz'd, is nothing else but the Sulphur of *Silver* separated thro' Means of that sulphurous Liquor, and mix'd with it, as we see those Sorts of *Menstruums* dissolve ordinarily the Sulphur of Vegetables, Animals, and Minerals, and leaving the terrestrial and saline Particles entire. But if we examine very narrowly this Tincture, we shall find, that those Gentlemen are mistaken, and that it is nothing else but a Dissolution of *Silver* and Copper, which has been volatiliz'd by the Salt of Urine, and afterwards mix'd with the Spirit of Wine. It must be observ'd, besides, that this Tincture is rather a Tincture of Copper, than of *Silver*, since that blue Colour proceeds from the Copper allied with the *Silver*, and not from the *Silver*; because the better refin'd is the *Silver* employ'd in this Operation, there will be no blue Tincture at all; and the less refin'd, the higher is the Colour. The Effects of this Tincture for the Maladies abovemention'd, are rather to be attributed to the Salt of Urine, and the Spirit of Wine, than to the *Silver*; since these Volatiles alone not only disengage the Brain, by helping the Circulation; but they being likewise excited by the Heat, open the Pores, and expel, by Perspiration, the foreign Humours.

Our last Operation on *Silver*, which is of no Use in Medicine, but serves only to flatter our Curiosity, will be the Formation of *Diana's*, or the *Philosophical Tree*; which we'll do in the following Manner: We'll take an Ounce of *Silver*, which we'll have dissolv'd in two or three Ounces of Spirit of Nitre; this Dissolution is to be put to evaporate at a Sand Heat, till the Consumption of very near Half the Humidity; what's left must be pour'd into a Matrass, upon 20 Ounces of very clear common Water; we'll add to it two Ounces of Quicksilver, and leave the Matrass in a cool Place, without moving it for the Space of 40 Days: During that Time, we shall perceive a Tree forming itself, with Branches, and small Balls at the Ends, representing the Fruits.

Note, That these Figures of Branches proceed from the Spirits of Nitre, which being incorporated with the *Silver* and the Mercury, take different Figures, according as they find Humidity to extend themselves: For if it was put but in 10 or 12 Ounces of Water, there would be form'd but a kind of confus'd Crystals; on the contrary, if there was more Water, there would appear nothing but a small Quantity of precipitated Powder. The Mixture must be left 40 Days at Rest, because the Spirit of Nitre being weaken'd by the common Water, works very slowly; and if the Matter was mov'd, the Figure began, would break, and the whole be put into Confusion. If afterwards we want to separate the *Silver* and the Mercury, we must shake the whole Mixture, and having pour'd it into an earthen Dish, we'll make it boil for the Space of Half a Quarter of an Hour; then we'll leave it to cool, till it be a little more than Milk-warm; when we'll pour into it, softly, a Pint of Water, in which must have been dissolv'd two Ounces of Sea Salt; this will make a white Precipitate, which is to be dry'd after the Water has been pour'd out by Inclination. This Precipitate, thus dry'd, is to be put into a Retort plac'd on a Sand Heat, which is to be very slow at first, then increas'd by Degrees, till the Retort becomes red-hot, when the Quicksilver will be distill'd into the Recipient full of Water, which we must have adapted to the Retort. The Fire is to be continu'd till it has done distilling, and the Vessels be left to cool; afterwards, the Water is to be pour'd out of the Recipient, and the Mercury having been wash'd in it, must be dry'd with a Linnen Cloth, or Crumb of Bread, to be kept for Use. The *Silver* will be found in the Retort, and can be reduc'd into an Ingot, by melting it in a Crucible with some Saltpetre.

The next Metal we are to operate upon, as the next in Order, or Dignity, is TIN, which is a whitish Metal, very near Silver in Colour, but very different from it in the Figure of its Pores, Solidity, and Weight.

The principal Characters and Properties of *Tin*, enumerated by *Boerhaave*, are, that it is the lightest of all Metals, very little ductile, or elastick; the most fusible and volatile of all Metals; scarce dissoluble by Acids, unless the weaker Sorts; and easily and intimately miscible with other Metals, the Ductility whereof becomes diminish'd by such Mixture. The same Author concludes, that Sulphur is a prevailing Ingredient in *Tin*, and deduces several of its particular Properties therefrom; he adds, that could the Metal be perfectly purg'd of this heterogeneous Sulphur, it is probable it would be found no other than Silver.

Several Authors had before noted a great Conformity, in divers Particulars, between the two Metals; as that both grow bitter when dissolv'd by Acids; that when fus'd together, there is scarce any separating them again, not even by Lead. Add, that Mr. *Boyle*, and others, give us several Instances of Silver being actually produc'd in a considerable Quantity from *Tin* Ore.

Tin can't be entirely dissolv'd by *Aqua fortis*, as some have pretended, because of the divers Particles 'tis compos'd of, and of the different Figures of its Pores. *Tin* is thought a Specifick against the Maladies of the Liver, and of the Matrix. The best *Tin* comes from *Cornwall*, a Province of the Kingdom of *England*, and is to be preferr'd to all others for *chymical* Preparations. The principal of those Preparations are eight in Number, *viz.* Pulverization of *Tin*, Calcination of *Tin*, Salt of *Jupiter*, or of *Tin*, Sublimation of *Tin*, *Magisterium* of *Jupiter*, or of *Tin*, Flowers of *Jupiter*, or of *Tin*, Liquor, or Oil of *Tin*, Antihectick of *Poterius*, or Diaphoretick of *Tin*.

We'll begin these Operations on *Tin* by the first, *viz.* the *Pulverization of Tin*, which, considering that it is not malleable, can't be reduc'd into Powder by ordinary Means; therefore following another Method in this Operation, we'll have what Quantity we please of *Tin* melted in a Crucible, and thrown afterwards into

into a round wooden Box, which muſt have been rubbed all over, within and without, with ſome Chalk; we'll cover the Box, and ſhake it continually 'till our *Tin* be grown cold, which will be found in the Box, in grey Powder. *Lead* can be reduced into Powder in the ſame Manner.

Note, That the Box muſt be round, becauſe 'tis ſhaken with leſs Difficulty, and with as few Cracks as poſſible, putting in it but a ſmall Quantity of *Tin* at once, that by the Agitation the Parts may be ſeparated and reduced into Powder, the Operation could be accompliſhed without rubbing the Box over with Chalk, but then the melted *Tin* would burn the Box. Though this Operation does not appear of great Utility, 'tis nevertheleſs very neceſſary, when ſeveral Operations are to be made on *Tin*, for when thus pulveriſed, it is mixed with leſs Difficulty with Salts or other Matters.

From this we'll paſs to the *Calcination of Tin*, which is to reduce it in the Form of Chalk by Means of Fire, and which is done by putting *Engliſh Tin* into an unglazed Earthen Diſh over a great Fire, and when the *Tin* is melted to agitate it a long while with a Spatula, it will ſmoke, and be reduced into Powder. A violent Fire muſt be continued under the Matter, during 36 Hours; during which, the Matter ſhall be ſtirred from Time to Time, then taken off the Fire, and left to cool, when we'll have a Chalk of *Tin*.

Note, That the Earthen Diſh muſt be unglazed, elſe the *Lead*, which makes the Glazing, could mix with the *Tin*, and render it impure. The Figure of a Diſh is more proper for this Calcination, becauſe as the Matter can be ſpread over with the Spatula, the Sulphurs exalt from it with a greater Facility. It ſeems as if the *Tin* ſhould diminiſh in Weight, in this Calcination, ſince the Fire diſſipates Part of its Sulphur, nevertheleſs it encreaſes; for if we have employed 32 Ounces of that *Metal* in the Operation, we'll have 34 Ounces of Chalk, which ſhews that a greater Quantity of igneous Particles muſt have entered its Pores than has been evaporated of ſulphureous and other volatile Particles.

To make the *Salt of Jupiter*, which is a *Tin* penetrated by Acids, and reduced in Form of Salt, we muſt take two Pounds of calcined *Tin*, and put it into a Matraſs, and having poured over it a very good diſtilled Vinegar, to the Heighth of four Fingers, we'll place it in Digeſtion at a Sand-Heat, during two or three Days, ſhaking the Matraſs by Intervals, after which we'll pour out by Inclination the Liquor which ſwims over, and pouring freſh diſtilled Vinegar on the reſiduous Matter, it muſt be put in Digeſtion, as before, and that Liquor poured out alſo by Inclination, which Operation muſt be reiterated three or four Times more. Afterwards all the Impregnations muſt be filtrated, and be made to evaporate, in a glaſs Cucurbite at a Sand-Heat, to the Conſumption of three Fourths of the Humidity. What remains muſt be left to cool, and the Cucurbite tranſported, without ſhaking it, to the Cellar, in a cool Place, for three or four Days, when we'll find Cryſtals formed at the Side of the Cucurbite, which Cryſtals muſt be ſeparated from the Liquor, and Part of the Humidity left, be made to evaporate as before, and what remains carried again to the Cellar, as before, for the Formation of new Cryſtals, reiterating thoſe Evaporations and Cryſtalliſations, 'till we have extracted all our Salt of *Tin*, which muſt be dried at the Sun, and kept in a Vial. This Salt is deſiccative, being mixed in Pomatums for cutaneous Diſtempers. Thoſe who don't care to have this Salt in Cryſtals, muſt cauſe all the Humidity of the Diſſolution to be evaporated at a ſlow Fire, and there will be left a Salt as good as the firſt.

The *Sublimation of Tin* is its Exaltation, and Volatiliſation, by Means of a volatile Salt, and is made by taking one Part of *Tin*, and two Parts of Sal-Armoniack in Powder; and having mixed them very well together, that Mixture muſt be put into an Earthen Cucurbite, which can reſiſt the Fire, two Parts thereof, at leaſt, muſt remain empty, to which we'll adapt a blind Capital, and take Care to lute very exactly the Joints. We'll place this Veſſel into a ſmall Furnace with a Grate, to an open Fire in ſuch a Manner however, that the Fire may not tranſpire otherwiſe than through the Regiſters; therefore the Top of the Furnace muſt be ſtopp'd with Brick and Lute; the Cucurbite ought likewiſe to enter into the Furnace, to a Third of its Heighth, or thereabout. The Fire ought to be ſlow at the Beginning, but increaſed by Degrees ſo far as to make the Bottom of the Cucurbite to grow red hot, and be continued in that Manner 'till nothing aſcends at the Top, which will be known by the Capital growing cold, and then the Sublimation will be accompliſhed. We'll leave the Veſſels to cool, after which we'll open them, and find adhering at the Capital, and at the Top of the Cucurbite, Flowers, which are nothing but ſome Particles of *Tin* exalted by the Sal-Armoniack; and in the Bottom of the Cucurbite, we'll find the *Tin* revivified.

We conſider the *Magiſterium of Jupiter* but as *Tin* diſſolved by an Acid, and precipitated by a Salt Alkaly, which is done in the following Manner.

We diſſolve the Flowers of *Tin* abovementioned in a ſufficient Quantity of Water; we filtrate this Diſſolution and drop upon it Spirit of Sal-Armoniack, or Oil of Tartar, *per Deliquium*, which will cauſe the Precipitation of a white Powder, which white Powder muſt be dulcified by waſhing it ſeveral Times with warm Water, it muſt be dried afterwards. This Preparation is of no other Uſe than for Ladies to mend their Complexion with, for it makes a beautiful white.

Flowers of Jupiter are a *Tin* volatiliſed, and exalted by Means of a volatile Salt, in the following Manner.

We take a Earthen Pot, without glazing, which has a Hole in the Middle of its Heighth, with a Cork to it. We place that Pot in a Furnace, where it can enter as far as its Hole, and hinder the Fire by Means of Brick and Lute from tranſpiring; we adapt at the Top of the Pot three Aludels or Pots of the ſame Earth, and without Bottom. We adapt a Capital a-Top of thoſe Pots, with a Recipient; we lute exactly the Joints, and light in the Furnace a very good Fire, to make that Part of the Pot, within the Furnace, red hot; then we make a Mixture of one Pound of *Tin*, and two Pounds of refined Salt-Petre. We throw a Spoonful of this Mixture through the Hole into a Pot, and ſtop it; there will happen a Detonation, which being over, we'll throw another Spoonful, which we'll continue to do 'till the whole Mixture be employed; after which we'll leave the Veſſels to cool, and unluting them, we'll find in the Recipient a ſmall Quantity of Spirit of Nitre and round the Aludels Flowers of *Tin*, very white, which we'll gather together with a Pen-Feather, and waſh them ſeveral Times with Spring Water, and after they have been dried on Paper from the Sun, we'll keep them in a Vial. Theſe Flowers are very good to mend a brown Complexion, when mixed with Pomatum, or in ſome Liquor. There will be found, in the bottom Pot, a Chalk of *Tin*, mix'd with the fixed Part of the Salt-Petre, which muſt be boiled in Water, waſhed and dried. It may be employed in deſiccative Unguents.

The *Liquor* or *Oil of Tin*, is that *Metal* reduced into a thick Liquor by the *Aqua Regalis*, Thus:

There muſt be put into a glaſs Veſſel what Quantity we pleaſe of *Tin* flattened, and cut into ſmall Pieces, and pour over it three Times as much of *Aqua Regalis*, compoſed of two Parts of *Aqua Fortis*, and one Part of Spirit of Salt: The Veſſel is to be placed over a ſlow Fire of Digeſtion, there will happen a ſlow Ebullition, and the *Tin* diſſolved by Degrees: The Liquor muſt be poured out afterwards by Inclination into a Stone Porringer; and if all the *Tin* is not diſſolved, there muſt be poured other *Aqua Regalis* on what remains; The Diſſolutions muſt be mixed, and the Humidity made to evaporate at a Sand-Heat; which done, there

there will be left a white greasy Salt, which being exposed to the Humidity of the Cellar, will resolve into a thick, viscous, heavy, and white Liquor, which must be poured into a Vial, to be kept. This is what's called *Oil of Tin*. This Oil is escarrotick, proper for the Caries of the Bones, for a Detersive, and to eat proud Flesh. It cannot be used but for outward Application.

Note, That the *Aqua Regalis* is a Dissolvant of *Tin*; but, as that *Metal* is sulphurous and soft, it blunts in Part the Points of the Dissolvant, which therefore cannot operate but slowly. The Dissolution of *Tin* has some Resemblance to that of Antimony; for in both the attenuated or dissolved Matter, is precipitated in a white Powder to the Bottom of the Vessel. This Liquor is improperly called *Oil*, since it is nothing but *Tin* dissoved by acid Spirits; but as it has a Consistence of Oil, and something unctuous, which proceeds from the Sulphur of *Tin*, the Name of Oil has been given to it.

The *Antihectick of Poterius*, or *Diaphorectick of Jupiter*, (for Astrologers pretend that *Tin* receives the Influences of that Planet,) is a Mixture of *Tin*, and of Martial Regule of Antimony fixed by Salt-Petre. We'll proceed in this Operation in the following Manner.

We'll take the best *Tin*, and the Martial Regule of Antimony, of each eight Ounces, which must be melted together in a Crucible at a Fire of Charcoal; which done, the melted Matter must be poured into an Iron Mortar, (heated and greased) and left to cool; after which it must be reduced into Powder, and mixed with three Times as much of purified Salt-petre; then a large Crucible must be heated red hot, between burning Coals, into which two Spoonfuls of that Mixture must be thrown, which will melt with Detonation, which Detonation being over, two other Spoonfuls of the Mixture must be thrown into the Crucible, and so on, 'till there be no more of the Mixture left; the whole ought to be calcined, after the last Detonation, at a great Fire, for very near an Hour, stirring the Matter, from Time to Time, with an Iron Spatula, then must be left to cool. We'll pour the Matter into an Earthen Pan, full of boiling hot Water, where it must steep for the Space of five or six Hours, to melt the Salt-Petre, left with it; then that Water is to be poured out by Inclination, and other Water poured over the Matter, continuing thus to wash it, 'till the Water which comes from it be insipid; then it must be dried and kept; 'tis the *Antihectick*, we'll have 20 Ounces of it.

This *Antihectick* is used for the Maladies of the Lungs, of the Liver, and of the Matrice; for malignant Fevers, Small-Pox, and other Distempers, where it is necessary to expel the Humours by Perspiration. It may be administred likewise to stop Gonorrhœa's, Loosenesses, and Hæmorrhages. The Dose is from ten Grains to two Scruples, in a Conserve, or some Liquor appropriated to the Distemper.

Note, That the best *Tin* for this Operation, is the *English Tin*, without any Mixture. The *Tin* is mixed with the Regule of Antimony to make a Mass of it, which can be reduced into Powder. The Mortar is greased, left the Mass should adhere to it. The Matter is thrown by Spoonfuls into the Crucible, which is called Projection, that nothing should be lost in the Detonation; because if all the Mixture was put at once into the Crucible, the Detonation would be made with such a Force, that Part of the Matter would run over, and fall into the Fire. After the Detonation the Matter remains puffed up, rarified, and of a grey Colour. 'Tis calcinated and stirred, that the Salt-Petre should very well penetrate it; and to make a Dissipation of what could be left of Volatility in the Antimony. We employ in this Operation three Times the Quantity of Salt-Petre, that there may be enough to fix the Particles of the Antimony; for if there was less, we would have Reason to fear that the saline Sulphurs of that *Mineral*, being not sufficiently embarassed, would cause a Vomiting.

There are likewise several Preparations made of BISMUTH, which is a *mineral* Body, half *Metallick*; composed of the first Matter of *Tin*, while yet imperfect; and found usually in *Tin-Mines*, sometimes also in *Silver-Mines*. Its Substance is hard, ponderous, and brittle, of a large Grain, glossy and shining. It is called *Tin-Glass*, because, when broke, it shews, a vast Number of polished Laminæ, like Glass; it is also called *Marcasite*, by Way of Excellence, because surpassing all others in Whiteness and Beauty.

There is very little of natural *Bismuth*, and all the *Bismuth* we have is artificial; the best and most beautiful artificial *Bismuth* is made of *Tin*, Tartar, and Salt-Petre.

The Pores of the *Bismuth* are disposed otherwise than those of *Tin*; 'tis known by the Menstruum, which dissolves the *Bismuth*, and which cannot dissolve entirely *Tin*.

Bismuth is never employed in Remedies designed to be taken inwardly, because 'tis believed that it contains some Arsenick; *Pewterers* mix it with *Tin* to render it more beautiful, hard, and sounding. There are extracted from *Bismuth* Flowers, and a *Magistery*.

The Flowers are nothing but a Portion of the *Bismuth* exalted in Form of a Powder, by volatile Salts, in the following Manner.

The *Bismuth* must be calcined like the *Lead*, then having mix'd it with once as much of Sal-Armoniack, the Sublimation must be conducted like that of *Tin*, and we'll have Flowers which can be dissolved in Water, and made to precipitate with Spirit of Sal-Armoniack, or with Oil of Tartar. This Magisterium is used like that we are a going to mention.

To make the Magisterium of *Bismuth*, (which is *Tin-Glass* dissolved and precipitated into a white Powder) we must have dissolved in a Matrass an Ounce of *Bismuth* reduced into a coarse Powder, with three Ounces of Spirit of Nitre; this Dissolution ought to be poured into a very clean Earthen Pan, throwing over it five or six Pounds of Spring-Water, in which has been dissolved before half an Ounce of Sea-Salt; we'll perceive a white Powder precipitating to the Bottom. The Water must be poured out by Inclination, and the Magisterium washed several Times, then dried from the Sun; we'll have an Ounce and a Drachm of it. 'Tis a very good Cosmetick, which is used, mixed with Pomatum, or dissolved in Water of white Lillies; *Perriwig-makers* use it to beautify their Hairs.

The next *Metal* which falls under our Hands is LEAD, which is a coarse, heavy, impure *Metal*, of all others the softest and most fusible, when purified; called also *Saturn*, because of the Influences, 'tis said, it receives from that Planet. *Lead* contains a little Mercury, some Sulphur, and a great deal of Bituminous Earth.

Lead is found in various Countries, but abounds particularly in *England*. It is found too in several Kinds of Soils and Stones, some whereof, besides, contain *Gold*, some *Silver*, others *Tin*, &c. *Lead* is found of a lighter or deeper Colour, according as it is more or less purified; though some make a Difference in the Colour of the Ore, always esteeming that much which is the whitest.

Lead is extremely cold, and for this Reason is very proper to appease Venereal Heats when applied on the *Pirineum*. It is applied likewise on several Tumours, caused by a too violent Agitation of the Blood.

Lead serves to purify *Gold* and *Silver*, and it can be said that its Action in the Coppel is very near like that of the White of an Egg, when employed to clarify a Syrup, for as the greasy and terrestrial Impurities of the Syrup gather together with the White of the Egg, because of its Glutinosity, and are pushed to the Sides of the Bason, likewise the heterogeneous Substances which

were mixed with the *Gold* and the *Silver* are intangled with the *Lead*, and expelled by the Fire to the Sides of the Coppel, where it is seen like a Scum.

There are five Chymical Preparations to be made of *Lead* in our Laboratory, *viz.* Calcination of *Lead*, Salt of *Saturn*, Magisterium of *Saturn*, Balsam or Oil of *Saturn*, and Distillation of the Salt of *Saturn*.

We'll begin by the *Calcination* of *Lead*, since this Operation is to be the Basis of the four other Operations upon *Lead*. For the *Calcination of Lead*, we must have it melted in a Earthen Pan, which is not glazed, and is to be stirred with a Spatula, 'till it be reduced into Powder. If we increase the Fire, and calcine the Matter for an Hour or two longer, the *Lead* will be more open, and more proper to be penetrated by Acids. If we calcine that Powder at a reverberatory Fire, during three or four Hours, it will turn red, and it is what we call *Minium*.

Lead is also prepared into *Ceruse*, by exposing it to the Vapour of Vinegar, for then it changes into a white Rust, which is gathered and formed into small Cakes. To make what we call *Plumbum Ustum*, or burnt *Lead*, we must melt two Parts of *Lead* in a Pot, or in a Crucible, and add to it one Part of Sulphur or Brimstone, to which we must set Fire, and when the Brimstone is burnt, the Matter is found in a black Powder, which is the *Plumbum Ustum*.

All these Preparations of *Lead* are deficcative, they are mixed in Unguents and Plaisters, and unite themselves in boiling with Oils and Grease, and give them a Consistence.

Note, That something happens in the Calcination of *Lead* which deserves our Attention, and which is that, though by the Action of the Fire, several sulphurous and volatile Particles of the *Lead* are evaporated, which should make it diminish in Weight; nevertheless, after a long Calcination, 'tis found that instead of weighing less, it is rather heavier than before. Several, to explain this Phænomenon, say, that while the Violence of the Flame opens and divides the Particles of the *Lead*, the Acid of the Wood, or of other Fuel used in the Operation, insinuates itself into the Pores of the *Lead*, where it is fixed by the Alkaly of the Chalk; but this cannot be the Reason of that Increase of Ponderosity in calcined *Lead*, because that Increase happens as well when *Lead* has been calcined with Coals alone, as with Wood; for Coal contains but a fixed Salt which remains in the Ashes, and cannot ascend. Therefore 'tis a great deal better to attribute that Effect to the Pores of the *Lead*, being disposed in such a Manner, as to keep the igneous Particles, introduced into them, during the Calcination, aglutinated, and embarassed in the soft Particles of the *Metal*, so as to be impossible for them afterwards to disentangle themselves and sally out, and consequently supply by their own Weight, no longer lifted up by their violent Agitation, what is lost in the Calcination. These igneous Corpuscles rarefy also very much the *Lead* in the Calcination, for the more 'tis calcined and reduced into Chalk, the more it increases in Volume, because those Corpuscles embarassed thus in the softest Particles of the *Metal*, which are very pliable, stretch, and extend, by their violent Agitation and continual Rotation, during the Circulation, those soft and pliable Particles, which, thereby must necessarily increase in Volume. But if the Chalk of *Lead* be revivified by Fusion, the igneous Particles confined in it, being thereby roused, and reassuming their former natural Rapidity, sally out from their Prisons, and leave Room for those Pores, they had filled to contract themselves, and be reduced to a lesser Volume, which is the Cause why *Lead* thus revivified is not near so weighty as it was before the Calcination; for then it is deprived both of its sulphurous Particles, and of the igneous ones whereby they had been reimplaced in the Calcination. An Example will justify what I alledge on this Subject. For I weigh twenty-five Pounds of *Lead* for Calcination; I'll find after a strong and long one an Increase of five Pounds, therefore I'll have thirty Pounds of calcined *Lead*, which, if revivified, will diminish six Pounds; therefore I'll have but twenty-four Pounds of revivified *Lead*. M. *Geoffroy*, of the Royal Academy of the Sciences at *Paris*, among several very curious Experiments he has made with a *Lens*, or Burning-Glass, on *Metals*, relates, that having exposed *Lead* to the Focus of a *Lens*, or Burning-Glass, that *Metal* has given first a great deal of Smoke, and was changed by Degrees into a fluid Liquor like Oil or melted Rosin, and that this Liquor in cooling became like a Kind of Glass, which had this particular, that it was soft and smooth to the Touch, and of a yellow, green, and reddish Colour, in some Places.

At present we'll take three or four Pounds of one of those Preparations of *Lead* abovementioned, of Ceruse for Example, to make the *Salt of Saturn*, which is a *Lead* penetrated, and reduced in Form of Salt by the Acid of Vinegar. We'll reduce these three or four Pounds of Ceruse into Powder, which we'll put into a large Glass or Stone Vessel; we'll pour upon it distilled Vinegar to the Heighth of four Fingers, there will happen an Effervescence of a sensible Heat. The whole is to be put in Digestion at a Sand-Heat for three or four Days, stirring the Matter from Time to Time, then leaving it to settle, and pouring out the Liquor afterwards by Inclination; which done, new distill'd Vinegar must be poured on the Ceruse left in the Vessel, proceeding as before, continuing to pour on distill'd Vinegar, and to pour out the Liquor by Inclination, 'till very near half the Matter be dissolved. Then we'll mix all our Impregnations together, and having poured them into a Stone or Glass Vessel, we'll have evaporated, at a very slow Sand-Heat, about two Thirds of the Humidity, or 'till a small Pellicle be formed over it; then we'll take the Vessel softly off the Fire, and leave it to cool without stirring it: There will be formed Crystals upon it, which we must take off, and cause the Liquor to be evaporated as before, and put it to cool, continuing the Evaporations and Crystallisations 'till we have extracted all our Salt, which must be dried in the Sun, and kept in a Glass Vessel. If we desire to have our Salt whiter, we'll have it melted in an equal Quantity of distilled Vinegar and common Water, then filtrated and crystallised as before.

Salt of Saturn is commonly employed in Pomatums for Ringworms and Inflammations; we also use the Impregnation of *Saturn*, made with distilled Vinegar for all cutaneous Distempers; when mixed with a great deal of Water, it makes a white Liquor, called *Lac Virginale*.

Salt of Saturn taken inwardly is esteemed very good for the Squinancy, to stop the immoderate Flux of Menses, of Piles, and the Dysenteria. The Dose is from two to fourty Grains in Plantin-Water, or mixed in Gargarisms.

Note, That Ceruse is the best Preparation of *Lead* for the making of *Salt of Saturn*, because 'tis easier dissolv'd than the other Calcinations, by reason of the Vinegar 'tis impregnated with. The Effervescence which happens, proceeds from the Acids of the Vinegar penetrating with Violence, and dispersing the Particles of the Matter. It must be observed, that the Effervescence happening when the same Acid is pour'd upon another Preparation of *Lead*, is greater, because the Acid finding then a Body less open than the Ceruse, makes greater Efforts, in penetrating it, and consequently raises up more of the Matter. It must not be imagin'd that a true Salt is extracted from *Lead*; 'tis but a Dissolution of its proper Substance by Acids which incorporate themselves with it intimately enough to make of it a kind of Salt. This Salt, call'd also Sugar,

Sugar, becauſe of its Sweetneſs, is good for ſeveral Maladies fomented by acid and acrimonious Humours; becauſe it ſweetens them, and breaks their Strength. 'Tis what is obſerv'd in the Squinancy, the Cauſe whereof proceeds commonly from a ſalt and acid Seroſity, which being fallen in too great a Quantity on the Muſcles of the Larynx, excites a Fermentation which dilates their Fibres, and cauſes the Inflammation we ſee: Therefore all that's good to blunt the Points of Acids, is good for the Cure of that Malady. The Fluxes of *Menſes*, of the Piles, and of the *Dyſenteria's*, are ordinarily excited by pricking or corroſive Salts introduc'd into the Veſſels; therefore the Salt of *Saturn*, as well as other Matters which embarraſs the Acids, cure thoſe Maladies. The Sweetneſs of the *Salt of Saturn* proceeds from the ſulphurous and ſoft Subſtance of the *leaden* Particles, which being put into Motion by the Salt of Vinegar, tickle, and flatter gratefully the Nerve of the Tongue. Vinegar impregnated with any of the Preparations of *Lead*, is call'd *Vinegar of Saturn*. If it be fed with Oil of Roſes, or other Oil, ſtirring them together in a Mortar, it forms an Unguent call'd *Butter of Saturn*, which is proper for all cutaneous Diſtempers.

Magiſterium of Saturn, which is our next Operation on *Lead*, is that Metal diſſolv'd and precipitated in the following Manner: We muſt diſſolve two or three Ounces of *Salt of Saturn*, purify'd as above, in a ſufficient Quantity of Water and diſtill'd Vinegar; we'll filtrate the Diſſolution, and drop upon it Oil of Tartar *per deliquium*, which forms at firſt a Sort of Milk, then a *Coagulum*, which precipitates in a white Powder to the Bottom of the Veſſel; the whole muſt be mix'd again together, and pour'd into a Funnel lin'd with grey Paper: The Liquor will run thro' clear as Water, and the Powder remain, which is to be waſh'd ſeveral Times, by pouring Water upon it, to carry off the Impreſſion of the Vinegar; afterwards it muſt be dry'd, and we ſhall have a very white *Magiſterium*, employ'd for beautifying the Face; 'tis alſo mix'd in *Pomatum* for Ringworms.

Balſam, or *Oil of Saturn*, is a Diſſolution of the Salt of *Saturn* in Oil of Turpentine; done in this Manner: Eight Ounces of Salt of *Saturn*, in Powder, is put in a Matraſs, and Spirit of Turpentine pour'd upon it, that it may ſwim over to the Height of four Fingers; the Matraſs muſt be plac'd at a ſlow Fire of Sand, in Digeſtion during a whole Day; then we ſhall have a red Tincture: We'll pour out the Liquor by Inclination, and pour more Spirit of Turpentine on the Matter left in the Matraſs; we'll leave it in Digeſtion, as before, pouring out, likewiſe, by Inclination, the Liquor, which will have ſome Colour: Then we'll put our Diſſolutions into a glaſs Retort, which we'll place at a Sand Heat, and having adapted a Recipient to it, we'll diſtil, with a moderate Fire, very near two Thirds of the Liquor, which will be the Spirit of Turpentine: We'll put out the Fire, and the Retort being cold, we'll pour what it contains into a Vial, to keep it. This *Balſam of Saturn* is excellent to cleanſe and cicatrize Ulcers. The moſt malignant Shankers are touch'd with it, becauſe they reſiſt Putrefaction.

Note, That Spirit of Turpentine is properly but an Oil, it diſſolves Lead, and mixes eaſily with it, becauſe it is full of Sulphur. If we were to continue to pour always new Spirit of Turpentine on the remaining Matter, we ſhould diſſolve entirely the Salt of *Saturn*.

The *Diſtillation of the Salt of Saturn*, is a Separation of the Subſtances contain'd in that Salt; which ought to be effected thus: Two Thirds of a ſtone or glaſs Retort muſt be fill'd with Salt of *Saturn*, which Retort is to be plac'd in a Furnace, and a pretty large Recipient adapted to it, luting exactly the Joints, and giving under the Retort a ſlow Fire at firſt, then increaſing it by Degrees, and towards the End puſhing it with that Violence as to make the Retort red-hot, then leaving the Veſſels to grow cold; after which, they muſt be unluted: What is contain'd in the Recipient, muſt be pour'd into an Alembick of Glaſs, and rectify'd by diſtilling, at a ſlow Sand Heat, very near Half the Liquor; which done, we ſhall have a Spirit of *Saturn*, as inflammable as Brandy, and of an acerb Taſte.

This Spirit is very good to reſiſt the Putrefaction of the Humours. It is given to hypochondriack Melancholicks, from 8 to 16 Drops, in Broth, or other Liquors appropriated to the Diſtemper; and it muſt be uſed 15 Mornings ſucceſſively.

The other Half of the Liquor left in the Alembick, is improperly call'd *Oil of Saturn*; 'tis good to cleanſe the Eyes of Horſes.

Note, That we muſt leave one Third of the Retort empty, and adapt to it a pretty large Recipient; becauſe the volatile Spirits being exalted with Violence, may chance to break the Veſſels, if they have not Room enough to extend themſelves. If we have put 12 Ounces of *Salt of Saturn*, very dry, in the Retort, we'll extract 3 Ounces and a Half of Liquor; there will remain in the Retort 8 Ounces and a Half of rarefy'd Matter, black and yellow. If after the Diſtillation of the *Spirit of Saturn*, we take the Retort off the Fire, and break it immediately, while it is very hot, the Matter in it taking Air, will blaze of itſelf, like Coals, and remain ſome Hours on Fire, then be reduc'd into a yellow and grey Matter, where there will appear already ſmall Pieces of *Lead*. This Circumſtance proves that *Lead* is very ſulphurous; for this Fire can't proceed but from the Sulphur of the Metal itſelf. The *Spirit of Saturn* is not inflammable but by a Portion of Spirit of Wine, which always remains wrapp'd up in the Vinegar, and which had been uſher'd by the Acids into the Pores of the *Lead* in the Preparation of the Salt of *Saturn*; for when the Fire is puſh'd to diſtil that Salt, the Acids bruiſe themſelves, and leave the Spirit of Wine at Liberty; therefore the *Spirit of Saturn* has no acid Taſte. The Salt of *Saturn* can be revivify'd into *Lead*, by mixing it with a ſalt Alkali melted at a great Fire, in a Crucible; becauſe this laſt Salt breaks the Acids which kept this laſt Salt diſguiſed: But it muſt be obſerv'd, that it takes Fire before it is revivify'd, and that becauſe of the Spirit of Wine which we have ſaid has been embarraſſed in the Diſſolution of the Ceruſe made with Vinegar.

Having done operating upon Lead, we'll paſs to COPPER, which is a hard, dry, heavy, ductile Metal, found in Mines in ſeveral Parts of *Europe*, but moſt abundantly in *Sweden*. *Copper* is of all Metals the moſt ductile and malleable, after Gold and Silver, and abounds much in Vitriol and Sulphur. It is found in Glebes, or Stones, of various Forms and Colours, which are firſt beaten and waſh'd, to ſeparate them from the earthy, *&c.* Parts, wherewith they are mix'd. After waſhing, they are melted, and the melted Matter run into a kind of Mould, to form large Blocks, by ſome call'd *Salmons*, and by others *Cakes of Copper*. To render it more pure and beautiful, they melt it again once or twice; ſome of its coarſe earthy Parts being left at each Fuſion, and a Quantity of Tin and Antimony added. In this State it is call'd *Roſe Copper*. *Copper* is ſometimes alſo found native and pure in the Mines, either in Form of Threads, or in Flakes, Plates, Grains, or other Maſſes and Lumps.

Aſtrologers call it *Venus*, as ſuppoſing it to have ſome more immediate Relation to that Planet. By the Analyſis it appears compoſed of a Sulphur ill digeſted, a yellowiſh Mercury, and a red Salt.

We *Chymiſts* make five Preparations of that Metal, *viz.* the Calcination of *Copper*, Purification of calcin'd *Copper*, Vitriol of *Copper*, or of *Venus*, Cryſtals of *Venus*, and Spirits of *Venus*.

The *Calcination of Copper*, is a Separation made of its

its moſt volatile oily Particles, by means of common Sulphur and Fire, to render it more compact; which to perform, muſt be ſtratify'd in a large Crucible, *Laminæ* of *Copper*, with Brimſtone in Powder; the Crucible is to be cover'd with a Tile, or ſomething elſe which has a Hole in the Middle, for the Evacuation of the Smoak. The Crucible is plac'd in a Wind Furnace, and a great Fire made round it, till no more Smoak appears; when the *Laminæ* muſt be taken out quite hot, and ſeparated. This is the *Æs uſtum*, or *burnt Copper*, employ'd in external Remedies as a Deterſive. It may be reduc'd into Powder in a Mortar.

Note, That in making this Stratification, we begin by a Bed of Sulphur, and lay over it a Bed of *Laminæ* of *Copper*, then another Bed of Sulphur, and another Bed of *Laminæ*, proceeding in the ſame Manner till the Crucible be full; but the firſt and laſt Bed muſt be of Sulphur. This Calcination is made to burn, and cleanſe the *Copper* of its ſuperficial Sulphur, by means of common Brimſtone; and to prepare it for the following Operations, ſince thereby *Copper* is eaſily reduc'd into Powder, which otherwiſe could not be done.

The *Purification of calcin'd Copper*, which is our next Operation, is to render it beautiful, and of a high Colour; which is done in the following Manner:

We take what Quantity we pleaſe of calcin'd *Copper*, which having made red-hot in a Crucible, we throw into it Linſeed Oil, which muſt ſwim over the *Copper*, two Finger's Breadth. The Pot muſt be cover'd immediately, otherwiſe the Oil will take Fire; the *Copper* muſt ſteep in it till the Oil be half cold, when the *Copper* is taken out, and put again into the Crucible, till it be once again red-hot, and then thrown again into the Linſeed Oil; which Operation muſt be repeated nine Times, and the Oil chang'd every third Time; then we ſhall have a very pure *Copper*, which will have reaſſum'd its Colour. If we calcine it once more, in order to conſume all the Oil, and reduce it afterwards into Powder, we ſhall have a fine Crocus of *Copper*, which will be a very good Deterſive.

Vitriol of Copper, or of *Venus*, which is our third Operation on that Metal, is *Copper* penetrated, and reduc'd into the Form of *Vitriol*, by Spirit of Nitre, in this Manner: Two Ounces of *Copper*, cut into ſmall Pieces, are diſſolv'd in five or ſix Ounces of Spirit of Nitre; the Diſſolution is put into a Cucurbite of Glaſs, and about a fourth Part of the Humidity made to evaporate at a Sand Heat; what remains is left untouch'd for five or ſix Hours, when there will be form'd blue Cryſtals, which muſt be taken off. The Evaporation and Cryſtallization is continu'd till all has been extracted, then the Cryſtals are dry'd, and kept in a Vial well cork'd; they are Cauſticks.

Note, That the *Copper* muſt be put into a great Matraſs under the Chimney, and the Spirit of Nitre pour'd upon it ſoftly. There happens preſently a violent Effervescence, and a red Smoak, which comes out at the Neck of the Veſſel, and would very much offend the Breath, if the Artiſt was to receive any Portion of it; thereby the Veſſel is heated to that Degree, that it is impoſſible to bear the Hand upon it; and the Heat laſts till the Diſſolution be ended, then the Liquor is clear, and of a fine blue Colour. The great Effervescence proceeds from the Efforts the acute Particles of the Spirits of Nitre make to penetrate the Pores of the *Copper*, which being in Form of Nets, are in thoſe Efforts lacerated by the Oppoſition they make, at firſt, through their Exiguity and Stiffneſs, to the Introduction of the acid Particles; which Effervescence laſts till thoſe Particles, having forc'd their Way through, are at laſt exhauſted of Part of their Strength, and, loſing their Rapidity, remain fix'd in thoſe Pores. The red Smoak is cauſed by the Spirit of Nitre, which, when rarefy'd, has always that Colour. The Spirits of Nitre filling up the whole Capacity of the Pores of the *Copper*, and having hook'd them on all Sides, keep them ſuſpended, by their Volatility, in the Liquor, and thereby cauſe the Cryſtallization, which to accelerate, by eaſing them of Part of their Burden, Part of the Liquor is evaporated. Therefore the *Vitriol of Copper* is nothing elſe but the Acids of the Spirit of Nitre incorporated with the *Copper*, and thoſe ſame Spirits, which are like ſo many ſmall Knives, give to that *Vitriol* its corroſive Virtue.

The next Preparation of *Copper*, is that of *Cryſtals of Venus*, which are the Particles of *Copper* impregnated with the Acids of the Vinegar, and reduc'd in the Form of Salt, or Vitriol, thus: We'll take what Quantity we pleaſe of Verdigreaſe, in Powder, which we'll put in a pretty large Matraſs, pouring over it diſtill'd Vinegar, to the Height of four Fingers Breadth; we'll place the Matraſs in Digeſtion at a Sand Heat, for the Space of two Days, ſtirring it, from Time to Time; the Vinegar will take a blue Colour; then we'll pour out the Liquor, by Inclination, and continue to put other diſtill'd Vinegar on the Matter, till three Fourths, or thereabouts, of the Verdigreaſe be diſſolv'd, and nothing remains but a terreſtrial Matter; after which, all the Impregnations muſt be filtrated, and two Thirds of the Humidity made to evaporate, in a Cucurbite of Glaſs, at a Sand Heat: We'll carry the Veſſel into a Cellar, where we'll leave it, without moving it, for four or five Days, when ſmall Cryſtals will be form'd, which muſt be gather'd, by pouring out the Liquor by Inclination. One Third of that Liquor muſt be again evaporated, and what remains carry'd to be cryſtalliz'd, as before, continuing thoſe Evaporations and Cryſtallizations till we have extracted all the Cryſtals, which muſt be dry'd and kept. This is what Painters call *diſtill'd Verdigreaſe*, becauſe prepar'd with diſtill'd Vinegar. Thoſe Cryſtals are very deterſive, but they are never uſed but for external Wounds, and in Painting.

We'll conclude our Operations on *Copper* with the *Spirit of Venus*, which is an acid Liquor extracted from the Cryſtals of *Venus* by Diſtillation, in this Manner: What Quantity we pleaſe of Cryſtals of *Venus*, prepar'd with diſtill'd Vinegar, muſt be put in a Retort of Glaſs, leaving a third Part empty; which Retort is plac'd at a Sand Heat; and having adapted to it a large Recipient, and luted exactly the Joints, a ſmall Fire muſt be given to it, at firſt, to diſtil a ſmall Quantity of inſipid Water; this Water will be follow'd by a volatile Spirit; then we'll increaſe the Fire by Degrees, when the Recipient will be fill'd with white Clouds: We'll environ, towards the End of the Operation, the Retort with lighted Coals, to force out the laſt Spirits, becauſe they are ſtronger; when we ſhall ſee that the Clouds ceaſe, and the Recipient grows cold; we'll let the Fire go out, dilute the Joints, and pour all that's contain'd in the Recipient into an Alembick of Glaſs, to have it diſtill'd at a Sand Heat to Siccity. This is the rectify'd *Spirit of Venus* uſed as a Remedy againſt the Epilepſy, Palſy, Apoplexy, and other Maladies of the Head. The Doſe is 7 or 8 Drops, in a Liquor appropriated to the Diſtemper. Several uſe it to diſſolve Pearls, Corals, and other like Matters.

Note, That the Acid is extracted from *Copper* by Fire, without breaking its Points, becauſe the *Spirit of Venus* is vaſtly four, which does not happen in other Metals. The Reaſon which can be given for it is, that *Copper*, which is ſo full of Sulphur, embarraſſes only, in the Diſſolution, the Acids, with its ramous Particles; ſo that when by the Violence of the Fire thoſe Points are excited, they come out whole, becauſe they meet with no Reſiſtance ſtrong enough to be broken. They alſo uſher out along with them ſome of the moſt volatile Particles of the *Copper*, with which they are inſeparably united. This Spirit muſt be rectify'd, becauſe the Fire puſhes

pushes always into it some Impurities, contracted by the *Copper* while it was in the *Rape* of the Grape, to be reduc'd into Verdigrease.

Iron, the next Metal deserving the Attention of a *Chymist*, is a hard, fusible, and malleable Metal, very porous, composed of vitriolick Salt and Sulphur, very ill mix'd and digested together; therefore the Dissolution of its Parts is easily made. *Iron* is also call'd *Mars*, for the same Reason the other Metals have each the Name of a Planet.

Though *Mars*, or *Iron*, contains a vitriolick Acid, 'tis nevertheless an Alkali; because it ferments with the Acids, which will not at all appear surprizing, when we consider that there is a great deal more of Earth, than Salt, in that Metal; and that this Earth keeping the Salt embarrass'd, it has enough Pores left to receive the Points of the Acids pour'd over it, and to do the Office of an Alkali.

The *Mars* is almost always astringent through the Abdomen, because of its terrestrial Particles; and aperitive by Urine, not only because of its Salt, which is penetrating; but, likewise, because the Abdomen contracting itself, the Humidities are filtrated by Urine. Pieces of red-hot *Iron* are often extinguish'd in Water, to stop the *Diarrhœa*, which Effect proceeds from the vitriolick Salt of the *Iron* dissolv'd in the Water. Water of Forges, and several other Mineral Waters which participate of *Iron*, operate by the same Sort of Salt they have carry'd off along with them in passing through Mines of that Metal.

There are eleven *chymical* Preparations made of *Iron*, *viz.* three Sorts of *aperitive Crocus Martis*, *astringent Crocus Martis*, two Sorts of *Salt*, or *Vitriol of Mars*, *Spirit of Mars*, *Tincture of Mars with Tartar*, *Extract of Mars aperitive*, *Extract of Mars astringent*, and *Diaphoretick of Mars*.

We'll begin these Operations on *Iron*, or *Mars*, by the most easy, which is the first Preparation of the *aperitive Crocus Martis*, and which *Crocus Martis* is but the Rust of *Iron*, made by the Dew, in this Manner: Several *Laminæ* of *Iron*, having been well wash'd, are exposed to the Dew for a considerable Time, where they will grow rusty; which Rust must be scrap'd off, and the same *Laminæ* exposed again and again to the Dew, till we have *Crocus* enough. This *Crocus* is the best of all the Preparations of *Iron* call'd *Crocus*. 'Tis excellent for the Obstructions of the Liver, the Pancreas, and the Mesentery. 'Tis used with Success for the Retention of the *Menses*, the Dropsy, and other Maladies proceeding from Opilations. The Dose is from ten Grains to two Scruples, in Lozenges, or Pills.

Note, That *Iron* opens the Obstructions by its Salt, which being help'd by the solid Particles of the Metal, has more Strength than the other Salts: But the Patient ought always to be purg'd before he takes the *Mars*, because if it finds the Conducts of the small Vessels stuffed with gross Matter, it stops, and causes sometimes Inflammations, with Pains like those of the Cholick. *Iron* raises often the Obstructions, by absorbing, as an Alkali, the Acids which caused them.

The second Preparation, of *Crocus Martis aperiens*, is but Filings of *Iron* rusted by the Rain, thus: We'll put in an earthen Pan, without Glazing, Filings of *Iron*, very clean, and expose it to the Rain, till made into a Paste; then we'll take the Pan from the Rain, and place it in a dry Place, from the Sun, it will rust: We'll pound it, and expose it to the Rain, to make a Paste, as before, which also must be put to rust, then pounded, as before, which Operation must be repeated 12 Times; after which, we'll reduce it into a very subtile Powder, and keep it. This *Crocus* has the same Virtues of the first, and the Dose is the same; but the first is preferable, because more open.

Note, That the common Rust of *Iron* is better than Filings; that Dew and Rain-water are employ'd in this Operation to appropriate the Dissolvent, as much as possible, to the Virtue of the Metal; for the Rust is an imperfect Dissolution of *Iron*. 'Tis proper to reduce the Matter to the Consistence of Paste, the better to excite the Fermentation; and it must be humected 10 or 12 Times, to subtilize the Particles of *Iron* as much as it is possible to do it, with a Dissolvent so weak as is Rain-water. This *Crocus* has a brown reddish Colour, its Taste and Smell are feruginous, but very weak.

The third Preparation, of *aperitive Crocus Martis*, is Filings of *Iron* calcin'd with Brimstone, and perform'd by taking an equal Quantity of Filings of *Iron*, and Brimstone in Powder, mixing them together, and making a Paste of it with Water. This Paste must be put in an earthen Pan, and left to ferment for four or five Hours; after which, we'll place the Pan on a great Fire, stirring the Matter with an Iron Spatula: It will blaze, and when the Brimstone is burnt, appear black; but by continuing a great Fire under it, and stirring it for the Space of two Hours, it will take a deep red Colour, which will shew that the Operation is ended. We'll leave the Matter to cool, and keep the *Crocus*, which may be used like the former, and for the same Maladies. The Dose is from 15 Grains to 2 Drachms.

Note, That a Paste is made of this Mixture, in order that the Acids of the Sulphur, being diluted by Water, should insensibly penetrate the *Iron*, and open it more. This Penetration is easily observ'd, since the Matter heats of itself, to such a Degree, that one can't bear it with the Hand; it even happens, that when 25 or 30 Pounds of this Preparation are made, at once, the Matter blazes, and is half calcin'd before 'tis put on the Fire, which can't be explain'd but by the violent Action and Friction of the acid Points of the Sulphur against the solid Body of the *Iron*. This Calcination is made in an earthen Pan, rather than in a Pot, or a Crucible; and the Matter must be continually stirr'd with a Spatula, to facilitate the Evaporation of the Sulphur; otherwise the Preparation would always remain black. These Sorts of Calcination are always to be made under the Chimney, to avoid the Smell of the Sulphur. If we have employ'd one Pound of Filings of *Iron*, we shall have, at least, one Pound four Ounces of *Crocus Martis*, which proves that the Acids of Sulphur, and some of the igneous Particles, are incorporated in the Pores of the *Mars*, which increases its Weight. The red Colour proceeds from the Vitriol of the *Mars*, which being calcin'd, grows red, like the Colcothar. This *Crocus* has no sensible Taste, nor Smell.

Having made these three Sorts of *Crocus Martis aperiens*, which will produce all the Effects expected from such Preparations, we'll pass to that of the *astringent Crocus Martis*, which is a Preparation of Filings of *Iron* divested of its most saline Particles, in this Manner: We'll take what Quantity we please of the last *Crocus Martis aperiens*, which is to be wash'd five or six Times with Vinegar, leaving it to steep an Hour each Time; then calcin'd in an earthen Dish, or on a Tile, at a great Fire, during five or six Hours. Afterwards 'tis left to cool, and kept for Use.

This *Crocus* stops the *Diarrhœa*, Spitting of Blood, the immoderate Flux of the Piles, and the *Menses*. The Dose is from 15 Grains to a Drachm, in Lozenges, or Pills.

Note, That the *Mars* being but an impure Vitriol, the more 'tis calcin'd, the more it is astringent; and as what renders it aperitive is but its Salt, and its most dissoluble Part, it loses much of that Quality when wash'd several Times with Vinegar, and calcin'd afterwards. There are several other Preparations of

Crocus Martis astringens, but this suffices: Therefore,

We'll prepare next the *Salt*, or *Vitriol of Mars*, which is *Iron* penetrated, and reduc'd in the Form of Salt, by an acid Liquor, thus: We'll take an *Iron* Pan, very clean, and pour into it an equal Weight of Spirit of Wine, and Oil of Vitriol extracted from *English* Vitriol; we'll expose the Pan, for some Time, to the Sun, and leave it afterwards in a dark Place, without stirring it; when we shall see the Liquor incorporating itself with the *Mars*, and forming a Salt, which must be left to dry, or harden: Then it must be separated from the Pan, and kept in a Bottle well cork'd.

This *Salt* is an excellent Remedy for all Maladies proceeding from Obstructions. The Dose is from six Grains to a Scruple, in Broth, or some other Liquor appropriated to the Distemper.

Note, That a Pan is more proper for this Operation than any other Vessel less flat; because the Liquor is easier extended in it, and easier incorporated with it. The Pan must be new. The Oil of *English* Vitriol is preferable, in this Case, to all others, because it is less acrimonious, and *English* Vitriol participates more of *Iron*. When both Liquors are mix'd in the Pan, there happens a very small Ebullition, and the Pan heats a little; which proceeds not only from the Acids penetrating the *Iron*, but likewise from the Mixture of the Spirit of Wine with the Oil of Vitriol. The Liquor must not rise in the Pan above an Inch high. *Riverius*, in his Practice of Medicine, prescribes a Method of making the *Salt of Mars* like this, except that he puts a greater Quantity of Spirits of Wine, than of Oil of Vitriol; but 'tis better when made with an equal Quantity of both.

The other Preparation of *Vitriol of Mars*, is *Iron* dissolv'd, and reduc'd to the Form of Salt, by the Spirit of Vitriol, in this Manner: Eight Ounces of Filings of *Iron*, very clean, must be put into a pretty large Matrass, pouring upon it two Pounds of common Water, warm, and adding to it one Pound of very good Spirit of Vitriol; the whole must be stirr'd, and the Matrass plac'd on a Sand Heat, where 'tis left 24 Hours in Digestion; during which Time, the purest Part of the *Iron* will be dissolv'd, when the Liquor is to be pour'd out, by Inclination, and the terrestrial Part, left at the Bottom in a small Quantity, thrown away. Then the Liquor is to be filtrated, and afterwards made to evaporate in a Cucurbite of Glass, at a Sand Heat, to a Pellicle; then the Vessel transported to a cool Place, where will be form'd greenish Crystals, which must be separated, by pouring out softly the Liquor which swims over it; which Evaporation, and Crystallization, are to be repeated, till we have extracted all the Crystals, which must be dry'd, and kept in a Bottle very well cork'd.

Note, That the Spirit of Vitriol is weaken'd by the Water, that it may dissolve nothing but the most rarefy'd Part of the Filings. To evaporate to a *Pellicle*, signifies to have the Humidity consum'd, till a thin *Pellicle* is perceiv'd swimming over the Liquor; which happens always when Part of the Humidity being evaporated, there remains of it but a little less than is wanted to keep the Salt in Fusion.

At present, for the Distillation of the *Spirit of Vitriol of Mars*, which is an acid and astringent Liquor, extracted from the *Vitriol of Mars*, thus: We'll put in a stone, or glass Retort 8 Ounces of the first Salt, or *Vitriol of Mars*, made with Oil of Vitriol, and Spirits of Wine, placing the Retort in a reverberatory Furnace, and adapting to it a Recipient of Glass; we'll lute the Joints, and make in the Furnace a Fire of the first Degree to heat gently the Retort, which Fire is to be raised afterwards to the second Degree, when it will drop from the Retort about two Ounces of Liquor: When we perceive that it has done distilling, we'll increase the Fire to the third Degree, then white Vapours will come out, which will fill the Recipient: This Degree of Fire is to be continued 'till the Vapours begin to grow clearer, then we'll increase it to the fourth Degree, and continue it thus 'till we see nothing more coming out of the Retort. The Operation last ordinarily twelve Hours; the Vessels must be left to cool, and afterwards unluted, there will come out of the Recipient a pretty strong sulphurous Smell, and we'll find in it five Ounces and five Drachms of a clear Spirit, of an acid Taste, which must be kept in a Glass Bottle very well corked.

This Spirit is astringent, proper for Diarrhœa's, Bloody-Fluxes, Hæmorrhages and Vomitings. The Dose is from four Drops to twelve, in a proper Liquor.

Note, That one Third of the Retort must be left empty, and the Recipient pretty large, that the Spirits, when they rarefy themselves into Liquor, may find Room enough to circulate, otherwise they would burst all if they were too narrowly confined. The Joints ought likewise to be exactly luted, to hinder Perspiration. The first Liquor which drops is the most volatile Spirit of Vitriol of *Mars*, which has volatilised and exalted a Portion of the Acid of Vitriol, and some Particles of Iron. The second is the Oil of Vitriol incorporated with the *Iron*, in the Preparation of the Vitriol of *Mars*, but which is separated by the Action of the Fire, and pushed into the Recipient with some Portion of the *Iron*. The red Mass left in the Vessel after Distillation is the finest of all the *Crocus Martis* which have been invented, and likewise the best, with Regard to its Penetration.

The *Tincture of Mars with Tartar*, (which is our next Operation) is a Dissolution of *Iron* by the Acid of *Tartar*, made by pounding and mixing twelve Ounces of Filings of *Iron*, with thirty-two Ounces of fine white *Tartar*, which must be boiled in a large Iron Pot, or Cauldron, with twelve or fifteen Pounds of Rain-Water, during twelve Hours, stirring the Matter from Time to Time with an Iron Spatula, and taking Care to supply the Cauldron with boiling Water, in Lieu of that which has been evaporated; afterwards the Mixture must be left to settle, and there will remain a-top, a black Liquor which must be filtrated, and made to evaporate in a stone Pan, at a Sand-Heat, to a Consistence of Syrup. We have forty-four Ounces of it.

This Tincture is a very good Aperitive, it raises the most inveterate Obstructions; 'tis given in the Cachexy, in the Dropsy, in the Retention of the Menses, and generally in all Maladies proceeding from Opilations. The Dose is from one Drachm to half an Ounce in Broth or some other Liquor appropriated to the Malady.

Note, That in this Operation the white Tartar is preferred to the red, because more loaded with Salts, and consequently more capable to rarefy *Iron*. When the Mixture has boiled some Time it thickens like Pap, and swells, and would run over, if the Artist was not to take care to moderate the Fire. Water alone would not be capable to penetrate the *Iron*, so as to make a Tincture like this, was it even to boil during a whole Month; but when impregnated with Tartar it dissolves it easily. This Tincture is also called *Syrup of Mars*, because of its Sweetness. There remains at the Bottom of the Pot a whitish Matter which must be rejected as useless. This Tincture is very aperitive, because the Strength of the *Mars* has been increased by the Tartar, which

which serves for a Vehicle to it. It may be rendered laxative, by causing to be macerated in it before 'tis brought to the Consistence of Syrup, six Drachms of Senna.

This Operation ended, we'll pass to that of the Aperitive Extract of *Mars*, which is a Dissolution of the most open Particles of *Iron*, made by aperitive Juices, and reduced by Fire to a thick Consistence, Thus: Put eight Ounces of Filings of *Iron* into an *Iron* Pot, and pour upon it three Pounds of Honey-Water, and four Pounds of Juice of white Grapes very ripe. Add to it four Ounces of Lemon-Juice. Cover the Pot with a Lid of *Iron*, and place it in a Furnace at a small Fire. Leave the Matter in Digestion for the Space of three Days, and make it boil, afterwards, during three or four Hours, uncovering the Pot from Time to Time, to stir at the Bottom with an *Iron* Spatula, and covering it again to prevent a too great Consumption of the Humidity. When you see that the Liquor grows blackish, you must put out the Fire, and leave the Matter to settle. You must strain hot through a Flannel what's clear of the Liquor, and have the Humidity consumed at a Sand-Heat, in a Stone or glass Vessel, to the Consistence of Extract.

This Extract is a very good Aperitive for the Obstructions of the Liver, and of the Mesentery. The Dose is from ten Grains to two Scruples, taken in Pills, or dissolved in a Liquor appropriated to the Distemper. What's left at the Bottom of the Pot is the most terrestrial Part of the *Mars* which is useless.

Note, That the Virtue of this Extract is increased by the essential Salts of the Juices 'tis made with, and by the Spirit of Honey, which gives it a very good Impression. The Mixture is left in Digestion to facilitate the Dissolution of the *Mars*, but as the Menstruum has not a very great Quantity of Points, it dissolves but the most saline Part, and the easier to be melted.

There is likewise an *Extract of Mars Astringent*, which is a Dissolution of *Iron*, made with astringent Wine, and reduced by Fire into a thick Consistence, in this Manner. We'll take two Ounces of Filings of *Iron* reduced into a very subtle Powder, which we'll put into an *Iron* Pot, pouring upon it four Pounds of Tinto-Wine; we'll put the Pot on the Fire, cover it, and make it boil, stirring the Matter from Time to Time with an *Iron* Spatula, to a Diminution of two Thirds of the Humidity; we'll strain hot through the Flannel what's most clear of the Liquor, and have the Humidity evaporated, to the Consistence of an Extract.

This Extract stops the Diarrhœa's, Dysenteria, immoderate Flux of the Piles, and of the Menses. The Dose is from ten Grains to two Scruples, in Pills, or dissolved in some astringent Liquor.

Note, That the Tinto-Wine impregnates itself but with one Portion of the *Mars*, because the Tartar it contains is not capable to dissolve but what it finds rarefied in the *Metal*, the rest remaining at the Bottom of the Pot. The astringent Virtue of the Wine increases much that of the *Iron*, and renders it very proper for the Maladies abovementioned; but we must not believe that we can destroy entirely its aperitive Salt, for it opens still the Obstructions, and pushes them by Urine, though not so effectually as the aperitive *Mars* does it.

The *Diaphoretick of Mars* (our last Operation on *Iron*) is a Sublimation of the Particles of *Iron*, by volatile Salts; thus: We pulverise and mix exactly together twelve Ounces of Filings of *Iron*, and eight Ounces of Sal-Armoniack, both very dry: We put that Mixture in an Earthen Cucurbite, capable to bear the naked Fire, and of which there be but one Third filled: We place it in a Furnace, and surround it with small Pieces of Brick, and of Lute, to hinder the Fire from rising too much: We adapt a Capital to the Cucurbite, with a little Recipient, luting the Joints: We leave the Matter in Digestion for twenty four Hours, then making a graduate Fire under the Cucurbite, it will first distil a Liquor in the Recipient, then Flowers will ascend, and stick to the Capital, and to the Borders of the Cucurbite; we continue a pretty strong Fire 'till nothing more ascends, then we leave the Vessels to cool, and having afterwards unluted them, we find in the Recipient one Ounce and a half of a Liquor like the Spirit volatile of Sal-Armoniack, but of a yellowish Colour; we gather the Flowers, of which we find two Ounces and a half; they are yellowish, of a Salt vitriolick Taste, very penetrating; and we keep them in a Bottle very well cork'd.

This *Diaphoretick of Mars* excites the Perspiration of Humours; they are good against all Maladies caused by the Corruption of Humours; they are sometimes diuretick, according as the Body is disposed; they are proper to expel the Hypochondriack Melancholy, and the Quartan Ague. The Dose is from six Grains to twenty, in a Liquor appropriated to the Distemper.

We find at the Bottom of the Cucurbite a blackish fixed Matter, part in a Mass, and part in Powder, weighing fifteen Ounces and six Drachms; which is aperitive, proper against the Jaundice, against the Dropsy, and to provoke the Menses. The Dose is from half a Scruple to two Scruples.

Note, That these Flowers are nothing else but the very Substance of the Sal-Armoniack impregnated with the *Mars*, and sublimated by the Fire; they borrow their yellow Colour from the looser Portion of *Iron*, which they have exalted; they are no more alkaline than the Sal-Armoniack itself.

All the foregoing Preparations are but Trifles, and a Kind of Diversion for us Artists, when compared to those we have left to do. We have first handled *Gold* and *Silver*, two *Metals*, always so welcome among us, that the greatest Monarchs receive them with the greatest Complaisance, and even a Kind of Respect; of such Efficacy and Influence, that they make Mutes speak, Deaf hear, and Blind see, often against their Honour, Conscience, and Reason; so formidable that they are capable to stop the Rapidity of the Conquests of the greatest Heroes, and to make them retreat before the greatest Poltroons; so venerable, as to be placed often on the Altar of the Living God; and adored by the very Ministers of those Altars, who turn their Back to their divine Master, to worship those shining and precious *Metals*; so ponderous or weighty, that when put in *Astræa*'s Scale, they almost always over-ballance Justice and Equity, and so engaging that they make *Cupid* himself to recoil; and of such Value, that Virtue, Merit, Friendship, Sincerity, Religion, Learning, Modesty, Courage, Honour, Humanity, and Compassion disappear in their Presence.

But at present we are a-going to meet with a *Proteus*, which changes Form oftener than can be imagined, and which will escape from us at the very Time we believe to hold him faster.

This Prodigy in Nature is QUICK-SILVER, called for that Reason *Mercury*, and *Hydrargyrus*, because of its Fluidity.

MERCURY is a *Metal*, or a *Semi-Metal*, fluid, and penetrating, perfectly resembling Silver in Fusion.

Boerhaave observes that it is very improperly called a *Metal*, inasmuch as it has not all the Characters of such a Body, nor scarce any Thing in common with the other *Metals*, except Weight and Similiarity of Parts: Thus, for Example, it is neither dissoluble by Fire, malleable, nor fixed.

Perfect *Metals*, according to M. *Homberg*, are nothing but pure *Mercury*, whose little Particles are penetrated on all Sides, and filled with the Matter of Light, which unites and binds them together into a Mass,

Mass, so that the Parts of Fluids *Mercury*, which are supposed to be little solid Globes, in their Metallification are rendered rough and uneven, being pierced on all Sides, and having their Pores or Perforations filled with the Matter of Light, by such Means they lose their first Conformation, and the Politure or Smoothness of their Surfaces, which is one of the principal Causes of the Fluidity of the *Mercury*.

Most *Chymists* make *Mercury* one of our hypostatical Principles: Not, as M. *Homberg* observes, that it answers the Character of a Principle, which is that whose Substance cannot be analysed or reduced into Matters more simple, but because the Analysis has not been yet discovered; though it is possible it may hereafter, there being little doubt but that *Mercury* is a Compound: This is the more probable, in Regard *Mercury* may be destroyed, which never happens to simple Bodies. The Manner of destroying *Mercury*, is, first, by changing it into a perfect *Metal*, by introducing a sufficient Quantity of Light within its Substance; and then exposing this *Metal* to a Burning-Glass, where, in a little Time, it evaporates almost wholly into Smoke, leaving nothing behind but a light Earthy Dust.

L'Emery says that there is Appearance that the Parts of this *Metal* are all solid, very much polished, and of a round Figure; for in whatever Manner 'tis divided without Addition, it appears always in small Boles; and that if even it is observed narrowly when dissolved in *Aqua Fortis*, an infinite Number of small round Bodies will be observed rising in the Liquor in Form of Smoke.

The Parts of *Mercury* being supposed round, it may be easily explained how that *Metal* remains Fluid, and why it is so easily volatilised by Fire, though very ponderous; for a round Figure being by no means proper for the Coadunation of Parts, the small Bodies which compose *Quick-Silver* cannot be united together, and consequently they must roll upon one another, as we see it happen to all round Bodies; 'tis what makes the Fluidity of that *Metal*.

As for its Volatility, it proceeds from the Want of Contiguity, and of Union among its round Particles, whereby they follow without the least Resistance the very first Impulsion of any heterogeneous Body, whereby their natural Rotation is accelerated.

It could be objected that the Particles of the *Quick-Silver* being round, it should be light, since round Bodies, near one another, leave a Space between them. To which I answer, that those Spaces cannot be an Obstacle to the Ponderosity of the *Quick-Silver*, since each of those Spaces is filled with its Column of Air, which by its Compression rather adds to than diminishes the Ponderosity of the *Metal*; I would almost be of Opinion that those Intervals or Spaces is what renders *Quick-Silver* so heavy, since those globulous Particles, on Account of their Rotundity, being not able to support long the same Column of Air, each of them is compressed by, slide continually from under it, and occasion it to fall all at once, on the other Column of Air, which served as a Support to the Particle, whence ensues a violent Shock between both, which adds much to the Ponderosity of the *Metal*.

This Opinion of mine can be confirmed by another Character, or Property of *Mercury*, which is its Volatility; for as those Columns of Air abovementioned grow stronger by Rarefaction, those which serve for a Support to the Particles of *Mercury* being more rarified, when that *Metal* is put to the Fire, than those which compress them, grow consequently stronger, and as the nearer the Fire, the better they are rarefied, and consequently the greater is their Strength. They lift up at first those Particles with such Violence, naturally inclined to Motion, and support them, in their Ascent with such a Might, that they conquer all Obstacles, 'till those Columns growing denser a-top, by a too great Distance from the Fire, those globulous Particles finding again the same Equality between their Impulsion and Impression, approach one another, and re-assume their former State; which is seen plainly at those Particles, which had been exalted by the Fire, being found gather'd together at some very great Distance from the Fire. This Phœnomenon of *Mercury* cannot be explained otherwise, since it cannot be said of them what we have said of those of other *Metals*, that they have been exalted or ushered up by the igneous Particles, since the Politure and Smoothness of the mercurial one renders them impenetrable to the igneous Particles; for how could they be hooked in, since we see by a daily Experience, that the more polished or smooth a globular Body, the more impenetrable it is to the sharpest Weapon, not through its Hardness only, but through its Instability, being always ready to slide from the least Impression. 'Tis true that the Activity of the igneous Particles is almost incomprehensible, but the Politure and Smoothness are more incomprehensible.

Mercury is found in several Mines in *Europe*, particularly in *Hungary*, *Spain*, *Friuli*, and even in *France*. It is found under three different Forms: 1. In ruddy Glebes, or Clods, call'd *Cinnabar*. 2. In hard stony Glebes, or a mineral Substance of a Saffron, and sometimes of a blackish Colour. 3. It is also found pure; for upon opening Holes in the Bed of Stones, *&c.* there sometimes gushes a Vein, or Stream of pure *Mercury*, call'd *Virgin Mercury*.

This last Sort is most valued. *Paracelsus* and *Basil Valentine* prefer it far to any other Sort, for *chymical* Operations; therefore we'll chuse it for ours. We design to make 14 Preparations of *Mercury*, *viz.* the *Æthiops mineralis*, the *black mercurial Panacea*, the *corrosive Sublimate*, the *sublimate Mercury*, call'd *Aquila alba*, the *mercurial Panacea*, the *white Precipitate*, another *white Precipitate*, the *red Precipitate*, the *red Precipitate without Addition*, the *green Precipitate*, the *Turbith Mineral*, or *yellow Precipitate*, the *Oil* or *Liquor of Mercury*, another *Oil of Mercury*, and another *Precipitate of Mercury*.

We'll begin with the *Æthiops mineralis*, which is a Mixture of *Mercury* and Sulphur, made by putting in Fusion, on the Fire, what Quantity we please of Sulphur in an earthen Pot, without Glazing, and which will bear the Fire, and mixing with it, by Degrees, with an Iron Spatula, an equal Quantity of *Quick-silver*; we'll set Fire to the Mixture, and the Sulphur being burnt, it will remain a black Mass, friable and ponderous, which must be left to cool, and afterwards separated from the Pot, and kept. 'Tis the *Æthiops mineralis*.

This Preparation is good for the Asthma, Epilepsy, Rheumatism, Venereal Disease, and for Scrophula's, and the King's Evil. It operates chiefly by Perspiration, and seldom by Salivation. The Dose is from 8 Grains to 2 Scruples, in a Bolus.

Note, That this Operation must be made under the Chimney, else the Vapours of the Sulphur, and *Quicksilver*, will offend the Artist. The Sulphur is easily melted over a Fire of Charcoal. As soon as it is in Fusion, it must be taken off the Fire, and having ty'd the *Quicksilver* in a Linnen Cloth, it must be press'd with the Fingers over the melted Sulphur, that it may fall upon it like Rain, stirring the Matter, at the same Time; and when it is perceiv'd that the Mixture is exactly made, and there appears no more liquid *Mercury*, Fire must be set to it with a Match. The black Mass must not be taken from the Pot till it be quite cold, because hot *Mercury* is always prejudicial to those who handle it. If we have employ'd, in this Operation, 16 Ounces of *Quicksilver*, and as much Sulphur, it will remain 17 Ounces and a Half of *Æthiops mineralis*.

The *black mercurial Panacea*, which is our second Operation on *Mercury*, is *Mercury* penetrated, and impregnated with some Portions of Sulphur and *Sal Ammoniack*, thus: We put in Fusion in an earthen Pot without Glazing, 4 Ounces of Sulphur, or Brimstone; we take it off the Fire, and mix with it, by Degrees, 3 Ounces of *Sal Ammoniack*, in Powder; it then raises

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a Smoak, proceeding from the Phlegm of the *Sal Ammoniack*; we separate the Matter from the Pot before it is quite harden'd, and find 12 Ounces and 6 Drachms of it; which, when cold, we pulverize, and put into a Matrass, to fill but one Third of it; we place the Matrass in a Sand Heat, and give but a small Fire, at first, to heat the Vessel; then we increase it gradually to the third Degree, and continue it during 5 Hours, or till no more Vapours come out through the Neck of the Matrass; then we leave the Vessel to cool, and break it afterwards: We find at the Top some white Flowers, which we throw away as useless, and at the Bottom a Matter disposed by Beds of different Colours; the first yellow, the second white, the third grey, and the fourth black. We pound this Matter, and put it into a Matrass, pushing it, as before, by a graduated Fire, during seven Hours; then leaving it to cool, and breaking the Vessel, we find the Matter disposed by Beds of different Colours, as in the first Calcination; which we reduce again into Powder, and put into a new Matrass, pushing it, for the third Time, as before, by a graduated Fire, during seven Hours; then breaking the Matrass, we take out the Matter, reduce it again into Powder, put it in another Matrass, and push it, for the fourth Time, by a graduated Fire, as before, but increasing it towards the End, to make the Bottom of the Vessel red-hot; then we break it, and find the Matter separated into two Beds of different Colours; that a-top is yellow and light; and that underneath is commonly black; sometimes, also, purple, and ponderous. We take this last Portion, which is the *black Panacea.*

This Preparation is sudorifick, proper for the Rheumatism, Venereal Disease, Asthma, Epilepsy, *Scrophulæ*, Worms, and to raise the Obstructions. The Dose is from 12 Grains to Half a Drachm, in a Bolus. The yellow Matter a-top is a Mixture of Sulphur and *Sal Ammoniack* impregnated with some Portion of *Mercury*. It must be reduc'd into Powder, and kept. It may be employ'd externally for the Itch, mixing two Drachms of it in an Ounce of *Pomatum*.

Our third Preparation, is that of *corrosive Sublimate*, which is a *Mercury* penetrated by Acids, and exalted by the Fire, to the Top of the Vessel. The *sublimate Mercury* is prepar'd by putting 16 Ounces of *Mercury* into a Matrass, and pouring upon it 18 Ounces of Spirit of Nitre. The Matrass is plac'd at a small Sand Heat, and left there till the Dissolution be made; which Dissolution is pour'd into a glass Vessel, or a stone Pan, to evaporate slowly, at a Sand Heat, all the Humidity, till it remains but a white Mass; which must be pounded in a glass Mortar, and mix'd with 16 Ounces of Vitriol calcin'd white, and as much *decrepitated* Salt: This Mixture is put into a Matrass, two Thirds whereof are left empty, its Neck having been cut in the Middle of its Height: This Matrass is plac'd on the Sand, and the Artist begins to give a small Fire, which he continues during 3 Hours, and then increases it; when there will be form'd a *Sublimate* at the Top of the Matrass: The Operation must be ended in 7 or 8 Hours. The Matrass is left to cool, and then broke, the Artist avoiding a light Powder, which flies into the Air when the Matter is stirr'd. The red Dross left at the Bottom of the Vessel, is thrown away as useless.

The *corrosive Sublimate* is a violent Escharotick, and eats away proud Flesh. Half a Drachm of it, dissolved in a Pound of Lime-water, turns it yellow, which is then call'd *phagedænick Water*. It is used to wash Ulcers, and tetterous Eruptions.

Note, That the Corrosion of this *Sublimate*, in the acid Particles of the Spirit of Nitre, of which the globulous ones of the *Mercury* have form'd a Sheath, by rolling themselves in that Spirit during the Dissolution, to shut themselves in, and the æthereal Pyramids, which serve for a Support to them, being rarefy'd by the Fire, in the *Sublimation*, raises them upwards, together with their Sheath, entirely composed of sharp Points, which being repulsed outward, by the Resistance they meet with from the Politure of the *mercurial* Particles, tare and lacerate the Parts they are apply'd to, assisted therein by the perpetual Rotation of those *mercurial* Particles shut up within.

Mercurius dulcis, our fourth Operation on *Mercury*, is the corrosive Sublimate divested of its acid Sheath, in the following Manner: Six Ounces of corrosive Sublimate are reduc'd into Powder, in a glass or stone Mortar, and twelve Ounces of *Quicksilver* mix'd with it; the Mixture is stirr'd with a wooden Pestle, till the *Quicksilver* be imperceptible; that Mixture, which will be grey, is put into several Vials, or into a Matrass, two Thirds whereof ought to be empty: The Vessel is put in the Sand, and a small Fire given to it, at first, which is increased afterwards to the third Degree, and continu'd in that Condition during 5 Hours, to sublimate, and sweeten the Matter; then the Vessels are left to cool, and afterwards broke, wherein are found 3 different Sorts of Matter, *viz.* a small Quantity of a light Earth at the Bottom, which must be rejected as useless; another Matter adhering to the Neck of the Vials, or of the Matrass, which may be kept to mix with Unguents for the Itch; and a white one in the Middle, which must be gather'd carefully, pounded, and put into Vials to be sublimated a second and a third Time, proceeding in these two last Sublimations as has been done in the first. The Matter found in the Middle, after the last Sublimation, will be very well dulcify'd.

This *Mercurius dulcis* purges gently by Stool; 'tis used in all Sorts of venereal Diseases; 'tis disobstructive, and kills Worms. The Dose is from 6 to 30 Grains, in Pills. If it be sublimated twice more, it loses its purgative Virtue, and is more disposed to work by Perspiration and Salivation. If, on the contrary, it be sublimated but twice, its purgative Virtue will be greater.

Note, That the corrosive Sublimate must never be pounded in a Mortar of Metal; it would corrode the Metal, and carry off some Portion of it, which would spoil the Operation. *Quicksilver* is mix'd with the Sublimate, to help to divest it of its acid Sheaths, by continually and violently rubbing against them during the Mixture, when it breaks all their sharp Points which caused the Corrosion, leaving nothing to the sublimated Particles but a thin, and almost smooth Coat, which if apply'd, then, on any Part of the Body, would be found to have lost a great deal of their Corrosion. The *Quicksilver* forms of the Fragments of those Points it has broke, Sheaths, likewise, or Coats, for each of its Particles, as appears by its changing Colour; which Coats have no bad Qualities, because composed only of weaken'd acid Particles, and in a different Position. The Matter is put to sublimate, to free it entirely of the Superfluity of those Fragments of the acid Points, as well as to render the Coats of the sublimated Particles quite smooth. Vials are better for this Operation than a Matrass, unless Half, or at least a third Part of the Neck of the Matrass be cut off; for if the Neck was too long, as the greatest Part of the Fuliginosity could not ascend to the Top, it would fall back on the Sublimate, and hinder its perfect Sublimation; because that Fuliginosity contains what's the most acrimonious, but comes easily out of the Vials, or Matrass, which have a short Neck. The Sublimate sticks round the Vials or Matrass in Form of a hard Stone, because the *mercurial* Particles having been quicken'd in the Sublimation, have made several Efforts to break their Sheaths, and in those Efforts have extended them; so that they being a great deal looser than they were, and the *mercurial* Globules having a larger Space to move in than they want, that End of the Sheath left empty, while the *mercurial* Globule is at the other, falls against the Bottle, where it sticks, so much more so, by the continual and quick

Accession of new Particles of the same Kind, just like Flakes of Snow, which carry'd off by the Wind into a particular Place, form there a very hard Body. If the Fire has been but moderately strong, the Sublimate will be Half in Stone, and Half in a very white rarefy'd Matter; but no Matter in what Form it is, provided it be well sublimated, and there be felt no Acrimony when put on the Tongue. The purgative Quality of the Sublimate consists in its acid Sheaths, which keeping still its volatile Particles shut up, though more at large, hinder their natural Volatility, and their Perspiration through the Pores of the Body, leaving them all their Ponderosity, whereby they raise the Obstructions of the Vessels through which they pass, and facilitate the Evacuation of Humours; but when they are once freed from those thin Sheaths, by a few more Sublimations, they then lose that purgative Quality, to re-assume their natural diaphoretick one. All Sorts of *mercurial Preparations*, when taken inwardly, are to be made in Pills or Bolus's, and never dissolv'd in a Liquid, for Fear it should stop in the Gums, and spoil and loosen the Teeth.

The *mercurial Panacea*, is a Sublimate of *Mercury* dulcify'd by several Sublimations, and Spirits of Wine, thus: We'll take what Quantity we please of the *sublimate Mercury* last mention'd, which having reduc'd into Powder in a stone or glass Mortar, we'll put into a Matrass, 3 Parts whereof are to be left empty, and its Neck cut at the Middle of its Height; which Matrass must be plac'd in a Furnace, at a Sand Bath, and a small Fire made under it, during an Hour, to heat slowly the Matter; after which, the Fire is to be increased to the third Degree, and continu'd in that Condition about five Hours, during which Time, the Matter will sublimate. The Vessel being left to cool, and afterwards broke, a small Quantity of red and light Earth, found at the Bottom, must be thrown away as useless, and all the *Sublimate* separated from the Glass reduc'd again into Powder, and sublimated as before; which Sublimations are to be repeated seven Times more, changing the Matrass each Time, and each Time rejecting the red Earth found at the Bottom: This done, the *Sublimate* is to be reduc'd into an impalpable Powder on the Porphyry, and put into a glass Cucurbite, pouring upon it alcooliz'd Spirit of Wine, to the Height of six Fingers Breadth; then the Cucurbite must be cover'd with its Capital, and the Matter left in Infusion during 15 Days, stirring it from Time to Time with a wooden Spatula: At the End of the 15 Days, the Cucurbite must be plac'd at the *Balneum mariæ*, or *vaporous Bath*, adapting a Recipient to it; and having luted exactly the Junctures with a wet Bladder, all the Spirits of Wine must be distill'd by a moderate Fire, which accomplish'd, the Vessel is left to cool, and being unluted afterwards, we shall find our *Panacea* at the Bottom of the Cucurbite, which if not dry enough, must be dry'd at a small Sand Heat, by stirring it with a wooden Spatula in the same Cucurbite, till it grows into Powder, which must be kept in a glass Vessel.

This *Panacea* is a very good Remedy for all the venereal Diseases, inveterate Rheumatisms, Obstructions, Scurvy, King's Evil, Itch, Scald Heads, Worms, *Ascarides*, and old Ulcers. The Dose is from 6 Grains to 2 Scruples, in a Bolus, or Pills.

Note, That the Name *Panacea* derives from πανακεια, *i. e. Remedium universale*, an universal Remedy; because, in Fact, it cures several Maladies. If the Artist will not take the Trouble to distil the Spirits of Wine, he may separate it by Inclination or Filtration, from the Matter, without Fear of losing any sensible Part of the *Panacea*. The *mercurial Panacea* operates by Extinction, Perspiration, Salivation, and Purgation: It operates by Extinction, when mixing with the acid Humours, to be met with in a great Quantity in the Body of the Patient, it sweetens them, and hinders their Action; 'tis for this Reason that it is good for Obstructions, and *Scrophulæ*, because these Maladies are ordinarily fomented by an acid Humour, which forms the *Coagulum* which stops the small Vessels. It operates by Transpiration, when, being excited by the Heat of the Body, it goes out through the Pores, and ushers out along with it the Humours it had mix'd with; and in this Manner it cures Ringworms, Itch, Scald Heads, old Ulcers, and Rheumatisms. It operates by Salivation, when sublimated with the acid Salts 'tis cas'd in, as far as the Head, where it opens the salivary Ducts, and causes in them small Shankers. Lastly, it operates by Purgation, either by the Fermentation caused by the acid Sheaths 'tis wrapp'd in; or by the Precipitation caused by the fix'd Salts it meets with in the Body; but oftener it does not purge at all, or but very little; in which it differs from the *Aquila alba*, which is a stronger Cathartick. When 'tis wanted to excite a Salivation, by Means of the *mercurial Panacea*, the Patient must have been very well purg'd before; then 10 Grains of the *Panacea* are administer'd to him in the Morning, and 10 at Night; the next Day 15 Grains in the Morning, and 15 at Night; the third Day 20 Grains in the Morning, and as many at Night; the fourth Day 25 Grains in the Morning, and as many at Night; the fifth Day 30 Grains in the Morning, and 30 at Night; continuing thus to increase the Dose, till a copious Salivation ensues, which must be entertain'd, by giving every other Day, or every third Day, 12 Grains of the *Panacea*. Some are of Opinion, that the Salivation excited by this Remedy being not so strong as that procur'd by Friction, it must be made to last longer; therefore for a perfect Cure, it should be continu'd during 40 Days, or thereabouts. Several prefer the *Panacea* to Frictions, and other Ways of exciting Salivation; because it operates gently, and does not cause the dangerous Accidents occasion'd by Frictions, Fumigations, and Plaisters.

The *white Precipitate of Mercury*, is a *Mercury* dissolv'd in Spirit of Nitre, and precipitated by Salt into a white Powder, in this Manner: Sixteen Ounces of crude *Mercury* are dissolv'd in a glass Cucurbite, with 18 Ounces of Spirit of Nitre: The Dissolution made, we'll pour upon it filtrated Salt-water, made of 10 Ounces of Sea Salt, melted in 2 Pints of Water, adding to the whole about an Ounce of volatile Spirit of Sal Ammoniack: Then there will be made a very *white Precipitate*, which is to be left to settle, pouring out, afterwards, the Water, by Inclination, and washing the *Precipitate*, several Times, with Spring-water, and drying it in the Sun.

This *Precipitate* is used to excite a Salivation; 'tis somewhat vomitive. The Dose is from 4 to 15 Grains, in Pills. 'Tis also mix'd in *Pomatum* for cutaneous Distempers, from Half a Drachm to a Drachm, for an Ounce of *Pomatum*.

The other Sort of *white Precipitate* is the *corrosive Sublimate*, dissolv'd with Sal Ammoniack melted in Water, and precipitated by Oil of Tartar, thus: Four Ounces of Sal Ammoniack are melted in 16 Ounces of Water, the Liquor is filtrated through a grey Paper, and 4 Ounces of *corrosive Sublimate*, in Powder, added to it, which will melt soon; then Oil of Tartar *per deliquium* is pour'd gently on the Dissolution, whence an Ebullition will ensue, and afterwards a *white Precipitate*: The Artist continues pouring the Oil of Tartar till he sees that nothing more is precipitated, then pours a great Quantity of Water into the Vessel, and leaves the Matter to settle, till the Liquor grows clear; then he pours out the Matter by Inclination, washing several Times its *Precipitate*, and having it dry'd, afterwards, from the Sun: It commonly turns a little yellow. This *Precipitate* has the same Virtues as the other, and the Dose is the same.

The *red Precipitate* is a *Mercury* wrapp'd in Spirit of Nitre, and calcin'd by Fire, in this Manner: The Artist takes 8 Ounces of crude *Mercury*, which he causes to

to be diſſolved in eight or nine Ounces of Spirit of Nitre. He pours the Diſſolution into a Vial, or Matraſs, with a ſhort Neck, which he places on the Sand, and makes under it a moderate Fire to evaporate the Humidity 'till it remains nothing but a white Maſs: Then he puſhes ſlowly the Fire to the third Degree, and keeps it in that Condition 'till the Maſs is turned red, then takes it off the Fire, and having left the Veſſel to cool, he breaks it to take out the *Precipitate*.

This *Precipitate* is an excellent Excarotick, it eats proud Fleſh, 'tis uſed, mixed with Burnt Alum, Ægyptiack, and Supurative, to open Shankers.

The *green Precipitate* is a Mixture of *Quick-Silver*, *Copper*, and acid Spirits, made in the following Manner. We'll put four Ounces of *Quick-Silver* into a Matraſs, and one Ounce of *Copper*, cut into ſmall Pieces, into another. We'll pour upon the *Quick-Silver* four Ounces of Spirit of Nitre, or of good *Aqua Fortis*, and on the *Copper* one Ounce and a half of the ſame Diſſolvent: We'll place our Matraſſes on a Sand-Heat, and leave them there 'till the *Metals* be diſſolved; we'll mix our Diſſolutions in a ſtone Porringer, and cauſe the Humidity to be evaporated, at a Sand-Heat, 'till they be reduced into a Maſs: We'll increaſe the Fire under the Porringer to calcine the Maſs for about one Hour and a half; we'll put the Fire out afterwards, and leave the Maſs to cool; then we'll take out the Maſs, and reduce it into Powder in a ſtone Mortar; which done, we'll pour upon it diſtilled Vinegar to the Heighth of ſix Inches, or thereabouts; we'll ſtir the Mixture very well together, and place the Matraſs in Digeſtion at a Sand-Heat, where we'll leave it twenty-four Hours, ſtirring it from Time to Time: We'll afterwards increaſe the Fire to make the Liquor boil for about an Hour, or 'till the Vinegar has took a green Colour, inclining to blue, leaving it to cool, and afterwards pouring it out by Inclination. We'll pour other Vinegar upon what remains in the Matraſs, and proceed, as before, to extract the Tincture, mixing our Diſſolutions together, and having the Humidity hereof evaporated, in a ſtone or glaſs Veſſel, at a Sand-Heat, 'till the Matter appears in the Conſiſtence of a thick Honey, then we'll take it off the Fire, it will harden in cooling. We'll reduce it into Powder and keep it. This is the *green Precipitate*.

This *green Precipitate* is a Specifick for virulent Gonorrhœa's; 'tis adminiſter'd when they run, and to ſtop them after they have ran; it may be uſed in the Pox for the Phimoſis and Shankers, given inwardly, and applied outwardly. The Doſe is from two Grains to ſix, in Pills, or in a Bolus; it purges upwards and downwards. There will remain in the Matraſs a Matter which has not been diſſolved by the Vinegar, it reſembles much the *Turbith Mineralis*; it muſt be waſhed and dried, and can be uſed in Pomatums for the Itch, a Drachm on an Ounce of Pomatum.

The *Turbith Mineralis*, or *yellow Precipitate*, is *Mercury* impregnated with the acid Particles of the Oil of Vitriol: Thus, the Artiſt puts four Ounces of *Quick-Silver* into a glaſs Retort, and pours upon it ſix Ounces of Oil of Vitriol; he places his Retort on the Sand, and when the *Mercury* is diſſolved, he makes a Fire under it, and diſtils the Humidity, then puſhes the Fire towards the End to force out one Part of the laſt Spirits: He breaks afterwards his Retort, and reduces into Powder, in a glaſs Mortar, a white Maſs he has found in the Retort; then pours warm Water upon it, which Water changes the Powder yellow, which he mundifies with ſeveral repeated Lotions, and afterwards dries it in the Sun.

This *Turbith Mineralis* purges violently upwards and downwards; it is preſcribed in the Venereal Diſeaſes. The Doſe is from two Grains to ſix in Pills.

The *Oil* or *Liquor of Mercury* is prepared by putting into a Stone-Pan the Lotions of the white Maſs, of which the *Turbith Mineralis* has been made, and cauſing all the Humidity to be evaporated, at a Sand-Heat, 'till a Matter remains at the Bottom in Form of Salt; then the Pan is to be carried to the Cave, where it muſt be left 'till almoſt all the Matter be reſolved into a Liquor, which is uſed to open the Venereal Shankers, and to eat the proud Fleſh, by applying it upon them on Pledgets.

There is another *Oil of Mercury*, which is but the corroſive Sublimy diſſolved in Spirit of Wine; Thus: One Ounce of corroſive Sublimate is reduced into a very ſubtle Powder; and put into a Matraſs; four Ounces of very well rectified Spirit of Wine are poured over it, the Matraſs well ſtopp'd, and the Matter left to macerate, in the Cold, during ſeven or eight Hours, when the Sublimate will be diſſolved; but if ſomething was left at the Bottom, the Liquor muſt be poured out by Inclination, and a ſmall Quantity of other Spirit of Wine poured upon the Matter left, leaving it to macerate as before, to perfect the Diſſolution: Theſe Diſſolutions are mixed and kept in a Bottle well corked.

This *Oil of Mercury* is ſofter than the firſt, and proper for the Venereal Shankers, eſpecially when we fear the Gangrene, it may be uſed on Pledgets as the other.

There are three other Sorts of *Precipitate of Mercury*, beſides thoſe heretofore-mentioned, which are nothing elſe but the corroſive Sublimate precipitated into Powders of different Colours. Thoſe three *Precipitates* are prepared in the following Manner.

Four or five Ounces of corroſive Sublimate are ſtirred in a glaſs Mortar, with eight or nine Ounces of warm Water, during one Hour, then the Liquor is left to ſettle, and afterwards poured out by Inclination, filtrated, and divided into three Parts, in three Vials.

Then throwing into one of thoſe Vials ſome Drops of Oil of Tartar *per Deliquium*, there will be made immediately a *red Precipitate*. Pouring into another Vial ſome volatile Spirit of Sal-Armoniack, there will be made a *white Precipitate*. And mixing in the laſt Vial five or ſix Ounces of Lime-Water, there will be made a yellow Water, called *Phagendenick*, or *Ulcerary*, becauſe 'tis a Deterſive, and proper to cure Ulcers. If the Water is left to ſettle, there will be made a *yellow Precipitate*.

To take out thoſe three Sorts of *Precipitates*, the Water muſt be poured out by Inclination; they muſt be waſhed, dried, and kept.

The *red Precipitate* is uſed like the other heretofore deſcribed, but it is not ſo ſtrong, 'tis the true *red Precipitate*, which is very much eſteemed for the Pox. The Doſe is four Grains. The *white Precipitate* has the ſame Virtues as the other *white Precipitate*. The *yellow Precipitate* is employed in Pomatums for the Itch, mixing half a Drachm, or a Drachm of it with an Ounce of Pomatum.

Note, The Diverſity of Colours in theſe three Sorts of *Precipitates* proceed from the different Manner the Acids have been broke by the different Alkalies, all different in their Operations, and in the Arrangement and Configuration of the Particles of the Body they precipitate, which conſequently muſt occaſion a different Reflexion of Light. Thoſe *Precipitates* are no longer Poiſons though made of corroſive Sublimate, becauſe they have entirely deſtroyed the Texture of the Particles which cauſed the Corroſion. When Spirit of Vitriol, or *Aqua Fortis* is poured upon the Liquor of the *red Precipitate*, there enſues an Ebullition, becauſe the Acid penetrates the Alkali of the Oil of Tartar, and that Alkali being deſtroyed, the Acid ceaſes what had been precipitated, and inveſts a new corroſive Coat, whence the Liquor is clarified, and returns into Poiſon. If Oil of Tartar was again poured upon it, and afterwards ſome Spirit of Sal-Armoniack, there would be a new *red* and *white Precipitate* made.

Note alſo, That all the Preparations of *Mercury* heretofore-mentioned are but Diſguiſements of that *Metal*, made by Acids or Alkali Spirits, which having ceaſed it in a different Manner, make it produce different Effects.

ANTIMONY is another *Proteus* in *Chymistry*, and assumes as many different Forms as *Mercury* does. *Antimony* is a *mineral* Substance of a *metalline* Nature, having all the seeming Characters of a real *Metal*, excepting Malleability. 'Tis the *Stilium* of the Antients, by the *Greeks* called στιμμι. The Reason of its modern Denomination is usually referred to *Basil Valentine*, a *German* Monk, who, as the Tradition relates, having thrown some of it to the Hogs, observed that after purging them violently, they immediately grew fat upon it. This made him think that by giving his Brother Monks a like Dose, they would be the better for it. The Experiment however succeeded so ill, that they all died of it; and the Medicine henceforwards was called *Antimony*, q. d. *Anti-Monk*. Its singular Properties have occasioned its various other Denominations; as *Proteus*, by Reason of its various Forms and Appearances, *Lupus*, *Devorator*, *Saturn of the Philosophers*, *Balneum Solis*, *Lavacum Leprosorum*, *Radix Metallorum*, *Magnesia Saturni*, &c. all chiefly respecting its Faculties of destroying and dissipating whatever *Metals* are fused along with it all except *Gold*, whence its great Use in refining and purifying.

Antimony is what we properly call a *Semi-Metal*, being a fossile Glebe, composed of some undetermined *Metal*, combined with a sulphurous and stony Substance. It is found in Mines of all *Metals*; but chiefly those of *Silver* and *Lead*: That in *Gold-Mines* is usually held the best. It has also its own Mines; particularly in *Hungary*, *Transilvania*, and *Germany*, and several Provinces of *France*. It is found in Stones or Clods of several Sizes, bearing a near Resemblance to *Black Lead*; only that it is lighter and harder: Whence also it is called *Marcasite of Lead*, and its *metalline* Part supposed to be of that Species. Its Texture is somewhat particular, being full of little shining Veins or Threads, like Needles, brittle as Glass. Sometimes there are Veins of a red or golden Colour intermixed, which is called *male Antimony*; that without them being denominated *Female*. It fuses in the Fire, though with some Difficulty, and dissolves more easily in Water.

When *Antimony* is dug out of the Earth it is put into large Crucibles, fused by a violent Fire, and then poured into Cones, or antimonial Horns, which make the common or crude *Antimony* of the Shops, the Apex whereof is always the best and purest Part, as the Basis or broadest Part is the foulest. The best *Antimony* is that with long shining Needles.

It is a very great Mistake in several of our Brother *Chymists*, to pretend that *Antimony* contains the seminal Principles of all Kind of Bodies, and consequently is a Kind of Microcosm; otherwise it could be supposed, that by the various Positions of the Particles those Principles are composed of, and the different Configuration of their Pores, they could form as many different Substances, or rather as many different Kind of *Metals* and *Minerals*; which is a false Supposition, having never been confirmed by Experience, since after the infinite Number of Experiments made on *Antimony*, and after the most curious Analysis of its Principles, there could never be found, that either of those Principles had so strict an Analogy with those of the other *Metals*, as to be brought by any Purification, Alteration, Maceration, Digestion, or Degree of Fire, to form a perfect *Metal*. 'Tis true that *Antimony* cannot be dissolved but by the *Aqua Regalis*, which has made *Alchymists* believe, that this *Mineral* was but an imperfect *Gold*; but this Phœnomenon can easily be accounted for, without having Recourse to that Resemblance, since the Pores of *Antimony* are so spungy, that the Points of all other Acids which have not the Sharpness and Activity of those of the *Aqua Regalis*, are repulsed by those Pores yielding to their first Impetuosity, which damps at once that Impetuosity, when the Pores re-assume their former Situation, without having been penetrated, whenas the Points of the Acids of *Aqua Regalis*, being a great deal finer, sharper, and quicker in their Operation, conquer suddenly that Obstacle, and penetrate with such Violence, that they carry all before them; and in this consists the Difference between *Antimony* and *Gold*; for if *Gold* resists the Points of all other Acids, except those of *Aqua Regalis*, 'tis not because its Pores yield to the first Impetuosity of those Points, but because those Pores are so strait and compact, that all other Points, except those of the Acid of *Aqua Regalis*, are either blunted or broke in their first Shock against them.

There is rather a greater Abundance of Sulphur in *Antimony* than in *Gold*, or any other *Metals*, or *Minerals*, but that Sulphur is coarse and undigested; and we have all the Reason imaginable to believe, from its vomitive Effects, that *that* Sulphur contains an acid Salt, since by examining narrowly its Configuration, it appears much like that of Salt-Petre; but as the Points of those Salts are wrapp'd in a great Quantity of Sulphur, it is not disposed to act with all its Strength, unless a Passage be opened to it, either by some Salts which may disperse that Sulphur, or by Calcination which evaporates it. It must not be understood thereby that the Vomitive of *Antimony* consists in that Salt only; for if alone, it could not produce that Effect no more than the other acid Salts, but it is assisted therein by a Portion of Sulphur, which serves as a Vehicle, to exalt it towards the Orifice of the Stomach, and to keep it a long while, as glued against its Fibres; therefore *Antimony* can be called *Vomitive*, because of its saline Sulphur.

Before the fourteenth Century, *Antimony* had no Place in Medicine, otherwise than as an Ingredient in some Cosmeticks; but about that Time *Basil Valentine* having found a Method of preparing and correcting the dangerous Qualities of its Sulphur, published a Book, entitled *Currus Triumphalis Antimonii*, wherein he maintained it a sure Remedy for all Diseases, but in spite of all he could say in its Behalf, though confirmed by Experience, *Antimony* remained, in a general Neglect, upwards of a hundred Years, 'till about the Beginning of the sixteenth Century, when it was brought in Vogue by *Paracelsus*. The Parliament of *Paris* immediately, upon this Restoration, condemned the Use of it in Form; and a Physician, named *Besnier*, having been found delinquent herein, was expelled the Faculty. It seems a deal of Mischief had been done by it, for want of knowing the proper Ways of Application; so that the *Arret* of Parliament represents it as a mere Poison, incapable of being corrected by any Method of Preparation, and not to be taken inwardly, without the greatest Damage.

Several learned Men complained of so severe and unjust a Prohibition, and by a Course of happy Experiments brought it into Esteem again; whence, in spite of all the Invectives made against *Antimony*, by divers Authors, it was at length replaced, in the Year 1637, by publick Authority, among the Number of purgative Drugs; and was inserted accordingly in the *Pharmacopœia*, published by the Faculty the same Year. *Guy Patin* did all he could to decry *Antimony*: In his Letters, we find an unusual Vehemence expressed against it; he had even compiled a large Register of Persons whom the Physicians had killed by it, which he called the *Martyrology of Antimony*: But all Physicians at present, are convinced that *Antimony*, like all other *Chymical* Preparations, when administred with Judgment and Prudence, is a sovereign Remedy.

Antimony is even often administred Crude, or in Substance, in sudorifick Decoctions, when the Humours are to be expelled by Transpiration, taking Care, however, that nothing acid should be in the Decoction, otherwise it would open it, and render it emetick. If the Decoction of *Antimony* provokes Sweat, 'tis because some sulphurous Particles have unloosen'd themselves from the *Antimony*, which being not strong enough to excite Vomiting, pushes by Perspiration, though an insensible one. *Antimony* is seldom used inwardly in Substance, either by a Prevention against that *Mineral*, or because its Principles are supposed so exactly united, that they could not be unfolded in the Body, nor produce any Effect, though 'tis known by Experience, that it can be administred from half a Scruple,

Scruple, from half a Drachm in Powder, for one Dose, to excite a gentle Vomiting; but if it be wanted that it should operate with more Violence, there must be given to the Patient some Spoonfuls of an acid Liquor, as of Verjuice, and Juice of Lemons, weakened with Water.

As far as I can find, my Man *Regule* has taken Care to provide our Laboratory with that *Antimony* with long bright Needles, which is the best for our *Chymical* Operations on that *Mineral*, which Operations are to be twenty-four in Number, *viz. Common Regulus of Antimony, golden Sulphur of Antimony, Regulus of Antimony, with the Mars, Stomachick of Poterius, Lilium Minerale, or Sal Metallorum, Glass of Antimony, Liver of Antimony, Magistery, or Precipitate of Antimony, Diaphoretick Antimony, Flowers of Antimony, red Flowers of Antimony, Snow of Antimony, Butter of Antimony, Butter of Antimony with its Cinnabar at the same Time, Lunar Butter of Antimony, Powder of Algarot or Emetick, Bezoardum Minerale, Antimonial Panacea, Caustick Oil of Antimony, Tincture of Antimony, and Tincture of Glass of Antimony.*

We'll begin these Operations by that of the REGULUS OF ANTIMONY, which is that *Mineral* rendered heavier, and more *metallick*, by the Separation of its coarser Sulphurs in this Manner.—We reduce into Powder sixteen Ounces of *Antimony*, twelve Ounces of white Tartar, and six Ounces of refined Salt-Petre, which we mix exactly together; and having made a Crucible red hot, we throw into it a Spoonful of our Mixture, and cover it with a Tile, there will happen a Detonation, which when over, we'll continue to put our Mixture by Spoonfuls successively into the Crucible, 'till we have put in all; we make a great Fire round the Crucible, 'till the Matter be in Fusion, or melted, then we throw it into a Mortar, which we have greased with Tallow and heated, and strike with the Tongs the Sides of the Mortar that the *Regulus* may fall to the Bottom, which *Regulus*, when cold, we separate from the Dross which is a-top, by striking the Matter once with a Hammer; then we find a very fine and starry *Regulus of Antimony*, weighing six Ounces and one Drachm, which purges upwards and downwards, given inwardly in a subtle Powder.—The Dose is from two Grains to eight.

Of this *Regulus of Antimony* melted, we make with the Help of our Mould for Bullets, small Bullets, which are called the perpetual Pill, and which taken and voided fifty Times, purges each Time, and we scarcely perceive that it has diminished in Weight.

The same *Regulus* is cast into Cups, but not without some Difficulty, because of the spungy Particles of *Antimony*, which are not intimately enough incorporated together, as to be easily extended.—If Wine be left in those Cups, it becomes vomitive.

Note, That the Artist has no other Design in this Preparation of *Antimony*, than to open it and purify it of a great Quantity of its sulphurous Particles, by Means of the Salt-Petre and Tartar, which being easily inflamed, carry off along with them, in the Calcination, a very considerable Part of that Sulphur, the Rest remaining in the Dross. The Mixture is thrown by Intervals into the Crucible, because if it was done all at once, the Detonation would be too violent, and the Matter rarefying itself, would come out of the Crucible. The Matter must be in a perfect Fusion before it be taken off the Fire, to throw it into the Mortar, or Calot, else the *Regulus* would be found dispersed among the Dross, which is easily known by uncovering the Crucible from Time to Time, and introducing into it an Iron Spatula, which should touch the Bottom to discover if all be melted. The *Regulus* may be found in the Crucible itself, without throwing it into a Mortar, by striking the Sides of the Crucible with the Tongs, leaving it to grow cold, and breaking it afterwards. When the Cake of *Regulus* has been separated from the Dross, it must be very well washed with Worm-Water, to render it beautiful and shining. Wine extracts better the emetick Virtue of the Preparations of *Antimony*, than Water Spirit of Wine or Vinegar could do, because that Virtue consists in a saline Sulphur, which Water cannot penetrate; Spirit of Wine can very well dissolve the most sulphurous Portion of *Antimony*, but makes but very little Impression on its Salt; Vinegar by its Acidity fixes too much what it has dissolved, but Wine contains a sulphurous Spirit and a Saline Tartar, which make a very proper Menstruum to dissolve and preserve the saline and sulphurous Part of prepared *Antimony*. If to please our Curiosity we calcine four Ounces of *Antimony* in Powder, in a earthen Pan, without glazing, at a slow Fire, stirring it always with a Spatula, it will raise a Smoke from it, during an Hour and a half, or thereabouts; and when the Matter will have done smoking, it will be changed into a grey Powder, weighing two Drachms and a half, more than the *Regule* did. The Augmentation will be still greater if the Calcination be made at the Sun by Means of a Burning-Glass. This Augmentation is the more surprising, because the Smoke which comes out of the Matter should have diminished its Weight. Our most learned Physicians and experienced *Chymists* have not been capable yet to account for this extraordinary Phœnomenon, otherwise than by attributing it to the igneous Particles, which, say they, have re-implaced the fuliginous ones, resolved into Smoke; but if this was only the Occasion of Augmentation in the Ponderosity of calcined *Antimony*, the more ponderous are those igneous Particles, the greater should be that Augmentation; but whenas the less those Particles are rarefied, the less Activity they have, and consequently are more ponderous; therefore those proceeding from an artificial Fire, fed with combustible Matters, in the fuliginous Particles thereof, the igneous ones are wrapped, should add a greater Weight than those proceeding from a natural one, such as the Sun, which being divested of all Kind of Fuliginosity, follow continually their natural Rapidity, which keep them always in a suspended State, so that they lean but so insensibly on the Columns of Air they are supported by, that those Columns are always kept in so just an Equilibrium, that they never press more on one Side of the Pores they occupy, than on the other, and consequently cannot much add to the Weight of the Matter, and if they do, it must be a great deal less than those other Particles, which are neither so volatile, nor so free from heterogeneous Bodies. But, however, I'll be of their Opinion, that the igneous Particles re-implace the fuliginous ones resolved into Smoke, with this great Difference, that those igneous Particles, do not, in my Opinion, as in theirs, re-implace the exalted fuliginous Particles, in such a Manner, as to supply, by their own Weight, the Deficiency occasioned by the Calcination; otherwise all that could be expected by the Artist would be, that there should happen no great Diminution in the calcined Matter, but never so sensible an Augmentation in the Weight; therefore, this is my own Reason for this Augmentation, that the igneous Particles, by breaking and destroying the spongy Texture of the Pores of the *Antimony* in the Calcination, produce a closer Coadunation of its Particles; and the more those igneous Particles are active in their Operation, the greater is the Laceration; the greater the Laceration the more compact is the Union of the Pores, and the greater their Ponderosity; since the Column of Air which falls on each Part, finding a greater Resistance, when thus united, press with a greater Strength downwards, than when the Laxity of the Pores of those Parts, left a free Passage to the Air.

The GOLDEN SULPHUR *of Antimony*, which is its sulphurous Part dissolv'd by alkali Salts, and precipitated by an Acid, is prepar'd thus: We reduce into

a coarse Powder the Dross of the *Regulus of Antimony*, and put it to boil with common Water in an earthen Pot, for Half an Hour; the Liquor being filtrated, we pour Vinegar upon the Colature, which will precipitate a red Powder, which we filtrate, separate, wash in several Waters, and put to dry. This is call'd the *golden Sulphur of Antimony*, which is vomitive. The Dose is from 2 Grains to 8, in Broth, or in Pills.

The MARTIAL REGULUS *of Antimony*, is a Mixture of the most fix'd Parts of that Mineral, and of a Portion of Iron, made in this Manner: Eight Ounces of Points of Nails of Farriers are put into a Crucible, which must be cover'd, and put into a Furnace with a Grate: The Crucible is to be environ'd with a great Fire, a-top and at bottom, and when the Nails are red-hot, and even a little whitish, a Pound of *Antimony*, in Powder, is thrown upon them, the Crucible cover'd again, and the Fire continu'd: When the *Antimony* is in a perfect Fusion, Saltpetre is to be thrown upon it, by Intervals, when a Detonation will ensue, and the Nails will melt. When the Matter has done sparkling, it must be thrown into an Iron Mortar, which has before been heated and greased, striking the Sides of the Mortar with the Tongs, that the *Regulus* may fall to the Bottom, which being cold, must be separated from the Dross with a Hammer, and melted again in another Crucible, throwing upon it 2 Ounces of *Antimony*, in Powder, adding to it, when in Fusion, 3 Ounces of Saltpetre; which burnt, and the Matter sparkling no more, it must be thrown into a Mortar, as before, and in the like Manner separated from the Dross: The same Operation is reiterated twice more, and in the same Manner. This *Regulus* operates like the other, and is used for the same Maladies.

The STOMACHICK OF POTERIUS, or *Poter*, is a *Martial Regulus of Antimony* fix'd, and mix'd with Gold, thus: We reduce into Powder 4 Ounces of *Martial Regulus of Antimony*, and 12 Ounces of Saltpetre, which we mix exactly with Half an Ounce of fine Gold; and having made a Crucible red-hot, between Coals, in a Furnace, we throw into it a Spoonful of our Mixture; there happens a small Detonation, which being over, we throw another Spoonful, and continue thus till the whole Mixture be in the Crucible; which having left to calcine for about an Hour, we throw it, afterwards, into a large Quantity of warm Water, and leave it there some Hours to steep, for the Dissolution of the Saltpetre: We pour out the Water by Inclination, and having wash'd several Times the Powder left at the Bottom, we put it to dry, then calcine it again in another Crucible for the Space of an Hour, stirring it with an Iron Spatula; then the Operation is ended.

This *antimonial* Preparation is the *Stomachick of Poterius*, otherwise call'd *Solar Ceruse of Antimony*. 'Tis esteem'd proper to strengthen the Stomach and the Heart, to repair a decay'd Constitution, to excite the Perspiration of Humours, to purify the Blood, to resist Venom, to stop Hæmorrhages, for the Palsy, and for Maladies caused by Mercury.—The Dose is from 10 Grains to 30.

Note, That this Preparation is nothing else but a Purification of the *Martial Regulus of Antimony*, of little or no Use; and that the Gold employ'd in it can't produce the least Effect, but in the Maladies caused by Mercury. Those who have invented this Preparation, have done it to please those who attribute several great Virtues to Gold, which has none with regard to the Cure of Maladies.

LILIUM MINERALE, or *Sal Metallicum*, is a Salt impregnated with the sulphurous Particles of Iron, Tin, Copper, and *Antimony*; in the following Manner: The Artist takes 12 Ounces of Martial Regulus of *Antimony*, which has not been purify'd, Chalk of Tin, and Filings of Copper, of each 2 Ounces; he reduces the Regulus into a coarse Powder, and having mix'd the whole together, puts the Mixture into a Crucible, two Thirds whereof he leaves empty; he covers the Crucible, and places it in a Furnace of Fusion, in the Middle of a great Wheel-fire; and when the Matter is in a perfect Fusion he throws upon it very near 3 Ounces of Saltpetre, stirring at the Bottom of the Crucible with a hot Iron Spatula, and when he sees that the Matter is liquid, he pours it into an Iron Mortar, heated and greased, striking, immediately after, the Sides of the Mortar, with the Tongs, to make the Regulus fall to the Bottom. When the Matter is cold, he separates the Regulus from the *Scories*, or Dross, with a Hammer, and afterwards takes what Quantity he pleases of that Regulus, which he reduces into a fine Powder, and mixing it with half as much Nitre fix'd by the Coals, he puts that Mixture in a Crucible, which he places in the Middle of a very good Coal Fire, in a Furnace, where he leaves it for five or six Hours, that the Matter may be reduc'd into a Paste, which when harden'd, and almost cold, he breaks the Crucible, reduces the Matter into Powder, puts it to steep in warm Water to dissolve the Salt, filtrates the *Lixivium*, and has it evaporated to Siccity; then finds a Salt impregnated with the Sulphur of the Metals, and of the *Antimony*; which *Salt he keeps in* a Bottle well cork'd.

This *Lilium Minerale* opens the Pores, and expels the Humours by an insensible Perspiration; it promotes Urine, is proper for the Epilepsy, and calms hysterick Vapours.—The Dose is a Scruple in Broth, once or twice a Day.

Note, That there can be extracted from this calcin'd Matter a vulnerary Balsam, if instead of throwing it into Water, and having it lixiviated, 'tis reduc'd into a subtile Powder, while yet warm, put into a Matrass, and some Spirit of Turpentine pour'd upon it to the Height of four or five Fingers Breadth. The Matrass is stopp'd with a circulatory Vessel, and plac'd in Digestion, warm, for several Days, stirring it from Time to Time. The Spirit of Turpentine will take a reddish, or brown Tincture, which must be separated by Inclination, pouring again some of the same Spirit on the Matter, to perfect the Extraction of the Tincture, as before, which must be distill'd or evaporated, to bring it to the Consistence of Honey; which done, it must be put in Infusion, or Digestion, in four or five Times as much Spirit of Wine, very well rectify'd, to extract a new Tincture, as before, but which will be more subtile; to which will be given a Consistence of Syrup, by having it distill'd through an Alembick, or putting it to evaporate into a stone Pan, at a Sand Heat.

This *Balsam* is vulnerary, proper for the Asthma, dry Cough, Phthisick, and other Maladies of the Lungs. The Dose is from 4 to 10 Drops, in Tea.

GLASS OF ANTIMONY, is a *Regulus of Antimony* vitrify'd by a long Fusion, in this Manner: We calcine, at a slow Fire, one Pound of *Antimony*, in Powder, in an earthen Pan without Glazing, stirring continually the Matter with an Iron Spatula, till it has done smoking, and is chang'd into a grey Powder, which Powder must be put into a good Crucible cover'd with a Tile, and plac'd in a Wind Furnace, where we'll make a very violent Fire round the Crucible, that the Matter be put in Fusion; about an Hour afterwards, we'll uncover the Crucible, and introduce into it an Iron Rod, whereby we shall discover in taking it out, if the Matter adhering to it be very Diaphane; and if it be so, we'll throw it upon a hot Porphyry, where it will congeal, and we shall have a very fine *Glass of Antimony*, which we'll leave to grow cold.

This *Glass* is one of the most violent Emeticks made of *Antimony*; the Emetick Wine is a Preparation of it, by having it steep'd in White Wine. 'Tis given in Substance from 2 Grains to 6.

Note, That the Calcination of the *Antimony* must be made under the Chimney, otherwise the Smoak arising

arising from it would affect the Breath of the Artist. This Calcination is made to prepare the *Antimony*, by divesting it of most of its coarser Fuliginosities, for a new Configuration of its Particles; and that the igneous Particles which in that first Preparation re-implace them, should prepare the Pores for the Reception of those which are to be introduc'd into them during the Vitrification; and they, freed of those Obstacles which would have obstructed their Activity, may act in the Approximation of the Parts, and in the Disposition of all the Pores in direct Lines, without the least Declension, or Obliquity. The Violence of the emetick Virtue of this *Glass of Antimony*, consists, in that the Sulphurs of that Mineral being divested of all the heterogeneous Particles which could obstruct their Action, and not even the least Part of it having been fix'd with acid Salts, as in the former Operations, they are easier exalted in the Stomach, by the inward Heat, and thereby rendered more active.

LIVER OF ANTIMONY, is that Mineral open'd, by Salt-petre, and the Fire, which have half vitrify'd it, and given to it the Colour of Liver. We proceed in this Operation, by taking 16 Ounces of *Antimony*, and as much of Saltpetre, which we reduce into Powder, and mix exactly together, putting the Mixture into an Iron Mortar, which we cover with a Tile, leaving only an Aperture, through which we introduce a lighted Coal, which we take out when the Matter is inflam'd, at which Time there happens a great Detonation; which being over, and the Mortar cold, we throw it upside-down, and strike the Bottom of the Mortar, to make the Matter fall; we separate afterwards, with a Hammer, the shining Part from the Dross, which shining Part is the *Liver of Antimony*.

The *Emetick Wine* is prepar'd by putting 2 Ounces of that *Liver*, in Powder, to macerate, for the Space of 24 Hours, in 2 Pints of White Wine. The Dose of this Wine is from Half an Ounce to 3 Ounces.

What we call *Crocus Metallorum*, is nothing else but the *Liver of Antimony* wash'd several Times in warm Water, and afterwards dry'd. It serves, likewise, to make the *Emetick Wine*, and is sometimes given in Substance from 2 to 8 Grains.

The MAGISTERY, or *Precipitate of Antimony*, is a Calcination of that Mineral by *Aqua Regia*, in this Manner: The Artist puts 4 Ounces of *Antimony*, in Powder, into a pretty large Matrass, and pours upon it 4 Ounces of *Aqua Regia*, then places the Matrass on the Sand, and gives it a small Fire of Digestion under the Chimney: There happens a considerable Ebullition, with red Vapours, which he avoids. He continues the Digestion till the *Antimony* is reduc'd to a white Powder at the Bottom of the Vessel, which happens generally in 7 or 8 Hours; then fills up the Matrass with Spring-water, and pours out the Liquor while yet thick, into an earthen Pan; the white Powder comes out with the Water: He separates a yellow Powder, which appears at the Bottom, and throws gently his white Liquor into a Funnel furnish'd with a grey Paper: The Water runs through, and leaves the Powder on the Paper, which Powder he washes several Times, till the Water comes out insipid; then dries, and keeps it.

This *Magistery of Antimony* purges rather downwards, than upwards; but it sometimes excites a gentle Vomiting, and is often sudorifick only. 'Tis a good Remedy in all hypochondriacal Maladies, the Apoplexy, Palsy, and when 'tis wanted to keep the Patient awake, and to dissolve the too thick Humours. The Dose is from 4 Grains to 12, in some Liquor appropriated to the Malady.

The DIAPHORETICK ANTIMONY, is the Sulphur of that Mineral fix'd by Saltpetre, which hinders it from acting otherwise than by Sweat.

To make this Preparation, we pulverize, and mix exactly, one Part of *Antimony* with three Parts of refin'd Saltpetre; and having made a Crucible red-hot, between the Coals, we throw into it a Spoonful of our Mixture: There happens a Detonation, which being over, we throw in another Spoonful, and continue thus till the whole Mixture is in the Crucible, leaving a very violent Fire round it during 2 Hours, that the Matter may liquify, or be in a Sort of Fusion: Then we throw that Matter which is white into an earthen Pan almost full of Spring-water, and leave it to steep during 10 or 12 Hours, for the Dissolution of the fix'd Saltpetre; afterwards we pour out the Liquor by Inclination, and wash the Powder left at Bottom 5 or 6 Times, with warm Water, and dry it. This is what we call *diaphoretick Antimony*, or *Chalk of Antimony*.

This *diaphoretick Antimony* is supposed to resist Venom, and consequently very good for malignant Fevers, the Pox, Plague, and for all other contagious Maladies: 'Tis astringent. The Dose is from 6 to 30 Grains.

Note, That *Cornachin's Powder* is composed of equal Parts of *diaphoretick Antimony*, *Diagredium*, and Cream of Tartar. The Dose is from 20 to 50 Grains. 'Tis also call'd *Pulvis de tribus*, and *Powder of the Countess of* Warwick. 'Tis a very good Purgative for all Humours.

FLOWERS OF ANTIMONY, are the most volatile Parts of *Antimony* exalted by Fire, thus: We place in a Furnace a very good earthen Pot, without Glazing, which can bear Fire, which has a Hole in the Middle of its Height, with a Cork to it; and adapt over it 3 other Pots of the same Earth, without Bottoms to them, and on the superior Pot a Capital, with a small Vial for a Recipient: We lute exactly the Joints, and take Care, by Means of some Bricks and Lutes, that the Fire in the Furnace does not transpire thro' some Hole or other, but only heat the Bottom of the inferior Pot: Then we give a graduate Fire, that the Pot may heat by Degrees, and grow red-hot at last. When red-hot, we throw into it, through the Hole, a small Spoonful of *Antimony*, in Powder, and spread, at the same Time, with a bow'd Iron Spatula, the Matter on the Bottom of the Pot: We take out the Spatula, and stop the Hole, that the Flowers may ascend, and stick against the upper Pots; we continue a great Fire, to keep always the Pot red-hot, and when we see that nothing more sublimates, we throw the same Quantity of *Antimony*, observing the same Rules prescrib'd before, and continue to throw thus into the Pot, till we have Flowers enough; then putting out the Fire, when the Vessels are cold we unlute them, and find round the three superior Pots, and the Capital, the Flowers, which we gather, and keep in a Vial.

These *Flowers of Antimony* are a strong Emetick; they are given for the Quartan Ague, Intermitting Fevers, and even for the Epilepsy. The Dose is from 2 Grains to 6, in Lozenges, or Broth.

The RED FLOWERS OF ANTIMONY, are an Exaltation of the sulphurous Particles of that Mineral into *red Flowers*, by Means of the Flowers of Sal Armoniack, and Fire; made in the following Manner: Eight Ounces of *Antimony*, and 4 Ounces of Flowers of Sal Armoniack, are pulveriz'd, and mix'd exactly together; the Mixture is put into a stone Cucurbite which can bear the Fire, and the Cucurbite plac'd in a small Furnace, and the empty Space round it stopped with a Lute, to hinder the Perspiration of the Fire: A Capital, with its Recipient, is adapted to the Cucurbite, whose Joints are exactly luted, and a tolerable Fire made in the Furnace. When the Matter is heated, it distils first a small Quantity of Liquor into the Recipient, and *red Flowers* stick to the Capital: The Fire is continu'd in the same State for about 2 Hours, or till 'tis perceiv'd that the *Flowers* which ascend are not so red as the first. Then the Capital is taken off, loaded with *Flowers*, and a blind one adapted in its Place; the Joints being luted, and the Fire a little increased, there arise *Flowers* of different Colours. The same Degree of Fire is continu'd till nothing more

more ascends; then the *red Flowers* sticking to the first Capital are gather'd, wash'd with warm Water, to separate the Sal Armoniack, and dry'd from the Sun, to be kept.

These *red Flowers of Antimony* purge gently, upwards and downwards; they are sudorifick, and are proper for the Epilepsy, hypochondriacal Melancholy, Asthma, and Quartan Ague. The Dose is from 3 Grains to 12.

The *Flowers* of different Colours sticking to the second Capital, are gather'd, likewise, put into a glass Cucurbite, and a blind Capital adapted to it; then the Vessel, whose Joints have been exactly luted, is placed on the Sand, and a Fire of the second Degree made under it, which being increased slowly, yellow *Flowers* will rise to the Capital: The Fire is continu'd in that State till the *Flowers* begin to appear white, then the Vessel is left to grow cold, and afterwards deluted, and the *Flowers* taken out, which are also to be wash'd with warm Water, and dry'd. These *Flowers* are of a fine Orange Colour. They have the same Virtues as the red ones, and are given in the same Quantity. If all the Lotions be mix'd together, a white Salt may be extracted from them, which is sudorifick, and aperitive. The Dose is from 4 Grains to 15.

The Snow, or *Silver Flowers of Antimony*, is a Sublimation of the Regulus of *Antimony* into *white Flowers*, thus: We reduce into Powder 16 Ounces of common *Regulus of Antimony*, and put it into a common earthen Pot, of a moderate Bigness, and without Glazing; we adapt to it, 3 or 4 Fingers Breadth above the Powder, a small Covercle of the same Earth, with a very small Hole in the Middle, and so disposed, as to enter, or come out of the Pot when we please; we cover the Top of the Pot with its usual Covercle, and place the Pot in a small Furnace on the Fire, in such a Manner, that the *Regulus* may melt, and the Bottom of the Pot grow red-hot; we continue the Fire in that State for about an Hour, and then let the Fire go out. When the Vessel is cold, we take off both Covercles, and find on the Superficies of the *Antimony*, which will be in a Mass at the Bottom of the Pot, *white Flowers*, in Form of *Snow*, and intermix'd with fine shining Needles, like Silver, some short, some long, which we separate from the Mass; then putting again the little pierced Covercle into the Pot, and the other on the Pot, in the same Situation they were before, and place the Pot again on the Fire, observing the same Circumstances beforemention'd; and we find on the Mass of the *Regulus*, when cold, *Flowers* like the preceding ones. We repeat the same Operation successively till all the *Regulus* be converted into *Flowers*, which does not happen till after a great Number of Sublimations; but we find every Time that the *Flowers* increase in Quantity, till at last we see the whole Surface of the Cake of *Regulus* like an agreeable Forest, cover'd all over with those *Flowers*. All the *Flowers* which we extract from the 16 Ounces of *Regulus of Antimony*, when gather'd together, weigh very near 11 Ounces.

These *Flowers of Regulus of Antimony* are esteem'd by some Persons a very great Febrifuge in Intermitting Fevers, if taken at the Beginning of the Paroxism, for several Days successively, and even in the Intervals of the Fever. They are diaphoretick, proper for the scrophulous Maladies, Itch, and malignant Fevers. The Dose is from a Scruple to 2 Drachms.

Butter, or *Icy Oil of Antimony*, is a Preparation of that Mineral render'd caustick by Acids; made in the following Manner: We pulverize and mix exactly 6 Ounces of *Regulus of Antimony*, with 16 Ounces of corrosive Sublimate; we put that Mixture into a glass Retort, leaving Half of it empty: We place our Retort on the Sand, adapt a Recipient to it, lute exactly the Joints, and make under it a small Fire, at first, to heat the Retort, then increasing it to the second Degree, it distils a Liquor which congeals in the Recipient: We continue the same Degree of Fire 'till nothing comes out; and then take off that Recipient, and adapt another, filled with Water, in its Place; which done, we increase the Fire by Degrees 'till the Retort grows red hot, at which Time *Mercury* distilled into the Recipient, which we wash and dry to use it like other *Mercury*.

Butter of Antimony is a Caustick, it eats proud Flesh, and cleanses Ulcers.

Butter of Antimony, and its *Cinnabar*, at the same Time, are two Preparations of that *Mineral*; the first is *Antimony* penetrated, and rendered Caustick by the corrosive Sublimate; and the last is a Mixture of the *Mercury* which was in the Sublimate, with the Sulpurs of *Antimony* sublimated together; Thus: We pulverise and mix exactly six Ounces of *Antimony*, and eight Ounces of corrosive Sublimate; and having filled half of a Retort with this Mixture, we place it in a small Furnace on the Sand, lute exactly the Joints, and making a small Fire under it at first, it distils a small Quantity of a clear Oil; then increasing the Fire to the second Degree, it appears in the Neck of the Retort, a thick white Liquor, like Wax, which stopping the Passage would make the Retort to burst, if we were not to approach a lighted Coal, to liquefy the Matter, and make it run into the Recipient: We continue the Fire 'till we see a reddish Vapour coming out, then we take off the Recipient, and adapt another in its Place, without luting the Joints; we increase the Fire gradually 'till the Retort grows red hot, and continue it during three or four Hours; then having left the Retort to grow cold, we break it, and find the Cinnabar sublimated and sticking to its Neck.

This *Cinnabar* is a very good Remedy for the Pox, and the Epilepsy; it is a Sudorifick. The Dose is from six Grains to fifteen, in Pills or Bolusses, in some Conserve appropriated to the Distemper.

This *Butter of Antimony* is Caustick, like the other above-mentioned, and can be rectified by distilling it anew in a glass Retort.

The Powder of Algarot, or *Emetick*, is a *Precipitate of Antimony*, or *Butter of Antimony* washed in the following Manner. We have some of the first *Butter of Antimony*, above-mentioned, melted on the hot Embers, then pour it into two or three Pints of warm Water, in an earthen Pan, a white Powder precipitates to the Bottom, which we soften by several Lotions, then keep it.

This *Powder of Algarot* purges upwards and downwards: 'Tis given in Quartan Agues, Intermitting Fevers, and in all Maladies where there's need of a strong Purgative. The Dose is from two Grains to eight in Broth, or some other Liquor appropriated to the Distemper.

Note, That this Powder has borrowed its Name from a Physician, called *Algaroth*, or *Algeroth*, who was one of the first who prescribed it: 'Tis also called *emetick Powder*, because it is a strong Emetick. Antient *Chymists* have called it *Mercury of Life*, *Mercurius Vitæ*, because they imagined its Substance to be *Mercury*; but they were mistaken, since 'tis but an *Antimony* attenuated and divided, in which there is not the least Portion of *Mercury*. Some call it *Angelical Powder*, because of its great Virtues. I remember very well, when this Powder was never administred, but when all other Remedies had proved ineffectual; it was the last Shift of Physicians; and as they seldom prescribed it but when the Cure was desperate, and consequently a great Number died after they had took it, the Publick attributed to it, and to the emetick Wine, all the Executions of Physicians; neither do I believe that such strong Emeticks are to be used, but in Case of an extreme Necessity, when the Patient cannot be relieved otherwise; for the Efforts he is obliged to make in vomiting expose him to several imminent Dangers, and disorder the whole Mechanism. They ought never to be administred to weak Stomachs, or weak Constitutions, unless the Humours super-abound, and Nature declares itself that Way.

The

The MINERAL BEZOAR, is a Preparation of *Antimony* fix'd by Spirit of Nitre, and render'd sudorifick, thus: We cause to be melted, on hot Embers, 2 Ounces of Butter of *Antimony*, which we put afterwards into a Vial, or Matrass, and pour upon it, gently, some very good Spirit of Nitre, till the Matter be perfectly dissolv'd: We make this Operation under the Chimney, because of the Vapours which rise during the Dissolution, which must be avoided; we pour out the Dissolution, which is clear and reddish, into a glass Cucurbite, or a stone Pan, and leave it to evaporate at a slow Sand Heat, to Siccity: There remains a white Mass, which we leave to grow cold, then throw upon it 2 Ounces of Spirit of Nitre, and place again the Vessel on a Sand Heat, to have all the Humidity evaporated, as before, and find, likewise, a white Mass; upon which we pour, for the last Time, 2 Ounces more of Spirit of Nitre, and having made all the Humidity to evaporate, we increase the Fire for Half an Hour, and afterwards take the Vessel off the Fire, and we have a dry, friable, and white Matter, of an agreeable acid Taste, which we keep in a Vial well cork'd.

This *mineral Bezoar* is sudorifick, has the same Virtues as the *diaphoretick Antimony*, and is prescrib'd in the same Maladies. The Dose is from 6 to 20 Grains, in Broth, or any other Liquor appropriated to the Distemper.

The ANTIMONIAL PANACEA is a soluble Tartar, render'd emetick by the Butter of *Antimony*, and resolv'd into a Liquor by the Humidity of the Air. The Operation is conducted thus: We put into a large Matrass Half a Pound of Butter of *Antimony*, a Pound of Crystals of Tartar pulveriz'd, and 6 Pounds of common Water a little warm; we stir the whole Mixture together, and stop the Matrass with a Cork made of Paper, place it on the Sand, and give under it a graduate Fire, to make the Liquor boil, which we continue during 7 or 8 Hours; the Crystal of Tartar has been almost entirely dissolv'd without any apparent Fermentation, and had took at first a reddish Colour, and a sour Taste, but in boiling that Colour turns white; we afterwards pour gently a Pound of Oil of Tartar *per deliquium*, and hot, into the Matrass: There happens an Effervescence, which being over, we filtrate the Liquor, while yet hot, and cause the Humidity to be evaporated, in a glass, or stone Vessel, to Siccity; there remains a kind of salt or emetick Tartar, which we carry to a Cave, or any other damp Place, where the greatest Part of it having resolv'd into a clear Liquor, we pour it, by Inclination, into a glass Bottle, and keep it; 'tis the *antimonial Panacea*.

This *Panacea* is an Emetick, but a very weak one. The Dose is from 8 Drops to 20, in Broth, or some other Liquor appropriated to the Distemper.

The TINCTURE OF ANTIMONY, is a Dissolution of the most rarefy'd Particles of the Sulphur of *Antimony*, made by Spirits of Wine, in the following Manner: Eight Ounces of Salt of Tartar are melted in a Crucible, at a great Fire, and 6 Ounces of *Antimony*, in Powder, thrown upon it by Spoonfuls, and by Intervals; the *Antimony* melts, and unites itself with the Salt of Tartar, throwing up reddish Vapours of a sulphurous Smell; then the Crucible is cover'd, and the Mixture, having been left in Fusion for Half an Hour, is thrown into a Mortar, to grow cold, and will be in a compact Mass, which breaks yellow, of a bad Smell, and of a salt and acrimonious Taste: That Mass is reduc'd into a Powder, and put into a Matrass, and alcoholiz'd Spirit of Wine pour'd upon it, to the Height of four Fingers Breadth; then a circulatory Vessel having been made, with another Matrass, and the Joints exactly luted, the Matter is put in Digestion at a slow Heat during 2 Days, or till the Spirit is chang'd red; then the Matrasses are separated, and the Tincture filtrated, which must be kept in a Bottle well cork'd.

This *Tincture of Antimony* is sudorifick, hysterick, and purges a little downwards, when administer'd in a large Dose. It may be us'd to promote the Menses, to raise Obstructions, for the hypochondriacal Melancholy, Itch, Small Pox, malignant Fevers, and the Scurvy. The Dose is from 4 Drops to 20, in some Liquor appropriated to the Distemper.

The TINCTURE OF THE GLASS OF ANTIMONY, is a Correction of the sulphurous Part of that *Glass* by distill'd Vinegar; which to perform, we put into a Matrass 6 Ounces of *Glass of Antimony* made without Addition, and reduc'd into a subtile Powder; we pour upon it distill'd Vinegar, to the Height of 3 Fingers Breadth, we cork the Vessel, shake it well, and place it in Digestion on the hot Sand, where we leave it during 20 Days, when the Liquor will take a Sort of Orange Colour: We filtrate the Tincture, and pour other distill'd Vinegar on the Matter left in the Matrass, to the Height of 3 Fingers Breadth, and put the Mixture in Digestion, as before, during 15 Days, when a new Tincture will be made, as deep in Colour as the other, which we filtrate, likewise, and mix afterwards both Tinctures together. We break the Matrass, to take out what remains of the *Glass of Antimony*, which we find harden'd at the Bottom in a compact Mass of different Colours, which having dry'd, we restore it to Glass by Fusion, pulverize that Glass, and put it in Maceration and Digestion, in a Matrass, as before, with distill'd Vinegar: The Tincture is made in 8 Days, which we filtrate, and mix with the others; we break the Matrass, to take out the Matter at the Bottom, which we dry, pulverize, and put into a Matrass in Maceration and Digestion, for the fourth Time, with distill'd Vinegar: It makes in 5 Days a very fine Tincture, which we filtrate, and mix with the others; then break the Matrass, and having dry'd the Matter found in it, we vitrify it, as before, which Glass we reduce into Powder, and extract a Tincture from it, in the same Manner, with distill'd Vinegar; we repeat this Process nine or ten Times more, till the *Glass of Antimony* gives no longer a red Tincture to the Dissolvent: We mix all these Tinctures, and extract from them, by Distillation, the distill'd Vinegar, till they are reduc'd to a thick and unctuous Extract, green on its Superficies, but of a reddish brown within, of a strong Smell, and of an acid, acerb, and bitterish Taste: We pour upon that Extract Spirit of Wine, to the Height of 5 or 6 Fingers Breadth, and put it at a warm Digestion, in a glass Vessel well cork'd, during 24 Hours, shaking it from Time to Time, whereby the Matter will be all dissolv'd, and make a muddy red Liquor; which having left to settle, we find, afterwards, Liquors of 2 Colours, that a-top is clear, and green, which we filtrate, and keep apart, in a Bottle well cork'd.

This *green Tincture* has a very grateful Smell, and an acrimonious Taste; it is very strengthning, proper to promote the Perspiration of Humours, resist Venom, and stop *Diarrhœa's*. The Dose is from 4 Drops to 20, in a Liquor appropriated to the Distemper.

The Liquor at Bottom is thickish and muddy, of a yellowish red, a grateful Smell, and an acid and sharp Taste.

This Liquor is esteem'd the true *red Tincture of Glass of Antimony*; *Basil Valentine* call'd it *Alexiterium Antimonii*, which is neither vomitive, nor purgative, though extracted from the *Glass of Antimony*, which is both vomitive and purgative: On the contrary, 'tis cardiack, and strengthning, and is used for the Asthma, Phthisick, Melancholy, Itch, Pox, malignant Fevers, and to promote the Transpiration of Humours. The Dose is from 4 Drops to 12.

Note, That I have skipp'd over several Preparations of *Antimony*, which I judg'd needless, and proper only to render this Treatise too voluminous; those I have describ'd here, with all the Accuracy I could, being the most useful, and answering all the Intentions of a judicious Physician. I'll pass from these to my Operations on *Arsenick*.

ARSENICK, from the *Greek* ανηρ, Man, or αρσην, Male, and νικαω, I overcome, kill; is a mineral Matter compos'd of a great deal of Sulphur, and a caustick Salt.

There are three Kinds of *Arsenick*, *viz.* yellow, or native, call'd *Auripigmentum*, or *Orpiment*; red, call'd *Realgal*, or *Sandaracha*; and crystalline, or white.

The *white Arsenick* is the strongest of all, and is sometimes shining, like Crystal.

Note, That the Acrimony and Corrosion of the *Arsenick* consists in its Salt, compos'd of Particles edg'd and sharp, like so many little Blades of Knives; that those Particles being very loose, and very light, are easily separated, exalted, and put in Motion, by the least Heat; which Motion is so rapid, that they lacerate, cut, and destroy all they meet with on their Passage: Therefore none of the Kinds of *Arsenick* are to be administer'd inwardly, though some pretend to have cur'd several Maladies with the white *Arsenick*, and especially Quartan Agues; and by giving 4 Grains of it in a great deal of Water, it excites Vomiting, like *Antimony*; but that Febrifuge is very dangerous, and ought never to be us'd, since we have so many very good Emeticks, and much safer. *Arsenick* is us'd outwardly, with pretty good Success, on some Occasions; for it eats proud Flesh, and Corns, to their very Root, without causing the least Pain; but the Flesh round them must be cover'd with a Plaister, thus: There must be made a Plaister of Diachylon, pierc'd in the Middle, to let the Corn come through; then some *Arsenick*, in Powder, is put upon the Corn, without touching the Flesh, which is cover'd with the Plaister, and that Powder must be kept on with a Piece of Cloth, ty'd round the Part. 'Tis a sovereign Remedy, which cures effectually, without the least Trouble, Pain, or Danger.

Note, also, That if by some Misfortune any Person had took *Arsenick* inwardly, there may be yet a Remedy for it, Half an Hour afterwards, by drinking a great Quantity of warm Oil, or melted Grease, to promote Vomiting, and Stool; and the Patient must be fed afterwards with Milk, for several Days successively; and must be purg'd several Times with Cassia dissolv'd in Whey. The Orvietan, Theriack, Mithridate, and other such like Remedies, are rather hurtful, on that Occasion, than useful; because they are compos'd of acrimonious and spiritous Ingredients, which are more capable to increase the Motion and Action of the *Arsenick*, than to correct it.

We'll make but four Preparations of *Arsenick* in our Laboratory, *viz. Regulus of Arsenick*, *Sublimate of Arsenick*, *Caustick Arsenick*, and *corrosive Oil of Arsenick*.

The REGULUS OF ARSENICK is a Preparation of the most fix'd and compact Part of *Arsenick*, made in the following Manner: We pulverize, and mix exactly, one Pound of *Arsenick* with six Ounces of Pot Ashes; we incorporate that Powder into a Pound of Soap, and make a Paste of it, which we put into a great Crucible, and cover the Crucible with a Tile pierced in the Middle; we place that Crucible in a Wind Furnace, and give a small Fire at first, and increase it afterwards, strong enough to put the Matter into a clear Fusion, which we throw into an Iron Mortar which has been greas'd with Tallow, where we leave it, to grow cold; then turning the Mortar upside-down, we find a *Regulus of Arsenick*, which we separate from the Dross. This *Regulus* is less active than the *Arsenick*.

The SUBLIMATE OF ARSENICK is an *Arsenick* corrected of its most malignant Sulphurs, exalted by means of Fire, to the Top of the Matrass, thus: We put what Quantity we please of *Arsenick*, in Powder, into a Crucible, which we place on a small Fire under the Chimney, to calcine it, and to cause very near a third Part of the Matter to be evaporated into Smoak, avoiding, as much as possible, that malignant Vapour: We pour what remains into a Mortar, and having pulveriz'd it, we weigh it, and mix it with an equal Quantity of decrepitated Salt; we put that Mixture into a Matrass, two Thirds whereof are left empty; we place that Matrass on the Sand, in a small Furnace, and making a small Fire at the Beginning, we increase it to the third Degree, to procure the Sublimation of the *Arsenick*; we continue the Fire in that Condition till nothing more ascends: The Operation is ended in 5 or 6 Hours. We leave the Vessel to grow cold, and afterwards break it, to gather what sticks at the Top of the Matrass; what's left at the Bottom, is rejected as needless. If we reiterate the Sublimation 4 or 5 Times more, adding decrepitated Salt every Time, we shall have a soft *Sublimate of Arsenick*, that is to say, a great deal less corrosive than the common *Arsenick*.

Some Authors say, that *that Arsenick* call'd *dulcis*, is an Antidote; but we ought not to trust to it, since we have so many other Antidotes which are a great deal less dangerous. The *Sublimate of Arsenick* eats proud Flesh, cleanses old Ulcers, and is mix'd with the Suppurative and the Egyptiack.

CAUSTICK ARSENICK, is an *Arsenick* rendered more fix'd, and more burning than it was, and in Form of Chalk, by means of fix'd Salts, thus: One Pound of *Arsenick*, as much Saltpetre, and Half a Pound of Brimstone, are pulveriz'd, and mix'd exactly together; the Mixture is put into an Iron Mortar, which is cover'd with a Cover pierc'd in the Middle, through which Hole a red-hot Iron is introduc'd into the Mortar, to set the Powder on Fire, which happens with a great Detonation. The Detonation over, and the Matter cold, 'tis pounded, and afterwards calcin'd in a cover'd Crucible during 2 Hours, at a great Fire, then left to grow cold; then the Artist has a caustick Matter, which must be broke into small Pieces, and put into a Bottle well cork'd. These Causticks are us'd as the common Causticks.

The CORROSIVE OIL OF ARSENICK is an *Arsenick* brought to the Consistence of Butter, by the Acids of the corrosive Sublimate, in the following Manner: We take equal Parts of *Arsenick*, and of corrosive Sublimate, which having pulveriz'd, and mix'd, we put the Mixture into a glass Retort, which we place on the Sand; and having adapted a Recipient to it, and luted the Joints, we cause to be distill'd, by a small Fire, a buttyrous Liquor, like Butter of Antimony; when nothing more comes, we take off the Recipient, and put in its Place another full of Water; we increase the Fire, and see a Mercury dropping into the Water. We continue the Distillation till nothing more comes.

The *Butter of Arsenick* is a very strong Caustick, and Escarotick, a great deal quicker in its Operation than the Butter of Antimony.

Note, That the Artist could very well save himself the Trouble of making even these four Preparations of *Arsenick*, which are of very little or no Signification, since all their Effects can be operated, with a far greater Safety, by antimonial Preparations.

The next Thing I am presented with, by my Man *Spagirick*, to operate upon, is LIME, which is a Stone whose Humidity has been entirely dry'd by Fire, and a great Quantity of igneous Particles introduc'd in its Place; it is those Particles which cause the Ebullition when Water has penetrated the Matter they were inclos'd in, and that Ebullition lasts till all the Pores of the *Lime* having been dilated, the igneous Particles have Room enough to sally out without the least Effort. 'Tis likewise those igneous Particles which render *Lime* corrosive, a Quality which the Stone has not of itself.

Some are pleas'd to object, against this Sentiment, that if the Corrosion of *Lime* could be attributed to the igneous Particles; Tiles, Bricks, and all other

Stones which are not of the Nature of those *Lime* is made of; Iron, Copper, Silver, Gold, and several other Matters, would be as caustick as *Lime*, after they had suffer'd the Fire as long, or longer than it has done. The Answer to this Objection is, That such a Thing could very well happen, if the Pores of those Stones, or Matters, and those of *Lime*, had the same Configuration capable to retain as great a Quantity of igneous Particles, which is not to be suppos'd; for if some Metals admit into their Pores a considerable Quantity of those igneous Particles in the Calcination, those Pores are so compact, and their Texture so firm, that they can't be dilated by Water, or Heat, so as to facilitate the Explosion of the igneous Particles, in order to render those Metals corrosive. For Example, if we take some Chalk of Lead augmented in Weight in the Calcination, and have it steep'd in Water; the Water will make no Impression upon it, and the Chalk will not in the least be diminish'd in Weight: For those igneous Bodies 'tis impregnated with can't be expell'd from it but by Fusion; whereas a small Humidity is capable to expel them from the *Lime*, by separating the soft Parts of the Stone.

Others refuse to attribute the Ebullition of the Water thrown upon *Lime* to the igneous Corpuscles, because, say they, neither Spirit of Wine, nor Oil pour'd upon that calcin'd Stone, are heated, though both are inflammable; but, on the contrary, extinguish the Heat happen'd to the *Lime* in the Junction of the Water. I answer, that the oleaginous and spiritous Particles of the Spirit of Wine, and of the Oil, being homogeneous with those we call igneous in the *Lime*, instead of dissolving the loose Particles of the calcin'd Stone, act, on the contrary, in Concert with those igneous Particles, to render the Body of the Chalk less friable, and more compact; and consequently, instead of facilitating their Explosion, help rather towards confining them closer in.

Those who pretend that the Effects of the *Lime* proceed from its Salt, are mistaken; since no *Chymist* has been capable, yet, to find that suppos'd Salt in *Lime*; that bituminous Skum, which floats on *Lime-water*, and mistaken for that Salt, being no Salt at all.

Neither is the Sentiment of those who attribute the Ebullition of the *Lime*, when slaken, to the Concomitance of the Acids and Alkali's *Lime* is compos'd of, more agreeable to the *chymical* Experiments on *Lime*; for though it may be reasonably suppos'd that there are some Acids in the natural Composition of the Stones *Lime* is made of, that Acid must have suffer'd a very great Alteration, by breaking its Points, not only in its strict Union with the Earth, when petrify'd, but likewise in the violent Calcination of the Stone, to reduce it into *Lime*.

Quicklime mix'd with Acids, ferments with more Violence than with Water; because it being an alkaline Matter, the acid Points, which are much agitated, enter it with a greater Impetuosity, and disperse its Parts with more Violence; which is the Occasion why the igneous Particles croud out with Precipitation.

Quicklime, when slacken, heats no more with Water; but if mix'd with Acids, there happens an Effervescence, and a considerable Heat; because the acid Points penetrate those Particles of the *Lime* Water could not reach. There happens neither Ebullition, nor Precipitation, by the Mixture of *Lime-water* with Acids, which destroys the Opinion of those who admit of an alkali Salt in *Lime*.

After this short Dissertation on *Lime*, its Principles, and Effects; we'll proceed to our Operations on it, which we reduce to three, *viz. phagedenick*, or *ulcerary Water*, *caustick Stone*, and *Inks* called *sympathetick*.

We begin by PHAGEDENICK, or ULCERARY WATER, which is a Mixture of corrosive Sublimate and *Lime-water*, made in this Manner: One Pound of *Lime* is put into a great Pan, and slaken with 7 or 8 Pounds of warm Water; the *Lime* having steep'd for 5 or 6 Hours, and being settled at the Bottom, the Water is decanted, and filtrated; 'tis what we call *Lime-water*. To each Pound of *Lime-water* are added 15 or 20 Grains of corrosive Sublimate, in Powder, which presently changes the Water yellow; they are for a long Time agitated together in a glass or stone Mortar. This Liquor is us'd to cleanse old Ulcers, and eat proud Flesh; 'tis also employ'd in the Gangrene, by adding to it Spirit of Wine, or sometimes Spirit of Vitriol.

Lime-water is deficcative, when apply'd externally; 'tis also taken inwardly, mix'd with Syrup of Violets, for Ulcers of the Lungs, and for the Breath: 'Tis mix'd with Milk, to hinder it from turning sour on the Stomach. The Dose of *Lime-water* is from 1 Ounce to 4.

Note, That the Precipitate of the *phagedenick Water* having been wash'd and dry'd, is esteem'd by some a very good Purgative in the Venereal Disease: 'Tis given in Pills, for Fear it should turn the Teeth black. The Dose is from 1 Grain to 3. It purges upwards and downwards, and operates like the Turbith Mineral.

The CAUSTICK STONE is the Salt of Pot-Ashes render'd sharper than it was, by the igneous Particles of the *Lime*, thus: We put into a large earthen Pan one Part of *Quicklime*, and two Parts of Pot Ashes; and having pour'd upon it a great deal of warm Water, and left them to steep for 5 or 6 Hours, we make them boil a little, then filtrate what is clear of it thro' a grey Paper, and cause it to be evaporated in a stone Pan: There remains at the Bottom a Salt, which we put into a Crucible on the Fire, where it melts, and boils, till all the Humidity left is evaporated, when we see that it is reduc'd in Form of Oil, we throw it into a Bason, and cut it in Points, while yet hot; we quickly put those *Causticks* into a strong glass Bottle, which we stop with Sealing-wax and Bladder, because the Air resolves them easily into Liquor: They are likewise to be kept in a dry Place. These *Causticks* are very strong, and operate in Half, or three Quarters of an Hour.

Note, That when the Dissolution is filtrated, there must be put a linnen Cloth under the Paper, to support it; otherwise it would be presently corroded.

SYMPATHETICK INKS, are Liquors of different Natures, which destroy one another, and re-assume a Colour afterwards. The first is an Infusion of *Lime* and Orpiment: The second is a Water blacken'd with burnt Cork: And the third Vinegar impregnated with *Saturn*.

To make the first Preparation, we take an Ounce of *Quicklime*, and Half an Ounce of Orpiment, which having pulveriz'd, and mix'd, we put into a Matrass; we pour upon it 5 or 6 Ounces of Water, so that there be enough to surpass the Powder by three Fingers Breadth; we stop very well the Matrass with a Cork, Wax, and Bladder, and put it in Digestion on a small Sand Heat during 10 or 12 Hours, shaking it from Time to Time, and leaving afterwards the Matter to settle, the Liquor appears as clear as common Water.

The second Preparation is made by burning Cork, and extinguishing it in Brandy, dissolving it afterwards in a sufficient Quantity of Water, in which has been melted a small Quantity of Gum Arabick. To make this *Ink* as black as common Ink, the Cork, which can't be incorporated, must be taken out, and if the Ink is not black enough, other Cork must be added to it.

The third Preparation is the Impregnation of *Saturn* made with distill'd Vinegar, which must be as clear as Water; or else so much Salt of *Saturn* is dissolv'd in Water, as the Water can contain.

For an Experiment of these three Sorts of *sympathetick Inks*, we must write with a new Pen, dipp'd in the third Liquor, *viz.* the Impregnation of *Saturn*, on a Paper, taking Notice of the Place where we have wrote,

wrote, and leaving it to dry, no Writing will appear. We muſt write on this inviſible Writing with the *Ink* made with burnt Cork, and leave it to dry; what we have wrote will appear as well as if written with common Ink. We'll dip a Piece of Cotton into the firſt Liquor made with *Lime* and Orpiment, (but it muſt be ſettled, and clear) and rub the Writing with that Cotton; what appear'd will diſappear, and at the ſame Time the inviſible Writing will be viſible.

This is another Experiment: Take a Book four Fingers thick, or bigger, if you pleaſe; write with your Impregnation of *Saturn*, on a firſt Leaf, or elſe put between the Leaves a Paper where you have wrote ſomething; turn the Book, and remembering, as near as poſſible, the Part oppoſite to your Writing, rub that oppoſite Part in the laſt Leaf of the Book, with your Cotton dipp'd in the Liquor made with *Lime* and Orpiment; leave the ſame Cotton on the Place, and having quickly ſhut the Book, ſtrike upon it with your Hand four or five Times; turn it afterwards, and put it to the Preſs for Half a Quarter of an Hour: Take it out, and open it, you'll ſee your *Ink*, which was inviſible, render'd viſible.

Note, That theſe Operations are of no Utility; but as there is ſomething ſurprizing in it, 'tis to be hop'd that the Curious will allow this ſmall Digreſſion. 'Tis very difficult to explain the Effects abovemention'd, though ſome Light may be given into it, without having Recourſe to *Sympathy* or *Antipathy*, which are general Terms, and explain nothing: But before we can come at that Light, there are ſeveral Things to be conſider'd. The firſt is, that it is eſſential to extinguiſh the burnt Cork, the Ink is blacken'd with, in Brandy, otherwiſe the Ink could not be blotted out. The ſecond, that the Blackneſs of that Ink proceeds only from the Fuliginoſity of the Cork, which is very porous, and light; and that *that* Fuliginoſity is but an Oil very much rarefy'd. The third, that the Impregnation of *Saturn*, which is the inviſible Ink, is but Lead diſſolv'd, and ſuſpended imperceptibly in an acid Liquor. The fourth, that the blotting Liquor is a Mixture of the alkaline and igneous Particles of the *Lime*, with the ſulphurous Subſtance of the Orpiment. Theſe Things preſuppos'd, 'tis ſaid that the Reaſon why the viſible Ink diſappears, when rubb'd with the blotting Liquor, is, that this laſt Liquor being compos'd of alkaline, ſulphurous, and penetrating Particles, that Mixture makes a kind of Soap, which is capable to diſſolve a fuliginous Subſtance ſo looſe as is that of burnt Cork, when it has been already rarefy'd, and diſpos'd to that Diſſolution by the Brandy, juſt as Soap, which is compos'd of Oil and alkali Salt, is capable to diſſolve Spots of Greaſe. It may be aſk'd, why the Diſſolution being made, the Blackneſs diſappears? To which 'tis anſwer'd, that the Particles of the Fuliginoſity have been ſo divided, and ſhut in the ſulphurous Alkali of the Liquor, that they remain inviſible; ſince we ſee, every Day, that the exact Diſſolutions render the Thing diſſolv'd imperceptible, and without Colour. Beſides, the ſmall Quantity of Alkali which is in the Cork, can very well be incorporated with the Alkali of the *Lime*, and ſerve to the Diſſolution of it. As for the inviſible Ink, it may be eaſily conceiv'd how it appears black when the Liquor us'd to blot out the other is put upon it; for as the Impregnation of *Saturn* is but Lead ſuſpended by acid Points, that Lead muſt be re-viviſy'd, and re-aſſume its black Colour, when what kept it rarefy'd has been entirely deſtroy'd, by the Alkali of the *Lime*, which being full of the Sulphur of the Orpiment, is very capable to break the Acids, and to agglutinate the Particles of the Lead. It happens, then, that the viſible Ink diſappears, becauſe the Particles which render'd it black have been diſſolv'd; and that the inviſible Ink appears, becauſe the Particles diſſolv'd have been re-viviſy'd. *Lime* is an Alkali which acts here as the Salt of Tartar in the other Operation. Its Reſidence retains what can be the more fix'd in the Orpiment; and the ſulphurous Particles which exhale from it, are the much more ſubtile, that they are entirely looſe: Add to this, that the igneous Corpuſcles of the *Lime* mix'd with them render the Liquor extremely penetrating, as it appears here; for thoſe Sulphurs muſt neceſſarily penetrate through the whole Book, to render black, and viſible, Writing made with clear and inviſible Liquor; and to facilitate that Penetration, we ſtrike the Book, and turn it afterwards, becauſe the Spirits, or volatile Sulphurs, tend always upwards. It muſt alſo be put to the Preſs, to hinder thoſe Sulphurs from being diſſipated in the Air. It muſt be obſerv'd, likewiſe, that thoſe three Liquors are to be prepar'd in three different Places, otherwiſe they would ſpoil one another; and that they muſt not be kept long, for they loſe their Strength and Virtue.

We *Chymiſts* have the Stomach of an Oſtrich, for we can very eaſily digeſt Stone, as will appear in our next Operations, which are to be upon *Flints*.

FLINTS, as all other Stones, are form'd by Salts, or acid Liquors, which penetrate and embarraſs themſelves with the Earth, which is an Alkali; whence reſults a *Coagulum*, which is harden'd, by Degrees, by the ſubterraneous Heat, or petrify'd by the Cold. But it muſt be obſerv'd, that according to the Quality of the Earth the acid Liquor meets with, different Kinds of Stones are form'd: Thus precious Stones and Cryſtals borrow their Denſity and Tranſparency from ſuch a Proportion as was neceſſary to make an exact Penetration, and a ſtrict Union of the Acid with the Earth.

There is an Appearance that Stones are harder, when there is but a ſmall Quantity of Earth mix'd in the Diſſolution; for then the acid Liquor acting on all the Particles of that Earth, diſſolve it exactly, and the Coagulation being not made with too much Precipitation, the Particles are mix'd, and united, incomparably better, than when there is a great deal of Earth. 'Tis eaſily conceiv'd, that a hard Body has been compos'd of very ſmall Corpuſcles; for had they been big, they muſt have left Intervals between them, and form'd large Pores, which hinder a Body from being hard, and compact. When there is a great Quantity of Earth with the acid Liquor, the Earth is but half diſſolv'd, and the Coagulation being made with too much Precipitation, it forms but an opake and ſoft Stone.

Flints are form'd of a great deal of acid Liquor, and a little Earth; but they are opake, becauſe the Earth they are compos'd of is ſulphurous, and ſometimes metallick. Cryſtals are made of an exact Diſſolution of Earth, or of Stones in acid, or ſalt Liquors: That Diſſolution muſt be clear and limpid as Water, either becauſe it has been filtrated in running through ſome ſandy Earth, or has met with a clean Place; when that Liquor is at Reſt, it coagulates, like Saltpetre, when cryſtalliz'd in Water; the Cryſtals retain the Purity of the Diſſolution, and are tranſparent. Precious Stones are made by a Diſſolution, at leaſt as exact, and as clear, as that which has form'd the Cryſtal; but there are mix'd in the Diſſolution metallick Particles, which give them different Colours, and render them a great deal harder than Cryſtal.

The Grains of Sand are ſo many little Cryſtals, which appear to us but as Cryſtal in Powder, but whoſe Figure can be diſcover'd by the Microſcope.

There are Waters, in ſeveral Countries, which are lapidify'd in falling upon Stones, as it happens in the Grotto of *Arſy* in *Burgundy*. The Reaſon which can be given for this Petrification, is, that thoſe Waters being ſcarce compos'd of any Thing elſe but acid Particles, have diſſolv'd, in their Filtration through the Earth, and uſher'd along with them all the terreſtrial Particles the moſt proper to form a *Coagulum*; but as that *Coagulum* muſt have remain'd imperfect till the Rapidity of thoſe Waters could be ſtopp'd, and they meet

meet with a proper Place, which could serve as a Matrix for that Coagulation, their falling at last on a Substance homogeneous to them, and whose Pores are configurated in such a Manner as to be proper for their Admission, they penetrate those Pores, and incorporate themselves with that Substance, so as to form but one and the same *Coagulum*.

There are Waters, likewise, which petrify Wood, Trees, Fruits, *&c.* thrown into them; which is done by the Pores of those Bodies being very wide, and their Texture very loose, the acid Particles of the Water penetrate them so easily, as to form of each Pore a little Matrix, where meeting with no Opposition from the adjacent Particles of the Body they have penetrated; but, on the contrary, all dispos'd to follow their Motion, they give them a new Configuration, and employ them in perfecting the *Coagulum*; for it can't be said that their Qualities are chang'd, but that they have only receiv'd a new Form, since those Particles could be separated, by the Analysis, from the Phlegm they have been incorporated with; for that *Coagulum* is not form'd by a Destruction of their Principles, but by their intimate Union with heterogeneous Bodies; which having entirely destroy'd their former Mechanism, keep them at a greater Distance from each other, and in another Position, which makes them appear as if their Nature was chang'd.

After this short Dissertation upon *Flints*, which a great many People would imagine is a very barren Subject, we must operate upon them, and convince those who pretend that nothing can be drawn from *Flints*, that they are mistaken; since we are a going to draw a Tincture, and a Liquor from *Flints*; which can't be done but by a previous *Calcination* of those *Flints*, in the following Manner: We put *Flints* into the Fire, to grow red-hot, and afterwards extinguish them in common Water; which Calcination and Extinction we repeat 3 or 4 Times, or till the *Flints* be friable; and are to be reduc'd into an impalpable Powder, when dry'd. *Crystal* is calcin'd in the same Manner, but is sooner render'd friable than *Flints*.

Note, That *Flints* of Rivers mark'd with Veins, of different Colours, are esteem'd the best, because 'tis imagin'd that they give more *Tincture*. The best Method for their Calcination, is to put them in an Iron Pot, which must be very well cover'd, and plac'd in a Furnace in the Middle of a great Fire. The *Flints* will sparkle, and grow red-hot. The Fire must be continu'd till they have done sparkling, then the Pot must be uncover'd, and the *Flints* thrown into common cold Water, where they are to be left to macerate for about an Hour; which done, the Liquor is decanted into an earthen Pan: If the *Flints* were not yet friable enough, they must be calcin'd again, and thrown into the same Water.

This Water has receiv'd from the *Flints* a kind of Salt, which join'd to the Impression of Iron communicated to it by the Iron Pot, has render'd it aperitive, proper for the Gravel, and Green Sickness. The Dose is a Glass full each Time.

Flints and Crystal are too hard to be reduc'd into Powder without Calcination; therefore some Means were wanted to render them softer, that they might be easily pounded. Cold Water renders them friable, when they are thrown red-hot into it; because their Pores having been open'd by the Calcination, and a vast Quantity of igneous Particles introduc'd into them, the Coldness of the Water obstructs the Passage of those igneous Particles, and keeping them confin'd within those Pores, and crowded upon one another, the Violence of the Efforts they make to sally out, and to conquer the Opposition they meet with, shake the whole Frame of the *Flint*, and by those often repeated violent Shocks, relax, or loosen their Parts, so that the least Effort afterwards hastens their Dissolution.

Of four Ounces of *Flints* thus calcined and reduced into an Impale Powder, is prepared the *Tincture of Flints*, which is but an Exaltation of some Particles of the *Flints*, and of Salt of Tartar in Spirit of Wine, made in the following Manner. The four Ounces of calcined *Flints* reduced in Powder, as above, are mixed with twenty-four Ounces of Pot-Ashes, and the Mixture put into a great Crucible, which must be covered, placed into a Wind-Furnace, and environed with Fire by Degrees, that it may be heated gently, which done, the Fire must be increased to an extreme Violence, and continued in that State for five Hours, that the Matter may always be in Fusion; then an Iron Spatula is introduced into the Crucible, to see, when taken out, if the Matter begins to grow Diaphane, like Glass; and if it be Diaphane, 'tis poured into a warm Mortar, where it will presently congeal into a hard Mass, which Mass must be reduced into Powder, while yet hot, and Half of it put into a Matrass, very dry, and very well heated, pouring upon it Spirit of Wine very well alcoolised, so that it may swim over the Matter to the Heighth of four Fingers Breadth; the Matrass must be stopped with another, to make a circulatory Vessel; and the Joints having been exactly luted with a wet Bladder, the Vessel is placed on the Sand, and a Fire made under it, strong enough to make the Matter simmer during two Days: In that Interval the Spirit of Wine will have took a red Tincture; then the Matrasses must be unluted, separated, and the Tincture decanted into a Bottle. Other Spirit of Wine is poured upon the Matter left in the Matrass, and the Operation conducted as before; both Tinctures having been mixed, are poured into a glass Cucurbite, which must be covered with its Capital; and a Recipient having been adapted to it, and the Joints exactly luted, one Third of the Spirit must be distilled at the vaporous Bath, then the Vessel taken off the Fire, and what's left at the Bottom of the Cucurbite, kept in a Vial well cork'd.

This Tincture is said to be a good Remedy to raise the Obstructions; 'tis prescribed for the Scurvy, and hypocondriacal Maladies. The Dose is from six to thirty Drops, in some Liquor appropriated to the Distemper.

The *Liquor of Flints* is a Resolution of *Flints* into a Liquor, by Means of the Salt of Tartar, and made by taking the other Part of the *Flints* calcined with Pot-Ashes, and exposing it in a flat glass Vessel, in a damp Place; the Matter will be resolved into a Liquor, clear as common Water, which must be filtrated and kept. This Liquor is supposed diuretick, and is administred from six to twenty-five Drops, in a Liquor appropriated to the Distemper. Likely enough but it may dissolve some sulphurous Obstructions, it meets with in the Vessels, and thereby provoke Urine; but if it chanced to encounter with acid Humours, it would form a Coagulum, which could turn into a Stone; therefore 'tis by no means adviseable to use that Remedy. This Liquor is often used with Success to extract the Sulphur of several Minerals.

Since we have extracted a Liquor from *Flints*, it cannot appear surprising, if we attempt likewise to prepare an Oil of Bricks, which is Oil of Olive, wherewith Pieces of *Bricks* are impregnated, and afterwards distilled, in the following Manner.—Pieces of *Brick* are made red-hot, between Coals, and afterwards extinguished, by throwing them into a Pot half filled with Oil of Olive, which Pot must be covered immediately, else the Oil would take Fire; the *Bricks* must be left in Fusion during ten or twelve Hours, or 'till the Oil has well penetrated the *Bricks*, after which they must be taken out and reduced into a coarse Powder; then put into a stone or glass Retort, large enough that a Third hereof may be left empty; the Retort is placed in a great reverberatory Furnace, and a large glass Recipient adapted to it; and the Joints being exactly luted, a small Fire, at first, is made under the Retort, to heat it, and encreased, by Degrees, 'till the Artist sees Vapours coming out, when the Fire must be continued, in the same Condition, 'till nothing more comes out; then the Artist unlutes the Vessels, and takes off the Recipient, and will find nothing left in the

the Recipient, but the *Brick*, which muſt be thrown away as uſeleſs. He mixes the Oil, found in the Recipient, with a ſufficient Quantity of *Brick-Duſt*, very dry to make a Paſte of it, of which he forms ſmall Balls, which he puts into a glaſs Retort, and places the Retort on the Sand, and having adapted a large Recipient to it, and luted the Joints, gives a graduate Fire under it, to rectify the Oil, which muſt be put into a Vial and kept.

The *Oil of Bricks*, otherwiſe called *Oil of Philoſophers*, is a very good Remedy, applied outwardly, for the Reſolution of Tumors, for the Palſy, Aſthma, and the Suffocation of the Matrix. The Doſe, when taken inwardly, is from two Drops to four, in a Liquor appropriated to the Diſtemper; a few Drops of it are alſo poured into the Ear to diſſipate the Flatuoſities incloſed therein.

Note, That this Preparation is nothing but an Exaltation of the Oil of Olive, more opened by the Fire, and thereby rendered more proper to reſolve Tumors; for it muſt not be imagined, that the *Brick*, which is but a dry Body, and diveſted of active Principles, can communicate any Virtue to it; for if it be called *Oil of Philoſophers*, 'tis not becauſe of the excellent Qualities it borrows from the *Brick*, but becauſe the *Bricks* are employed in the Building of Furnaces, where the *Chymical* and *Alchymical* Operations are made.

Our next Operations are to be upon SALT, which is a kind of ſaline Cryſtalliſation, or a ſharp, pungent, detergent, and aſtringent Subſtance, uſed to ſeaſon Fleſh, Fiſh, Butter, Hides, and other Things which are to be kept; and alſo to give a Reliſh to Meats, *&c.*

There are three Kinds of *Salts*, *viz. Sea-Salt*, *Foſſil*, or *Rock-Salt*, commonly called *Sal-Gemma*, and *Salt* drawn from briny Springs and Wells.

For *Sea-Salt*, the greateſt and beſt Part is made in *France*, little in *England*. *Foſſil* or *Rock-Salts* are chiefly found in *Poland*, *Hungary*, and *Catalonia*, where there are Mountains full of it. For *Salt* Springs they are conſiderable in *Cheſhire*, *Worceſterſhire*, *Hampſhire*, *Northumberland*, *Franche Comte*, *Lorrain*, *Tyrol*, and ſome other Places.

Foſſil or *Rock-Salt*, is more penetrating than the *Sea-Salt* extracted by Cryſtalliſation; and *Sea-Salt* extracted by Cryſtalliſation more penetrating than that made by Evaporation of the Waters it was contained in. The Reaſon alledged for it, is that *Rock-Salt*, or *Sal-Gemma*, having not been diſſolved in Water, could not loſe any of its Points, whenas the two other Sorts have left eſcape in the Cryſtalliſation, or Evaporation, the moſt acute and ſubtileſt of their Particles; in the Cryſtalliſation the Sea-Water, by its Agitation, carries off a great Quantity of thoſe Particles, and the Evaporation of that Water by Fire a ſtill greater.

The chief Coaſts for *Sea-Salt* are thoſe of *Bretagne*, *Saintonge*, and the *Pays D'Aunis*. The chief *Salt-Works* in the two latter Places are *Brouage*, *Maran*, and the Iſle of *Rhe*. Thoſe of *Bretagne* are in the Bay of *Bourneuf*, *Guerand*, and *Croiſil*.

Sea-Salt is made in low Marſhy-Grounds diſpoſed by Nature for the Reception of the Sea-Waters, and that Ground muſt be, in Part, Clay, otherwiſe it could not retain the Sea-Waters, which is the Reaſon why all Places, bordering on the Sea, are not proper for *Salt-Marſhes*, which *Salt-Marſhes* are provided with Banks and Sluices to retain the Water.

Theſe *Salt-Marſhes*, the Bottoms whereof they ram with a deal of Care, are divided into ſeveral ſquare Pits or Baſons, ſome greater, others leſs, ſeparated by little Dikes 13 or 14 Inches broad: And into theſe Baſons, when the Seaſon is at Hand, they let in the Sea-Water.

The *Salt* Seaſon is from the Middle of *May* to the End of *Auguſt*, in which Time the Days being long, and the Sun's Rays ſtrongeſt, *Salt* is raiſed and cryſtalliz'd better than in any other Seaſon. Ere they let in the Water, they take Care the Baſons ſhould be well cleared of the Water, which had been introduced into them, to preſerve them, during the Winter; after which other Water is admitted through different ſmall Canals, where 'tis purified and heated, by opening the Sluices of huge Reſervoirs kept, without the Works, full of that Water, which when at the Height of about ſix Inches in the Baſons, the Sluices are ſhut, and the Reſt of the Work left to the Wind and the Sun. The Sun makes the Evaporation of Part of the Humidity, and as it often happens a ſmall Wind after a great Heat, eſpecially towards the Sea-Shore, the Cold of that Wind occaſions the Condenſation and Cryſtalliſation of the *Salt*. When it has received its full Coction, they break it with a Pole, upon which it ſinks to the Bottom, whence being dragged out again, they leave it ſometimes in little Heaps about the Edge of the Baſon, to compleat the drying; and at length in great Heaps, containing ſeveral Thouſand Muids, which they cover over with Straw or Ruſhes to ſecure them from the Rain.

Eight, ten, or at moſt fifteen Days, having thus perfected the Cryſtalliſation of the *Salt*, they open the Sluices, when the Tide is riſing, for a freſh Stock of Water; and thus they continue alternately, taking in Water, and gathering Water, 'till the Seaſon be over. Rainy Weather is very pernicious to the Work; for if it chances to rain for only two Hours, while the *Salt* is making, there can be none made for a Fortnight afterwards, for then all the Water of the *Marſh* muſt be evacuated, and other Water introduced into it; ſo if it happened to rain once every Fortnight, there would be no Salt made that Seaſon.

The *Salt* is brown when taken out of the Pits, and is uſually ſold without further Preparation; it may be purified by having it melted in Water, the Diſſolution filtrated through grey Paper, and afterwards all the Humidity evaporated by Fire; there will remain a very white *Salt* at the Bottom of the Veſſel.

Though the *Sea-Salt* contains a great deal of Acid, it nevertheleſs makes an Ebullition, when mixed with Oil of Vitriol, which is an Acid likewiſe, which Ebullition produces a hot Smoke, and the Mixture forms a Coagulum. The Cauſe of this Fermentation and Coagulum proceeds, in my Opinion, from the Conflict, which happens between the Points of the Acid of the *Salt*, and thoſe of Vitriol, at their firſt Meeting or Encounter, and as long as that Conflict laſts, the Ebullition continues; but when the Particles of the Vitriols, being ſharper and harder, have either blunted or broke thoſe of the *Salt*, the Ebullition ceaſes, and of thoſe ſhattered Particles of the *Salt* are formed large and thick Shafts, or Caſes, for the Points of Vitriols, which uniting together form the Coagulum.

We'll make but two *Chymical* Preparations of *Sea-Salt*; *viz.* we'll calcine it and draw its Spirit.

Sea-Salt is calcined, by throwing into an earthen-Pot, without glazing, made red hot, between Coals, about an Ounce of *Sea-Salt* in Powder, and covering the Pot immediately, the *Salt* will crackle, and be reduced into a Powder; the Noiſe it makes is called Decrepitation, which when over, the ſame Quantity of *Salt* is thrown into the Pot, and the Operation thus continued, 'till the Artiſt has *Salt* enough, taking Care to keep the Pot always red hot. The Operation ended, the Pot is taken off the Fire, and the decrepited *Salt*, when cold, put into a Bottle, which muſt be well corked.

Decrepited, or *calcined Salt*, is applied hot, put into ſmall Bags, behind the Neck, to conſume the too great Humidity of the Brain, by opening the Pores; 'tis alſo uſed in ſeveral *Chymical* Operations. It may be mixed with a ſmall Quantity of *Salt of Tartar*, to render it more active.

The *Spirit of Salt* is an acid Liquor extracted from *Salt* by Diſtillation in the following Manner. The *Salt* muſt be dried on a ſmall Fire, or at the Sun; then three Pounds of it reduced into a ſubtle Powder, which Powder is to be exactly mixed with ſix Pounds of

of Clay, or of Bol, also in Powder. A hard Paste is made of this Mixture with Rain-Water, and the Paste formed into small Balls, of the Bigness of a very small Nutmeg, which are exposed a long while to the Sun; and when they are perfectly dry, they are put into a large Stone or glass Retort, a third Part whereof is left empty. The Retort, being luted, and a large Recipient having been adapted to it, is placed in a clos'd reverberatory Furnace, a slow Fire is made, at first, to heat the Vessel, and to raise an insipid Water, which drops into the Recipient; when the Artist sees that whitish Vapours succeed to that Water, he throws away what he finds in the Recipient, and re-adapting it to the Retort, and luting exactly the Joints, he increases the Fire by Degrees to the last Violence, and continues it in that State for twelve or fifteen Hours, during which Time the Recipient will have been heated, and filled with white Clouds; and when the Recipient grows cold, and the Clouds disappear, the Operation is ended; then the Artist unlutes the Joints, and finds a Pound and a half of *Spirit of Salt* in the Recipient, which he pours into a stone Bottle, and corks it well with Wax.

The *Spirit of Salt* is Aperitive, and is put in Juleps to a grateful Acidity for those afflicted with the Gravel: 'Tis also employed to cleanse the Teeth, mixed with some Water; and to eat the Caries of the Bones.

To make the *Spirit of Salt dulcified*, of *Basile Valentine*, there must be mixed an equal Quantity of *Spirit of Salt*, and of Spirit of Wine, and the Mixture put in Digestion, into a circulatory Vessel, at a slow Sand-Heat, for the Space of three Days. 'Tis esteemed more proper than the other to be taken inwardly, as its being not so corrosive. The Dose is from four to twelve Drops, in some Liquor appropriated to the Distemper.

We'll pass from these Operations on *Salt* to those on *Saltpetre*, which is an acid *Salt*, impregnated with the Spirits of the Air, which renders it volatile.

SALTPETRE is prepared from Stones, or nitrous Matters, collected in old Buildings, Dove-Houses, the Middle of antient Buildings, *&c.* by Means of Lixiviums, or Lies, made of Wood-Ashes, and sometimes of those of Herbs. *Saltpetre* is also, sometimes, from Earths, moisten'd and manured, with the Excrements of Animals. There is also *Saltpetre* found in hot Climates, sticking against Walls and Rocks in small Crystals. This is what they call *Saltpetre of the Rocks*, the same with the Aphronitre of the Antients. 'Tis preferable to the common *Saltpetre* for the Composition of Gun-Powder, and for *Aqua Fortis*, because it being passed but slightly on Ashes, 'tis less impregnated with their *Salt*; it must be chosen neat, and in Crystals.

A very fine *Saltpetre* is brought over from the *East-Indies*, especially for Gun-Powder; 'tis said that it grows in Abundance near *Pegu*; when purified, it appears like our refined *Saltpetre*.

Some Naturalists pretend that the Earths, which have already served for *Saltpetre*, may be re-animated, and made fit to serve again, by keeping them covered for twelve or fourteen Years, and watering them with the Scum, *&c.* of the *Saltpetre*, and even with Bran.

Chambers says, that *Salpetre* is a sulphurous inflammable Kind of Salt; but he is mistaken in this as well as in an infinite Multitude of other Things he has collected from Authors, whose Sentiments are contrary to Reason and Experience; for if *Saltpetre* was inflammable of its Nature, and was sulphurous, it should burn in Places where there are no Sulphurs, for Example, in a Crucible made red hot, where it never inflames in whatever Quantity 'tis put into it, let the Fire be ever so violent. 'Tis true that when *Saltpetre* is thrown upon lighted Coals, there happens a great Flame, but that Flame proceeds from the sulphurous Fuliginosities of the Coals, rarefied and exalted with Violence, by the Volatility of the Nitre, not from the Sulphur 'tis suppos'd to contain; since that Sulphur could never yet be demonstrated, by any Operation whatever: For the red Vapours which exhale from it are not more inflammable than the *Saltpetre* itself, when not mix'd with a sulphurous Matter: Therefore there is a greater Appearance that *Saltpetre* is free from all sulphurous Particles, considering its Clearness, Transparency, Acidity, and cooling Virtue; which do not much agree with the Effects of Sulphurs, which are, rendering Things opake, embarrassing the Acidity, and cooling the Body.

We design to make seven *chymical* Preparations of *Saltpetre*, under seven different Denominations, *viz.* *Purification of Saltpetre*, *Crystal Mineral*, or *Sal Prunellæ*, *Sal Polichreste*, *Spirit of Nitre*, *Spirit of Nitre dulcify'd*, *Aqua fortis*, and *Fixation of Saltpetre*.

We'll begin by the PURIFICATION OF SALTPETRE, which is divesting it of Part of its fix'd Salt, and of some bituminous Earth it contains; which is done in this Manner: Ten or 12 Pounds of *Saltpetre* are melted in a sufficient Quantity of Water, which Dissolution is left to settle, and afterwards filtrated, and caus'd to evaporate in a glass or earthen Vessel, to the Diminution of Half the Humidity, or till a small Pellicle begins to appear a-top: Then the Vessel is carry'd to a cool Place, where it is left till the next Day; when Crystals are found in it, which are separated from the Liquor, and that Liquor made to evaporate, as before, till the Formation of the Pellicle, and the Vessel carry'd back to the same cool Place, for the Formation of new Crystals; which Evaporations and Crystallizations are repeated till all the *Saltpetre* is extracted.

The *refin'd Saltpetre* is very aperitive; it cools by fixing the Humours, and pushing them by Urine. 'Tis given in violent Fevers, Gonorrhæa's, and several other Maladies. The Dose is from 10 Grains to a Drachm, in Broth, or some other Liquor appropriated to the Distemper.

Note, That the first Crystals are the *refin'd Saltpetre*, and the last of the Crystallizations nothing else but a Salt like Sea Salt; which must be kept a-part, to season Victuals.

CRYSTAL MINERAL, or SAL PRUNELLÆ, is a *Saltpetre* depriv'd of Part of its volatile Particles by Means of Fire and Sulphur, thus: Thirty-two Ounces of refin'd *Saltpetre* are bruis'd, and put into a Crucible plac'd in a Furnace between lighted Coals; when the *Saltpetre* is in Fusion, there is thrown upon it, at different Times, Half an Ounce of Flowers of Sulphur: There happens presently a great Flame, and the most volatile Spirits of the *Saltpetre* are carry'd off. When the Flame is over, the Matter remains in a very clear Fusion; then the Crucible is taken off the Fire, with a Pair of Tongs, and the Matter pour'd hot as it is, into a brass Bason, which has been heated before, for Fear some Humidity should be left in it, and the Bason stirr'd between the Hands, that the Matter may extend itself in cooling. This is call'd *Sal Prunellæ*, of which, the Artist will have 28 Ounces.

This *Sal Prunellæ* is esteem'd better, in Medicine, than *refin'd Saltpetre*, because 'tis pretended that it has been corrected by the Sulphur. 'Tis cooling, and diuretick, and, consequently, administer'd in violent Fevers, Quinsies, Gonorrhæa's, and other Maladies proceeding from Heat and Obstructions. The Dose is from 10 Grains to a Drachm, in Broth, or some other Liquor appropriated to the Distemper.

Note, That this Preparation of *Saltpetre* is call'd *Sal Prunellæ*, because the essential Salt extracted from *Prunellæ* must have the same Virtues of the *Crystal Mineral*; or because 'tis given in Fevers, whose violent Heat is compar'd to that of a lighted Coal, call'd *Pruna*. 'Tis a Mistake of the Antients to believe that *Saltpetre* was render'd more aperitive by throwing upon it, while in Fusion, Flowers of Sulphur;

phur; ſince 'tis depriv'd, thereby, of its moſt penetrating Spirits, carry'd off along with the Sulphur; therefore inſtead of rendering it more open, and more efficacious, 'tis depriv'd of its beſt Qualities.

SAL POLICHREST, (from πολυχρης-ω, *i. e.* ſerving for ſeveral Uſes) is a *Saltpetre* fix'd by Sulphur and Fire, in this Manner: We pulverize, and mix exactly, equal Parts of *Saltpetre* and common Sulphur, and throw about an Ounce of the Mixture into a good Crucible, made red-hot: A great Flame happens, which being over, we throw again the ſame Quantity of the Mixture, and continue thus till we have none left; then we entertain the Fire for about Half an Hour, keeping always the Crucible red-hot; which done, we pour the Matter into a braſs Baſon, very well dry'd at the Fire: When the Matter is cold, we pulverize it, and have it melted in a ſufficient Quantity of Water; then filtrate the Diſſolution, and have it evaporated afterwards in a glaſs or ſtone Veſſel at a Sand Heat, to Siccity.

If this Salt was not quite white, we would calcine it in a Crucible, at a great Fire, ſtirring it with a Spatula, during 3 or 4 Hours, or till 'tis grown very white; then repeat the Diſſolution in Water, the Filtration, and Evaporation.

The *Sal Polychreſt* purges the Seroſities by Stool, and ſometimes by Urine. The Doſe is from Half a Drachm to ſix Drachms, in a Liquor appropriated to the Diſtemper.

Note, That the *Sal Polychreſt* ought not to be us'd but after it has been render'd very white, and well purify'd; otherwiſe it would excite Vertigo's, Stupors of the Nerves, and Reachings. The Difference obſerv'd between the *Cryſtal Mineral*, and the *Sal Polychreſt*, though both made of the ſame Matters, proceed, in my Opinion, from their different Preparation; for in the Preparation of the *Cryſtal Mineral*, the *Saltpetre*, being put in Fuſion before the Addition of the Flowers of Sulphur, and its Particles thereby violently agitated, they encounter with ſuch Violence with the ſulphurous ones, when thrown into the Crucible, that without giving them Time to mix with them, but ſtopping them at the Beginning of their Career, they force them out with a great Impetuoſity, with no other Loſs, on their Side, but of ſome volatile Particles, which chance to mix with the Sulphur in that violent Exploſion; and thereby, as we have obſerv'd already, the *Saltpetre* is in ſome Meaſure weaken'd, and render'd leſs efficacious. But in the Preparation of the *Sal Polychreſt*, both the *Saltpetre* and Sulphur receiving the ſame Degree of Fire at one and the ſame Time, are neither of them precipitated in their Action; but, on the contrary, act by Degrees, and in Concert, to form a *Compoſitum* of their different Particles, whereby the *Saltpetre* is rarefy'd, without loſing its moſt volatile Corpuſcles, which are ſheathed into the oleaginous one of the Sulphur, and the Sulphur depriv'd of its Fuliginoſities, while its Oil remains exalted, and incorporated with the rarefy'd Particles of the *Saltpetre*: Therefore the different Particles of both Matters receiving a new Configuration, in the Rarefaction of the one, and the Exaltation of the other, operate, likewiſe, otherwiſe than they had done if they had not undergone ſo ſenſible a Change.

SPIRIT OF NITRE, is a very acid and corroſive Liquor, extracted from *Saltpetre* by Diſtillation, in the following Manner: Two Pounds of *Saltpetre*, and ſix Pounds of Clay, very well dry'd, being pounded, and mix'd exactly together, are put into a large ſtone or glaſs Retort luted, which is plac'd in a clos'd reverberatory Furnace; to which a large Recipient having been adapted, a very ſmall Fire is made under it, during 4 or 5 Hours, to make the Phlegm come out, which will drop into the Recipient: When it has done dropping, what's in the Recipient is thrown away, and it having been re-adapted to the Retort, and the Joints exactly luted, the Fire is increas'd ſlowly, to the ſecond Degree, and then Spirits come out, which fill the Recipient with white Clouds: The Fire is continu'd in the ſame State for 2 Hours, and being increas'd, afterwards, to the laſt Violence, and the Vapours coming out red, it is continu'd in that Degree till it has done diſtilling. The Operation is ended in 14 Hours. When the Veſſels are cold, they are unluted, and the Liquor pour'd into a ſtone Bottle, which is cork'd with Wax.

The *Spirit of Nitre* is us'd for the Diſſolution of Metals. 'Tis the beſt *Aqua fortis*.

The SPIRIT OF NITRE DULCIFIED, is breaking or evaporating the moſt ſubtile Points of that Spirit, thus: We put 8 Ounces of very good *Spirit of Nitre*, and as much Spirit of Wine, into a large Matraſs, and place the Matraſs under the Chimney; the Liquor heats of itſelf, without being put on the Fire, and Half an Hour, or an Hour afterwards, it boils: We avoid the red Vapours which come out at the Neck of the Matraſs; and when the Ebullition is over, we find our Liquor clear at the Bottom, which we pour into a Vial, to be kept.

This *Spirit of Nitre dulcified* is very good for the windy Cholick, Nephritick, hyſterick Maladies, and all Kinds of Obſtructions. The Doſe is from 4 Drops to 8, in Broth, or ſome other Liquor appropriated to the Diſtemper.

Note, That ſome Authors are of Opinion, that the violent Effervescence which happens in the Preparation of *Spirit of Nitre dulcified*, is caus'd by the igneous Corpuſcles contain'd in the *Spirit of Nitre*, whereby the exalted Sulphurs of the Spirit of Wine are almoſt inflam'd. But I can't be of that Sentiment, nor even believe that there are any igneous Particles left in the *Spirit of Nitre*, after the Diſtillation; ſince that Spirit remains ſuſpended in Form of Clouds in the Recipient, as long as it is impregnated with the igneous Particles, and thoſe Clouds are not reſolv'd into a Liquor; but after thoſe igneous Particles, by a ſtrict and compact Coadunation of the acid Points, and for want of a new Supply, are expell'd from the Pores they had been lodg'd in, they are entirely extinguiſh'd: Therefore that Ebullition can't proceed but from the violent Efforts made by acid Points, to break and deſtroy the Symmetry of the ramous Particles of the Spirit of Wine, but meet with a ſtrong Oppoſition from thoſe ramous Particles, which though penetrated with Eaſe, find Means, by the Obliquity and Intricacy of their Pores, to entangle and embarraſs the acid Points, in ſuch a Manner, that after a violent and long Rotation (which cauſes the Ebullition) to find their Way out of that Labyrinth they have enter'd with ſo much Eaſe, they are loſt in it at laſt; ſome of them having been broken by ſallying out with Impetuoſity from a right Pore into an oblique one, and others blunted, in their Friction againſt the Sulphur of the Spirit of Wine, which ſticks to them, and wherewith they are ſo overloaded, as to remain inactive; which is the Cauſe why they have loſt all their Corroſion.

AQUA FORTIS, is a Mixture of Spirit of Nitre and Vitriol, extracted by Fire for the Diſſolution of Metals. The Operation is conducted in the following Manner: We take an equal Quantity of *Saltpetre*, *German* Vitriol calcin'd white, and Clay very well dry'd; which having pulveriz'd, and mix'd together, we put into a large ſtone or glaſs Retort, leaving one third Part of it empty: We put the Retort into a clos'd reverberatory Furnace, and having adapted a Recipient to it, and luted exactly the Joints, we begin, by making a ſmall Fire, to heat gently the Retort, then increaſe it by Degrees, and continue it in the ſame Degree all the Time we ſee red Clouds coming into the Recipient; but when thoſe Clouds ceaſe coming in ſo great a Quan-

Quantity, and the Recipient begins to grow cold, we push the Fire with Violence, by putting a Piece of Wood into the Furnace till white Vapours appear instead of the red ones: Then we leave the Vessels to grow cold, and afterwards unlute them, to pour our *Aqua fortis* into a stone Bottle, which we cork well. This *Aqua fortis* serves only to dissolve Metals.

Note, That the common *Aqua fortis* is only made of equal Parts of *Saltpetre* and Vitriol, mix'd, and distill'd together, without any previous Preparation; but that Water is a great deal weaker than ours, since the Vitriol, which contains Half its Weight of Phlegm, drenches most of the acid Spirit which makes the Strength of the *Aqua fortis*, and enervates its Action: But if, notwithstanding these Reasons, the Artist wants to make *Aqua fortis* in the common Way, he must have the Precaution to make a moderate Fire at the Beginning of the Distillation, because the Vitriol which has not been calcin'd puffs up, when heated with too much Precipitation, and Part of the Matter overflows into the Recipient. The *German* Vitriol is preferable to all others, in this Operation; because it participates much of Copper, which renders it acrimonious and penetrating. Some add to the Composition of *Aqua fortis* Allum and Arsenick, but our first Prescription is the best.

The FIXATION OF SALTPETRE, *by means of Coals*, is that Salt render'd porous by Calcination, and the Ashes of Coals mix'd with it; which is effected in the following Manner: Sixteen Ounces of *Saltpetre*, more or less, are put into a strong and large Crucible, and the Crucible plac'd between lighted Coals; when the *Saltpetre* is melted, a Spoonful of Coals, reduc'd into a coarse Powder, is thrown upon it: There ensues a great Flame and Detonation, which being over, another Spoonful of Coals is thrown into the Crucible, and thus continu'd till the Matter blazes no more, but remains fix'd at the Bottom of the Crucible: Then 'tis pour'd into a Mortar which has been very well heated; when cold, 'tis pulveriz'd, and dissolv'd in a sufficient Quantity of Water, the Dissolution filtrated through a grey Paper, and all the Humidity evaporated afterwards in a stone or glass Vessel, at a Sand Heat. There remains at the Bottom of the Vessel a Salt, which must be kept in a Bottle well cork'd.

This Salt has a Taste semblable to that of Salt of Tartar, and differs very little from it in Virtue; it raises Obstructions, purges by Urine, and sometimes by Stool. The Dose is from 16 to 30 Grains, in some Liquor appropriated to the Distemper.

Note, That this Operation demonstrates, plainly, that *Saltpetre* serves only, here, to rarefy the Flame of the Coals, and it produces none of itself, since as soon as the Coal thrown into the Crucible is burnt, the Flame ceases, and there happens no new one, till other Coals are thrown, with which a sufficient Proportion of the volatile Particles of the *Saltpetre* left, mixes, and rarefies it. Therefore the Artist continues to throw in fresh Coals, while it blazes; but towards the End of the Operation, as there remains but few volatile Particles of the Nitre, the Detonation is less violent, and the Flame not so great, till, at last, the Coal finding nothing left in the *Saltpetre* capable to exalt it, burns then as it does when alone.

Note, also, That in this Operation Half the Crucible must be left empty, otherwise the Detonation is so violent, that the Matter would run over.

Our next Operations must be on SAL ARMONIACK, or AMMONIACK, which is a Sort of volatile Salt; whereof there are two Kinds, ancient, and modern.

The ancient *Sal Ammoniack*, call'd also *Sal Cyreniac*, describ'd by *Pliny* and *Dioscorides*, was a native Salt, generated in the Earth, or rather the Sands, in those large Inns, or Caravanseras, where the Crowds of Pilgrims coming from all Parts to the Temple of *Jupiter Ammon*, us'd to lodge. The Method of Conveyance in those Parts being on Camels, and those Creatures, when in *Cyrene*, a Province of *Egypt*, wherein that celebrated Temple stood, urining in the Stables, or, say some, in the parch'd Sands; of this Urine, which is remarkably strong, sublim'd by the Heat of the Sun, arose a kind of Salt, denominated, sometimes, from the Temple, *Ammoniack*; and sometimes, from the Region, *Cyreniack*.

This Salt being no longer found in those Places, some Authors suspect there was never such a Thing, and that the ancient, as well as the modern *Sal Ammoniack*, was factitious. What pleads for the contrary, is, that the Salt frequently belch'd out, in large Quantities, from Mount *Ætna*, appears much of the same Nature, and answers to most of the Characters of the ancient *Sal Ammoniack*. The Reason why no more is produc'd in *Egypt*, is, the Cessation of Pilgrimages to that ancient Idol.

The modern *Sal Ammoniack*, call'd also *Aqua Cœlestis*, is held by some to be native, and to trickle out of the Ground about Mount *Vesuvius*, *Ætna*, &c. in Form of a Liquor, which, when filtrated, and inspissated, becomes *Sal Ammoniack*. But it is certain, all the modern *Sal Ammoniack* is compound and factitious, consisting of a mineral, a vegetable, and an animal Salt combin'd together. Indeed the Publick has been entirely at a Loss, both as to the Place whence it comes, and how it was made; all we know for certain, was, that it came from the *Levant*, and was a volatile urinous Salt, penetrated by an Acid. Father *Schickard*, the Jesuit, has at length remov'd the Veil, in the *Missionaries Memoirs*, for *November* 1717. This Salt, says that Father, in a Letter to the Count *De Thoulouse*, is made in *Egypt*, in a Sort of Ovens contriv'd for that Purpose, the Tops whereof are perforated with several longitudinal Clefts, and on these Clefts are laid several long-neck'd glass Bottles, fill'd with Soot, a little Sea Salt, and the Urine of Cattle, well stopp'd. This done, they cover them up with a Body of Clay and Brick, all but the Necks, which lie open to the Air, and put the Fire in the Oven, which they keep up for 3 Days and Nights. The Phlegm of the Materials contain'd in the Bottles, being thus exhal'd by the Heat of the Fire, and the acid and alkaline Salts abounding therein, being thus brought together near the Necks of the Bottles, they coalesce, harden, and form a whitish Mass, which is the *Sal Ammoniack*. It must be added, that all Soot is not fit for the Purpose, but only that exhaling from Fuel made of Dung, whereof that of Camels is esteem'd the strongest, and best.

M. *Little* differs from the Description given by Father *Schickard* of the Preparation of *Sal Ammoniack*, in that he says, that the Mouths of the Glasses are luted with a Piece of wet Cotton. He adds, that in this State they are plac'd over the Oven, or Furnace, in a thick Bed of Ashes, nothing but the Neck appearing, and kept there 2 Days and a Night, with a continual strong Fire. The Steam swells up the Cotton, and forms a Paste at the Vent-hole, hindering thereby the Salts from evaporating; which being confin'd, stick to the Top of the Bottle, and are, upon breaking it, taken out in those large Cakes which they send to us.

Mr. *Boyle* has observ'd, that *Sal Ammoniack* is so cooling, that if a common Thermometer be plunged into Water immediately after *Sal Ammoniack* has been dissolv'd in it, the Spirit of Wine contain'd in the Thermometer will descend with more Precipitation, and a great deal lower, than if it had been plunged into pure Water; and if the Thermometer be taken out of the Dissolution of *Sal Ammoniack*, and be put into common Water, the Spirit of Wine will ascend quick enough, for some Time.

M. *Homberg* says, that if one Pound of *Sal Ammoniack*, and the same Quantity of corrosive Sublimate, be pulveriz'd separately, and afterwards exactly mix'd together, and the Mixture being put into a Matrass,

phur; ſince 'tis depriv'd, thereby, of its moſt penetrating Spirits, carry'd off along with the Sulphur; therefore inſtead of rendering it more open, and more efficacious, 'tis depriv'd of its beſt Qualities.

SAL POLICHREST, (from πολυχρης-ος, *i. e.* ſerving for ſeveral Uſes) is a *Saltpetre* fix'd by Sulphur and Fire, in this Manner: We pulverize, and mix exactly, equal Parts of *Saltpetre* and common Sulphur, and throw about an Ounce of the Mixture into a good Crucible, made red-hot: A great Flame happens, which being over, we throw again the ſame Quantity of the Mixture, and continue thus till we have none left; then we entertain the Fire for about Half an Hour, keeping always the Crucible red-hot; which done, we pour the Matter into a braſs Baſon, very well dry'd at the Fire: When the Matter is cold, we pulverize it, and have it melted in a ſufficient Quantity of Water; then filtrate the Diſſolution, and have it evaporated afterwards in a glaſs or ſtone Veſſel at a Sand Heat, to Siccity.

If this Salt was not quite white, we would calcine it in a Crucible, at a great Fire, ſtirring it with a Spatula, during 3 or 4 Hours, or till 'tis grown very white; then repeat the Diſſolution in Water, the Filtration, and Evaporation.

The *Sal Polychreſt* purges the Seroſities by Stool, and ſometimes by Urine. The Doſe is from Half a Drachm to ſix Drachms, in a Liquor appropriated to the Diſtemper.

Note, That the *Sal Polychreſt* ought not to be us'd but after it has been render'd very white, and well purify'd; otherwiſe it would excite Vertigo's, Stupors of the Nerves, and Reachings. The Difference obſerv'd between the *Cryſtal Mineral*, and the *Sal Polychreſt*, though both made of the ſame Matters, proceed, in my Opinion, from their different Preparation; for in the Preparation of the *Cryſtal Mineral*, the *Saltpetre*, being put in Fuſion before the Addition of the Flowers of Sulphur, and its Particles thereby violently agitated, they encounter with ſuch Violence with the ſulphurous ones, when thrown into the Crucible, that without giving them Time to mix with them, but ſtopping them at the Beginning of their Career, they force them out with a great Impetuoſity, with no other Loſs, on their Side, but of ſome volatile Particles, which chance to mix with the Sulphur in that violent Exploſion; and thereby, as we have obſerv'd already, the *Saltpetre* is in ſome Meaſure weaken'd, and render'd leſs efficacious. But in the Preparation of the *Sal Polychreſt*, both the *Saltpetre* and Sulphur receiving the ſame Degree of Fire at one and the ſame Time, are neither of them precipitated in their Action; but, on the contrary, act by Degrees, and in Concert, to form a *Compoſitum* of their different Particles, whereby the *Saltpetre* is rarefy'd, without loſing its moſt volatile Corpuſcles, which are ſheathed into the oleaginous one of the Sulphur, and the Sulphur depriv'd of its Fuliginoſities, while its Oil remains exalted, and incorporated with the rarefy'd Particles of the *Saltpetre*: Therefore the different Particles of both Matters receiving a new Configuration, in the Rarefaction of the one, and the Exaltation of the other, operate, likewiſe, otherwiſe than they had done if they had not undergone ſo ſenſible a Change.

SPIRIT OF NITRE, is a very acid and corroſive Liquor, extracted from *Saltpetre* by Diſtillation, in the following Manner: Two Pounds of *Saltpetre*, and ſix Pounds of Clay, very well dry'd, being pounded, and mix'd exactly together, are put into a large ſtone or glaſs Retort luted, which is plac'd in a clos'd reverberatory Furnace; to which a large Recipient having been adapted, a very ſmall Fire is made under it, during 4 or 5 Hours, to make the Phlegm come out, which will drop into the Recipient: When it has done dropping, what's in the Recipient is thrown away, and it having been re-adapted to the Retort, and the Joints exactly luted, the Fire is increas'd ſlowly, to the ſecond Degree, and then Spirits come out, which fill the Recipient with white Clouds: The Fire is continu'd in the ſame State for 2 Hours, and being increas'd, afterwards, to the laſt Violence, and the Vapours coming out red, it is continu'd in that Degree till it has done diſtilling. The Operation is ended in 14 Hours. When the Veſſels are cold, they are unluted, and the Liquor pour'd into a ſtone Bottle, which is cork'd with Wax.

The *Spirit of Nitre* is us'd for the Diſſolution of Metals. 'Tis the beſt *Aqua fortis*.

The SPIRIT OF NITRE DULCIFIED, is breaking or evaporating the moſt ſubtile Points of that Spirit, thus: We put 8 Ounces of very good *Spirit of Nitre*, and as much Spirit of Wine, into a large Matraſs, and place the Matraſs under the Chimney; the Liquor heats of itſelf, without being put on the Fire, and Half an Hour, or an Hour afterwards, it boils: We avoid the red Vapours which come out at the Neck of the Matraſs; and when the Ebullition is over, we find our Liquor clear at the Bottom, which we pour into a Vial, to be kept.

This *Spirit of Nitre dulcified* is very good for the windy Cholick, Nephritick, hyſterick Maladies, and all Kinds of Obſtructions. The Doſe is from 4 Drops to 8, in Broth, or ſome other Liquor appropriated to the Diſtemper.

Note, That ſome Authors are of Opinion, that the violent Effervescence which happens in the Preparation of *Spirit of Nitre dulcified*, is caus'd by the igneous Corpuſcles contain'd in the *Spirit of Nitre*, whereby the exalted Sulphurs of the Spirit of Wine are almoſt inflam'd. But I can't be of that Sentiment, nor even believe that there are any igneous Particles left in the *Spirit of Nitre*, after the Diſtillation; ſince that Spirit remains ſuſpended in Form of Clouds in the Recipient, as long as it is impregnated with the igneous Particles, and thoſe Clouds are not reſolv'd into a Liquor; but after thoſe igneous Particles, by a ſtrict and compact Coadunation of the acid Points, and for want of a new Supply, are expell'd from the Pores they had been lodg'd in, they are entirely extinguiſh'd: Therefore that Ebullition can't proceed but from the violent Efforts made by acid Points, to break and deſtroy the Symmetry of the ramous Particles of the Spirit of Wine, but meet with a ſtrong Oppoſition from thoſe ramous Particles, which though penetrated with Eaſe, find Means, by the Obliquity and Intricacy of their Pores, to entangle and embarraſs the acid Points, in ſuch a Manner, that after a violent and long Rotation (which cauſes the Ebullition) to find their Way out of that Labyrinth they have enter'd with ſo much Eaſe, they are loſt in it at laſt; ſome of them having been broken by ſallying out with Impetuoſity from a right Pore into an oblique one, and others blunted, in their Friction againſt the Sulphur of the Spirit of Wine, which ſticks to them, and wherewith they are ſo overloaded, as to remain inactive; which is the Cauſe why they have loſt all their Corroſion.

AQUA FORTIS, is a Mixture of Spirit of Nitre and Vitriol, extracted by Fire for the Diſſolution of Metals. The Operation is conducted in the following Manner: We take an equal Quantity of *Saltpetre*, *German* Vitriol calcin'd white, and Clay very well dry'd; which having pulveriz'd, and mix'd together, we put into a large ſtone or glaſs Retort, leaving one third Part of it empty: We put the Retort into a clos'd reverberatory Furnace, and having adapted a Recipient to it, and luted exactly the Joints, we begin, by making a ſmall Fire, to heat gently the Retort, then increaſe it by Degrees, and continue it in the ſame Degree all the Time we ſee red Clouds coming into the Recipient; but when thoſe Clouds ceaſe coming in ſo great a Quan-

Quantity, and the Recipient begins to grow cold, we push the Fire with Violence, by putting a Piece of Wood into the Furnace till white Vapours appear instead of the red ones: Then we leave the Vessels to grow cold, and afterwards unlute them, to pour our *Aqua fortis* into a stone Bottle, which we cork well. This *Aqua fortis* serves only to dissolve Metals.

Note, That the common *Aqua fortis* is only made of equal Parts of *Saltpetre* and Vitriol, mix'd, and distill'd together, without any previous Preparation; but that Water is a great deal weaker than ours, since the Vitriol, which contains Half its Weight of Phlegm, drenches most of the acid Spirit which makes the Strength of the *Aqua fortis*, and enervates its Action: But if, notwithstanding these Reasons, the Artist wants to make *Aqua fortis* in the common Way, he must have the Precaution to make a moderate Fire at the Beginning of the Distillation, because the Vitriol which has not been calcin'd puffs up, when heated with too much Precipitation, and Part of the Matter overflows into the Recipient. The *German* Vitriol is preferable to all others, in this Operation; because it participates much of Copper, which renders it acrimonious and penetrating. Some add to the Composition of *Aqua fortis* Allum and Arsenick, but our first Prescription is the best.

The FIXATION OF SALTPETRE, *by means of Coals*, is that Salt render'd porous by Calcination, and the Ashes of Coals mix'd with it; which is effected in the following Manner: Sixteen Ounces of *Saltpetre*, more or less, are put into a strong and large Crucible, and the Crucible plac'd between lighted Coals; when the *Saltpetre* is melted, a Spoonful of Coals, reduc'd into a coarse Powder, is thrown upon it: There ensues a great Flame and Detonation, which being over, another Spoonful of Coals is thrown into the Crucible, and thus continu'd till the Matter blazes no more, but remains fix'd at the Bottom of the Crucible: Then 'tis pour'd into a Mortar which has been very well heated; when cold, 'tis pulveriz'd, and dissolv'd in a sufficient Quantity of Water, the Dissolution filtrated through a grey Paper, and all the Humidity evaporated afterwards in a stone or glass Vessel, at a Sand Heat. There remains at the Bottom of the Vessel a Salt, which must be kept in a Bottle well cork'd.

This Salt has a Taste semblable to that of Salt of Tartar, and differs very little from it in Virtue; it raises Obstructions, purges by Urine, and sometimes by Stool. The Dose is from 16 to 30 Grains, in some Liquor appropriated to the Distemper.

Note, That this Operation demonstrates, plainly, that *Saltpetre* serves only, here, to rarefy the Flame of the Coals, and it produces none of itself, since as soon as the Coal thrown into the Crucible is burnt, the Flame ceases, and there happens no new one, till other Coals are thrown, with which a sufficient Proportion of the volatile Particles of the *Saltpetre* left, mixes, and rarefies it. Therefore the Artist continues to throw in fresh Coals, while it blazes; but towards the End of the Operation, as there remains but few volatile Particles of the Nitre, the Detonation is less violent, and the Flame not so great, till, at last, the Coal finding nothing left in the *Saltpetre* capable to exalt it, burns then as it does when alone.

Note, also, That in this Operation Half the Crucible must be left empty, otherwise the Detonation is so violent, that the Matter would run over.

Our next Operations must be on SAL ARMONIACK, or AMMONIACK, which is a Sort of volatile Salt; whereof there are two Kinds, ancient, and modern.

The ancient *Sal Ammoniack*, call'd also *Sal Cyreniac*, describ'd by *Pliny* and *Dioscorides*, was a native Salt, generated in the Earth, or rather the Sands, in those large Inns, or Caravanseras, where the Crowds of Pilgrims coming from all Parts to the Temple of *Jupiter Ammon*, us'd to lodge. The Method of Conveyance in those Parts being on Camels, and those Creatures, when in *Cyrene*, a Province of *Egypt*, wherein that celebrated Temple stood, urining in the Stables, or, say some, in the parch'd Sands; of this Urine, which is remarkably strong, sublim'd by the Heat of the Sun, arose a kind of Salt, denominated, sometimes, from the Temple, *Ammoniack*; and sometimes, from the Region, *Cyreniack*.

This Salt being no longer found in those Places, some Authors suspect there was never such a Thing, and that the ancient, as well as the modern *Sal Ammoniack*, was factitious. What pleads for the contrary, is, that the Salt frequently belch'd out, in large Quantities, from Mount *Ætna*, appears much of the same Nature, and answers to most of the Characters of the ancient *Sal Ammoniack*. The Reason why no more is produc'd in *Egypt*, is, the Cessation of Pilgrimages to that ancient Idol.

The modern *Sal Ammoniack*, call'd also *Aqua Cœlestis*, is held by some to be native, and to trickle out of the Ground about Mount *Vesuvius*, *Ætna*, &c. in Form of a Liquor, which, when filtrated, and inspissated, becomes *Sal Ammoniack*. But it is certain, all the modern *Sal Ammoniack* is compound and factitious, consisting of a mineral, a vegetable, and an animal Salt combin'd together. Indeed the Publick has been entirely at a Loss, both as to the Place whence it comes, and how it was made; all we know for certain, was, that it came from the *Levant*, and was a volatile urinous Salt, penetrated by an Acid. Father *Schickard*, the Jesuit, has at length remov'd the Veil, in the *Missionaries Memoirs*, for *November* 1717. This Salt, says that Father, in a Letter to the Count *De Thoulouse*, is made in *Egypt*, in a Sort of Ovens contriv'd for that Purpose, the Tops whereof are perforated with several longitudinal Clefts, and on these Clefts are laid several long-neck'd glass Bottles, fill'd with Soot, a little Sea Salt, and the Urine of Cattle, well stopp'd. This done, they cover them up with a Body of Clay and Brick, all but the Necks, which lie open to the Air, and put the Fire in the Oven, which they keep up for 3 Days and Nights. The Phlegm of the Materials contain'd in the Bottles, being thus exhal'd by the Heat of the Fire, and the acid and alkaline Salts abounding therein, being thus brought together near the Necks of the Bottles, they coalesce, harden, and form a whitish Mass, which is the *Sal Ammoniack*. It must be added, that all Soot is not fit for the Purpose, but only that exhaling from Fuel made of Dung, whereof that of Camels is esteem'd the strongest, and best.

M. *Little* differs from the Description given by Father *Schickard* of the Preparation of *Sal Ammoniack*, in that he says, that the Mouths of the Glasses are luted with a Piece of wet Cotton. He adds, that in this State they are plac'd over the Oven, or Furnace, in a thick Bed of Ashes, nothing but the Neck appearing, and kept there 2 Days and a Night, with a continual strong Fire. The Steam swells up the Cotton, and forms a Paste at the Vent-hole, hindering thereby the Salts from evaporating; which being confin'd, stick to the Top of the Bottle, and are, upon breaking it, taken out in those large Cakes which they send to us.

Mr. *Boyle* has observ'd, that *Sal Ammoniack* is so cooling, that if a common Thermometer be plunged into Water immediately after *Sal Ammoniack* has been dissolv'd in it, the Spirit of Wine contain'd in the Thermometer will descend with more Precipitation, and a great deal lower, than if it had been plunged into pure Water; and if the Thermometer be taken out of the Dissolution of *Sal Ammoniack*, and be put into common Water, the Spirit of Wine will ascend quick enough, for some Time.

M. *Homberg* says, that if one Pound of *Sal Ammoniack*, and the same Quantity of corrosive Sublimate, be pulveriz'd separately, and afterwards exactly mix'd together, and the Mixture being put into a Matrass,

3 Pounds of diſtill'd Vinegar are pour'd upon it, and the whole ſtirr'd very well together; the Mixture will grow ſo cold, as not to be held long in one's Hand, even in the Summer.

Theſe Experiments muſt convince us, that it is very eaſy to keep Wine cool without Ice; for, in Fact, if we throw, by Intervals, a certain Quantity, more or leſs, according as we want the Water more or leſs cold, of *Sal Ammoniack*, in Powder, into 3 or 4 Pints of Water; that Water will ſupply the Want of Ice; obſerving, however, that if we throw but 4 or 5 Ounces of *Sal Ammoniack* into that Water, it will not be ſo cold as if we threw 8 Ounces; and that if we were to throw into it a whole Pound of *Sal Ammoniack*, at once, the Water would be a vaſt deal colder, but the Coldneſs would not laſt ſo long, as when that Pound is thrown into it by Intervals. It muſt be obſerv'd, further, that the *Sal Ammoniack* is to be ſtirr'd with a Stick, each Time 'tis thrown into the Water, to facilitate its Diſſolution.

There are 10 *chymical* Preparations made of *Sal Ammoniack*, *viz.* the *Purification of Sal Ammoniack*, *Flowers of Sal Ammoniack*, *cathartick Salt of Glauber*, *Aqua Regia*, *volatile Spirit of Sal Ammoniack*, another Preparation of *volatile Spirit of Sal Ammoniack*, *with its Flowers*, *and febrifuge fix'd Salt*, *volatile Spirit of Sal Ammoniack dulcified*, *acid Spirit of Sal Ammoniack*, *its aromatick volatile Salt*, and *its oily and aromatick Spirit*.

We begin by the moſt eaſy and ſimple of theſe Preparations, which is the PURIFICATION OF SAL AMMONIACK, ſince it is nothing elſe than diſſolving it in a ſufficient Quantity of Water, filtrating the Diſſolution, and having it evaporated to Siccity, in a glaſs or ſtone Veſſel; a white Salt will be left, which can be adminiſter'd from 6 to 24 Grains. 'Tis an excellent Sudorifick, and Diuretick, which I have preſcrib'd with great Succeſs in malignant Fevers; 'tis alſo very good for Quartan Agues, and to promote the Menſes.

The FLOWERS OF SAL AMMONIACK, are a Portion of that Salt exalted by Fire, in this Manner: We pulverize, and mix exactly, equal Parts of *Sal Ammoniack*, very dry, and of decrepitated Sea Salt; we put the Mixture into an earthen Cucurbite, two Thirds whereof we leave empty; we place the Cucurbite into a Furnace, and adapt to it a blind Capital; then make a ſmall Fire under it, at the Beginning, which we increaſe afterwards by Degrees, till we perceive that the *Sal Ammoniack* aſcends in Form of Flour, which will ſtick to the Capital, and the ſuperior Part of the Cucurbite: We continue a very ſtrong Fire till nothing more aſcends, then leave the Veſſels to cool, and afterwards take off gently the Capital, and gather the Flowers, which we keep in a Vial well cork'd. They have the ſame Virtues of the *Sal Ammoniack*, but are given in a leſs Quantity, *viz.* from 4 to 15 Grains.

Note, That *Schroderius* adviſes the Artiſt to uſe Powder of Iron, inſtead of decrepitated Salt; becauſe, ſays he, Iron, as an Alkali, diveſts the *Sal Ammoniack* of Part of its Acidity, and renders the Flowers more penetrating.

There is another Preparation of *Flowers of Sal Ammoniack*, call'd ENS VENERIS, made by calcining, at a good Fire, in an earthen Pot, without Glazing, 2 or 3 Pounds of Vitriol of *Cyprus*, till it has acquir'd a dark red Colour; at which Time, 'tis thrown into warm Water, and left to ſteep for ſome Hours; then the Liquor is decanted, and the Matter waſh'd ſeveral Times with other warm Water, to deprive it, as much as poſſible, of its Salt, and render it ſoft: Afterwards it is dry'd, and pulveriz'd, then mix'd exactly with an equal Quantity of *Sal Ammoniack*, in Powder, and the Mixture put into a ſtone Cucurbite, two Thirds whereof are left empty; and a blind Capital having been adapted to it, the Veſſel is plac'd in a Furnace on Sand, and by a graduate and ſtrong Fire, which is continued for 7 or 8 Hours, yellow Flowers are rais'd to the Capital, which muſt be gather'd when the Veſſels are cold, and kept in a Bottle.

This *Ens Veneris* is ſudorifick, aperitive, attenuating, and much eſteemed for the Epilepſy, Scurvy, King's Evil, and malignant Fevers. The Doſe is from ſix Grains to a Scruple.

The CATHARTICK SALT OF GLAUBER is the *Sal-Armoniack*, penetrated by the Oil of Vitriol. The Operation is conducted in the following Manner: We put what Quantity we pleaſe of *Sal-Armoniack* in Powder into a glaſs or ſtone Pan, and drop upon it rectified Oil of Vitriol; it enſues a ſlow and cold Ebullition, which puffs up the Mixture, and remains a long while thick; we continue to drop the Oil of Vitriol on the Matter, 'till the *Sal-Armoniack* be entirely penetrated, and ſaturated with it. The Ebullition over, we place the Veſſel on a Sand-Fire, and have all the Humidity evaporated: There remains an unctuous *Salt*, very acrimonious, and a little bitter, which we keep in a Bottle.

This *Salt* is penetrating, aperitive, reſolutive, febrifuge, proper to raiſe the Obſtructions, for the Vapours, Stone, and Gravel. The Doſe is from ten Grains to twenty, in ſome Liquor appropriated to the Diſtemper.

Note, That this Operation muſt be made under the Chimney, to avoid the acrimonious Vapours which exhale from it, and which are offenſive to the Breath.

Note alſo, That the Oil of Vitriol penetrates the *Sal-Armoniack* ſooner than any other acid Liquor; for the Ebullition happens as ſoon as it is poured upon it; but M. *Godefroy*, of the Royal Academy of Sciences, has very judiciouſly obſerved, that this Ebullition is cold, as is plainly ſeen by Means of a Thermometer plunged into the Matter; but he obſerves likewiſe, that the Vapours, which exhale from the Matter, produce ſome Heat, which he has diſcovered alſo by the ſame Means of a Thermometer. I attribute this Difference, which ſeems ſurpriſing to the beſt Artiſts, to the Manner thoſe two Matters are incorporated together, which is, that Particles of the *Sal-Armoniack* being very looſe and brittle, the acid Points of the Vitriol penetrate them with eaſe, and without meeting with the leaſt Reſiſtance, ſo that the Ebullition which happens, proceeding only from the eaſy Dilatation of the Pores, which the acid Particles have penetrated, which Pores are contracted or relaxed, according to the Dimenſions and Activity of the acid Particles, and receive from them what Poſition and Configuration they are pleaſed to give them; therefore the Ebullition cannot be attended with Heat; but as the Penetration of the acid Particles is made with a Fracaſſement of the moſt brittle Particles of the *Sal-Armoniack*, thoſe broken Particles being carried off by the moſt volatile ones of the Oil of Vitriol, the Compreſſion of the Atmoſphere, by which they are forced upwards, occaſions a Friction of thoſe Particles againſt one another, which cauſes the Heat.

AQUA REGIA is a Diſſolution of *Sal-Armoniack* in Spirit of Nitre, made thus: Four Ounces of *Sal-Armoniack* in Powder are put into a Matraſs or other glaſs Veſſel, which muſt be pretty large, and ſixteen Ounces of Spirit of Nitre having been poured upon it, the Veſſel is placed on warm Sand, where it is left, 'till the *Sal-Armoniack* be diſſolved; which done, the Liquor is decanted into a ſtone Bottle, and the Bottle very well corked with Wax.

Note, That this Preparation is called *Aqua Regia*, becauſe it diſſolves *Gold*, which is eſteemed the King of *Metals*. The Veſſel which ſerves for the Preparation of *Aqua Regia* muſt be pretty large, otherwiſe, as the volatile Spirits are rarefied with great Impetuoſity, the Veſſel would burſt, which is to be took off the Fire when the Diſſolution begins.

Aqua

Aqua Regia can also be made of equal Part of *Saltpetre*, and *Sal Gemma*, mixed with three Times as much of Bol in Powder, and distilling the Mixture in the Manner described for the Distillation of Spirit of Nitre. Though it be very difficult to conceive why the *Aqua Regia* dissolves Gold and not Silver, which is less solid, all the *Chymists* have alledged some Reasons for it. Some of them pretend that the Cause of that Difference is, that Gold being a Metal which receives into its Composition a greater Number of sulphurous Particles than Silver, it wants also a more sulphurous Dissolvent, such as the *Aqua Regia*, composed of the volatile sulphurous *Salts* of *Sal-Armoniack*. *L'Emery* pretends that this Sentiment destroys itself; for, says he, if Gold was composed of a greater Quantity of sulphurous Particles than Silver, it should be lighter than Silver, since Sulphur is one of the lightest of the *Chymical* Principles; which Opinion is contradicted by the *Alchymists*, who pretend that the Sulphur of Gold is very different from that mentioned by *L'Emery*, since it is a fixed Sulphur, and consequently very heavy; but *L'Emery*, in his Turn, refutes that Notion of a fixed Sulphur, as Chimerical, pretending, besides, that even supposing that fictitious fixed Sulphur in Gold, it could never be so heavy as the other Principles, which *Alchymists* pretend to be in Gold, and which they must believe as fixed, in Proportion, as their Sulphur. Others are of Opinion that if *Aqua Regia* dissolves Gold and not Silver, 'tis because the thick Points of the Spirit of Nitre, or of *Aqua Fortis*, have been subtilised by the Mixture of *Sal-Armoniack*, and rendered more proper to enter the small Pores of Gold, when as those same Points have not Strength enough, through their Smallness, nor the Motion necessary to divide the Particles of the Silver, whose Pores are a great deal bigger. But this second Opinion is also refuted by those who pretend that we have no Example to evidence that the acid Points, by such Effervescence, like that which happens in the Preparation of *Aqua Regalis*, are render'd sharper; but on the contrary that we must be convinced by the Practice; that the acid Points are either blunted, or broken in Part by such Effervescence; which they confirm by producing Crystals made by the *Aqua Regia*, whose Figure is less acute or sharp than those made by *Aqua Fortis*. A third Sentiment is, that if *Aqua Regia* dissolves Gold and not Silver, 'tis because the Points of the Spirit of Nitre, having been thickened by the Addition of the Salt, slide on the Pores of Silver, which they cannot penetrate, because of the Disproportion of their Figures, whenas they penetrate Gold, whose Pores being a great deal larger, and consequently more proper for their Action; and that if on the contrary, the Spirit of Nitre dissolve Silver, 'tis because its Points are better proportioned to penetrate the small Pores of that Metal, and by their Action disperse their Particles. They add to this, that the same Points can also enter the small Pores of Gold, but that they are too small, and too easy to be bowed, to act on that Body. For my Part I espouse neither of those three Sentiments for the following Reasons. 1. Because the first is absolutely contrary to Experience, because if it was even so true, that Gold was composed of so great a Quantity of sulphurous Particles, as pretended, it could never be imagined, with the least Appearance of Reason, that those sulphurous Particles could be penetrated and separated by acid Ones, blunted and almost hidden in other sulphurous Particles, which are capable not only to diminish their penetrating Faculty, but likewise render them heavier, and consequently retard that Activity necessary to separate and disperse the Particles of that Body they are to penetrate; much less if that Sulphur by a stricter Coadunation of its Pores is fixed, as pretended, by *Alchymists*. 2. If the Pores of Gold were so exiguous or small, as supposed by those who are of the second Sentiment, they could not be penetrated but with great Difficulty, and with violent and repeated Efforts on the Part of the penetrating Substance, which for that Reason should have Strength as well as Sharpness, which necessary Strength cannot be supposed in volatilised Particles; since the more volatile those Particles are, the less proper to be fixed to Action, and the less capable to resist the Obstacles they meet with in the Body, they are to penetrate, and to bear the Weight of the impulsive Power, which directs them to Action; and if even they had all those Properties, they would be so exalted in their first Operation, as to be incapable, after the Penetration to proceed farther; but would remain inactive in the Pores they have penetrated. 3. Because I believe it ridiculous to suppose that the Pores of Gold are wider than those of Silver; for if they were wider, Gold should be as easily dissolved by the acid Points of the *Aqua Fortis*, as by those of the *Aqua Regalis*, and even easier; for if those who admit those Pores wider, admit likewise the Points of the Acids of *Aqua Fortis* sharper than those of *Aqua Regalis*; we have all the Reason imaginable to suppose that those sharp Points can as easily, or rather easier, enter the Pores of Gold than those of Silver; and what is said that though those Points can in Fact enter the Pores of Gold, but that those Pores being so wide, those small Points cannot reach their Extremities, so as to make the least Impression on them, much less to destroy their Frame, is ridiculous; since what one Point cannot do, several can, and as those Pores are wide enough to receive several Points, why should we not imagine that as many Points enter them as can fill up their whole Vacuity, and that those Points thus crowded in, by their continual Motion to acquire in their new Receptacle a proper Situation, are capable, by their frequent Shock, as well among themselves as against the Body they have penetrated, to accelerate its Dissolution, much more than a blunted Particle, such as those of *Aqua Regalis*, are supposed to be, which finding Room enough in the Pores of Gold to answer all their Dimensions, and loaded besides with the sulphurous one they have borrowed from the *Sal-Armoniack*, and thereby are deprived of Part of their Activity; should remain at Rest in their new Habitation. Therefore my Sentiment is, that the Difference of the Dissolution of those two Metals consists in the different Configuration of their Pores, and in the different Forms of the Points they are penetrated by. That the Pores of Silver being oblique, and the acid Points of the *Aqua Fortis* bowed at both Ends, in the Form of so many little Hooks; (which Form they have received at their first Formation by their Friction against one another, as having been formed of different Substances) they hook in those oblique Pores, and are forced into them by the impulsive Power of the ambient Atmosphere, wherein being entirely buried at last, and endeavouring afterwards by their natural Activity, to break their Prison, they entangled themselves more and more in the ramous Particles of the Metal, and by their repeated Efforts and frequent Strokes destroy at last its whole Frame. On the contrary, the Pores of Gold being in a direct Line, and the acid Particles of the Spirit of Nitre, having been straiten'd in the Pores of the *Sal-Armoniack*, and render'd better fixed for Action by a Deprivation of Part of their Volatility, in penetrating the Pores of Gold, incise and disunite its Particles.

The Volatile Spirit of Sal-Armoniac is a volatile *Salt*, loosened from the *Sal-Armoniack*, by Means of Quick-Lime, and resolved into a Liquor by an aqueous Humidity. The Operation is conducted thus: Six Ounces of *Sal-Armoniack*, and twenty-four Ounces of Quick-Lime, which has been exposed for six or seven Days, and as many Nights in a damp Place, are pounded separately and mixed in a Mortar, and the Mixture put quickly into a large Retort, half whereof is left empty. The Vessel is placed on the Sand,

Sand, a large Recipient adapted to it, and the Joints exactly luted; the first Spirits distil without Fire, during an Hour, after which, 2 or 3 lighted Coals are put under the Retort, and the Fire increas'd to the second Degree, and continu'd thus till it has done distilling. The Operation is ended in 3 Hours, when the Vessels are left to grow cold, and unluted. The Liquor in the Recipient is pour'd quickly into a Vial, the Artist turning his Head, to avoid a subtile Vapour which exhales continually, and taking Care to cork well the Bottle with Wax.

This *Spirit* is an excellent Remedy for all Maladies which proceed from Opilation, and Corruption of Humours; as for malignant Fevers, the Epilepsy, Palsy, Plague, and the Small Pox, it expels the Humours by Perspiration, and Urine. The Dose is from 6 Drops to 20, in a Glass of Water of *Carduus Benedictus*. I have prescrib'd it to a Person in the Small Pox, who was thought dying, and had lost her Senses, which she recover'd perfectly, Half an Hour after she had taken the Remedy, and is yet alive.

Note, That it is better to give the volatile Spirits in sudorifick Waters, than in Broth, because Broth being taken warm, the Heat would exalt into the Air the best Part of the volatile Salts, before the Patient could carry the Porringer to his Mouth. The Artist must turn his Head when he takes off the Recipient; because the volatile Salt enters with Rapidity into the Nose, and stops Respiration, so that some have fainted away. To avoid that Accident, it would be very proper to have ready at Hand a wet Piece of Linnen Cloth, to stop the Recipient as soon as it is unluted.

The other Preparation of *volatile Spirit of Sal Ammoniack*, and, at the same Time, of *its fixed and febrifuge Salt*, is made by pulverizing and mixing together 8 Ounces of *Sal Ammoniack*, and as much of fix'd Salt of Tartar. The Mixture is put quickly into a glass Cucurbite, and humected with 5 Ounces of common Water; a Capital and a Recipient are adapted to the Vessel, and the Joints exactly luted with a wet Bladder: The Vessel is placed on Sand, with a small Fire at first, to heat the Cucurbite by Degrees, and to make the Spirits drop into the Recipient; but when it has done distilling, the Recipient is taken off, and well cork'd; then the Fire is increased to the third Degree, and continu'd thus for about 2 Hours, during which Time there are white Flowers of *Sal Ammoniack*, which stick at the Bottom of the Capital in Form of Flour.

This Spirit has the same Virtues of the other, but is not quite so penetrating. The Flowers must be gather'd, and may be us'd as the other Flowers of *Sal Ammoniack* abovemention'd. There will remain at the Bottom of the Cucurbite a white fix'd Mass, which must be melted in a sufficient Quantity of Water, the Dissolution filtred, and evaporated, afterwards, to Siccity. A white Salt will be left in the Vessel, which is esteem'd a very good Remedy for Intermitting Fevers. 'Tis call'd *the febrifuge Salt of Silvius*, because a Physician of *Paris*, call'd *Sylvius*, has formerly us'd it. The Dose is from 8 Grains to 30, in some Liquor appropriated to the Distemper.

The Volatile Spirit of Sal Ammoniack dulcified, is a volatile *Sal Ammoniack* dissolv'd in Spirit of Wine, thus: Equal Quantities of *Sal Ammoniack*, and of Salt of Tartar, *v. gr.* 4 Ounces of each, are pulveriz'd separately, and mix'd very well together in a stone or glass Mortar, and the Mixture being put into a glass Cucurbite, 10 Ounces of Spirit of Wine, very well rectify'd, are pour'd upon it; the whole is stirr'd together with a wooden Spatula, and a Capital, with its Recipient, having been adapted to the Cucurbite, and the Joints exactly luted, 'tis placed in a Furnace on the Sand, and a very small Fire made under it, to heat the Vessel. A volatile Salt ascends, and sticks to the Capital, and to the Neck of the Recipient; then the Fire is increas'd a little, and continu'd in that State till the Distillation is over. The Operation is ended in 4 or 5 Hours, and the Vessels being cold, and unluted, there are found a volatile Salt sticking to the Capital, and a Spirit in the Recipient; both Matters are quickly put into a Retort on the Sand, and another Retort adapted to it for a Recipient, and the Joints exactly luted: Then the Artist proceeds to the Distillation with a small Fire, and after 3 other such Cohobations, he keeps what has been distill'd in a Bottle, well cork'd.

This Spirit is an excellent Remedy for the Lethargy, Palsy, Scurvy, malignant Fevers, and the Hystericks. It pushes the Humours by Sweat, and insensible Perspiration. The Dose is from 10 Drops to 30, in some Liquor appropriated to the Distemper. 'Tis good, also, apply'd externally, for the Palsy.

The Acid Spirit of Sal Ammoniack, is a fix'd *Sal Ammoniack* resolv'd into Liquor by a great Fire, in the following Manner: We take what Quantity we please of the febrifuge and fix'd *Sal Ammoniack* abovemention'd, which we reduce into Powder, and mix exactly with 3 Times as much Bole, also in Powder; we put the Mixture into a Retort, one Third whereof is left empty, which we place in a clos'd reverberatory Furnace, and adapt a large Recipient to it: We lute exactly the Joints, and proceed in the Manner describ'd for the making Spirit of Salt. We find in the Recipient an acid Spirit, which is very diuretick.

This Spirit is esteem'd a Specifick for malignant Maladies. The Dose is to an agreeable Acidity in Juleps, or Broth.

The Volatile, Oily, and Aromatick Salt, is a volatile *Sal Ammoniack* impregnated with aromatick Essences, thus: Equal Parts of *Sal Ammoniack*, and Salt of Tartar, are pulveriz'd, and mix'd together; the Mixture is put into a stone or glass Cucurbite, and a very good Spirit of Wine pour'd upon it, that it may swim over it, to the Height of Half a Finger's Breadth: The whole is very well stirr'd with a wooden Spatula, and after a Capital, with its Recipient, have been adapted to the Cucurbite, and the Joints exactly luted with a wet Bladder, it is placed on the Sand, and a small Fire made under it, for 3 or 4 Hours, during which Time, a volatile Salt ascends to the Capital, and a Spirit distils in the Recipient. The Distillation over, and the Vessels cold, they are unluted, and the Salt, which has been separated from them, and weigh'd, is put into a glass Cucurbite, and a Drachm and a Half of Essence of Cinnamon, or of Mace, or Rosemary, *&c.* pour'd upon each Ounce of Salt: The whole is stirr'd with a wooden Spatula, that the Essence may incorporate very well with the volatile Salt; then the Cucurbite is cover'd with a Capital, and a Recipient having been adapted to it, and the Joints exactly luted with a wet Bladder, the Vessel is plac'd on the Sand, and a small Fire given to it, to make all the volatile Salt ascend which sticks to the Capital. When the Vessels are cold, the Salt is separated from the Capital, and kept in a Vial, well cork'd.

This *aromatick Salt* is sudorifick, cordial, and cephalick; proper against the Lethargy, Palsy, Scurvy, malignant Fevers, Small Pox, and the Plague; it provokes the Menses, and appeases the Hystericks. The Dose is from 4 Grains to 15, in some Liquor appropriated to the Distemper.

Note, That the *Aromaticks* operate a great deal better when mix'd with volatile Salts, than when alone; because that Salt serves for a Vehicle to them, and renders them more penetrating.

The Aromatick, Oily, and Volatile Spirit, is a Dissolution of the essential Parts of Aromaticks, made by the Spirit of *Sal Ammoniack*, and Spirit of Wine, in the following Manner: Take Cinnamon, Mace, Cloves, the Peel of Sevil Oranges, Half an Ounce of each, and 4 Ounces of *Sal Ammoniack*; bruise them all together, and put them into a glass Bottle: Add to it 4 Ounces of Salt of Tartar, stir

ſtir the Mixture in the Bottle; and pour upon it 4 Ounces of Water of Orange-flowers, and 4 Ounces of Spirit of Wine impregnated with *Sal Ammoniack* which has been diſtill'd in the preceding Operation; or, for Want of it, common Spirit of Wine: Stop exactly the Bottle, and leave it in Digeſtion, without Fire, for 8 Days, ſhaking it from Time to Time: Pour, afterwards, the whole Mixture into a glaſs Cucurbite, adapting, quickly, a Capital to it, with its Recipient; lute exactly the Joints, and having plac'd the Veſſel on the Sand, proceed to the Diſtillation of all the Liquor at a ſlow Fire, till it has done diſtilling. You'll have a very penetrating Spirit, which muſt be kept in a Bottle, well cork'd.

This Spirit is good for the Dropſy, if taken Morning and Night, for a Fortnight ſucceſſively. The Doſe is from 6 Drops to 20, in a Liquor appropriated to the Diſtemper.

Having thus pretty well ſucceeded, as I hope, in our different Preparations of *Sal Ammoniack*; the next Subject I find under my Hands in my Laboratory, is *Vitriol*.

VITRIOL is a Mineral compos'd of an acid Salt, and ſulphurous Earth. 'Tis defin'd, by *Boerhaave*, a ſaline, metallick, tranſparent Glebe; diſſoluble in Water, and fuſible by Fire.

There are four Species of *Vitriol*, *viz.* blue, green, white, and red. The *blue* is found near the Mines of Copper in *Hungary*, and the Iſland of *Cyprus*; it participates much of Copper, which renders it a little cauſtick. 'Tis never us'd but externally, in Colyres, and to eat proud Fleſh.

There are 3 Sorts of *green Vitriol*, *viz.* that of *Germany*, *England*, and the *Roman Vitriol*. That of *Germany* is a little blueiſh, and contains ſome Copper; 'tis better than any other for the Compoſition of *Aqua fortis*. That of *England* participates of Iron, and is proper to make the Spirit of *Vitriol*. The *Roman* is like the *Engliſh*, but not ſo eaſily melted.

The *white Vitriol* is extracted by Evaporation from the Waters of *vitriolick* Springs, or is a green *Vitriol* calcin'd white, and afterwards diſſolv'd in Water, filtrated, and dry'd on the Fire; but, however, 'tis the moſt depurated of metallick Subſtance. It may be taken inwardly, to excite Vomiting; 'tis alſo us'd in Colyres.

The *red Vitriol* is brought over from *Germany*, 'tis call'd *natural Colcothar*, or *Chalcitis*; 'tis ſuppos'd to be a green *Vitriol* calcin'd by a ſubterraneous Fire, and is the moſt rare of all *Vitriols*. It ſtops Bleeding, when apply'd on Hæmorrhages.

All the other *Vitriols* above nam'd, are really factitious, being only a kind of Cryſtals, drawn by Means of Water from a Sort of Marcaſite ordinarily found in Mines, and call'd, by Naturaliſts, *Pyrites*, or *Quis*. *Roman Vitriol* is made by expoſing theſe *Pyrites* to the Air, till ſuch Time as they calcine, and change into a greeniſh *vitriolick* Calx, or Duſt; in which State they are thrown into the Water, and are afterwards, by Boiling and Evaporation, reduc'd into that kind of Cryſtal ſent us from *Italy*.

All the other *Vitriols* are made after the ſame Manner, that is, much after the ſame Manner Allum is made in *England*, and Saltpetre in *France*. For green *Vitriol*, they add a great Number of Pieces of Iron to the Liquor in boiling; as ſoon as the Iron is diſſolv'd, they evaporate the Diſſolution to a certain Degree, and ſo let it cryſtallize. The Cryſtals being form'd, there remains a thick, reddiſh, unctuous, ſtiptick, and aſtringent Liquor, which M. *Geoffroy* calls *Eau mere de Vitriol*, as containing all the Principles of the Mineral, though diſunited. The Powder of this *Vitriol* is exceeding ſtiptick, and excellent for the Cure of Wounds, and ſtopping of Blood. Its Effects, this Way, have been rais'd by the Knavery of ſome, and Credulity of others, to a kind of Miracle; it being this that makes the Baſis of the famous ſympathetick Powder.

If a ſmall Quantity of white or green *Vitriol* be melted in Water, and we write with the Diſſolution, the Writing will be inviſible; but if that Writing be rubb'd over with a Piece of Cotton dipp'd in a Decoction of Galls, it will be viſible; if another Piece of Cotton, dipp'd in Spirit of *Vitriol*, be paſs'd lightly over that Writing, it will diſappear; and if, laſtly, another Piece of Cotton, dipp'd in Oil of Tartar *per deliquium*, be rubb'd over the ſame Writing, it will appear again, but of a yellowiſh Colour. If the Diſſolution of *Vitriol*, or *Vitriol* in Powder, be thrown into a ſtrong Decoction of dry Roſes, it will make Ink as black as common Ink; if ſome Drops of Spirit of *Vitriol* be pour'd upon it, the Ink will turn red; and if a ſmall Quantity of volatile Sal Ammoniack be added to it, it will turn grey. All the Reaſon which can be aſſign'd for theſe different *Phænomena*, is, that each of theſe Liquors changes the Configuration of the Pores of the Matter they are pour'd upon, or apply'd to, and thereby make it reflect the Light in a different Manner.

We deſign to make 8 *chymical* Preparations of *Vitriol*, *viz.* the *Gilla Vitrioli*, or *vomitive Vitriol*, *Calcination of Vitriol*, *Diſtillation of Vitriol*, *Oil of Vitriol dulcified*, *Styptick Water*, *Narcotick volatile Salt of Vitriol*, *Medicamentous Stone*, and *Salt of Vitriol*.

We begin by GILLA VITRIOLI, or VOMITIVE VITRIOL, which is but a Purification of white *Vitriol*, made by melting what Quantity we pleaſe of white *Vitriol*, in a Quantity of Phlegm ſufficient for its Diſſolution; we filtrate the Diſſolution, and have two Thirds of the Humidity evaporated in a ſtone Veſſel: Then placing the reſt in a cool Place for 2 Days, there will be form'd Cryſtals, which we'll ſeparate, and cauſe again a Third of the Humidity left to be evaporated, carrying the Veſſel afterwards to its former cool Place for the Formation of new Cryſtals: We repeat the ſame Operation till we have extracted all our Cryſtals, which we have dry in the Sun, and keep as a gentle Vomitive. The Doſe is from 12 Grains to a Drachm, in Broth, or another Liquor.

An aperitive mineral Water can be made by diſſolving 8 or 9 Grains of *Gilla Vitrioli* in 2 Pounds of common Water.

Note, That all the Humidity may be evaporated without Cryſtallization. The *Gilla Vitrioli* will remain at the Bottom in white Powder.

The *Vitriol* is calcin'd by putting it into an earthen Pot without Glazing, and placing the Pot on the Fire; the *Vitriol* will reſolve into Water. The Liquor muſt be boil'd to Conſumption of the Humidity, or till the Matter be in a grey Maſs, a little towards white; then the Veſſel is taken off the Fire. 'Tis what we call *Vitriol calcin'd white*. If the grey *Vitriol* be calcin'd for a long Time, at a great Fire, it will turn red, like Blood. 'Tis call'd *Colcothar*, and is very good to ſtop Bleeding, if apply'd on the Wound.

Note, That the famous *Sympathetick Powder* is nothing elſe but a white *Vitriol* prepar'd in different Manners, according to the different Ideas form'd of it. *Roman Vitriol* is the beſt for this Operation. The *Sympathetick Powder* is prepar'd by expoſing *Roman Vitriol* to the Sun while that Planet is in the Sign *Leo*, *i. e.* in the Month of *July*, to have it dry'd and open'd; becauſe the *Vitriol* is ſooner dry'd in that Seaſon, than in any other: And it is even ſuppos'd, that the exceſſive Heat of the Sun, at that Time, volatilizes the Particles of the *Vitriol*. But as to the pretended Influence which 'tis ſaid to receive, at that Time, from the Planet, it is nothing elſe but a mere Chimæra. This *Sympathetick Powder* is us'd by dipping a Piece of Cloth in the Blood of the Perſon wounded, and ſpreading the Powder upon that Blood. 'Tis pretended, that if the Patient was 4 or 5 Leagues off, when that Operation is made, the Wound would dry preſently; but the Experiments made by a vaſt Number of Perſons, prove, ſufficiently enough, that this pretended Virtue is but a mere Piece of Charletanery, whatever

Sand, a large Recipient adapted to it, and the Joints exactly luted; the first Spirits distil without Fire, during an Hour, after which, 2 or 3 lighted Coals are put under the Retort, and the Fire increas'd to the second Degree, and continu'd thus till it has done distilling. The Operation is ended in 3 Hours, when the Vessels are left to grow cold, and unluted. The Liquor in the Recipient is pour'd quickly into a Vial, the Artist turning his Head, to avoid a subtile Vapour which exhales continually, and taking Care to cork well the Bottle with Wax.

This *Spirit* is an excellent Remedy for all Maladies which proceed from Opilation, and Corruption of Humours; as for malignant Fevers, the Epilepsy, Palsy, Plague, and the Small Pox, it expels the Humours by Perspiration, and Urine. The Dose is from 6 Drops to 20, in a Glass of Water of *Carduus Benedictus*. I have prescrib'd it to a Person in the Small Pox, who was thought dying, and had lost her Senses, which she recover'd perfectly, Half an Hour after she had taken the Remedy, and is yet alive.

Note, That it is better to give the volatile Spirits in sudorifick Waters, than in Broth, because Broth being taken warm, the Heat would exalt into the Air the best Part of the volatile Salts, before the Patient could carry the Porringer to his Mouth. The Artist must turn his Head when he takes off the Recipient; because the volatile Salt enters with Rapidity into the Nose, and stops Respiration, so that some have fainted away. To avoid that Accident, it would be very proper to have ready at Hand a wet Piece of Linnen Cloth, to stop the Recipient as soon as it is unluted.

The other Preparation of *volatile Spirit of Sal Ammoniack*, and, at the same Time, of *its fixed and febrifuge Salt*, is made by pulverizing and mixing together 8 Ounces of *Sal Ammoniack*, and as much of fix'd Salt of Tartar. The Mixture is put quickly into a glass Cucurbite, and humected with 5 Ounces of common Water; a Capital and a Recipient are adapted to the Vessel, and the Joints exactly luted with a wet Bladder: The Vessel is placed on Sand, with a small Fire at first, to heat the Cucurbite by Degrees, and to make the Spirits drop into the Recipient; but when it has done distilling, the Recipient is taken off, and well cork'd; then the Fire is increased to the third Degree, and continu'd thus for about 2 Hours, during which Time there are white Flowers of *Sal Ammoniack*, which stick at the Bottom of the Capital in Form of Flour.

This Spirit has the same Virtues of the other, but is not quite so penetrating. The Flowers must be gather'd, and may be us'd as the other Flowers of *Sal Ammoniack* abovemention'd. There will remain at the Bottom of the Cucurbite a white fix'd Mass, which must be melted in a sufficient Quantity of Water, the Dissolution filtred, and evaporated, afterwards, to Siccity. A white Salt will be left in the Vessel, which is esteem'd a very good Remedy for Intermitting Fevers. 'Tis call'd *the febrifuge Salt of Silvius*, because a Physician of *Paris*, call'd *Sylvius*, has formerly us'd it. The Dose is from 8 Grains to 30, in some Liquor appropriated to the Distemper.

The Volatile Spirit of Sal Ammoniack dulcified, is a volatile *Sal Ammoniack* dissolv'd in Spirit of Wine, thus: Equal Quantities of *Sal Ammoniack*, and of Salt of Tartar, *v. gr.* 4 Ounces of each, are pulveriz'd separately, and mix'd very well together in a stone or glass Mortar, and the Mixture being put into a glass Cucurbite, 10 Ounces of Spirit of Wine, very well rectify'd, are pour'd upon it; the whole is stirr'd together with a wooden Spatula, and a Capital, with its Recipient, having been adapted to the Cucurbite, and the Joints exactly luted, 'tis placed in a Furnace on the Sand, and a very small Fire made under it, to heat the Vessel. A volatile Salt ascends, and sticks to the Capital, and to the Neck of the Recipient; then the Fire is increas'd a little, and continu'd in that State till the Distillation is over. The Operation is ended in 4 or 5 Hours, and the Vessels being cold, and unluted, there are found a volatile Salt sticking to the Capital, and a Spirit in the Recipient; both Matters are quickly put into a Retort on the Sand, and another Retort adapted to it for a Recipient, and the Joints exactly luted: Then the Artist proceeds to the Distillation with a small Fire, and after 3 other such Cohobations, he keeps what has been distill'd in a Bottle, well cork'd.

This Spirit is an excellent Remedy for the Lethargy, Palsy, Scurvy, malignant Fevers, and the Hystericks. It pushes the Humours by Sweat, and insensible Perspiration. The Dose is from 10 Drops to 30, in some Liquor appropriated to the Distemper. 'Tis good, also, apply'd externally, for the Palsy.

The Acid Spirit of Sal Ammoniack, is a fix'd *Sal Ammoniack* resolv'd into Liquor by a great Fire, in the following Manner: We take what Quantity we please of the febrifuge and fix'd *Sal Ammoniack* abovemention'd, which we reduce into Powder, and mix exactly with 3 Times as much Bole, also in Powder; we put the Mixture into a Retort, one Third whereof is left empty, which we place in a clos'd reverberatory Furnace, and adapt a large Recipient to it: We lute exactly the Joints, and proceed in the Manner describ'd for the making Spirit of Salt. We find in the Recipient an acid Spirit, which is very diuretick.

This Spirit is esteem'd a Specifick for malignant Maladies. The Dose is to an agreeable Acidity in Juleps, or Broth.

The Volatile, Oily, and Aromatick Salt, is a volatile *Sal Ammoniack* impregnated with aromatick Essences, thus: Equal Parts of *Sal Ammoniack*, and Salt of Tartar, are pulveriz'd, and mix'd together; the Mixture is put into a stone or glass Cucurbite, and a very good Spirit of Wine pour'd upon it, that it may swim over it, to the Height of Half a Finger's Breadth: The whole is very well stirr'd with a wooden Spatula, and after a Capital, with its Recipient, have been adapted to the Cucurbite, and the Joints exactly luted with a wet Bladder, it is placed on the Sand, and a small Fire made under it, for 3 or 4 Hours, during which Time, a volatile Salt ascends to the Capital, and a Spirit distils in the Recipient. The Distillation over, and the Vessels cold, they are unluted, and the Salt, which has been separated from them, and weigh'd, is put into a glass Cucurbite, and a Drachm and a Half of Essence of Cinnamon, or of Mace, or Rosemary, *&c.* pour'd upon each Ounce of Salt: The whole is stirr'd with a wooden Spatula, that the Essence may incorporate very well with the volatile Salt; then the Cucurbite is cover'd with a Capital, and a Recipient having been adapted to it, and the Joints exactly luted with a wet Bladder, the Vessel is plac'd on the Sand, and a small Fire given to it, to make all the volatile Salt ascend which sticks to the Capital. When the Vessels are cold, the Salt is separated from the Capital, and kept in a Vial, well cork'd.

This *aromatick Salt* is sudorifick, cordial, and cephalick; proper against the Lethargy, Palsy, Scurvy, malignant Fevers, Small Pox, and the Plague; it provokes the Menses, and appeases the Hystericks. The Dose is from 4 Grains to 15, in some Liquor appropriated to the Distemper.

Note, That the *Aromaticks* operate a great deal better when mix'd with volatile Salts, than when alone; because that Salt serves for a Vehicle to them, and renders them more penetrating.

The Aromatick, Oily, and Volatile Spirit, is a Dissolution of the essential Parts of Aromaticks, made by the Spirit of *Sal Ammoniack*, and Spirit of Wine, in the following Manner: Take Cinnamon, Mace, Cloves, the Peel of Sevil Oranges, Half an Ounce of each, and 4 Ounces of *Sal Ammoniack*; bruise them all together, and put them into a glass Bottle: Add to it 4 Ounces of Salt of Tartar, stir

ſtir the Mixture in the Bottle, and pour upon it 4 Ounces of Water of Orange-flowers, and 4 Ounces of Spirit of Wine impregnated with *Sal Ammoniack* which has been diſtill'd in the preceding Operation; or, for Want of it, common Spirit of Wine: Stop exactly the Bottle, and leave it in Digeſtion, without Fire, for 8 Days, ſhaking it from Time to Time: Pour, afterwards, the whole Mixture into a glaſs Cucurbite, adapting, quickly, a Capital to it, with its Recipient; lute exactly the Joints, and having plac'd the Veſſel on the Sand, proceed to the Diſtillation of all the Liquor at a ſlow Fire, till it has done diſtilling. You'll have a very penetrating Spirit, which muſt be kept in a Bottle, well cork'd.

This Spirit is good for the Dropſy, if taken Morning and Night, for a Fortnight ſucceſſively. The Doſe is from 6 Drops to 20, in a Liquor appropriated to the Diſtemper.

Having thus pretty well ſucceeded, as I hope, in our different Preparations of *Sal Ammoniack*; the next Subject I find under my Hands in my Laboratory, is *Vitriol*.

VITRIOL is a Mineral compos'd of an acid Salt, and ſulphurous Earth. 'Tis defin'd, by *Boerhaave*, a ſaline, metallick, tranſparent Glebe; diſſoluble in Water, and fuſible by Fire.

There are four Species of *Vitriol*, *viz.* blue, green, white, and red. The *blue* is found near the Mines of Copper in *Hungary*, and the Iſland of *Cyprus*; it participates much of Copper, which renders it a little cauſtick. 'Tis never us'd but externally, in Colyres, and to eat proud Fleſh.

There are 3 Sorts of *green Vitriol*, *viz.* that of *Germany*, *England*, and the *Roman Vitriol*. That of *Germany* is a little blueiſh, and contains ſome Copper; 'tis better than any other for the Compoſition of *Aqua fortis*. That of *England* participates of Iron, and is proper to make the Spirit of *Vitriol*. The *Roman* is like the *Engliſh*, but not ſo eaſily melted.

The *white Vitriol* is extracted by Evaporation from the Waters of *vitriolick* Springs, or is a green *Vitriol* calcin'd white, and afterwards diſſolv'd in Water, filtrated, and dry'd on the Fire; but, however, 'tis the moſt depurated of metallick Subſtance. It may be taken inwardly, to excite Vomiting; 'tis alſo us'd in Colyres.

The *red Vitriol* is brought over from *Germany*, 'tis call'd *natural Colcothar*, or *Chalcitis*; 'tis ſuppos'd to be a green *Vitriol* calcin'd by a ſubterraneous Fire, and is the moſt rare of all *Vitriols*. It ſtops Bleeding, when apply'd on Hæmorrhages.

All the other *Vitriols* above nam'd, are really factitious, being only a kind of Cryſtals, drawn by Means of Water from a Sort of Marcaſite ordinarily found in Mines, and call'd, by Naturaliſts, *Pyrites*, or *Quis*. *Roman Vitriol* is made by expoſing theſe *Pyrites* to the Air, till ſuch Time as they calcine, and change into a greeniſh *vitriolick* Calx, or Duſt; in which State they are thrown into the Water, and are afterwards, by Boiling and Evaporation, reduc'd into that kind of Cryſtal ſent us from *Italy*.

All the other *Vitriols* are made after the ſame Manner, that is, much after the ſame Manner Allum is made in *England*, and Saltpetre in *France*. For green *Vitriol*, they add a great Number of Pieces of Iron to the Liquor in boiling; as ſoon as the Iron is diſſolv'd, they evaporate the Diſſolution to a certain Degree, and ſo let it cryſtallize. The Cryſtals being form'd, there remains a thick, reddiſh, unctuous, ſtiptick, and aſtringent Liquor, which M. *Geoffroy* calls *Eau mere de Vitriol*, as containing all the Principles of the Mineral, though diſunited. The Powder of this *Vitriol* is exceeding ſtiptick, and excellent for the Cure of Wounds, and ſtopping of Blood. Its Effects, this Way, have been rais'd by the Knavery of ſome, and Credulity of others, to a kind of Miracle; it being this that makes the Baſis of the famous ſympathetick Powder.

If a ſmall Quantity of white or green *Vitriol* be melted in Water, and we write with the Diſſolution, the Writing will be inviſible; but if that Writing be rubb'd over with a Piece of Cotton dipp'd in a Decoction of Galls, it will be viſible; if another Piece of Cotton, dipp'd in Spirit of *Vitriol*, be paſs'd lightly over that Writing, it will diſappear; and if, laſtly, another Piece of Cotton, dipp'd in Oil of Tartar *per deliquium*, be rubb'd over the ſame Writing, it will appear again, but of a yellowiſh Colour. If the Diſſolution of *Vitriol*, or *Vitriol* in Powder, be thrown into a ſtrong Decoction of dry Roſes, it will make Ink as black as common Ink; if ſome Drops of Spirit of *Vitriol* be pour'd upon it, the Ink will turn red; and if a ſmall Quantity of volatile Sal Ammoniack be added to it, it will turn grey. All the Reaſon which can be aſſign'd for theſe different *Phænomena*, is, that each of theſe Liquors changes the Configuration of the Pores of the Matter they are pour'd upon, or apply'd to, and thereby make it reflect the Light in a different Manner.

We deſign to make 8 *chymical* Preparations of *Vitriol*, *viz.* the *Gilla Vitrioli*, or *vomitive Vitriol*, *Calcination of Vitriol*, *Diſtillation of Vitriol*, *Oil of Vitriol dulcified*, *Styptick Water*, *Narcotick volatile Salt of Vitriol*, *Medicamentous Stone*, and *Salt of Vitriol*.

We begin by GILLA VITRIOLI, or VOMITIVE VITRIOL, which is but a Purification of white *Vitriol*, made by melting what Quantity we pleaſe of white *Vitriol*, in a Quantity of Phlegm ſufficient for its Diſſolution; we filtrate the Diſſolution, and have two Thirds of the Humidity evaporated in a ſtone Veſſel: Then placing the reſt in a cool Place for 2 Days, there will be form'd Cryſtals, which we'll ſeparate, and cauſe again a Third of the Humidity left to be evaporated, carrying the Veſſel afterwards to its former cool Place for the Formation of new Cryſtals: We repeat the ſame Operation till we have extracted all our Cryſtals, which we have dry in the Sun, and keep as a gentle Vomitive. The Doſe is from 12 Grains to a Drachm, in Broth, or another Liquor.

An aperitive mineral Water can be made by diſſolving 8 or 9 Grains of *Gilla Vitrioli* in 2 Pounds of common Water.

Note, That all the Humidity may be evaporated without Cryſtallization. The *Gilla Vitrioli* will remain at the Bottom in white Powder.

The *Vitriol* is calcin'd by putting it into an earthen Pot without Glazing, and placing the Pot on the Fire; the *Vitriol* will reſolve into Water. The Liquor muſt be boil'd to Conſumption of the Humidity, or till the Matter be in a grey Maſs, a little towards white; then the Veſſel is taken off the Fire. 'Tis what we call *Vitriol calcin'd white*. If the grey *Vitriol* be calcin'd for a long Time, at a great Fire, it will turn red, like Blood. 'Tis call'd *Colcothar*, and is very good to ſtop Bleeding, if apply'd on the Wound.

Note, That the famous *Sympathetick Powder* is nothing elſe but a white *Vitriol* prepar'd in different Manners, according to the different Ideas form'd of it. *Roman Vitriol* is the beſt for this Operation. The *Sympathetick Powder* is prepar'd by expoſing *Roman Vitriol* to the Sun while that Planet is in the Sign *Leo*, *i. e.* in the Month of *July*, to have it dry'd and open'd; becauſe the *Vitriol* is ſooner dry'd in that Seaſon, than in any other: And it is even ſuppos'd, that the exceſſive Heat of the Sun, at that Time, volatilizes the Particles of the *Vitriol*. But as to the pretended Influence which 'tis ſaid to receive, at that Time, from the Planet, it is nothing elſe but a mere Chimæra. This *Sympathetick Powder* is us'd by dipping a Piece of Cloth in the Blood of the Perſon wounded, and ſpreading the Powder upon that Blood. 'Tis pretended, that if the Patient was 4 or 5 Leagues off, when that Operation is made, the Wound would dry preſently; but the Experiments made by a vaſt Number of Perſons, prove, ſufficiently enough, that this pretended Virtue is but a mere Piece of Charletanery, whatever

Sir *Kenelm Digby*, and others, plead in Support of that Opinion. Sir *Kenelm*, in an expreſs Treatiſe on that Subject, where he gives Inſtances of Cures perform'd by the *Sympathetick Powder*, accounts for the Manner of its Operation thus: The Sun's Rays, ſays he, attract the Spirits of the Blood at a great Diſtance, by which Means, the Atoms thereof are driven and diſpers'd far and near in the Air; now the Spirits of *Vitriol* incorporated in the Blood fly along with them, and the two together form a kind of Train of Corpuſcles. On the other Side, there is continually iſſuing and exhaling from the Wound abundance of fiery Spirits, which attract the neighbouring Air; and this Air, by a continu'd Concatenation, attracting ſtill the next Air, at length meets the Atoms with the Spirits of the Blood and *Vitriol*: Thus the Spirits of the Blood finding their Source again, re-enter into their primitive Seat, and being join'd with the *vitriolick* Spirits, the Wound is comforted, and heal'd imperceptibly. I am ſurpriz'd that ſo great a Man, as Sir *Kenelm Digby* was, ſhould have taken ſo much Pains to ſupport a Sentiment contradicted by daily Experiments, by a Reaſoning ſo contrary to the beſt eſtabliſh'd Principles of modern Philoſophy; ſince that Egreſs and Regreſs of thoſe fiery Spirits from and into the Wounds, even ſuppos'd, that ſtrict Concatenation of the Atoms, and their attractive Power, it would be impoſſible, ſtill, to account for that ſanative Faculty attributed to the *Sympathetick Powder*; ſince, to eſtabliſh it, in the Manner Sir *Kenelm* does, it muſt be ſuppos'd, likewiſe, that the Concatenation of the Atoms of the Atmoſphere, which fill up that great Interval between the Patient and the Place where the Operation is made, is ſo ſtrong, as to reſiſt all the moſt violent Shocks of the heterogeneous Bodies they are continually expos'd to, as the Rarefaction and Condenſation of thoſe Atoms, according to the different Changes of the Weather; their violent Agitation by a violent Rain, or tempeſtuous Wind, *&c.* which Suppoſition is falſe, and contrary to Reaſon, as well as to Philoſophy. There ſhould alſo be ſuppos'd ſo great an Analogy between the fiery Particles iſſuing from the Wound, and the Blood on the Piece of Cloth (which at ſo great a Diſtance, as having been ſo long at Reſt, muſt be diveſted of all its Spirits) ſo as to be capable to re-vivify that exanimated Blood, by rendering it ſuſceptible of a new Infuſion of Spirits: For it muſt be imagin'd, that the Atmoſphere which ſubſiſted at firſt, between thoſe which exhale continually from the Wound, and that Blood, at its firſt coming out of it, has been interrupted, ſo ſoon as the Pores of the Particles of that Blood, by being depriv'd of its Motion, have alſo ceas'd being directed to the Intromiſſion of thoſe Spirits, by acquiring a new Configuration; nay, if even that Re-vivification was poſſible, could it laſt long enough to produce that Effect expected from the *Sympathetick Powder*, when the Blood on the Cloth is depriv'd of its chief *Arcanum* of Life, Motion, which it has no ſooner loſt, but it tends to its Diſſolution? For my Part, I am ſo far from eſpouſing that Sentiment of Sir *Kenelm Digby*, that I have try'd ſeveral Experiments to diſcover the Virtue of the *Sympathetick Powder*, prepar'd in all the different Manners preſcrib'd by its Partizans, and in the Patient's own Room, even at his Bed-ſide, and could find none. I have even try'd it upon myſelf, at the taking of *Panſacola*, from the *Spaniards*, in the Gulph of *Mexico*, in 1719, where I was wounded; but to no Purpoſe. 'Tis very true, that there exhale continually from the *Vitriol*, ſome ſmall Corpuſcles, which is plainly ſeen by placing *Vitriols* of different Colours near one another, and leaving them there for a Fortnight; during which Time, they will have chang'd Colour, on their Surfaces, the white being turn'd yellow, the green whitiſh, the blue greeniſh, and the red greyiſh. 'Tis likewiſe as true, that thoſe *vitriolick* Corpuſcles ſpreading themſelves in the Air, can fall upon the Wound, and ſtop Bleeding; but that's very precarious, and it muſt be done very near the Patient; whereas, without truſting to that Uncertainty, the calcin'd *Vitriol* can be better apply'd on the Wound, with Hopes of Succeſs; for I can't be of Opinion, that the Blood on the Cloth can retain, yet, Heat enough to exalt the *vitriolick* Particles, and quicken their Motion, for the Reaſons abovemention'd; for it ſhould, beſides, give them a Paſſport to the Wound, otherwiſe they might chance to take another Road. 'Tis alſo a vulgar Error, to imagine, that by throwing the Urine of a Perſon into the Fire, that Perſon feels a Heat in the Bladder; or Nettles on the Excrements of an Animal, there would enſue an Inflammation in the Inteſtines; and ſeveral other Things, which are known by Experience to be falſe.

The DISTILLATION OF VITRIOL, is an acid Salt of *Vitriol* reſolv'd into a Liquor by a great Fire, thus: Two Thirds of a large ſtone Retort, luted, are fill'd with *Engliſh Vitriol*, calcin'd white; the Retort is placed in a reverberatory Furnace, and after a large Recipient has been adapted to it, a ſmall Fire is made, to heat the Veſſel, and to bring out, Drop by Drop, the aqueous Humidity which would have been left in the *Vitriol*; and when it has done diſtilling, the Liquor in the Recipient is pour'd into a Bottle. 'Tis what is call'd *Phlegm of Vitriol*, and is us'd to waſh the Eyes in Ophthalmicks. The Recipient muſt be re-adapted to the Neck of the Retort, and all the Joints exactly luted; then the Fire being increas'd by Degrees, Clouds are ſeen to come out into the Recipient: The Fire muſt be continu'd always in the ſame State, till the Recipient grows cold; then it is puſh'd with Violence, with Wood, ſo that the Flame comes out thro' the Chimney of the Dome, as thick as the Arm, and continu'd with the ſame Force for 3 Days, and as many Nights, then put out: The Veſſels are unluted when they are cold, and the Spirit pour'd into a glaſs Cucurbite, which is quickly placed on the Sand, and a Capital, with its Recipient, adapted to it; and after the Joints have been exactly luted with a wet Bladder, very near 4 Ounces of the Humidity are diſtill'd, by a very ſlow Fire, 'tis the *ſulphurous Spirit of Vitriol*, which is kept in a Bottle, well cork'd.

The *ſulphurous Spirit of Vitriol* is a very good Remedy for the Aſthma, Palſy, and the Maladies of the Lungs. The Doſe is from 4 Drops to 10, in ſome Liquor appropriated to the Diſtemper.

The Recipient muſt be chang'd, and the Fire having been increas'd, Half of the Humidity left in the Alembick is diſtill'd, which is the acid Spirit of *Vitriol*, and is mix'd in Juleps, to a grateful Acidity. The other Half left in the Alembick, is the moſt acid Part of the *Vitriol*, improperly call'd *Oil of Vitriol*. This Oil is us'd for the Diſſolution of Metals.

Red Matter is found in the Retort, which is a very good Colcothar.

Note, That if the Artiſt has put in the Retort 8 Pounds of *Vitriol*, at 16 Ounces in the Pound, he'll extract 16 Ounces of Phlegm, 4 Ounces of ſulphurous Spirit, and 24 Ounces of Spirit, and Oil of *Vitriol*; there remain in the Veſſel 88 Ounces of Colcothar. The acid Spirits are but Salts reſolv'd into a Liquor by the Strength of the Fire, which has diſengag'd them of their moſt terreſtrial Parts, and can be reſtor'd to their former State, by pouring them upon ſome Alkali: For Example, the Spirit of *Vitriol* having remain'd a conſiderable Time on Iron, re-corporifies itſelf into *Vitriol*; and Spirit of Nitre pour'd upon Salt of Tartar, makes a Saltpetre. *Oil of Vitriol*, when very ſtrong, produces a ſurprizing Effect; for if it be mix'd with other Oil of *Vitriol*, or with its Spirit, or with Water, or elſe with an æthereal Oil like that of Turpentine, Spirit of Wine, *&c.* the Mixture heats to ſuch an Exceſs, as to burſt, ſometimes, the Veſſel 'tis contain'd in, and ſometimes cauſes a violent Ebullition.

Some

Some attribute this surprizing Effect to the great Quantity of the igneous Particles wrapp'd in the Oil of *Vitriol*, and which being put in Motion by the Oil of Turpentine, Spirit of Wine, *&c.* push with Impetuosity the heavy Salts they are environ'd with, and which can't be rarefy'd but with the greatest Difficulty. But I am of Opinion, that this Sentiment contradicts itself; for if those suppos'd igneous Particles be environ'd with heavy Salts, and difficult to be rarefy'd, is it not entirely contradictory to Experience, that they could continue in a State capable of Motion? Or rather, is it not more reasonable to think, that being thus environ'd with frigid, heavy, and thick Salts, and depriv'd of Rarefaction, they are totally extinguish'd, since that Rarefaction they are depriv'd of is the principal Aliment of the Fire: Therefore I would rather imagine, that the acid Points of the *Oil of Vitriol* having by the Violence of the Fire receiv'd a harder Temper than its Spirit, break, tear, and destroy all they encounter with, and that in that Disorder and Confusion, effected with Violence and Impetuosity, happens that strong Heat observ'd in the Vessel; which is also occasion'd by the great Efforts those acid Points make to penetrate the globulous Particles of Water, when mix'd with it. The same Heat happens when those acid Points are mix'd with Oil of Turpentine, Spirit of Wine, *&c.* by the continual Friction of those Points against the sulphurous Particles of those æthereal Oils. If a few Drops of Oil, or *Spirit of Vitriol*, be pour'd upon an Infusion of dry'd red Roses, the Infusion will in a short Time turn red, like Wine, because the acid Spirit extends and rarefies the Particles of the Roses which the Water had dissolv'd, and restores their Pores to their former natural Configuration. The same Effect will happen, if the Acid be pour'd, but after the Roses have been separated, by Colature, from the Liquor, wherein they have been macerated. If a Vial be fill'd with a purify'd Decoction of nephritick Wood, and the Decoction is view'd towards the Light, it will appear yellow; if we turn our Back to the Light, it will appear blue; if some Drops of *Spirit of Vitriol* be mix'd with it, it will appear yellow on all Sides; but if as much Oil of Tartar be added to it, it will return to its former Colour: Which different Changes are to be attributed to different Configurations given to the Pores of that Tincture for the Reflection of the Light, by the different Liquors mix'd with it. If a few Drops of Oil of Tartar be pour'd on red Wine, it will turn greenish, and re-assume its former Colour, if a small Quantity of Oil of Tartar be added to it.

Dulcified Oil of Vitriol, is the strongest Acid of *Vitriol* corrected, and soften'd, in this Manner: Eight Ounces of *Oil of Vitriol* are put into a pretty large Matrass, and 16 Ounces of Spirit of Wine pour'd softly upon it; the Matrass is stopp'd with another, to make a circulatory Vessel, and the Mixture left in Digestion, in the Cold, for 10 or 12 Hours, and shook from Time to Time; afterwards 'tis plac'd on a small Sand Fire, and the Liquor made to circulate during 3 Days; which expir'd, the Vessels are left to grow cold, then separated, and the Liquor pour'd into a Bottle, well cork'd. The Liquor will be of a grateful Smell, and of a very acid Taste, though temperated.

This *dulcified Oil of Vitriol* is aperitive, proper to provoke Urine, good for the Stone, to purify the Blood, to stop Vomiting, and the Diarrhæa. Some prescribe it for Spitting of Blood, Hæmorrhages of the Nose, and for the Asthma. The Dose is from 4 Drops to 10, or to an agreeable Acidity, in some Liquor appropriated to the Distemper.

Styptick Water, is a Dissolution of *Vitriol*, and other Ingredients proper to stop Blood. 'Tis made with *Colcothar*, or red *Vitriol*, *Roman* Allum, and Sugar-candy, of each Half an Ounce; the Urine of a young Person, and Rose-water, of each 4 Ounces; and 16 Ounces of Plantane-water; and these Drugs very well mix'd together in a Mortar: This Water must be pour'd, by Inclination, when 'tis to be us'd.

To stop the Blood of an Artery which has been open'd, a Compress must be dipp'd in this Water, and apply'd on the Part; a small Tent dipp'd in it must be introduc'd into the Nose when the Hæmorrhage lasts too long. Taken inwardly, it stops the Spitting of Blood, Dysenteria's, the immoderate Flux of the Hæmorrhoids, and of the Menses; 'tis vulnerary. The Dose is from Half a Drachm to 2, in some other Liquor.

Note, That my Styptick, and vulnerary Tincture, produces all these Effects, (even in the most dangerous Cases, and when the Blood flows with the greatest Impetuosity) quicker, and with a greater Safety, by taking a Spoonful of it inwardly when the Hæmorrhage is great; Half a Spoonful when not so violent; and 50 Drops, Morning and Night, when the Patient is afflicted only with Spitting of Blood: In all these Cases it cures effectually, and is so pleasant, both for Smell and Taste, that it might be taken by itself. 'Tis apply'd outwardly, by dipping a thin Compress into it, and applying it on the Part; for then it will not only stop the Blood, but even cure, effectually, the Wound, and produces the same Effects inwardly, on the Lungs, Breath, *&c.* This Tincture may be had of my Printer, Mr. *Hart*.

The Volatile Narcotick of Vitriol, is an Exaltation, or Volatilization of the fix'd Salt of *Vitriol* into white Flowers, by Borax, thus: We put 2 Pounds of *Colcothar*, or *red Vitriol*, into a stone Pan, and pour upon it 10 or 12 Pounds of boiling Water; we leave them to macerate for 2 Hours, stirring the Matter, from Time to Time, with a wooden Spatula; then filtrate the Liquor, and keep it.

We dissolve, likewise, 2 Ounces of Borax, in Powder, in 2 Pounds of hot Water, and pour the Dissolution hot into the preceding filtrated Liquor: A kind of yellow Mud is precipitated to the Bottom of the Vessel; we leave that Mixture to settle till the next Day, and then filtrate it through a grey Paper, and place the filtrated Liquor on the Sand, in a glass or stone Vessel, to evaporate, till a Pellicle begins to appear a-top: We pour it, then, into a glass Cucurbite, capacious enough to contain 8 Pints of Liquor, and of about 8 Inches high; to which we adapt a Capital, and a little Recipient, and have all the Humidity distill'd at a Sand Heat: We throw away, as useless, the distill'd Water, except the four last Ounces, which are a little acid, and which we keep carefully: The Distillation over, we push the Fire with Violence, to make a small Quantity of a volatile white Salt rise to the Capital, and round the Cucurbite: When nothing more ascends, we let the Fire go out, and the Vessels grow cold, and then gather all the Flowers which we find sticking round the Vessels, which we keep in a glass Bottle, well cork'd. There remains at the Bottom of the Cucurbite a dry grey Mass, upon which we pour the 4 Ounces of Liquor sav'd from the Distillation; there happens a Heat, with a small Ebullition of a *vitriolick* Smell; we re-adapt the Capital to the Cucurbite, and have all the Liquor distill'd, which we keep: We push the Fire, to make the Flowers sublimate, as before; this second Sublimation is a little more copious than the first; we gather these Flowers, and pour again the distill'd Water in the Cucurbite on the grey Mass, then have it distill'd, and the Flowers sublimated, as before: We repeat the same Operation till nothing more sublimates, and then mix our Flowers together, and keep them.

This *narcotick volatile Salt* appeases the Disorders which the irritated sulphurous Matters can cause in our Body: For Example, in malignant Fevers accompanied with a *Delirium*. A Dose or two of this *Salt*, of

of 7 or 8 Grains each, taken in the Excess of the Paroxism, abates the Fever, and even the *Delirium*, in 7 or 8 Hours Time, and gives Leisure to the Physician to proceed with a greater Facility to the Cure of the Malady, by common and simple Purgatives; because this Remedy appeases only the Fever, and the *Delirium*, without curing it: For if in that Interval the Cause of the Malady is not carry'd off by Purgatives, the Fever and *Delirium* return.

Note, M. *Homberg*, of the *Royal Academy of Sciences*, at *Paris*, and first Physician to his Royal Highness the late Duke of *Orleans*, is the Author of this Preparation.

The MEDICAMENTOUS STONE, is a Mixture of several detersive and very astringent Matters reduc'd into a Stone by Calcination, thus: Two Ounces of *Colcothar*, or of *Vitriol* calcin'd red; Litharge, Allum, and Bole, of each 4 Ounces; are pulveriz'd, and mix'd together; and the Mixture being put into a glaz'd Pot, strong Vinegar is pour'd upon it till it swims over the Matter to the Height of two Fingers; the Pot is stopp'd, and the Matter left in Digestion during 2 Days; after which are added to it 8 Ounces of Nitre, and 2 Ounces of Sal Ammoniack: Then the Pot is plac'd on the Fire, to make all the Humidity evaporate. The Mass left in the Vessel is calcin'd at a great Fire for about an Hour, and afterwards kept for Use.

This *Stone* is a very good Remedy for the Gonorrhœa, and also to cleanse the Eyes in the Small Pox, by dissolving 7 or 8 Grains of it in 4 Ounces of Plantane-water: 'Tis likewise very good to stop Blood, when apply'd on the Wound.

Note, That the Stone call'd *Admirable*, is also a kind of *Medicamentous Stone*. 'Tis prepar'd in this Manner: We pulverize, and mix together, 8 Ounces of white *Vitriol*, double-refin'd Sugar, and Saltpetre, 9 Ounces of each; 2 Ounces of Allum, 6 Drachms of Sal Ammoniack, and Half an Ounce of Camphor; we put this Mixture into an earthen Pot glaz'd, and humect it to the Consistence of Honey, with Pickle of Olives; then placing the Pot on a small Fire, we have the Matter dry'd gently, till 'tis grown as hard as a Stone, which must be kept cover'd, because it humects itself easily.

This *Stone* is detersive, vulnerary, and astringent; it resists the Gangrene, and stops Blood, if apply'd dry, or dissolv'd in a Liquor. 'Tis employ'd for Cataracts of the Eyes, in a Collyre; for scorbutick Ulcers, and old Gonorrhœa's, in Injections: 'Tis never administer'd inwardly.

There is another Sort of *Medicamentous Stone*, call'd the *Stone of Philosophers*, prepar'd in the following Manner: *Roman Vitriol*, and Roach Allum, 12 Ounces of each; Ceruse, and white Bole, 2 Ounces of each; an Ounce of Salt of Tartar; Camphor and Olibanum, 2 Drachms of each; are pulveriz'd, and mix'd together; and the Mixture being put into an earthen Dish, 6 Ounces of good Vinegar are pour'd upon it, and the Matter stirr'd all the while with a Spatula; then the Dish is put on the Fire, for the Matter to harden.

This *Stone* is detersive, and deficcative, proper to cure Ulcers. An Ounce of it is put to macerate in 12 Ounces of white Wine and Plantane-water, and after the Infusion has been filtrated, small Pieces of Linnen are dipp'd in it, to be apply'd on the Sore.

SALT OF VITRIOL, is the most fix'd Substance of the *Vitriol*, remaining after the Distillation. This Salt is prepar'd by taking 2 or 3 Pounds of the *Colcothar* left in the Cornue, after the Distillation of *Vitriol*, and putting it to macerate in 8 or 10 Pounds of hot Water for 10 or 12 Hours, and afterwards it must boil 2 or 3 Gallops; then having been left to settle, the Water is pour'd out, by Inclination, or decanted, and other Water put on the Matter, proceeding as before; all the Impregnations are mix'd together, and all the Humidity having been evaporated, in a glass or stone Vessel, on Sand, there remains a *Salt* at the Bottom.

This *Salt* is us'd as the *Gilla Vitrioli*, for a Vomit. The Dose is from 10 to 30 Grains. From these Operations on *Vitriol*, we'll pass to those on *Allum*.

ALLUM, from the *Greek* ἅλς, Salt, is a kind of mineral Salt, of an acid Taste, leaving in the Mouth a Sense of Sweetness, accompanied with a considerable Degree of Astringency.

The antient Naturalists allow of 2 Sorts of *Allum*, the one *native*, and the other *factitious*. The *natural* is found in the Island of *Milo*, being a kind of whitish Stone, very light, friable, and porous; and streak'd with Filaments resembling Silver.

The *factitious Allum* is prepar'd in different Manners, according to the different Materials whereof 'tis made: Hence arise *Red*, *Roman*, and *Citron Allum*; to which are added, *plumose*, *saccharine*, and *burnt Allum*.

Italy, *England*, and *Flanders*, are the Countries where *Allum* is principally produc'd.

The principal Places, in *Italy*, where they make *Allum*, are, *Civita Vecchia* and *Solfatara*, near *Puzzuoli*. The Process of making *Allum* at *Civita Vecchia*, as describ'd by M. *Geoffroy*, is as follows: The Stone, which is of a ruddy Hue, being calcin'd, they boil and dissolve the Calx in Water, which imbibing the Salt, *i. e.* the *Allum*, separates itself from the useless Earth; lastly, leaving the Water, thus impregnated with Salt, to stand for some Days, it crystallizes of itself, like Tartar about a But, and makes what we call *Roche*, or *Roman Allum*.

The *Roman Allum* is commonly pure enough, but it may be purify'd again, by dissolving it in Water, filtrating the Dissolution, and having it evaporated on the Fire. 'Tis detersive and astringent, and is us'd in Gargarisms for sore Throats, to cleanse the Mouth and Teeth, and to strengthen the Gums: 'Tis good for the Aphtes, and venereal Shankers; apply'd outwardly it stops Bleeding; when inwardly, it provokes Urine, and is proper for Gonorrhœa's. One Drachm of it must be dissolv'd in 2 Pounds of Roots of *Althæa*, and some Glasses thereof are administer'd to the Patient by Intervals.

There is another Sort of *Roche Allum*, made in *England*, from a blueish mineral Stone, frequently in the Hills of *Yorkshire* and *Lancashire*. This Stone they calcine on a Hearth, or Kiln, then steep it successively in several Pits of Water; then boil it for about 24 Hours: Lastly, letting it stand for about 2 Hours, the Impurities subside, and leave a pure Liquor, which remov'd into a Cooler, and some Urine added to it, begins, in 3 or 4 Days, to gather into a Mass, which being roach'd, *i. e.* taken out, wash'd, and melted over again, is fit for Use.

At *Whitby*, in *Yorkshire*, the Process of making *Allum* is as follows: The mineral Stone, before it is calcin'd, being expos'd to the Air, will moulder in Pieces, and yield a Liquor of which Copperas may be made, but being calcin'd, it is fit for *Allum*. As long as it continues in the Earth, or in Water, it remains a hard Stone. Sometimes a Liquor will issue out of the Sides of the Mine, which, by the Heat of the Sun, is turn'd into a natural *Allum*. The Taste and Qualities of this *Allum* are like those of the *Roman Allum*, but is not so much esteem'd in Medicine, because it contains less acid Spirits.

Saccharine Allum bears a near Resemblance to Sugar. It is a Composition of common *Allum* with Rose-water and Whites of Eggs, boil'd together to the Consistence of a Paste, and thus moulded at Pleasure; as it cools, it grows as hard as Stone. It is us'd as a Cosmetick.

Burnt Allum, *Alumen ustum*, is *Allum* calcin'd over the Fire, and thus render'd whiter, more light, and easily pulveriz'd.

Plume Allum, *Alumen plumosum*, is a Sort of saline mineral Stone, of various Colours, most commonly white, bordering on green, resembling *Venetian* Talc, except

except that instead of Scales, it rises in Threads or Fibres, resembling those of a Feather; whence its Name from *Pluma*, a Feather.

After this concise Description of the different Species of *Allums*, we'll proceed to a single Operation on that Salt, which is its Distillation, and which to perform, we'll put five Pound of *Roman Allum* into a great Cucurbite of Stone or of Glass, and having adapted a Capital with its Recipient to it, we'll have distilled at a Sand-Heat, all that can ascend, to have a Phlegm of *Allum*, which is used in the Maladies of the Eyes, for the Quinsey, and to cleanse Wounds. We'll afterwards unlute the Vessels, and having broke the Cucurbite, pulverise the white Mass left in it, and put it into a stone Retort; two Thirds thereof will be left empty; we'll put that Retort into a reverberatory Furnace shut up, and having adapted a large Recipient to it, and luted exactly the Joints, we'll make under it a very small Fire, for three Hours, to heat the Retort, which is to be encreased every Hour 'till it comes to the last Violence; the Spirits come out, and fill the Recipient with white Clouds. We continue the Fire in that Condition for three Days, and after having left the Vessels to grow cold, we find in the Recipient eight Ounces of acid Spirit, which is more grateful to the Palate than that of Vitriol. 'Tis used in Juleps, for continual Fevers, and tertian Agues. The Dose is from four to eight Drops: 'Tis also very good for the *Aphtes* and small Shankers which come in the Mouth.

We break the Retort, and find in it a white Mass very much rarefied and light. 'Tis what we call *Burnt-Allum*, and is used to eat the Excrescences of Flesh. *Sulphur* is the next Subject of our Operations.

SULPHUR is a fat unctuous Sort of mineral Substance, fusible, and inflammable by Fire, and not dissoluble or missible in Water.

Sulphur, commonly called *Brimstone*, is of two Kinds; *viz. vivum* and *common Sulphur*.

SULPHUR VIVUM, *native*, or *virgin Sulphur*, is that which is dug in this Form out of the Earth; being opake, of a yellow, or Ash-Colour: It easily takes Fire, and in Burning casts a strong sulphurous Smell. It is chiefly brought from *Sicily*, and is but little used, except in some galenical Compositions, and to sulphur small Wine, in order to make it keep in Carriage. It is found in great Quantities in the Neighbourhood of *Vulcanos*, or burning Mountains, as *Vesuvius*, *Ætna*, &c. yet *Sulphur* has also its particular Mines; and we have very good from several Parts of *Italy* and *Switzerland*, though the best is that of *Guitto* and *Nicaragua* in *America*.

The *Native Sulphur* contains an Oil, and acid Salt, and Earth. It is penetrating, attenuating, resolutive, proper for the Itch and Scald-Head, to kill Lice, and is employ'd in Unguents and Plaisters.

Common Sulphur, or that used in Gunpowder, and on divers other Occasions: 'Tis said, by some, to be a Composition of the *Native Sulphur* with Rosin, roll'd up into Cylindrical Pieces. Though others assure us it is procured from the *Native Sulphur*, by means of Fire and Train Oil, which dissolving it, it is poured into Moulds, and thus formed into those Cylinders we find it in.

This *common Sulphur* is either better or worse, according to the Refinery it comes from. That of *Holland* has a long Time had the Vogue: The second Place has been given to that of *Venice*; and the Third to that of *Marseilles*: But the Order has been since changed, and that from *Marseilles* is now in the first Place.

Common Sulphur is chosen in large thick Cylinders, of a golden yellow Colour, very brittle, and when broke appearing all brilliant, as if crystallised. This Sort of *Sulphur* is very often employed in *Chymistry*, and Medicine, and is incisive, aperitive, deficcative, proper for the Maladies of the Lungs and of the Breath, it resists Corruption, and cures the Itch. The Dose is from fifteen Grains to two Scruples.

The *Chymical* Analysis of *Sulphur* is very difficult; its Principles being so volatile, and withal so fast bound together, that they either rise all together, or are dissipated and lost in the Separation. M. *Homberg*, however, has at length found the Secret of separating the Principles, and of saving them at the same Time. He finds it to consist of an acid Salt, an Earth, and oily bituminous, and inflammable Matter, and usually a little Metal. The three first he finds by a long Series of Operations, are in pretty equal Quantities; but the last which proves to be Copper, inconsiderable: The Acid, he adds, is exactly the same with that of Vitriol; the Oil which is thick and red as Blood, appears to be the inflammable Part, and that which constitutes the *Chymical* Principle *Sulphur*, only that it retains some heterogeneous Matter in the Operation. The Earth is extremely fix'd, and unalterable by the strongest Fire.

M. *Geoffroy* tried the Re-Composition of *Sulphur* on M. *Homberg*'s Principles, and with Success. The pure acid Salt of *Sulphur* being mixed with an equal Quantity of the oily Matter, and earthy Alkali, and a little Oil of Tartar, and the Operation conducted according to the Rule of Art, the Mixture was converted into a pure burning *Sulphur*. This done, he attempted the Composition of *Sulphur*, not by recompounding it out of the same Matters it had been resolved into, but by using Matters judged of the same Nature; thus by substituting Oil of Vitriol for the acid Salt, and Oil of Turpentine for the inflammable Part, he succeeded as before. Again he found that fix'd Salts, as they are Acids absorbed in the Earth, serve for two Principles at once, and need nothing but an inflammable Oil to make *Sulphur*. M. *Geoffroy* employed, with equal Success, Char-coals, Pit-coals, and other Solids.

M. *Boyle* and *Glauber* had before made *common Sulphur*, and that by Mixtures, such as M. *Geoffroy* describes; but were both mistaken as to the Reason thereof; the one concluding that the *Sulphur* he thus got, had been contained in the fix'd Salts, and the other in the Coal; neither of them dreamed it was the Mixture of the three Principles that produced the Mixt.

Some imagine that *Sulphur* is but a Vitriol exalted in the Earth, because the two Mixts are often found near one another, because there is a great deal of *Sulphur* in the Mass of mineral Vitriol, and because the acid Spirits extracted from both are all alike; but we cannot be convinced by Experience that the bituminous and inflammable Matter found in *Sulphur* could ever be found in Vitriol, let it be ever so exalted.

We'll make six *chymical* Preparations of *Sulphur*, viz. *Flower of Sulphur*, *Magistery of Sulphur*, *Balsam of Sulphur*, two Sorts of *Spirit of Sulphur*, and *Salt of Sulphur*.

We begin by the FLOWER OF SULPHUR, which is an Exaltation of *Sulphur*, made by putting about half a Pound of *Sulphur*, coarsly pulverised, into an earthen Cucurbite, placing the Cucurbite on a small naked Fire, and putting upon it a Pot, or another Cucurbite inverted, and without glazing, so that the Neck of the one enters into that of the other: The top Cucurbite is taken off every half Hour, and another adapted in its Place, and likewise new *Sulphur* added to the first.

The Flowers found sticking to the Cucurbite are gathered, and the Operation is thus continued 'till the Artist has Flowers enough; which done, the Fire is put out, and the Vessels left to grow cold. There remains at the Bottom but a little Quantity of light and useless Earth.

The *Flower of Sulphur* is employed in the Maladies of the Lungs, and of the Breath. The Dose is from ten to thirty Grains in Lozenges, or in Opiates. 'Tis also used in Unguents for the Itch.

Note, That *Sulphur* is good for the Maladies of the Lungs, which proceed from a Viscosity sticking to them, because 'tis a detersive; but if it be administer'd to Patients too much emaciated by a Fever, it

 does

does not ſucceed well, becauſe it accelerates the Motion of the Humours. It cures the Itch, becauſe by opening the Pores it expels by Perſpiration the moſt ſubtle Part of the Humour: But the coarſer Part of that Humour remaining, the Diſtemper often returns. If one Part of *Sal-Polychreſt* be mixed with two of *Sulphur*, and the Sublimation conducted as above, the *Flowers of Sulphur* will be white, which are eſteemed better than the others for the Maladies of the Lungs. They are given in the ſame Doſe. The Whiteneſs proceeds from a more exact Attenuation given to the *Sulphur* by the *Sal-Polychreſt*.

MAGISTERY OF SULPHUR is the *Sulphur* diſſolved by a Salt Alkali, and precipitated by an Acid, thus: We take four Ounces of *Flowers of Sulphur*, and twelve of Salt of Tartar, or of Saltpetre fixed by Coals, which we put together into a large glazed Pot, and pour upon it ſix or ſeven Pounds of Water: We cover the Pot, and having placed it on the Fire, make it boil for five or ſix Hours, or 'till the Liquor being grown red, the *Sulphur* is entirely diſſolved; which done, we filtrate the Diſſolution, and pour upon it diſtilled Vinegar, or ſome other Acid, which forms a Kind of Milk, and which we leave to ſettle, that a white Powder may be precipitated to the Bottom; then we pour by Inclination the Liquor, and waſh the Powder left five or ſix Times in Water, and have it dried from the Sun.

This *Magiſtery of Sulphur* is good for all the Maladies of the Lungs, and of the Breath. The Doſe is from ſix to ſixteen Grains, in ſome Liquor appropriated to the Diſtemper.

Note, That fifteen Grains of this Powder operate with greater Efficacy than a Scruple of *Flowers of Sulphur* for the Maladies of the Breath, and leave not ſo great an Impreſſion of Heat.

BALSAM OF SULPHUR is a Diſſolution of the oily Particles of *common Sulphur*, in Oil of Turpentine. The Operation is conducted thus: An Ounce and a half of *Flowers of Sulphur* is put into a Matraſs, and eight Ounces of Oil of Turpentine poured upon it: The Matraſs is placed on the Sand, and a ſmall Fire of Digeſtion given to it, during one Hour, which Fire is a little increaſed afterwards, and continued thus for half an Hour longer, and then the Oil takes a red Colour; and when the Veſſel is cold, the clear *Balſam* is ſeparated from the *Sulphur*, which could not be diſſolved.

This *Balſam* is an excellent Remedy for the Ulcers of the Lungs, and of the Breaſt, and for the Aſthma. The Doſe is from one Drop to ſix, in ſome Liquor appropriated to the Diſtemper. Applied outwardly it reſolves the Hæmorrhoides or Piles.

If the *Balſam of Sulphur* be prepared with Oil of Aniſeed, inſtead of that of Turpentine, it will be more agreeable, and not ſo acrimonious.

There can alſo be made a *Balſam of Sulphur* with Linſeed Oil for Wounds and the Piles.

Note, That the *Balſam of Sulphur* is very diſagreeable, not only to the Smell and Taſte, but likewiſe becauſe it ſwims on the Liquor 'tis taken in; for in ſwallowing it there remains often ſome Part of it ſticking to the Palate, or to the Throat: To remedy that Inconvenience, the Doſe to be taken may be mixed with ſome Sugar-Candy in Powder, which can be diſſolved afterwards in any Liquor; or elſe it may be incorporated with ſome Conſerve of Roſes, or of Bugloſe to form a Bolus. My vulnerary Tincture produces all the Effects expected from the *Balſam of Sulphur*, and its attended with none of its Inconveniencies; for it is very pleaſant to the Eye, Taſte and Smell.

SPIRIT OF SULPHUR is the acid Part of *Sulphur*, ſeparated and reduced into a Liquor by Fire in this Manner: We have a large ſtone Pan, in which we place a ſmall earthen Porringer, turned upſide down, aud put upon it another Porringer full of melted *Sulphur* or Brimſtone; we incloſe theſe two Porringers within a large Funnel of Glaſs made on Purpoſe, but with a Neck as long as that of a Matraſs, and an Inch in Breadth. We ſet Fire to the Brimſtone, and do not ſtop the Hole of the Funnel, otherwiſe the lighted Matter having no Air, would go out. When our Brimſtone is conſumed, we ſupply our Porringer with other; and continue thus 'till we find under the inverted Porringer as much Spirit as we want, which we keep in a Vial.

The *Spirit of Sulphur* is put in Juleps to an agreeable Acidity to temperate the exceſſive Heat of continual Fevers, and to promote Urine; ſome preſcribe it for the Maladies of the Lungs, but as Acids excite the Cough, it does more Harm than Good; for though *Sulphur*, as we have obſerved already, be very good for the Maladies of the Lungs, and of the Thorax or Breaſt; we muſt conſider that in this Seperation there's nothing left of the *Sulphur* but its acid Part diveſted of thoſe oily and ſulphurous Particles, in which conſiſted its vulnerary or healing Virtue.

SALT OF SULPHUR is a Salt Polychreſt, impregnated with Spirit of *Sulphur*, and prepared thus: We put four Ounces of Salt Polychreſt, prepared according to our Direction, heretofore-mentioned, into a glaſs or ſtone Pan, and pour upon it two Ounces of Spirit of *Sulphur*; we place our Veſſel on the Sand, and have all the Humidity evaporated by a ſlow Fire; there remains in the Veſſel four Ounces and ſix Drachms of an acid Salt, very agreeable to the Taſte, which we keep in a Bottle well corked.

This *Salt of Sulphur* is a very good Remedy to raiſe all Obſtructions, purges much by Urine, and ſometimes by Stools. The Doſe is from ten Grains to two Scruples in Broth. It may be diſſolved from one Drachm to two, in a Quart of Water, for the common Drink of thoſe who are afflicted with a violent Fever.

Though Naturaliſts and *Chymiſts* are divided as to the Origin of *Carabe*, or *Succinum*, or *yellow Amber*, and to what Claſs of Bodies it belongs to, ſome referring it to the vegetable, others to the mineral, and ſome even to the animal Kingdom; I will place it to the mineral Kingdom, and make it the Subject of our next Operations.

CARABE is a yellow tranſparent Subſtance, of a gummous or bituminous Form or Conſiſtence, but a reſinous Taſte, and a Smell like Oil of Turpentine.

Pliny deſcribes *Carabe*, a reſinous Juice, oozing from aged Pines and Firrs (others ſay from Poplars, whereof there are whole Foreſts on the Coaſts of *Sweden*) and diſcharged thence into the Sea; where undergoing ſome Alteration, it is thrown in this Form upon the Shores of *Pruſſia*, which lie very low. He adds that it was hence the Antients gave it the Denomination of *Succinum*, from *Succus*, Juice.

This Opinion of the antient Naturaliſts is confirmed by the Obſervation of many of the modern ones, particularly the learned Father *Camelli*. Some have imagined it the Concretion of Tears of Birds; others the Urine of a Beaſt; others the Scum of the Lake *Cephiſis*, near the *Atlantick*; others a Congelation formed in the *Baltick* Sea, and in ſome Fountains, where it is found ſwimming like Pitch. Others ſuppoſe it a Bitumen, trickling into the Sea from ſubterraneous Sources there concreted into this Form, and thrown a-ſhore by the Waves. This laſt Opinion was a long Time the moſt popular, and ſeemed to have the beſt Ground; but this too is now diſcarded, as good *Carabe*, having been found in digging at a conſiderable Diſtance from the Sea, as that gathered on the Coaſt.

Others ſuppoſe *Carabe* a compound Subſtance. *Pruſſia*, ſay they, and other Countries which produce *Carabe*, are moiſtened with a bituminous Juice, which mixing

mixing with the vitriolick Salts abounding in those Places, the Points of those Salts fix its Fluidity, whence it congeals; and the Result of that Congelation makes, what we call, *Carabe*, which is more or less pure, transparent, and firm, as those Parts of Salt and Bitumen are more or less pure, and mixed in this or that Proportion.

Carabe being found, by Distillation, to yield an acid Spirit, which precipitates into Salt, is inferred, by some *Chymists*, to be of a mineral Nature, which is my Sentiment, this being a Circumstance peculiar to that Kingdom, and never found in the Distillation of Vegetables; to which may be added, that *Succinum* dissolves in Alcohol, not in Water; melts at the Fire, and is inflammable; which are Characters which seem to refer it to the Class of Sulphurs or Bitumens. Others, on the contrary, argue it of the vegetable Kind, from its resolving into the same Principles with Vegetables, *viz.* Water, Spirit, Salt, and Oil. *Boerhaave* resembles it to Camphire, which is a Concert of the aromatick Plants of that Country, elaborated by Heat into a crystalline Form.

There are several Indications which discover where *Carabe* is to be found. The Surface of the Earth is there covered with a soft scaly Stone; and Vitriol, in particular, abounds there, which is sometimes found white, sometimes reduced into a Matter like melted Glass, and sometimes figured like petrified Wood. *Carabe* assumes all Figures in the Ground; that of a Pear, an Almond, a Pea, *&c.* Among others there have been found Letters very well formed; and even *Hebrew* and *Arabick* Characters: Within some Pieces of *Carabe* have likewise been found Leaves, Insects, *&c.* included; which seems to indicate either that the *Carabe* was originally in a fluid State; or that having been exposed to the Sun, it was softened and rendered susceptible of the Leaves, Insects, *&c.* which came in its Way, and which, in my Opinion, is the most likely, since those Insects, Leaves, *&c.* are never found in the Centre of the Piece of *Carabe*, but always near the Surface.

It is observed by the Inhabitants of Places where *Carabe* is produced, that all Animals, whether terrestrial, ærial, or aquatick, are extremely fond of it; and that they frequently find Pieces of it in their Excrements, and in their Bodies when opened.

The most remarkable Property of *Carabe* is that, when rubbed, it draws or attracts other Bodies to it; and this, it is observed it does, even to those Bodies which the Antients thought it had an Antipathy to; as oily Bodies, Drops of Water, the Basilisk, Sweat of human Body, *&c.* Add, that by Friction it is brought to yield Light pretty copiously in the Dark; whence it is reckoned among the Native *Phosphori.*

Carabe is distinguished, with Regard to its Colours, into white, yellow, and black. The white is most valued for medicinal Uses, as being best digested, of the most odoriferous Smell, and containing the greatest Quantity of volatile Salts. The yellow is most prizd by those who work it into Beads, and other Toys, by Reason of its Transparency.

Carabe stops the spitting of Blood, Dysenteria's, immoderate Fluxes of the Piles, Menses, and Gonorrhœa's. The Dose is from 10 Grains to Half a Drachm. 'Tis also us'd in Fumigations, to remove Defluxions. In Times of Plague, those who work in *Carabe*, or *yellow Amber*, at *Koningsberg*, are said to be never infected; whence it is held a Preservative.

We design to make 3 *chymical* Preparations of *Carabe*, *viz.* the *Tincture of Carabe*, *Distillation of Carabe*, and *volatile Salt of Carabe.*

The Tincture of Carabe, is a Dissolution of some oily Particles of that Bitumen in Spirit of Wine, made in the following Manner: We reduce 5 or 6 Ounces of *Carabe* into an impalpable Powder, and having put it into a Matrass, we pour upon it Spirit of Wine, to the Height of four Fingers; we stop the Matrass with another; to make a circulatory Vessel; and having exactly luted the Joints with a wet Bladder, we place it in Digestion on hot Sand, where we leave it for 3 or 4 Days, or till the Spirit of Wine be very well cover'd with the Colour of the *Carabe*; we decant the Tincture, and pour other Spirit of Wine on the Matter left in the Matrass, which we put in Digestion, as before; and having, likewise, decanted this second Impregnation, we mix the two together, filtrate them, and extract by Distillation, in an Alembick, about Half the Spirit of Wine, which serves us as before, and keep the Tincture found at the Bottom of the Alembick in a Vial, well cork'd.

This *Tincture of Carabe* is good for the Apoplexy, Palsy, Epilepsy, and all hysterick Maladies. The Dose is from 10 Drops to a Drachm, in some Liquor appropriated to the Distemper.

Note, That if Half the Spirit of Wine is extracted, 'tis for no other Reason, than to render the Tincture stronger. If that Tincture be distill'd, and cohobated twice on the Matter left in the Matrass, we shall have a clear Liquor, very proper to strengthen Eyes subject to involuntary Tears, by fomenting, every Day, the Eye-lids, and the Temples with it. The Resin left at the Bottom of the Vessel, after the first Distillation, is sudorifick, and hysterick. The Dose is from 6 Grains to 15.

The Distillation of Carabe, and the Rectification of its Oil, and of its Spirit, is perform'd by filling two Thirds of a stone or glass Retort with *Carabe* coarsely pounded, luting the Joints, placing the Vessel on two Iron Bars in a Furnace, and adapting a large Recipient to it, whose Joints are also exactly luted: Then a small Fire is made under the Retort, to heat it, and to procure the Distillation of the Phlegm, and that Fire increas'd, by Degrees, to bring out the Spirit and the Oil; which Fire is continu'd in the same State till it has done distilling. The Distillation over, and the Vessels grown cold, they are unluted, and about a Pint of hot Water pour'd on the Liquor in the Recipient, which must be very well shaken, to dissolve a small Quantity of a volatile Salt which sticks often to the Sides of the Recipient: The whole Liquor is afterwards thrown into a glass Alembick, and a Recipient having been adapted to it, and the Joints exactly luted, a small Fire is made under it, to heat the Vessel, which is to be increas'd a little, for the Distillation of the Water and the Spirit, which will usher along with them a small Quantity of white Oil. The Fire is continu'd till nothing more ascends, and the coarse Oil remains at the Bottom of the Vessel without boiling. The white Oil which swims a-top, Phlegm, and Spirit, must be separated, and kept in a Vial, well cork'd.

This *white Oil of Carabe* is administer'd inwardly for hysterick Maladies, the Palsy, Apoplexy, and Epilepsy. The Dose is from one Drop to four, in some Liquor appropriated to the Distemper. It may be mix'd with the Yolk of an Egg, that it may be the easier dissolv'd in Broth, or some other Liquor.

The Water and Spirit remain mix'd confusedly; to separate them, the Mixture must be pour'd into an earthen or glass Porringer, and two Thirds of the Humidity evaporated, at a slow Fire; what remains, is the Spirit of *Carabe*, which must be kept in a Vial, well cork'd.

The *Spirit of Carabe* is an excellent Aperitive; 'tis given for the yellow Jaundice, Ischuries, Ulcers in the Neck of the Bladder, and the Scurvy. The Dose is from 10 to 24 Drops, in some Liquor appropriated to the Distemper.

The black Oil left in the Cucurbite must be kept for outward Application; in the Hystericks, the Wrists of Women are rubb'd with it.

Note, That the Oils of *Carabe* operate in the Hystericks chiefly, by their disagreeable Smell; because

we ſee that all that is offenſive to the Noſe, appeaſe the Symptoms in the Maladies of the Matrix; and that what is an agreeable Smell, increaſe them. Some alledge, for the Reaſon of theſe Effects, that the Matrix having a Sympathy with the Brain, it riſes to receive Part of the good Smell, and contracts itſelf when the Noſe is offended by a diſagreeable one. Several have even been extravagant enough to imagine, that the Matrix was a little Animal, and conſequently ſuſceptible, of itſelf, of thoſe different Affections; though I ſhould think, that if this laſt Opinion was true, the Matrix ſhould have a pretty long Noſe. But, however, theſe ſurprizing Effects are better accounted for, by obſerving, 1. That the Matrix has a Communication with the Brain by Means of ſeveral Nerves, and other Veſſels. 2. That the Matrix contains often coarſe Humours, which are eaſily corrupted, and conſequently capable of forming Obſtructions there. From theſe two Points, thus eſtabliſh'd, it may be eaſily judg'd, that when a Woman receives an agreeable Smell, the Tickling which that Smell produces in her Brain, by Means of the olfactory Nerve, awaken the Spirits, and determine them to flow in a greater Abundance, and with more Rapidity through the Veſſels: Then ſhe perceives, if ſhe will mind it, a certain pleaſing and eaſy Dilatation of the Parts, as if all the Senſes wanted to partake of that agreeable Smell. As far as this ſhe differs in nothing from a Man; but becauſe the Veſſels which have Communication from the Brain to the Matrix, are ſwell'd by that Affluence of Spirits, thoſe Veſſels muſt thereby neceſſarily be contracted, and by that Contraction draw up the Matrix, which is at that Time perceiv'd to riſe, and to move; and as that Part contains often a coarſe Blood, and Humours very much diſpos'd to Fermentation, which are agitated by thoſe Motions of the Matrix; there ariſe from them coarſe Vapours, which oppreſs the Diaphragm, and cauſe what we call Suffocation of the Matrix. Theſe Maladies happen often to Women, without proceeding from Smells of any Kind; but what cauſes the ſame Symptoms, acts in the ſame Manner. As for bad Smells, they produce a quite contrary Effect; for by their offending the Noſe, the Spirits are recalled from the Veſſels, and conſequently thoſe Veſſels, and the Matrix, re-aſſume their former natural Situation.

The VOLATILE SALT OF CARABE is prepar'd, by putting 32 Ounces of *Carabe*, in Powder, into a glaſs or ſtone Cucurbite, large enough that there be but a Fourth of it full; the Cucurbite is plac'd on the Sand, and after a Capital and a ſmall Recipient have been adapted to it, and the Joints exactly luted, a ſmall Fire is made under it, for about an Hour; but when the Cucurbite is heated, the Fire is increas'd ſlowly, to the third Degree, which procures the Diſtillation, firſt, of the Phlegm and Spirit, afterwards the Aſcent of the *volatile Salt*, which ſticks to the Capital in Form of little Cryſtals; and, laſtly, the Diſtillation of a white Oil, at firſt, and a red one afterwards: When there are no more Vapours ſeen in the Recipient, the Fire is put out, and the Veſſels left to grow cold; when they are cold, they muſt be unluted, and the Salt gather'd: But as that Salt is ſtill mix'd with a ſmall Quantity of Oil, it muſt be put into a pretty large Vial, ſo that three Fourths of it be left empty; the Vial is plac'd on the Sand, after it has been cork'd with a ſimple Paper, and, by Means of a little Fire, the Salt is ſublimated into fine Cryſtals at the Top of the Vial: When the Artiſt perceives that the Oil will riſe, he takes the Vial off the Fire, and after he has left it to grow cold, he breaks it, to ſeparate the Salt from it, which he keeps in a Vial, well cork'd.

This *volatile Salt of Carabe* is a very good Aperitive, and may be given from 8 Grains to 16, in an aperitive Liquor, for the Jaundice, Iſchuries, Ulcers in the Bladder, Scurvy, Hyſtericks, and on all Occaſions where 'tis wanted to raiſe Obſtructions, and provoke Urine.

As all the Ladies are not afflicted with the Hyſtericks, and that Perfumes can be of as great Service to ſome of them, as Preparations of *Carabe* to others; we'll paſs from theſe Preparations to thoſe of *Ambergris*.

AMBERGRIS, AMBER-GREASE, *Ambra griſea*, is a fragrant Drug, that melts, almoſt like Wax; commonly of a greyiſh, or aſh Colour, us'd both as a Perfume, and a Cordial.

Ambergris is found on the Sea Coaſts in ſeveral Countries; as along the ſouthern and eaſtern Parts of *Africa*, *Madagaſcar*, the *Maldives*, ſome Parts of the *Mediterranean*, and in the *Weſt-Indies*, about the Iſlands of *Bermudas* and *Jamaica*; alſo on the Coaſts of *Carolina*, and the weſtern Coaſts of *Ireland*, *&c.* It is of divers Colours; whitiſh, browniſh, ſtreak'd with yellow, blackiſh, *&c.*

There is a great Variety of Opinions among Naturaliſts and *Chymiſts*, with Regard to the Production of *Ambergris*, which may be all reduc'd to the few following ones.

Klobius takes it for the Excrement of a Bird, call'd in the *Madagaſcar* Language, *Aſchiboluch*; which being melted by the Heat of the Sun, and waſh'd off the Shore by the Waves, is ſwallow'd by Whales, who return it back in the Condition we find it; or, as *Barboſa* relates, from the *Mooriſh* Inhabitants of the *Maldives*; the Excrements above-mention'd are alter'd and refin'd by lying on the Rocks, expos'd to the Sun, Moon, and Air; from whence they are afterwards waſh'd off by the riſing Sea. They add, that the Whales frequently ſwallow Pieces thereof; that thoſe Pieces we meet with of a black Colour, took that Hue in the Stomachs of thoſe Animals; that the brown are ſuch as have floated long on the Water; and the white, ſuch as have only been a ſhort Time there, which they value the moſt.

Others ſpeak of it as the Excrement of a cetaceous Fiſh; becauſe ſometimes found in the Inteſtines, and ſometimes in the Fæces themſelves, of ſuch Animal, which, ſome of them ſay, is a Whale, and call'd the *Trunk*; adding, that the *Sperma Ceti* is taken out of the Head of the ſame Creature. Others, with the *Perſians*, ſuppoſe the Fiſh which yields the *Ambergris* a Sea-Calf; others, with the *Africans*, a peculiar Species of Fiſh, nam'd *Ambracan*; others a Crocodile, by reaſon its Fleſh is perfum'd, *&c.*

To both theſe Hypotheſes it is objected, that we have no Inſtance of any Excrement capable of melting like Wax; add, that if it were the Excrement of a Whale, it ſhould rather be found in ſuch Places where thoſe Animals abound, as about *Greenland*, *&c.* than about the *Maldivi* Iſlands, *Soffala*, *Melinda*, Cape *Comorin*, *&c.* where no Whales are found.

Others take it for a kind of Wax, or Gum, which diſtils from Trees, and drops into the Sea, where it congeals, and becomes *Ambergris*.

Others, and particularly many of the Orientals, imagine it ſprings out of the Bottom of the Sea, as Naphtha does out of ſome Fountains: They add, that the only Springs hereof are in the Sea of *Ormus*, between the *Arabian* and *Perſian* Gulphs. *Ederiſſi*, who is of this Opinion, in the firſt Climate of his Geography mentions Pieces of *Ambergris* on thoſe Coaſts weighing above a hundred Pounds. *Paladanus*, and *Linſchotten*, ſpeak of it as of a Sort of Pitch gradually working up from the Bottom of the Sea, and hardening in the Sun.

Others take it for a Sea Muſhroom, tore up from the Bottom by the Violence of Tempeſts; it being obſerv'd, that *Ambergris* is never found but in the South-Weſt Monſoons, after Storms.

Others aſſert it to be a vegetable Production, iſſuing out of the Root of a Tree whoſe Roots always ſhoots towards the Sea, and diſcharge themſelves into the ſame. This Account we have in the *Philoſophical Tranſactions*, from one of the *Dutch* Factors at *Batavia*, who, in all Appearance, has dream'd it, as well as Mr. *Boyle*, who has confirm'd it. For that Discharge

charge ſhould proceed either from a Superfluity of Humours in the Tree, or from the too great Relaxation and Imbecillity of the ſpermatick Veſſels, whereby the nutritious Juice could neither be perfectly elaborated, nor uſher'd by Means of the Circulation, to the different Parts of the Tree; and therefore ſhould be ſuppos'd to fall back to the Roots: But as ſuch a Retrogradation is contrary to the Mechaniſm of the Plant, and that if the ſpermatick Veſſels can be ſuppos'd imbecil, and extraordinarily relax'd, their Pores muſt likewiſe be ſuppos'd extraordinarily dilated; it ſhould rather be concluded hence, that the nutritious Juice is expell'd through thoſe Pores by Means of the ambient Atmoſphere 'tis wrapt in, to the Circumference of the Tree, than by a preternatural Retrogradation forc'd back to the Roots: And in both Caſes the Tree being depriv'd of Nouriſhment, would likewiſe be ſoon depriv'd of Life, and therefore incapable of that Diſcharge neceſſary for the Formation of the *Ambergris:* But if that Diſcharge proceeds from a Super-abundance of Humours, that Diſcharge muſt be made through the common Ways Trees eaſe themſelves of thoſe Superfluities, *i. e.* Perſpiration; for if they were to fall back to the Roots, they would ſoon corrupt, and deſtroy the Organization of the Veſſels, and render them incapable of their natural Functions. Unleſs we chuſe to ſay, that thoſe Roots ſerve only as a Filtre, through which the nutritious Subſtance of the Tree is percolated, (as taken firſt from the Earth, without penetrating further into the Subſtance of the Tree) into the Sea, where it is elaborated, and acquires its laſt Degree of Perfection. But how could ſo weak and indigeſted a Subſtance be elaborated ſo perfectly, in ſo unſtable a Matrix as is the Sea, which by its continual and violent Agitation muſt diſperſe thoſe very looſe Particles, at their firſt being percolated into it; diſunite, lacerate, and, perhaps, entirely deſtroy their Symetry, by its acid Points?

Others ſuppoſe *Ambergris* a ſpongeous kind of Earth, which the working of the Sea waſhes from off the Rocks, where the Bees had form'd their Neſts. 'Tis pretended, that this Opinion has ſomething of Experience on its Side, and that ſeveral Perſons have ſeen Pieces that were Half *Ambergris*, and Half Honey-comb; and that others, again, have found large Pieces of *Ambergris*, which, when broke, Honey-combs, and Honey too, were found in the Middle.

The lateſt Accounts of *Ambergris*, are thoſe ſent from *America* to the *Royal Society* in 1724, and 1725, by Dr. *Boylſton*, and M. *Dudley*; according to whom, *Ambergris* is a true animal Concrete, form'd in Balls, in the Body of the male *Sperma Ceti* Whale, and lodg'd in a large oval Bag, over the Teſticles, at the Root of the *Penis*.

It is certain, the Whale-catchers in thoſe Parts have divers Times found *Ambergris* in their *Sperma Ceti* Whales, chiefly in the larger and older Sort; and it is from the Information of M. *Atkins*, and other Whale-catchers, that M. *Dudley* chiefly drew his Account: But, beſides that, it is added, that it is not one *Sperma Ceti* Whale in 100, that is found to have *Ambergris*. M. *Neuman* abſolutely denies it to be an animal Subſtance, as not yielding in the Analyſis any one animal Principle: It may, indeed, be found in Whales, but it muſt have been ſwallow'd by them.

M. *Neuman*, *Chymiſt* to the King of *Pruſſia*, after an ample Recital of all the different Opinions advanc'd by others, gives us his own; which is, that *Ambergris* is a Bitumen iſſuing out of the Earth into the Sea; at firſt of a viſcous Conſiſtence, but hardening, by its Mixture with ſome liquid Naphtha, into the Form we find it.

I am of M. *Neuman*'s Opinion, that *Ambergris* is a Bitumen, iſſuing out of the Earth into the Sea; with this Difference, that I think that Bitumen iſſuing out of the Earth is nothing elſe but a ſimple Subject, or Matter, whoſe Particles are ſuſceptible of the different Configurations the acid Salts of the Sea are capable to give them by mixing with them; which Mixture, or Compoſition, is thrown by the Sea on the Shore, where, at a kind of ſtrong Sand Heat, it acquires its laſt Degree of Perfection, by the Rarefaction and Exaltation of its moſt volatile Particles.

Ambergris muſt be choſen neat, dry, and light; of an Aſh-colour, eaſily melted by Heat, and of a ſweet and grateful Smell. 'Tis a very great Strengthener, is cardiack, cephalick, and ſtomachichal; it exhilarates, provokes the Seed, and reſiſts the Malignity of Humours. The Doſe is from 1 Grain to 4. 'Tis alſo us'd in Perfumes.

Essence of Ambergris, (which is the only *chymical* Preparation we'll make of it) is an Extraction of the moſt oily Particles of *Ambergris*, Muſk, and Civet, made in Spirit of Wine, thus: We take 2 Drachms of very good *Ambergris*, as much Sugar-candy, Half a Drachm of Muſk, and 2 Grains of Civet; we mix them together, put the Mixture in a Vial, and pour upon it 4 Ounces of Spirit of Wine very well alcoholiz'd; and having ſtopp'd the Vial, we put it in Digeſtion in a Dunghil for 4 Days; we afterwards take the Vial off the Dunghil, and decant the Liquor, while yet hot, becauſe it congeals eaſily.

This *Eſſence* operates with a greater Efficacy and Strength than the *Ambergris* in Subſtance. The Doſe is from 6 to 12 Drops, in ſome Liquor.

Note, That when *Ambergris* is alone, it has ſcarce any Smell; but when, by Fermentation, its Particles have been put in Motion, it exhales Sulphurs, which tickle agreeably the olfactory Nerve. The Addition of Muſk and Civet produce a good Effect; Sugar-candy ſerves only to extend the Drugs, that they may be eaſier pulveriz'd, and diſſolv'd. The terreſtrial Part left at the Bottom of the Veſſel, may ſerve for Perfumes.

Here ends my Travels through the *Mineral Kingdom*, where I have made ſeveral Diſcoveries, which, I hope, will prove more beneficial to the Publick, than to myſelf; ſince I can aſſure my Readers, that after ſo many different rich Mines diſcover'd, and ſo much Pains taken in the Analyſis of ſo many Metals, and Minerals, I am no richer than I was when I firſt ſet out on my Travels: But, however, as I wiſh for no other Glory than that which conſiſts in the Honour of being ſerviceable to Mankind, I'll proceed on my Journey with the ſame Alacrity as another Traveller does, who has no other Deſign than to enrich himſelf and Family with the Treaſures of both Hemiſpheres; and paſs from the *Mineral* into the *Vegetable Kingdom*, not as a *Botaniſt*, to diſcover the ſeveral Principles of *Vegetables*, ſince it would be but repeating what I have already clearly and accurately deſcrib'd and explain'd in my Treatiſe of *Botany*; but as an Artiſt, to make the Analyſis of thoſe different Principles, by Means of *chymical* Operations.

I'll extract thoſe Principles from *Vegetables* which are better known, and the moſt in Uſe in Medicine, *viz.* from the *Jalap*, *Rhubarb*, *Guaiacum*, *Paper*, *Cinnamon*, *Quinquina*, *Cloves*, *Nutmegs*, *Juniper-berries*, *Meliſſa*, or *Balm-gentle*, *Carduus Benedictus*, *Water-creſſes*, *Roſes*, *Orange-flowers*, *Strawberries*, *Walnuts*, *Sugar*, *Wine*, *Roſemary*, *Vinegar*, *Tartar*, *Soap*, *Manna*, *Opium*, *Aloes*, *Tobacco*, *Turpentine*, *Benzoin*, *Camphor*, *Gum Ammoniack*, *Euphorbium*, *Myrrh*, &c. I'll begin with *Jalap*.

Jalap, Jalapium, or Jalappa, is the Root of a Plant not much unlike our Briony, and therefore by ſome call'd *Brionia Peruviana*, as being brought to us chiefly from *Peru*, and *New Spain*. The Mechoacan and this are reckon'd of a Species, and therefore as this is ſometimes call'd *Mechoacana nigra*, that goes as often by the Name of *Jalapium album*.

As *Jalap* does not appear to have been known to the Antients, it has its Place in Medicine only ſince thoſe Parts of *America*, which produce it, have been traded to by the *Europeans*. That which breaks blackeſt, moſt brittle, ſound, and ſhining within-ſide, is the

the best; by reason the resinous Parts, which give it those Properties, contain its medicinal Virtues.

Jalap purges very well the watery Humours; therefore 'tis prescrib'd, with great Hopes of Success, to the Dropsical and Gouty. The Dose is from 10 Grains to a Drachm, in Broth, or white Wine.

We have no Need to make but one *chymical* Preparation of *Jalap*, which is that of its *Resin*.

RESIN OF JALAP, is a Dissolution of the oily or resinous Parts of *Jalap*, made in Spirit of Wine, and precipitated by common Water; the Operation is conducted thus: One Pound of good *Jalap*, coarsely pulveriz'd, is put into a Matrass, and alcoholiz'd Spirit of Wine is pour'd upon it, that the Liquor may swim over the Powder, to the Height of 4 Fingers: The Matrass is stopp'd with another, to make of it a circulatory Vessel, and after the Joints have been luted with a wet Bladder, the Matter is put in Digestion for 3 Days at a Sand Heat; during which Time, the Spirit of Wine will turn yellowish: At the End of 3 Days the Liquor is decanted, and other Spirits of Wine pour'd upon the Matter left in the Matrass; the Process as before. This done, the Dissolutions are mix'd, filtrated through a grey Paper, put into a glass Alembick, and two Thirds of the Spirit of Wine distill'd at the vaporous Bath, which Spirit of Wine may serve another Time, for the same Operation; what's left in the Alembick, is pour'd into a stone Pan, which is filled up afterwards with common Water. The Matter turns white, like Milk, and is left to settle for a Day; after which, the Water is decanted, and the *Resin of Jalap* found at the Bottom in Form of Turpentine; which *Resin* is wash'd several Times with Water, and being dry'd in the Sun, it grows as hard as common Rosin.

This *Resin of Jalap* purges the Serosities. The Dose is from 6 to 12 Grains, mix'd with some Electuary, or in Pills. In the same Manner are extracted the *Resins* of *Turbith*, *Scammony*, and *Benjoin*.

Note, That some Artists cause the Spirit of Wine to evaporate, and, without Precipitation, find the *Resin* at the Bottom of the Vessel, but it is black, like Pitch. The *Resin of Jalap* must always be mix'd, when administer'd, with some other Remedy capable to extend its Particles; for if it was administer'd alone, it would stick to the inward Membrane of the Intestines, and ulcerate it by its Acrimony. Twelve Grains of this *Resin* are more efficacious than one Drachm of *Jalap*, in Substance.

The next medicinal Vegetable, in our Catalogue, is RHUBARB, *Rhubarbarum*, which is a Root, large, compact, and heavy; yellow without, of a Nutmeg Colour within; of an astringent bitterish Taste, and an agreeable aromatick Smell.

It is surprizing, considering the mighty Use of this Drug, that we should know so little of the Place where the Plant grows that produces it. Some say it comes from the Kingdom of *Boutan*, in the Extremities of *India*; others, that it is found in the Provinces of *Xinsi* and *Suchen*, in *China*; others will have it, that it only grows in *Persia*; and others, on the Confines of *Muscovy*; deriving its Name from *Rha*, the River among us call'd *Wolga*; and *Barbarum*, *q. d.* a Root found by the Barbarians on the River *Rha*.

Rhubarb, in *Latin* call'd *Rhabarbarum Officinarum*, was not known to the Antients; and their *Rhapontiicum*, which, indeed, resembles it, is not the real *Rhubarb*. Good *Rhubarb* steep'd in Water, gives it a Saffron Colour; and when broke looks bright, with somewhat of a Vermilion Cast. Some Druggists have the Art of renewing their old Roots, by dying them of a yellow Hue; but the Cheat is easily known, by handling them; the Colour wherewith they colour them sticking to the Fingers.

Rhubarb purges gently by Stool, in Bindings; 'tis proper for Diarrhœa's, to strengthen the Stomach, help Digestion, stop Vomiting, for Worms, and the Jaundice. The Dose is from Half a Scruple to a Drachm.

We make, likewise, but one single *chymical* Preparation of *Rhubarb*, which is its *Extract*.

EXTRACT OF RHUBARB, is a Separation of its purest Part from the terrestrial, made in the following Manner: We bruise 6 or 8 Ounces of good *Rhubarb*, which we put to steep warm, for 12 Hours, in a sufficient Quantity of Water of Chicory, so that the Water swims 4 Fingers above the *Rhubarb*; making, afterwards, the Infusion to boil, for about a Minute; then we strain the Liquor through a Flannel, pouring again the same Quantity, as before, of Water of Chicory, on the *Rhubarb*, and leaving it to steep for the same Space of Time; after which, we strain it through the same Flannel; we mix our Impregnations, or Tinctures, and after we have left them to settle, we filtrate them, and cause the Humidity to be evaporated at a slow Sand Heat, till the Matter be reduc'd to the Consistence of thick Honey. 'Tis what we call *Extract of Rhubarb*, which we keep in a Pot.

This *Extract of Rhubarb* purges gently, in binding and strengthening; 'tis proper for the Diarrhœa, Pain in the Stomach, and to excite the Appetite. 'Tis particularly esteem'd for the Maladies of the Liver. The Dose is from 10 Grains to 2 Scruples.

M. *Boulduc* informs us, in the *Memoirs of the Royal Academy of Sciences*, that he drew Extracts from *Rhubarb*, both with Water, and Spirit of Wine; but the purgative Virtue, he says, was much more visible in the former than the latter; which shews, that it consists more in a Salt than in an Oil. He observes, however, that *Rhubarb* taken in Substance, has a still better Effect; and adds, that of all the Operations he perform'd on it, none gave any Credit to the common Opinion, which ascribes an astringent Quality to *Rhubarb*.

GAYACK, or GUAIAC, *Guaiacum*, (the third medicinal Vegetable in our Catalogue we are to operate upon) is a Wood brought from the *Indies*, call'd also *Lignum vitæ*, by the *Spaniards Ligno santo*.

Guaiac grows equally in the *East* and *West Indies*; that of the latter is brought in large Pieces, some of them weighing 4 or 500 Pounds, by which it is distinguish'd from the former. The *Guaiac* Tree is the Height of our Walnut-Tree, and is distinguish'd into 2 Kinds, Male and Female, only differing as their Leaves are more or less round; being all equally green, their Flowers blue, and of a starry Form, having a little Orange Fruit, about the Size of a small Nut.

The Wood *Guaiacum* is extreamly hard and heavy, and on that Account us'd as Ebony, in Mosaick Work, *&c.* but its principal Use is in Medicine, being found to warm, dry, rarefy, attenuate, attract, and promote Sweat and Urine; proper for the Rheumatism, Pox, and Gout, in Decoction.

The best *Guaiacum* is that in large Pieces, of a dusky Colour, fresh, gummy, heavy, of an agreeable Smell, and a brisk pungent Taste; the Bark sticking close to the Wood. The Bark of *Guaiacum* has as much Virtue as the Wood itself; the Rind is of no Efficacy, so that to make a sudorifick Decoction, or Ptisan of the Wood, they first pare off all the white Part, which, in Reality, is the Rind, and only chip, or rasp the hard solid Part, which is black, heavy, and resinous. The Chirurgeons frequently substitute Box Wood instead of *Guaiacum*, and with equal Success.

The Resin drawn from *Guaiacum* is much more effectual in venereal Cases, than either the Wood or Bark: It is brought us in large Pieces, not unlike common Rosin, but very different in Respect of Smell; the former, when cast on the Coals, yielding a very agreeable balsamick Fume.

There is no other *Chymical* Operation made in *Guaiac* but its Distillation, which is a Separation of its Liquid from its terrestrial Part; made in the following Manner: We fill three Quarters of a large Retort with Chips or Dust of *Guaiac*; we place the Retort into a reverberatory Furnace, and having adapted a large

large Recipient to it, we begin the Diſtillation by a Fire of the firſt Degree for the Diſtillation of the Phlegm, by heating ſlowly the Veſſel. We continue the Fire in that State 'till we ſee nothing more dropping into the Recipient, which ſhews that all the Phlegm is diſtilled, which Phlegm we throw away as uſeleſs; and having re-adapted the Recipient to the Neck of the Retort, and luted exactly the Joints, we increaſe the Fire by Degrees, 'till we ſee white Clouds coming out into the Recipient, and continue it in that State 'till it has done diſtilling. We then leave the Veſſels to grow cold, unlute them, and pour what we find in the Recipient into a Funnel garniſhed with grey Paper, and adapted to a Bottle; the Spirit runs thro', and leaves in the Funnel a black, thick, and very fœtid Oil, which we pour into a Vial to be kept for Uſe.

This Oil is a very good Remedy for the Caries of the Bones, for the Tooth-Ach, and to cleanſe old Ulcers. We can rectify it as we have done that of *Carabe*, and uſe it inwardly for the Epilepſy, Palſy, and to bring out the After-birth. The Doſe is from two Drops to ſix.

We can alſo rectify the Spirit of *Guaiac*, by Diſtillation through an Alembick, to ſeparate from it ſome Impurities, which could have come out along with it in the Diſtillation. This Spirit expels the Humours by Perſpiration and provokes Urine. The Doſe is from half a Drachm to a Drachm and a half. It is mixed with Honey-Water to cleanſe Ulcers.

Some Artiſts extract a fixed Salt of *Guaiac* from the Coals left in the Retort, by Lixiviation; but as we have already ſeveral better Sudorificks, and Aperitives, than the fixed Salt of *Guaiac*, we think it needleſs to take that Trouble.

Note, That the Gum of *Guaiac* may be diſtilled as well as the Wood, and a great deal of Oil extracted from it, with a very ſmall Quantity of Spirit. This Oil has the ſame Virtues of that of the Wood; but the Spirit is a little more acrimonious than the common. This Spirit is eſteemed for the Maladies of the Eyes, when rectified; a Drachm of it mixed with four Ounces of Water, is called *Aqua Opthalmica Baſci*. Some wanting to render the Oil of *Guaiac* more penetrating and more deterſive, mix'd in the Retort, with each Pound of *Guaiac* an Ounce of common dried Tobacco, but then the Oil extracted from it is too acrimonious to be taken inwardly. It is very good for the Caries of the Bones, to cleanſe Ulcers, and to reſiſt the Gangrene.

PAPER, from the *Greek* παπυρος, (which falls next under our Hand) is a thin flexible Leaf, uſually white, artificially prepared of ſome vegetable Subſtance, chiefly to write upon with Ink.

Paper borrows its Name from the *Papyrus* of the Antients, which was made of a Ruſh of that Name, otherwiſe called *Biblus*, growing chiefly in *Egypt* about the Banks of the *Nile*; though it was alſo found in *India*; and *Gualandinus* aſſures us, he ſaw in *Chaldæa*, at the Confluence of the *Tygris* and *Euphrates*, large Fens, wherein with his own Hands he plucked a *Papyrus* differing in nothing from that of the *Nile*. *Strabo* ſpeaks likewiſe of a Sort of *Papyrus* growing in *Italy*; but we do not find it was ever uſed for making Paper. Ours is made of Linnen or Hempen Rags, beaten to a Pulp in Water, and moulded into ſquare Sheets of the Thickneſs required. This Kind of Paper is of ſome Uſe in Medicine; for Pieces of it are lighted, to make Women, attacked with the hyſterick Vapours, receive the Smoke of it, who are very often eas'd by that diſagreeable Smell, as by ſeveral others of the ſame Nature. There is an Oil and a Spirit extracted from *Paper* in the following Manner:

We fill a ſtone Retort with Pieces of white *Paper*, folded in the Form of a ſmall Cork, and place that Retort into a reverberatory Furnace; and having adapted a large Recipient to it, and luted exactly the Joints, we make under it a very ſmall Fire, for two Hours, to heat the Retort, and afterwards increaſe it with two or three Coals; when we have continued it thus for three Hours, we puſh it at laſt to the third Degree, and then the Recipient fills with white Clouds. We put out the Fire, when it has done diſtilling, and unluting the Veſſels, when they are cold, we pour all the Liquor contained in the Recipient into a Funnel, garniſhed with grey *Paper*, the Spirit runs through, and a thick black Oil remains on the Filtre of an ungrateful Smell, which we keep in a Vial.

This Oil of *Paper* is a very good Remedy for Deafneſs, by introducing, from Time to Time, ſome Drops of it, on a Piece of Cotton, into the Ear. It is good likewiſe for the Tooth-Ach, and the Hyſterick Vapours, when put under the Noſe of Women afflicted with that Diſorder.

The Spirit can be rectified, by Diſtillation, at a Sand-Heat, and is then a very good Aperitive, eſpecially to provoke Urine. The Doſe is from ſix to twenty Drops, in ſome Liquor appropriated to the Diſtemper.

Note, That the Oil of *Paper* is good for Deafneſs, becauſe that Malady is often cauſed by a phlegmatick Humour, which being dried and hardened in the Ear ſtops the Auditory Nerve, but the Oil of *Paper*, by diſſolving and rarefying that Humour, diſpoſes it to be evacuated. 'Tis for the ſame Reaſon that it diſſipates the Noiſe in the Ear, which is nothing but Wind ſhut in by that Humour.

It is Time we ſhould recreate our Noſe offended by the diſagreeable Smell of the foregoing Operations, with ſomething capable to flatter the olfactory Nerve; therefore we'll order our Man *Spagerick*, to bring in *Cinnamon* for the Subject of the next following one.

CINNAMON is an agreeable aromatick Spice, brought from the *Eaſt-Indies*; and the Bark of a Tree, growing in the Iſland of *Ceylon*, and, as ſome ſay, alſo in *Java*, and in *Malabar*.

The *Cinnamon-Tree* grows in Woods like other Trees. It never riſes high: Its Leaves reſemble thoſe of the Laurel, both as to Subſtance and Colour; when they firſt begin to open they are red as Scarlet; and if rubbed between the Hands, yield an Odour more like that of Cloves than of *Cinnamon*. *Seba* ſays he found them blue, and of the Bigneſs of the *Italian* Bean Flowers. The Fruit reſembles an Acorn or Olive; and has neither the Smell nor Taſte of the Bark. When boiled in Water, it yields an Oil, which, as it cools and hardens, becomes as firm and as white as Tallow; and is called by the *Dutch Cinnamon-Wax*: Its Smell is agreeable, and they make Candles of it, which are only allowed to be burnt in the King's Palace. It is alſo uſed in Phyſick as a Balſamick and Healer.

The chief Virtue of the *Cinnamon-Tree* is in its Bark; which when green, appears to be double; its exterior Surface being browniſh, and the Inner of the common *Cinnamon* Colour. It is then Diviſible into two Barks of different Colours; but theſe drying together become inſeparable, and paſs for the ſame Bark; the browniſh Colour changing in Proportion as it dries. When the *Cinnamon* is freſh taken from the Tree, it is flat, has little Taſte, Smell, or Colour; but it twiſts and convolves as it dries, in Form of a Stick or Cane, whence the *French* call it *Canelle*. By thus exhaling its ſuperfluous Humidity it acquires a ſweet briſk Smell and a ſharp pungent Taſte. It is ſaid that after the Tree has been ſtripped of its Bark, in three Years it forms a new one, which is as good as the firſt; but this is not very probable, or rather it is falſe; a Tree once bare never recovers its Coat, but decays and dies. The *Ceyloneſe* cut down their *Cinnamon-Trees* as ſoon as they are ſtripped cloſe to the Root: From the Stump ſpring up new ones, which in five or ſix Years Time become Trees fit for barking. A Sort of Pigeons, which feed on the Fruit of *Cinnamon-Trees*, are the chief Agents in propagating it: In carrying it to a Diſtance to their Young, they drop it in various Places, where

where it takes Root. Some hold that the ſmall Branches of the ſame Tree make the *Caſſia*, but that muſt be a Miſtake. The Natives draw from the Roots of the Tree a Liquor, in all Reſpects reſembling Camphire, and which in Reality is a true Camphire.

Cinnamon, to be good, muſt have a briſk, agreeable Taſte, and a bright brown Colour. Its Qualities are to heat and dry; to promote the Menſes, to fortify the Spirits, and to help Digeſtion; but its chief Uſe in Medicine is an Aſtringent; with which Intention it is preſcribed in Diarrhæas and Weakneſs of the Stomach.

The *Caſſia Lignea* differs from *Cinnamon*, in that it is not ſo pungent, nor ſo odorant; it grows mucilaginous in the Mouth when chewed, which *Cinnamon* does not.

The *Chymical* Preparation of *Cinnamon* is that of its *Oil*, or *Eſſence*, and of its *æthereal Water*, and its Tincture extracted thus: Four Pounds of the beſt *Cinnamon* are bruiſed, and put to ſteep in ſix Quarts or twelve Pounds of common Water; the whole is left in Digeſtion in an earthen Veſſel, well corked, for nine or ten Hours; and the Infuſion poured afterwards into a large copper Alembick, to which is adapted a large Recipient, and the Joints thereof are exactly luted with wet Bladders; then three or four Pounds of the Liquor are diſtilled at a great Fire, and the Alembick being unluted afterwards, the diſtilled Water in the Recipient is decanted into the Alembick, and the Oil found at the Bottom of the Recipient into a Vial, which muſt be very well corked; the Liquor is diſtilled as before, and the Oil found at the Bottom of the Recipient mixed with that in the Vial: Thoſe Cohobations are reiterated 'till no more Oil aſcends, then the Fire is put out, and the Water in the Recipient rectified in the ſame Manner we rectify the Spirit of Wine.

The *Oil of Cinnamon* is an excellent Corroborative; it ſtrengthens the Stomach, and helps Nature in its Evacuations; it is given to accelerate the Birth, to Women in Labour, and to promote the Menſes; it alſo excites the Seed.

The *Spirituous Water of Cinnamon* has the ſame Virtues. The Doſe of the Water is two or three Drachms; and that of the Oil from ſix to fifteen.

The *Tincture of Cinnamon* is an Exaltation of the moſt oily Particles of *Cinnamon* in Spirit of Wine, prepared in the following Manner.

We put what Quantity we pleaſe of bruiſed *Cinnamon* into a Matraſs, and pour upon it Spirit of Wine 'till it riſes a Finger's Breadth above the *Cinnamon*. We ſtop well the Matraſs, and put it, in Digeſtion, in a Dunghil, during four or five Days: By that Time the Spirit of Wine will have took a Tincture of *Cinnamon*; we ſeparate that Tincture from the *Cinnamon*, filtrate it, and keep it in a Vial well corked.

This Tincture is an excellent Cardiack, it ſtrengthens the Stomach, and rejoices all the vital Parts: The Doſe is leſs than that of *Cinnamon-Water*.

Our next Operations are to be on *Quinquina*, or *Quina Quinæ*, called alſo *China China*, and *Kin Kina*.

QUINQUINA is a medicinal Bark, brought from the *Weſt-Indies*, called alſo by Way of Eminency the *Bark*; and *Cortex Peruvianus*, the *Peruvian Bark*, from the Country whence it is brought; and popularly the *Jeſuit's Bark*, becauſe at its firſt Introduction chiefly ſold and adminiſtred by the Jeſuits.

The Tree which yields this *Bark* grows in divers Provinces of *Peru*, but chiefly *Quenca*, *Ayavaca*, and *Loxa*. The beſt and fineſt comes from the Mountains fourteen Leagues round the City of *Loxa*. That Tree is tall, and its Trunk thicker than a Man's Thigh, tapering from the Root upwards, but without any Branches 'till near its Top, where they grow regular, as if lopp'd by Art, and with their Leaves forming an exact Hemiſphere. The Bark is blackiſh on the Outſide, but ſomtimes mixed with white Spots, where grows a Kind of Moſs, by the *Spaniards* called *Barbas*. Its Leaves reſemble the Leaves of our Plumb-Trees.

The *Spaniards* diſtinguiſh four Sorts of this precious Bark, *viz.* the *Caſcarilla Colorada*, or reddiſh Bark: *Amarylla*, or yellowiſh; *Creſpilla* or Curling: and *Blanca* whitiſh. The *Colorada* and *Amarylla* are reckoned the beſt: The *Creſpilla* is the Produce of the ſame Sort of Tree growing in a cold, froſty Climate, which impairs the Quality of the Bark, and renders it whitiſh on the Outſide, of Cinnamon Colour within, and unfit for medicinal Uſe. For the *Blanca* it is procured from another Species of the Tree, of a much bigger Trunk, the Leaves of a lighter green Colour, and the Bark of a very thick ſpongeous Subſtance, whitiſh on the Outſide; being withal ſo tough as to require the Force of an Ox to ſlice it from the Tree. When firſt cut down it is as bitter as the beſt Sort, and has then the ſame Virtue in the Cure of intermitting Fevers; but when dry, and kept any Length of Time, it grows inſipid and good for nothing. In Reality both Sorts are found to have much ſurer and quicker Effects when green than when dry; ſo that the *Europeans* only come in for the ſecond Virtues: What is worſe, the bad Sort is in great Plenty, and the good very ſcarce and hard to come at; for which Reaſon with a little of the fine Bark ſent yearly to *Panama* for *Europe*, large Quantities of the worſe Sort are mixed.

The Seaſon for cutting the Bark is in *Auguſt*, the only dry Time in the Country. The Cutters are *Indians*, provided each with a large Knife and a Bag. When they have ſliced down the Bark as high as they can reach, they faſten ſhort Sticks with Withs to the Tree at proper Diſtances, like the Steps of a Ladder, and thus mount and ſlice to the very Top; when the Bag is full they carry it to the low Country, to a neighbouring Hut, to dry, which is done by ſpreading it in the open Air, and frequently turning it. If it happen to have been cut wet, they carry it directly to the Low Country to dry; otherwiſe it loſes its Colour, turns black and rots. After a Tree has been barked it requires eighteen or twenty Years to grow again.

Mr. *Arrot*, a *Scotch* Surgeon, who had gathered the Bark in the Place where it grows, and from whom we receive this Account, by Means of Mr. *Gray*, is of Opinion, that the better Sort of Bark will ſoon be at an End, or at leaſt inacceſſible, partly by Reaſon of its Diſtance from any inhabited Place, and the Impenetrability of the Woods where it grows, and partly by the Want of *Indians* to cut it, whoſe Race, through the Cruelty of the *Spaniards* is like to be totally extinct.

The *Quinquina* was but little known in *Europe* 'till the Year 1640. The Jeſuits of *Rome* firſt brought it in Vogue in *Spain* and *Italy* in 1649; and in 1650, the Cardinal *De Lugo*, of that Order, brought it into *France*. It was at firſt ſold for its Weight in Gold: When reduced into a Powder, it is called, by ſome Nations, the *Cardinal's Powder*; among us uſually the *Father's Powder*, *Pulvis Patrum*. It met with a World of Oppoſition at firſt. *Chiflet* and *Plempius* diſtinguiſhed themſelves againſt it; but it is now univerſally allowed one of the greateſt and beſt Remedies within the whole Province of Medicine, and the moſt ſecure to ſuſpend the Ferment of intermitting Fevers.

The Manner of uſing it has been for a long Time that of taking from half a Drachm to one Drachm of it, in Powder, at the Beginning of the Paroxiſm, in ſome white Wine; but that Method has been often changed ſince. The beſt, in my Opinion, and for the Succeſs thereof I could anſwer, from my own Experience; is to have an Ounce of it macerated in two Pints of good old red Wine, for forty-eight Hours, in *Balneo Mariæ*; and after the Infuſion has been percolated, to take every Day, at ſome Diſtance from the Paroxiſm, three half Glaſſes of it, which muſt be continued for fifteen Days at leaſt.

The Patient ought to be well purged before he takes the *Quinquina*, otherwiſe the Humours, which that

Remedy ſtops, or fixes, for ſome Time, beginning to ferment a-new, would cauſe, perhaps, Maladies more dangerous than that which it has cur'd; as the Aſthma, Dropſy, Rheumatiſm, Dyſenteria, Suppreſſion of the Menſes in Women, and ſeveral others; which have but too often ſucceeded to the Cure of Fevers by Means of the *Quinquina*.

The Uſe of *Quinquina* is alſo very dangerous, for thoſe who have Abſceſſes in their Body; for it fixes the Humours for ſome Time, which fermenting afterwards, cauſe the Gangrene in thoſe Parts. The Patient muſt abſtain from Milk, and other Aliments of the like Nature, while he takes the *Quinquina*, becauſe of the caſeous Parts of thoſe Aliments, which would be infallibly ſtopp'd, and corrupted in the Veſſels.

The *Quinquina* may alſo be adminiſter'd in Bolus's, and Pills, by reducing it into Powder, and mixing it with a ſufficient Quantity of Syrup of Wormwood. The Doſe is from Half a Drachm to 3 Drachms. One Doſe muſt be taken at the Beginning of the Paroxiſm, and the Day following a ſmall Doſe, Morning and Night, at ſome Diſtance from Meals. The large Doſe carries off, ordinarily, the Paroxiſm; and the ſmall ones hinder the Fever from returning 15 Days afterwards, as it does often, when thoſe Precautions have been neglected. The Patient muſt take it thus twice a Day, for 8 Days ſucceſſively; and once a Day for 8 Days more afterwards; in that Manner he takes the *Quinquina* for 15 Days ſucceſſively; and, to be ſafer in the Cure, he ſhould take every 12*th* Day, for 2 *Months* together, a Drachm of *Quinquina*, in Powder, in white Wine, or a Bolus.

It is likely enough that the *Quinquina* fixes the Humour of Fevers almoſt in the ſame Manner as an Alkali ſtops the Motion of an Acid, *i. e.* that it keeps it embarraſs'd, and forms a Sort of *Coagulum* of it; that Humour remains at Reſt, and in ſome Meaſure condenſed, and even for about 15 Days reſiſts the violent Shocks it receives from the Blood in its Circulation; till at laſt, unable to reſiſt any longer thoſe frequent Aſſaults, 'tis carry'd off by the Impetuoſity of that Torrent, where 'tis put into a new Ferment, by the Agitation of the Spirits the Blood is loaded with, and thereby cauſes the Return of the Fever. The Patient may eaſily perceive that this Humour is thus fix'd during the Time the Fever leaves him, by his being heavy, and in ſome Meaſure puffed up. But if after the Body has been well purg'd, the Uſe of the *Quinquina* is continu'd, it fixes the Humour in ſuch a Manner, as to diſpoſe it to be precipitated, and entirely evacuated, either by Stool, or by Urine, or by inſenſible Perſpiration, that the Fever returns no more: For the Spirits of the Body expel, as much as they can, all that diſturb the Œconomy of their Parts.

The Action of the *Quinquina* is ſeldom perceiv'd, except in ſome Conſtitutions, which it purges, a little, at firſt, eſpecially when taken in Infuſion: This Effect hinders the Fever from being ſo ſoon ſtopp'd, but is not prejudicial to the Patient; on the contrary, by evacuating thus the ſuperfluous Humours before they are fix'd, it cures ſurely the Fever. Therefore the Practice of ſome Phyſicians who mix Purgatives with the *Quinquina*, is not to be blam'd; but the Patient ſhould never be purg'd after the Fever has been ſtopped by the *Quinquina*; for Purgatives, by rarefying the Humour, and putting it into a new Ferment, occaſion the Return of the Fever.

The Patient ſhould feed on ſolid Aliments, and drink Wine while he takes the *Quinquina*, to abſorb and ſoften the acrimonious and penetrating Salt contain'd in that Remedy, which otherwiſe would act on the Membranes of the Stomach, and irritate them, if it was to find nothing to damp its too great Activity; but that Sort of Diet muſt be moderate, otherwiſe it would chance to throw the Patient into a continual Fever.

Our *chymical* Preparations of *Quinquina*, will be, its *Tincture*, and its *Extract*.

The Tincture of Quinquina, is an Extraction of its moſt oleaginous and looſe Particles in Spirit of Wine, made in the following Manner: We put into a Matraſs 4 Ounces of good *Quinquina*, coarſely pulveriz'd, and when we have pour'd upon it enough Spirit of Wine to raiſe it four Fingers Breadth above the Matter, we ſtop the Matraſs with another, to make of it a circulatory Veſſel, which we lute exactly, and place in Dung to the vaporous Bath for 4 Days, ſhaking the Veſſel from Time to Time; the 4 Days elapſed, we unlute the Veſſels, and filtrate the Tincture, which is red, through a grey Paper, and keep it in a Bottle, well cork'd.

This *Tincture* is a Febrifuge for Intermitting Fevers, which muſt be taken 3 or 4 Times every Day, at ſome Diſtance from the Paroxiſm, and the Uſe continu'd for 15 Days ſucceſſively. The Doſe is from 10 Drops to a Drachm, in Water of Centaury, or of Juniper-berries, or Wormwood, or in Wine.

Note, That this *Tincture* operates like the Infuſion of *Quinquina* abovemention'd, and is more commodious, becauſe it may be kept as long as we pleaſe; but it is not ſo efficacious, becauſe Wine is more proper to extract the ſaline and ſulphurous Subſtance of a Mixt, than Spirit of Wine. If we ſteep ſome Coriander, or Cinnamon, in Wine, or Water, diſſolve ſome Sugar in the Colature, and mix it with the *Tincture of Quinquina*, we ſhall have a Sort of febrifuge Ratafea, which may be eaſily given to Children.

The Extract of Quinquina, is a Separation of the moſt ſubſtantial Particles of the *Quinquina*, made thus: Eight Ounces of *Quinquina* are put to ſteep, warm, in a ſufficient Quantity of diſtill'd Water of Walnuts, for 24 Hours, which being expir'd, the Infuſion is made to boil gently, and after it has been percolated with a ſtrong Expreſſion, the *Quinquina* left is put to ſteep again in other Water of Walnuts, and the Infuſion made to boil, and percolated, as before; which done, the Colatures are mix'd together, and left to ſettle: When ſettled, the clear Liquor a-top is decanted, and the Humidity left, made to evaporate, in a glaſs or ſtone Veſſel, at a ſlow Sand Heat, to the Conſiſtence of thick Honey.

This *Extract* is a Febrifuge like the preceding ones. The Doſe is from 12 Grains to Half a Drachm, in Pills, or diſſolv'd in Wine.

Note, That Wine, and Spirit of Wine, are very proper for the Tincture of *Quinquina*, but not ſo proper for the *Extract*; becauſe in the Evaporation the Spirit carries off the moſt ſubtile Particles of the Mixt: The Walnut-water is beſt for this Operation; for beſides that it diſſipates leſs of the volatile Subſtance, it is itſelf a Febrifuge. Inſtead of this Water, may be employ'd that of Juniper-berries, Centaury, or Wormwood. This *Extract* is commodious for thoſe who can't bear the Taſte of the Remedy; becauſe it may be taken wrapp'd in Wafers, or ſome other Thing, to diſguiſe the Taſte. It muſt not be imagin'd that it is poſſible to ſeparate the febrifuge Virtue of *Quinquina* by Diſtillation; on the contrary, it would be entirely deſtroy'd; ſince the Diſtillation would break the Harmony and Union of the Particles, and there would remain but a ſtinking Spirit, and a burnt Oil, of no Uſe. From the *Quinquina*, we'll paſs to our Operations on *Cloves*.

Clove, is an aromatick Fruit, ſomewhat in Form of a Nail, whence the Term *Clove*, from the *French Clou*, Nail, bore on a Tree of the ſame Name, by the *Latins* alſo call'd *Caryophyllum*. The *Clove-tree* was antiently very common in the *Molucca* Iſlands, where all the *European* Nations, who traffick in Spices to the *Indies*, furniſh'd themſelves with what Quantity of *Cloves* they requir'd. At preſent, there are ſcarce any found but in the Iſland of *Ternate*; the *Dutch*, in order to render themſelves Maſters of that Merchandiſe, having

having dug up the *Clove-trees* of the *Molucca's*, and transplanted them to *Ternate:* So that there are none now to be had but through their Hands.

The Tree is very large, it only bears Fruit once in 8 Years, but holds, at this Rate, an hundred: Its Bark resembles that of the Olive-tree, and its Leaves those of the Laurel. Its Fruit falling takes Root, and thus multiplies itself without any Culture. It is said, it will not allow any other Herb or Tree near it; its excessive Heat drawing to it all the Humidity of the Soil. When the *Clove* first begins to appear, it is of a greenish white Colour; as it ripens, it grows brown. Nor is there any Preparation necessary to render it such as it comes to us, but to dry it in the Sun; whatever some Authors talk of first steeping it in Sea-water, to preserve it from Worms. Towards the Head it separates into four, and the four Quarters being shap'd angle-wise, their Apices meeting at the Top, form a kind of Crown, somewhat in the antique Manner.

Cloves must be chosen dry, harsh to the Touch, well grown, of a dusky red Colour, a hot aromatick Taste, an agreeable Smell, and, if possible, with the Shank on.

Their Properties are to warm and dry, to correct a fetid Breath, sharpen the Sight, dissipate Films in the Eyes, fortify the Stomach and Liver, and stop Vomiting. They are us'd in Apoplexies, Palsies, Lethargies, and other Diseases of the Brain.

There is but one *chymical* Preparation made of *Cloves*, *per descensum*, which is its Oil, extracted in the following Manner:

We take several Drinking-glasses, which we cover each with a Linnen Cloth ty'd round it, taking Care that there should be a Cavity in the Middle, where we put the *Cloves*, in Powder, covering each Glass with a small earthen Pan, or the Bottom of a Scale, which can stop it so close that no Air may enter between the Edge of the Covercle and that of the Glass: We fill those Pans, or Bottoms of Scales, with hot Ashes, to heat the *Cloves*, and procure the Distillation to the Bottom of the Glass, first of a small Quantity of Spirit, and afterwards of a clear and white Oil: We continue the Fire till nothing more falls to the Bottom of the Glass, then separate the Oil through a Funnel garnish'd with a grey Paper, and keep it in a Vial, well cork'd.

This Oil is very good in malignant Fevers, and the Plague; it fortifies the Brain and Stomach. The Dose is 2 or 3 Drops, in some Liquor appropriated to the Distemper. It must be mix'd with some Sugar-candy, or the Yolk of an Egg, else it could not be dissolv'd in Water. It is also good for the Tooth-ach, but is apt to burn the neighbouring Teeth.

Note, That some dissolve Opium in the *Oil of Cloves*, and use that Dissolution for the Tooth-ach. This Remedy appeases the Pain in a very short Time, but it is to be fear'd that the Patient should grow deaf afterwards, though that Accident happens but seldom.

NUTMEG, (which will be the Subject of our next Operations) call'd by the *Latins Nux Muschata*, is a delicate Kind of aromatick Fruit, or Spice, brought from the *East-Indies*; whereof there are 2 Kinds, *Male* and *Female*. The *Female* is that chiefly us'd among us; its Form is round, its Smell agreeable, and its Taste hot and pungent. The *Male* is a wild Nut, of a longish Form, and without either Taste or Smell; yet sometimes put off, while yet in the Pod, for the *Female*.

Nutmegs are inclos'd in four different Covers; the first a thick Husk, somewhat like that of our Walnuts; under this lies a thin reddish Coat, of an agreeable Smell, and aromatick Taste, call'd Mace, by others, though improperly, Flower of *Nutmeg*; this wraps up the Shell, and opens in Proportion as the Pod grows. The Shell, which makes the third Cover, is hard, thin, and blackish; under this is a greenish Film, of no Use; and in this is found the *Nutmeg*, which is properly the Kernel of the Fruit. Every *Nutmeg* has a little Hole in it, which some ignorantly take for a Defect.

The best *Nutmegs* are those gather'd in *April*. They must be chosen heavy, of a whitish brown Colour, well marbled without-side, reddish within, having a fat unctuous Moisture, and an agreeable Smell.

Nutmegs comfited green, are excellent to fortify the Stomach, and restore the natural Heat. They are particularly esteem'd carminative, *i. e.* good to expel Wind. The Powder call'd *Duke*, esteem'd a sovereign Remedy against Rheums, is only *Nutmeg* pulveriz'd with Sugar, and a little Cinnamon.

The sole *chymical* Preparation of *Nutmegs* is the Oil, extracted thus: Sixteen Ounces of good *Nutmegs* beat in a Mortar till they are almost reduc'd into a Paste, are put on a *Tamis*, and the *Tamis* cover'd with a strong Piece of Linnen Cloth, and an earthen Pan; which done, it is plac'd in a Bason full of Water, and the Bason put on the Fire, that the Vapour of the Water may heat, gently, the *Nutmeg*; when 'tis found, by touching the Pan, that it is so hot, as to be impossible to bear the Hand upon it, the *Tamis* is taken off, and the Matter being pour'd into a Linnen Cloth, and the four Corners of the Cloth quickly ty'd together, 'tis put to the Press, between 2 wooden Plates made very hot; then the earthen Pan is plac'd under it, to receive an Oil, which congeals in cooling. The Matter is press'd strongly, till it gives no more Oil, which Oil is kept in a Pot, well stopp'd.

The *Oil of Nutmegs* is an excellent Stomachick, apply'd outwardly, or given inwardly. The Dose is from 4 Grains to 10, in Broth, or some other Liquor; 'tis mix'd with Oil of Mastich, to anoint the Region of the Stomach.

The JUNIPER-BERRIES are the Basis of those comfortable Draughts, which have, for several Years past, so well exhilerated the Spirits of the Vulgar, notwithstanding the strong Opposition they have met with from the better Sort of People, and all the best Endeavours used to banish it from a civil Society, as but too often contrary to the good Order which should reign among us; that I do not question, in the least, that I shall please a vast Number of Persons, if I demonstrate plainly, by the several *chymical* Preparations I'm going to make of that Fruit, that it has several excellent Qualities, and can produce very good Effects, if used with Discretion, and Moderation.

The *Juniper-berries* are the Fruit of the Shrub *Juniperus*, much used in Medicine. *Etmuller* had a vast Opinion of *Juniper-berries*. They are certainly cephalick, nerval, stomachical, cardiack, aperitive, carminative, hysterick, proper against Infection, and an inveterate Cough. These *Berries* must be chose new, large, well-fed, and of a strong and aromatick Smell.

We'll make 3 *chymical* Preparations of *Juniper-berries*, *viz.* their *Tincture*, *Extract*, and *Distillation*.

The TINCTURE OF JUNIPER-BERRIES, is Spirit of Wine impregnated with the most essential Substance of the *Berries*; which Impregnation is conducted thus: We bruise what Quantity we please of *Juniper-berries*, very ripe, large, and fleshy, and put them into a Matrass, leaving Half of it empty; we pour upon the *Berries* as much Spirit of Wine as will raise it 5 or 6 Fingers Breadth above the Matter, then stirring the whole together, and stopping well the Matrass, we put it in a warm Digestion for 4 or 5 Days, or till the Menstruum has took a brownish red Colour; which done, we filtrate the *Tincture*, and keep it in a Bottle, well cork'd.

This *Tincture* is good for the Nerves, fortifying, resolutive, proper for the Palsy, Lethargy, Apoplexy, and the Plague. 'Tis used outwardly and inwardly. The Dose is from 20 Drops to 2 Drachms.

The EXTRACT OF JUNIPER-BERRIES, is a Separation of the purest and most dissoluble Substances of the *Berries* from their terrestrial and coarser Particles; made thus: Four or five Pounds of the best *Juniper-berries* are bruised, and put in Infusion for 12 Hours, in

in 9 or 10 Pints of common Water, and afterwards boil'd gently for about an Hour and a Half; the Decoction is percolated through a Linnen Cloth, with Expression, and the Grounds put again to boil in other Water; and the Decoction having been percolated, as before, both Decoctions are mix'd together, and left to settle: When settled, they are percolated through a Flannel, and the Humidity put to evaporate in an earthen Pan, at a slow Fire, to the Consistence of Honey.

This *Extract* is cardiack, stomachical, proper to resist bad Air, and to expel bad Humours by Perspiration; for malignant Fevers, the Plague, to fortify the Brain and Nerves, to promote Urine, for an inveterate Cough, and all Sorts of Cholicks. The Dose is from Half a Drachm to 3 Drachms.

The DISTILLATION OF JUNIPER-BERRIES, is an Extraction of the most essential Particles of the *Berries*; done in the following Manner:

Juniper-berries having been bruised in a Mortar, are put into a large Copper Cucurbite, and a great deal of River-water pour'd upon it, that it may surpass the Matter about 2 Feet; the Cucurbite is cover'd with its Refrigeratory, and having adapted a Recipient to it, and the Joints luted with a wet Bladder, the Vessel is put in Distillation at a pretty strong Fire, which is continu'd in the same Condition till the Matrass is full to the Top; then it is taken off, and another put in its Place, which is left to be fill'd in the same Manner: There rises in the Neck of the Matrass an essential Oil, which is separated from the Water with some Cotton, and kept in a Bottle, well cork'd; which done, the Cucurbite is uncover'd, and the distill'd Water pour'd into it, to be distill'd again, and when distill'd, and the essential Oil a-top gather'd, the Cucurbite is empty'd of its Grounds, other *Juniper-berries* put into it, bruised as before, and the distill'd Water, with as much River-water pour'd upon them as is necessary; then the Vessel is put in Distillation, as before, and the essential Oil, which will also be raised in this Distillation, separated from the Water, till the Artist has enough essential Oil, which is of a brown Colour, and of a very good Smell of *Juniper*.

This *essential Oil of Juniper-berries* is incisive, attenuative, aperitive, proper for the Nephritick, Stone, Lethargy, Apoplexy, and Hystericks. The Dose is from 15 Drops to 20, in Water of *Juniper-berries*. 'Tis also us'd outwardly, for the Palsy, Sciatica, and the Debility of the Nerves.

The distill'd Water from which the essential Oil has been separated, is cephalick, stomachical, sudorifick, and aperitive. The Dose is from 1 Ounce to 5.

The Grounds left in the Alembick after the Distillation, are mix'd with some Wood of *Juniper*, and reduc'd into Ashes, and of those Ashes a Lixivium is made, and the Lixivium, after it has been well filtrated, made to evaporate, to extract from it a fix'd Salt of *Juniper*; which is attenuative, aperitive, resolutive, proper for the Stone and Gravel. The Dose is from 12 Grains to 2 Scruples.

Though we have not mention'd *Acorns* in the Catalogue of Vegetables we promised to operate upon, we'll nevertheless make it, in this Place, the Subject of one single *chymical* Preparation.

ACORN is the Fruit of Oak, which every Body knows; and it is employ'd with its *Cupola*, in several astringent Remedies. It is good for the windy Cholick, After-pains of lying-in Women, and the Dysenteria. The Dose is from a Scruple, in Powder, after its Husk has been taken off, to four, in some Liquor appropriated to the Distemper.

An *Oil* is extracted from *Acorns* in the following Manner: We have 23 or 24 Pounds of *Acorns* dry'd in the Sun, which we divest of their *Cupola's*, and first Husk, and reduce them into a subtile Powder; we put what Quantity we please of it into a stone Mortar, and pour upon it Oil of Small-nuts, newly drawn by Expression; we stir the Powder with a wooden Pestle, till it be in a Paste, a little more liquid than Almonds pounded, which Paste we beat, then, with the same Pestle, for the Space of an Hour, and put it afterwards into a stone Pot, which we stop very well, and put it for a Fortnight in Digestion in *Balneo mariæ*, or a hot Dunghil, agitating the Matter from Time to Time with a wooden Spatula; we have it afterwards heated by a stronger Fire in *Balneo mariæ*, or at the vaporous Bath; which done, we put it to the Press in a strong linnen Bag between two wooden Plates very hot, whereby a yellowish Oil is extracted from it: We mix that Oil with a sufficient Quantity of other *Acorns*, in Powder, to make a Paste of it, which we put in Digestion for another 15 Days, and afterwards to the Press, to extract the Oil, as before, reiterating the Infusion, Digestion, and Expression, twice more: We have then the *Oil of Acorns*, which we keep in a Bottle, well cork'd.

This *Oil* (which is but an Oil of Small-nuts impregnated with the most oily and essential Part of the *Acorns*) is proper for the Spitting of Blood, Dysenteria, and the Cholick. The Dose is from 2 Drachms to an Ounce. The Parts of the Body are also anointed with it, to beautify the Skin, and to fortify those Parts.

Note, That to extract the Oil of Small-nuts, vulgarly call'd *Spanish*-nuts, in *French Avelines*, they are broken, and the Kernels pounded in a stone Mortar, till they are reduc'd into a Paste, then put to the Press between two wooden Plates heated: There comes out of it an Oil, which is good for the Acrimonies of the Thorax. The Dose is from 2 Drachms to an Ounce. 'Tis also used to soften and polish the Skin.

The DISTILLATION OF MELISSA, is conducted thus: A good Quantity of *Melissa*, newly gather'd, and while in its Strength, is pounded in a Mortar, and put afterwards into a large earthen Pot; a strong Decoction of other *Melissa* is made, and enough of it pour'd upon that in the Pot to humect it; which done, the Pot is cover'd, and having been left in Digestion for 2 Days, the Matter is pour'd afterwards into a large Copper Cucurbite, which being cover'd with its Capital, is plac'd in a Furnace, a Recipient adapted to it, and the Joints exactly luted: Then a Fire of the second Degree is made under it, to distil about Half the Water which has been pour'd upon the *Melissa*; the Vessels are left to grow cold, and being unluted afterwards, there is found in the Recipient a very good Water of *Melissa*, which is pour'd into a Bottle, and exposed uncork'd for 5 or 6 Days to the Sun, and afterwards cork'd, and kept.

Water of Melissa is used in the Hystericks, Palsy, Apoplexy, and malignant Fevers. The Dose is from 2 to 6 Ounces.

What is left in the Alembick, is expressed strongly through a linnen Cloth, and the Expression having been left to settle, is filtrated afterwards, and the Humidity evaporated in a glass or stone Vessel at a slow Fire, to the Consistence of thick Honey; which is the *Extract of Melissa*.

The *Extract of Melissa* is a good Remedy for all Diseases proceeding from the Corruption of Humours; it operates by Perspiration, or Urine. The Dose is from a Scruple to a Drachm, dissolv'd in its own proper Water.

The Grounds left after the Expression, are dry'd, and afterwards burnt with a good Quantity of other *Melissa*, which has been dry'd likewise; out of the Ashes is extracted, by Lixiviation, an alkali Salt, in the same Manner we have done the Salt of Guaiac. This Salt is aperitive and sudorifick. The Dose is from 10 Grains to a Scruple, in Water of *Melissa*.

Note, That the Water, Extract, and fix'd Salt of all the other odoriferous Plants, can be extracted in the same Manner, as those of Sage, Marjoram, Thyme, Hyssop, *&c.* The discalceated Carmelite Friars of *Paris* have invented a composed, or ma-

magisterial *Water of Melissa*, which is much in Vogue throughout all *Europe*, and call'd, in *French*, by their Name, *l'Eau des Carmes*, of which this is the Description: They take 6 Handfuls of the most tender, green, and most odoriferous Leaves of *Melissa* newly gather'd; 2 Ounces of the yellow exterior Rind of Lemons, thinly par'd; Nutmeg, and Coriander-seed, an Ounce of each; Cinnamon and Cloves, Half an Ounce of each: They pound and bruise well all the Ingredients, put them into a Cucurbite of Glass or Stone, and pour upon them white Wine and Brandy, of each 2 Pounds; they stop well the Vessel, and leave it in Digestion for 3 Days, and put it afterwards in Distillation in *Balneo mariæ*, whereby they have an aromatick spirituous Water, very proper for the Hystericks, Maladies of the Brain, to fortify the Heart and Stomach, for Palpitations, fainting Fits, and to resist Venom. The Dose is from a Drachm to an Ounce.

The Distillation of a Plant which is not odoriferous, such as CARDUUS BENEDICTUS, is conducted in this Manner: We pound in a Mortar a good Quantity of *Carduus Benedictus*, while in its greatest Strength, and having fill'd the third Part of an Alembick with it, we draw, by Expression, a sufficient Quantity of the Juice of other *Carduus Benedictus*, which we pour into the Alembick, that the Herbs swimming in the Juice may not be in Danger of sticking to the Bottom of the Cucurbite during the Distillation: We adapt a Capital, with its Recipient, to the Cucurbite, and having luted exactly the Joints, we cause to be distill'd, at a Fire of the second Degree, about Half the Liquor.

The Water of *Carduus Benedictus* is sudorifick; 'tis used in the Small Pox, Plague, and malignant Fevers.

We express through a Linnen Cloth what remains in the Alembick, and after we have left the Juice to settle, and filtrated it, we cause two Thirds of the Humidity to be evaporated in a glass or stone Vessel, at a slow Fire, and carry the Vessel to a cool Place, where we leave it for 8 or 10 Days, during which Time, there are Crystals form'd round the Vessel, which we separate, and keep in a Vial, well cork'd. These Crystals are call'd *essential Salt*, which is sudorifick. The Dose is from 6 to 16 Grains, in its own Water.

The Extract of *Carduus Benedictus* is made in the same Manner we have made that of *Melissa*.

Note, That Chicory, Fumitory, Scabious, and all other Plants which are not odoriferous, and have a great deal of Juice, are to be distill'd like the *Carduus Benedictus*; and this Method will serve to extract the Salt of any Plant. When we want but the *Salt fix'd* of some Plants, we have no Need of the Distillation of the Plant to extract it, since we can do it by only drying the Plant, burning it, to reduce it into Ashes, and throwing those Ashes into boiling Water, leave them there, to steep; we afterwards filtrate the Infusion, and causing the Humidity to be evaporated in an earthen Pan, we find left in the Vessel a brownish Salt, which we calcine afterwards in a Crucible till it grows white; which done, we have it melted in Water, filtrate the Dissolution, and have all the Humidity evaporated in an earthen Pan: There remains a very pure and white Salt, which we keep in a Bottle, well cork'd. The Manner of burning Plants for the Extraction of their Salt, is not so indifferent as could be imagin'd, since there is a greater Quantity of Salt extracted by one Method, than by another. The best of these Methods is, While in the Country, in fair Weather, and when there is a great Quantity of Herbs to be burnt, to dig a Hole in the Earth, to put the Plant, well dry'd, into it, to set Fire to it, and to cover the whole with Stones, or other Earth, leaving no other Aperture than what is necessary for the Admission of Air, to keep up the Fire: The Plant will be burnt gently, and calcin'd. The Operation is ended when the Earth a-top is quite cold; then the Hole is uncover'd gently, and the Ashes are found in it, adhering to one another by Lumps, which is a Mark of a good Calcination, and of the reasonable Quantity of Salt they contain. The best Method to burn Plants in a Laboratory, is, to have a Furnace of Fusion, and placing that Furnace under the Chimney, to fill it up with the Plant, well dry'd; and having set Fire to it, to cover the Furnace with its Dome, and little Chimney. The Plant burns slowly; when it is half consum'd, the Furnace is fill'd up with another Quantity of it, continuing thus to put in the Plant till it is all gone, or the Furnace is full of Ashes; then they are left to calcine, for if the Plant has been crowded into the Furnace every Time it was put into it, the Ashes will remain lighted for 10 or 12 Hours after they have done smoaking: They are gather'd when quite cold.

Note, also, That the Distillation of these Waters gives us not only an Idea of what happens in the World with Regard to Rain, and Dew; but demonstrates, likewise, how Fountains are form'd on the Tops of Mountains; for the subterraneous Fires must heat the Waters found ordinarily in great Quantity in the Bowels of those Mountains, which annoy very much those who work in the Mines: Those Waters being heated, there arise from them Vapours which spread throughout the whole Mountain, in penetrating the Earth. Most of those Vapours are condensed in their Way, and can form Fountains in several Places; or else they fill with Water the inward Cavities of the Mountain: But that Part of those Vapours which is more rarefy'd, and the volatile Particles thereof more exalted, and put into a more rapid Motion, by a greater Heat, ascend to the Top. 'Tis there where it meets with a kind of Capital to receive it, and to resolve it, by its Coldness, into small Drops, which joining together, form larger Drops; and those large Drops uniting, likewise, form small Streams of Water, and from the Junction of those small Streams ensue small Brooks, which Brooks finding a Cavity, or other small Aperture in the Mountain, chuse their Course, and form a Fountain. These Waters are often impregnated with some Particles of the Metals or Minerals they have run upon, then they are medicinal; but sometimes are as pure as common Water. This is a very good Opportunity to answer the Gentleman who was pleased to ask I should give him an *Analysis* of Spring-water; if he means an *Analysis* of Mineral-waters, I'll have the Pleasure to obey his Orders, in my short Treatise of *Mineral-waters*, under the Letter *M*; but if he means only common Spring-water, the small Quantity of essential Salt it contains is so much exalted, that it is entirely dissipated in the Evaporation, let the Fire be ever so slow; or so weak, and so well wrapp'd in the terrestrial Particles left at the Bottom, or round the Vessel, after the Evaporation, that it can by no Means be render'd sensible, much less demonstrated. Those Sort of Waters are distinguish'd, not by the Principles they are composed of, all drown'd in the Phlegm, but by their Ponderosity; which Ponderosity proceeds as well from the Phlegm, which being not sublimated by the saline Particles to be met with in the Minerals, follow their natural Propensity downwards, as from the terrestrial Particles that Phlegm is mix'd with; and are more or less esteem'd, and more or less healthful, as they are more or less ponderous; the lightest being always preferr'd to those which are found heavy; because being supposed, then, to contain less Terrestreity, more essential Salt, and more sulphurous Particles, all much exalted, and dignoscible at their Taste, they are supposed, likewise, of an easier Digestion. We'll instruct our Readers how to weigh Waters, in our Treatise of *Mineral-waters*.

The

The SPIRIT OF WATER-CRESSES, is extracted by pounding that Plant, newly gather'd, and while in its greatest Vigour, in a stone Mortar, till it be reduc'd to the Consistence of a Paste; and having fill'd Half of a large stone Vessel with it, pouring upon it Juice of other Cresses, newly extracted, and a little warm, till it rises above the Matter to the Height of Half a Foot, or thereabouts; to this Mixture is added a Pound of Beer Yest: The whole having been well stirr'd together, the Vessel is plac'd in the Sun, or at the Heat of a Dunghil, during 3 or 4 Days, or till the Liquor, which will have fermented, has done boiling; then all the Matter is pour'd into a large Copper Cucurbite, and its Capital, or Refrigeratory, being adapted to it, it is plac'd on the vaporous Bath, where a Recipient is adapted to the Cucurbite, and its Joints exactly luted, and a moderate Fire made under it, whereby 2 Pounds of the Liquor are distill'd, which is its most spirituous Part, and which must be pour'd into a Matrass with a long Neck, to which a Capital, with its Recipient, is adapted, and the Joints are exactly luted, for the Distillation of Half the Liquor, which Half is a very good Spirit of *Water-cresses*; to be kept in a Bottle, well cork'd.

This *Spirit* is a very good Remedy against the Scurvy, Dropsy, Rheumatism, Stone, Gravel, Nephritick, Yellow Jaundice, King's Evil, and the Retention of the Menses; it purifies the Blood, and promotes the Seed and Urine. The Dose is from 15 Drops to a Drachm, in some Liquor appropriated to the Distemper.

What remains in the Matrass is a very good Water of *Cresses*, which has the same Virtues of the *Spirit*, but the Dose must be larger.

Note, That after the *Spirit* of *Water-cresses* has been extracted, 'tis proper enough to distil Part of the Humidity left in the Cucurbite; but this Operation wants a stronger Fire, because the Water can't ascend with that Facility the *Spirit* does. This Water will be better than that extracted by the common Method; because the essential Salt having been volatiliz'd by the Fermentation, a great Quantity of it is left in the Water.

ROSES (which will be the Subject of the next following Operations) are divided into two general Species, *viz.* wild *Roses*, which grow in the Hedges, call'd *Cynorrhodon*, or *Cynosbaton*; and domestick *Roses*, cultivated in Gardens.

Wild Roses are simple, and not so odoriferous as the domestick pale *Roses*, but more than the red *Roses*. They are esteem'd astringent; the Button left after the Leaves are fallen, which do not last long, grows big, and ripens like other Fruits: It is gather'd in Autumn, when very red, and employ'd in aperitive Ptisans: It is also prepar'd into a Conserve, by taking out its Down and Seeds, putting it in a Cellar, between two earthen Pans, where it grows soft, pounding it in a stone Mortar, straining the Pulp through a Tamis, and preserving it with twice its Weight of Sugar.

This Conserve is an excellent Diuretick, and consequently very good for the Stone and Gravel, to stop Diarrhœa's, Spitting of Blood, and to fortify the Stomach.

There are several Sorts of *domestick Roses:* Those used in Medicine are damask *Roses*, common white *Roses*, muscadine *Roses*, and red *Roses*.

The simple *damask Roses* are more odorant, and better than the double, because their Virtue is gather'd in a less Number of Leaves. They are purgative, rarefy the Blood, and purify it; but they excite Vapours. Their Smell alone rarefies often the Pituita of the Brain, which falling into the Stomach, causes Vomiting. It is with these *Roses* that the Syrup of *Roses*, and several other purgative Compositions, are made.

The *muscadine Roses* are thus call'd, because they smell of Musk. Their Colour is white, and never blow but in Autumn. They are a great deal more purgative than the damask *Roses*, especially in hot Climates, where 3 or 4 can purge.

Common white Roses are very odoriferous, and are used but in Distillations.

Red Roses have but very little Smell; they are gather'd before they are quite blown, because when entirely blown, they lose much of their Virtue. They are astringent, and with them are made Conserve of *Roses*, Honey of *Roses*, and several other Compositions: They are also dry'd to be employ'd in several Remedies, and are more astringent then, than while they are fresh gather'd.

We'll make two *chymical* Preparations of *Roses*, *viz.* the *Water of Roses*, and the *Spirit of Roses*.

WATER OF ROSES, is a Separation of the most aqueous and odoriferous Part of the *Roses*, by Distillation, conducted thus: Ten or 12 Pounds of *Roses* the most odoriferous, gather'd some Time before Sunrising, in dry Weather, and separated from their Pecule, are pounded in a Mortar till they are reduc'd to the Consistence of Paste; and being put afterwards into a large Copper Cucurbite, the Juice of other *Roses*, newly extracted, is pour'd upon them, till they are sufficiently humected; then a bolt Head, with its Refrigeratory, and a Recipient, are adapted to the Cucurbite, and the Joints exactly luted: The Cucurbite, thus prepar'd, is plac'd in a Furnace on a moderate Fire, and the Water in the Refrigeratory chang'd as often as it grows hot: When about Half the Liquor is distill'd, the Fire is put out, for Fear the Matter should stick to the Bottom; the Vessels are separated, and what remains in the Cucurbite strain'd through a Cloth with Expression; the Liquor, or Juice, extracted from it, is put into a Cucurbite, and two Thirds of its Humidity distill'd at a slow Fire: This second Distillation is mix'd with the first, and afterwards put in Bottles, which are left, uncork'd, exposed to the Sun, for several Days, to excite the Fragrancy of it; and the Bottles are afterwards cork'd.

Rose Water is employ'd in Injection to stop Gonorrhœa's; 'tis also used to wash the Eyes after the Small Pox, in Inflammations, and to cleanse off the Gum, when mix'd with Plantane-water: As for the other Virtues attributed to it, except that of being good in Perfumes, they are chimerical. The Water of all other fragrant Flowers is extracted in the same Manner.

Note, When it is wanted to draw the Water of Flowers which have but little Humidity, as Flowers of *Lavender*, *Betony*, *Sage*, *Rosemary*, &c. they must be humected with white Wine, and having been left 2 Days in Maceration, they are distill'd in *Balneo mariæ*, or at the vaporous Bath.

The SPIRIT OF ROSES, is an Exaltation of the most oily, subtile, and essential Part of the *Roses*, into a Liquor, made in the following Manner: Fourteen or 15 Pounds of damask *Roses*, with their Pecule, are pounded, and put into a large stone Pot, one Third whereof, at least, is left empty; 6 Pounds of Juice of other *Roses*, but of the same Kind, which has been heated, and 8 or 10 Ounces of Beer Yest, mix'd with it, are pour'd upon it: The Mixture is well stirr'd with a Stick, and the Pot, being well stopp'd, is put in Digestion, in a Dunghil, for 3 or 4 Days, which being expir'd, the Matter is put in Distillation to the vaporous Bath; and when about 4 Pounds of the Liquor is distill'd, the Fire is put out, the Recipient taken off, and what it contains rectify'd in a Matrass, in the same Manner we have done the Spirit of Water-cresses.

The *Spirit of Roses* fortifies the Heart and Stomach, either taken inwardly, or apply'd outwardly: It is administer'd to Men for Syncopes, and the Palpitations of the Heart; but is not proper for Women, because it excites the Vapours. The Dose is from Half a Drachm to 2 Drachms, in *Rose-water*.

Though *Flowers of Oranges* have not much Strength in these cold Climates, we'll nevertheless prepare the *Water of those Flowers*, such as they can be found here,

here, in the following Manner: We'll gather 6 Pounds of *Flowers of Oranges*, while in their greatest Perfection, and put them into a stone Jug, adding to them 6 Ounces of the first Rind of Sevil Oranges, cut in small Pieces: we pour upon it white Wine, and Water of Melissa, 4 Pounds of each, and having stirr'd the Mixture with a Stick, we stop the Jug, and place it in Digestion in a Dunghil for 2 Days; which being elapsed, we unstop the Vessel, and pour quickly the Matter into a large stone or glass Cucurbite, adapting to it a Capital, and a Recipient; and after we have exactly luted the Joints, we put the Cucurbite in *Balneo mariæ*, or at the vaporous Bath, and by a pretty strong Fire distil all the Humidity, which will be a very good *Orange-flower Water*; to be kept in a Bottle, well cork'd.

This *Orange-flower Water* is very good against Vapours, and the Malignity of Humours; 'tis given in the Hystericks, to promote the Menses, and to fortify the Stomach and Brain. The Dose is from 2 Scruples to an Ounce.

WALNUT-TREES furnish us, likewise, with an excellent Water, which we distil thus: We pound in a Mortar 10 or 12 Pounds of Flowers of *Walnut-trees*, which we put in a large Copper Cucurbite, and make afterwards a strong Decoction of other Flowers of *Walnut-trees*, with which, after it has been percolated, we humect the Flowers in the Cucurbite, so that they may swim in the Liquor; we adapt a bolt Head, with its Refrigeratory, and a Recipient, to the Cucurbite, lute exactly the Joints, and place it in a Furnace, making under it a slow Fire, for the Distillation of about Half the Liquor; we leave the Fire to go out, and percolate, with Expression, what remains in the Alembick, putting the Colature in the same Vessel, to distil two Thirds of it: We mix these distill'd Waters together, and keep them.

We pour out the Liquor left in the Alembick, and percolate it, after it has been left to settle, through a Flannel, and have the Humidity evaporated in a stone Pan, to the Consistence of Pills.

We gather *Walnuts*, while yet very young, and having bruised them in a Mortar, we fill Half of a large Cucurbite with them, and pour upon them all the Water extracted from the *Walnut-tree* Flowers; and having adapted afterwards to the Cucurbite a bolt Head, with its Refrigeratory, and a Recipient, and left it in Digestion for 24 Hours, we conduct the Distillation, and make the Extract as before.

We take a sufficient Quantity of *Walnuts*, when they are fit to be pickled, bruise them, and fill with them about a Third of the Copper Cucurbite, and pour upon them our Water of *Walnuts*; we cover the Cucurbite with a bolt Head, and its Refrigeratory, and having left the Matter in Infusion for 24 Hours, we adapt a Recipient to the Vessel, lute exactly the Joints, and proceed to the Distillation of the Humidity, as before.

This *Water of Walnuts* is an excellent Sudorifick; it is given in intermitting and malignant Fevers, the Plague, and the Small Pox; it fortifies the Stomach, gives Ease in the windy Cholick, and appeases the Hystericks. 'Tis also used against the Bite of venomous Beasts. The Dose is from 1 Ounce to 7.

We percolate and purify the Liquor left in the Cucurbite after the Distillation, and have the Humidity evaporated in a stone Pan, at a Sand Heat, to the Consistence of Syrup; then we mix our two former Extracts, and make of the three Substances a sole Extract, by placing again the Pan on the Fire, and reducing the Matter to the Consistence of Pills, which we keep in a Pot.

This *Extract of Walnuts* is sudorifick, aperitive, and febrifuge; it may be given to raise Obstructions, resist the Malignity of Humours, and to fortify the Stomach. The Dose is from a Scruple to a Drachm, in Pills, or dissolv'd in its own Water. *Sugar* is to be the Subject of our next Operations.

SUGAR is the essential Salt of a kind of Canes, or Reeds, growing in great Plenty in the *East* and *West-Indies*; particularly in *Madera*, *Brasil*, and the *Caribee* Islands.

It is a Question not yet decided among Botanists, &c. whether the Antients were acquainted with this Cane, and whether they knew how to express the Juice from the same? What we can gather from the Arguments advanc'd on either Side, is, that if they knew the Cane, and the Juice, they did not know the Art of condensing, hardening, and whitening it, and in Consequence knew nothing of our *Sugar*. Some antient Authors, indeed, seem to mention *Sugar* under the Name of *Indian Salt*; but they add, that it ooz'd out of the Cane of itself, and there harden'd, like a Gum, and was even friable between the Teeth, like our common Salt; whereas *Sugar* is expressed by a Machine made on Purpose, and coagulated by Fire. Theirs, *Salmasius* tells us, was cooling, and loosening; whereas ours, the same Author asserts, is hot, and excites Thirst. Hence some have imagin'd, that the antient and modern *Sugar* Plants were different; but *Matthiolus*, and *Dioscorides*, c. 72. make no Doubt that they were the same: And others are even of Opinion, that ours has a laxative Virtue, as well as that of the Antients, and that it purges Pituita.

The Generality of Authors, however, agree, that the antient *Sugar* was much better than the modern, as consisting only of the finest and maturest Parts, which made themselves a Passage, and were condensed in the Air. The Interpreters of *Avicenna* and *Serapian* call *Sugar*, *Spodium*; the *Persians*, *Tabazir*; and the *Indians*, *Mambu*. *Salmasius* assures us, that the *Arabs* have used the Art of making *Sugar*, such as we now have it, above 800 Years. Others produce the following Verses of *P. Terentius Varro Atacinus*, to prove that it was known before *Jesus Christ*.

Indica non magna nimis arbore crescit arundo,
Illius extentis premitur radicibus humor,
Dulcia cui nequeunt succo contendere mella.

Another Question among Naturalists, is, Whether the *Sugar* Canes be originally of the *West-Indies*, or whether they have been translated thither from the *East*? The Learned of these last Ages have been much divided on the Point; but since the Dissertation of F. *Labat*, a Dominican Missionary, publish'd in 1722, there is no longer Room to doubt but that the *Sugar* Canes are as natural to *America*, as *India*: All that can be said in Favour of the latter, is, that the *Spaniards* and *Portuguese* first learn'd from the Orientals the Art of expressing its Juice, boiling it, and reducing it into *Sugar*.

The first Elaboration given to *Sugar*, is, in making the Juice coming out of the Canes, when pressed and broke between the Rollers, run through a little Canal into the *Sugar* House, which is near the Mill, where it falls into a Vessel, whence it is convey'd into the first Copper, or Caldron, where it is only heated by a slow Fire, to make it simmer; with the Liquor is here mix'd a Quantity of Ashes and Quick-lime; the Effect of which Mixture, assisted by the Action of the Fire, is, that the unctuous Parts are separated from the rest, and raised to the Top in Form of a thick Scum, which is kept constantly skimming off. The Juice, in the next Place, is purify'd in a second Copper, where a brisker Fire makes it boil, and all the Time the casting up of its Scum is promoted by Means of a strong Lye, composed of Lime-water, and other Ingredients. This done, it is purify'd, and scumm'd in a third Boiler, wherein is cast a kind of Lye, that assists in purging it, collects together its Impurities, and makes them rise to the Surface, whence they are taken with a Skimmer. From the third it is remov'd to a fourth Boiler, where the Juice is further purify'd by a more violent Fire; and hence to a fifth, where it is brought to the Consistence of a Syrup. In a sixth Boiler the Syrup receives its full Coction, and here the Impurities, left from the former Lyes, are taken away by a new Lye, and a Water of Lime and Allum cast into it. In this last Copper there is scarce found

found one Third of what was in the first, the rest being wasted in Scum.

By thus passing successively a Number of Coppers, the *Sugar* Juice is purify'd, thicken'd, and render'd fit to be converted into any kind of *Sugar*.

SUGAR-CANDY, *Saccharum Candum*, or *Crystallinum*, is *Sugar* depurated, and crystalliz'd, thus: The *Sugar* to be used therein is first dissolv'd in a weak Lime-water, then clarify'd, skimm'd, strain'd through a Cloth, boil'd, and put in Forms, or Moulds, that are traversed with little Rods, to retain the *Sugar* as it crystallizes: These Forms are suspended in a hot Stove, with a Pot underneath, to receive the Syrup that drops out at the Hole in the Bottom, which is half stopp'd, that the Filtration may be the gentler. When the Forms are full, the Stove is shut up, and the Fire made very vehement. Upon this the *Sugar* fastens to the Sticks that cross the Forms, and there hangs in little Splinters of Crystal. When the *Sugar* is quite dry, the Forms and the *Sugar* are taken out, candy'd. Red *Sugar-Candy* they make, by casting into the Vessel where the *Sugar* is boiling a little Juice of the *Indian* Fig; and if it is desir'd to have it perfum'd, they cast a Drop of some Essence in, when the *Sugar* is putting into the Forms. This Method of making *Sugar-Candy*, is that of F. *Labat*, practised in the *Caribees*; the Method in *Europe*, describ'd by *Pomet*, is somewhat different.

White *Sugar-Candy* they make of white refin'd *Sugar*, boil'd with Water into a thick Syrup, in a large Pan. It is candied in a Stove, where it is carry'd, inclosed in brass Peels, crossed with little Rods, about which the Crystals fasten as they are form'd. The Fire of the Stove is kept equable for 15 Days, after which, the *Sugar* is taken out of the Peels to be dry'd. Red or brown *Sugar-Candy* is made like the white, except that they only use brown *Sugar*, and earthen Pots.

BARLEY SUGAR, *Saccharum Hordeatum*, is a *Sugar* boil'd till it is brittle, and then cast on a Stone anointed with Oil of sweet Almonds, and form'd into twisted Sticks, about the Length of the Hand, and the Thickness of a Finger. It should be boil'd up with a Decoction of Barley, whence it takes its Name; but in lieu thereof they now generally use common Water, to make the *Sugar* the finer. To give it the brighter Amber Colour, they sometimes cast Saffron into it. It is found very good for the Cure of Colds and Rheums.

Sugar is very good for the Maladies of the Breast and Lungs, because it attenuates and incises Phlegm, which embarrasses sometimes the Fibres of those Parts; but it is to be used as little as possible in the Hystericks, because it excites the Vapours. Red *Sugar* is also often employ'd in detersive Clysters.

Its Sweetness consists in an acid essential Salt, wrapped in the oily Particles *Sugar* is composed of; for the Texture of those oily Particles being like a curious Piece of Philagry, perforated throughout with an infinite Number of small and imperceptible Holes, and every Particle of a globulous Form; those Globules sliding gently on the gustatory Nerve, cause its being agreeably irritated by the smooth Angles of those saline Particles they contain, put in Motion by the Heat of the Mouth.

We'll make but one single *chymical* Preparation of *Sugar*, which is its *Spirit*; which *Spirit* is a Mixture of the Acid of the *Sugar* with Flowers of Sal Ammoniack; made thus: We pulverize and mix 8 Ounces of *Sugar-Candy* with 4 Ounces of Sal Ammoniack, and fill a third Part of a stone or glass Cucurbite with the Mixture; we adapt a Capital to it, and a Recipient, lute exactly the Joints, and place it in a Furnace on Sand, making a small Fire in the Furnace for an Hour, to heat the Vessel, then increasing it to the second Degree, a Liquor will drop into the Recipient, and towards the End of the Operation white Vapours rise to the Capital, which when we perceive, we increase the Fire till nothing comes out of the Cucurbite; which we unlute, when cold, and find in the Recipient 4 Ounces of a brown Liquor of a bad Smell, and a small Quantity of black Oil sticking to its Sides. We pour the whole into a glass Cucurbite, and having adapted a Capital and a Recipient to it, and luted exactly the Joints, we distil, at a Sand Heat, 3 Ounces and a Drachm of a very acid Spirit; clear, agreeable to the Taste, and without any Smell of *Empyreume*.

This *Spirit of Sugar* is a very good Aperitive against the Gravel and Dropsy; it is proper to stop Diarrhæa's and Dysenteria's; some believe it good for the Diseases of the Breast. The Dose is from 10 Drops to an agreeable Acidity, in some Liquor appropriated to the Distemper. What remains at the Bottom of the Cucurbite may be used to clean old Ulcers.

We could very well regale ourselves, in our Laboratory, with some Glasses of that enlivening Juice, WINE, which is to be the Subject of our next Operations, to wash down the Smoak our Throats are fill'd with, after so many laborious Preparations we have made of so many different Sorts of Mixts, if our penurious Condition of Author had not forc'd us to content ourselves with what we justly want, of that divine Liquor for our *chymical* Preparations, that Liquor which serv'd to desalterate the Gods themselves, and was pour'd by *Ganimede* into the Cup of the great *Jove*; that Liquor which banishes Melancholy, and inspires Mortals with Mirth, even while under the greatest Affliction, and the greatest Blockhead with Wisdom; that Liquor which uncases an Hypocrite of his borrow'd Skin, and makes, sometimes, a Phanatick speak true; that Liquor, as often the Source of all Evils, as it is of all Kinds of Felicity; since when used without Moderation, it deprives us of our Reason, and reduces us to a despicable Condition, even beneath that of Brutes, capable of all that's bad, and incapable of any Good: It makes a Priest forget that he is the Minister of the living God, a Woman forsake the Modesty natural to her Sex; it renders a Monarch incapable of governing himself and others; a Judge deaf to the Dictates of the Laws he is to administer, since he can't so much as hear those of his Reason. It excites Tumults, Disorders, Jars, Quarrels, Divisions; causes Profanations, Sacrileges, Blasphemies, Murders, and all that's the most contrary to the good Order which should subsist in a civil Society: But, praised be Heaven, Fortune has took great Care to shelter us against all those Dangers; for if it can be supposed that we have some Reason left, she has reduc'd us to the Impossibility of ever drowning it in *Wine*; which we do not consider as a very great Hardship, since we have never had any Inclination to be rank'd among *Bacchus*'s Favourites.

WINE, *Vinum*, is a brisk, agreeable, spirituous, and cordial Liquor, drawn from the Fruit of the Vine, hence call'd *Wine*. *Wine* is more or less coarse, as it abounds more or less with Tartar.

When white *Wine* is made, the *Must*, or white Grapes, is left to ferment alone; but red *Wine* must have fermented on the Rape of the Grape: Therefore red *Wine* is more loaded with Tartar than white, and remains longer in the Body. The *Wines* of hot Climates are ordinarily more tartarous than others, because of the abundance of Salts they draw from the Earth. Muscat, and *Spanish Wine*, are not made to ferment till after a considerable Part of the Phlegm has been evaporated, or by the Heat of the Sun, or that of Fire; which is the Cause that they are glutinous as Syrup. However, many different Sorts of *Wine* can be made, as many different Sorts of Fermentation can be excited in the *Must*.

In order to discover what passes in that Fermentation, we must, previously to it, take Notice, that the *Must* is a sweet Liquor, which raises no Vapours to the Head to inebriate, whatever Quantity be drank of it. If it be distill'd, there ascends, first, a great Quantity of insipid Water, and afterwards a stinking Oil, with a small Portion of weak Spirits, which are but an essential Salt resolv'd; and, lastly, it remains

a terrestrial Mass, out of which can be extracted a Quantity of fix'd Salt, by Lixiviation. Among all these Substances, can't be found those Spirits which make Brandy, and, nevertheless, when *Must* has fermented some Time, it makes a *Wine*, out of which can be extracted a considerable Quantity of inflammable Spirits. This Effect is produc'd by the great Quantity of essential Salt contain'd in the *Must*, which essential Salt, by the violent Efforts it makes in the Fermentation, to break through the Texture of the oily Particles it is wrapp'd in, lacerate, and divide those oily Particles, till, by its subtile and sharp Points, it has rarefy'd them into a Spirit: These Efforts cause the Ebullition of the *Wine*, and, at the same Time, its Purification; for they separate and disperse its coarser Particles, which appear in Form of Scum, over the Liquor; a Part thereof sticks, and is petrify'd at the Side of the Cask; and the other is precipitated to the Bottom, and are what we call Tartar and Lee.

What happens in the Fermentation of *Wine*, can serve much towards the Explanation of several Diseases, and of the Small Pox in particular; for it may be reasonably supposed, that in the Small Pox the Blood boils, and ferments in the Vessels, nearly in the same Manner *Wine* ferments in the Cask; the small Pustules which rise on the Flesh, are a Tartar separated from the Blood, towards the Skin, just as Tartar is separated from the *Wine* towards the Sides of the Cask; and therefore produce the same Effect, by corroding the Skin. Children are more subject to this Malady than grown Persons, because their Blood, like *Must*, is more subject to Fermentation. The Small Pox happens ordinarily but once in our Life, neither does *Must* ferment but once.

From these general Observations on *Wine*, we'll pass to our *chymical* Preparations of it, which we reduce to three, *viz.* the *Distillation of Wine into Brandy*, *Spirit of Wine*, and the *Spirit of Wine with Tartar*.

For the DISTILLATION OF WINE INTO BRANDY, we fill a large Copper Cucurbite half full of *Wine*, cover it with a Refrigeratory, adapt a Recipient to it, and lute exactly the Junctures; and afterwards raise the Liquor with a little Fire, till about a fourth Part be distill'd, or till we perceive that what falls into the Recipient is not at all inflammable.

Note, That *Brandy* is a Spirit of *Wine* full of Phlegm, usher'd out with it in the Distillation. *Brandy* can be extracted from all Sorts of *Wine*, but some *Wines* give more *Brandy* than others; for Example, the *Wines* made in the Neighbourhood of *Orleans*, *Paris*, and in *Britanny*, give more *Brandy* than others which seem stronger; because those *Wines* which appear strong, being loaded with a great Quantity of Tartar, have their Spirits as if they were fix'd; whereas the others, having but a moderate Quantity of Tartar, leave their Spirit looser. There are several Means used to try the Goodness of *Brandy*; first, it is put in Glasses, to see its Colour, which should be white, and clear; 'tis tasted, the best leaving less Acrimony in the Mouth. Secondly, An equal Quantity of divers *Brandies* to be compar'd together, is burnt, in a Place shelter'd from the Wind, till the Spirits being quite exhausted, the Flame goes out; then the Quantities of Phlegm left in the Glasses are compar'd together, and the *Brandy* which has left the least Phlegm is the strongest. Thirdly, A little Oil of Olives is put in Glasses, and the *Brandies* to be try'd pour'd upon it; that where the Oil will ascend soonest a-top, is the most phlegmatick, and consequently the weakest. Fourthly, That *Brandy* will bear the Test, or Proof, which, in pouring into a Glass, forms, a-top of it, a little white Lather, which, as it diminishes, makes a Circle call'd by the *French Brandy* Merchants the *Chapelet*; by the *English* the *Bead*, or *Bubble*. When the *Wine* is drank, there happens in the Body a Separation of its Spirits, in some Measure like that caused by Distillation; for being heated by the Intestines, the most volatile Particles are separated from its coarser Substance, and those Particles penetrating all the Pores, Part of them mix with the Blood, and rarefy it; whence it happens, that *Wine* exhilerates the Heart, and strengthens the Body: But as those Spirits are inclinable to a still greater Exaltation, the greater Part of them ascend to the Brain, where they accelerate the Motion of the animal Spirits, and thereby render them capable of performing their respective Functions with a greater Alacrity and Ease. Hence that Quickness of Apprehension, and Sublimity of Thought, when *Wine* is used with Moderation. But if *Wine*, moderately taken, proves beneficial to the Body, it is also attended with dangerous Consequences, when drank to Excess; for the spirituous Particles of that Liquor ascending in too great a Quantity to the Brain, they circulate there with so much Rapidity, that they interrupt the natural Course of the animal Spirits, and throw them into Confusion, and make them represent, to the Imagination, Objects double, and Walls as if they had chang'd Places. That Disorder continues till those volatile Particles, having at last, by their violent Rotation, dissolv'd, or melted the Pituita, are in Part condensed with it, or evaporated through the Pores. It happens, also, then, that the Person thus inebriated falls asleep; because the Pituita having been liquify'd by the Spirits of Wine, or the Phlegm usher'd along with them, it insinuates itself into the Ventricles of the Brain, and retards the Circulation of the animal Spirits, by its being agglutinated with them. The Drowziness caused by the Excess of *Wine* lasts ordinarily till those Spirits have rarefy'd the Pituita, and thereby re-assum'd their former natural and uninterrupted Course. Those drunk with Beer, or other such like Liquors, remain longer in that deplorable Condition, and sleep longer than those drunk with Wine; because the Spirits of those Liquors have carry'd to the Brain a viscous Phlegm, which is not so soon rarefy'd, and consequently keeps longer the Circulation of the animal Spirits interrupted. The Accidents abovemention'd, caused by the immoderate Use of *Wine*, are but the first, and the less prejudicial; for every Body knows that frequent Debauches render at last a Man stupid, because the Spirit of *Wine* not only rarefies the Pituita, and disturbs the animal Spirits in their Functions; but likewise carry off, in their Exaltation, abundance of the same animal Spirits. Drunkards are subject to spit often, to Fluxions, Catarrhs, and the Gout; because the Pituita having been render'd more fluid by the Spirits, and the Phlegm of the Liquor, is forc'd to run through the lymphatick Vessels, and if it meets with the least Obstruction in those Vessels, it takes its Course through the Nerves, and falls on all the Parts of the Body. If, at last, the Excess of *Wine* causes the Apoplexy and Palsy, 'tis because the Pituita being in Part dissolv'd by the Spirits, and the Phlegm of the *Wine*, it causes Obstructions in the Brain, and hinders the natural Course of the animal Spirits through the Nerves. I could mention a great many more Accidents caused by the immoderate Use of *Wine*; but this Digression is long enough: Therefore let us return to our Alembick.

SPIRIT OF WINE, is the oleaginous Part of the *Wine*, rarefy'd by acid Salts, thus: We fill a large Matrass, with a long Neck, half full of Brandy, and having adapted a Capital and a Recipient to it, and luted exactly the Junctures, we place it on a Pot half full of Water, to distil, at the vaporous Bath, the Spirit, which will be separated of its Phlegm, and ascend pure; we continue that Degree of Fire till it has done distilling, and we have a *Spirit of Wine* divested of its Phlegm, in the first Distillation.

Spirit of Wine serves as a Dissolvent to several Things in *Chymistry*; Half a Spoonful of it is given in the Apoplexy and Lethargy, to make the Patient come

come to himself. 'Tis a very good Remedy for Burns, if apply'd as soon as it is made; it is also very good for the Palsy, Contusions, and other Maladies where the Pores are to be open'd.

SPIRIT OF WINE WITH TARTAR, is a Preparation of the Spirit of *Wine* which has exalted a small Portion of Salt of Tartar, in its Separation from its Phlegm. This Preparation is made in the following Manner:

A Pound of Tartar is put in a glass Cucurbite, and 4 Pounds of Spirit of *Wine* pour'd upon it; the Vessel is plac'd in a Furnace, on the Sand, and cover'd with a Capital, and a Recipient adapted to it, the Junctures having been exactly luted with a wet Bladder; a graduate Fire is made under it, and continu'd till about three Parts of the *Spirit of Wine* are distill'd; then the Fire is put out, and the *Spirit* kept in a Bottle, well cork'd.

This *Spirit* is more subtile than the common *Spirit of Wine*, but has the same Virtues. The Dose is from Half a Drachm to 2 Drachms, in some Liquor appropriated to the Distemper.

Spirit of Wine serves also for the Preparation of *Hungary-water*, which is but a *Spirit of Wine* impregnated with the most essential Particles of the Flowers of Rosemary. The Operation is conducted thus: A glass or stone Cucurbite is half fill'd with Flowers of Rosemary, gather'd while they are in their greatest Vigour, and as much *Spirit of Wine* pour'd upon them as is necessary to steep them; the Cucurbite is plac'd in *Balneo mariæ*, and cover'd with a Capital, with its Recipient, and its Junctures exactly luted; then a Fire of Digestion is made under it for 3 Days successively, which being expir'd, the Vessels are unluted, and what is distill'd pour'd into the Cucurbite, and the Capital and Recipient having been re-adapted to it, the Fire is increased strong enough for the Distillation of the Liquor, so that the Drops follow close one another; and when about two Thirds of the Liquor have been extracted, the Fire is put out, the Vessels left to cool, and being unluted afterwards, there is found in the Recipient a very good *Hungary-water*, which must be put in a Vial, well cork'd.

Hungary-water is good for Palpitations of the Heart, fainting Fits, the Palsy, Lethargy, Apoplexy, and Hystericks. The Dose is from 1 Drachm to 2. 'Tis also used outwardly, for Burns, Tumours, the Palsy, Vapours, and all Maladies where it is necessary to raise the Spirits. Ladies mix about Half an Ounce of it with 6 Ounces of Water of white Lillies, or of Flowers of Beans, to wash their Faces.

Note, That *Hungary-water* can be prepar'd in a Moment, by putting some Drops of Oil, or Essence of Rosemary, (which is made like that of Cinnamon) in some *Spirit of Wine*; but this Preparation will not have the Virtue of that abovemention'd, especially if taken inwardly. But as Flowers of Rosemary are not very plenty in cold Climates, where it is almost impossible to find enough to prepare *Hungary-water* entirely of those Flowers; the following Preparation can very well supply the Defect of the first: Take 32 Ounces of Flowers of Rosemary, the Leaves of the Plant, and the Summits of Thyme; of Lavender, Savery, Sage, and Marjoram, 4 Ounces of each; bruise them, and put them in a large glass or stone Cucurbite, and mix with them Sal Ammoniack, and Salt of Tartar, an Ounce of each; pour upon them 6 Ounces of *Spirit of Wine*, stop the Cucurbite well with its Capital, adapt a Recipient to it, lute exactly the Joints, and proceed to the Digestion and Distillation, as in the preceding *Hungary-water*: You'll have a Water of a subtile Smell, and stronger than the other; because the Sal Ammoniack, and Salt of Tartar, being humected with the Humidity of the Flowers, there comes out of it an oily and volatile Spirit, which mixes in the Water, and renders it more penetrating and efficacious than the common *Hungary-water*, against Vapours, and those Diseases where it is necessary to rouze powerfully the Spirits.

As we often want *distill'd Vinegar* in our Laboratory, for several of our *chymical* Preparations; we must take Care to provide ourselves with a good Quantity of it.

VINEGAR, *Acetum*, (the Word is *French*, *Vinaigre*, form'd from *Vin*, Wine, and *aigre*, sour,) is an agreeable acid, penetrating Liquor, prepar'd from Wine; for that prepar'd from Cyder, Beer, and other Liquors, is not fit for our Purposes.

Any Sort of vinous Liquor being mix'd with its own Fæces, Flowers, or Ferment, and its Tartar first reduc'd to Powder; or else with the acid and austere Stalks of the Vegetable from whence the Wine was extracted, which holds a large Proportion of Tartar; and the whole being kept frequently stirring in a Vessel which has formerly held *Vinegar*, or set in a warm Place full of the Steams of the same, will begin to ferment a-new, conceive Heat, grow sour by Degrees, and soon after turn into *Vinegar*.

The proper Ferments for this Operation, whereby *Vinegar* is prepar'd, are, 1. The Fæces of all acid Wines. 2. The Lees of *Vinegar*. 3. Pulveriz'd Tartar, especially that of Rhenish Wine, or the Cream or Crystals thereof. 4. *Vinegar* itself. 5. A wooden Vessel well drench'd with *Vinegar*, or one that has been long employ'd to contain it. 6. Wine that has often been mix'd with its own Fæces. 7. The Twigs of Vines, and the Stalks of Grapes, Currants, Cherries, or other Vegetables of an acid austere Taste. 8. Baker's Leaven, after it is turn'd acid. 9. All Manner of Ferments compounded of those already mention'd.

It will not be improper to observe, in this Place, the divers Changes which Fermentation causes in the Juice of the Grape, and how its Acids are preserv'd under various *Envelopes*, and when they destroy themselves.

The Grape, while yet very green, is acerb, and stiptick, because the Acid it contains is embarrassed in a vast Quantity of terrestrial Particles, which have not been yet well digested by the Heat of the Sun. The Grains of the Grape growing bigger, its Juice becomes less stiptick, and sourer, 'tis what we call Verjuice; because then a light Fermentation has happen'd, which having, in some Measure, rarefy'd and soften'd the Fibres of the Fruit, the Acids are not so much confin'd within their terrestrial Capsules, whose narrow Limits have been extended by that Fermentation, and their Pores dilated so as to leave the acid Points more at Liberty than they were before, to prick the gustatory Nerve. The Grape grows ripe, and from sour becomes sweet; because the Fermentation extending the oily Particles, which had not yet appear'd, tho' they were in Embrio in the Fruit, they wrap up the Points of the Acids, and thereby hinder them from affecting the Nerve of the Tongue, otherwise than by gliding softly upon it, and thereby causing to it a Sort of agreeable Tickling; for it must not be imagin'd that the oily Capsules the Acids are wrapp'd in, blunt entirely their Points, or obstruct their Action, otherwise the Juice of the Grape would be quite insipid.

The Juice of the Grape can never ferment enough, while in the Fruit, to become Wine; but when, by Expression, the Fibres of the Fruit have been broke, and the Arrangement of its Parts chang'd, then there happens a violent Fermentation, which rarefying the Oil, set the Acids at full Liberty to follow their natural Activity, though always wrapp'd in very thin oleaginous Shafts, which can't hinder them from making a stronger Impression on the Tongue than while in the Fruit, and cover'd with a thicker Coat; but, however, not so violent a one as they could were they divested, likewise, of that thin Coat.

Lastly, There happens another Fermentation, which fixing and destroying, in some Measure, the sulphurous Spirits of the Wine, lacerate, at last, those thin Coats

the Acids were covered with, and leave them at full Liberty to act with all their Might, and to make what Impression they please on the Tongue; as we see it happen in *Vinegar*; though the Strength of those Spirits is not everlasting, for they are soon blunted, and afterwards entirely broken and destroyed, by their frequent and violent Shocks against an infinite Number of small Rocks, formed by the Agglutination and the sulphurous and terrestrial Particles of the Wine, which being deprived of those Acids, which was a Vehicle to them, float continually in the Phlegm, and have no other Motion but what they receive from it, just as a little Stone rolled in Water; which is the Cause of the *Vinegar* growing insipid at last.

Vinegar is distilled; by putting six Quarts of very strong *Vinegar* in a glass or stone Alembick, and distilling it at a pretty strong Sand-Heat, 'till nothing remains in the Vessel but a thick Substance. *Vinegar* thus distilled is kept in a Bottle well corked, and is what some call *Spirit of Vinegar*.

The principal Use of *distilled Vinegar* is to dissolve and to precipitate some Bodies. 'Tis also sometimes mixed in Cardiack Julep to resist Putrefaction. The Dose is half a Spoonful. 'Tis mixed with Water, and that Oxicrat is used to stop Hæmorrhages taken inwardly, and to temperate Inflammations applied outwardly. We are not to administer *Vinegar* nor other Acids to the Melancholicks, because they fire too much the Humours, and emaciate those who take much of them, because by giving too much Consistence to the Blood, they hinder the Chyle from being distributed to the Parts of the Body in a Quantity sufficient for their Nourishment.

Note, That all Acids are Cardiacks, and good against the Malignity of the Humours caused by a too great Agitation, because by fixing and coagulating them, they moderate the Motion of those Humours. Therefore in Places where the Air is corrupted, and pestiferous, *Vinegar* is a good Preservative. The Dose is half a Spoonful, every Morning fasting: But in Diseases proceeding from tartarous Humours, as is the hypochondriacal Melancholy; 'tis rather hurtful than beneficial, because it fixes still more the Humour. From *Vinegar* we'll proceed to *Tartar*, which is likewise a Production of the Wine.

TARTAR, *Tartarus*, or *Tartarum*, is a Kind of Salt which rises from Wine, and sticking to the Top and Sides of the Casks, forms a Crust, which hardens to the Consistence of a Stone. *Tartar*, says an ingenious Author, has the Juice of the Grape for its Father, Fermentation for its Mother, and the Cask for its Matrix. Its Goodness rather depends on the Number of repeated Fermentations, which a Succession of new Wines in the same Cask for several Years, makes, than on the Soil or Climate where the Wine is produced.

Tartar is either *white* or *red*, according to the Colour of the Wine it is raised from. That brought from *Germany* is the best, as being taken out of those monstrous Tuns, some whereof hold a thousand Pipes of Wine; so that the Salt has Time to come to its Consistence, one of the chief Qualities to be regarded in *Tartar*. That of *Montpelier* is the next in Order; then that of *Lyons*, *Paris*, &c.

White Tartar is preferred to red, and is really better, as containing less of the drossy or earthy Part. The Marks of good *Tartar* of either Kind are, its being thick, brittle, brilliant, little earthy.

The Lee of Wine is also a *Tartar* precipitated at the Bottom of the Tun, where it remains liquid, because mixed with the most phlegmatick and viscous Parts of the Wine. This liquid Consistence gives it a greater Disposition to Fermentation than has the petrified *Tartar*, and its Salt is more exalted.

Those who make Vinegar, separate by Expression the most liquid Part of the Lee of Wine, and use it for Vinegar; but they dry the Grounds; then have them dried, burnt, and calcined in great Holes dug in the Earth. This calcined Matter is what we call *Cineres Cavellati*. They are in little white, greenish Pieces, much like common calcined *Tartar*; and like *Tartar*, are full of a fixed, alkali, and very acrimonious Salt, but more loaded with Earth; their volatile Salt has been dissipated in the Calcination. These *Cineres Clavellati* must be kept in a dry Place, for they are easily humected because of the Salt Alkali they contain. They are detersive, escarotick, resolutive, and aperitive.

We design to make eleven *Chymical* Preparations of *Tartar*, viz. *Crystal of Tartar*, *Soluble Tartar*, *Chalibeated Crystal of Tartar*, *soluble chalibeated Crystal of Tartar*, *emetick Tartar*, *dissoluble emetick Tartar*, *Distillation of Tartar*, *fixed Salt of Tartar*, *and its Oil per Deliquium*, *Tincture of Salt of Tartar*, *Magistery of Tartar*, *and volatile Salt of Tartar*.

CRYSTAL, or CREAM OF TARTAR is but the *Tartar* purified of its most terrestrial Particles, Thus: We boil what Quantity we please of *Tartar* in Water 'till it is melted, and strain the Liquor hot, through a Flannel, into a earthen Vessel; and having caused about half the Humidity to be evaporated on the Fire, we carry the Vessel to a cool Place for two or three Days; during that Time little Crystals are formed at the Sides of the Vessels, which we take out; and have again half of what is left of the Humidity evaporated, carrying afterwards the Vessel to a cool Place, where will be formed Crystals as before; we continue thus 'till we have extracted all our *Tartar*, which we dry in the Sun and keep for Use.

The *Cream*, or *Crystal of Tartar* is purgative and aperitive, proper for the Dropsy, Asthma, Tertian and Quartan Ague. The Dose is from half a Drachm to three Drachms, in Broth, or some other Liquor.

Note, That when the *Crystal of Tartar* is taken in a Liquor, it must be boiled in that Liquor, and the Liquor drunk very hot, otherwise the *Crystal of Tartar* would precipitate to the Bottom of the Porringer.

SOLUBLE TARTAR is the *Cream of Tartar*, reduced in Form of Salt, in the following Manner. Eight Ounces of *Cream of Tartar*, and four Ounces of fixed *Tartar*, are pulverised and mixed together; the Mixture is put in a glazed earthen Pot, and about three Pounds of common Water poured upon it, then boiled for half an Hour; and after it has been left to cool, 'tis filtrated, and the Humidity evaporated to Siccity. There remains eleven Ounces and six Drachms of a white Salt, which must be kept in a Bottle.

This *Soluble Tartar* is a very good Aperitive and Laxative, proper for the Cachexy, the Dropsy, and all other Maladies proceeding from Obstruction. The Dose is from half a Drachm to half an Ounce, in Broth, or some Liquor appropriated to the Distemper. 'Tis also called Salt Vegetal.

Note, That a very good mineral Water can be counterfeited, by melting in a Pint and a half of common Water, six Drachms of Salt Vegetal. A Glass of that Water given in the Morning Fasting, every Quarter of an Hour, or every half Hour, will purge the Patient without heating him, provided he walks while he takes it.

CHALIBEATED TARTAR is a Preparation of *Cream of Tartar*, impregnated with the most dissoluble Part of Iron: The Operation is conducted thus: We pulverise and mix a Pound of very good white *Tartar* with three Ounces of Rust of Iron; and make the Mixture boil in an Iron Pot, with five or six Quarts of Water, for half an Hour, or 'till the *Tartar* be dissolved: We strain the Liquor hot through a Flannel, then leave it to settle in an iron or earthen Pot for ten or twelve Hours; there will be formed Crystals of a brown Colour, at the Sides, and at the Bottom of the Pot: We decant the Liquor, and gather the Crystals: Then cause about half the Liquor to be evaporated in the

the same Pot, on the Fire, leave it to settle, and take out the Crystals as before; continuing those Evaporations and Crystallisations 'till we have extracted all our *Tartar*. We dry the Crystals in the Sun.

This *Chalibeated Tartar* is a good Remedy for the Obstructions of the Liver and of the Mesentery, for the Cachexy, Melancholy, and the Quartan Ague. The Dose is from fifteen Grains to two Scruples, in Broth, or some Liquor appropriated to the Disease.

Note, That to avoid too much Trouble, the Liquor, instead of being put to crystallise, may be evaporated to Siccity, it will remain a brown Powder in the Vessel, which will be as efficacious as the Crystals. When the *Chalibeated Tartar* is to be taken it must be boiled in the Liquor, otherwise it would not melt, and the Liquor drank hot, for Fear it should crystallise at the Bottom of the Porringer or Cup.

Soluble Chalibeated Tartar is the *Soluble Tartar*, impregnated with the most saline Part of Iron. The Process of the Operation is this: We put in a stone or glass Vessel four Ounces of *Soluble Tartar*, and sixteen Ounces of Tincture of *Mars*: We place the Vessel on the Sand, and by Means of a little Fire cause the Humidity of the Liquor to be evaporated to Siccity. There remain eight Ounces of a brown Powder, which we keep in a Bottle well corked.

This *Chalibeated Tartar* has the Virtues of the Tincture of *Mars*, and is proper to raise all Sorts of Obstruction; therefore it is prescribed in the Cachexy, Dropsy, the Retention of the Menses, in the Nephretick, and the Retentions of Urine. The Dose is from ten Grains to half a Drachm, in Broth, or Lozenges.

Emetick Tartar is the *Cream of Tartar*, impregnated with the sulphurous Particles of the Liver of Antimony, Thus: Eight Ounces of *Cream of Tartar*, and three Ounces of Liver of Antimony are pulverised and mixed together: The Mixture is put in a glazed earthen Pot, and about three Pounds of common Water poured upon it; the Pot is covered and put on the Fire to make the Liquor boil for eight or nine Hours, the Matter stirred at the Bottom from Time to Time with a wooden Spatula, and warm Water put into the Vessel, to re-implace that which has been evaporated; the Liquor is afterwards strained through a Flannel, and put on the Fire to be evaporated to Siccity; there remains in the Vessel a whitish Powder, which is the *Emetick Tartar*.

Emetick Tartar is a Vomitive, which operates gently enough. The Dose is from three to twelve Grains, in some Liquor, or mixed with a Conserve.

A stronger *Emetick Tartar* can be prepared by having boiled in Water one Part of white Flowers of Antimony with four Parts of *Cream of Tartar*, for twelve or fifteen Hours; proceeding in the Filtrations and Evaporations, as in the Preparation above described. The Dose of this *Emetick Tartar* is but from two to six Grains.

Note, That *Tartar* impregnated with any Preparation of Antimony is at least as great an *Emetick* as Antimony itself.

Dissoluble Emetick Tartar is a *Soluble Tartar*, impregnated with a Portion of Liver of Antimony, which renders it vomitive; the Operation is conducted in this Manner: We put in a glass Vessel four Ounces of Crystal of *Tartar* in Powder, and pour upon it Spirit of Urine, 'till it surpasses the Matter to the Height of two Fingers Breadth; an Ebullition happens, because the *Cream of Tartar* is dissolved in the Spirit of Urine. When the Dissolution is perfected, we add to it an Ounce and a half of Antimony in very subtle Powder, and eight or ten Ounces of Water. We make the whole boil, at a Sand-Heat, for seven or eight Hours, taking Care to re-implace the Liquor evaporated with hot Water; afterwards we filtrate it, and cause all the Humidity to be evaporated slowly at a Sand-Heat. There remain in the Vessel three Ounces of a greyish Powder, which we keep in a Bottle well corked. This Emetick is not very violent. The Dose is from four to fifteen Grains, in Broth.

A *Soluble Emetick Tartar* may also be prepared by boiling an Ounce of Liver of Antimony in Powder, with four Ounces of *Soluble Tartar*, for seven or eight Hours, filtrating it afterwards, and causing all the Humidity to be evaporated. A white Powder remains in the Vessel, which has the Virtue of the other, and is administred in the same Dose.

Note, That these *Soluble Emetick Tartars* are not so strong as the *Emetick Tartar*, I have described first, because of the alkali Salts mixed with them, which Salts soften and blunt in Part the Points of the Acid of Antimony, hindering them from pricking the Fibres of the Stomach, so violently as they would, if they were not mixed.

The Distillation of Tartar is a Separation of the Phlegm, of the Spirit, and of the Oil of *Tartar* made by Means of Fire in the following Manner.

The two Thirds of a Retort are filled with *Tartar* coarsly pulverised; the Retort is placed in a Reverberatory Furnace, and a large Recipient having been adapted to it, the Distillation is began by a very little Fire, for three Hours, to heat the Retort, and to bring out the Phlegm, which comes out dropping into the Recipient: That Phlegm is rejected as useless; and the Recipient being re-adapted to the Retort, and the Junctures exactly luted, the Fire is increased by Degrees, 'till the Recipient begins to be filled with white Clouds; and continued in the same Degree 'till the Oil comes out likewise; and when it has done distilling, the Vessels, after they have been left to cool, are unluted, and the Liquor contained in the Recipient poured into a Funnel, garnished with grey Paper, to separate the black Oil which will remain on the Paper.

This Oil is kept in a Vial, and is good to be given, to smell, to Women afflicted with the Hystericks. It would be very proper to anoint the paralitical Parts of the Body, was it not so stinking.

The Spirit is poured into an Alembick of Glass, and rectified, by having it distilled at a Sand-Heat. This Spirit is good for the Palsy, the Asthma, and the Scurvy. It is diuretick and sudorifick. It is also used in the Hystericks and the Epilepsy. The Dose is from a Drachm to three, in some Liquor appropriated to the Distemper.

A black Mass is found at the Bottom of the Retort, out of which can be extracted a Salt of *Tartar*.

The Fixed Salt of Tartar, and its Liquor, called *Ole per Deliquium*, are prepared in the following Manner: We break the Retort which has served for the Distillation of *Tartar*, and take out the black Mass found in it, which we calcine between the Coals, 'till it be white: When white, we throw it into a great deal of Water, and make a Lixivium of it, which having filtrated into a glass or stone Vessel, we cause afterwards all the Humidity to be evaporated at a Sand-Heat. There remains at the Bottom of the Vessel a white Salt, which is called *Alkali Salt of Tartar*.

This *Salt* is aperitive, it is used to extract the Tincture of Vegetables, and given for Obstructions. The Dose is from ten Grains to thirty, in Broth, or in laxative Infusions.

If this *Salt* be exposed for some Days in a flat Glass or stone Vessel, in the Cellar, or some other damp Place, it will resolve into a Liquor, improperly called *Oil of Tartar, per Deliquium*.

This *Oil of Tartar* is used for the Ring-Worms, and to resolve Tumours; Ladies mix it with Water of white Lillies, to wash their Face and their Hands.

Tincture of Salt of Tartar is an Exaltation of some Part of the *Salt of Tartar* in Spirit of Wine, made in the following Manner. Twenty Ounces of *Salt of Tartar* are melted in a large and strong Crucible; and when the Matter is in Fusion the Crucible is covered with a Tile, and surrounded with Coals,

Coals; then the Artist blows round the Crucible to excite a stronger Heat, than if he was to melt Gold; he continues that Degree of Fire for about two Hours, 'till the *Salt of Tartar* has took a red marble Colour, which he knows by introducing the End of a Spatula into the Crucible, for in taking it out he sees some of the Matter sticking to the Spatula: Then he takes the Crucible off the Fire, and pours the Matter into a hot Mortar, where it will congeal soon, and which he pulverizes as soon as it is congeal'd, putting it afterwards into a Matrass, heated before, and pouring upon it tartariz'd Spirit of Wine, which raises four Fingers Breadth above the Matter: He stops the Matrass with another, to make of it a circulatory Vessel, lutes exactly the Junctures with a wet Bladder, and puts it on the Sand, where he heats it, by a graduate Fire, to make the Spirit of Wine boil for the Space of 7 or 8 Hours; during which Time, it will take a red Colour: He leaves afterwards the Vessels to cool, and unluting them, decants the Tincture, which he keeps in a Vial, well cork'd.

The *Tincture of Salt of Tartar* is an excellent Aperitive; it purifies the Blood, and resists the Malignity of the Humours: 'Tis used in the Scurvy. The Dose is from 10 to 30 Drops, in some Liquor appropriated to the Distemper.

Note, That in this Preparation the Artist ought to use Spirit of Wine well rectify'd; for if there was the least Phlegm left, he would have no *Tincture*.

MAGISTERY OF TARTAR, or *vitriolated Tartar*, is the Salt of *Tartar* impregnated with the Acids of Spirit of Vitriol, thus: We put in a glass Cucurbite Oil of *Tartar per deliquium*, and pour gently upon it rectify'd Spirit of Vitriol; there happens an Effervescence, we continue pouring till the Ebullition is over; we place, then, our Cucurbite on the Sand, and having caused all the Humidity to be evaporated at a slow Fire, we find left in the Vessel a very white Salt, which we keep in a Vial, well cork'd.

This *vitriolated Tartar* is a very good Aperitive, and a little purgative. 'Tis given to the hypochondriacal Melancholicks, for the Quartan Ague, and the Scrophulæ, and for all other Maladies where the Pores are to be open'd, and where it is necessary to promote Urine. The Dose is from 10 to 30 Grains, in some Liquor appropriated to the Distemper.

Note, That *vitriolated Tartar* can be made as well with the Salt of *Tartar*, as with the Oil of *Tartar*. The Acid is always a Dissolvent when pour'd on the Matter to be dissolv'd, in a Quantity sufficient to dissolve it; but it forms always a *Coagulum*, if being pour'd in too little a Quantity its Points have sheath'd themselves in the Pores of the Matter, and have not Strength enough to dilate them, in such a Manner as to be capable to come out of their Sheaths; as is plainly seen when Spirit of Vitriol is pour'd on the Liquor of Salt of *Tartar*: For if the Artist pours of that Acid but what is absolutely necessary to penetrate the Salt, the Points of the Acid remain sheathed in that Salt, and by hooking in one another, with that Part left on the Outside of the Sheath, approach, by Means of that Concatenation, each saline Particle they have penetrated, still nearer and nearer, till they have form'd of them a thick, compact, and heavy Body; but if as much more acid Liquor be added to that pour'd before on the Salt of *Tartar*, the *Coagulum* will disappear; because those new acid Points, seizing and penetrating on an opposite Side the saline Particles already shaken, by the repeated Efforts of the Points, whereby they have been penetrated first, help those Points, by their combin'd Strength, to disengage themselves, by lacerating and destroying the Texture of the saline Parts, whereby the Acid appears predominant in the Mixture. The same Phænomenon can be observ'd in all Matters capable of being dissolv'd by Acids; for if an Acid be pour'd on some of those Matters, there will ensue an Effervescence, and afterwards a *Coagulum*; but if the Quantity of the Acid be augmented, a Dissolution of the Matter will ensue. If Milk curdles by Means of an Acid, 'tis because it contains a great Quantity of caseous Particles, which the Acid penetrates, and where it produces the same Effects, we have observ'd in the *vitriolated Tartar*: Therefore, the Curds made with Runnet, or other such weak Acids, precipitate less than that made with a stronger Acid: And if, for Curiosity Sake, we would pour still more Acid on the precipitated Curd, we should see an entire Dissolution of those Curds. Almost all Fermentations are nothing but Dissolutions made by Acids, either natural, or foreign: Thus the Fermentation of Wine proceeds, as we have observ'd, from the Dissolution of the oily Particles of the *Must* made by Acids. The Fermentation of Dough, and other Matters of that Kind, proceeds from the Salts having been put in Motion, by Trituration, or some other Cause, rarefy and oppose, as much as they can, all that opposes their Motion; but as those acid Salts unfold themselves but slowly, and meet with a great Resistance, the Dissolution is but slow, and the Pores they have enter'd, dilated but with great Difficulty; 'tis that Dilatation of the Pores which occasions the swelling up of the Dough, and increases its Volume. Leaven increases the Fermentation in the Dough, because the Leaven being a Dough whose Salts have been unfolded by a long Fermentation, those Salts mix with the other Dough, and help its Rarefaction and Dissolution. The same can be said of all other acid Matters which excite Fermentation. But when the Acids have rarefy'd the Matter as much as they can, they lose their Motion, and then happens a Coagulation, *i. e.* that the Matter re-assumes its first Volume. Acids produce, still, an Effect which seems different from those abovemention'd, which is, that they preserve certain Bodies put in them, as Salt preserves Meat: Thus when Cucumbers, Walnuts, Capers, Olives, *&c.* are put in Vinegar, there happens no Fermentation, nor, consequently, Corruption; because the Particles of the Cucumbers and other Things here mention'd, being very viscous, though the Points of the Acids penetrate them, to dissolve them, they are so much embarrassed, and entangled in the Ramosity of those Particles, that they have not a free Motion to shake and separate those Particles: Therefore the Acid of the Vinegar penetrates only the Pores of those Matters, and is there coagulated. This Coagulation hinders the Corruption of the Cucumbers, because the acid Points stop their Pores, and, as so many little Pegs, support and keep the Particles which form those Pores firm, and steady. Sea Salt, which is an Acid, preserves Meat, and other Matters, for the same Reason. We can easily discover, by this Reasoning, what happens in the Digestion of Aliments in the Stomach. Several of our modern Philosophers have not spar'd Acids, when they have undertook to explain Digestion; for they have drench'd all the Membranes of the Stomach with it, and some of them finding not Acid enough, yet, to satisfy themselves, have oblig'd the Pancreas, and the Melt, to usher each their Quota of an acid Juice into that *Viscera*; but if those Acids were all in the Stomach, they would cause in it a Coagulation of the Aliments, and consequently an Indigestion, as it happens often when we have used too much Acid in our Meals. Since it is needless to search those imaginary Acids for the Digestion, since the *Saliva* mix'd with our Aliments, during their Trituration under the Teeth, furnishes Acid enough to excite a Fermentation in the Stomach; there wants but a little Quantity of volatile Acid to put the Particles in Motion; and when they are once in Motion, they contain Salts and Acids enough of the same Nature, which being excited by the Heat of the Stomach, search an Issue, and break their Prisons;

ſons; whence there neceſſarily enſues an Attenuation of the Matter into a chylous Subſtance. It will be, perhaps, objected, againſt this Sentiment, that Hunger can't be explain'd otherwiſe than by the Impreſſion made by the ſharp Points of thoſe Acids againſt the Membranes of the Stomach, which finding no more Aliments to act upon, act on thoſe Membranes; but that Phænomenon is better accounted for by ſaying that the *Saliva*, finding itſelf in the Stomach, depriv'd of Aliments, ferments alone, and produces that Eroſion, ſince the *Saliva* is full of Salt.

Note, alſo, That what we here eſtabliſh with Regard to Acids, can ſerve, likewiſe, to explain the principal Symptoms of Fevers. 1. When there are ſome Obſtructions made in our Bodies, the Matter ſtopp'd ferments, and grows ſour, like Dough, Wine, and ſeveral other Things which become ſour as they grow old; this Matter, in fermenting, ſends Salt, or acid Vapours, into the Maſs of Blood, which cauſe in it ſeveral Alterations, according to their Quantity, or Quality; for Acids are commonly mix'd with Sulphurs; which ſerve for a Vehicle to them, and which are more or leſs corrupted; as the Matter, whence they exhale, has more or leſs ſojourn'd in the Place of the Obſtruction. If then thoſe acid Vapours ſpread themſelves in the Veſſels, but in a Quantity capable only of a Sort of Leaven, they'll cauſe a too great Rarefaction; and as that Rarefaction muſt neceſſarily increaſe the Motion and Heat of the Blood, a Fever enſues. That Fever muſt laſt as long as the Ferment remains in the Blood, or according as it leaves behind a new Ferment, after Nature, by its Struggles, and repeated Efforts, has evacuated the firſt. But if from thoſe Obſtructions, already mention'd, ariſe all on a ſudden a greater Quantity of Acids, they muſt form a Sort of Coagulation; for the Acids penetrating, then, the Pores of the coarſer Subſtance of the Blood, entangle themſelves in ſuch a Manner in the ramous Texture of thoſe Pores, that they, being thereby depriv'd of Part of their Motion, calm the Agitation of the Blood, in fixing its Particles. The Shaking, or Shivering, which happens at the ſame Time, and is ſo ſtrong, in ſome *Febricitants*, that it even makes the Bed ſhake, is a Sort of Convulſion excited by a *Coagulum*, form'd by the acid Points, of the ramoſe Particles of the Blood, where they remain abſorb'd; which *Coagulum* obſtructs the Circulation of the Blood, in thoſe Places of the Veſſels where they meet together; which Shivering, or Shaking, laſts till the Spirits, which circulate with the Blood, by their repeated and violent Efforts, and their Vivacity, have rarefy'd, and entirely diſſolv'd that Congelation. The *Coagulum* once diſſolv'd, the Blood ſhould circulate with greater Facility; but becauſe the Matter of that *Coagulum* has been converted into a Leaven, that Leaven cauſes an exceſſive Fermentation in the Blood, which Fermentation occaſions the Fever. The Fever laſts till the Blood is purify'd of that Ferment, or by Perſpiration, or Urine; though we do not underſtand by that *Coagulum*, a *Coagulum* like that form'd by Acids in Milk, or in the Blood of an Animal when an Acid has been ſyring'd into its Veſſels; for thoſe Coagulations are too ſtrong: And very near the ſame Thing would happen then, that happens to the Animal, which falls immediately into Convulſions, and dies; becauſe the Courſe of the Spirits, and of the Blood, would be entirely intercepted, and could not have Strength enough to conquer ſo ſtrong an Obſtacle; but we only mean that the Blood is grown a great deal thicker, and has not its Motion ſo free as before; which is enough to cauſe a cold Fit in a Fever. It remains, at preſent, to explain why the Fever returns by regular Paroxiſms; which may eaſily be conceiv'd, if we conſider that the Matter of the Obſtructions, which we eſtabliſh for the primary Cauſe of Fevers, does not make enough; nor does it ſpread in the Blood its acid Salt to excite the Fever, till it has been gather'd in a certain Quantity in the opilated Veſſels. This Matter muſt be produc'd in equal Intervals of Time, while the Obſtruction continues; becauſe the Humours which circulate towards the obſtructed Parts, where they can be ſtopp'd, are always of an equal Celerity, and in an equal Quantity; but as in Tertian Agues the Veſſels where there is Obſtruction acquire in 48 Hours Matter enough to produce the Obſtruction and the Fermentation heretofore mention'd, the Paroxiſms happen every other Day: And as in the Quartan Ague the Humours are coarſer, and more terreſtrial, and flow with leſs Celerity; the Fermentation muſt be ſlower, and conſequently there ought to be a greater Interval between the Paroxiſms. The Fever call'd Quotidian, is cauſed by a ſalt Pituita, which is fluid enough to make the Matter ferment in a ſhort Time; therefore the Paroxiſms happen every Day. More of this in my Treatiſe of Diſeaſes, or Maladies.

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The *volatile Salt of Tartar* is much eſteem'd to purify the Blood by Sweat and Urine; it may be uſed in the Palſy, Apoplexy, the Quartan and Tertian Agues, and to raiſe Obſtructions. The Doſe is from 6 Grains to 15, in ſome Liquor appropriated to the Diſtemper. The diſtill'd Liquor is a *volatile Salt* which has aſcended with the Phlegm; it is call'd *volatile Spirit of Tartar*, and has the ſame Virtues of the Salt. The Doſe is from 8 to 24 Drops.

Our next *chymical* Operations are to be on MANNA, which is a white ſweet Juice oozing from the Branches and Leaves of the Aſh-tree, chiefly in *Calabria*, during the Heat of Summer.

MANNA has been commonly held a kind of *Mel Aerium*, or Honey Dew, like that which fell in the Deſart during the Peregrination of the Children of *Iſrael*; which falling in the Night, gathers on certain Trees, and even on Rocks, and the Earth itſelf, where it hardens with the Sun. But what refutes this Opinion, is, that ſuch Dews melt in the Sun, whereas *Manna* whitens, and hardens in it. Add, that ſuch Dews are only found on the Tops and Extremes of the Leaves; whereas *Manna* is chiefly found to lodge near the Trunks of the Branches; and that the Honey Dew falls only on Trees open to the Air; whereas *Manna* is found on Trees which are under Cover, as was experienc'd by Dr. *Cornelius*, who gather'd *Manna*

Coals; then the Artist blows round the Crucible to excite a stronger Heat, than if he was to melt Gold; he continues that Degree of Fire for about two Hours, 'till the *Salt of Tartar* has took a red marble Colour, which he knows by introducing the End of a Spatula into the Crucible, for in taking it out he sees some of the Matter sticking to the Spatula: Then he takes the Crucible off the Fire, and pours the Matter into a hot Mortar, where it will congeal soon, and which he pulverizes as soon as it is congeal'd, putting it afterwards into a Matrass, heated before, and pouring upon it tartariz'd Spirit of Wine, which raises four Fingers Breadth above the Matter: He stops the Matrass with another, to make of it a circulatory Vessel, lutes exactly the Junctures with a wet Bladder, and puts it on the Sand, where he heats it, by a graduate Fire, to make the Spirit of Wine boil for the Space of 7 or 8 Hours; during which Time, it will take a red Colour: He leaves afterwards the Vessels to cool, and unluting them, decants the Tincture, which he keeps in a Vial, well cork'd.

The *Tincture of Salt of Tartar* is an excellent Aperitive; it purifies the Blood, and resists the Malignity of the Humours: 'Tis used in the Scurvy. The Dose is from 10 to 30 Drops, in some Liquor appropriated to the Distemper.

Note, That in this Preparation the Artist ought to use Spirit of Wine well rectify'd; for if there was the least Phlegm left, he would have no *Tincture*.

MAGISTERY OF TARTAR, or *vitriolated Tartar*, is the Salt of *Tartar* impregnated with the Acids of Spirit of Vitriol, thus: We put in a glass Cucurbite Oil of *Tartar per deliquium*, and pour gently upon it rectify'd Spirit of Vitriol; there happens an Effervescence, we continue pouring till the Ebullition is over; we place, then, our Cucurbite on the Sand, and having caused all the Humidity to be evaporated at a slow Fire, we find left in the Vessel a very white Salt, which we keep in a Vial, well cork'd.

This *vitriolated Tartar* is a very good Aperitive, and a little purgative. 'Tis given to the hypochondriacal Melancholicks, for the Quartan Ague, and the Scrophulæ, and for all other Maladies where the Pores are to be open'd, and where it is necessary to promote Urine. The Dose is from 10 to 30 Grains, in some Liquor appropriated to the Distemper.

Note, That *vitriolated Tartar* can be made as well with the Salt of *Tartar*, as with the Oil of *Tartar*. The Acid is always a Dissolvent when pour'd on the Matter to be dissolv'd, in a Quantity sufficient to dissolve it; but it forms always a *Coagulum*, if being pour'd in too little a Quantity its Points have sheath'd themselves in the Pores of the Matter, and have not Strength enough to dilate them, in such a Manner as to be capable to come out of their Sheaths; as is plainly seen when Spirit of Vitriol is pour'd on the Liquor of Salt of *Tartar*: For if the Artist pours of that Acid but what is absolutely necessary to penetrate the Salt, the Points of the Acid remain sheathed in that Salt, and by hooking in one another, with that Part left on the Outside of the Sheath, approach, by Means of that Concatenation, each saline Particle they have penetrated, still nearer and nearer, till they have form'd of them a thick, compact, and heavy Body; but if as much more acid Liquor be added to that pour'd before on the Salt of *Tartar*, the *Coagulum* will disappear; because those new acid Points, seizing and penetrating on an opposite Side the saline Particles already shaken, by the repeated Efforts of the Points, whereby they have been penetrated first, help those Points, by their combin'd Strength, to disengage themselves, by lacerating and destroying the Texture of the saline Parts, whereby the Acid appears predominant in the Mixture. The same Phænomenon can be observ'd in all Matters capable of being dissolv'd by Acids; for if an Acid be pour'd on some of those Matters, there will ensue an Effervescence, and afterwards a *Coagulum*; but if the Quantity of the Acid be augmented, a Dissolution of the Matter will ensue. If Milk curdles by Means of an Acid, 'tis because it contains a great Quantity of caseous Particles, which the Acid penetrates, and where it produces the same Effects, we have observ'd in the *vitriolated Tartar*: Therefore, the Curds made with Runnet, or other such weak Acids, precipitate less than that made with a stronger Acid: And if, for Curiosity Sake, we would pour still more Acid on the precipitated Curd, we should see an entire Dissolution of those Curds. Almost all Fermentations are nothing but Dissolutions made by Acids, either natural, or foreign: Thus the Fermentation of Wine proceeds, as we have observ'd, from the Dissolution of the oily Particles of the *Must* made by Acids. The Fermentation of Dough, and other Matters of that Kind, proceeds from the Salts having been put in Motion, by Trituration, or some other Cause, rarefy and oppose, as much as they can, all that opposes their Motion; but as those acid Salts unfold themselves but slowly, and meet with a great Resistance, the Dissolution is but slow, and the Pores they have enter'd, dilated but with great Difficulty; 'tis that Dilatation of the Pores which occasions the swelling up of the Dough, and increases its Volume. Leaven increases the Fermentation in the Dough, because the Leaven being a Dough whose Salts have been unfolded by a long Fermentation, those Salts mix with the other Dough, and help its Rarefaction and Dissolution. The same can be said of all other acid Matters which excite Fermentation. But when the Acids have rarefy'd the Matter as much as they can, they lose their Motion, and then happens a Coagulation, *i. e.* that the Matter re-assumes its first Volume. Acids produce, still, an Effect which seems different from those abovemention'd, which is, that they preserve certain Bodies put in them, as Salt preserves Meat: Thus when Cucumbers, Walnuts, Capers, Olives, *&c.* are put in Vinegar, there happens no Fermentation, nor, consequently, Corruption; because the Particles of the Cucumbers and other Things here mention'd, being very viscous, though the Points of the Acids penetrate them, to dissolve them, they are so much embarrassed, and entangled in the Ramosity of those Particles, that they have not a free Motion to shake and separate those Particles: Therefore the Acid of the Vinegar penetrates only the Pores of those Matters, and is there coagulated. This Coagulation hinders the Corruption of the Cucumbers, because the acid Points stop their Pores, and, as so many little Pegs, support and keep the Particles which form those Pores firm, and steady. Sea Salt, which is an Acid, preserves Meat, and other Matters, for the same Reason. We can easily discover, by this Reasoning, what happens in the Digestion of Aliments in the Stomach. Several of our modern Philosophers have not spar'd Acids, when they have undertook to explain Digestion; for they have drench'd all the Membranes of the Stomach with it, and some of them finding not Acid enough, yet, to satisfy themselves, have oblig'd the Pancreas, and the Melt, to usher each their Quota of an acid Juice into that *Viscera*; but if those Acids were all in the Stomach, they would cause in it a Coagulation of the Aliments, and consequently an Indigestion, as it happens often when we have used too much Acid in our Meals. Since it is needless to search those imaginary Acids for the Digestion, since the *Saliva* mix'd with our Aliments, during their Trituration under the Teeth, furnishes Acid enough to excite a Fermentation in the Stomach; there wants but a little Quantity of volatile Acid to put the Particles in Motion; and when they are once in Motion, they contain Salts and Acids enough of the same Nature, which being excited by the Heat of the Stomach, search an Issue, and break their Prisons;

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from Branches cover'd on Purpose with Cloth. And *Lobelius* assures us, that *Manna* had been gather'd from Branches of the Ash, which has been thrown the Day before into a Cellar. It is much more rational to rank *Manna* amongst the Number of Gums, which exuding from the Juice of the Tree, and mixing with some saline Particles of the Air, is condensed into those Flakes in which we see it.

The *Italians* gather three Kinds of *Manna*: *Manna di Carpo*, which oozes spontaneously from the Branches of the Tree in the Month of *July*; *Manna forzata*, or *forzatella*, which is not gather'd till *August*, after an Incision of the Tree, when the Flux of the first has ceased; and *Manna di fronda*, which issues of itself in little Drops, like a kind of Sweat, from the nervous Parts of the Leaves of the Ash, and gathers into Grains, about the Bigness of those of Wheat, which are harden'd by the Sun in *August*. The Leaves are frequently found so loaded with these Grains, that they seem cover'd with Snow.

The *Manna* most esteem'd, is that in Tears, which many take to be factitious, and the Work of the *Jews* at *Leghorn*; but it is certainly natural; and what gives it this Figure, is, that they put Straw, and Slips of Wood, in the Incisions, along which the *Manna* gliding, is condensed as it comes out, and assumes this Form. Those Tears must be chosen long, pure, dry, light, white, and a little unctuous; sometimes hollow, and softish within.

Manna purges gently the bilious and serous Humours; 'tis used to evacuate the Pituita from the Brain. The Dose is from 1 Ounce to 3.

We make but one *chymical* Preparation of *Manna*, which is its Distillation, conducted in the following Manner: We put 16 Ounces of *Manna* in a glass or stone Retort, two Thirds whereof are left empty; we lute the Retort, place it in a Furnace, and having adapted a Recipient to it, we begin the Distillation by a little Fire, to heat the Vessel, and to have about an Ounce and a Half of Phlegm distill'd, which is as clear and insipid as Water, and which some call the Dew of *Manna*; we re-adapt the Recipient, lute exactly the Junctures, and by a Fire, which we increase by Degrees, cause white Vapours to rise, which resolve into a Liquor: We continue a pretty strong Fire till it has done distilling; we unlute the Vessels, when cold, and find in the Recipient a brown Liquor, which we pour into a Funnel lin'd with grey Paper; the Spirit runs through, and is separated from a black and stinking Oil, which is left in the Funnel: We rectify the filtrated Liquor, by having it distill'd at a Sand Heat through a glass Alembick, and find in the Recipient a reddish Spirit, call'd the *Spirit of Manna*.

This *Spirit* is aperitive, it is supposed sudorifick, and proper to purify the Blood. The Dose is from a Drachm to a Drachm and a Half. The stinking Oil is given to smell to Women afflicted with Vapours.

OPIUM, (which is to be the Subject of our next Operation) is a narcotick Juice commonly drawn from the Head of the white Poppy, and afterwards inspissated.

Most Authors have imagin'd, till now, that *Opium* is a gummous Juice, which flows of itself through the Incisions made in the Poppy Heads; but that as it is exceeding rare, the *Turks*, among whom it is produc'd, and who make great Use of it, never allow it to be exported: So that what they sell to the *Europeans* for *Opium*, is nothing but the Juice of the Heads of Poppies, extracted by Expression, inspissated, and wrapp'd in Leaves, to facilitate its Exportation; which Juice we call *Meconium*. Mr. *Chambers* entertains us, likewise, with the same Romance: but several Travellers have inform'd us, lately, that the *Opium*, such as represented by Mr. *Chambers*, and others, was but a Chimæra; that it is to be found no where, neither in the Places where it is said to be produc'd, nor among the Curious. In Fact, those who have seen the *Turks* take *Opium*, even the most considerable among them, say, that it has appear'd to them in no wise different from that brought into *Europe*; besides how could it be supposed that the *Turkish* Merchants, who are, at least, as greedy of Gain, as those of other Nations, would not seek after that *Opium* in Tears, so sell it at a vast Price to the *Europeans*; therefore we may reasonably believe that there is no other *Opium* but that which we call *Meconium*.

Opium brought over from *Thebes* or *Cairo*, is esteemed the best. It must be chosen heavy, compact, near, viscous, of a reddish black Colour, inflammable, bitter to the Taste, a little acrimonious, and of a disagreeable Smell.

The *Extract of Opium*, called LAUDANUM, is the only *Chymical* Preparation made of it. This Preparation is the purest Part of the *Opium*, extracted by Rain-Water and Spirit of Wine; and sometimes reduced in Consistence of Extract; thus: We slice four Ounces of good *Opium*, and put it into a Matrass: We pour upon it a Quart of Rain-Water very well filtrated, and stop well the Matrass, which having placed on Sand, we make a little Fire under it at first, which we increase afterwards by Degrees, to make the Liquor boil for two Hours: We percolate that Liquor while hot, and pour it into a Bottle. We take the *Opium* left indissoluble in the Rain-Water, have it dried in a Pan on a little Fire, and put it afterwards in a Matrass, pouring upon it Spirit of Wine to the Heighth of four Fingers Breadth: We stop the Matrass, and put the Matter in Digestion on hot Ambers, for twelve Hours, and percolate the Liquor afterwards. We cause our two Dissolutions of *Opium*, *viz.* That with Rain-Water, and the other with Spirit of Wine, to be evaporated separately, in stone or glass Vessels, at a Sand-Heat, to the Consistence of Honey; then mix them together, and have that Mixture dried at a slow Fire, to give it the Consistence of Pills.

There is no other Difference between this solid *Laudanum* and the Liquid; but that in the Liquid there is Humidity enough left to render it fluid, that it may be kept in a Bottle. Which is effected by mixing both Impregnations together, without Evaporation of the Humidity.

Note, That *Opium* is composed of a spirituous Part, and of a coarse and terestrial Resin; that the spirituous Part can easily be dissolved in Water, but the resinous wants a Menstruum, such as the Spirit of Wine; which Spirit of Wine could alone dissolve the two Parts of the *Opium*, were we not to fear that in the Evaporation it would carry off its most volatile Particles. By our Description all that is contained in the *Opium* is preserved; for the resinous Part dissolved in Spirit of Wine cannot be exalted along with it, since it is a vast deal heavier; and that Part called volatile, when compared with the other, is mixed with a certain Quantity of Resin, sufficient to hinder its Evaporation. *Willis*, *Sylvius*, and *Etmuller*, look on *Opium*, as a coagulating Poison, which fixes the Spirits in the Nerves. *Wepfer* and *Pitcairn*, on the contrary, maintain it to be a hot dissolving Poison, which subtilizes the Blood, exalts, and reduce it into Vapours, which bloat up the Arteries; and the bloated Arteries compressing the Veins and Nerves, shut up the Passage of the Spirit; but without examining if *Opium* be hot or cold, (though by the Analyses it appears to be all Sulphur) I'll only endeavour to explain its Effects, the most sensibly as possible, according to the Rules of *Chymistry*.

The Virtue of *Opium* is by calming the too great Impetuosity of the Spirits, to promote Sleep; for whereas Weakfulness is only excited by the violent Agitation of the Spirits, which rarefying the Humours in the small Conducts of the Brain, accelerate their Circulation; it can be said by a contrary Rule, that Sleep proceeds from the Condensation of those same Humours occasioned by the Repose of the Spirits in the Brain: Therefore, according to this Principle, there must be in *Opium*, and in all other Somnifers, some Substance, to embarass the Spirits, so as to hinder them, for some Time, from circulating with the same Precipitation they used to do.

By

By the Analysis made of *Opium* a spirituous Part is observed first; but after it has been carried off by the Rain-Water, there remains a gummous and terestrial Matter, very proper to produce that Effect; for we find nothing in Medicine more proper to inspissate the Blood and the other Humours than mucilaginous Matters: The Milk and Emulsions extracted from various Seeds, the Nenuphar, Letuces, and even all temperate Aliments, promote Sleep, becaufe they are full of a gummous Substance, which mixing with the Blood agglutinate the Spirits, and moderate their Impetuosity. This supposed, it is easily conceived how *Opium* can promote Sleep, since it is filled with mucilaginous Particles, which can be carried and introduced into the Vessels.

It may be objected that *Opium* is full of subtle Particles, which instead of condensating the Spirits, ought to rarify them; besides that, according to my Manner of reasoning, all Sorts of gummous Matter should promote Sleep as well as *Opium*, which nevertheless is false. To this I'll answer, in the first Place, that the Spirits of *Opium* being excited by the Heat of the Stomach, they serve to exalt the gummous Particles, and to introduce them into the small Vessels of the Brain; that in that Exaltation, those Spirits being very weak of their Nature, and fatigued besides with that heavy Burthen they were loaded with, are entirely spent and exhausted, when they arrive at their Journey's End, and find themselves buried under their Burthen; so that there remains nothing of the *Opium* in the Vessels of the Brain but the mucilaginous Particles, they had ushered along with them; and therefore nothing but what is the most proper to embarass, by the ramous Particles of its Texture, the animal Spirits, and thereby stop their too great Impetuosity. *Secondly*, I say, that all Sorts of gummous, or viscous Substances cannot excite Sleep as *Opium* does; becaufe they have not the same Proportion of volatile Spirits to carry them up to the Brain; they may, by giving more Consistence to the Blood, moderate, a little, its Agitation, and excite some Disposition to Sleep, but they cannot do it so effectually, nor so quickly as *Opium*. If even volatile Spirits were mixed with those Matters, it would not follow hence, that they could become soporiferous as *Opium*, becaufe as those Spirits could not be so intimately united with those Matters, as those of *Opium* are naturally with their viscous Substance, they would be separated in the Stomach, and the Matter could not be ushered up into the Canals of the Brains, as they should be to promote Sleep. The viscous Particles of *Opium* being introduced into the Brain are mixed with a glutinous Matter they meet with there, and together form a Kind of Coagulum, which is not quite so compact, as to stop entirely the Pores of the Nerves, through which the animal Spirits are distributed to all the Parts of the Body, or to fill up the Ventricles of the Brain with cold and suliginous Vapours, capable to hinder the Formation of the animal Spirits, otherwise they would entirely suspend the whole Motion of the Machine, and thereby accelerate its Dissolution; but the Vapours exhaled from that Coagulum, serve only as a Refrigeratory in the Brain, not only to moderate the too great Agitation of the Spirits, but to interrupt likewise their natural Motion, which Phænomenon lasts 'till those Spirits being recruited by the continual Accession of vital Spirits ushered to them, by the Circulation of the Blood, (which volatile Spirits are soon changed in the Ventricles of the Brain into animal ones) find Means at last, by their Ingress and Regress through the Pores of that Coagulum, to rarefy and disperse it, thereby they re-assume their natural Course; therefore the Sleep caused by *Opium* continues 'till that Rarefaction is perfected. While the Spirits are employed in it, we are entertained with those pleasant Dreams which ordinarily accompany a Sleep caused by *Opium*. The Obstruction of the Pores of the Nerves, by that Coagulum, suspend likewise for a Time, *i. e.* 'till it has been rarefied, the Pains, which, before the taking of the *Opium*, were felt in any Parts of the Body; for as there is no Sensation in those Parts but what proceeds from the Circulation of the animal Spirits through them, by Means of the Nerves, and that Circulation being interrupted, so as to be rendered almost insensible by that Coagulum which obstruct the small Canals of the Nerves, through which the Spirits circulate in their Origination, consequently the Pain must cease, so long as the Obstruction continues. The *Delirium*, in a continual Fever, is also calmed by *Opium*, becaufe the cold Suliginosity exhaled from the Coagulum, temperates the violent Agitation of the Spirits, by embarassing Part of them, and retarding the too quick Formation of others. *Opium* stops likewise the Disenteria's, and all immoderate Fluxes, by furnishing each saline Particles, which cause those Disorders with its Sheath, whereby their Action is suspended. Therefore *Opium* is one of the most sovereign Remedies we have in Medicine, when administer'd with Judgment, and in a reasonable Quantity; for when given otherwise, it so inspissates and agglutinates the Humours in the Brain, that the animal Spirits having not Strength enough to dissolve that too great Quantity of Matter, are forced to stop in the ramous Particles of the Coagulum, where being absorbed at last, or annihilated, all the animal and vital Functions are suspended, and Death ensues; though I don't make this last Observation to support the ridiculous and ignorant Opinion of those who condemn absolutely the Use of *Opium*, as dangerous in all Cases, and in whatever Quantity it may be administer'd; since I know, by Experience, that Patients have been relieved, in the most dangerous Maladies, by the Use of *Opium*; myself have prescribed it, with a vast Success, in continual Fevers, attended with *Delirium*; in those Cases it seldom fails to procure a favourable Crisis, by becoming then an excellent Sudorifick; becaufe the natural Course of the Spirits being in Part obstructed by the Coagulum, formed in the Brain by the *Opium*, some of those Spirits, whose Velocity cannot be moderated by the Vapours exhaled from that Coagulum, force their Passage through the Pores of the Body, and usher out along with them part of the morbifick Humour, by which Evacuation the Patient is relieved; and what is left of that Humour better disposed to be evacuated the same or another Way. From this Preparation of *Opium* I'll pass to those of *Aloes*.

Aloes is the inspissated Juice of a ferulaceous Plant of the same Name, much used as a purgative Remedy. The *Aloe-Plant* grows in divers Parts of the *East* and *West-Indies*; and is also found in some Countries of *Europe*, as *Spain*, and particularly the Mountains of *Sierra Morena*. Its Leaves are green, very thick, hard, and prickly, yielding a Kind of Cotton, whereof Laces may be made. Out of the Middle of the Leaves arises a Stem, which bears the Flowers and the Fruit, the Seed whereof is very light and hemispherical.

Dioscorides, *Pliny*, and the antient Naturalists seem only to have been acquainted with one Species of *Aloe*; which is the *Aloe Vulgaris* above described; but the late Travels into *Asia*, *Africa*, and *America*, have occasioned the Discovery of forty more Sorts unknown to Antiquity. The celebrated Mr. *Bradley* assures us, he has seen above sixty several Kinds in the Physick-Garden at *Amsterdam*; so that *Aloe* is now become the Denomination of a Genus. Among the Number, however, there are not above twelve that yield the purgative Juice above-mentioned.

The Juice of *Aloes* is usually distinguished into three Kinds. The first which is called *Succotrine*, as being brought from *Succotra*, is the purest and most transparent; being friable, inodorous, black in the Lump, but of a beautiful yellow Colour when broken. It is brought in Skins from the *Levant* and *East-Indies*.

The second is called *Hepatick*, becaufe it is Liver-Colour;

lour; 'tis resinous, smells like Myrrh, has a yellow Colour when pounded, and is brought from *China*. Some confound this with the following Sort; as, in Effect, there are but two Sorts commonly known in our Shops.

The third is the most impure, blackest, and strongest. It was formerly used by the *Indians* to pitch their Vessels withal; and is of little Use among us, except for Horses, and Cattle; for which Reason, 'tis call'd *Caballine*, *i. e.* Horse *Aloes*. 'Tis prepar'd in *Jamaica* and *Barbadoes*, and brought over in large Gourds.

Some have imagin'd, that the Differences of *Aloes* were owing only to the greater or less Purification of the Juice, but this is a Mistake; it having been found that no Dissolutions or Purifications, how often soever repeated, will change *Hepatick* into *Succotrine*, nor *Caballine* into *Hepatick Aloes*.

The Manner of preparing *Aloes* is very easy, there being nothing to do but to cut the Leaves of the Plant, and to expose the Juices that ooze out of them, either spontaneously, or by pressing, to the Sun, till it becomes of a proper Consistence.

The *Aloe* is extremely bitter, and purgative; whence some have call'd it *Fel Naturæ*. Externally apply'd, either in Substance, or Tincture, it prevents Putrefaction and Gangrene. Its Bitterness makes it so nauseous, that it is rarely used in liquid Forms, but is generally made into Pills, whereof Half a Drachm is an ordinary Dose. Scarce any of the Officinal, or Shop Pills, are without this in their Composition.

Its cathartick Virtue is best employ'd in watery, cold, and corpulent Constitutions, as it heats and attenuates; being bad for thin and hectick Constitutions. It is efficacious in promoting the Menses, and is also good to destroy Worms. *Guy Patin* decrees *Aloes* as a sorry and noxious Drug, which heats, and dries the Liver, disposes towards a Dropsy, causes the Piles, *&c.*

M. *Boulduc*, by his Analysis of *Aloes*, has found, that the *Succotrine* scarce contains Half the Resin, or sulphurous Part, but one Third more of the saline Part, found in the *Hepatick*. Hence the *Succotrine* comes to be preferable for internal Uses, and the *Hepatick* for external.

Extract of Aloes, (which is the sole *chymical* Preparation we design to make of it) is *Aloes* depurated of the Dross it contains, in the following Manner: We melt 8 Ounces of *Succotrine Aloes* on the Fire, in a sufficient Quantity of Juice of Roses, or in a strong Decoction of Flowers of Violets; we leave the Dissolution to settle, for the Space of 6 Hours, and then decant it, filtrate it, and make the Humidity evaporate gently, till the Matter has acquir'd a Consistence of Extract, which we keep in a Pot.

This *Extract of Aloes* is a very good Remedy to purge the Stomach, in fortifying it. The Dose is from 15 Grains to a Drachm, in Pills. It is also very good to promote the Menses.

Note, That the Pills of *Aloes* are ordinarily taken with the Aliment, or immediately before. They seldom purge before the Day following. They excite the Piles, and the Menses; because *Aloes* rarefy the Blood, by its fermentative Salt, and pushes it, with Impetuosity, out of the Veins.

It will not be improper to prepare, in this Place, the *Elixir Proprietatis*, which is a Tincture of Myrrh, *Aloes*, and Saffron, in Spirits of Wine and of Sulphur, thus: We pulverize coarsely, and mix together 2 Ounces of good Myrrh, as much *Succotrine Aloes*, and an Ounce of fine Saffron; we put the Mixture in a Matrass, and pour upon it Spirit of Wine, to the Height of a Finger's Breadth; we stop very well the Matrass, and leave the Matter in Digestion for 2 Days; which expir'd, we unstop the Matrass, and pour into it Spirit of Sulphur, till the Liquor rises 4 Fingers Breadth above the Matter: We stir the whole Mixture, and having stopp'd the Matrass with another, to make of it a circulatory Vessel, we put it in Digestion in a Dunghil, or some other Heat like it, for 4 Days; we afterwards decant the Liquor, percolate it, and keep it in a Bottle, well cork'd.

This *Elixir* is a very good Cardiack, and Sudorifick; it purifies the Blood, helps Digestion, appeases the Palpitations of the Heart, and hysterick Vapours, and promotes the Menses. The Dose is from 7 to 10 Drops, in some Liquor appropriated to the Distemper.

Tobacco, (the next Subject of our *chymical* Operations) is a medicinal Herb, not known in *Europe* till after the Discovery of *America* by the *Spaniards*, and first imported about the Year 1560. The *Americans* of the Continent call'd it *Petun*, (as do, likewise, to this present Time, the Clowns of *Britanny*, my Country, who would rather chuse to be without Bread, than without *Petun*, though it be sold at the extravagant Rate of 50 Sols a Pound) those of the Islands *Yoli*. The *Spaniards*, who gave it the Name *Tabaco*, took it from *Tabaco*, a Province of *Yucatan*, where they first found it, and first learn'd the Use of it.

Tobacco is either taken by Way of Snuff, as a Sternutatory; or as a Masticatory, by chewing it in the Mouth; or by smoaking it in a Pipe. It is sometimes also taken in little longish Pellets put up the Nose, where it is found to produce very good Effects, to attract a deal of Water, or Pituita, unload the Head, resolve Catarrhs, and make a free Respiration; for the subtile Parts of the *Tobacco*, in Inspiration, are carry'd into the Trachea and Lungs, where they loosen the peccant Humours adhering thereto, and promote Expectoration. Some have left *Tobacco* in their Noses all Night, but this is found to occasion Vomiting the next Morning. Another Thing charg'd on this Way of Application, is, that it weakens the Sight.

Tobacco is held a first Rate Narcotick. When taken in great Quantity in the Way of Snuff, it is found to prejudice the Smelling, greatly diminishes the Appetite, and in Time gives Rise to a Phthisis. That taken in the Way of Smoak, (I mean to Excess, in all Cases) dries and damages the Brain. *Borrhi*, in a Letter to *Bartholine*, mentions a Person who, through Excess of Smoaking, had dry'd his Brain to that Degree, that after his Death there was nothing found in his Skull but a little black Lump, consisting of mere Membranes; but I don't believe one Word of it.

Some People use the Infusion of *Tobacco* as an Emetick; but it is a very dangerous, and unjustifiable Practice, and often produces violent Vomitings, Sickness, and Stupidity. *Bates* and *Fuller* give some Receipts, in which *Tobacco* is an Ingredient, with mighty Encomiums, in asthmatick Cases. A strong Decoction of *Tobacco*, with proper Carminatives and Catharticks, given Clyster-wise, sometimes proves of good Effect in what is usually call'd the *Stone Cholick*, and also in the Iliack Passion.

A Drop or two of the *chymical* Oil of *Tobacco*, being put on the Tongue of a Cat, produces violent Convulsions, and Death itself, in the Space of a Minute; yet the same Oil used on Lint, and apply'd to the Teeth, has been of Service in the Tooth-ach; though it must be to those who have been used to the taking of *Tobacco*, otherwise great Sickness, Reachings, Vomitings, *&c.* happen; and even in no Case is the internal Use of it warranted by ordinary Practice.

A strong Decoction of the Stalks, with sharp-pointed Dock and Allum, is said to be of good Service, used externally, in cutaneous Distempers, especially the Itch: Some boil them, for that Purpose, in Urine. The same is said to be infallible in curing the Mange in Dogs.

Signor *Paulli*, Physician to the King of *Denmark*, in an express Treatise on *Tobacco*, observes, that the Merchants frequently lay it in Bog-houses, to the End that

that becoming impregnated with the volatile Salts of the Excrements, it may be render'd the brisker, more fetid, and stronger.

Tobacco kills Serpents, Lizards, Vipers, and other like Animals, if, having pierc'd their Skins, a Bit of it is introduc'd into it; or if they be made to receive its Smoak.

To prepare the OIL OF TOBACCO, we *Chymists* put 8 Ounces of good *Tobacco* hached, into a glass Cucurbite, and pour upon it about the same Weight of Phlegm of Vitriol; we cover the Cucurbite with its Capital, and leave the Matter in Digestion; on a Sand Heat, for a whole Day; then adapting a Recipient to the Vessel, we distil, by a slow Fire, about 5 Ounces of the Liquor, which we keep in a Vial.

This *Oil* is a strong Vomitive; it is very good for Ringworms, and the Itch, by anointing, gently, the Parts with it.

We leave Tobacco, to operate on TURPENTINE, which is a transparent Sort of Resin, flowing either naturally, or by Incision, from several unctuous and resinous Trees; as the Terebinthus, Larch, Pine, Fir, *&c.*

We distinguish several Kinds of *Turpentines*, as that of *Chio*, *Venice*, *Bourdeaux*, *Cyprus*, *Strasburg*, &c. The *Turpentine* of *Chio*, or *Sio*, which is the only genuine Kind, and that which gives the Denomination to all the rest, is a whitish Resin, bordering a little on green, very clear, and a little odoriferous; drawn by Incision from a Tree call'd *Terebinthus*, very common in that Island, as also in *Cyprus*, and some Parts of *France* and *Spain*.

The Resin must be chosen of a solid Consistence, almost without either Taste or Smell, and not at all tenacious, which distinguishes it from the false *Turpentine* of *Venice*, commonly substituted for it, which has a brisker Smell, a bitter Taste, and sticks much to the Fingers. This *Turpentine* of *Chio* is indisputably the best, but its Scarcity occasions it to be little in Use.

The *Turpentine* of *Venice* is falsely so call'd; for though there was a *Turpentine* antiently brought from *Venice*, yet that now so call'd comes from *Dauphine*. It is liquid, of the Consistence of a thick Syrup, and whitish; and flows either spontaneously, or by Incision, from the Larch-tree, chiefly in the Wood of the Pilatre. That flowing naturally, call'd by the Peasants *Bijon*, is a Kind of Balsam, not inferior in Virtue to that of *Peru*, for which it is frequently substituted. That drawn by Incision after the Tree has ceased to yield spontaneously, is of considerable Use for several Arts, and it is even of this that Varnish is chiefly made. It must be chosen white and transparent, and Care be taken it has not been counterfeited with Oil of *Turpentine*.

The *Turpentine* of *Bourdeaux* is white, and thick as Honey; it does not ooze from the Tree in the Manner it is sent to us, but is properly a Composition, wherein, among other Ingredients, is a white Sort of Resin call'd *Galipot*.

The *Turpentine of Strasburg*, the Produce of the Abies, or Silver Fir, is that most commonly used among us, and is preferr'd, in *England*, to that of *Venice*, which it is distinguish'd from by its green Hue, fragrant Smell, and Citron Flavour.

The Uses of *Turpentine*, in Medicine, are innumerable. It is a great Vulnerary, and very detergent, and as such is prescrib'd in Abscesses, Ulcerations, *&c.* It promotes Expectoration, and as such is prescrib'd in Diseases of the Lungs and Breast; but it is most famous for clearing the urinary Passages, and as such prescrib'd in Obstructions of the Reins, Gonorrhœa's, the Stone, Gravel, Nephritick, *&c.* It is given in Bolus's, or dissolv'd in some Liquor, by Means of the Yolk of an Egg. The Dose is from a Scruple to a Drachm. 'Tis also employ'd in Clysters, dissolv'd in Oil, or in the Yolk of an Egg.

The DISTILLATION OF TURPENTINE, is a Separation of the Oil of *Turpentine* from its terrestrial Parts; made in the following Manner: Three Pounds of the best *Turpentine* are pour'd into a large stone Retort, Half whereof is left empty; a good Handful of Tow is added to it, to stop the coarser Part of the *Turpentine* while the Liquor ascends; the Retort is plac'd in a Furnace, to be distill'd at a naked Fire, and a Recipient having been adapted to it, and the Junctures exactly luted, the Distillation is begun by a very little Fire, to heat the Retort, and to bring out the volatile Spirit; the Fire is increas'd afterwards by Degrees, and then comes out a clear Oil, afterwards a yellow one, and, lastly, a red one: Care is taken to separate those Liquors, as they come out, and when the red Oil is perceiv'd to grow thick, the Fire is put out, and when the Vessels are cold, they are unluted, and the Liquors kept separately in Vials.

The *volatile Spirit of Turpentine* is a very good Aperitive; 'tis given from 2 to 12 Drops, for the Evacuation of Sand or Gravel from the Reins or Ureter, the Nephritick, and to dissolve Viscosities. It is also used in Gonorrhœa's.

The first *Oil* serves for the same Use; the second and third serve for a Balsam, to consolidate Wounds, resolve Tumours, and fortify the Nerves.

There is found in the Retort, when broke, a Mass, which must be melted, and strain'd, to separate the Tow from it; 'tis the false Colophony employ'd in Plaisters, for Deficcation and Consolidation.

BENZOIN, (on which we are going to operate) is also a medicinal Kind of Resin, imported from the Kingdoms of *Cochinchina*, *Lao*, and other Parts of the *East Indies*. *Benzoin* is the same with what is popularly call'd *Benjamin*, or *Benjoin*, sometimes, also, *Assa dulcis*.

Benzoin is procur'd by a Wound, or Incision, made in a Tree whose Leaves resemble those of the Lemon-tree, which some call *Laserpitium*. It is of a reddish Colour, (not yellowish, as *Chambers* says) and of an agreeable Smell.

There are 3 Sorts of *Benzoin*: The first is call'd *Amigdaloides*, because of its being interspersed with several white Spots, which resemble broken Almonds; this comes from *Siam*, and is the best. The second is black, and very odoriferous: It drops from young Trees, and comes from *Sumatra*. It is call'd *Benzoinum de Boninas*. The third Sort is also black, but less odoriferous; this is found in the Islands of *Java* and *Sumatra*.

Benzoin must be chosen neat, clear, transparent, of a reddish Colour, friable, and interspers'd with white Spots. It is us'd in Medicine, to resist the Malignity of the Humours, and to fortify the Heart and the Brain.

We'll make two *chymical* Preparations of *Benzoin*, *viz.* the *Flowers of Benzoin, with its Oil*, and the *Tincture of Benzoin*.

The FLOWERS OF BENZOIN, WITH ITS OIL, are an Exaltation of the volatile Salts of *Benzoin*, and a Separation of its Oil by Distillation, thus: We put into an earthen Pot, a little deep, and with a small Edge, 3 or 4 Ounces of *Benzoin*, very neat, and coarsely pulveriz'd, and cover the Pot with a *Cornet* of Paper, glu'd, and double, which we tye all round, under the Edge, and place it, afterwards, on hot Embers; when the *Benzoin* is heated, the Flowers sublimate: We take off the *Cornet* every two Hours, and put another in its Place; we separate, with a Pen-feather, all the Flowers we find sticking to the Inside of the *Cornet* in fine, white, and shining Needles; and when those Flowers begin to appear yellowish, we take the Pot off the Fire, and leave it to cool: We gather all the Flowers which occupy not only the Inside of the *Cornet*, but likewise the Inside of the Pot.

Flowers of Benzoin have a very agreeable Scent, but very strong, and of an acid, penetrating Taste. They are good for the Asthma, to appease Vapours, for Palpitations, and to resist Venom. The Dose is from 2 Grains to 5, in Eggs, or Lozenges.

We find sticking, at the Bottom of the Pot, a black shining Matter, which we unloose with a hot Spatula:

The Matter is light, brittle, and odorous, when brought near the Fire; we pulverize it coarsely, and put it in a glass Retort, large enough that there may be but one Third of it fill'd: We place the Retort on the Sand, adapt a Recipient to it, lute exactly the Junctures, and make under it a little Fire, to heat it, and to distil an Oil, which thickens, in Part, in the Recipient; we continue the little Fire till it has done distilling, and keep that Oil in a glass Vessel. Its Colour is red, its Scent pretty agreeable, and its Taste acrimonious.

The *Oil of Benzoin* is detersive, proper for Wounds and old Ulcers, and to resist the Gangrene, when apply'd outwardly. It may be taken inwardly, from 1 Drop to 4, to help Respiration, and to resist Venom. There remains in the Retort but a rarefy'd, light, and black Matter, of no Use.

The TINCTURE OF BENZOIN, is made by reducing into a coarse Powder 3 Ounces of *Benzoin*, and Half an Ounce of Storax, and putting them in a Bottle, or Matrass, Half whereof must be left empty; a Pint of Spirit of Wine is pour'd upon it, and the Vessel, having been well stopp'd, is put in Digestion in a Dunghil, for 15 Days; after which, the Liquor is filtrated, and kept in a Vial, well cork'd. Some add to it 5 or 6 Drops of Balsam of *Peru*, to give it a good Smell.

This *Tincture* is proper to carry off the Spots of the Face; about a Drachm of it is put in 4 Ounces of Water, which it changes white, like Milk: Ladies wash their Faces with that white Water, which is called *Lac Virginale*.

CAMPHOR, or CAMPHIRE, (the Subject of our next Operations) is a white, shining, transparent, friable, inflammable, odoriferous, volatile Gum, or Resin, of a bitterish Taste, and very hot in the Mouth, flowing from a Tree of the same Name, found frequently in the Islands of *Borneo*, *Ceylon*, and the neighbouring mountainous Coasts of *India*, resembling a Walnut-tree.

Camphor distils from the Tree in Manner of a Gum, and it is said most plentifully, in the Time of Earthquakes and Storms. M. *L'Emery* says, that *Camphor* is found at the Foot of the Tree, where it thickens into little Grains, of different Figures and Sizes, very dry, friable, light, of a bitterish Taste, *&c.* These little Grains falling on one another, adhere lightly together, and form Masses, which being squeez'd a little by the Fingers, granulate again into small Corpuscles, like Salt.

Some Authors make 2 different Kinds of *Camphor*, according to the different Parts of the Tree where they are found: That in the Veins of the Wood is said to be different from that which oozes out upon breaking the Bark.

The *Camphor*, it is said, being at first red, is whiten'd either by the Sun, or the Fire: In Effect, we have but little of the raw, natural *Camphor* among us; the *Dutch* take Care that it comes all refin'd by Sublimation, and prepar'd to our Hands.

Camphor has various Uses; as in Fire-works, making of Varnish, *&c.* In the Courts of the eastern Princes, 'tis burnt, together with Wax, to illumine the Night. It is exceedingly inflammable, so as to burn, and preserve its Flame under Water; and in burning it consumes wholly, leaving no *Scorium* behind; but its principal Use is in Medicine.

Camphor is the most efficacious Diaphoretick known, its great Subtilty diffusing itself through the Substance of the Parts, almost as soon as the Warmth of the Stomach has put it in Motion. 'Tis an excellent Remedy to appease the Hystericks, for 'tis not only given to smell to Women afflicted with those Disorders, and administer'd in Clysters; but is also taken inwardly: 'Tis set on Fire, and after it has been extinguish'd 5 or 6 Times in some Liquor appropriated to the Distemper, that Liquor is given to the Patient to drink.

A Drachm of *Camphor* is dissolv'd in 4 Ounces of Spirit of Wine, which Dissolution is call'd *camphorated Spirit of Wine*. It is good for the Apoplexy, Scurvy, Hystericks, and to resist the Malignity of the Humours. The Dose is from 6 Drops to 15, in some Liquor appropriated to the Distemper. 'Tis also apply'd outwardly, in the scrophulous Tumours, when open, and in other Wounds, to resist the Gangrene.

Dr. *Quincy* observes, that *Camphor* begins to be mix'd, and that to good Purpose, with Mercurials, to guard against their stimulating Properties, and to send them into the finest Passages to operate by Fusion, and the Force of Impulse. For not only, says he, *Mercurius*, or *Calomel*, may be hereby restrain'd from manifest Operation in the Glands about the Mouth; but also the Mineral *Turbith*, which of itself works very strongly by Stool and Vomit, when mix'd with *Camphor*, will be much less felt in those Respects, and will go into the furthest Circuit of Motion, and promote the cutaneous Discharge in a more efficacious Manner than any Medicine of less specifick Gravity.

There is a common Verse to the Discredit of *Camphor*, as if its Smell emasculated:

CAMPHORA *per Nares castrat odore Mares.*

But the Proverb, according to *Scaliger* and *Tulpius*, is false. *Camphor* being boil'd in *Aqua vitæ*, in a close Place, till the whole be evaporated; if a lighted Torch, or Candle, be introduc'd, the Air in the whole Place will immediately catch Fire, and appear in a Flame, without doing any Damage to the Place, or the Spectators.

We make 2 Preparations of *Oil of Camphor*. The first *Oil* is the *Camphor* impregnated with the Acids of Spirit of Nitre, which liquefies it, thus: Three or 4 Ounces of good *Camphor* having been pulveriz'd, are put in a Matrass, and twice as much Spirit of Nitre pour'd upon it; the Vessel, well stopp'd, is plac'd on a Pot half full of warm Water; the Matter is stirr'd, from Time to Time, to help the Dissolution, which is made in 2 or 3 Hours, and the *Camphor* converted into a clear *Oil*, which swims at the Top of the Spirit of Nitre: That *Oil* is separated, and kept in a Bottle, well cork'd.

This *Oil of Camphor* is good for the Caries of the Bones, to touch the uncover'd Nerves, in Wounds, and for the Tooth-ach.

Note, That some Artists blame this Preparation of *Oil of Camphor*, because, say they, of the Violence which the corrosive Spirit of Nitre makes to *Camphor*, in dissolving it; and of that considerable Quantity of its Particles introduc'd into it, whose Acrimony is subject to them. But as this *Oil* is seldom taken inwardly, the Objection seems frivolous. Besides, how could that Acrimony be suspect, since the Points of the Spirit of Nitre must necessarily be embarrassed in the Particles of the *Camphor*, which are all sulphurous, and be thereby much weaken'd? But if, notwithstanding these Reasons, there remains still some Scruple of making the *Oil of Camphor* with Spirit of Nitre; here is another Manner of preparing it, which will remove all Difficulties.

The second Preparation of *Oil of Camphor*, is its Dissolution in Oil of Turpentine, and a Distillation of all the Matter, thus: We put in a glass Retort 2 Ounces of *Camphor* coarsely pulveriz'd, or bruis'd; and having pour'd upon it 8 Ounces of æthereal Oil of Turpentine, we place the Retort, with its Beak upwards, and stopp'd, in Digestion at a Sand Heat for 24 Hours, shaking it, from Time to Time, till all the *Camphor* be dissolv'd in the Liquor: We then place the Retort in Distillation on Sand, unstop it, adapt a Recipient to it, lute exactly the Junctures, and, by a moderate and graduate Fire, distil the Liquor till nothing comes out: We keep that Liquor in a Bottle, well cork'd.

This *Oil of Camphor* is detersive, vulnerary, resolutive, hysterick, aperitive, and proper for Ulcers in the

the Reins, Bladder, and Matrix, administer'd inwardly. The Dose is from 4 Drops to 15. It also may be used outwardly, for Wounds, old Ulcers, Caries of the Bones, the Scurvy, and King's Evil. From these we'll pass to our Operations on the *Gum Ammoniack*.

GUM AMMONIACK, is a Kind of Gum brought from the *East Indies*, supposed to ooze from an umbelliferous Plant.

Dioscorides says, 'tis the Juice of a Kind of Ferula growing in *Barbary*; and that the Plant that produces it is call'd *Agasyllis*.

Pliny calls the Tree whence it flows, *Metopion*, and says, the Gum takes its Name from the Temple of *Jupiter Ammon*, nigh which the Tree grows.

It ought to be in dry Drops, white within, yellowish without, easily fusible, resinous, somewhat bitter, and of a very sharp Taste and Smell, somewhat like Garlick. The good *Ammoniack* is of a high Colour, and not mix'd with any Scrapings of Wood, Stone, or Sand; 'tis call'd θραυσμα, Fragment. The other, which is full of Stones or Sand, is call'd φυραμα, Mixture. Some say this Gum serv'd the Antients for Incense in their Sacrifices.

Gum Ammoniack is used inwardly in the desopilative Opiates, for the schirrous Tumours of the Liver, Melt, and Mesentery; and is likewise employ'd outwardly in emollient and attractive Plaisters.

We make but one *chymical* Preparation of *Gum Ammoniack*, which is its *Distillation*, whereby a Separation is made of its *Oil* and *Spirit*, from its terrestrial Part, thus: We put a Pound of *Gum Ammoniack* in a stone or glass Retort, large enough that two Thirds thereof may be left empty; we lute the Retort, place it in a reverberatory Furnace, adapt a Recipient to it, and begin the Distillation by a very little Fire, to heat gently the Retort, and make a small Quantity of phlegmatick Liquor drop from it: When the Vapours begin to appear, we throw away what we find in the Recipient, re-adapt it to the Retort, lute exactly the Junctures, increase the Fire by Degrees, and continue till it has done distilling: Having left the Vessels to grow cold, we unlute them, and pour the Liquor contain'd in the Recipient into a Funnel lin'd with grey Paper: The Spirit runs through, and leaves a thick black Oil on the Paper, which Oil we keep in a Vial.

The *Oil of Gum Ammoniack* is good for the Palsy, and Hystericks, by anointing the Part with it. It is given to smell to Women, for the Hystericks.

We pour the Spirit into a glass Alembick, and rectify it, by distilling all the Humidity at a Sand Heat. This *Spirit* is a good Remedy against the Plague, and all malignant Maladies; 'tis used in the Scurvy, and for all Obstructions. The Dose is from 8 to 16 Drops, in some Liquor appropriated to the Distemper. In the same Manner may be extracted the Spirit of all Sorts of Gums. Our next Operations are to be on *Myrrh*.

MYRRH, *Myrrha*, from μυῤῥα, of μυρα, I run, or trickle, is a Kind of Gum, or Resin, issuing, by Incision, and sometimes spontaneously, from the Trunk, and larger Branches of a Tree growing in *Arabia*, *Egypt*, and especially *Abyssinia*.

Authors are not agreed about the Tree which produces this Gum: It is true, they all make it small and thorny, but disagree about the Form of its Leaves. The Incisions are made twice a Year, and the *Myrrh* oozing out, is receiv'd on Rush Mats, disposed underneath.

The Druggists sell two Sorts of *Myrrh*, viz. *Myrrh* in Tears, which they call *Stacte*; the other *Ungulata*, or in Nails. Of the first Kind the best is in bright, yellow, transparent Drops, friable, light, and of a strong disagreeable Smell, but this is very rare; and most of that in Use is the *nail'd Myrrh*, so call'd from the white Spots observ'd thereon, much like those on the Nails of the Fingers. The best is in little Masses, or Tears, red, and transparent; which, when broke, contains a Kind of unctuous Liquor, the most precious Part of the *Myrrh*, and the real *Stacte* of the Antients.

Myrrh must be chosen friable, light, odorous, neat, in little Bits, of a yellowish Colour, and bitter Taste. *Myrrh* is aperitive, and resolutive; 'tis much esteem'd for the Obstructions of the Matrix, as to promote the Menses, and to hasten a Delivery: It likewise resists the Malignity of Humours, is employ'd in roborative Remedies, and resolutive Plaisters. There are extracted from *Myrrh*, a *Tincture*, and an *Oil per deliquium*.

The TINCTURE OF MYRRH, is a Dissolution of the oily Parts of the *Myrrh* in Spirit of Wine, thus: We put what Quantity we please of fine *Myrrh*, pulveriz'd, into a Matrass, and pour upon it Spirit of Wine, to the Height of four Fingers Breadth; we stir well the Matter, and put it in Digestion, on a Sand Heat, for 2 or 3 Days, or till the Spirit of Wine be loaded with the *Tincture* of the *Myrrh*: We pour then the Liquor by Inclination, and keep it in a Vial, well cork'd.

Tincture of Myrrh can be used to hasten Delivery, promote the Menses, for the Palsy, Apoplexy, Lethargy, and all other Maladies proceeding from the Corruption of Humours. It is sudorifick, and aperitive. The Dose is from 6 Drops to 15, in some Liquor appropriated to the Distemper. It is also employ'd alone, or mix'd with Tincture of Aloes, to resolve cold Tumours; in Injections, to dissolve the gypsous Humour, and for the Gangrene. In the same Manner are made the Tinctures of Castoreum and Saffron, much esteem'd for the Hystericks. The Dose is from 4 Drops to 12, in Water of Melissa.

OIL OF MYRRH PER DELIQUIUM, is a Dissolution of the looser Particles of the *Myrrh*, made by the Humidity of the Whites of Eggs, thus: We boil Eggs hard, cut them in Half, take out the Yolks, and fill up the Whites with *Myrrh*, in Powder; we place those Halfs of Eggs, thus fill'd, on small Sticks, placed in Order, in a Dish, which Dish we carry to a Cellar, or some other damp Place: It distils a Liquor to the Bottom of the Dish, which we take out, and keep. It is the *Oil of Myrrh per Deliquium*.

This *Oil* is esteem'd to take the Spots off the Face, and for tetterous Humours.

It is very well for us that we have already run over two of our Kingdoms; for I find that my Finances are pretty much exhausted, and, considering that they were not very copious at my first setting out on my Travels, and that I knew no Bankers who would be kind enough to trust me with any Bills of Credit, on the single *Hipoteck* of the Smoak of my Laboratory, which, notwithstanding my Industry, and indefatigable Labour, has never prov'd very beneficial to me, otherwise than by furnishing me once with more Iron than I wish'd for; and by a Crew who expected to change that Iron into Gold, by the entire Dissolution of my parch'd Substance, but, happily for me, were disappointed; I'll think myself pretty well off, if I can make my scanty Cash defray my Expences throughout the *Animal Kingdom*, I am now going to enter.

It is, at present, the most probable Opinion, and the best receiv'd, that all *Animals* proceed from Eggs, and that they are contain'd in them, as Plants are contain'd in the Seed: But as the Eggs of all the *Animals* are not so easily found, as the Seeds of all the Plants, and the *Animal* can't be so easily discover'd in the Egg, as the Plant is perceiv'd in the Seed, thro' Means of a Microscope; there are, yet, some Authors who oppose that Opinion, with all the Evasions of the most subtile Philosophy.

But, however, the *Animal* being form'd, the nutritious Juice, and the Humours circulate so well in his Body, by Means of the Spirits, which serve as a Vehicle to them, that all is volatiliz'd in it: For we find but a very little Quantity of fix'd Matter in the Separations we make of the Principles of *Animals*.

It is true that their Substances are not found all volatile alike, for some are more, and others less volatile. The volatile Salts of the Toad, and of the Scorpion, are

are not so subtile as that of the Viper. The Hairs, the Urine, the Blood, give more volatile Salt than the Bones. The aquatick Animals produce less volatile Salt than the terestrial. The Mille-pedes, Earth-worms, and Snails have less volatile Salt than the Lizards and Serpents, the Hart, the Goat, the Dog, the Wolf, Fox, Castor, Cat, the Hare, the Rabbit, the Rat, and the Mouse, give more volatile Principles than the Calf, the Sheep, the Ox, the Horse and the Ass. The Parts of the human Body are all full of volatile Salt; there is but the Viper among Animals, which has a little more of it than any of the rest. The Bear has likewise a vast Quantity of it, the Hartshorn contains more of it than Ivory; the Hairs more than any other Part of the human Body; and the Milk less than any other Liquor found in *Animals*.

Animals, their Parts, and their Excrements, possess different Virtues, according to the more or less of their volatile Principles, and their Union among them. Those, whose Principles are much volatile, have commonly a sudorifick Quality, as human Blood, and the Cranium or Skull; the Viper and Hartshorn, because their Substance being heated in the Stomach spreads itself throughout the whole Body, and comes out through the Pores. But those whose Substances are less volatile, have often an aperitive Virtue, as the prepared Toad, the Mille-pedes, the Craw-fish; because their Salts being heavy are precipitated into the Blood, and open the urinary Ducts. Those, whose Principles have fermented, as what is improperly called the Testicle of Castor, the Urine, the Musk, the Civet, and the Excrements of several Animals, are proper, some for the Epilepsy, Apoplexy, Palsy; others for the Histericks, because their volatile Substance ascending to the Brain strengthens the Origination of the Nerves. Urine is a very good Remedy for the Gout, because it exalts and dissipates the Humour through the Pores by Stools and Urine. The Dose is two or three Glasses every Day. It is also very good for the Vapours.

When we want to make Use of *Animals* in Medicine, we must choose them while they are in their Vigour; and never employ those which are dead of some Distempers, because the best of their Substance has been exhausted.

We'll choose but one whole *Animal* for the Subject of our *Chymical* Operations, and that will be the *Viper*. All our other Subjects are to be some Parts or Excrements of different Kinds of *Animals*, as *Urine*, *Hartshorn*, *human Skull* and *Brain*, *Honey* and *Wax*.

The VIPER, *Vipera*, is a Kind of Serpent, famed not only for the exceeding Venomousness of its Bite, which is one of the most dangerous Poisons in the animal Kingdom, but also for the great Usefulness of its Flesh in Medicine.

This most remarkable Reptile has the biggest and flattest Head of all the Serpent-kind. Its usual Length is about half an Ell; and its Thickness sometimes two or three Inches: Its Snout is not unlike that of a Hog. It has sixteen small immoveable Teeth in each Jaw; besides two other large, sharp, hooked, hollow, transparent, canine Teeth, situate at each Side of the upper Jaw, which are supposed to be those that do the Mischief; these are flexible in their *Alveoli*, and are ordinarily laid flat along the Jaw, the *Animal* never raising them but when it will bite. The Roots or Bases of these Teeth or Fangs are incompassed with a Vesicle or Bladder, containing the Quantity of a large Drop of a yellow insipid salivous Juice. It has only one Row of Teeth, whereas all other Serpents have two: Its Body is not at all fetid; whereas the inner Part of the Body of other Serpents are intolerable; it creeps very slowly, and never leaps like other Serpents, though it is nimble enough to bite when provoked. Its Body is of two Colours, Ash-Colour, or yellow, and the Ground speckled with longish brown Spots. The Scales under its Belly are of the Colour of well polished Steel.

The Male has two Sets of genital Instruments, and the Female two Matrices, &c. She brings forth her young living; whereas other Serpents lay Eggs, and hatch them; on which Account the *Viper* is ranked among the viviparous *Animals*. Her young ones come forth wrapp'd up in thin Skins, which break on the third Day, and set the *Animal* at Liberty. She brings forth the Number of twenty young; but only one each Day. The Antients, particularly *Galen*, *Pliny*, &c. believed that the Young killed their Mother in the Delivery; but this is not the only Mistake they were guilty of on the Subject of the *Viper*.

This *Animal* is very common in *Dauphiny*, and in *Poitou*, two Provinces of the Kingdom of *France*, whence they are transported throughout the whole Kingdom. When in the Fields it hath several little *Animals*, on which it feeds; but when confined it may be kept alive a whole Summer without eating, provided it has Air enough. The Reason why the *Viper* can live so long without eating, is that the Pores of its Skin being very close and exiguous, as it appears, when narrowly examined, there is but a very little Dissipation made of its Spirits, therefore it does not want Aliments, like other *Animals*, for the Formation of new ones.

Vipers must be taken in the Spring, or in Autumn, because then they are fatter, and in their greatest Vigour: The Cold kills them. When the *Viper* is irritated, it darts out a fork'd Tongue, which appears like a small Firebrand; because of the Spirits which are in a violent Agitation. Those who have never seen the Teeth of the *Viper* imagine that this Tongue does all the Mischief, but they are mistaken, since it is in no manner venomous.

Dr. *Mead* observes, that the Antients esteem'd the *Viper* sacred; and that the Kings of the *East Indies* caused Cottages to be built for their Entertainment; and those who killed them to be punished with Death. On Medals the *Viper* is frequently represented as a Symbol of divine Power; and as such given by Way of Attribute to the antient Physicians.

The Bite of the *Viper* is more dangerous than that of the other Serpents; the Cure seems very unsettled. Mr. *Boyle* and Mr. *L'Emery* found a hot Iron held near the Place successful, but it proved otherwise to Mr. *Charras*. Again the Snake-stone, from the *East-Indies*, immediately applied to the Place, is much commended: But Mr. *Redi* and Mr. *Charras* found it of no Use; yet *Baglivi*, and Dr. *Havers* give Instances of its good Success.

Dr. *Mead* adds, that the same Stone directly applied to a Pigeon, when bitten, saved its Life four Hours; whereas most of the other Pigeons bitten died in half an Hour. This Stone is not natural but factitious; its Virtues lies in the Porosity, which is supposed to imbibe the Virus. The *Viper-Catchers*, Dr. *Mead* adds, have a Specifick they can so far confide in, as not to be afraid of being bitten. That Specifick is the *Axungia* of the *Viper* presently rubbed into the Wound; which consisting of clammy, viscid, penetrating, and active Parts, sheaths the Salts of the Virus. The same Author applying it to the Nostrils of a Dog bitten, found it well the next Day: When this is not timely applied, and the Virus has insinuated into the Blood, the *Sal-Viper* is excellent, given and repeated 'till Sweats be produced. This succeeded well with Mr. *Charras*; and Dr. *Mead* relates that it recovered one after the Virus had induced an universal Icterus.

L'Emery says, that the quickest Remedies for the Bite of the *Viper*, is to squeeze a little the Wound, to evacuate as much of *Sania*, and of Blood as possible, to make a strong Ligature, a little above the Wound, with a Pack-thread, to intercept the Course of the Venom, which would spread throughout the whole Habit of the Body; but that if the Part admits of no such Ligature, the Head of the *Viper* must be bruised and applied on the Wound, or a red hot flat Iron approached as near the Wound as it can be bore; or the Wound scarified, and a Mixture of Theriack, Garlick, and Sal-Armoniack, applied to it; or lastly, that Gunpowder may be burnt upon the Wound. He pretends that all these Topick Remedies can open the

Pores of the Wound, and bring out the envenom'd Spirits which had enter'd into it; with this Caution, that those Remedies are to be apply'd immediately after the Bite; for if any Time was given to the Venom to penetrate further into the Vessels, they would prove ineffectual, because the Venom could not return to the Wound, however great could be the Dilatation of the Pores. After these necessary Applications on the Wound, the same Author prescribes the *volatile Salt* of *Vipers* to the Patient; for in Case, says he, the external Remedies should prove ineffectual, this alone is capable to perfect the Cure: Because it being a *volatile Alkali*, penetrates, in a short Time, all the Vessels, and dissolves the Blood, which the Venom of the *Viper* would have coagulated.

As to the Manner wherein the *Viper* conveys its Poison, Authors are a little disagreed. Several imagine, that the Malignity consists only in the irritated Spirits; 'tis the Sentiment of *Van Helmont* and *Poterius*, as related by *Zuulpher*, in his Remarks on the *Pharmacopæa* of *Ausbourg*; where he mentions the Troches of *Vipers*. *Zuulpher* says, that there have been so many great Men who have supported this Sentiment, with curious Observations on the Bites of *irritated Animals*, particularly those of a Man, Cat, Wolf, Horse, Dog, *&c.* and among them *Fabricius Hildanus*, in his *Chirurgical Operations*; that he was not himself oblig'd to add any Thing else to prove the Truth of their Opinions. If we see, continues he, Accidents happen, some more fatal, some less, they are to be attributed to a greater or less Degree of Wrath in the *Animal*.

This Sentiment seems to have been confirm'd by some Experiments related by M. *Charras*, in his Book of the *Viper*; where he not only shews that the irritated Spirits make, alone, the Venom of the *Viper*: But pretends, likewise, that the yellowish Liquor found in the two *Vesiculæ*, or Bags, which cover the Base of the two canine Teeth, and which was suppos'd to be the Venom of the *Animal*, is not poisonous at all; that he has given it to Pigeons, as Food, without their being at all disorder'd thereby; that the *Viper*'s Bite he has always found mortal to *Animals*, even after the Bag has been taken clear out, as well as before: And, lastly, that the Poison must lie in the irritated Spirits of the *Viper*, which it exhales in the Ardour of its Bite, and which are so cold, that they curdle the Blood, and stop the Circulation.

Francisco Redi maintains, on the contrary, that all the Venom of the *Viper* is contain'd in the two *Vesiculæ*, or Bags, abovementioned; whence, upon biting, the yellowish Liquor is squeez'd out into the Wound, where mixing with the Blood, and other Juices, it produces the dreadful Symptoms attending the Bite of the *Viper*. This Hypothesis he maintains by a good Number of Experiments, as of *Animals*, *viz.* Cocks, *&c.* being bitten by *Vipers*, after these *Vesiculæ*, and their Juice, had been taken out, without any Sign of Poison, or any ill Consequence at all.

This Sentiment of *Redi* has found a vast Number of Partisans, and the excellent Dr. *Mead*, in particular, who supposes it the true one, in his Essay on the Poison of the *Viper*; and who adds to *Redi*'s Account, that the Poison in the *Viper*'s Bag is separated from the Blood by a conglomerate Gland, lying in the lateral anterior Part of the *Os Sincipitis*, behind the Orbit of the Eye; from which Gland is a Duct that conveys the Poison to the Bags at the Teeth. The Teeth, he adds, are tubulated, for the Conveyance and Emission of the Poison into the Wound; but their Hollowness does not reach to the Apex, or Tip of the Tooth, but ends in a long Slit below the Point, out of which the Poison is emitted.

These Slits, or Perforations of the Teeth, *Galen* says, the Mountebanks, of his Days, us'd to stop with some Kind of Paste; after which, they would publickly expose themselves to be bitten, without Danger.

In so great an Opposition of Sentiments and Experiences, a learned Author, to reconcile them, says, that it could very well happen that the yellow Liquor of the *Vipers* might produce different Effects, according to the different Places they are born in: And therefore M. *Redi* could have found that yellow Juice venomous in *Italy*, whereas in *France*, where the Climate is colder, that Liquor shews no Venom, unless excited by the irritated Spirits of the *Viper*, which gives it its Penetration.

Some Persons assure us, that they have seen several *Animals* die in *France*, some Time after that yellow Liquor had been put in Wounds made on Purpose; which favours much the Sentiment of M. *Redi*. Besides what is said of that Liquor having been tasted, in *France*, without the least Prejudice to the Person who tasted it, is not a quite convincing Proof of its not being poisonous; because though the Spirit of Vitriol, for Example, or some other Acids, be not mortal, when taken by the Mouth; if, notwithstanding they be syring'd, in an equal Quantity, into the Veins, the *Animal* falls immediately into Convulsions, and dies. But as the Reason why the Spirit of Vitriol taken by the Mouth is not a Poison, is, that its Acids being weaken'd then by their Mixture with the *Saliva*, and that before they come to be mix'd with the Mass of the Blood, its Particles are so alter'd by the Ferment of the Places they pass through, that they only retain Virtue enough to cool the Blood: It can be said, likewise, that the yellow Juice of the *Viper*, when put on the Tongue, besides its being mix'd with the Humidity of the Mouth, and of the Stomach, is also alterated by the Ferment of the Places through which it must pass, before it enters the Mass of Blood.

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My own Sentiment is, that the Venom of the *Viper* consists in its irritated Spirits, (which meeting in their Passage from the Blood, whence they sally to the Mouth of the *Animal*, a vast Quantity of acid Particles) each of those Spirits forms to itself a *Capsule*, or Sheath, of those acid Particles, wherein it wraps itself, and flowing with Violence, or Impetuosity, from the Mouth of the *Animal*, when he bites, insinuate themselves into the Veins and Arteries, where meeting with the Alkali of the Blood, they ferment, and form a *Coagulum*; that 'tis not without a very great Appearance of Reason that the Venom of the *Viper* is supposed to consist in the yellow Juice contain'd in the *Alveoli*; for those Spirits insinuating themselves into those *Alveoli*, at the same Time they crowd to the Mouth of the *Animal*, while irritated, cause there so great an Effervescence, that the Membrane of the Bag, being thereby distended beyond its Strength, and therefore breaking, at its being compressed by the Part bitten, emits the Liquor it contains, in the Wound: That *that* Liquor, thus impregnated, can remain poisonous ever after, and produce the same bad Effects, when put in any other Wounds besides that made by the Bite of the *Viper*; because those Spirits, thus sheath'd, being put into a new Ferment by the Heat of the Part the Liquor is apply'd to, are directed to the same Action; and that the Difference of the Time, as well as of the Constitution of the *Animal*, when the Experiments of M. *Charras*, and M. *Redi*, have been made, may be the Cause of the different Effects the yellow Juice of the *Viper* has produc'd, (for it would be impertinent to deny Facts alledg'd by Men of their Integrity and Knowledge,) for it can't be reasonably supposed that a weak and cacochimous *Animal* can emit so great a Number of Spirits, when irritated, as one more vigorous, and of a stronger Constitution; nor that a Liquor lately taken out of the Bag, could not be more apt to ferment, than that which has been a longer Time out of it,

are not so subtile as that of the Viper. The Hairs, the Urine, the Blood, give more volatile Salt than the Bones. The aquatick Animals produce less volatile Salt than the terestrial. The Mille-pedes, Earth-worms, and Snails have less volatile Salt than the Lizards and Serpents, the Hart, the Goat, the Dog, the Wolf, Fox, Castor, Cat, the Hare, the Rabbit, the Rat, and the Mouse, give more volatile Principles than the Calf, the Sheep, the Ox, the Horse and the Ass. The Parts of the human Body are all full of volatile Salt; there is but the Viper among Animals, which has a little more of it than any of the rest. The Bear has likewise a vast Quantity of it, the Hartshorn contains more of it than Ivory; the Hairs more than any other Part of the human Body; and the Milk less than any other Liquor found in *Animals*.

Animals, their Parts, and their Excrements, possess different Virtues, according to the more or less of their volatile Principles, and their Union among them. Those, whose Principles are much volatile, have commonly a sudorifick Quality, as human Blood, and the Cranium or Skull; the Viper and Hartshorn, because their Substance being heated in the Stomach spreads itself throughout the whole Body, and comes out through the Pores. But those whose Substances are less volatile, have often an aperitive Virtue, as the prepared Toad, the Mille-pedes, the Craw-fish; because their Salts being heavy are precipitated into the Blood, and open the urinary Ducts. Those, whose Principles have fermented, as what is improperly called the Testicle of Castor, the Urine, the Musk, the Civet, and the Excrements of several Animals, are proper, some for the Epilepsy, Apoplexy, Palsy; others for the Histericks, because their volatile Substance ascending to the Brain strengthens the Origination of the Nerves. Urine is a very good Remedy for the Gout, because it exalts and dissipates the Humour through the Pores by Stools and Urine. The Dose is two or three Glasses every Day. It is also very good for the Vapours.

When we want to make Use of *Animals* in Medicine, we must choose them while they are in their Vigour; and never employ those which are dead of some Distempers, because the best of their Substance has been exhausted.

We'll choose but one whole *Animal* for the Subject of our *Chymical* Operations, and that will be the *Viper*. All our other Subjects are to be some Parts or Excrements of different Kinds of *Animals*, as *Urine*, *Hartshorn*, *human Skull* and *Brain*, *Honey* and *Wax*.

The VIPER, *Vipera*, is a Kind of Serpent, famed not only for the exceeding Venomousness of its Bite, which is one of the most dangerous Poisons in the animal Kingdom, but also for the great Usefulness of its Flesh in Medicine.

This most remarkable Reptile has the biggest and flattest Head of all the Serpent-kind. Its usual Length is about half an Ell; and its Thickness sometimes two or three Inches: Its Snout is not unlike that of a Hog. It has sixteen small immoveable Teeth in each Jaw; besides two other large, sharp, hooked, hollow, transparent, canine Teeth, situate at each Side of the upper Jaw, which are supposed to be those that do the Mischief; these are flexible in their *Alveoli*, and are ordinarily laid flat along the Jaw, the *Animal* never raising them but when it will bite. The Roots or Bases of these Teeth or Fangs are incompassed with a Vesicle or Bladder, containing the Quantity of a large Drop of a yellow insipid salivous Juice. It has only one Row of Teeth, whereas all other Serpents have two: Its Body is not at all fetid; whereas the inner Part of the Body of other Serpents are intolerable; it creeps very slowly, and never leaps like other Serpents, though it is nimble enough to bite when provoked. Its Body is of two Colours, Ash-Colour, or yellow, and the Ground speckled with longish brown Spots. The Scales under its Belly are of the Colour of well polished Steel.

The Male has two Sets of genital Instruments, and the Female two Matrices, *&c.* She brings forth her young living; whereas other Serpents lay Eggs, and hatch them; on which Account the *Viper* is ranked among the viviparous *Animals*. Her young ones come forth wrapp'd up in thin Skins, which break on the third Day, and set the *Animal* at Liberty. She brings forth the Number of twenty young; but only one each Day. The Antients, particularly *Galen*, *Pliny*, &c. believed that the Young killed their Mother in the Delivery; but this is not the only Mistake they were guilty of on the Subject of the *Viper*.

This *Animal* is very common in *Dauphiny*, and in *Poitou*, two Provinces of the Kingdom of *France*, whence they are transported throughout the whole Kingdom. When in the Fields it hath several little *Animals*, on which it feeds; but when confined it may be kept alive a whole Summer without eating, provided it has Air enough. The Reason why the *Viper* can live so long without eating, is that the Pores of its Skin being very close and exiguous, as it appears, when narrowly examined, there is but a very little Dissipation made of its Spirits, therefore it does not want Aliments, like other *Animals*, for the Formation of new ones.

Vipers must be taken in the Spring, or in Autumn, because then they are fatter, and in their greatest Vigour: The Cold kills them. When the *Viper* is irritated, it darts out a fork'd Tongue, which appears like a small Firebrand; because of the Spirits which are in a violent Agitation. Those who have never seen the Teeth of the *Viper* imagine that this Tongue does all the Mischief, but they are mistaken, since it is in no manner venomous.

Dr. *Mead* observes, that the Antients esteem'd the *Viper* sacred; and that the Kings of the *East Indies* caused Cottages to be built for their Entertainment; and those who killed them to be punished with Death. On Medals the *Viper* is frequently represented as a Symbol of divine Power; and as such given by Way of Attribute to the antient Physicians.

The Bite of the *Viper* is more dangerous than that of the other Serpents; the Cure seems very unsettled. Mr. *Boyle* and Mr. *L'Emery* found a hot Iron held near the Place successful, but it proved otherwise to Mr. *Charras*. Again the Snake-stone, from the *East-Indies*, immediately applied to the Place, is much commended: But Mr. *Redi* and Mr. *Charras* found it of no Use; yet *Baglivi*, and Dr. *Havers* give Instances of its good Success.

Dr. *Mead* adds, that the same Stone directly applied to a Pigeon, when bitten, saved its Life four Hours; whereas most of the other Pigeons bitten died in half an Hour. This Stone is not natural but factitious; its Virtues lies in the Porosity, which is supposed to imbibe the Virus. The *Viper-Catchers*, Dr. *Mead* adds, have a Specifick they can so far confide in, as not to be afraid of being bitten. That Specifick is the *Axungia* of the *Viper* presently rubbed into the Wound; which consisting of clammy, viscid, penetrating, and active Parts, sheaths the Salts of the Virus. The same Author applying it to the Nostrils of a Dog bitten, found it well the next Day: When this is not timely applied, and the Virus has insinuated into the Blood, the *Sal-Viper* is excellent, given and repeated 'till Sweats be produced. This succeeded well with Mr. *Charras*; and Dr. *Mead* relates that it recovered one after the Virus had induced an universal Icterus.

L'Emery says, that the quickest Remedies for the Bite of the *Viper*, is to squeeze a little the Wound, to evacuate as much of *Sania*, and of Blood as possible, to make a strong Ligature, a little above the Wound, with a Pack-thread, to intercept the Course of the Venom, which would spread throughout the whole Habit of the Body; but that if the Part admits of no such Ligature, the Head of the *Viper* must be bruised and applied on the Wound, or a red hot flat Iron approached as near the Wound as it can be bore; or the Wound scarified, and a Mixture of Theriack, Garlick, and Sal-Armoniack, applied to it; or lastly, that Gunpowder may be burnt upon the Wound. He pretends that all these Topick Remedies can open the Pores

Pores of the Wound, and bring out the envenom'd Spirits which had enter'd into it; with this Caution, that those Remedies are to be apply'd immediately after the Bite; for if any Time was given to the Venom to penetrate further into the Vessels, they would prove ineffectual, because the Venom could not return to the Wound, however great could be the Dilatation of the Pores. After these necessary Applications on the Wound, the same Author prescribes the *volatile Salt* of *Vipers* to the Patient; for in Case, says he, the external Remedies should prove ineffectual, this alone is capable to perfect the Cure: Because it being a *volatile Alkali*, penetrates, in a short Time, all the Vessels, and dissolves the Blood, which the Venom of the *Viper* would have coagulated.

As to the Manner wherein the *Viper* conveys its Poison, Authors are a little disagreed. Several imagine, that the Malignity consists only in the irritated Spirits; 'tis the Sentiment of *Van Helmont* and *Poterius*, as related by *Zuulpher*, in his Remarks on the *Pharmacopœa* of *Ausbourg*; where he mentions the Troches of *Vipers*. *Zuulpher* says, that there have been so many great Men who have supported this Sentiment, with curious Observations on the Bites of *irritated Animals*, particularly those of a Man, Cat, Wolf, Horse, Dog, *&c.* and among them *Fabricius Hildanus*, in his *Chirurgical Operations*; that he was not himself oblig'd to add any Thing else to prove the Truth of their Opinions. If we see, continues he, Accidents happen, some more fatal, some less, they are to be attributed to a greater or less Degree of Wrath in the *Animal*.

This Sentiment seems to have been confirm'd by some Experiments related by M. *Charras*, in his Book of the *Viper*; where he not only shews that the irritated Spirits make, alone, the Venom of the *Viper*: But pretends, likewise, that the yellowish Liquor found in the two *Vesiculæ*, or Bags, which cover the Base of the two canine Teeth, and which was suppos'd to be the Venom of the *Animal*, is not poisonous at all; that he has given it to Pigeons, as Food, without their being at all disorder'd thereby; that the *Viper*'s Bite he has always found mortal to *Animals*, even after the Bag has been taken clear out, as well as before: And, lastly, that the Poison must lie in the irritated Spirits of the *Viper*, which it exhales in the Ardour of its Bite, and which are so cold, that they curdle the Blood, and stop the Circulation.

Francisco Redi maintains, on the contrary, that all the Venom of the *Viper* is contain'd in the two *Vesiculæ*, or Bags, abovementioned; whence, upon biting, the yellowish Liquor is squeez'd out into the Wound, where mixing with the Blood, and other Juices, it produces the dreadful Symptoms attending the Bite of the *Viper*. This Hypothesis he maintains by a good Number of Experiments, as of *Animals*, *viz.* Cocks, *&c.* being bitten by *Vipers*, after these *Vesiculæ*, and their Juice, had been taken out, without any Sign of Poison, or any ill Consequence at all.

This Sentiment of *Redi* has found a vast Number of Partisans, and the excellent Dr. *Mead*, in particular, who supposes it the true one, in his Essay on the Poison of the *Viper*; and who adds to *Redi*'s Account, that the Poison in the *Viper*'s Bag is separated from the Blood by a conglomerate Gland, lying in the lateral anterior Part of the *Os Sincipitis*, behind the Orbit of the Eye; from which Gland is a Duct that conveys the Poison to the Bags at the Teeth. The Teeth, he adds, are tubulated, for the Conveyance and Emission of the Poison into the Wound; but their Hollowness does not reach to the Apex, or Tip of the Tooth, but ends in a long Slit below the Point, out of which the Poison is emitted.

These Slits, or Perforations of the Teeth, *Galen* says, the Mountebanks, of his Days, us'd to stop with some Kind of Paste; after which, they would publickly expose themselves to be bitten, without Danger.

In so great an Opposition of Sentiments and Experiences, a learned Author, to reconcile them, says, that it could very well happen that the yellow Liquor of the *Vipers* might produce different Effects, according to the different Places they are born in: And therefore M. *Redi* could have found that yellow Juice venomous in *Italy*, whereas in *France*, where the Climate is colder, that Liquor shews no Venom, unless excited by the irritated Spirits of the *Viper*, which gives it its Penetration.

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it, during which, Part of the Spirits have been evaporated, and those left so weaken'd, and so much entangled and embarrassed in the ramous Particles of the yellow Liquor, as to be impossible for the Heat of the Part to make them ferment a-new, as to direct them to Action. The Constitution of the *Animal* on which the Application is made, can also contribute towards making that Liquor produce different Effects; for if the Blood of that *Animal* contains a great Quantity of tenacious and viscous Humours, capable to embarrass and blunt the Points of those acid Sheaths, the Spirits of the *Viper* are wrapp'd in, or its inward Heat is so vehement, as to be capable to change the Configuration of those acid Points, the Liquor produces no bad Effects. On the contrary, if the Blood is thin and fluid, and the Heat of the Body moderate, so as to be capable only to excite a new Ferment of the Liquor, and to direct the Spirits to Action; the Liquor may produce the bad Effects mentioned by M. *Redi*.

The Symptoms following the Bite of a *Viper*, are, an acute Pain in the Place wounded; a Swelling, first red, afterwards livid, spreading by Degrees; great Faintness; a quick, low, and sometimes interrupted Pulse; Sickness at the Stomach; bilious convulsive Vomitings; cold Sweats; sometimes Pains about the Navel; and Death itself, if the Strength of the Patient, or Slightness of the Bite, do not overcome it. If he does overcome it, the Swelling continues for some Time; and the Symptoms abating, from the Wound runs a sanious Liquor, little Pustules arise about it, and the Colour of the Skin is as if the Patient were icterical. By the Microscope the *Virus* has been found to consist of minute Salts in continual Motion; after which, a Number of *Spitula*, or Darts, appear'd, resembling, but much finer, a Spider's Web. This, when mix'd with Syrup of Violets, inclines to red, no wise to green; so that the Venom is not alkali. But M. *Boyle*, and M. *Pitcairn*, prove the Blood to be only an Alkali, which confirms my Sentiment of the Venom of the *Viper*.

The first Preparation made of the *Viper*, (which is not a *chymical* one) is the POWDER, which to make, *Vipers* must be taken, while they are in their greatest Vigour; the Females full of Eggs, or with Young, are not so good as the others; having been skinn'd, gutted, and their Heads cut off, they are put to dry from the Sun, and afterwards pulveriz'd in a Mortar: But as that Powder is not easily kept, because Worms get into it, a Paste is made of it, with a sufficient Quantity of Gum Adraganth and Troches, and small Balls made of it, which must be pulveriz'd, when wanted.

This *Powder* is administer'd in the Small Pox, malignant Fevers, and all Maladies where 'tis necessary to resist Venom, and to purify the Humours by Transpiration. The Dose is from 8 Grains to 30, in Broth, or some other Liquor apppropriated to the Distemper.

The Heart and the Liver are dry'd in the Sun, pulveriz'd together, and have the same Virtues as the Body of the *Viper*; but the Dose is a little less. This Preparation is call'd *Bezoar Mineral*.

The Gall of the *Viper* is sudorifick. The Dose is from 1 to 2 Drops, in Water of *Carduus Benedictus*.

The Fat found in the Entrails of the *Viper*, is melted, then strain'd, to separate it from its Membranes: It is clear as Oil, and used in several Countries for the Small Pox, and Fevers. The Dose is from 1 Drop to 6, in Broth. It enters, likewise, in Plaisters, and resolutive Unguents.

Note, That I have no good Opinion of the Preparation of the *Powder of Vipers*, because I can't imagine that there are Salts enough left (in which should consist its Virtue) to operate in the Manner 'tis expected it should, since the volatile Salts, in which consists all its Virtue, are so much embarrassed in the coarser and viscous Particles of the *Viper*, as to be impossible for them to be exalted so as to be capable to produce any considerable Effects; which can't be said of the following *chymical* Preparation we are going to make of the *Viper*.

This Preparation is the DISTILLATION OF THE VIPER, which is a Separation of the Principles of the *Viper*, *viz.* of its Phlegm, volatile Salt, and Oil, from its Terrestreity; which to perform, we put 6 Dozen of *Vipers*, dry'd from the Sun, as above, into a stone or glass Retort, which we lute, and place in a reverberatory Furnace; we adapt a large Recipient to it, and having luted exactly the Junctures, begin the *Distillation* by a little Fire, to heat gently the Retort, and to bring out a phlegmatick Water: When we perceive that it has done dropping, we increase the Fire by Degrees, to bring out white Clouds, the Spirits which fill the Recipient, and afterwards a black Oil, and the volatile Salt which sticks to the Inside of the Recipient: We continue the Fire till nothing more comes out, after which, we leave the Vessels to grow cold, and then unlute them; we shake, a little, the Recipient, to loosen the volatile Salt which sticks to the Side, and pour all into a Matrass with a long Neck, to which we adapt a Capital, and a little Recipient, luting exactly the Junctures: We place our Matrass on the Sand, and make under it a small Fire, to sublimate the volatile Salt, which will stick to the Capital, and to the superior Part of the Matrass; which Salt we loosen, and keep in a Vial, well cork'd.

The *volatile Salt of Vipers* is one of the best Remedies we have in Medicine: It is good for malignant and intermitting Fevers, the Small Pox, Apoplexy, Epilepsy, Palsy, hysterick Distempers, and for the Bite of venomous Beasts. The Dose is from 6 to 16 Grains, in some Liquor appropriated to the Distemper.

We pour what remains in the Matrass into a Funnel lin'd with grey Paper; the Spirit and the Phlegm runs through, but the stinking Oil remains on the Paper; which Oil may be given to smell to Women attack'd with the Hystericks, and serves also to anoint the Parts in the Palsy.

We pour the Spirit and the Phlegm, mix'd confusedly together, into an Alembick, and distil, at a vaporous Bath, about Half the Liquor, which is the *Spirit of Viper*, which has the same Virtues as the *Salt*. The Dose is from 10 to 30 Drops.

In the same Manner may be extracted the *volatile Salt of Toads*, *Hartshorn*, *Ivory*, *Blood*, the *Cranium*, *Hair*, and other Parts of *Animals*.

Note, That the Virtues of *Animals* consists, particularly, in their *volatile Salts*; 'tis that Salt which gives the Savour to Aliments, makes the Broth strong, and renders it into a Jelly, according as it is in a greater or less Quantity. The *volatile Salt* rarefies the Humours of the Body, because 'tis extremely penetrating; and by its being alkali, breaks the Points of the Acids, which kept the Humours condensed; after which, the Blood having a greater Motion than it had before, is easier purify'd by Perspiration, or Urine, of the foreign Matters which had gather'd in it.

Note, also, That several of our modern Physicians prescribe the Flesh of the *Viper*, either roasted, or boil'd, as an excellent Restorative; particularly in the Elephentiasis, incurable Consumptions, Leprosy, *&c.* and Dr. *Mead* thinks, they might be less sparing in the Quantity than they are: Instead of a little *Viper*'s Flesh, he recommends the Broth, or Jelly of *Vipers*; or, as the Antients did, to boil, and eat them as Fish, or at least to drink *Vinum Viperinum*, *i. e.* Wine wherein they have been long infus'd. I am of Dr. *Mead*'s Opinion, that *Viper*'s Broth, or Jelly, is a greater Restorative than the Flesh, either boil'd, or roasted; because, as we have already observ'd, the Virtues of *Animals* consisting in their *volatile Salts*, the Flesh of the *Viper* must have

have been almost entirely divested of those *volatile Salts*, by the great Evaporation which attends those two Preparations of Roasting and Boiling: Therefore that Flesh, thus prepar'd, retains little or no Virtue, and is incapable of producing the least good Effect; even the Broth must be done at a very slow Fire, and the Vessel well stopp'd; otherwise it would be very near as inefficacious as the boil'd or roasted Flesh. I have sometimes prescrib'd the *Viper* for a Restorative, but I had it prepar'd otherwise: For I order'd, that a Piece of Beef, which we call here the Mouse Buttock, without Fat, should be cut into Stakes, and 2 or 3 *Vipers* (more or less, according to the Quantity of Liquor I design'd to have) skinn'd, gutted, and their Heads cut off, should also be cut in Pieces, and put, together with their Livers, and the Beef, into an earthen Jug, glaz'd within, and well luted a-top, to hinder Perspiration: That Jug, thus stopp'd, was put in *Balneo mariæ*, and boil'd there for 10 Hours, and Care taken to re-implace the Water of the Bath, evaporated in the Operation, with other boiling Water. The Operation ended, the Jug was taken out of the Bath, unluted, and the Liquor strain'd through a Cloth, with Expression, and the Meat thrown away as needless: The Fat found a-top of the Jelly, when cold, was quite taken off, and a Spoonful or two of that Jelly, warm, given by Intervals to the Patient. I have found this Restorative better than any other made of the Flesh of *Vipers*. I have order'd it, with Success, to a Gentleman attack'd with a Dropsy, whose Stomach nauseated all Sorts of Aliments.

URINE, (the next Subject of our Operations) is a serous Liquor, impregnated with a great deal of volatile Salt, and a small Quantity of Oil, it has taken in circulating with the Blood. These active Substances give it a great many good Qualities, and render it proper for several Maladies. For Example, the *Urine* of a young Man, newly evacuated, being drank, and apply'd outwardly on the afflicted Part, is very proper to appease the Pains of the Gout, for the Itch; to raise Obstructions, and dissipate hysterick Vapours. Two or three Glasses of it drank every Day, purge by Stool. That of a young Man is preferable to any other.

Among the *Urines* of *Animals*, 'tis very probable, that the *Urine* evacuated by those which feed on Grass is the best; because 'tis properly an Extract of the best and wholsomest saline Particles of the Plants which those *Animals* eat; but the *Urine* of a Cow is preferable to all others; because this *Animal* being very humid, and pretty melancholy, 'tis suppos'd to participate of its Constitution, and to have less Acrimony than that of other *Animals*. This *Urine* has been us'd in *France* under the Name of *Eau de Millefleurs*. It must be chosen of a Cow which feeds in the Fields, which does not cohabit with the Bull, is young, and fat; and it must have been newly evacuated. Two or three Glasses of it must be drank, every Morning, fasting, at a Quarter of an Hour's Distance between each Glass; but it must have been strain'd first through a linnen Cloth, and the Patient must take a Walk after he has drank it, and take some Broth two Hours after.

This Remedy purges the Serosities by Stool and Urine, is good for the Yellow Jaundice, Rheumatism, Gout, Vapours, Dropsy, Sciatica, and the Asthma. The Use of it is continu'd for 9 or 10 Days successively. The most proper Season to drink this *Urine*, is the Spring, while the Cow eats the Top of the Herbs.

The DISTILLATION OF URINE, (which is the only *chymical* Preparation we make of it) is a Separation of the Spirit, volatile Salt, and Oil, from the Phlegm, and the Earth it contains; made in the following Manner: We cause the Humidity of 10 or 12 Quarts of *Urine*, newly evacuated by a healthy young Man, to be evaporated in a stone or glass Cucurbite, at a Sand Heat, till it remains a Matter of the Consistence of Honey; then adapt a Capital, with its Recipient, to the Cucurbite; and having exactly luted the Junctures, we continue a little Fire, to bring out the rest of the Phlegm; after which, we increase it, by Degrees, and the Spirits ascend in Clouds with a little Oil, and afterwards the volatile Salt which sticks, in Form of Butterflies, to the Capital: We continue the Fire till nothing more ascends, and afterwards unlute the Vessels, and having separated the volatile Salt, we put it into a Matrass with a long Neck, pouring upon it the Spirit found in the Recipient; then adapt a blind Capital to the Matrass, and having luted the Junctures with a wet Bladder, and plac'd the Matrass on Sand, we make sublimate, by a slow Fire, all the volatile Salt, as we have done that of the Viper. We separate that Salt, and keep it in a Vial, well cork'd.

The *volatile Salt of Urine* is a very good Remedy for quartan Agues, and malignant Fevers: It raises Obstructions, and is diuretick, and sudorifick. The Dose is from 6 to 16 Grains, in some Liquor appropriated to the Distemper.

We filtrate what is left in the Matrass, the Spirit runs through, and there remains a small Quantity of a black and very stinking Oil, which is good to resolve cold Tumours, and for the Palsy. The Spirit may be rectify'd at a Sand Heat, to separate it from some Dirt which remains at the Bottom. This Spirit has the same Virtues of the Salt. The Dose is from 8 to 20 Drops, in some Liquor. Two Drachms of it are often mix'd with 2 Ounces of Brandy, to rub the paralitical Parts; 'tis also us'd for cold Pains, and the Sciatica.

Note, That the *Urine* of young Men is preferable to others, because it contains more Salt. This Remedy is never to be administer'd in Broth, because Broth being taken hot, the Heat exalts Part of the volatile Salt before the Cup can be carry'd to the Mouth of the Patient. From this we'll pass to our Operations on *Hartshorn*.

HARTSHORNS, are a Production of a glutinous Humour of the Brain, which being push'd out by the Spirits of the *Animal*, sublimate at first into two simple and tender Horns, without Branches; but the Nourishment flowing thither in Abundance, by the Vessels form'd in them, they soon grow considerably, and extend themselves by several Branches, which grow hard like Bones. The *Hart* unloads himself of his *Horns* every Spring, because that Part which sticks to the Head, having harden'd during the Winter, so that the glutinous Humour which in the Spring flows from the Brain, being incapable to penetrate it, there are form'd under it new *Horns*, which supplant the old ones.

Hartshorn rasp'd, is employ'd in Ptisans, for Diarrhœa's, Spitting of Blood, to resist the Malignity of Humours, and to kill Worms. A Jelly is prepar'd of it, by its being boil'd, a long Time, in Water, or till the glutinous Part of the *Horn* be soften'd, and dissolv'd in the Water. Sugar, white Wine, Lemon Juice, and Cinnamon, are often added to it, to render it more agreeable.

We distil the Water of *Hartshorn*, by cutting into small Pieces, tender *Horns*, or rather those which sprout in the Spring, and putting them into a stone Cucurbite, to which having adapted a Capital, with its Recipient, and luted exactly the Junctures, we distil, at the vaporous Bath, or in *Balneo mariæ*, all the aqueous Humidity, which will be the Water of *Hartshorn*, esteem'd very good to facilitate Delivery, and to resist the Malignity of Humours in malignant Fevers. The Dose is from 1 Ounce to 4.

Note, That though this Water be very much esteem'd, it can't have a great Virtue, since 'tis nothing but the Phlegm of the Mixt; the volatile Salt, and the Oil, in which consists all the good Quality of the *Hartshorn*, being left, in what remains in the Cucurbite. To make a good Water of *Hartshorn*, capable

capable to produce a good Effect, there must be mix'd with it, Cinnamon, Mace, Orange-Peel, and other hysterick *Arcana*; and the whole Mixture having been well humected with white Wine, is put in Digestion, and afterwards distill'd. To extract the volatile Salt, Spirit, and Oil of *Hartshorn*, the Process is the same as in the *Distillation of the Viper*.

Though the human CRANIUM, and the *Brain*, be much imbib'd with Pituita, and viscous Phlegm, 'tis nevertheless the *Reservoir* of the most subtile Spirits of the Body, which are continually sublimated there; therefore they must contain several good Remedies.

The Head to be employ'd in Medicine, must have been separated from the Body of a strong and healthy young Man, newly dead of a violent Death, and who has not been bury'd, that it may remain impregnated with all its active Principles; the most subtile thereof would have been dissipated in the Earth.

Human Cranium, dry'd, rasp'd, and pulveriz'd, is much esteem'd for the Epilepsy, and all the Disorders of the Brain. The Dose is from 10 Grains to 2 Scruples. It operates by its Salts, which are all volatile.

There is found on the *Cranium* of Criminals expos'd on the Highways, or hung in Chains, a Sort of green Moss, call'd *Usnea*, which is a very good Astringent, proper to stop Bleeding, apply'd outwardly. A little Bit of it is introduc'd into the Nostrils, to stop the Hæmorrhage of the Nose. *Crolius* employs it in his sympathetick and hermetick Unguent. It also may be us'd inwardly, for the Epilepsy.

Human Brain, taken inwardly, is an excellent Remedy for the Epilepsy, when not yet confirm'd. The Use must be continu'd during 15 Days. The Dose is 2 Drachms.

The DISTILLATION OF THE HUMAN CRANIUM, and of the *Brain*, is a Separation of the active Principles contain'd in the human Head, made in the following Manner: We take the Head of a strong and healthy young Man, who has dy'd a violent Death, from which we separate the Skin, and all the outward Flesh; we saw, or break it in small Pieces, and put it, with all it contains, into 2 or 3 large Retorts of Glass or Stone, which we lute, leaving Half of them empty; we place the Retorts in one, or several reverberatory Furnaces, and adapt, to each, a large Recipient, lute the Junctures, and make under the Vessels a little Coal Fire, for 4 or 5 Hours, as well to heat them insensibly, as to distil the phlegmatick Part of the *Brain*: We afterwards increase the Fire slowly, to the third Degree, then come out white Clouds, which fill the Recipient; afterwards the Oil; and, lastly, the volatile Salt, which sticks to the Sides of the Recipient: We continue the Fire, increasing it towards the End of the Operation, till nothing more comes out, which is known at the Recipient's growing cold. The Operation ended, we let the Fire go out, and unluting the Recipients, when they are cold, we find in them a great deal of Phlegm, volatile Salt, and black and stinking Oil: We shake the whole very well together, to dissolve the volatile Salt which adheres to the Sides of the Recipient, and cast afterwards the Liquor into a Funnel lin'd with grey Paper, which Funnel is plac'd on a glass Cucurbite; the Spirit is filtrated, and leaves on the Paper a black and very stinking Oil, which we pour into a Bottle, to keep it. We adapt a Capital, with its Recipient, to the Cucurbite which contains the Spirit, lute the Junctures, and, by a slow Sand Heat, distil about Half the Liquor, which is the *rectify'd Spirit of the human Head*.

This *Spirit* is excellent for the Epilepsy, Apoplexy, Palsy, Lethargy, and all hysterick Diseases. It promotes Sweat, resists Venom, and is proper for Palpitations, Vapours, and the Scurvy. The Dose is from 4 to 20 Drops.

The *black Oil* is very resolutive, and proper for the Hystericks, if given to Women to smell: 'Tis also very good for the Epilepsy, taken inwardly, from 1 Drop to 6; but because of its offensive Smell, 'tis seldom us'd.

HONEY, *Mel*, (which falls next under our Hands) is a sweet Sort of Juice, suck'd from Vegetables, by the Bees, and reposited in their Combs, for their Nourishment.

In all Flowers which have Utricles at the Bottom of the Petala, is found a viscid, ruddy, sweet Juice, in good Plenty. The Bees visit these Flowers, and putting in their Proboscides, or Trunks, suck out the *Honey-Juice*, and load their Stomachs therewith, to be afterwards discharg'd, and laid up in their Combs: So that *Honey* is a Vegetable Substance. In the Belly of the Bee is a small transparent Bladder, which is the proper Receptacle of the *Honey*; when the *Animal* finds this full, it returns, enters one of the Cells, and discharges it there, by that Part of the Head situate between the two Jaws, which it extends wider than ordinary, moving its Head, at the same Time, this Way, and that. If a Drop happens to be ill plac'd, it sucks it up again by its Proboscis, and discharges it a-new. When a Cell is fill'd with *Honey*, they stop it up with Wax, for Winter Store.

Honey was antiently taken for a Dew that fell or descended on Flowers; but what proves this a Mistake, is, that the Bees only gather it after the Sun is up, when there is no Dew left: It must, therefore, either be a Liquor prepar'd in the Flowers, and excreted by its proper Vessels like Manna; or the fine Dust, or *Farina fœcundans*, as they call it, of the Apices. For according to the Observations of M. *Du Vernay*, the Bees, when in Search of *Honey*, fix on no other Part but the Stamina and Apices, and not on such as yield any other Liquor.

What is very remarkable, is, that *Honey*, in Virtue of its vegetable Nature, is discover'd by M. *L'Emery* to contain Iron; which Discovery may serve as an Answer to M. *Geoffroy*'s *chymical* Question, *&c.* viz. Whether there's any Part of the Plant with Iron? For if so delicate an Extract from the finest Part of the Flower, and this further elaborated in the little Viscera of the Insect, be not void of Iron; we may despair of seeing any so.

Four Things can contribute to the Goodness of *Honey*: 1. The Heat and Purity of the Air; for we see that *Honey* produc'd in hot Climates, as in *Languedoc* and *Dauphine*, in *France*, is ordinarily better than that made in temperate Provinces. 2. In the Goodness of the Bees, according as they are more or less domestick, and natural; for often foreign ones introduce themselves into the Hives. 3. The Place, and Pasture of the Bees; for according to the Nature and Strength of the Plants which the Bees suck, they make a better or worse *Honey*, and more or less odorous. Thus we see that the most proper Places to make good *Honey*, are those shelter'd from northerly Winds, and expos'd to the East or South; because the Bees find there Plants which are stronger, more aromatick, and essential, than elsewhere. 4. The Manner of preparing *Honey*, when taken out of the Hives; for sometimes, according to the Dexterity of the Workman, *Honey* is more or less fine. Some Naturalists will have *Honey* to be of a different Quality, according to the Difference of the Flowers or Plants the Bees suck it from. Accordingly, *Strabo* relates, that there is a Kind of *Honey* in *Pontus*, which is a strong Poison; being procur'd by Bees which feed upon Aconite and Wormwood. F. *Lamberti*, in his Account of *Mingrelia*, assures us of the contrary, and affirms it the best *Honey* in the World, by reason of the great Quantity of Baum growing there. He adds, that there is another very white Kind of *Honey*, hard as Sugar, and which does not stick to the Hands.

We have two Kinds of *Honey*, *white*, and *yellow*. The *white*, call'd also *Virgin Honey*, trickles out spontaneously from the Comb, by turning it up, or breaking it. The *yellow* is squeez'd from the Combs in a Press, after having first soften'd them with a little Water over the Fire. There is also an intermediate Sort,

of a yellowish white Colour, drawn by Expression, without Fire. *Yellow Honey* is the most common, and made in all Countries: It must be new, of a pretty thick Consistence, of a golden Colour, and agreeable Smell. *Alchymists* search for Gold in it, because of its Colour, which approaches that of Gold. They pretend, also, to find in it a great deal of *universal Spirit*, because extracted from Flowers, where they believe that *Spirit* condens'd in a greater Quantity than any where else.

White Honey is pectoral, it excites Spitting, helps Respiration, is restorative, and laxative.

Yellow Honey is detersive, laxative, digestive, attenuant, and resolutive. *Honey* dissolv'd in Water is call'd *Hydromel:* It can be render'd spirituous, or vinous, in the following Manner: This Operation is *Honey* dissolv'd in Water, and render'd vinous by Fermentation, thus: Twenty Pounds of fine *Honey*, white, of a good Consistence, newly taken out of the Hive, and of an agreeable Taste, are put in a large Bason tinn'd, and 60 Pounds of Water pour'd upon it; the Mixture must boil gently on the Fire, and be skimm'd, from Time to Time, to the Diminution of about Half the Water; then the Liquor is strain'd through a new Sieve, to separate the Impurities, if any remain. This is call'd *simple Hydromel*, and is very good for the Diseases of the Breast.

VINOUS HYDROMEL, (the same with what we usually call *Mead*, &c.) is made of Rain-water, and the best *Honey*, boil'd together, and skimm'd, from Time to Time, till they become of a Consistence capable to sustain an Egg; this done, the Liquor is expos'd to the Sun for 40 Days, to dispose it to ferment; then adding some *Spanish* Wine to it, and keeping it 2 or 3 Months, it acquires a Flavour scarce inferior to Malmsey. It fuddles readily, and the drunken Fit holds longer than that produc'd by Wines, by reason of its more viscid Consistence.

Hydromel is the common Drink of the *Poles* and *Russians*. *Diodorus Siculus*, *lib.* 5. and *Aristotle*, relate, that the *Celtiberi*, and *Taulantii*, antient People of *Illyria*, drank *Hydromel* instead of Wine.

The DISTILLATION OF HONEY, (which is more of our Province than the Preparation of *Hydromel*) is a Separation of the Water, Spirit, and Oil of *Honey*, from its terrestrial Parts; made in the following Manner: Four Pounds of good *Honey* are put in a large stone Cucurbite, and the Humidity distill'd till the acid Drops begin to come out; then the Fire is put out, and the Water kept in a Bottle: It is yellowish, of a good Smell of *Honey*, and of a sourish Taste. This Water is cordial, pectoral, and aperitive; proper to expel Milk from the Breast. The Dose is 2 Drachms, twice a Day. It also makes the Hairs grow.

The Matter left in the Cucurbite is put into a glass or stone Retort, two Thirds whereof are left empty; the Retort is plac'd in a reverberatory Furnace, and having adapted a large Recipient to it, and luted exactly the Junctures, the Distillation is begun by a little Fire, for 3 Hours, to heat the Retort, which Fire is increas'd slowly, till the Recipient be fill'd with Clouds; then the Fire is continu'd till nothing more comes out, the Vessels are unluted, afterwards, and the Spirit separated from the Oil through a Funnel lin'd with grey Paper: These two Liquors are kept a-part, in Bottles.

The *Spirit of Honey* is a good Aperitive; 'tis put in Juleps to a grateful Acidity. The *Oil* is good for the Caries of the Bones.

WAX, (which is the last Subject of our *chymical* Operations) is a soft, yellowish Matter, whereof the Bees form Cells to receive their Honey. *Wax* is not the Excrement of this laborious Insect, as the Antients, and, after them, many of the Moderns, have imagin'd: It is properly a Juice, exuding out of the Leaves of the Plants, and adhering to the Surface thereof; from which 'tis scrap'd off by the Bees, with their rough Thighs, to build their Combs withal. It is chiefly afforded by Lavender and Rosemary, from which last any Body may gather *Wax*; and with th Assistance of the Microscope the *Wax* may be plainly seen sticking on the Leaves of the Plant. So that *Wax* is not an *Animal*, but a *Vegetable* Substance.

Naturalists have generally imagin'd *Wax* to be gather'd from the Flower, some from the Petala, and others from the Apices. But *Boerhaave* assures us, 'tis a Juice peculiar to the Leaves, and not afforded by the Flowers, which only yield *Honey*.

The *Honey* is form'd, as we have already observ'd, of a liquid Matter suck'd into the Body, and only seems to arrive at its Perfection in the Entrails of the little *Animal*; whereas the *Wax* being a hard Substance, is gather'd only by the Fore-Legs and Chaps, convey'd thence to the Middle-Legs, and thence to the middle Joint of the Hind-Legs, where there's a small Cavity, like the Bowl of a Spoon, to receive it, and where 'tis collected into Heaps, of the Shape and Size of Lentils. The Bee, arriv'd at the Hive with its Load of *Wax*, finds some Difficulty in unburdening himself of so tenacious a Matter; frequently being unable to lay it down himself, he calls for Assistance, by a particular Motion of the Legs and Wings; upon which, a Number of his Companions straitway run to his Succour, and each, with his Jaws, takes off a small Quantity of the *Wax*, others succeeding, till their Fellow Bee be quite disburden'd.

Two Sorts of *Wax* are found in the Hive, *viz.* a *red Wax*, or natural Mastick, call'd *Propolis*, or *Virgin Wax*, the Bees use it to stop the Holes, and Cracks of their Hives; and the *yellow Wax*. This last must be chosen new, hard, compact, brittle, neat, of a fine yellow Colour, and an agreeable Smell.

Wax is emollient, and resolutive; 'tis us'd in Plaisters, and Unguents, to give them a due Consistence.

The DISTILLATION OF WAX, is a Separation of the Oil of the *Wax* from its Phlegm, and Part of its Salt; which is done by melting 2 Pounds of *yellow Wax* in an earthen Dish, and mixing with it as much Clay, in Powder, as is wanted to make a Paste of it, which Paste is form'd into little Bullets, and the Bullets put into a glass or stone Retort, one Third whereof is left empty: The Retort is plac'd in a reverberatory Furnace, a Recipient adapted to it, and the Junctures very well luted; which done, a little Fire is made, at first, to bring out the Phlegm, and then the Spirit: The Fire being increas'd, by Degrees, afterwards, there comes out a Liquor which thickens in the Recipient, like Butter; the Fire is continu'd till nothing more comes out: Then the Vessels are unluted, and the Spirit mix'd with the Phlegm, separated from the Butter, and kept in a Bottle, well cork'd.

The *Spirit of Wax* is a very good Aperitive. The Dose is from 10 Drops to 30, in some Liquor appropriated to the Distemper.

Butter of Wax is a good Resolutive for Tumours, cold Humours, Pains in the Joints, Palsy, Chilblanes, *&c.*

Having thus happily ended our *chymical Operations*, and concluded our Treatise of *Chymistry*, without having been disturb'd, in the least, by those Birds of Prey, and of ill Omen, whose sinister Appearance is more pernicious to a *Chymist* than the Vapours of calcin'd Antimony, or Spirit of Nitre; I'll proceed to give some more particular Directions (according to my Promise) for the Use of several of our *chymical Preparations*, adapted to the Age, Constitution, *&c.* of the Patient, and to the Malady, or Disease, he is afflicted with: Not that I would insinuate, thereby, that every Patient can be his own Physician, with the Help of these particular Directions; for each Malady is attended with so many different Symptoms, and those Symptoms change so often, and sometimes so suddenly, that they render the best Remedies inefficacious, and sometimes dangerous, when not administer'd with the Advice of a judicious Physician, who alone can make a just Difference between those Symptoms, and knows the propereſt Time to administer the Remedy. But, however, these particular Prescriptions may be of some Use in the Country, where there is sometimes a Scarcity

Scarcity of Physicians, and to Persons in indifferent Circumstances, who are not able to pay the exorbitant Fee of a Physician, few of them being very willing to visit a Patient who can't afford to pay a Fee; though I consider those who refuse it as accessory to a poor Patient's Death: And what is the more surprizing to me, is, that those who can better do it for nothing, are always the most backward to visit a poor Patient; as if the Life of a poor and honest Member of the Commonwealth was not as precious to her, as that of a rich Rogue. But this is preaching a Moral, which, I am afraid, will be little minded, or perhaps laugh'd at. I know that there are some of our great *Dons* who imagine that they do a great deal for the publick Good, when they give Audience, at their Palaces, two or three Times a Week, and that *in Post* too, to some poor Objects of Charity; but 'tis not those who are capable to resort to their Houses who want most their Advice; 'tis those poor miserable Moribunds confin'd in their Beds, and who but too often die for Want of Succour. Would they go to visit those truly deserving Objects? No, 'tis too much out of their Way; for while they would be attending those poor Patients, who have nothing to recommend them but their Misery, (a very bad Plea near a Physician in Vogue) they would perhaps lose the taking of 6 or 8 Guineas. I can but think that the Law is defective in this; for there should be a severe Punishment for Physicians who should refuse to visit a poor Patient; and for those infamous Men-Midwives, who, when called to a poor Woman in Danger of her Life, the first Question they ask, is, *Who'll pay me?* And put a whole Neighbourhood under Contribution, before they can be prevail'd with to go to Work. I would not mention this, if I had not a flagrant Instance of it in a certain Doctor, who, the 8th of *April* 1740, was sent for to a Woman, five or six Doors off him, who was in imminent Danger of her Life, but refus'd to go, because the Woman liv'd in a mean Place, whence he concluded there was no Money to be got: I can speak pertinently of this, for which I could have several Vouchers in the Neighbourhood, and was myself to have assisted the Gentlewoman, but was not to be found. But to proceed.

Remedies for the AGUE.

For the *Tertian*, *Quartan*, &c. *Agues*, the Patient must be very well purg'd, before any other Remedies are administer'd to him. The best Purgatives, on this Occasion, for Children, and Persons of weak Constitutions, are, 1. *Soluble Tartar*, of which, 10 Grains may be administer'd to a Child of 2 Years of Age; 15 Grains to one of 8; and 20 Grains to one of 12. Twenty Grains to a Woman or Man of a weak Constitution; and 2 Scruples to those of a stronger Constitution. 2. *Vitriolated Tartar*, which may be administer'd in the same Dose as the *soluble Tartar*. 3. *Carnachin's Powder*, 10 Grains to a Child of 2 Years old; 15 to one of 8; and 15 to one of 12. Twenty Grains to a Person of a weak Constitution, and easy to be purg'd; 35, and even 40 Grains, to a Person of a stronger Constitution. 4. *Mercurius dulcis*, in a Bolus; 3 Grains to a Child of 2 Years old; 6 to one of 8; and 8 to one of 12. Eight Grains to a Person of a weak Constitution; and 10, or even 12, to a stronger.

Note, That when a Patient takes any of the mercurial Preparations, he must keep himself warm all that Day, and take Care that the Remedy may not touch his Teeth, because it loosens them; that Mercury is one of the most sovereign Remedies we have in Medicine; and that no Body is to be afraid to take it in the Doses above prescrib'd. Mercury seldom gives more than 2 or 3 Stools, and purges otherwise by Sweat, or Insensible Perspiration.

Purgatives for Persons of strong Constitutions, are, 1. *Carnachin's Powder*, 40 Grains. 2. *Crocus Metallorum*, 6 Grains; and 8 for a very strong Constitution. 3. *Mercurius dulcis*, 15 Grains; and *red Precipitate without Addition*, 4 Grains; and even 6, for the most robust. 4. *Soluble emetic Tartar*, 12, 15, or 20 Grains; which last is the stronger Dose. 5. *Flowers of Antimony*, 4 Grains; and 6 for a very strong Constitution.

Note, That some of these Remedies are emetick, *i. e.* excite Vomiting; others cathartick, *i. e.* purge downwards: That the Patient, when he takes any violent Emetick, as the Preparations of Antimony, he must have a very fat Broth ready to take 1 or 2 Spoonfuls of it, when he has a Motion to vomit, that the Stomach may not be fatigu'd too much in the Operation of the Remedy.

The Patient having been purg'd by some of the above-describ'd Remedies, must take afterwards the following Febrifuges: 1. For a Child of 2, 3, and 4 Years of Age, *Tincture of Quinquina* made with Wine, or Water, Half an Ounce twice a Day, *i. e.* an Ounce in all, *viz.* Half an Ounce in the Morning fasting, and another Half Ounce two Hours after Dinner; for a Child of 12 Years old, and Persons of a very weak Stomach, and a cacochimous Constitution, an Ounce in the Morning, and another Ounce in the Afternoon; for Persons of a strong Constitution, 3 Ounces every Day, *viz.* an Ounce before Breakfast, an Ounce an Hour before Dinner, and another Ounce any Time in the Afternoon. 2. *Tincture of Quinquina made with Spirit of Wine*, for a Child of 4 or 5 Years of Age, 20 Drops a Day, *viz.* 10 in the Morning fasting, and 10 more 2 Hours after Dinner; for Persons of a weak Constitution, 30 Drops in the Morning, and 30 in the Afternoon; for robust Persons, a Drachm in the Morning, and another in the Afternoon. 3. *Extract of Quinquina*, for Children, 10 Grains in the Morning, and 10 Grains in the Afternoon; for Persons of a weak Stomach, &c. 30 Grains in the Morning, and 30 in the Afternoon; for strong Persons, Half a Drachm in the Morning, and Half a Drachm in the Afternoon.

Note, That if the *Agues* were obstinate, and could not be cur'd by these Doses, each Dose may be increas'd, without the least Danger, to one Third of the Quantity.

Remedies for the APHTS, *or little* CANKERS *in the Mouth.*

The *Spirits* of Allum, Vitriol, Salt, and Sulphur, mix'd with Plantane-water. *Tincture of Myrrh* is also very good, mix'd with the same Water.

Remedies for the APOPLEXY *and* LETHARGY.

1. *Composed Water of Melissa*, for the *Apoplexy*, when it is but the first Attack, and the Suffocation does not appear very strong, Half an Ounce. For the *Lethargy*, just began, Half an Ounce, or 2 Drachms of Hungary-water, or Spirit of Wine. 2. In a second Attack of the *Apoplexy*, or when the *Lethargy* has been of some Duration, an Ounce of *emetick Syrup*, or 2 Ounces of *emetick Wine*, or 4 Grains of *Flowers of Antimony*, or 15 Drops of *volatile Spirit of Sal Ammoniack*, in Brandy, or Wine; or 25 Drops of *Tincture of Salt of Tartar*, in Cinnamon-water, or Wine; or Half a Drachm of *camphorated Spirit of Wine*. 3. When the third Attack of the *Apoplexy*, and the *Lethargy* has been of a long Duration, 8 Drops of *Spirits of Venus*, in Wine, or 6 Grains of *Glass of Antimony*, or 6 Grains of *Powder of Algaroth*, or a Drachm of *Gilla Vitrioli*, or 20 Drops of *volatile Spirit of Sal Ammoniack*.

Note, That I have found no greater Specifick for these Maladies,

Maladies, than the *volatile Spirit of Sal Ammoniack*; for it seldom fails recovering the Patient, unless he be attack'd with Death.

Remedies for the ASTHMA, *and other Maladies of the Lungs and Breast.*

I can't recommend a better Remedy for all these Diseases of the *Lungs* and *Breast*, than 25 Drops of my *vulnerary and stiptick Tincture*, in the Morning fasting, and 50 at Night, going to Bed; for in the *Asthma* it incises and dissolves that viscous and tenacious Matter which obstructs the Bronchia of the *Lungs* and renders Respiration very difficult; and promotes Expectoration: It stops Spitting of Blood, cures the Ulcers of the *Lungs*, if there are any, and appeases the most violent Cough: So that I have seen Persons thought to be in a very deep Consumption, perfectly well recover'd by using it; I could even answer for these Effects on my own Life: And they have this great Advantage peculiar to them, that almost all Preparations for these Diseases are nauseous; whereas this *Tincture* is of a very agreeable Smell and Taste. It may be taken on Sugar, or in Tea, or any other Liquor; but 'tis far more pleasant on Sugar. I would not recommend them, if I was not convinc'd, by my own Experience, of their excellent Virtues.

In three Weeks Time, those who are pleas'd to have this *Tincture*, may be supply'd with it, in any Quantity, by my Printer, Mr. *Hart*. For as I have never us'd it, yet, but for my Patients, and Friends, I only kept by me that Quantity which I thought sufficient to serve them; though it may be kept an hundred Years, without losing its Virtue.

Remedies for the WINDY CHOLICK.

1. When the *Cholick* is very violent, 8 Drops of dulcify'd Spirit of Nitre, or 20 Drops of volatile Spirit of Sal Ammoniack, or 6 Drops of Oil of Cinnamon, or 2 Drachms of tartariz'd Spirit of Wine, or an Ounce of Oil of Acorns, or 15 Drops of the Tincture of *Mars*, extracted by the Sal Ammoniack. 2. When the *Cholick* is not so violent, 6 Drops of Oil of Aniseed, or Nutmeg grated in Broth, or 15 Grains of Mace, or 8 Grains of Oil of Nutmeg.

Remedies for the NEPHRETICK CHOLICK, *the* STONE *and the* GRAVEL.

1. For the *Nephretick*; 15 Drops of Laudanum, or 10 Grains of Salt of Mars, or a Scruple of aperitive Extract of Mars, or two Drachms of Tincture of Mars, or half a Drachm of Spirit of Water-Cresses; or 10 Drops of Spirit of Turpentine, or 16 Drops of Spirit of Gum-Ammoniack. 2. For the *Gravel*, besides all these Remedies prescribed for the *Nephretick*: 15 Grains of volatile Salt of Amber or Karabe, or twenty Drops of Spirit of Amber, or a Drachm of Sal-Prunellæ. 3. For the *Stone*; eight Drops of acid Spirit of Sal-Armoniack, or eight Drops of dulcified Spirit of Nitre, or eight Drops of Spirit of Salt, or 12 Drops of Spirit of Vitriol of Mars, or two Scruples of Salt of Sulphur.

Remedies for the BILIOUS CHOLICK.

1. If the *Cholick* be not very violent, a Scruple of purified Saltpetre, or of Sal-Prunellæ; or half a Scruple of Salt of Sulphur, or thirty Grains of vitriolated Tartar, or a Scruple of soluble Tartar. 2. If the *Cholick* is violent: 10 Drops of Spirit of Vitriol; or 15 Drops of Spirit of Sulphur, or eight Drops of dulcified Spirit of Nitre.

Remedies for the DROPSY.

1. When the *Dropsy* is not yet confirmed; aperitive Crocus Martis, a Scruple, or two Drachms of aperitive Tincture of Mars, or 30 Grains of aperitive Extract of Mars, or a Drachm of refined Saltpetre, or 10 Grains of volatile Salt of Karabe or Amber, or a Drachm and a half of Crystal of Tartar, or eight Drops of Spirit of Turpentine, or 30 Grains of vitriolated Tartar, or 30 Grains of fixed Salt of Tartar, or 20 Grains of Gum Ammoniack, or 12 Drops of Spirit of Gum Ammoniack, or 10 Grains of volatile Salt of Urine, or half a Drachm of Spirit of Water-Cresses taken every other Day. When the *Dropsy* is confirmed; six Grains of Crystals of the Moon, or of Silver, or a Scruple of Mercurial Panacea, or three Grains of fixed Precipitate of Mercury, or 12 Drops of Spirit of Vitriol of Mars, or 10 Grains of Salt or Vitriol of Mars, or thirty Grains of purified Sal-Armoniack, or eight Drops of dulcified Spirit of Nitre, or of Spirit of Sulphur, or of Spirit of Vitriol, or of Spirit of Salt.

Note, That the Patient must have been very well purged before he takes any of the above-prescribed Remedies, especially the Preparation of Mars. A Patient, who is not of a very strong Constitution, and is only inclinable to *Dropsy*, may be purged with the following Draught: Take Rhubarb, Senna, and Sal-Prunellæ, of each a Drachm, two Pinches of Aniseed; have them macerated for a whole Night on the hot Embers, in a sufficient Quantity of Decoction of Parietary: Strain it thro' a Cloth in the Morning, and when cold, add to it eight Grains of Resin of Jalap, dissolved in an Ounce of pale Roses, and take it: You may take the same Dose twice, at a Week's Distance from one another; and afterwards take 15 Drops in the Morning fasting, and 15 in going to Bed of the following Mixture: Take an Ounce of aperitive Tincture of Mars, half an Ounce of Tincture of Karabe, or Amber, and an Ounce of Balsam of Capaiba, which must be mixed together.

Remedies for the EPILEPSY *and* FITS.

1. For the *Epilepsy*; six Drops of Oil of human Cranium, or 20 Grains of black Precipitate, or two Ounces of emetick Syrup, or 15 Grains of Cinnabar of Antimony, or six Grains of Powder of Algaroth, or six Grains of Glass of Antimony; or eight Drops of Spirit of Venus, or a Drachm of Gilla Vitrioli. For Fits; six Drops of Spirit of Venus; or 20 Grains of the Smatachick of Poterius; or 15 Grains of soluble emetick Tartar; or half a Drachm of Tincture of Karabe, or Amber; or four Drops of the clear Oil of Karabe, or two Ounces of emetick Wine, or four Grains of Flowers of Antimony, or fifteen Drops of Spirit of human Cranium, or 15 Grains of volatile Salt of Tartar, or 15 Drops of Tincture of Myrrh, or 16 Grains of Ens Veneris, or 30 Drops of Tincture of Salt of Tartar, or 16 Grains of volatile Salt of Urine.

Remedies for the CONTINUAL FEVERS.

1. When the *Fever* is not very violent, nor attended with Delirium; a Drachm of purified Saltpetre, or of Sal-prunellæ, taken every other Day in Broth, or Water of Centaury, 'till the *Fever* be abated; or 30 Grains of Salt of Sulphur, taken in the same Manner, or two Drachms of Crystal of Tartar, taken in the same Manner, or 12 Grains of soluble emetick Tartar, taken three Times at three Days distance from one another if the Fever continues, or two Ounces of emetick Wine, taken twice, at five or six Days from one another. 2. If the *Fever* be very violent, and attended with Delirium; 12 Drops of volatile Spirit of Sal-Armoniack taken every Day in any cold Liquor 'till the *Fever* be abated, which I suppose will be by twice taking it, or eight Drops of Spirit of Vitriol, or ten Drops of dulcified Oil of Vitriol, or 20 Drops of Laudanum, which may be increased to 30, if the *Fever* continues.

Remedies for MALIGNANT FEVERS.

Six Grains of Aurum Fulminans, or 12 Drops of ardent Spirit of Saturn, or 25 Grains of Diaphoretick Antimony, or 12 Grains of Flowers of Sal-Armoniack, or 30 Drops of dulcified volatile Spirit of Sal-Armoniack, or 10 Grains of volatile Salt of Vipers, or 15 Grains of Animal Bezoard, or a Scruple of the Antihectick of Poterius, or five Ounces of Walnut-Water, or 12 Drops of volatile Spirit of Gum Armoniack, or two Drachms of sudorifick Water of Viper.

Remedies for the HISTERICKS, *to promote the* MENSES, *and for the* GREEN-SICKNESS.

1. For the *Histericks*; 15 Drops of Tincture of Antimony, or 16 Grains of volatile Salt of Hartshorn, or 18 Grains of volatile Salt of Urine, or 20 Drops of Spirit of human Cranium, or 10 Drops of Spirit of Turpentine, or a Scruple of Antihectick of Poterius. 2. To promote the *Menses*, and for the *Green-Sickness*, a Scruple of aperitive Crocus Martis, taken every sixth Day, or 10 Grains of Salt of Mars taken every third Day, or half a Drachm of Tincture of Mars taken every other Day, or a Drachm of Tincture of Cinnamon, taken every Day, or 12 Drops of Tincture of Myrrh taken every Day immediately before Meal, or a Scruple of Extract of Aloes, taken every Day before Meal, or twelve Drops of Tincture of Saffron, and of Castoreum, taken every Day, or a Drachm of Spirit of Water-cresses taken every Day.

Remedies for the HYPOCHONDRIACAL MELANCHOLY.

1. If the Malady is not confirmed; two Drachms of Tincture of Mars, taken every other Day, after the Patient has been well purged by one of the Purgatives hereafter prescribed, or 10 Grains of Salt of Mars taken every third Day, or 30 Grains of aperitive Extract of Mars taken every third Day, or 15 Grains of Diaphoretick Mars taken every other Day, or 10 Drops of Essence of Ambergrease, taken twice a Week in the Morning fasting, and better at Night in going to Bed, or four Drops of Oil of Cinnamon at Night in going to Bed, or 20 Drops of Tincture of Salt of Tartar, twice a Week, taken at Night, going to Bed. 2. For a confirm'd *Melancholy*, 15 Drops of ardent Spirit of *Saturn*, taken 3 Times a Week, in the Morning Fasting; or 10 Drops of Spirit of Vitriol of *Mars*, taken twice a Week, in the Morning fasting; or 12 Grains of Flowers of Sal Ammoniack, taken once a Week, at Night, going to Bed; or 15 Drops of Tincture of Antimony, taken 3 Times a Week, at Night, going to Bed; or 12 Drops of Spirit of Sal Ammoniack, taken twice a Week, at Night, going to Bed; or 12 Grains of volatile Salt of Tartar, taken every other Night.

Remedies for the POX, CLAP, *and* GONORRHÆA.

1. For the *Pox*, 6 Grains of green Precipitate of Mercury, or 30 Grains of mercurial Panacea, or 15 Grains of white Precipitate, or 6 Grains of mineral Turbith, or 10 Grains of *Æthiops Mineralis*, or 6 Grains of red Precipitate without Addition, or Half a Drachm of black Precipitate. 2. For the *Clap*, 16 Grains of volatile Salt of Viper, or 30 Drops of Spirit of Viper, or Half an Ounce of sudorifick Water of Viper, or 15 Drops of Tincture of Antimony, or 15 Grains of *Mercurius dulcis*, or 3 Grains of red Precipitate without Addition, or 2 Grains of red Precipitate extracted from corrosive Sublimate, or 4 Grains of Turbith Mineral. 3. For the *Gonorrhæa*, 10 Drops of Spirit of Turpentine, 15 Grains of Precipitate of Rose Colour, or 30 Grains of black Precipitate, or 6 Grains of *Æthiops Mineralis*, or 30 Grains of mercurial Panacea, or 4 Grains of green Panacea. 4. To stop the *Gonorrhæa*, Half a Drachm of *Crocus Martis astringens*, or 30 Grains of *Crocus Martis astringens*, or 2 Scruples of Antihectick of *Poterius*, or 4 Grains of Salt of *Saturn*, or 30 Grains of diaphoretick Antimony.

Note, That I have discover'd, in my *chymical Operations*, the *Composition* of some *Pills* which will cure effectually the different Stages of the *Venereal Disease* (a confirm'd *Pox* excepted) in an easy Manner, and but one *Pill* to a Dose, six of them perfecting the Cure. They are a little cathartick, diaphoretick, and diuretick, and require no Confinement. They will be had, likewise, of my Printer, Mr. *Hart*; and likewise a Bottle of *Drops*, for the most inveterate *Gonorrhæa*.

Remedies for the SMALL POX.

Eight Grains of Mineral Bezoar, or 10 Grains of Flowers of Sal Ammoniack, or 12 Drops of volatile Spirit of Sal Ammoniack, or 2 Drops of Essence of Cloves, in Water of Bugloss, or 2 Ounces of Water of *Carduus Benedictus*, or 10 Grains of volatile Salt of Viper, or 20 Drops of volatile Spirit of Viper, or 12 Drops of volatile Spirit of Gum Ammoniack, or 30 Grains of the Antihectick of *Poterius*, or Half a Spoonful of distill'd Vinegar, or 25 Drops of Tincture of Salt of Tartar, or 4 Grains of Flowers of Benzoin.

Remedies for the RHEUMATISM.

1. To be taken inwardly, Half a Drachm of vitriolated Tartar, or 15 Drops of Anti-epileptick Elixir, or 6 Drops of Spirit of Salt, or a Drachm and a Half of sudorifick Water of Viper, or 4 Grains of red Precipitate without Addition, or 20 Grains of mercurial Panacea, or 10 Grains of *Æthiops Mineralis*, or 30 Grains of diaphoretick Antimony. 2. For outward Application, Spirit of Wine, Hungary-water, Oil of Turpentine, Spirit of Urine, Spirit of Sal Ammoniack, Oil of Bricks, Oil of Viper, and Oil of Nutmegs.

Remedies for the SCURVY.

Ten Grains of volatile Salt of Carabe, or Amber, or 3 Drops of Spirit of Carabe, or 15 Drops of Tincture of Antimony, or 10 Grains of aromatick and oily volatile Salt, or a Drachm of Spirit of Guaiack, or 12 Drops of Tincture of *Mars* extracted by Sal Ammoniack, or 15 Grains of volatile Salt of Urine, or 12 Drops of Spirit of Gum Ammoniack, or a Scruple of mercurial Panacea, or a Drachm of Spirit of Water-cresses, or 20 Grains of diaphoretick *Mars*.

Remedies for SCROPHULOUS HUMOURS, *and the* KING'S EVIL.

Fifteen Grains of Mineral Bezoar, taken every sixth Day; or 4 Grains of red Precipitate without Addition, taken once a Week; or 8 Grains of Resin of Jalap, taken every third Day; or 30 Grains of vitriolated Tartar, or 20 Grains of mineral Diaphoretick, taken every fourth Night at going to Bed; or 15 Grains of Salt of Tartar, taken every other Day in the Morning fasting.

Note, That my *vulnerary* and *stiptick Tincture* renewing entirely the Mass of Blood, is also a sovereign Remedy for these Disorders, taken inwardly, 30 Drops in the Morning fasting, and 30 at Night, for a whole Month, and applying it outwardly, if there be any Swelling of the Glands, or breaking out.

Remedies for the SQUINANCY.

A Scruple of Salt of *Saturn* in Plantane-water, in Gargarism; or a Drachm of Allum in the same Water,

ter, also in Gargarism; or 8 Drops of Spirit of Vitriol; or a Drachm of prepar'd Coral.

Note, That as the *Squinancy* is a dangerous Malady, this is a Gargarism for it, which, I believe, no Body else knows, and which I have never seen fail. Have two large Spoonfuls of good Honey boil'd in a Quart of Water, for the Space of 6 Minutes, and after it has been very well skimm'd, put into it about Half an Ounce of dry'd red Roses, and a good Handful of the Buds of Blackberry-bushes, or the tendereſt Leaves, and let the whole Mixture boil for Half a Quarter of an Hour more; strain it, and make the Patient gargarize his Throat with it warm, as often as possible. I wish I could give all the Discoveries I have made at the same Rate, and would do it, with the most indicible Pleasure, if I had something fix'd to depend upon; but having nothing left but the Advantages of my Education, and a precarious Hope, in the Death of Relations, who may out-live me; I am sure my generous Subscribers will not take it amiss, if I reserve something to myself.

STIPTICKS.

I know no better Remedy for Hemorrhages, immoderate Fluxes of the Menses, and of the Piles, than my *vulnerary* and *stiptick Tincture*. I have seen a young Man, in *Southwark*, who had already vomited above four Quarts of Blood, which could not be stopped by any other Remedy, reliev'd immediately, after he had taken a Spoonful of this *Tincture*.

Remedies to fortify the STOMACH.

A Drop of Essence of Cinnamon, or 3 Drachms of Cinnamon-water, or 2 Drachms of Tincture of Cinnamon, or 2 Drachms of Spirit of Roses, or 20 Drops of Tincture of Salt of Tartar, or 8 Grains of Oil of Nutmegs, or 10 Drops of *Elixir Proprietatis*, or 20 Grains of the Stomachick of *Poterius*, or Half an Ounce of the Water of Flowers of Oranges, or a Scruple of Extract of Rhubarb, or Half a Glass of vinous Hydromel, or 2 Drops of Essence of Cloves.

Remedies for the VAPOURS *and* PALPITATIONS.

1. For the *Vapours*, 15 Drops of volatile Spirit of Sal Ammoniack, or of Urine, or 6 Drops of Spirit of Salt, or dulcify'd Spirit of Nitre, or Spirit of Vitriol, or Spirit of Sulphur, or 30 Grains of Salt of Sulphur, or 15 Drops of Spirit of human Cranium, or 15 Drops of Tincture of *Mars* extracted by Sal Ammoniack, or 12 Grains of volatile Salt of Carabe, or 2 Drops of rectify'd Oil of Carabe, or 12 Grains of Resin of Carabe, or 4 Drops of Oil of Camphor. 2. For *Palpitations*, 3 Drachms of Cinnamon-water, or 2 Drachms of Tincture of Cinnamon, or 15 Drops of Tincture of Antimony, or 30 Grains of the Antihectick of *Poterius*, or 10 Drops of *Elixir Proprietatis*, or 10 Drops of Tincture of Myrrh, or 10 Drops of Tincture of Saffron and Castoreum, or Half an Ounce of magistral Water of Melissa.

SUPPLEMENT.

Remedies to help a Woman in Labour, and to bring out the AFTER-BIRTH.

1. To help *a Woman in Labour*, Half an Ounce of Water of Orange-flowers, or 2 Drachms of Cinnamon-water, or 2 Drachms of Tincture of Cinnamon, or 2 Drops of Essence of Cinnamon, or 25 Drops of Tincture of Salt of Tartar, or 15 Drops of Tincture of *Mars* extracted by Sal Ammoniack, or 12 Drops of *Elixir Proprietatis*, when the *Labour* is tedious; in which Case, there are also given 15 Grains of soluble emetick Tartar, or 15 Drops of Tincture of Myrrh, or Half a Drachm of soluble *Martial* Tartar. 2. To *bring out the After-Birth*, 6 Drops of Oil of Carabe, or Guaiack, or 4 Drops of Oil of human Cranium, or 12 Drops of Tincture of the *Moon*, or 8 Grains of emetick Tartar.

Remedies for ULCERS *in the* BLADDER, *or in the* MATRIX.

Six Drops of dulcify'd Spirit of Nitre, or 30 Grains of Salt of Sulphur, or 12 Grains of Salt of Carabe, or 20 Drops of Spirit of Carabe, or 4 Drops of the clear Oil of Carabe, or 10 Drops of Spirit of Turpentine, or 8 Drops of Oil of Wax.

Remedies for the HICKUP.

Fifteen Drops of Laudanum, or 12 Drops of *Elixir Proprietatis*, or 3 Drops of Essence of Cinnamon.

Remedies for the SCIATICA.

1. For inward Application, 30 Grains of vitriolated Tartar, taken twice a Week, in Broth, for a Month; or a Scruple of Extract of Aloes, taken every other Day, immediately before Meals, for 3 Weeks, or a Month, provided the Patient be not afflicted with the Piles, or with an immoderate Flux of the Menses; or 30 Grains of Salt of Sulphur, taken twice a Week, during 6 Weeks; or 6 Drops of Spirit of Salt, taken, also, twice a Week, till the Patient finds Relief; or 20 Drops of the Anti-epileptick Elixir, taken 3 Times a Week; or 10 Grains of Resin of Jalap. 2. For outward Application, the Part must be rubb'd with Spirit of Wine, or with Hungary-water, or with Oil of Turpentine, or with Spirit of Urine, or of Sal Ammoniack.

Remedies for AFTER-PAINS, *for Lying-in Women.*

A Drachm and a Half of Oil of Acorns, or 6 Drops of Oil of Aniseed, or an Ounce of Oil of Walnuts, in a Clyster.

For the DISEASES *of the* EYES.

Distill'd Tincture of Carabe, mix'd with an equal Quantity of Rose and Plantane-water; or Rose and Plantane-water alone; or Salt of *Saturn*, dissolv'd in Plantane-water; or purify'd Sal Ammoniack, dissolv'd in an equal Quantity of Rose and Plantane-water; or white Vitriol, dissolv'd in Spring-water.

Remedies for DEAFNESS.

Oil of Bricks, or Oil of Paper, or black Oil of Tartar; a Bit of Cotton is imbib'd in either of these Oils, and introduc'd into the Ear.

Remedies for the APHTES, *or small* CANKERS, *which happen in the Mouths of Children.*

A Spoonful of my *vulnerary Tincture*, mix'd with 2 Ounces of Plantane-water.

Remedies for the TOOTH-ACH.

Oil of Cloves, Guaiack, Tobacco, or Paper; or Spirit of Wine, or Hungary-water, or Laudanum, or Spirit of Vitriol, or of Nitre.

Remedies for the GANGRENE.

Spirit of Wine, or volatile Salt of Sal Ammoniack, Guaiack, or of Honey; or Oil of Tartar, Guaiack, Myrrh, Camphor, Benzoin, Gum Ammoniack, or of Bricks; or Caustick of Antimony, or Tincture of Myrrh, or Aloes; or Phagenedick-water, Lime-water, or Hungary-water; or my *vulnerary Tincture*.

Remedies for TETTEROUS HUMOURS, ITCH, &c.

1. Taken inwardly, 4 Grains of Rose-colour Precipitate, 3 Doses, taken at 3 Days Distance from each other; or 20 Grains of black Precipitate, taken in the same Manner; or 30 Grains of mercurial Panacea, taken, likewise, in the same Manner; or 12 Grains of *Mercurius dulcis*, or 15 Drops of Tincture of Antimony, taken 3 Times a Week, for a Month. 2. Apply'd outwardly, for the *tetterous Humours*, Oil of Tartar *per deliquium*, Oil of Paper, or of Myrrh; or Phagedenick-water. For the *Itch*, &c. Spirit of Tobacco, or philosophical Spirit of Vitriol, or Second-water, mix'd with twice the Quantity of common Water.

Remedies for CONTUSIONS, *and* DISLOCATIONS.

Spirit of Wine, or Hungary-water, or Oil of Bricks, Wax, or of Turpentine; or Spirit of Sal Ammoniack.

Remedies for the CARIES OF THE BONES.

Oil of Tin, Camphor, Guaiack, or of Paper; or Caustick of Antimony, or Honey; or Spirit of Salt.

Remedies for BURNS.

Spirit of Wine, or Hungary-water.

Remedies for the RAGE.

Fifteen Grains of volatile Salt of Viper, Sal Ammoniack, or of Carabe; or 30 Grains of *Ens Veneris*, or 10 Drops of Spirit of *Venus*, or 20 Drops of Tincture of Antimony, or 20 Drops of Tincture of *Mars* extracted by Sal Ammoniack, or 20 Drops of the Anti-epileptick Elixir, or 2 Scruples of the Powder of Toads.

But as there are *chymical* Remedies administered to other Persons, besides those afflicted with *chronick Diseases*, which Remedies are either to prevent Maladies, or purify the Blood, or to help a cacochimous Constitution, *&c.* we'll give a Detail, here, of all those different Remedies, which are either *cathartick*, *i. e.* purge by Stool; or *emetick*, *i. e.* by Vomiting; or to stop Vomiting; or *sudorifick*, and *diaphoretick*; or *restorative*.

EMETICKS.

Emetick Tartar, to a Child of 6 Years old, 3 Grains; to a weak Constitution 6 Grains, (when Nature declares itself that Way; otherwise *Emeticks* are never to be administer'd to those Persons;) to a robust Constitution, 10 Grains. *Soluble emetick Tartar*, to a Child of 6 Years old, 4 Grains; to a weak Constitution, 8 Grains; to a robust one, when there is Repletion, 15 Grains. *Turbith Mineral*, to a good Constitution, 4 Grains; to a very strong one, 6 Grains. *Glass of Antimony*, to a good Constitution, 3 Grains; to a very strong one, 6 Grains. *Salt of Vitriol*, to a Child, 10 Grains; to a weak Constitution, 20 Grains; to a strong one, 30 Grains. *Antimonial Panacea*, to a Child, 6 Drops; to a weak Constitution, 12 Drops; to a strong Constitution, 20 Drops. *Emetick Wine*, to a Child, Half an Ounce; to a weak Constitution, an Ounce and a Half; to a robust one, 3 Ounces.

Remedies to stop VOMITING.

Five Grains of Flowers of Benzoin, or 25 Drops of the Stomachick of *Poterius*, or 12 Drops of *Elixir Proprietatis*, or 8 Drops of dulcify'd Oil of Vitriol, or 15 Drops of Tincture of *Mars* by Sal Ammoniack, or Half a Spoonful of distill'd Vinegar, or 8 Drops of Spirit of Vitriol of *Mars*, or 8 Drops of Essence of Ambergris; or 3 Drops of Essence of Cinnamon, or 3 Drops of Essence of Cloves, or 15 Drops of Laudanum. This last, in my Opinion, is a Specifick for that Accident.

Purgatives downwards, or CATHARTICKS.

Thirty Grains of Extract of Rhubarb, or 2 Scruples of Extract of Aloes, or 30 Grains of Carnachin Powder, or 30 Grains of soluble Tartar, or 25 Grains of vitriolated Tartar, or 8 Grains of Resin of Jalap, or 15 Grains of *Mercurius dulcis*.

SUDORIFICKS.

Fifteen Drops of volatile Spirit of Sal Ammoniack, or 15 Grains of Mineral Bezoar, or 20 Grains of diaphoretick Antimony, or 20 Grains of the Stomachick of *Poterius*, or 15 Drops of Tincture of Antimony, or 12 Grains of volatile Salt of Viper, or of Urine, or of Hartshorn; or 20 Drops of volatile Spirit of Viper, or of Urine; or 15 Drops of Tincture of *Mars* extracted by Sal Ammoniack, or 3 Ounces of Water of *Carduus Benedictus*, or 4 Ounces of Water of Walnuts, or a Drachm and a Half of sudorifick Water of Viper, or 10 Grains of Resin of Carabe, or 12 Grains of *Ens Veneris*.

CARDIACKS.

Eight Drops of Essence of Ambergris, or 3 Drops of Oil of Cinnamon, or 2 Drops of Essence of Cloves, or 2 Drachms of Tincture of Cinnamon, or an Ounce of Water of Orange-flowers, or 2 Drachms of Spirit of Roses, or 20 Grains of the Stomachick of *Poterius*, or a Glass of vinous Hydromel, or Half an Ounce of magistral Water of Melissa.

Remedies against WORMS.

Six Grains of mercurial Panacea, or 4 Grains of *Mercurius dulcis*, or 4 Grains of *Æthiops Mineralis*, or 3 Grains of red Precipitate without Addition, or 10 Grains of Extract of Rhubarb, or 15 Grains of Extract of Aloes.

RESOLUTIVES.

Oil of Viper, Turpentine, Tartar, Paper, Wax, Bricks, or of human Cranium; or Balsam of Sulphur, or of *Saturn*, or Hungary-water, or Spirit of Wine.

COSMETICKS.

Magistery of *Jupiter*, Bismuth, or of *Saturn*; or Flowers of *Jupiter*.

To cleanse, and carry SPOTS *off the* SKIN.

Oil of Tartar *per deliquium*, or Oil of fix'd Nitre, Acorns, or *Spanish* Nuts; or *Lac Virginale*, or Hungary-water.

DETERSIVES, *to cleanse Wounds and Ulcers.*

Oil of Sugar, Benzoin, Camphor, or of Tin; or Tincture of Myrrh or Aloes, or Oil of Turpentine, or *Lac Virginale*, or Spirit of Honey, or Phagedenick-water.

DETERSIVE, *to apply outwardly.*

Magistery of Bismuth or *Saturn*, or Salt of *Jupiter* or *Saturn*, or Minium, or burnt Lead, or Ceruse, or Balsam of *Saturn*, or Colcothar.

CLERGY.

CLERGY, *Clerus*, κληρος, is an Assembly, or Body of Persons, consecrated, in a particular Manner, to the Service of the Altars of the living God; of different Orders, and design'd to live in a Kind of Subordination, among themselves, called HIERARCHY.

It had the Denomination *Clergy*, from the particular Name appropriated to the Persons who compos'd that Assembly, who are all call'd CLERKS, from the *Greek* κληρος, which properly signifies *Lot*, or Heritage; the Origin of which Expression is deriv'd from the Old Testament, where the Tribe of *Levi*, which was the first Body of Men, consecrated, in a particular Manner, to the Service of God, is call'd the *Lot*, *Heritage*, κληρος; and God is reciprocally call'd their Portion; by reason that the *Levites* had no other settled Provision but the Offerings made to God.

Even at the Time of the first Institution of the *Clergy*, by *Moses*, under God's Directions, there was a Kind of *Hierarchy*, or *Subordination*, establish'd among them, and *Aaron* was establish'd the Head of that *Hierarchy*; and the Right of Primacy settled in his House, exclusively of all others, by the irrevocable Command of the Almighty himself, confirm'd by several Prodigies, and by the exemplary and several Punishments Heaven was pleas'd to make of those who had the sacrilegious Presumption of attempting to usurp his Power.

Under the *Sovereign Pontiff*, or *High Priest*, there were other inferior *Priests*; and *Levites* under those *Priests*.

Though the Vocation of those who were to compose each of these three different Orders, was sufficient for their Initiation into their respective Ministry; it was, notwithstanding, found expedient to accompany that Vocation with some exterior Marks, which should claim from the People (seldom to be guided but by an outward Appearance) the Respect due to the *Minister*, and to give him a right Notion of the Excellency and Holiness of the *Sacerdotal* and *Levitical* Functions: Therefore the Vocation was immediately follow'd by the Election; the Election by the Purification; the Purification preceded the Consecration; to the Consecration, succeeded the Exercise of the Ministry; and to the Ministry, the Power and the Office.

The *Election*, or Designation of the Person, was made by a carnal Succession; for the Sons succeeded their Fathers, as *Eleazar* did *Aaron*; *Phineas*, *Eleazar*; and thus successively, *Eccles.* xliii. 7. The *Purification* was by some Rites, or Ceremonies, appointed by God himself; as the Aspersion of the Lustral Water, the shaving of the Hairs, the washing of the Body, and of the Vestments, and the Oblation of a Sacrifice for Sins, *Numb.* viii. 6. The *Consecration* of the *Sovereign Pontiff*, and of the *Priests*, was made in this Manner: 1. The *Pontiff* was dress'd in his pontifical Robes, and the *Priests* in their sacerdotal Vestments. 2. The *Pontiff* had his Head anointed with Oil, but not the Priests. 3. The *Pontiff* and the *Priests* had the Extremity of their right Ear, the Thumb of the right Hand, and the great Toe of the right Foot, died with the Blood of the Victim offer'd. 4. Their Vestments were aspersed with the Blood of the Victim, and the Oil of the Unction. 5. A Piece of the Victim was given to them, to offer it to God; by which Sign, not only the Power of offering Sacrifices was given them, but they likewise enter in the actual Exercise of their Functions. All this may be seen *Exod.* xxix. 1.

There remains, at present, but the Power, and the Office. The *Pontiff* had some Offices in common with the *Priests*, and some peculiar to himself; there were four peculiar to himself: The first was, that he was to enter the Sanctuary once a Year, *Heb.* ix. 7. and order a publick Expiation of the Sins which the People had committed during the whole Year, *Levit.* ix. The second, that he could consecrate *Priests* and *Levites*, *Exod.* xxix. *Levit.* viii. *Numb.* viii. The third, that he was the sovereign Judge in all legal Controversies, *Deut.* xvii. 12. and *Chron.* ix. 11. That in Affairs of Importance he was to consult God on what was to be done, *Numb.* xxvii. 21.

Thus was consecrated the first Establishment of an *Ecclesiastical Hierarchy*; and this must convince those who admit of none, that it was the Intention of the Almighty, ever since those antient Times, that there should be an Order and a Subordination in the Sanctuary. Even among the *Pagans*, who had but a very imperfect Idea of the Divinity, and but a confus'd Notion of a religious Worship, that Subordination was observ'd; and none but those, who, under a false Pretence of Religion, would have attempted to reform Heaven in the same Manner *Lucifer* would have done it, if there had not been so great a Distance between them and the celestial Mansions, as there was between *Abraham* and *Dives*, could have revolted against it.

This *Hierarchy* of the *Jewish Clergy*, was modeliz'd a-new by *David*, at the latter End of his Reign; for he caus'd all the *Levites*, from the Age of Twenty, to be number'd, and found, that there were thirty-eight Thousand of them capable to serve in the Temple, which he left to his Son and Successor, *Solomon*, to build. He appointed twenty-four Thousand of them for the daily Ministry, under the *Priests*; four Thousand to be inferior Judges, in Affairs concerning Religion, in the several Towns or Cities of the Kingdom, *i. e.* in Affairs of little Importance, for the most weighty were referr'd to the grand Council establish'd at *Jerusalem*; four Thousand to be Porters, and to take Care of the Treasures of the Temple; and the rest to do the Office of Chantors. He caus'd, also, a Review to be made of all the *Priests* descended from *Aaron*, who were found divided into four and twenty Families; sixteen of which descended from *Eleazar*, *Aaron*'s eldest Son; and eight from *Ithamar*, who was the youngest. *David* chang'd nothing in their Offices, only, to ease them, he divided them by Weeks, from one Sabbath to the other, that each should serve in his Turn, and have some Respite; while they were in their Functions, they remain'd within the Precincts of the Temple, and *had no Commerce with their Wives*.

At the first Establishment of the *Christian Clergy*, by *Christ* himself, it does not appear that there wanted any great Subordination among them; for as that *Clergy* was compos'd, then, but of the Apostles, whose Functions were only to preach the Gospel, and administer the Sacraments, into which Functions they had all been equally initiated, by their divine Chief and Master, *Jesus Christ*, without the least Distinction, as to the Manner of their Vocation, Election, or Consecration; having all receiv'd an equal Amplitude of Power, and all an equal Share of that holy Spirit whereby they were to be directed in the Discharge of their Office; it was not design'd that any of them should claim any Precedency of Dignity or Power, but only such as was necessary to entertain that strict and marvellous Union, truly *Christian*, and apostolical Charity, and heavenly Peace, which *Christ* had left them, as a Pledge of his sincere, and unalterable Love for them, and for the Church they were going to establish by his Orders.

But as *Christ*'s Flock, which was but small, when the Apostles were first consecrated by their divine Master, in the Ministry of the Gospel, increas'd soon by their Predication, (supported by the Co-operation of the Holy Ghost, and confirm'd by Miracles) with an incredible Success, and though the Vigilance of the Apostles was as great as their Zeal, they, notwithstanding, soon perceiv'd that the Government of

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so great a Multitude, which increased daily, could not be long confined to 12 Persons only, since several Abuses, Disputes, and even some Disorder had happened in several Christian Assemblies, where it was impossible that the Apostles themselves, considering the Multiplicity of the Affairs of their infant Church, could always be present; therefore to remedy those Inconveniences, they convened a general Assembly of the Disciples of *Jesus Christ*, and propos'd to them the Election of seven Men of a good Reputation, and full of the Holy Ghost, to exerce with a general Approbation the Ministry, which had been the Occasion of those Disputes, among the Christians; the Assembly made Choice of *Stephen*, of *Philip*, of *Procorus*, of *Nicanorus*, of *Timon*, of *Parmenio*, and of *Nicholas*, the *Antiochian*. They were presented to the Apostles, who received them by Prayers, and the Imposition of Hands, *i.e.* who ordained them Deacons of the Church. Their Office were to distribute the publick Alms, and to take Care of the Tables where the Christians, with their common Meals, used to take the Eucharist.

Here began the Epocha of an ecclesiastical Hierarchy, or of a Subordination, between the superior and inferior Ministers of Christ; for though St. *Peter* had been left by Christ, to represent him, among the Apostles, as their visible Chief, and seemed to have assigned him thereby a superior Rank, that Rank was only of Precedency, and as it invested him with no greater Power than that of the other Apostles, it could not establish a Hierarchy; but in this Occasion of the Election of the first seven Deacons, there was a real Hierarchy instituted, where the Apostles established their Superiority, by appointing Ministers under them, with a limited Power, and subordinated to theirs, in the same Manner Christ had appointed them, with an unlimited one, and subordinated to none but his; for in Fact all received but a subordinated Power, and that only which was necessary to incapacitate them, to keep a good Order in the Christian Assemblies, that every Thing should be transacted in them, with that Decency and Harmony, becoming those who should be all united by the indissoluble Knot of a Christian Charity; and to distribute, with an impartial and just Œconomy, to their indigent Brothers, what was liberally given for their Relief, without appropriating any Part of those Beneficences to their own Use; as those do, who mimick them at present, and who, instead of distributing to the Poor, what they pretend to gather for their Relief, feast themselves with one Part of it, and pocket the other. Even then, the Power of the Deacons was under Restriction, for they were not to act on those Occasions but by the Direction of the Apostles, to whom they were obliged to give a faithful Account of their Conduct in their Offices; and we do not find in the ecclesiastical History that their Jurisdiction extended farther; nor that their having been delegated Deacons, had invested them with a Power to delegate others.

But as the Apostles, according to the express Orders of their divine Master, separated afterwards to go and preach the Gospel throughout the whole World, and they could not leave the Churches they had founded destitute of Pastors during their Absence, they communicated their Power, as unlimited, and with the same Amplitude to other Pastors they consecrated, and whom they appointed their Successors in those Churches, they were obliged to leave, to go to establish new ones in other Parts of the World.

There was likewise a Kind of Subordination between these new Pastors and the Apostles, not of Right and Power, as there was between them all, and the Deacons, but of a *Bienseance*, founded on a Christian Humility and Diffidence in those new Pastors, of their own Strength and Capacity, which made them believe that, though invested with the same Power the Apostles had received immediately from Christ, it had been a Sort of Presumption in them, to pretend to govern the Churches committed to their Care (especially when any Difficulties were started) without the Advice of those whom they knew to have been instructed by Christ himself, and who had confirmed their Election to the Episcopacy by the Imposition of Hands, and the Invocation of the Holy Ghost upon them; and this was a voluntary Subordination of those Bishops to the Apostles their Constituent, which never claimed it as their Right, but suffered it to be established, not by a Principle of Vanity or Ambition, or to keep in a Sort of Subjection, those whom they knew to be equal to them in Dignity and Power, but only for the good Order of the Church, and to let their Successors know that they were persuaded, that a confused and anarchical Government in the Church is as dangerous, and as prejudicial, as in the State; and that there is nothing but Confusion and Disorder to be expected in a Society, where the Governors pretend to have an equal Share of Power, and to rival one another in Dignity.

The Zeal of those holy Bishops (left by the Apostles for the Government of the Churches they had founded) for the Propagation of the Gospel, and the Conversion of the *Gentiles*, as well as of the *Jews* to Christianity, had also reduced them soon to have Recourse to the same Means used by the Apostles, by proposing to their Flock the Election of some Persons of Reputation, Merit, and Piety, who could assist them in their Pastoral Functions; and to qualify those Persons for so sacred an Employment, they communicated to them, by the Imposition of Hands, part of that Power they had received from the Apostles, far above that communicated to the Deacons, but likewise very inferior to that of their Constituents; for they could preach the Gospel, and admininister the Sacraments, like their Bishops, which the Deacons could not, but they were not to appoint other Priests, nor even Deacons, as the Bishops did.

Hence the three Orders of which the ecclesiastical Hierarchy was composed of, *viz.* of Bishops, of Priests, and of Deacons. This Superiority of the Bishop above the Priest is confirmed by the Epistle of St. *Ignatius to the Magnesians*, where he admonishes them to act in Concord and Unanimity, under the Government of the Bishop, who held the Place of God, and mentions afterwards the Priests, who, says he, hold that of the Apostles; then adds, *that as Christ does nothing without his Father, to whom he is united, neither by himself, nor by his Apostles; therefore they ought to do nothing without the Bishop and the Priests.* And in his Epistle to the *Trallians*, he says, *That they being obedient to their Bishop as to Christ, they appear to him as so many living Men, not only in a human Manner, but in Jesus Christ, who is dead for them; and that it was necessary to do nothing without the Bishop, and they should submit themselves to the Conduct of the Priests, as to the Apostles of the Lord:* Therefore it seems to me that those who confound the Bishop with the Priest, and make their Distinction meerly Ecclesiastical, cannot resist the Strength of these Passages; for though St. *Ignatius* joins the Priests to the Bishops in the Government of the Church, he gives always the greatest Power to the Bishop, and comparing him to the Son of God, who is called *Episcopus Animarum nostrarum*, the Bishop of our Souls, he gives us sufficiently to understand, that he believes Episcopacy of divine, not human Institution, and consequently necessary for the Conservation of the Church, which is nothing else, according to the Definition of the antient Fathers, but the People united to the Bishop.

The ecclesiastical Hierarchy continued, composed of these three Orders for a considerable Time afterwards, *i.e.* to the Erection of the three principal Churches founnded by the Apostles into Patriarchates, though *De Marca*, *Pagi*, and *Usher*, attribute the Establishment of the Patriarchates to the Apostles, but they are mistaken, for the Name Patriarch was unknown 'till the Time of the Council of *Nice*; and for a long Time afterwards Patriarchs and Primates were confounded together; as being all equally Chiefs of Provinces, and equally superior to Metropolitans, who were only Chiefs of Dioceses. Hence it is that *Socrates* gives the Title *Patriarch* to all the

the Chiefs of Dioceses, and reckons ten of them; for it does not appear that the Dignity of Patriarch was appropriated to the five grand Sees of *Rome*, *Constantinople*, *Antioch*, *Alexandria*, and *Jerusalem*, 'till after the Council of *Chalcedon* in 451. For when the Council of *Nice* regulated the Limits and Prerogatives of the three Patriarchs of *Rome*, *Antioch*, and *Alexandria*, it did not give them the Title of Patriarch, though it allowed them the Pre-eminence and Privileges thereof. Thus when the Council of *Constantinople* adjudged the second Place to the Bishop of *Constantinople*, who 'till then was only a Suffragan of *Heraclea*, it said nothing of his Patriarchate: Nor is the Term Patriarch but only of Archbishop, found in the Decree of the Council of *Chalcedon*, whereby the fifth Place is assigned to the Bishop of *Jerusalem*; neither did these five Patriarchs governed all the Churches; there were still many independent Chiefs of Dioceses, who far from owning the Jurisdiction of the grand Patriarchs, called themselves *Patriarchs*, such as that of *Aquileia*; nor was *Carthage* ever subject to the Patriarchs of *Alexandria*.

The Authority of the Patriarchs grew by insensible Degrees, 'till at length, all Affairs of Moment, within the Compass of their Patriarchate, came before them; either at first Hand, or by Appeal from the Metropolitans; though several Authors are of Opinion that the Metropolitans were obliged to appeal to the Primate, and the Primate to the Patriarch; and that the Patriarch had several Primates under him, as the Primate had several Metropolitans. Father *Sirmon* derives the Origin of Primates hence; that the large Provinces having been divided and subdivided by the Emperors, the first Divisions were called *Firsts*, others *Seconds*, others *Thirds*, &c. and the Title *Primate* given to the Metropolitan, *i. e.* to the Bishop of the City, which was the Capital of the Province, ere the Division was made; but it is pretty evident from History, that Primates were at first confounded with Patriarchs: Thus *Socrates* enumerating ten Patriarchs, does not make any Distinction thereof from Primates.

In *Africa*, after the Distinction was made, the Primates were not at all subject to the Patriarchs: Thus the Bishop of *Carthage*, who was Primate, paid no Obedience to the Bishop of *Alexandria*, who was Patriach. Nor to be Primate was it necessary to have Metropolitans for Suffragans: Each Province of *Africa*, except those which composed the Diocese of *Alexandria*, had its Primate; this Quality being given to the Age. In *France* the Subdivision of Provinces gave Occasion to the Erection of Primates: Thus *Aquitaine*, e.gr. being divided into two Provinces, the Archbishop of *Bourges* became Primate of the *Aquitaines*, because *Bourges* was the Capital of the first. Thus also the Division of *England* into two Provinces, *Canterbury* and *York* in 1152, gave Occasion to the Introduction of Primacies; *Canterbury*, which was the Metropolis before, thence giving the Title of *Primate of all England* to its Prelate, though the Archbishop of *York* still claims that of *Primate of England*; and accordingly the first has some Jurisdiction over all *England*, relating to Administrations, *&c.* which the latter has only within his own Province.

As for *Metropolitans*, M. *Du Pin* observes, that in the Provinces of *Africa*, excepting those whereof *Carthage* was the Metropolis, the Place where the most aged Bishop resided was the Metropolis. The Reason of which without doubt was this, that neither the Proconsul nor Præfectus ever fixed their Residence; since on the civil Division of the *Roman* Empire into Provinces, each Province having its Metropolis or Capital City, where the Proconsul, or Vicar of the Empire had his Residence; was modelliz'd the ecclesiastical Division of the same Empire, each ecclesiastical Province having its Metropolis, or capital City, where a Bishop or an Archbishop, as they were called afterwards, resided, who had the Direction of Affairs, and the Pre-eminence over all the Bishops of the Province. His Residence in the Metropolis gave him the Title of *Metropolitan*. This Erection of Metropolitan is referred to the End of the third Century, and was confirmed by the Council of *Nice* in its sixth Canon, in these Terms, *quod si quis absque Metropolitæ Sententiâ factus sit Episcopus eum magnâ Synodus definit non esse Episcopum*, i. e. That if any Body should be made Bishop without the Approbation of the Metropolitan, the Council declares him no Bishop.

It seems that Archbishops were also known in the *East*, about the same Time, but they had no Jurisdiction, and it was nothing but a personal Honour, by which the Bishops of considerable Cities were distinguished. St. *Athanasius*, Patriarch of *Alexandria*, appears to be the first who used the Title of *Archbishop*, which he gave occasionally to his Predecessor; *Gregory Nazianzen*, in like Manner, gave it to *Athanasius*, not that either of them were entitled to any Jurisdiction, or even Precedence in Virtue thereof. Among the *Latins*, *Isidore Hispalensis* is the first that speaks of Archbishops: He distinguishes four Orders or Degrees in the ecclesiastical Hierarchy, *viz.* Patriarchs, Archbishops, Metropolitans and Bishops.

But let it be how it will, it is a certain Truth, that even in the Apostles Time there was a Sort of ecclesiastical Hierarchy, which must confound those who admit of no Subordination in the Church, nor of any other Government than that of King *Jesus*, because he cannot reprimand them, or chastise them, as they deserve, but at the Day of Judgment, which perhaps they believe nothing of: The different Orders that Hierarchy was composed of afterwards, though not all of divine Institution, where absolutely necessary, to maintain in the Church that just Œconomy and beautiful Order admired even by the Enemies of the Christian Name. Those different Titles of Bishops, Patriarchs, Metropolitans, *&c.* were not invented to flatter the Vanity of Mankind, as the Offsprings of Anarchy and Confusion would have us believe; but were only a Denotation of the Character and Office of the Person thus denominated. As in those happy Days of Christianity's Infancy, even the most perfect, were not thought unpeccable, much less infallible; several different Tribunals were erected, all superior to one another, that none should have the Liberty to abound in his own Sense, or to judge in Dernier Resort; therefore a Bishop could be called to an Account for the Irregularity of his Conduct, by his Metropolitan; and a Metropolitan by his Patriarch; and all of them could be judg'd by a Council.

It is true, that soon after the Institution of those different Orders of the *Clergy*, especially when the Church began to enjoy a profound Peace, and possess immense Riches, by the pious Prodigality of the *Christian* Emperors, and the Liberality of the People; those different Orders were often dishonour'd then, as they are at present, by unworthy Subjects, who made what was design'd for the Good of the *Christian* Church subservient to their Pride, Ambition, and Avarice. But could the Unworthiness of the Subject destroy, or annihilate the Dignity he was possess'd of, any more than the Unworthiness of a Monarch can annihilate Monarchy, in his Dominions? The Dignity and Power, though abus'd, remain still the same in both, and can be possess'd afterwards as they had been before, by very deserving Persons: For we can't know, but by the Excellency of the Dignity, which always remains the same, the Worth or Merit of the Subjects which possess that Dignity.

About the Year 439, there was another Order of the *superior Clergy* establish'd in the *Latin* Church, though known long before that Time in the East; which Order follow'd immediately that of Bishop, call'd CHOREPISCOPI; but that Order was so little taken Notice of, even in the Times of its Institution, that the Learned are extremely divided about their Function. M. *de la Roque* thinks, that the *Chorepiscopi* were the Country Bishops, and had the same Authority in Villages, that the Bishops had in Cities; but that by Degrees, as the Church flourish'd, the Country Bishops grew too proud for the Country Life; and imagin'd the episcopal Honour debas'd, and render'd contemptible,

contemptible, in a rural Retreat. Accordingly, says he, the *Sardick* Council prohibited the Consecration of Bishops in the Country, or little Towns; that the episcopal Character might always be sustain'd by the Splendor of great Cities. M. *Du Bois* adds, that tho' the *Chorepiscopi* exercis'd most of the episcopal Functions in Country Towns, yet they were not ordain'd like Bishops, nor vested with the whole Authority of that Order, but were only a Step above mere Priests; though this Sentiment is contrary to the tenth Canon of the Council of *Antioch*, which forbids the *Chorepiscopi* conferring the Orders, without the Consent of the Bishop; whence it is inferr'd, that they could do it with his Consent. M. *Le Maitre* is of Opinion, that the Office of a *Chorepiscopus*, which is now that discharg'd by the Rural Deans, was, to over-look, under the Bishops, those Parishes that were at a Distance from the See in the Country. He adds, they were abolish'd, by Reason they usurp'd the Authority of Bishops. Others, again, say, the *Chorepiscopi* were properly what we now call Bishops *in Partibus*; to whom, in Quality of Suffragans, were committed the Administration of Dioceses, during the Bishop's Absence. Others rather think the Institution of *Chorepiscopi* gave Occasion to the Institution of Bishops *in Partibus*; which last, however, have Privileges the others had not: For the Bishops *in Partibus* are really consecrated Bishops, and there is no other Difference between them and the other Bishops, than that the other Bishops are in Possession of their Bishopricks, where they can, if they please, exercise all their Functions, without Controul or Opposition; whereas those *in Partibus* are depriv'd of their Bishopricks; or, if they reside in them, it is *incognito*, and with the most imminent Danger, if they are discover'd exercising their episcopal Functions: Such are consider'd by the *Catholicks* their Bishops in *England*, who are consecrated Bishops, and as such have the Power to discharge all the episcopal Functions, but dare not, being forbid by the Laws establish'd under Queen *Elizabeth*, which make it a capital Crime for a *Catholick* Bishop to be found in the Discharge of his episcopal Functions, but not for a Priest of the *Jews* to be found *judaizing*.

Others take the *Chorepiscopi* to be no more than Priests, vested by the Bishops with most of their Authority in Country Places.

In the Synod of *Riez*, in *France*, where *Hilary* of *Arles* presided, assembled in 439, to remedy the Irregularity of the Ordination of *Armentarius*, Bishop of *Ambrun*, who had been consecrated with two Bishops only, and without the Authority of the Metropolitan; that Ordination was declar'd illicit, and *Armentarius* reduc'd to the Dignity of *Chorepiscopus*, in some Parish, which should not be of the *Maritime Alps*. That is the first Time the Name and Dignity of *Chorepiscopus* is mention'd in the Synods held in *France*, though introduc'd long before that Time in the eastern Churches; for the Council of *Neocesarea* is subscrib'd by two *Chorepiscopi*, and the first of *Nice* by fifteen. The Council of *Chalcedon* names them immediately after the Bishop, and before the Priests; for they were, in Fact, more than those we call, at present, Rural Deans, or Archpriests; because they had the Power to ordain Readers, Exorcists, and Subdeacons.

Pope *Leo*, in 936, says, the *Chorepiscopi* may not ordain Priests, nor consecrate Churches; yet Pope *Nicholas*, in a Letter to *Roul*, in the ninth Century, declares, that the *Chorepiscopi* shall have the episcopal Functions, and that the Ordinations perform'd by them are valid; which, in my Opinion, must not be understood of the simple Priests, who were *Chorepiscopi* in the Villages; but of those who having been ordain'd Bishops, were reduc'd afterwards to the Dignity and Office of *Chorepiscopi*, as we have seen in the Case of *Armentarius* of *Ambrun*.

However, the Dignity of *Chorepiscopus* was entirely abolish'd towards the tenth Century, in the oriental and the occidental *Church*, and rural Deans, and Archpriests, substituted to it, who in several Dioceses exercise the Jurisdiction of *Chorepiscopi*, on the Country Curates who are of their District, as we learn it from the Council of *Ravenna*, held under Pope *John* IX. in the Year of *Christ* 904.

In the first Centuries of the *Christian* Church, the *inferior Clergy* was also compos'd of different Orders, *viz.* of Priests, Deacons, Subdeacons, Acolytes, Readers, Porters, and Exorcists; and each Order had its particular Chief, *viz.* the Archpriest, which was substituted to the *Chorepiscopi*, was the chief of the Priests; the Archdeacon, of the Deacons and Subdeacons; and the Dean, of the *inferior Clerks*.

The ARCHPRIEST was the first Person after the Bishop, was seated in the Church next after the Bishop, and even acted as his Vicar in his Absence, as to all spiritual Concerns. In the ninth Century, they distinguish two Kinds of Cures, or Parishes; the smaller govern'd by simple Priests, and the baptismal Churches by Archpriests, who besides the immediate Concern of the Cure, had the Inspection of the other inferior Priests, and gave an Account of them to the Bishop, who govern'd the Chief, or Cathedral Church, in Person. There are *Archpriests* still subsisting in the *Greek* Church, but in the *Latin* they have chang'd the Name of *Archpriest* into that of *Rural Dean*; each Archdeaconry, in every Bishoprick, being commonly divided yet into so many *Rural Deaneries*, and each *Rural Dean* oblig'd to watch the Conduct of the Curates of his *Deanery*, and to make his Report of it to the Archdeacon, at his next Visitation, or to the Bishop. These *Rural Deans*, in the *Catholick* Church, are commonly grand Vicars of the Bishop, in their *Deanery*, and can absolve Cases reserv'd to the Bishop, grant Leave to eat Flesh during *Lent*, for Causes of Infirmity; to grant Dispenses of Affinity, contracted on slight Accounts, *&c.*

The ARCHDEACON was originally the first and eldest of the Deacons who attended on the Bishop; who, according to the Decree of Pope *Evaristus*, in the Year of *Christ* 113, was always to be accompanied with seven Deacons. The Title of *Archdeacon* was not known before the Council of *Nice*; his Function is since become a Dignity, and even set above that of Priest, though antiently it was quite otherwise. The *Archdeacon* was the Bishop's chief Minister for all external Concerns, and particularly the Administration of the Temporalities; but at present Bishops are their own Minister in that Case. He took Care that Order and Decency were observ'd in divine Service, (but we have yet *Archdeacons* that take little or no Care how divine Service is perform'd, else it would be done with more Decency; but perhaps they are never there themselves;) look to the Ornaments and Utensils of the Church, (the *Reformation* has ridded our *Archdeacons* of that Trouble;) had the Direction of the Poor, (as for that, they leave it to the divine Providence;) and the Inspection of the Manners and Behaviour of the People; for which Reason, he was call'd the Bishop's Eye, (*oculus Episcopi*) but some People believe that Bishops are grown blind, considering the Behaviour and Manners of the People.

These Advantages soon got him the upper Hand over Priests, who had only spiritual Functions; but he had no Jurisdiction over them till the sixth Century; though by this Time he was become superior to the Rural Dean himself.

In the tenth Century, *Archdeacons* were considered as having Jurisdiction of their own Right, or attached to their Office; with a Power of delegating it to others; but from that Time Measures were taken to lessen their Power, by increasing their Number. He whose District lay in the Capital City, took the Quality of *great Archdeacon*.

In the *Catholick* Church, each Diocese is divided into two, three, some four *Archdeaconries*, according to the Extent of the Diocese; and the *Archdeacon* has Right of Visitation, every two Years, in his *Archdeaconry*, to enquire into Reparations, and Moveables, belonging to the Church, reform Abuses, in ecclesiastical Matters, and

and bring the more weighty Affairs before the Bishop; besides which, they have also a Power to suspend, excommunicate, and, in some Places, to institute into Benefices. It is one Part of the *Archdeacon*'s Office, to induct all *Clerks* into their Benefices within their Jurisdiction. The Bishop is always assisted by one of the *Archdeacons*, when he confers the *Orders*; and the *Archdeacon* presents him those to be ordain'd, and, in some Measure, answers for their Capacity and Worthiness. *Archdeacons* have often pretended that they could give the *Tonsura Clericalis*. There are sixty *Archdeacons* in *England*, whose Office is almost the same as that of those of the *Roman* Church.

PRIEST, in the *Christian* Church, is a Person invested with holy Orders, in Virtue whereof he has the Power to preach, and administer the Sacraments. Those who are for only a *Presbyterian* Government in the Church, confound the Title of *Priest*, *Presbyter*, with that of Bishop, *Episcopus*; or rather pretend, that in the primitive Church *Priests* were those who have been call'd *Bishops* since; and that there was no other Pre-eminence among them, besides that of Age. But all the primitive Fathers, and all the œcumenical Councils, as well as the antient Tradition of the Church, have refuted that Sentiment, though it seems agreeable enough to the Scripture, that in *Christianity*'s Infancy there were but two Orders in the *ecclesiastical Hierarchy*, *viz.* that of Bishops, and of Deacons; but as those Bishops were reduc'd soon to the Impossibility, through the vast Extent of their Dioceses, to extend their pastoral Sollicitude, so far as to instruct, by themselves, all their Diocesans; they transferr'd to others that Power they had receiv'd from the Apostles, *i. e.* as to the Administration of the Sacraments, and the preaching of the Gospel; reserving to themselves the Power of the Imposition of Hands, and of delegating inferior Ministers. That Superiority of Bishops over *Priests*, is clearly prov'd in the Epistles of St. *Ignatius*, who had been Disciple of the Apostles, heretofore quoted.

It is the Opinion of the *Catholick* Doctors, that there is no Dignity upon Earth greater than that of a *Priest*, and no greater Power. *Quantam dignitatem vobis contulit Deus*, (says St. *Bernard*, *Concion. ad Cler. in Synod. Congreg.*) *quanta est prærogativa ordinis vestri? Deus prætulit vos Regibus & Imperatoribus, prætulit ordinem vestrum omnibus ordinibus; immo & ut altius loquar prætulit vos, Angelis, Archangelis, Thronis & Dominationibus; sicut enim non Angelos sed semen Abrahæ apprehendit, ad faciendam redemptionem: Sic non Angelis, sed hominibus, solisque sacerdotibus Dominici Corporis, & Sanguinis, commisit Consecrationem. i. e.* How great is the Dignity which God has conferr'd upon you; how great is the Prerogative of your Order? God has raised you above Princes and Emperors; he has raised your Order above all Orders; and to say much more, he has raised you above Angels, Archangels, Thrones, and Dominations: For as he has not took Angels, but the Seed of *Abraham*, to operate our Redemption; so he has not committed the Consecration of his Body and Blood to Angels, but to Men, and to PRIESTS only. The same is confirm'd by St. *Chrysostom*, *Homil.* 83. *in Matth.*

Protestants are of Opinion, that Matrimony is not incompatible with the State and Ministry of a *Priest*; and it seems that the primitive Church was of the same Opinion, by what *Socrates*, *l.* 1. *c.* 11. relates of *Paphnucius*, Bishop of a City in the high *Thebaides*, at the Beginning of the fourth Century. 'The Bishop, says our Author, wanting to make a new 'Law, by which it should be order'd that Bishops, 'Priests, and Deacons, should leave their Wives, 'which they had married, while they were yet but 'Laicks; as they went to the Opinions, *Paphnucius* 'rose, and raising his Voice, said, That they should 'not impose so heavy a Burthen on Clerks and *Priests*; 'that Marriage was honourable, and the Nuptial Bed 'without Spot; that a too great Severity would prove 'disadvantagious to the Church; that every Body 'was not capable of so perfect a Continence; and 'that the Women, thus dismiss'd, would not, per'haps, keep their Chastity; and that it was sufficient 'that those who were initiated in the *Clergy*, should 'not marry afterwards, according to the antient Tra'dition of the Church.' Our Author observes, that *Paphnucius* could not speak on that Occasion as a Party interested, since he had never been married. The *Catholicks* say, to this Passage of *Socrates*, that it does but very little in Favour of the *Protestant Clergy*; since, if *Paphnucius* opposed the Separation from their Wives, of the Ecclesiasticks married before their Ordination, he would oblige, at the same Time, those who are not married, before their Ordination, to Celibacy afterwards, according to the antient Custom of the Church.

The same *Catholicks* do not pretend that the Celibacy of *Priests* is of divine Institution, but say, like *Paphnucius*, that it has always been the antient Custom of the Church, that those who were not married before they were ordain'd *Priests*, should live in Celibacy; and that the Church finding soon the Inconveniency of permitting even those who were married, before their Ordination, to live in the Liberty allow'd by the conjugal State, with their Wives, she had made Laws to oblige them, likewise, to live in Celibacy; and, to that Effect, quote *Canon.* 33. *Concil. Elibert.* conceiv'd in these Terms, *Placuit in totum prohibere Episcopis, Presbyteris, Diaconis, ac Subdiaconis, abstinere se a Conjugibus suis. i. e.* It is the Pleasure of the Council to order that all *Priests*, Deacons, and Subdeacons, should abstain from their Wives. And the second Canon of the second Council of *Carthage*, in the following Terms: *Omnibus placet, ut Episcopi, Presbyteri, & Diaconi, vel qui Sacramenta contractant, pudicitiæ Custodes, etiam ab uxoribus se abstineant, ut quod Apostoli docuerunt, & ipsa servavit Antiquitas, nos quoque custodiamus. i. e.* All the Fathers of the Council have agreed, that Bishops, *Priests*, and Deacons, who are the Guardians of Chastity, should abstain from Wives, that we may observe what we have learn'd from the Apostles, and what Antiquity has observ'd.

To what is objected by *Protestants*, that by obliging *Priests* to Celibacy, it is imposing a Yoke heavier than *Christ* intended; the *Catholicks* answer in the Negative: For, say they, as no Body is compell'd to be ordain'd *Priest*, it is in no Manner over-burthening the Consciences of those who will be such, to mark the Conditions on which they are to be such, since those Conditions can't deprive them of the Liberty they are at, of embracing the sacerdotal State, or not embracing it.

For my Part, I believe that there is a great deal of Policy in obliging *Priests* to Celibacy, (tho' I would not pretend to condemn those who are married, far from it) but the Conduct of Souls, a *Priest* is entrusted with, is of such Importance, and attended with so much Care, and so many Difficulties, that it seems to deserve the entire Application of a Man, and even, if possible, something beyond that Application: Therefore a Person should have his Mind free, and disengag'd from all worldly Affairs and Affections, to mind nothing else but that truly essential one, his own Salvation, and that of others. For it can't be supposed, with the least Appearance of Reason, that he who has his Affections divided between his Family and his Flock, or, to speak in properer Terms, whose Flock has but the least Share of his Affections, (if he has any) can be at that entire Liberty to mind his Duty as he ought to do. Can it be imagin'd that a *Priest* could be persuaded to leave his Family, to run to the Succour of one of his Sheep, who is on the Brink of Eternity, and whose eternal Salvation depends, perhaps, on that critical Moment, while that Family calls him, at the same Time, another Way, on some important Affairs, which, if neglected, will cause the Ruin of that Family, or at least prove very disadvantagious to it? Which of the two Affairs, both of equal Consequence, will carry it, in the Heart of a *Priest*, I leave the Reader to judge.

DEACON,

DEACON, *Diaconus*, from the *Greek* διακονος, is, in the holy Orders, next to the Priest, and whose Business is to baptize, read in the Church, and assist at the Celebration of the Eucharist. In the *Roman* Church, the *Deacon*, who assists the Priest at High Mass, reads, or sings the Gospel, and the Subdeacon the Epistle. He is oblig'd to recite, every Day, his Breviary, like the Priest, and is not allowed to marry.

The *Deacons* were formerly prohibited sitting with the Priest; the Canons forbid *Deacons* to consecrate, that being a sacerdotal Office; though, in Case of Necessity, they can, in the *Roman* Church, administer the Eucharist. They also prohibit a *Deacon* being ordain'd, unless he have a Title, or Call, and be, at least, twenty-five Years of Age. The Emperor *Justinian*, in *Novel.* 123. assigns the same Age of twenty-five Years for a *Deacon*. But this was the Custom when Priests were not ordain'd at less than thirty Years of Age. At present, according to the Council of *Trent*, twenty-three Years of Age suffices for a *Deacon*.

At *Rome*, under Pope *Sylvester*, they had only one *Deacon*; then seven were appointed; then fourteen; and, at last, eighteen; who were call'd *Cardinal Deacons*, to distinguish them from those of other Churches. Their Office was, to take Care of the Temporalities of the Church, look to the Rents and Charities, provide for the Necessities of the Ecclesiasticks, and even of the Pope. The collecting of the Rents, Alms, *&c.* belong'd to the *Subdeacons*; the *Deacons* were the Depositaries and Distributors. Having thus the Management of the Revenues of the Church in their Hands, their Authority grew a-pace, as the Riches of the Church increased. Those of *Rome*, as being Ministers of the first Church, preceded all others, and even at length took Place of the Priests themselves; doubtless it was the Avarice of the Priests that made them give Place to the *Deacons*, who had the Disposal of the Money. St. *Jerome* exclaims against this Attempt, and proves, that a *Deacon* is inferior to a Priest.

The Council in *Trullo*, which is the third of *Constantinople*, *Aristanus*, in his Synopsis of the Canons of that Council; *Zonaras*, on the same Council; *Simeon Logatheta*, and *Œcumenius*, distinguish *Deacons* for Service at the Altar, from those who had the Care of the Distribution of the Alms of the Faithful. Thus the Custom of constituting *Deacons*, without any Office but to attend the Priest at the Altar, being once introduc'd, those single *Deacons* durst no longer pretend to a Superiority over the Priests. As to the other *Deacons* who had got the Administration of the Revenues, they would still retain the Superiority; and, for Distinction Sake, where there were several, the first took the Appellation of *Archdeacon*. The *Deacons* rehears'd certain Prayers at the holy Office, which were thence denominated *diaconical*. They took Care that the People at Church behav'd themselves with due Modesty and Respect. They were not allow'd to teach publickly, at least not in the Presence of a Bishop or Priest. They only instructed the Catechumens, and prepar'd them for Baptism. The Doors of the Church were likewise in their Custody, though in After-times that Charge was committed to the *Subdeacons*. The first Canon of the Council of *Toledo*, assembled in the Year of *Christ* 400, excludes the *Deacons* from their Promotion to Priesthood, if they be convicted of having liv'd with their Wives, after their Ordination, as they did before.

Note, That there were also in the primitive Church *Deaconesses*, which was a Title given to certain devout Women, who consecrated themselves to the Service of the Church, and rendered those Offices to the Women, which Men could not decently do; as in Baptism, for Instance, which was conferred by Immersion on Women as well as Men. They were likewise to look to the Doors on the Side the Women were on, who were separated from the Men, according to the Custom of those Times. They had the Care and Inspection of the Poor, Sick, *&c.* and in Time of Persecution when a *Deacon* could not be sent to the Women to exhort and fortify them, a *Deaconess* was sent. In *Lupus*'s Commentaries on the Councils, it is said that they were ordained by the Imposition of Hands. But *Baronius* denies it, or that there was any Ceremony of Consecration; founding his Opinion on the 19th Canon of the Council of *Nice*, which places them in the Rank of Laity, and says expressly they have had no Imposition of Hands. And yet the Council of *Chalcedon* decrees they should not be ordained 'till 40 Years of Age; whereas 'till then they had not been ordained before 60, as is prescribed in the first Epistle to *Timothy*; and as is seen in the *Nomocanon* of *John* of *Antioch*, in *Balsamar*; the *Nomocanon* of *Photius*, the *Theodosian Code*, &c. *Tertullian*, *ad Uxorem*, *l.* 1. *c.* 7. speaks of Women who had received Ordination in the Church, and who, on that Account, were deprived of the Liberty of Marrying; for the *Deaconesses* were Widows, and might not re-marry: Nor were they capable of being admitted to that Order, if they had been married more than once. Though in After-times Virgins were also made *Deaconesses*, as it appears by the Emperor *Theodosius*, having desired *Flavian*, Bishop of *Constantinople*, to ordain his Sister *Pulcheria*, a *Deaconess*. The Council of *Nice* ranks *Deaconesses* among the Clergy; though some held that their Ordination was not sacramental, but a mere ecclesiastical Ceremony: However it gave them a pre-eminence above their Sex; for which Reason the Council of *Laodicea* forbad the ordaining of any more for the future. The first Council of *Orange*, held in 441, likewise forbid the ordaining of *Deaconesses*, and enjoins such as had been ordained to receive the Benediction with the Laity. It is hard to say when the Order of *Deaconesses* expired, by Reason they did not all expire together. The eleventh Canon of the Council of *Laodicea*, it is true, seems to abrogate them; but it is certain they subsisted in divers Places long afterwards. For the twenty-sixth Canon of the Council of *Orange*, and the twenty-first of that *Epaona*, held in 515, forbid the Ordination of *Deaconesses*; yet there were some at the Time of the Council in *Trullo*. *Atto*, of *Verceuil*, in his 8th Letter, gives the Reason of their being abolished: He observes that in the first Ages the Ministry of Women was necessary, in Order to the more easy instructing of other Women, and recovering them from Paganism; and that they likewise served for the more decent Administration of Baptism to the same; but that it was not then necessary, by Reason none but Children were baptised; as it might now be added, by Reason Baptism is only conferred by Aspersion: The Emperor *Heraclius*, in his Letter to *Sergius*, Patriarch of *Constantinople*, orders that in the great Church of *Constantinople*, there be 40 Deaconesses, whereas there were only six in that of the Mother of God, in the Quarter of the *Blacherne*.

Note also, That the Chapels and Oratories in *Rome*, under the Direction of the several *Deacons*, in their respective Regions or Quarters, were, and are still called *Deaconaries*. To the *Deaconaries* were annexed a Sort of Hospital or Board for the Distribution of Alms, governed by the regionary *Deacons*, called *Cardinal-Deacons*, of whom there were seven, answering to the seven Regions, their Chief being called the *Archdeacon*. The Hospital adjoining to the Church of the *Deaconry* had an Administrator for the temporal Concerns, called the *Father of the Deaconry*, who was sometimes a Priest, and sometimes a Lay-Man; at present there are fourteen of these Deaconries or Hospitals at *Rome*, which are reserved to the Cardinals. *Du Cange* gives us their Names, as the *Deaconry* of St. *Maria* in the broad Way, the *Deaconry* of St. *Eustachio*, &c.

SUB-

SUB-DEACON is an inferior Minister in the Catholick Church, who prepares the sacred Vessels, attends at the Altar, and reads the Epistle at high Mass. According to the Canons a Person must be 22 Years of Age, to be promoted to the Order of *Sub-deacon*. The Orders of *Sub-Deacon*, Deacon, and Priest, are called in the Catholick and *Roman* Church the *sacred or major Orders*, and they all three are obliged to Celibacy. The Council of *Trent* retrieving the antient Discipline, forbids any Person being admitted to the *Major Orders*, unless he be in Possession of a Title sufficient for a decent Subsistence. By the antient Discipline there were no Clerks made but in Proportion as they were wanted for the Service of the Church; but they began to make vague Ordinations in the East as early as the 5th Century. This occasioned the Council of *Chalcedon* to declare all vague and absolute Ordinations null. Accordingly the Discipline was pretty well observed 'till towards the End of the 11th Century, but then it began to relax, and the Number of Priests was exceedingly increased; either because the People became desirous of the Privileges of the Clericature, or because the *Bishops sought* to extend their Jurisdiction. One of the great Inconveniencies of these vague Ordinations was Poverty, which frequently reduced the Priests to sordid Occupations, and even to a shameful Begging. To remedy this, the Council of *Latran* laid it on the Bishops to provide for the Subsistence of such as they should ordain without Title, 'till such Time as they had got a Place in the Church that would afford them a settled Maintenance. This Decree of the Council of *Latran* should be put in Force, in some Country, where *Bishops* ordain more Priests by one half, at least, than there are Benefices for them, unless a Wife be taken for a Benefice; for the first Qualification, and sometimes the only one, some of the young Candidates, for the ecclesiastical State, endeavour to acquire, is a Wife; and, pleased with that Title, (often a very precarious one, though not a *fine Cure*) they present themselves to a Bishop to be ordained; therefore it would not be improper that a Bishop, who ordains such, should be obliged to be at the Expences of the *Reparations of the Parsonage*. It is surprising that the Whore of *Babylon* should have a greater Share of Modesty than some of those who have separated from her, for her Debaucheries and Whoredom; for she could never be persuaded to receive into her Service those, who instead of spending that Time, prescribed by the Canons, to qualify themselves for it, in the Practice of all christian and ecclesiastical Virtues, would have lavished it away, in the Gratification of their sensual Appetites; there is not a *Sub-deacon*, Deacon and Priest ordained in the *Roman* Church, who previously to it, besides a very severe Examen, has not spent some Months in a Seminary, where he is trained in Piety and Virtue, and instructed of all the Duties of the holy Employment he is a going to be promoted to.

Though the Council of *Trent* admits of no other Title than that of a *Benefice*, that Rule is not regarded in all Catholick Countries, particularly *France*; for the *Gallican* Church receives three Sorts of Titles, *viz. Titulus Beneficii, Patrimonii, & Paupertatis*, i. e. the Title of a Benefice, of Patrimony, and of Poverty; and the two last are the most frequent in that Kingdom. That of a Benefice and of Patrimony are for the secular *Clergy*, and that of Poverty for the regular *Clergy*, who having all their Estate in common, and some of them no Estate at all, cannot have any particular Title; neither does a Bishop, who ordains them, run any Risk; since the Convent of those, who have Estates in common, is obliged to maintain them, and as to the Mendicants, they are maintained by the Publick. Those of the House and Society of *Sorbonne* at *Paris*, are also ordained without any Patrimonial Title, and on the sole Title of Poverty, it being supposed a Doctor of the *Sorbonne* can never want a Benefice.

The patrimonial Title, requir'd in *Bretagne*, my Country, is but twenty Crowns a Year, which is but a Trifle, but which with the *Casual*, as they call it, is sufficient to maintain a Priest, considering that he has no Family, handsome enough. That *Casual* consists in the Retribution for his Masses, which is Ten-pence, at least, for every Mass, in some Places it is Fifteen-pence; that Fifteen-pence a Day, besides what he receives for his daily Assistance at his Parish-Church, where he has a Right, and where he has his Share of what is distributed for Burials, and other Services of the Church, joined to his Patrimony, keeps him always above a State of Indigency.

As Priests have not the same Advantages in the Church of *England*, though they have a greater Charge, considering that they are allowed to marry; there should be a better Provision made for them, and no greater Number of them ordained than could be provided for; and as those Provisions consist wholly in Benefices, those Benefices should be more equally divided; and not two or three very considerable ones given to one Parson, who has sometimes more Friends than Merit, while so many worthy Subjects are neglected, and but too often reduced to a starving Condition, to the Shame and Scandal of the Church; and while only one of those large Benefices could very well maintain, in a decent Manner, three or four Families; whenas he that is possessed of them, has often the Barbarity to bargain with one of his penurious Brothers, as he would do with a Handicraftman, for the Discharge of the most laborious Part of his Functions, that himself may be handsomely paid for doing nothing; therefore that honest Man, he has hired at the lowest Price he could, to bear the whole Burthen of the Benefice, will be obliged to toil all his Life-time, and die afterwards, leaving his Family destitute.

To avoid those Inconveniencies, a Provision should be made out of the Benefice, such a Man has been a Slave to, for the Support of his Children, if he leaves any, 'till those Children be put in a Condition to help themselves, or so much taken out of the best Bishopricks, for a Fund, for the Education of poor Clergymens Children, according to their Birth, and not leave them to be provided for out of the publick Alms, like common Beggars. If such Measures were taken, the Bishops would take more Care whom they ordain Priests, and as there would not be so great a Number of them, those ordained and their Children would be better provided for.

There are Inconveniencies of that Kind in the *Roman* Church; for the rich Abbeys being Presentative of several Benefices, they keep the Revenues of those Benefices in their own Hands, and for a hundred Crowns a Year, which they scandalously call the *Portion Congrue*, though it be not above fifteen Pounds Sterling a Year, hire a poor Priest, who for that small Pension obliges himself to perform all the Functions of the Benefice, which are far more laborious, and in greater Number, than in the Protestant Church, for that poor Curate is obliged to run through Rain and Snow, Night and Day, to the Succours of his Parishioners, while the Titular of his Benefice lives in Indolence, and sleeps at ease in his Bed.

Besides the above-mentioned three *sacred* or *major Orders*, there are four others in the *Roman* Church, called *minor Orders*, and which are nothing else but so many Steps to arrive at the major Orders, or a Preparation to the Reception of those *major Orders*.

The MINOR ORDERS are four, *viz.* Those of *Door-Keeper*, *Exorcist*, *Reader*, and *Acolyte*. The Council of *Trent* enjoins that none be admitted into them, without understanding *Latin*; and recommends it to the Bishops, to observe the Intervals of conferring them, that the Person may have a sufficient Time to exercise the Functions of each Order; but it leaves the Bishops a Power of dispensing with those Rules; so that the four *Orders* are usually conferred the same Day, and only make the first Part of the Ceremony of Ordination. The Abbot *Fleury* dates the first Rise of the *Minor Orders* in the Time of the Emperor *Justinian*. There is no Call nor Benefice required for the four *minor Orders*, though none can be promoted to any Benefice, without the *Tonsura Clericalis*, which is the first

first Ceremony used for devoting a Person to God and the Church, by presenting him to the Bishop, who gives him the first Degree of the Clericature, by cutting off Part of his Hairs, with certain Prayers and Benedictions. Some hold the *Tonsure* a particular Order; others, as *Loyseau*, only the Mark and Form of ecclesiastical Orders in general.

The *Roman Catholick* Doctors are of Opinion, that the *Tonsure* is of apostolical Institution, and is thus asserted by the venerable Bede, *lib.* 1. *Histor. Anglican. c.* 122. in these Words, *neque ob id tantum in Coronam attondamur*, says he, *quia attonsus est Petrus, sed quia Petrus in Memoriam Dominicæ Passionis ita attonsus est*, i. e. we do not wear the *Tonsure*, says he, only because *Peter* has worn it, but because he has worn it in Memory of Christ's Passion. M. *Chamillard*, Doctor and Professor of Theology in the College of *Sorbonne* at *Paris*, has supported that Sentiment, with the Authority of several other antient Fathers of the Church, in his Book, intituled *De Coronæ Tonsurâ, & habitu Clericorum.*

In Fact, the clerical Tonsure is mentioned by St. *Isidore*, of *Seville*, as of apostolical Tradition, in which he has followed several other Authors; and there is nothing so often and so strictly ordained by the antient and modern Council to distinguish the Clerks from the Laicks, and to tell to those that they have no longer a Part in this World, and that they ought to deprive themselves, not only of the illicit Pleasures, but likewise of those which are permitted to others; that Christ is their Portion and Inheritance, as they are the Portion and Inheritance of Christ; that the Name of *Clerk* teach them that Truth; and if they will interpret it, they'll soon learn how much they are to be free of all terrestrial Affections. A Person is capable of the *Tonsure* at seven Years of Age; hence a Benefice of *simple Tonsure* is such a one as may be enjoyed by a Child of seven Years old.

The christian Clergy was divided even before the Council of *Nice* into secular and regular, since several of the Bishops, who assisted at that Council, were Monks, and even the most distinguished and respected among them, as were *Paphnucius*, already mentioned, and *Spiridion*, who had both suffered the Persecution of the Pagan Emperors, with a great Courage, and marvellous Constancy; it might even be said to the Honour of the Monks of those Days, that they were the greatest Support of the Christian Religion, and their Solitudes, a School for the Practice of all the christian Virtues; and even at present there is no Church among those which call themselves Christians, either in the *East* or *West*, except those who have embraced the Reformation of *Luther* and *Calvin*, whose *Clergy* is not divided into secular and regular *Clergy*, though *Chambers* would insinuate that the *Romanists*, as he calls them, are the only one who admit of that Distinction. Those *Romanists* do not deny that several Abuses have been introduced in the Cloisters, but say at the same Time, that there are as many introduced in the secular Sanctuary, even at the Foot of the Altars of the Living God, and as it would be thought unjust to abolish the whole secular *Clergy*, under the specious Pretence of reforming those Abuses, it would be as unjust to abolish the regular, because there are found among them few Monks as bad and vicious as *Luther* was.

The Catholicks acknowledge Christ for invisible Chief of both their secular and regular *Clergy*, and the Pope for the visible one, who is addressed under the Term Holiness and Beatitude; and is chosen by the Cardinals out of their own Body. His See is ordinarily at *Rome*, whence he issues out his Orders, called *Bulls* and *Briefs*, throughout the Catholick World. They respect him not for the Pomp and Magnificence of his Court, but because they consider him as the Successor of St. *Peter*, in that See, whom, they believed, Christ had appointed the visible Chief of his Church, when he told him in particular, *feed my Sheep, feed my Lambs.* They imagine that the Splendor and Magnificence, which have, for several Centuries past, accompanied that eminent Dignity, and which those, who from Time to Time, have alledged as one of the Pretexts, they wanted to cloak with, their Ambition of making themselves Chiefs of Parties could not deprive him of his spiritual Power, no more than St. *Peter* denying Christ, could deprive him of the Apostolate, after Christ had assured him, that he had *prayed for him, that his Faith should not fail.* That the Princes who have invested him with his temporal Power, have done it to render him the more capable of being the Arbiter of their Differences, and to arm him against the frequent Assaults of the Enemies of the Church. That those same Princes are so conscious, that he can make no other Use of that Power; that when, through Fragility he has in common with the rest of Mankind, he attempts to abuse it, they do not pretend to break that Union which should subsist between the Chief of the Church, and the Members, by opposing him; since the Pope is not infallible, even in religious Matters, and can be judg'd, and condemn'd by a Council, if he proposes, or maintains any Proposition contrary to the *Christian* Truth.

The CARDINALS compose the Pope's Council, and are declar'd by a Constitution of Pope *John* VIII. to represent the seventy Disciples, who, under the Pope, who represents *Moses*, decide private and particular Differences. But, says the honest M. *Godeau*, this is no longer the Function to which they apply themselves; for they are rais'd to such a Pitch of Grandeur, that they look on that Employment as beneath them, persuading themselves that they are above the Bishops, who, notwithstanding, are the true Successors of the Apostles.

Cardinals, in their first Institution, were only the principal Priests, or Incumbents of the Parishes of *Rome*. In the primitive Church, the chief Priest of a Parish, who immediately follow'd the Bishop, was call'd *Presbyter Cardinalis*, to distinguish him from the other inferior Priests, who had no Church, nor Preferment: The Term was first apply'd to them in the Year 150; others say, under Pope *Sylvester*, in the Year 300. These *Cardinal* Priests were alone allow'd to baptize, and administer the Eucharist. When the *Cardinal* Priests became Bishops, their *Cardinalate* became vacant; they are then suppos'd to be rais'd to a higher Dignity. Under Pope *Gregory*, *Cardinal* Priests, and *Cardinal* Deacons, were only such Priests or Deacons as had a Church or Chappel under their Care; and this was the original Use of the Word. *Leo* IV. in the Council of *Rome* held in 853, calls them *Presbyteros sui Cardinis*, and their Churches *Parochias Cardinales.*

Cardinals continu'd on this Footing till the eleventh Century; but as the Grandeur and State of his Holiness became extraordinarily augmented, he would have his Council of *Cardinals* make a better Figure than the antient Priests had done. It is true, they still preserv'd their antient Title, but the Thing express'd by it was no more. It was a good while, however, ere they had the Precedence over Bishops, or got the Election of the Pope into their Hands; but when they were once possess'd of those Privileges, they soon had the red Hat, and Purple; and growing still in Authority, became at length superior to the Bishops, by the sole Quality of being *Cardinals.* *Du Cange* observes, that originally there were three Kinds of Churches; the first, or genuine Churches, were properly call'd *Parishes*; the second *Deaconries*, which, as we have observ'd already, were Churches join'd to Hospitals, and serv'd by Deacons; the third were simple *Oratories*, where private Masses were said, and were discharg'd by local and resident Chaplains. He adds, that to distinguish the principal, or Parish Churches, from the Chappels, and Oratories, the Name *Cardinales* was given them. Accordingly, Parish Churches gave Titles to *Cardinal Priests*; and some Chappels, also, at length, gave the Title of *Cardinal Deacons.*

Others observe, that the Term *Cardinal* was given not only to Priests, but also to Bishops and Deacons, who

who were attached to certain Churches, to distinguish them from those who only serv'd them *en passant*, and by Commission. Titulary Churches, or Benefices, were a Kind of Parishes, *i. e.* Churches assign'd each to a *Cardinal* Priest, with some stated District depending on it, and a Font for administring of Baptism, in Cases where the Bishop himself could not administer it. These *Cardinals* were subordinated to the Bishops, and, accordingly, in Councils, particularly that held at *Rome* in 866, subscribed after them. It was not, however, at *Rome* only, that Priests bore this Name; for we find there were *Cardinal* Priests in *France*: Thus the Curate of the Parish of St. *John des Vignes*, is call'd, in old Charters, the *Cardinal* Priest of that Parish.

The Title of *Cardinal* is also given to some Bishops, *quatenus* Bishops; for Example, to those of *Mentz*, and *Milan*. The Archbishop of *Bourges* is also, in antient Writings, call'd *Cardinal*; and the Church of *Bourges* a *Cardinal Church*. The Abbot of *Vandome* calls himself *Cardinalis Natus*.

The *Cardinals* are divided into three Classes, or Orders, containing six Bishops, fifty Priests, and fourteen Deacons; making, in all, seventy, which constitute the sacred College. The *Cardinal* Bishops, who are, as it were, the Pope's Vicars, bear the Title of the Bishopricks assign'd to them; the rest take such Titles as are given them. The Number of *Cardinal* Bishops has been fix'd, but that of *Cardinal* Priests and Deacons, and consequently the sacred College it self, is always fluctuating. Till the Year 1125, the College consisted only of fifty-two, or fifty-three; the Council of *Constance* reduc'd them to twenty-four; but *Sixtus* IV, without any Regard to that Restriction, rais'd them again to fifty-three; and *Leo* to sixty-five. Thus as the Number of *Cardinal* Priests was antiently fix'd to twenty-eight, new Titles were to be establish'd, in Proportion as new *Cardinals* were created. For the *Cardinal* Deacons, they were originally no more than seven, for the fourteen Quarters of *Rome*; but they were afterwards increas'd to nineteen, and again diminish'd.

Papebroch conjectures, that it was *Honorius* IV. who first introduced Bishops into the sacred College, by admitting Bishops Suffragans of the Pope, to whom, of Right, it belong'd, to name him; and of these constituting the first Class of *Cardinals*. The *Cardinals* began to wear the red Hat at the Council of *Lyons*, in 1243, the Decree of Pope *Urban* VII; whereby it is appointed, that the *Cardinals* be address'd under the Title of *Eminence*, is of the Year 1630; till then, they were call'd, like the Bishops, *Illustrissimi*. Each Order of *Cardinals* has its Dean, or Chief; the Dean of the *Cardinal* Bishops is always the Bishop of *Ostia*.

The sacred College is always compos'd of *Cardinals* of different Nations, at the Nomination of the Princes, whose Subjects they are; but there is always a greater Number of *Italians*, than of all the other Nations put together, that they may have the Majority on their Side, for the Election of a Pope; tho' those *Italian Cardinals* are not above being brib'd by the Prince, who bids most for to have a Pope in his Interest.

The Revenue of the holy See is reckon'd to amount to very near twenty millions of Livres a Year, which is above a million *Sterling*; the most considerable Part whereof is rais'd on the *Catholick* Countries, for Expedition of Bulls, Immunities, Dispensations, *&c.* which shews, that St. *Peter*'s Bark has been employ'd in *diving* for Riches, as well as in fishing for Souls. Those immense Riches are but too often very ill husbanded, and instead of being employ'd, according to the Intention of the Church, to facilitate the Propagation of the Gospel, for the Support of the *inferior Clergy*, to relieve the Poor, and deliver *Christians* from their Slavery under the Enemies of the *Christian* Name; they are lavish'd away, either in profuse, and vain Expences; or to enrich the Relations of the reigning Pope; which is a Scandal to the Dignity of his Chair, and to the Holiness of his Profession.

Besides the Pope, and the *Cardinals*, the *superior Clergy* of the *Roman* Church consists of Archbishops, Bishops, Abbots, and Priors; for the Archbishop of *Rome* was always the sole Patriarch of the *Latin* Church; as for Primates, there are none, but of Name only.

An ARCHBISHOP, is a metropolitan Prelate, who has several Suffragans Bishops under him. The *Archbishop* can convoke his Suffragans into a Council, and that Council is call'd provincial. No Bishop can be consecrated, in his Province, but by himself, or at least by his Leave. He has the Precedence of all Bishops, and has the double Cross carry'd before him, instead of the Staff carry'd before Bishops. All his Suffragans depend on him, and appeal to him. This Term of Suffragan was never heard of before the eighth Century. Some derive it hence, that the Bishops are to help and assist the *Archbishop*; *quia Archiepiscopo Suffragari & assistere tenentur*. Others say, it is because ecclesiastical Matters are determin'd by their Votes, or Suffrages; *& Suffraganei dicuntur quia eorum Suffragiis Causæ Ecclesiasticæ judicantur*. Others hold, that they are call'd *Suffragans*, because when call'd by the Metropolitan to a Synod, they have a Right of Suffrage, or of voting; or because they could not be consecrated without his Suffrage or Consent.

The twenty-fourth Canon of the Council of *Constantinople*, call'd, by the *Catholicks*, the eighth General Council, condemns the Metropolitans, who thro' Indolence, or Vanity, discharg'd themselves of their Functions on other Bishops; whereas they are oblig'd to preach themselves, to instruct the People, and to administer the Sacraments. This is practised to this Day, by the ecclesiastical Electors of the Empire, who are very great temporal Princes, and have all suffragan Bishops to exercise the ecclesiastical Functions. This Disorder seems to have been introduc'd in the Church by *Benedict* IX, who, says *Sigebert*, being ignorant, caused another Pope to be consecrated with him, as his Coadjutor, to exercise his Functions. *Peter Damianus*, who liv'd at that Time, had a *Suffragan*, call'd *Albert*, but it was only to help him in his pastoral Functions.

The twenty-sixth Canon of the same Council decrees, that the Priest, or Deacon, who believes himself unjustly condemn'd by his own Bishop, can appeal to the Metropolitan of the Province, who is oblig'd to examine the Affair, and to repair the Injustice, if any has been done. At present, *Metropolitan* seems to be but a bare Title, and his Jurisdiction confin'd to the Consecration of his Suffragans Bishops; since there have been so many Privileges and Immunities granted to Bishopricks by the Court of *Rome*, to free them from the Jurisdiction of the *Metropolitan*, that almost all Cases, of any Consequence, are evok'd before the Pope, who thereby has much extended his Jurisdiction, even so far, as a *Metropolitan* can't convoke the Synod of his Province, without the Consent of the holy See. The Province under the Jurisdiction of the *Archbishop* is call'd *Archbishoprick*. The Kings of *France*, when they want some new *Archbishoprick*, form the Province, by appointing the Suffragans, and desire the Pope to erect it into an *Archbishoprick*; who sends the new *Archbishop*, for Mark of his Jurisdiction, the PALLIUM, which is a pontifical Ornament, wore by Popes, Primates, and Metropolitans, over their other Garments, in Form of a Band, or Fillet, three Fingers broad, and encompasses the Shoulders; whence, by some Authors, it is call'd *Super Humerale*. It has Pendants, or Strings, about a Palm long, both before and behind, with little *Laminæ* of Lead rounded at the Extremes, and cover'd with black Silk, with four red Crosses.

The PALLIUM is made of white Wool, shorn from off two Lambs, which the Nuns of St. *Agnes* offer every Year, on the Day of her Feast, on the singing of the

the Mass, *Agnus Dei*. The Lamb is receiv'd by two Canons of St. *John de Lateran*, who deliver them into the Hands of the apostolical Subdeacons, to whom belongs the Feeding, and Sheering of them in Season, and who, alone, have the Right of making these *Palliums*, which, when made, they lay over the Bodies of St. *Peter* and St. *Paul*, on the grand Altar of their Church, making Prayers over them all Night, according to the Form prescrib'd for that Purpose in the *Roman* Ceremonial. Some, with *Eusebius*, will have the *Pallium* to have been introduc'd by Pope *Linus*, adding, that as the Ephod was the Mark of the pontifical Authority in the *Jewish* Synagogue, so is the *Pallium* in the *Christian* Church. Others have observ'd, that there is no mention made thereof before the Year 336. And others will have it to have been first granted, by *Constantine the Great*, to Pope *Sylvester*, from whence it passed to the other Patriarchs and *Archbishops*.

The Pope pretends to the sole Right of conferring the *Pallium*, though some Patriarchs have granted it to their Suffragans, having first receiv'd it themselves from the *Roman* See. Antiently, the Pope used to send the *Pallium* to certain of his diocesan Bishops, on whom he laid a good Part of his Authority, and who were a Kind of Collaterals to him, as the *Patricii* were to the Emperors. The first who receiv'd it in *France*, was *Vigilius*, *Archbishop* of *Arles*, in order, as *Pasquier* observes, to give him the Precedency over the other Bishops. Antiently, they went to *Rome* to seek the *Pallium* in Person, afterwards it was sent by the Pope's Legates; at last the Custom was introduc'd to send Persons express to demand it, with this Form, *Instanter, instantius, instantissimè*.

By the Canon Laws, a *Metropolitan*, till he has receiv'd the *Pallium*, can't consecrate Bishops, or Churches, may not be call'd *Archbishop*, &c. upon a Translation he must have the *Pallium* a-fresh, and till then can't hold a Synod, nor perform any of his *archiepiscopal* Functions. The *Pallium* was antiently interr'd with the Person. The Use of the *Pallium* is restrain'd to certain Seasons and Occasions; none but the Pope has the Right of wearing it always, and in all Places. He sends it, sometimes, to Bishops, of his own Accord; and has, sometimes, given the Right thereof to particular Churches. Among the *Greeks*, all the Bishops wear the *Pallium*.

Solomon, King of *Britanny*, wrote, in 869, to Pope *Adrian* II, to ask the *Pallium* in Favour of *Festinian*, Bishop of *Dol*, and accompanied his Letter with several Presents, and, among the rest, a golden Statue, of *Adrian*'s Height. The Pope sent him, in Return, one Arm of Pope *Leo* III, and, in some Authors Opinion, granted, at the same Time, the *Pallium* to the Bishop of *Dol*. But it is pretended, that in the Synod of *Xaintes*, under Pope *Gregory* VII, it was prov'd, that the Place of the Answer of Pope *Adrian* to King *Solomon*, where the *Pallium* is mention'd, was falsify'd by a *Clerk* of the Bishop of *Dol*. The Truth is, that we have no *Archbishoprick* in *Britanny*, and that our nine Bishops are Suffragans of the *Archbishop* of *Tours*.

The nineteenth Canon of the eighth General Council regulates the Visitations of *Metropolitans*, and forbids them to leave their Churches, to visit those of their Suffragans, to abuse their Authority, and to consume the Revenues of those Churches, which must be spent to feed the Poor: For, says he, if each Bishop is oblig'd to use, with great Frugality, the Revenues of his own Church, without sacrificing them to his Cupidity or Avarice; of what Impiety must those be guilty, who undertake to oppress the Churches committed to others?

A Bishop, is a Person consecrated for the spiritual Government, or Direction of a Diocese, as an Archbishop for that of a Province. He differs from an Archbishop in this, that an Archbishop with *Bishops* consecrate a *Bishop*, as a *Bishop* with Priests ordain a Priest; that the Archbishop visits a Province, as the *Bishop* a Diocese; that the Archbishop convocates a provincial Synod, as the *Bishop* a diocesan one; and that the Archbishop has canonical Authority over all the *Bishops* of his Province, as the *Bishop* over the Priests in his Diocese.

In a Letter written by Pope *Celestinus* IV, in 428, to the *Bishops* of the *Gallican* Church, he reprimands those who had ordain'd *Bishops* some Laicks who had not pass'd through the other ecclesiastical Degrees; in which, says he, he had violated the ecclesiastical Discipline establish'd by the Canons, which had decreed, that the *Clerks* should arrive, by Degrees, to Priesthood, and to Episcopacy. For if it be reasonable to be a Disciple before any Body can be a Doctor, and Soldier before he can be a Captain; how can a Person be made Priest, or *Bishop*, before he has learn'd, in the inferior Ministry, the Functions of the superior?

The eighth Canon of the first Council of *Paris*, held in 557, order'd, that *Bishops* should be elected by the *Clergy*, with the Consent of the People; and that if any Body had the Temerity to usurp the Episcopacy, by a royal Authority, he should *not* be receiv'd by the *comprovincial Bishops*. But this, and several other Decrees, made from Time to Time, in the *Catholick* Church, in Support of the antient Discipline, with Regard to the Election of *Bishops*, have been disregarded for several Centuries past; and Princes have nominated to *Bishopricks* whom they please, without the Consent of the *Clergy*; and but too often utter Strangers to the Church they are to govern; the Favour of the Prince, or of his Ministers, or chief Favourites, or some other human Views, have been, almost Time out of Mind, and are still, the best Qualifications for a *Bishoprick*, often to the Exclusion of the Qualities required by the Canons.

The Afferters of the Privileges and Liberties of the *Gallican* Church, say, that the Provision to Prelacy, and other ecclesiastical Dignities, has been made, at all Times, in Forms so different, and so contrary to one another, that it is very difficult to say which is the most legitimate. They pretend, that though it can't be denied that Elections were in Use at the Time of the Apostles; it can also be shew'd, that even then there was another Way, besides that of Election. That the Pope has pretended, that *that* Right was peculiar to him, that Princes have claim'd the same Right; that sometimes the *Bishops* of the Province alone have provided to the *Bishopricks*, and at another the *Clergy* and the People have elected their Pastors; sometimes the Prince, the *Clergy* and the People, with common Suffrages; sometimes the *Clergy* without the People; and sometimes the Canons, alone, without the *Clergy*.

This Variety shews plainly, say they, that it was never believ'd that those Elections were of divine Institution; and that it was always licit to the secular Powers to behave in it, as it suited best their Interest; and that with much more Reason, because the Persons thus promoted were judg'd capable to possess all Kinds of temporal Estates; not Cities only, but likewise whole Provinces.

The Popes, strengthen'd by their great Power, have always claim'd that Right, as belonging to them, under Pretence that they were antiently the sole *Bishops* of *Christendom*; and though they have distributed Part of their Dignity to particular *Bishops*, it was not with a Design of diminishing their own, or giving up their Right. But the *French* hold quite another Maxim, especially *Glaber*, who in his History, *Lib.* 2. *c.* 4. speaks thus: *Licet Pontifex Romanus*, says he, *Ecclesiæ ob dignitatem Apostolicæ sedis cæteris in orbe constitutis reverentior habeatur, non tamen ei licet transgredi, in aliquo, Canonici moderaminis tenorem: Sicut enim unusquisque orthodoxæ Ecclesiæ Pontifex ac sponsus propriæ sedis, uniformiter gerit speciem Salvatoris ita generaliter nulli convenit quid piam patrare in alterius Diœcesi.* *i. e.* Though, says he, the *Roman* Pontiff, because of the Dignity of the apostolical See, is respected above all the other *Bishops*, establish'd in the other

other Parts of the World; he ought not, notwithstanding, to transgress the Regulations of a canonical Government: For as every *Bishop* of the orthodox Church represents the Saviour, in his own See; therefore none is to pretend to any Jurisdiction in the Diocese of another *Bishop*.

The Opinion that secular Princes have a Right of Nomination to the *Bishopricks* of their Dominions, is supported by a Chapter found in the Body of the Canon Law, which begins *Adrianus*; whereby Pope *Adrian* I, in a Council held at *Rome*, granted to *Charlemagne*, Emperor and King of *France*, and to his Successors, the Power to order the Election of the Pope, and to confirm it; and, besides, that the Archbishops and *Bishops* of the other Provinces should be oblig'd to take their Investiture from his Hands, before they could be consecrated. Cardinal *Baronius*, *Tom.* 9. *Annal.* 774. has done all he could to shew that the History of that Chapter is false, and invented by *Sigebert*, in Favour of the Emperors of his Time, who, at that Time, had several very great Differences with the Popes, for the Investitures. But the *Germans*, on their Side, have answer'd all he has said on that Subject, to prove the Truth of the History of that Chapter.

There are some Doctors who go farther than this, and pretend, that the Right of Nomination to *Bishopricks* belongs to Kings, and other sovereign Princes, not by any Concession of the holy See, but as a regal Right, which therefore proceeds from the natural one. It is the Sentiment of *Ferdinand Vasquez*, *Lib.* 2. *Controvers. Illust. c.* 15. *Nam ad perfectam hujus rei cognitionem*, says he, *præfari oportet, non esse solum vel simplex jus Patronatûs, id quod habent Hispaniarum Reges in talium beneficiorum collatione seu nominatione, neque ex solâ juris Canonici concessione, sed potissimum ex ipsomet jure regali, & sic ex jure naturali. i. e.* For, says he, to understand very well this Affair, it must be said, that the Right which the Kings of *Spain* have of the Collation and Nomination to those Benefices, is not a simple Right of Patronage, or a simple Concession of the Canon Law, but rather a regal Right, and a natural Right. *Francis de Pisa*, in his History of *Toledo*, *lib.* 4. *c.* 28. writes, that the last who was elected Archbishop of *Toledo*, was in the Year 1445; that those who have been since Archbishops of that See, have been nam'd, by the Kings of *Spain*, without the Consent of the Chapters. And quotes, afterwards, the Ordinance of King *Philip* II. of the Year 1565, which contains, *El Emperador Don Carlos, y Regna Donna Juana, en Segovia*, Anno 1532. petit. 56. *Y en Valladolid.* An. 1548. petit. 92, 93. *Por derecho et antiqua costumbre y Justos Titulos y Concessiones Apostolicas somos Patron de Todas las yglesias Cathedrales dettos Reynos, y nos perienere la presentation de los Arcobispados y opispados, y prelacias y abbadias Consistoriales destos Reynos, a unque vaque a in Corte di Roma. i. e.* By which we declare, that by an antient Custom, by just Titles, and apostolical Concessions, we are Patrons of all the Cathedral Churches of this Realm; and that the Presentation to all Archbishopricks, Bishopricks, Prelacies, and consistorial Abbies of these Realms, belongs to us; and that none of them is vacant in the Court of *Rome*.

We have several very considerable Examples in the History of *England*, that the same Right of Presentation to *Bishopricks*, and other Prelacies, has been asserted, in that Kingdom, and defended against the Pretensions of the Court of *Rome*, especially in that famous Letter of *Edward* III. to the Pope, in the Year 1343, where we find these Words; *Permittentes ut Patroni Patronatûs sui solatium non amittant, Ecclesiæque Cathedrales, & aliæ dicti Regni liberas Electiones, & earum effectum habeant, quas quidem Ecclesias dicti Progenitores nostri, dudum singulis vacationibus earundem personis idoneis jure suo Regio conferebant; & post modum ad rogatum & instantiam dictæ sedis sub certis modis & conditionibus concesserunt, quod electiones fierent in dictis Ecclesiis per Capitula earundem, quæ Concessio fuit per sedem Apostolicam, ex certâ Scientiâ confirmata. i. e.* Permitting that the Presentators to Benefices should not lose their Right of Patronage; and that the Cathedral Churches, and others of this Kingdom, should enjoy their free Elections; and the Effect thereof; which Churches our Predecessors us'd formerly to confer, (of their own proper royal Right) when they were vacant, to those they judg'd worthy of them; but afterwards, at the Sollicitations and Instances of those vacant Churches, they have granted, under certain Restrictions, and Conditions; that those Elections should be made by the Chapters of those Churches; which Concession, we know, for certain, has been confirm'd by the apostolical See.

There is not the least Trace left, in the *Gallican* Church, of any Election, not even in the Form mention'd in the Letter of *Edward* III; for the King has always a List kept, commonly by his Father Confessor, of all the Persons he designs to name to *Bishopricks*, when there are any vacant; and fills the Vacancies with those Persons, without the Consent, Approbation, and often without the Knowledge of the Church they are promoted to.

Damianus a Goes, *De Mor. Æthiop.* p. 1311, informs us, that even *Prester John*, Emperor of *Æthiopia*, in *Africa*, gave Names to the *Bishopricks*, and other Benefices of his Country. *Patriarchæ*, says he, *Officium est Sacros Ordines dare; ceterum nullum Episcopatum aut Ecclesiæ Beneficia in ullos confert. Id solum ad pretiosum Joannem spectat qui omnia prò arbitrio suo dispensat. i. e.* The Office of the Patriarch is to confer the sacred Orders; but he never confers a *Bishoprick*, or any other Benefices of the Church; that pertains only to the precious *John*, who disposes of all Things at his Will and Pleasure.

The Form of consecrating *Bishops* is different in different Churches. In the *Greek* Church the *Bishop* elect being by the assistant *Bishops* presented for Consecration, and the Instrument of Election put in his Hand; after several Prayers, (the first call'd *Diaconium*) the *Bishop* elect demanding Consecration, makes Profession of his Faith; after which, he receives a Benediction. He is then interrogated as to his Belief of the Trinity; to which he answers by a long Profession of Faith, and receives a second Benediction. Lastly, he is ask'd what he thinks of the Incarnation; to which he answers in a third Profession of Faith; which is follow'd by a third Benediction: After which, the Consecrator gives him the pastoral Staff. Then he is led up to the Altar, where, after certain Prayers, and three Crosses on his Head, he receives the Pallium; if he be an Archbishop, or Patriarch, he then receives the Kiss of Peace, of his Consecrator and two Assistants, and sitting down, reads, prays, and gives the Communion to his Consecrator and others.

In the *Roman* Church, the *Bishop* elect being presented by the elder Assistant to the Consecrator, takes the Oath; he is then examin'd as to his Faith, and after several Prayers, the New Testament is drawn open over his Head, and he receives the Chrism, or Unction, on his Head; the pastoral Staff, Ring, and Gospel, are then given him, and after Communion the Mitre put on his Head; each Ceremony being accompanied with proper Prayers, *&c.* The Process ends with *Te Deum*.

In *England*, the King being certify'd of the Death of a *Bishop*, by the Dean and Chapter, and his Leave requested to elect another, the *Conge d'Elire* is sent to them, nominating the Person he would have chosen. The Election is to be twenty Days after the *Conge d'Elire*, and the Chapter, in case of refusing the Person nam'd by the King, incurs a *Præmunire*. After Election, and its being accepted of by the *Bishop*, the King grants a Mandate, under the Great Seal, for Confirmation; which the Archbishop consigns to his Vicar-General, consisting mostly in a solemn Citation of such as have any Objections to the *Bishop* elect, a Declaration of their Contumacy in not appearing, and an Administration of the Oath of Supremacy and canonical Obedience. Sentence being read by the Vicar-

general, the Confirmation concludes with a Treat, (and in the *Roman* Church by a Retreat into a Seminary or other Place of Devotion, to prepare himself for his Consecration). Then follows the Consecration by the *Archbishop* and two assistant *Bishops*: The Ceremony of which, is most the same as in the *Roman* Church, save that, having put on the episcopal Robes, the Archbishop and Bishops lay their Hands on the the new Prelate's Head, and consecrate him with a certain Form of Words. After the Communion they go to a Banquet.

All these religious Ceremonies used in the Consecration of a *Bishop*, in all Churches, should put them in Mind, that they are not invested with that sacred Dignity, with no other View than to please their Ambition, or to advance their private Interest; that the Pastoral Staff is not put in their Hands to help them to walk with more Ease, through the intricate and difficult Paths of a Court; nor the Mitre put on their Head to appear there with more Splendor. That Pastoral Staff, which is at present but a mere Mark of Distinction, was in the Primitive Church, the sole Conveniency used by the good *Bishops* of those Days, on which they leaned upon, in their Visitation through their Diocese, instead of those costly Vehicles, and that numerous and chargeable Retinue of Men and Horses, our Bishops are carried in, and attended with, when they judge proper to discharge that most considerable Duty of their pastoral Sollicitude, to the Oppression of a poor Curate, often obliged to spend his whole yearly Income, in one Meal, to treat his *Bishop* at his Visitation. That worldly Pomp and Magnificency, Episcopacy is attended with at present is condemned by all the Councils, and renders them despicable to those who have a true Notion of their Dignity, who see with a very just Scorn those, appointed by the divine Providence, (as *Bishops* are pleased themselves to say) for the Conduct of a whole Diocese, always absent from that Diocese, and oftner at Court than in the Sanctuary; where, according to the 31st Canon of the Council of *Orleans*, held in 511, they should always be seen (except when they are sick) at least every *Sunday*.

The Principal Church of a Diocess or *Bishoprick* is called CATHEDRAL, from the *Greek*, Καθεδρα, a Chair, of καθεζομαι, *sedeo*, I set. The Denomination *Cathedral* seems to have taken its Rise from the Manner of sitting in antient Churches, or Assemblies of primitive Christians: In these, the Council, *i. e.* the Elders and Priests was called *Presbyterium*; at their Head was the Bishop, who held the Place of Chairman, *Cathedralis* or *Cathedraticus*; and the Presbyters who set on either Side, were also called by the antient Fathers, *Assessores Episcoporum*.

Those Assemblies are at present called *Chapter*, and that Chapter is composed of a Dean, and several Canons or Prebendaries. Besides that of the Dean, which is the first Dignity of the *Chapter*, there are several others, as those of the Treasurer, Chantor and Theologal.

The Dean of a *Chapter* has no other Jurisdiction than that of assembling the *Chapter* whenever he judges proper for the good of the Community, otherwise he is but *primus inter Pares*.

The TREASURER has under his Care, or the Superintendency of the Treasure of the *Cathedral*, consisting of the Vessels, Ornaments, *&c.* for the divine Service, and of the Casual, *i. e.* of the Money received for Obits, Masses, Foundations, *&c.* to have it distributed to the Prebendaries, and to pay what is called the *Bas Chœur*, or those Journeymen hired by the *Chapter* to pray to God in their stead.

The CHANTOR is the Præcentor, or Master of the Choir; he bears for Mark of his Office, at solemn Festivals, while in the Choir, a long Staff, about five Foot long, and four Inches Diameter, covered all over with *Laminæ* of Silver, with which he walks gravely up and down the Choir during the Divine Service, that it may be performed with due Decency, and without Confusion. He gives Tune to the rest at the Beginning of Psalms and Anthems, and can, by striking with his Staff, against the Pavement, stop the Service, if he finds that it is not done as it should be. The Antients called the *Chantor*, *primicerius Cantorum*. To him formerly belonged the Direction of the Deacons, and other inferior Ministers.

The THEOLOGAL is a Prebendary, appointed to make Lectures of *Theology* twice a Week, to the other Prebendaries, to propose and resolve Cases of Conscience, and to preach every *Sunday* in the Year; but he seldom performs any of those Functions.

The CANONS or PREBENDARIES are those, who, in the *Cathedral* possess a *Prebend* or Revenue allotted for the Performance of divine Service. *Canons* are of no great Antiquity: *Paschier* observes, that the Name *Canon* was not known before *Charlemaign*; but however there were *Canons* then, for in the 9th Chapter of the Council assembled at *Mayence* in 813, by his Orders; it is commanded to the canonical Clerks, *i. e.* to the *Canons*, to live canonically, *i. e.* to observe the Doctrine of the Scripture, and of the Fathers, and to do nothing without their *Bishop*'s Leave; to sleep and eat in the same House; and to those who lived in separate Houses, to come every Morning to the Lecture to hear what would be ordered.

Originally *Canons* were only Priests, or inferior Ecclesiasticks, who lived in Community; residing by the *Cathedral* Church, to assist the *Bishop*, depending entirely on his Will, supported by the Revenues of the Bishoprick, and living in the same House as his Domesticks or Counsellors, *&c.* They even inherited his Moveables, 'till the Year 816, when this was prohibited by the Council of *Aix la Chapelle*. By Degrees these Communities of Priests, shaking off their Dependance, formed separate Bodies, whereof the *Bishops* however were still Head. In the 10th Century there were Communities or Congregations of the same Kind established even in Cities where there was no *Bishop*: These were called *Collegiates*, in Regard they used the Terms *Congregation* and *College* indifferently: The Name *Chapter*, now given to these Bodies, being much more modern. Under the second Race of the Kings of *France*, the canonical or collegial Life had spread itself all over the Country; and each *Cathedral* had its *Chapter* distinct from the Rest of the *Clergy*; but they were not yet destined to a Life so easy as now-a-Days.

They had the Name *Canon* from the *Greek*, Κανων, which signifies three different Things, a Rule, a Pension, or fixed Revenue to live on, and a Catalogue or *Matricula*. Hence, some say, they were called *Canons*, by Reason of the Pension or Prebend, (whence they are also sometimes denominated *Sportulantes Fratres*) others hold they were called *Canons*, because obliged to live according to the canonical Rules and Institutions, which were given them; and others as *M. de Marca*, because their Name was inserted in the *Matricula*, or Catalogue of the *Cathedral*.

In Time the *Canons* freed themselves from their Rules, the Observance relaxed, and at length they ceased to live in Community, yet still formed Bodies, pretending to other Functions besides the Celebration of the common Office in the Church, yet assuming the Rights of the Rest of the *Clergy*, making themselves a necessary Council of the *Bishop*, taking upon them the Administration of a See during a Vacancy, and the Election of a *Bishop* to supply it. There are even some *Chapters* exempt from the Jurisdiction of the *Bishop*, and owning no Head but their Dean. After the Example of *Cathedral Chapters*, collegiate ones also continued to form Bodies, after they had abandoned living in Community; which Communities have been in several Ages and Places composed of Monks; for after the monastick Life grew into Request, many *Bishops* chose Monks rather than Seculars for their Attendants.

There are *Canons* of various Kinds, *viz. Cardinal Canons*, *Domicillary Canons*, *Expectative Canons*, *Foreign Canons*, and *Lay* or *Honorary Canons*.

CARDINAL CANONS are those attached, and, as the *Latins* call it, *Incardinati* to a Church, as a Priest is to a Parish. *Domicellary Canons* were young *Canons*, who

who, not being in Orders, had no Right in any particular *Chapters*. *Expectative Canons* were such, as without having any Revenue or Prebend, had the Titles and Dignities of *Canons*, a Voice in the *Chapter*, and a Place in the Choir, 'till such a Time as a Prebend should fall. *Foreign Canons* were such as did not officiate in the *Canonries* to which they belonged. To these were opposed *Mansionary Canons*, or *Canons Residentiary*. In a manuscript Ordinary, at *Rouen*, mention is made of *Canons* of thirteen Marks, which, perhaps, was the Revenue of their *Canonicate*.

In the *Cathedral* Church of our Lady at *Paris*, there are *Canons* in the sacred Orders, and *Canons in minoribus*, or minor Orders. All the *Canons* of the *Cathedral* of *Lyons* stile themselves *Canons* and Counts of *Lyons*. In the Churches at *London* were *minor Canons* or *little Canons*, who officiated for the great ones. At *Lucca* there are *Mitred Canons*; there were also *Canons of Poverty*; and *Canons ad Succurrendum*, who were made *Canons* at the Point of Death, to partake of the Prayers of the *Chapter*. *Lay* or *Honorary Canons*, are such among the Laity, as have been admitted, out of Honour and Respect, into some *Chapters* of *Canons*. Such are the Counts of *Anjou* in the Church of St. *Martin De Tours*, the Kings of *France*, of St. *Hilary* in *Poictiers*, &c. the Emperor of St. *Peters*, &c.

Besides the *Cathedral*, there are very few Bishopricks where there is not one or two *Collegiate Churches*, which are those, which, though they have no *Bishop*'s See, yet have the antient Retinue of the *Bishops*, the *Canons* and *Prebends*. Of these *Collegiate Churches* there are two Kinds; some of Royal Foundation, others of Ecclesiastical Foundation: Each of them in Matters of divine Service are regulated in the same Manner as the *Cathedrals*. There are even some *Collegiate Churches* which have the episcopal Rights. Some of these Churches were antiently Abbeys, which in Time were secularised.

The Church of St. *Peter*'s *Westminster* was antiently a *Cathedral*, but the Revenues of the Monastery being, by Act of Parliament, 10 *Elizabeth*, vested in the *Dean* and *Chapter*, it commenced a *Collegiate Church*. In several Causes the stiling it *Cathedral* instead of *Collegiate Church* of *Westminster*, has occasioned Errors in the Pleadings. *Rippon*, *Windsor*, &c. are also *Collegiate Churches*, governed by *Deans* and *Chapters*.

In most *Cathedral* and *Collegiate Churches*, the *Canons* hire inferior Priests or other Ecclesiasticks, to discharge the most burthensome of their Functions, particularly that of praying; according to the following malicious but very just Observation of *Boileau*, speak- of the *Canons* of the *St. Chapelle* at *Paris*.

Ces Chanoines Vermeils & Brillants de Sante
Sengraissoient d'une Longue & Sainte Oisivete,
Sans sortir de leurs Licts plus doux que leurs Hermines,
Ces pieux Faineans faisoient chanter Matines,
Veilloient a bien diner, & laissoient, en leur Lieu,
A des Chantres Gages le Soin de Loüer Dieu.

LUTRIN.

Note, That the *Bishops* of *England* are all Barons and Peers. *Barons* in a two-fold Manner, *viz.* Feudal in Regard of Lands and Baronies annexed to their Bishopricks; and by Writ, as being summoned by Writ to Parliament. They have the Precedence of all other Barons, and sit in the upper House, both as Barons and Bishops. They have two special Privileges next to Regal: The first, that in their Courts they sit and pass Sentence of themselves, and by their own Authority: The *Bishop*'s Court being not like other Courts; but Writs are sent out in their own Name, *Teste the Bishops*, not in the King's Name, as is done in the King's Courts. The second, that, like the King, they can depute their Authority to another, as their Suffragan, Chancellor, Commissary, *&c.* They have also this Advantage over Lay-Lords, that in whatever Christian Country they come, (except in the *Roman* Catholick Countries) their episcopal Dignity is acknowledged. They have their Vote in the Trial and Arraignment of a Peer, but ere Sentence of Death, *&c.* they withdraw and vote by Proxy; which, in my Opinion, is but a mere Grimace, for though they be not present, at the pronouncing of the Sentence, if they find guilty by Proxy, or otherwise, they have equally condemned him to die, as those who are present when the Sentence is pronounced. They have several Immunities, as from Arrests, Outlawries, Distress, *&c.* Liberty to hunt in the King's Forests, *&c.* to have certain Tuns of Wine Duty-free, *&c.* Their Persons may not be seized, as Lay-Peers may, upon Contempt, but their Temporalities alone. They may qualify as many Chaplains as a Duke, *viz.* six. By Law the Crime of *Episcopicide*, which a *Clergyman* commits by killing his *Bishop*, is equivalent to Parricide, *viz.* Petty-Treason.

BISHOPRICKS are divided into several Parishes, more or less in Number, according to the Extent of the Diocese; and the Ecclesiastick committed to the Conduct of each Parish, is called *Curate* or *Rector*. Such Ecclesiastick is most commonly called in *England Parson*, either by Way of Eminence, as some say, because the Revenues of a Church are destined to maintain *magnam Personam*; or as some will have it, because he is bound by Virtue of his Office, in *Propriâ Personâ servire Deo*, (though he does it oftener by his *Curate*) whence *Impersonare*, in old Charters, is to put in Possession of a Parsonage *&c.* or as others, because the original *Parsons*, *Personæ*, were in Reality only Dignitaries, and possessed Benefices, which gave them some personal Pre-eminences in the Church or *Chapter*, but no Power. Or *lastly*, as others, because the *Parson* for his Time represents his Church, and sustain the Person thereof, as well in suing as in being sued in any Action touching the same.

Some distinguish between a *Rector* and *Parson*: The *Rector*, say they, is where the Vicarage is endowed; and the *Parson*, *Persona*, where the Personage is without a Vicarage: But the Distinction seems new and subtle: *Bracton* apparently uses *Rector* and *Parson* as synonimous.

Formerly, he who had a Church by Institution and Induction only for his own Life, was call'd *Parson mortal*; but any collegiate, or conventual Body, to whom the Church was for ever appropriated, was called *Parson immortal*.

Some, again, make a Distinction between *Parson* simply, and *Parson impersonee*, impersonated. *Parson impersonee* is the Rector or Incumbent in Possession of a Parish Church, whether presentative or impropriate, and with whom the Church is full. *Parson* simply, they contend, is properly the Patron, or he that has the Right of Presentation; call'd *Parson*, by reason, before the *Lateran* Council, he had a Right to the Tithes, in Respect of his Liberality in erecting or endowing the Church, *quasi sustineret Personam Ecclesiæ*. It is certain, in the Registers of Writs, *Persona impersonata* is us'd for the Rector of a Benefice presentative; and, in *Dyer*, a Dean and Chapter are said to be *Parsons impersonees* of a Benefice appropriated to them. So that *Personata* seems only chang'd into *impersonata*, in Respect of the Possession of the Benefice.

The PARSONAGE, or RECTORY, is ordinarily endow'd with a House, Glebe, and Tithe, for the Maintenance of the *Parson*, or Rector.

A RECTOR, or PARSON, is presented to his *Parsonage*, or *Rectory*, either by the King, or by the Bishop, or by any other who has *Right of Patronage* to that Church he is presented to.

Of *Patronages*, some are *lay*, others *ecclesiastical*. *Lay Patronage*, is a Right attach'd to the Person, either as Founder, or as Heir of the Founder, or as Possessor of a Fee to which the *Patronage* is annex'd.

Lay

Lay Patronage, again, is *real*, or *personal*. *Real Patronage* is that attach'd to the Glebe, or to certain Lands, and Hereditaments. *Personal Patronage* is that belonging immediately to the Founder of the Church, and transmittible to his Children and Family, without being annex'd to any Fee. *Personal Patronage* can't be alienated or sold, *real* may, together with the Glebe to which it is annex'd. There must ever be some Body or Matter to fix it to, in order to its being transferr'd to another.

Ecclesiastical PATRONAGE, is that which a Person is entitled to by Virtue of some Benefice which he holds. If an Ecclesiastick has a Right of *Patronage* on his own Account, independent of his ecclesiastical Capacity, this is still *Lay Patronage*.

The Origin of the Right of *Patronage* we find in the tenth Canon of the Council of *Orange*; where it is express'd, that a Founder may present to the Diocesan the Clerks he thinks proper for his Church. By a Law of *Justinian* it is ordain'd, that the Founders of Churches may not put Clerks in them, on their own Authority, but only present them to the Bishop. Some Canonists look on the Right of *Patronage* as a Kind of ecclesiastick Servitude. The Right of *Patronage* sleeps, but is not lost, while a Person is out of the Communion of the Church.

In *England*, the Presentation must be tendered to the Bishop within an hundred and eighty-two Days after the Living is vacant, else it lapses to the Bishop; and if the Bishop does not collate in Half a Year more, it lapses to the Archbishop; and from him, in a like Time, to the King, who may stay as long as he pleases: For *Nullum tempus occurrit Regi*. By some Customs a Lay Patron has only four Months Time to make his Presentation in; and if he has presented a Person incapable, he may vary it, and make a new Presentation within the four Months.

In *France*, the *ecclesiastical Patronage*, especially in the Possession of Abbies, or other religious Houses, is very oppressive to the inferior *Clergy*, for the Abbies, or other religious Houses, reserv'd for themselves the whole Revenue of the Parishes in their Presentation, and give to the Incumbent but a very small Pension, scarce sufficient, with the Casual of his Church, to maintain him; and those Gentlemen appropriate to their own Use all the great Tithes, *viz.* those on Corn, Hay, and Wood; leaving, sometimes, by a Kind of Condescension, the small ones, as those of Wool, Milk, Cheese, Lambs, Ferrets, *&c.* to the *Rector*; who, in Fact, and according to the Intention of the Founders, as well as of the Church, should have all Sorts of Tithes, both great and small.

Those TITHES are the tenth Part of all Profits, or Fruits, both predial, personal, and mixt; allotted to the *Clergy* for their Maintenance.

There are three Kinds of *Tithes*, viz. *personal*, *predial*, and *mixt*. *Personal Tithes* are those due, or accruing from the Profits of Labour, Art, Trade, Navigation, and Industry of Man. *Predial Tithes*, those which arise from the Fruits of the Ground; as Corn, Hay, Underwood, Flax, Hemp, *&c.* or from the Fruits of Trees; as Apples, Pears, Plumbs, Cherries; or from the Produce of the Garden. *Predial Tithes*, are either *great*, or *small*. *Great Tithes* are those of Corn, Hay, and Wood. *Small Tithes* are those of Flax, Hemp, *&c.* which are *predial*; and those of Wool, Milk, Cheese, Ferrets, *&c.* which are *mixt*, because arising from Beasts, and other Animals fed with the Fruits of the Earth.

The *Tithes* of Ground newly broke up, and cultivated, are call'd *Decimæ novales*, and always belong to the Vicar, in *England*, as well as the small *Tithes*. The Novelty is confin'd to forty Years before the Demand.

The *Clergy* pretends that the Custom of paying *Tithes* is very antient, since *Abraham* gave *Melchisedech* the Tenth of all the Spoils of the four Kings he had defeated, *Gen.* xiv. 20. and *Jacob* made a Vow at *Bethel*, to give the Tenth of all the Riches he should gather, in that Journey, to God, *Gen.* xxviii. 22. But these Passages do not plead much in Favour of *Tithes*, as they have been paid for several Centuries past to the *Christian Clergy*; for *Abraham* gave only to *Melchisedech* the Tenth of the Spoils, not of his Revenue, and this but once, not annually; and besides, not as a Maintenance, which *Melchisedech* wanted not, but as Homage: For it can't be imagin'd, that if he had not given that Tenth, *Melchisedech* could have claim'd it as his Right, and, in Case of Refusal, sued *Abraham* for it. And as to *Jacob*, what he did was the Effect of a Vow, voluntarily made, to offer the Tenth of all he should possess; not to any Priest but to God himself, upon an Altar.

Tithes were first legally enjoin'd by *Moses*, *Levit.* xxvii. 30. *Numb.* xviii. 21. *Deut.* xiv. 21. That Legislator oblig'd the *Israelites* to several Kinds of *Tithes*; as, 1. The *first Tithe*, which was that of all the Fruits given to the *Levites*. 2. The *second Tithe* was a tenth Part of the nine remaining after Payment of the *first Tithe*. This *Tithe* was set a-part in each Family, and the Master of the Family was oblig'd to carry it to *Jerusalem*, and to spend it there; or, in Case he could not, he was to redeem it, or convert it into Money; in which Case, he was to add a Fifth to it, and carry the Money to *Jerusalem*. The Rabbins say, that if he did not redeem it himself, that is, if he did not substitute his own Money in Lieu of it, but sold it to another, he was only requir'd to carry the bare Price to *Jerusalem*, without any Addition. 3. The *Tithe of the Tithe* was the tenth Part of all the *Tithes* that had been given to the *Levites* by the People. For the *Levites*, after they had got all their *Tithes* of the People, divided it into ten Parts, and in their Turn gave a *Tithe* to the Priests. This *Tithe* the Rabbins call'd *Oblation of the Tithes*; *Tithe of Tithe*, or *Tithes of Things sanctify'd*: And this the *Levites* were oblig'd to carry to the Temple; the rest was reserv'd for their own Subsistence. 4. The *Tithe of the third Year*, was another Kind of *Tithe*, not much different from the second *Tithe*, excepting that it was less troublesome, by reason they were not obliged to carry it to *Jerusalem*. Every seventh Year God appointed that the Ground should lie and rest, nor should the Owners even gather the Fruits which it produc'd spontaneously: That Year, therefore, they paid no *Tithe*, but only the six preceding ones; now every Third of these six Years, *i. e.* on the third, and the sixth, they rais'd as usually the first *Tithe*, and after that a second; but this second they did not carry to *Jerusalem*, either in Kind, or in Money, but kept it by them to be spent by the *Levites*, the Strangers, the Fatherless, and the Widows of the Place, *Deut.* xiv. 28, 29. This was also call'd the *Tithe of the Poor*, and the *third Tithe*; and these third Years it was paid on, were call'd the *Tithe Years*. All these *Tithes* amounted to above one Sixth of the Revenue of each Person: For if, for Instance, a Master of a Family reap'd 6000 Measures of Wheat, and 100 were first taken away for the First-fruits of Oblation, he had only 5900 left; for these 5900, taking away the first *Tithe*, 590, there remain'd 5310, the Tenth whereof is 531; which being taken for the second *Tithe*, leaves 4779 for the Proprietor; who, consequently, has given 1121, *viz.* 121 more than a Sixth of the whole.

Of the 590, which the *Levites* receiv'd for their first *Tithe*, 59 went to the Priests for the *Tithe of Tithes*; so that there were left 531 for their own Subsistence, and that of their Families.

Though God himself had establish'd the *Tithes*, under the written Law, it must not be inferr'd hence, that *Christ* has likewise establish'd the *Tithes*, under the Law of Grace, or that we are under the same Obligation to pay the *Tithes* to our *Clergy*, the *Israelites* were to pay to the *Levites*; since there is a very great Difference between the *Levites* and our *Clergy*: For as the *Levites* had no Part in the Division of the Land made between *Jacob*'s other Children, it was but very just that something else should be allow'd for their Subsistence; therefore God, by *Moses*'s Ministry, establish'd

eſtabliſh'd the *Tithes* for that Purpoſe; but the ſame can't be ſaid of our *Clergy*, who are not depriv'd, as the *Levites* were, by being call'd to the Service of the Altars, of the Poſſeſſions given them by their Right of Inheritance, nor of any other Claim or Pretenſions to any other Things of that Kind: Therefore there were no *Tithes* eſtabliſh'd, nor even the leaſt mention made of them, in the firſt Centuries of the *Chriſtian* Church; and though the Prieſts of thoſe Days were very poor, and very few of them had any real or perſonal Eſtate, there was no Proviſion made for them, but they depended entirely, for their Subſiſtence, as the *Mendicant* Friars have done ſince, on the Alms and Oblations of the moſt pious, and moſt charitable among the *Chriſtians*. In After-times, the *Clergy* growing more numerous, and thoſe Alms and Oblations being not judg'd ſufficient for their Maintenance; the Laity gave a certain Portion of their Revenues to them, but voluntarily, and not out of any Conſtraint or Obligation. The firſt Inſtances we have of it, were in the fourth and fifth Centuries; this Gift was call'd *Tithe*, not that it was really a tenth Part of their Income, or near ſo much; but only in Imitation of the *Tithes* of the old Law.

In the following Age, the Prelates, in their Councils, in Concert with the Princes, made an expreſs Law to that Purpoſe, and oblig'd the Laity to give a full tenth Part of their Revenues, Fruits, *&c.* to the Eccleſiaſticks. This the Church enjoy'd, without Diſturbance, for two or three Centuries; but in the eighth Century the *Clergy* got hold of Part of theſe *Tithes*, either by their own Authority, or by Grants or Donations of the Princes, and appropriated them to their own Uſe. Some Time afterwards they reſtor'd them, or apply'd them to the founding of Monaſteries or Chapters; and the Church conſented, at leaſt tacitly, to this Reſtitution. In 1179, the third Council of *Lateran*, held under *Alexander* III. commanded the Laymen to reſtore all the *Tithes*, they yet held, to the Church. In 1215, the fourth Council of *Lateran*, held under *Innocent* III, moderated the Matter a little, and without ſaying any Thing of the *Tithes* which the Laity already poſſeſs'd, forbad them to appropriate or take any more for the future.

Fra. Paolo, in his Treatiſe of beneficiary Matters, is of Opinion, that the Cuſtom of paying *Tithes* under the new Law, began in *France*; and affirms, that there are no Inſtances of it before the eighth and ninth Centuries. But he muſt be miſtaken; for in the ſecond Council of *Maſcon*, in *Burgundy*, held in 585, compos'd of forty-three Biſhops, and where twenty Canons were made for the eccleſiaſtical Diſcipline, it is ſaid, that the *Chriſtians* had a long Time kept inviolate that Law of God whereby *Tithe* of all their Fruits was enjoin'd to be given to holy Places, *&c.* In Effect, *Origen*, *Homil.* 11. on *Numb.* thinks, that the old Law of *Moſes*, touching the Firſt-fruits and *Tithes*, both of Cattle, and of the Fruits of the Earth, are not abrogated by the Goſpel, but ought to be obſerv'd on their antient Footing. The ſixth Canon of the Council of *Maſcon*, orders *Tithes* to be paid to the Miniſters of the Church, according to the Law of God, and the immemorial Cuſtom of the *Chriſtians*, and that upon Penalty of Excommunication; which is the firſt Penalty we find impos'd on ſuch as would not pay *Tithes*. On which Ground it is, that many, among the modern *Clergy*, hold their *Tithes* to be *Jure Divino*; but I hope not the *Proteſtant Clergy*, who would be aſham'd to quote, in Defence of a temporal Intereſt, a Council, which they reject, in ſeveral other Points, as repreſenting the Whore of *Babylon*, who, in their Opinion, had already gone a whoring, long before the Convocation of that Council.

Others, on the contrary, plead, that the Recompence to be given Church Miniſters, is differently ordain'd by God, according to the Differences he has put between his two great Diſpenſations, the Law and the Goſpel: Under the Law he gave them *Tithes*, under the Goſpel, having left all Things in his Church to Charity, and *Chriſtian* Freedom, he has given them only what ſhall be given them freely, and in Charity. That the Law of *Tithes* is in Force under the Goſpel, all the *Proteſtants* (the *Anglican* Church excepted) deny: For though, ſay they, Hire to the Labourer be of moral and perpetual Right, yet that ſpecial Kind of Hire, the Tenth, can be of no Right, or Neceſſity, but to the ſpecial Labour for which God ordain'd it; that ſpecial Labour was the *Levitical* and ceremonial Service of the Tabernacle, *Numb.* viii. 21, 31. which was aboliſh'd: The Right therefore of the ſpecial Hire muſt be aboliſh'd too. That *Tithes* were ceremonial, continue they, is evident, from their not being given to the *Levites* till they had been firſt offer'd as a Heave-Offering to the Lord, Ver. 24, 28. He, then, who by the Law brings *Tithes* into the Goſpel, brings in, likewiſe, a Sacrifice, and an Altar; without which, *Tithes*, by the Law, were unſanctify'd and polluted, Ver. 32. and therefore were never thought of in the firſt *Chriſtian* Times, till ceremonial Altars, and Oblations, had been brought back. The *Jews* themſelves, ever ſince their Temple was deſtroy'd, though they have Rabbi's and Teachers of the Law, yet pay no *Tithes*, as having no proper *Levites* to whom, nor Altar whereupon to hallow them: Which argues, that the *Jews* themſelves never look'd on *Tithes* as moral, but merely ceremonial. They add, that *Tithes* were not allow'd to the Prieſts and *Levites* merely for their Labour in the Tabernacle, but in Conſideration of this, likewiſe, that they were not allow'd to have any other Part or Inheritance in the Land, Ver. 20, 24. and who, by that Means, for a Tenth loſt a Twelfth.

In Effect, for the firſt 300 Years after *Chriſt*, no mention is made in the eccleſiaſtical Hiſtory of any ſuch Thing as *Tithes*, though in that Time Altars and Oblations had been recall'd. The Churchmen confeſſedly liv'd all that Time on Free-will Offerings, nor could the Defect of paying *Tithes* be owing to this, that there were wanting civil Magiſtrates to enjoin it, ſince *Chriſtians* having Lands, might have given out of them what they pleas'd; and the firſt *Chriſtian* Emperors, who did all Things by Advice of the Biſhops, ſupply'd what was wanting to the *Clergy*, not out of *Tithes*, which were never propos'd, but out of their imperial Revenues.

The firſt Authority produc'd, ſetting aſide the apoſtolical Conſtitutions, which few of the Patrons of *Tithes* will inſiſt on, is a provincial Synod at *Cullen*, in 356, where *Tithes* are voted to be God's Rent: But before that Time, divers other Ceremonies had got Ground, as Altars, Candles at Noon, *&c.* and one Ceremony begat another, as it is certain that *Tithes* ſuppoſe Altars.

It is alledg'd, that *Tithes* are of early and ſolemn Force in *England*, having been paid by Statute ever ſince the *Saxon* King *Athelſtan*, *Anno* 928. To which the oppoſite Party anſwers, that *Raneſcot*, or Peter-pence, had been likewiſe paid to the Pope by Statute above 200 Years longer, *viz.* from the Year 725. And that it is to be noted, by the Way, that theſe antient *Tithes*, among the Anceſtors of the *Engliſh*, kept a nearer Analogy to their Original in the *Moſaick* Law; for the Prieſts had but a third Part, the other two Thirds being appointed for the Poor, and to repair the Churches, as appears from the Canons of *Ecbert* and *Elfrick*.

The ſame Rules are ſtill in Force in the *Roman Catholick* Church, but can't be ſo ſtrictly obſerv'd in the *Anglican* Church, where a Parſon being not oblig'd to Celibacy, can't conveniently ſpend Part of his *Tithes* to ſuccour the Poor of his Pariſh, when Charity muſt begin at Home; nor in the Reparations of his Church, which is a publick Edifice, while his own Houſe wants always repairing.

But, however, in both Churches Parſons ſhould know that *Tithes* are not given them to keep them in Indolence, and Luxury, or for their Support only, and that of their Families, on no other Conditions than thoſe of wearing a clerical Habit, and the Name of

of Curate, Rector, or Parson of such Parish; leaving to a poor Vicar the entire Conduct of the Souls himself is to answer for, and falsely imagining that he has discharg'd all his Obligations, when he takes Care to have Sermons preach'd, the Sacraments administer'd, the Dead bury'd, &c. at the Times appointed by the Canons: But he is grosly mistaken, for his Obligations are far greater, such as can't be discharg'd by Deputation; and of four different Kinds, *viz.* towards God, towards himself, towards his Neighbour, and towards his Church.

His Obligations towards God, are two: 1. He must endeavour, in all his Functions, to promote his Glory. 2. He must converse often with him, by Prayers.

1. That a Curate is oblig'd to advance God's Glory as his Minister, appears from this Passage of the second Epistle of St. *Paul* to *Timothy*, Chap. ii. Ver. 15. *Study to shew thyself approved unto God, a Workman that needeth not to be ashamed, rightly dividing the Word of Truth.*

2. He must often converse with God by Prayers; because being the Mediator between God and Men, he is to expose to him the Wants of his Flock, and learn from him how to behave towards the same Flock, with Respect to their Salvation.

The Obligations of a Parson to himself, are the three following: 1. He must work to his own Perfection and Salvation, while he is endeavouring to procure that of others: For (as *Christ* himself says, Mat. xvi. 26.) *What is a Man profited, if he shall gain the whole World, and lose his own Soul?* 2. He ought to execute faithfully what he knows to be prescrib'd to him by the Church; lest, by his Omissions, he should scandalize the Ecclesiasticks, whom he has for Assistants, in his pastoral Sollicitude. 3. He must avoid, as much as possible, all that is contrary to the Constitutions, and true Spirit of the Church, especially Avarice, Luxury, and Gluttony. And for that Reason fly licentious Conversation, Taverns, Gaming-Tables, Comedies, Spectacles, &c. and likewise Smoaking to Excess; for, in my Opinion, there is nothing more hideous, than to see a Parson, who should edify his Flock by his Sobriety, Gravity, and Modesty, always in a Publick House, or always with a Pipe in his Mouth, and a Pot under his Nose. He'll soon renounce, or rather abhor these scandalous Practices, if he flies Idleness, by regulating how he is to employ all the Hours of the Day, and dividing them between his several Functions: *V. gr.* Appointing a Time for his Prayers, or to recite his Liturgy; another for reading some Chapter of the Bible; another for his publick Functions at Church; another to study Theology; and another to visit the Sick of his Parish; taking Care, however, in this Regulation of his Time, that the Things which are of Obligation, or Precept, should not prejudice those which are of Council only. *V. gr.* That he should not apply himself to Reading, when he should visit a sick Person, who calls for his Assistance; for then the Salvation of that Sheep in Danger, is preferable to the Instruction of the Pastor.

The Obligations of a Curate, Parson, or Rector, towards his Parishioners, are as follow:

1. He must reside in his Parish, not of a local only, but of an effective Residence; otherwise, how can he discharge all his Obligations? How could he know his Flock, and administer the Sacraments to them? How could he feed them, with the Word of God, and with his Example, &c. A Pastor who forsakes his Flock, is call'd an Idol, *Zech.* xi. an Idol has Eyes, Ears, Hands, and Feet; but can neither see, hear, act, nor walk. Likewise, a Pastor guilty of Non-residence, though he may have several Talents, especially of Learning, Wisdom, and Eloquence; is as useless to his Parishioners, as if he was an Idol.

2. He is oblig'd to feed his Flock with the Word of God, and with his Example. 1 Pet. v. 2. *Feed the Flock of God which is among you.* First with the Word of God, not by reading only two or three Lines out of a Paper, in a sleepy, canting Tone, or in such Haste, as if the *Parson* wanted to finish almost as soon as he has begun; but with that Zeal, Gravity, and Unction, necessary to convince his Auditors of the Truth he announces to them. Secondly, By his Example; because a Pastor, according to *Christ*'s Doctrine, John x. 4. *Goes before his Sheep.* Therefore how scandalous it must be to see him attempt to lead his Flock, after he has been so long sitting at a Tavern, that he himself wants a Leader; or when, instead of leading them to Church, he leads them, by his Example, to Playhouses, Balls, Assemblies, &c.

3. He is to administer the Sacraments to his Sheep, according to this Passage of St. *Paul*, 1 Cor. iv. 1. *Let a Man so account of us, as of the Ministers of Christ, and Stewards of the Mysteries of God.*

4. He must take Care of the Sick. First, Because by that Care he gains the Confidence and Good-will of his Parishioners; according to this Passage of Eccles. vii. 2. *Non te pigeat visitare infirmum, ex hoc enim in dilectione firmaberis.* Secondly, The Parishioners are better dispos'd, at that Time, to receive the salutary Advice of their *Parson.* That Visitation does not consist only in kneeling by the Bed-side of the Sick, and muttering five or six Prayers in Haste; but in inspiring him with a just Horror, for his past Offences, exciting him to Repentance, and preparing him for that dangerous Passage from Time to Eternity; for that critical Moment when he is to appear before a just and impartial Judge, who will call him to an Account for all the Actions of his Life, even the most indifferent; and who will punish or reward him according to his Desert; temperating the Notions he will give him of the Severity of that Judge, with those of his incomprehensible Mercy, that he may not be drove to Despair, nor depart with too much Confidence. Those Visits, of a *Parson* to his sick Parishioners, should always be disinterested, lest the Consciousness of the Avarice of the Pastor should deter the Sheep from wishing for his Visits.

These Reflections lead me into others, on a Disorder which happens but too often in Parishes, and which is a Scandal, I will not say to *Christianity*, that's too little, but even to Mankind; and which, I hope, 'tis in the Power of the *Clergy* to remedy; I mean the burying of the Dead: For I have seen (I say it with the greatest Horror, for those detestable Monsters, who are in nothing different from the Brutes, but in their Cruelties to their Fellow-creatures) tossing from one Side of the Street to another, poor miserable Objects, ready to give up the Ghost, and capable, by their Sighs and Groans, to render sensible, and excite to Compassion of, the very Stones, which they laid upon, for Fear of being put to the Charge of burying them. Alas! what can be those Charges, which make the Avarice of those Anthropophages revolt against Compassion and Humanity? Sure it can't be the Fees of the Church; for it would be a sacrilegious Temerity, even to suppose that a *Parson* would not relinquish those Fees, to shelter a Member of that divine Chief of whom they call themselves Ministers, from the Insults of the Elements, and of the Brutes, which are endu'd with more Compassion than those who rank themselves above them, and by a Pretence to Rationality, seem choak'd at the very Sight of so deplorable a Spectacle: But as that can't be the Occasion of so great a Piece of Inhumanity, I would be glad to know some other, though I am afraid they can't alledge any that could justify their barbarous Conduct.

5. A Curate must take Care that there be in his Parish *Christian* Schools, where Children are to learn, not only to read and write, but likewise the Principles of their Religion; since there are no better Means to advance *Christianity*: For it is known, by Experience, that we are always strongly inclin'd to what we have learn'd in our Infancy. Whence this; Prov. xxii. 6. *Train up a Child in the Way he should go; and when he is old he will not depart from it.*

6. He

6. He ought to reprimand his Parishioners, when guilty of any considerable Faults; because a Curate is the Father, and, in some Measure, Judge of his Parishioners; therefore he is oblig'd, not only in Charity, but in Justice, likewise, to hinder them, as much as it is in his Power, from committing any Disorder. Thus the Apostle St. *Paul* advises his Disciple *Timothy* to reprove, rebuke, exhort, *&c.* But that the Correction may have the desir'd Effect, it must be attended with these two Circumstances: 1. It must be made with Charity and Mansuetude, at the Example of *Christ*; who says, Mat. ii. 29. *And learn of me, for I am meek, and lowly in Heart.* 2. It must be done with Prudence, *i. e.* he ought to have Regard to the Circumstances of the Time, Place, and the Persons; sometimes admonishing publickly, sometimes privately, as dictated by his Prudence.

The Obligations of a Curate towards his Church, are, 1. To take Care that the Baptistery, and all the rest of the Church, should always be kept very clean. 2. That the Vessels, and other Things necessary for the Celebration of the Lord's Supper, as well as the Books for that divine Office, should be in good Order. 3. That the Intentions of the Founders, as to the divine Service, should be exactly fulfill'd. 4. To mind that the Revenues of the Church may be apply'd to proper, not profane Uses. 5. To keep a Register for the Baptism, one for the Marriages, and another for the Burials.

The *Regular Clergy* is compos'd of *Abbots*, *Priors*, *Abbesses*, *Monks*, *Friars*, *Nuns*, &c.

Abbot, or Abbat, (from the *Hebrew*, *ab*, which signifies Father, in *Syriac Abba*, in *Greek*, Αββας, in *Latin*, *Abbas*, and in *French*, *Abbe*) is the Superior of a Monastery of Monks erected into an Abbey or Prelacy. The Name *Abbot* appears as old as the Institution of Monks itself. The Governors of the primitive Monasteries assume indifferently the Titles *Abbot*, or *Archimandrite*. They were not then ranked among the *Clergy*, and St. *Jerom* writing to *Heliodorus*, says expresly *alia Monachorum est Causa, alia Clericorum.* In those early Days the *Abbots* were subject to the *Bishops* and the ordinary Pastors; none of them were ordained, but were only Laicks, who having renounced the World, had retired into Solitudes, and who having attained at a greater Degree of evangelical Perfection than those, among whom they had retired, were chosen by them for their Superiors. They went on *Sunday* to the Parish-Church with the Rest of the People; or if they were too remote, a Priest was sent them to administer the Sacraments; 'till at length Monks were allowed to have Priests of their own Body. The *Abbot* or *Archimandrite* himself was usually the Priest, but his Function extended no further than to the spiritual Assistance of his Monastery; and he remained still in Obedience to the *Bishop*, but they soon wore off their former Plainness and Simplicity, and began to be looked on as a Sort of little Prelates. In Time they would be independent of the *Bishop*, and became so insupportable, that the first Regulation of the Council of *Chalcedon*, held in 451, forbids the Monks (several of whom under Pretence of a solitary Life, which cannot be too much respected when sincerely professed, troubled the Peace of the Churches and of the Cities) building any more Monasteries against the Will of the *Bishop*, and of the Master of the Place; it subjects them all to the Diocesan Prelate, and orders them to keep their Solitude, to think of fasting and praying, without medling with secular or ecclesiastical Affairs, unless their *Bishop* be pleased to employ them on some Occasions. The 19th Canon of the Council of *Orleans*, held in 511, orders that the *Abbots* be under the Jurisdiction of the *Bishops*, and corrected by them, when they commit any Fault: This notwithstanding, in Time, many of them carried the Point of Independency; and got the Appellation of Lord, with other Badges of the Episcopate, particularly the Mitre and the Crosier: Hence arose new Species and Distinctions of *Abbots*: Mitred and not mitred, crosier'd and not crosier'd, œcumenical *Abbots*, Cardinal *Abbots*, &c.

Mitred Abbots are those privileged to wear the Mitre, and having withal a full episcopal Authority within their several Precincts; in *England* these were called *Abbots sovereign*, and *Abbots general*, and were Lords of Parliament. Of these Sir *Edward Coke* reckons twenty-seven, besides two mitred Priors. The Rest who were not mitred were subject to the Diocesan. When the *Abbots* first assumed the Mitre, the *Bishops* made heavy Complaints of their Privileges being invaded by the Monks, and were particularly offended, that in Synods and Councils there was no Distinction between them. On this Occasion Pope *Clement* IV. ordered that the *Abbots* should only wear their Mitres embroidered with Gold, and leave Jewels to the *Bishops*. Though I have seen *Abbots* wear their Mitres loaded with Jewels, and *Bishops* theirs, made of a Piece of plain Gold, or silver Tissue, without Jewels. *Pere Hay*, in his Book, entituled *Astrum Inextinctum*, maintains that the *Abbots* of his Order have not only an Episcopal, but even a Papal Jurisdiction, *Potestatem quasi Episcopalem, imo quasi Papalem*; and as such can confer the lower Order of Deacon and Subdeacon, which must be false, since the Power they have usurped is very different from the Consecration of *Bishops* whereby they receive the Power of the Imposition of Hands.

Crosier'd Abbots are those who bear the Crosier or Pastoral Staff, which is a gold or silver Staff, crooked a-Top, and pointed at Bottom; expressed in the Verse:

Curva trahit mites, Pars pungit acuta Rebelles.

There are some crosier'd and not mitred, as the Abbot of St. *Vincent du Mans*, who is a regular, elective, and triennial Abbot, the Abbot of the Benedictine Abby at *Bourges*, &c.

Abbots are also divided into regular *Abbots*, and *Abbots in Commendam*. The regular *Abbots* are real Monks, or Religious who have taken the Vows, and wear the Habit of the Order. These are all elective, and most of them are *Abbots* but for a Time, though some are for Life, as the *Abbot* of the celebrated Abbey of *Prierre*, of *Bernardin* Monks in *Britanny*. *Abbots in Commendam*, at the Nomination of Princes, though the Term *Commendam* insinuates, that they have only the Administration of their Abbeys for a Time; yet they do hold and reap the Fruits of them for ever. Their Bulls give them a full Power *tam in Spiritualibus quam in Temporalibus*; and yet it is true that the commendatory *Abbots* do not perform any spiritual Offices; nor have they any spiritual Jurisdiction over the Monks; nay, they are seldom or never seen in the Abbey, after they have once took Possession of it. The Knights of *Malta* can be *Abbots in Commendam*, though they are not in Orders, because they are considered as religious, having made the three Vows of Poverty, Chastity, and Obedience, and often a fourth, of keeping neither of them.

Some Canonists rank the *Commendam* in the Number of Benefices. It is in Truth no more than a canonical Title or Provision to enjoy the Fruits of a Benefice: But as such Provisions are contrary to the antient Canons, none but the Pope, by Dispensing with the old Law, can grant them.

The *English* History speaks very little of these *commendatory Abbots*, and it is probable the Practice never prevailed much in this Kingdom. Hence many *English* Writers have been led into the Mistake of supposing that all *Abbots* are Monks. Of this we have a remarkable Instance in the Dispute about the Inventor of the Lines for transforming geometrical Figures, called by the *French* the *Robervallian* Lines. Dr. *Gregory* in the Philosophical Transactions, *Anno* 1694, rallies the *Abbot Galloys*, who held the Abbey of St. *Martin de Cores in Commendam*, with being a Monk. 'The 'good Father, says he, imagines we are returned into that

'that fabulous Age; a Monk might be allowed to 'say what he pleased, which Passage the *Abbot* takes 'hold of, and returns the Raillery with Interest on 'the good Doctor, in the Memoirs of the Academy, '*Anno* 1703.

The Ceremony whereby *Abbots* are created is but a simple Benediction. It antiently consisted in cloathing him with the Habit, called *Cuculla*, a Cowl, putting the Pastoral Staff in his Hand, and the Shoes, called *Pedales*, or *Pedules* on his Feet.

The Monastery or religious House, which has an *Abbot*, either *Regular*, or *in Commendam*, for superior, is called *Abbey*. *Fauchet* observes, that in the early Days of the *French* Monarchy, Dukes and Counts were called *Abbots*; and Dutchies and Counties *Abbeys*. Many Persons of the prime Quality, without any Concern in the monastick Life, took the same Quality; even some of the Kings of *France* are mentioned in History under the Title of *Abbots*. *Philip* I. *Louis* VI. and afterwards the Dukes of *Orleans*, are called *Abbots* of the Monastery of St. *Agnan*. The Dukes of *Aquitain* were called *Abbots* of the Monastery of St. *Hilary*, at *Poictiers*, and the Earls of *Anjou*, of St. *Aubin* at *Angers*, &c.

The Revenue of an Abbey is divided into three Parts, one Part for the *Abbot*, one for the Maintenance of the Monks, and the other for the Poor, and the Reparations of the Church, and of the Monastery. The *Abbot* is also obliged to Hospitality, and allows a certain Income for the Reception of Travellers, who are lodged in the abbatial House. But it is very easy for a Traveller to distinguish between an *Abbey in Commendam*, and a regular one. For in an *Abbey in Commendam* Hospitality is very little or not at all practised, the *Abbot* having always too little Revenue, let it be ever so great, for himself; the Divine Service is neglected, and the Building falls to Ruin, for want of Reparation, whenas in a regular Abbey Strangers are civilly and liberally entertained, the Divine Service celebrated with much Decency, the Buildings kept in very good Repairs, and the Poor very well fed.

There are besides *Abbots*, other Superiors of Monasteries, called PRIORS, who are either *Cloisteral* or *Conventual*. *Conventual Priors* are the same as *Abbots*, all the Difference between them being in Name, both having the same Rights, and both alike Governors of Monasteries. *Conventual Priors* are of two Kinds, *viz.* *Regular Conventual Priors*, who govern religious Living in Community, and *Secular* or *Commendatory Conventual Priors*. *Conventual Priors* are obliged to take up the Priesthood within a Year, or at most two, from the Date of their Provision; in Default whereof their Benefices are declared vacant. They must be 25 Years old, ere they can govern the Convent; and 20 if the Convent be governed by another.

Cloisteral PRIOR, is he who governs the Religious of an Abbey, or *Priory in Commendam*, so called because he has the Superiority in the Cloister or Monastery.

The Religious of an *Abbey* or *Priory* call themselves Monks, by way of Distinction from the other Religious, who are called *Fryars*; and every Monk assumes the Title of *Don*, *Dominus*, viz. *Don Paul*, *Don James*, &c. whenas the other Religious are called *Fathers*, viz. *Father Paul*, *Father James*, &c. though the Name *Monk*, from μονος, *solus*, alone; denoted antiently a Person who retired from the World, to give himself up wholly to God, and to live in Solitude and Abstinence. Such were the Hermits and Anachorets, who withdrew into Desarts, and lived remote from all Commerce of Mankind.

Father *Heliot* traces the Origin of Monks up as early as the Time of the *Therapeutæ* (who according to *Philo*, in his first Book of the contemplative Life, where a People spread throughout most of the known World, but particularly throughout *Egypt*, and about *Alexandria*, who renounced their Friends, their Goods, &c. and who, after discharging themselves of all temporal Concerns, retired into solitary Places, where they had each their separate Mansion, called *Semnium* or Monastery) and maintain that there had been an uninterrupted Succession of Monks from these *Therapeutæ* to St. *Anthony*. Others, on the contrary, go no farther back than St. *Paul* the first Hermit.

The *Monks*, at least the antient ones, were distinguished into *Solitaires*, *Cænobites*, and *Sarabaites*. The *Solitary* are those who live alone in Places remote from Towns, or Habitations of Men, as do still some Hermits; they have for their Institutor St. *Paul*, first Hermit. The *Cænobites* are those who live in Community with several others, in the same House, and under the same Superiors. These have St. *Anthony*, first Abbot, for their Founder. The *Sarabaites* were strolling *Monks* having no fixed Rule or Residence. Those we call *Monks* now-a-Days are *Cænobites*, who lived together in a Convent or Monastery, who make Vows of living according to a certain Rule established by the Founder, and wear a Habit which distinguishes their Order.

These *Monks* (few excepted, who are received for *Lay-Monks*, i. e. for the Service of the Convent, and have no Literature) are all Ecclesiasticks, or designed for the ecclesiastical State, *i. e.* That each Order appoints in every Province of the Order one or two Monasteries, (according to the Extent of the Province, and the Number of Monasteries it contains) where the young *Monks*, after they have made their Vows, study the Philosophy and Theology, under Professors of the same Order, to render them capable of the sacerdotal Functions: When they have attained at the Age prescribed by the Canons, and are judged capable to undergo a severe Examen, they are presented to the Diocesan Bishop, who ordains them if he finds them capable. Out of these Monasteries the others of the Province are filled with Priests, who, with the Licence of the Bishop of the Diocese where they live, can hear Confession; but in every Thing else they refuse to acknowledge the Jurisdiction of the Bishop, and know no other Superior than their *Abbot*, if he be a regular one, or their Prior, if in *Commendam*; though several Bishops, in several Ages, considering these pretended Immunities, as contrary to the antient Canons and the ecclesiastical Dicipline, have often attempted to bring the *Monks* under their Jurisdiction, and to a Right of Visitation in their Monasteries, but to no Purpose.

I find no other Difference between *Monks* and *Friars*, than that the *Monks* are endowed, or have a fixed Revenue, and the *Friars* have none, otherwise they are like *Monks* in all other Particulars, and enjoy the same Immunities and Privileges. They are rather more serviceable to the Church, for they preach, hear Confessions, catechise and help the poor Country Curates, whose Parishes cannot afford to maintain a Vicar in the Discharge of their Functions. Most of these *Friars* are Mendicants, and depend, almost entirely, for their Subsistance, on the Charity of the People, though they seldom want Necessaries. They instruct by their Doctrine, for they are ordinarily very learned, and edify by their Example: From among them have been taken Popes, Cardinals, and Bishops.

Friars have no *Abbots*, but they all lead a *Cænobitick* Life, under a Superior, which those of the Order of St. *Francis* call *Guardian*, and those of the Order of St. *Dominick*, *Prior*. The *Guardian* has under him a Vicar, who, in his Absence, supplies his Place, and governs the Monastery; both Guardian and Vicar are at the Nomination of the Provincial, who is the Superior of a whole Province, all the Monasteries whereof he visits twice or three Times during his Provincialate, which lasts also three Years. This Provincial is elected at a Provincial Chapter, as they call it, composed of all the Guardians of the Province, and of a Deputy of each Monastery, by a secret Scrutiny. The Provincials of each Province assemble ordinarily at *Rome* once in seven Years, for the Election of a General, who during his Generalate has the Government of the whole Order; and both the General and Provincial have their Council composed of Persons of the greatest Merit, called *Definitors*; a General is seldom raised to that Office, before he has been *Definitor General*, nor a Provincial before he has been *Definitor Provincial*.

Provincial. The *General* of either of these religious Orders is respected by all the *Roman Catholick* Princes, as a Person of the greatest Rank among the *Clergy*, and is introduced to their Audience with the Ceremonies us'd at the Introduction of an Ambassador Extraordinary of a crown'd Head. He remains cover'd, in the King of *Spain*'s Presence, as a Grandee of *Spain* of the first Class, and is carried to the King of *France*'s Audience, in his Majesty's own Coaches.

Though Friars are represented in *Protestant* Countries, as the Spawn of the Whore of *Babylon*, and Locusts which infest the Earth; I must, however, say this of them, to their Honour, and their Enemies Confusion, that their Learning, Piety, unlimited Charity, and Disinterestedness, conspicuous to the whole World, except to those who will be voluntarily blind, should give us a better Opinion of them, and make us rather pity them, if they are in the wrong, than despise, or abuse them; since most of them are Persons of Education, and Birth, who abandon all the Pomps and Vanities of this World, and even every Thing that could endear it most to them, to follow that thorny, difficult, and narrow Path, which they imagine leads to Heaven: If they mistake it for that easy and wide one, shewn by others, the greater their Mistake, and the more are we to be struck with a compassionate Admiration, to see that they have Courage and Perseverance enough to prefer a Life, so contrary to our natural Inclinations, to one which indulges them all. If they were worthless Wretches, or Scoundrels, who embrace that Manner of Life, to avoid Poverty, and Misery; but no, there are in those Monasteries Heirs to very considerable Estates, and of very illustrious Houses, whom the Hope of gaining an everlasting Kingdom, by the same Means *Christ* himself has enter'd it, has tore from the Bosom of tender and indulgent Parents, who had brought them up in all the Delicacies, Pomp, and Grandeur of this World: And such we often meet cover'd with a despicable Sack, bare-footed, and bare-legg'd, amidst the most rigorous Seasons, who were design'd for one of the greatest Ornaments of a Prince's Court, or for the Command of Armies, or to sit on *Astrea*'s Tribunal. No Doubt, but among them, as in all other Societies, there are some worthless, or corrupted Members; but that is not a sufficient Reason for us to despise the whole Body; unless we pretend to despise them because their pious and exemplary Life is a tacit Reproach of our licentious one; and we are sorry, perhaps, to see before us so perfect a Copy of that Model of an evangelical Life painted in the Gospel in such lively Colours. The only Fault I find in them, is, their receiving sometimes among them young Subjects, who are not yet of an Age to make a Choice, and who, by an indiscreet Zeal, embrace a Kind of Life which they take a Disgust for when they are arriv'd at the Age of Discretion: None should be receiv'd into a Monastery before the Age prescrib'd by the Canons, for to be ordain'd Deacon, *i. e.* Two and twenty; for then, and not before, a Man is capable to make a Choice: But it is barbarous to receive them at fifteen or sixteen Years of Age, when they want yet a Tutor. For if the Law does not judge them capable, then, to possess an Estate; how can they be capable to make a Choice for Life? This gives a good Plea for the Enemies of a monastick Life, who conclude from thence, that if they were not taken so young in a Monastery, and when they have not yet the right Use of their Reason, none would be a *Monk*, or a *Friar*.

Nuns, are also consider'd as Part of the *Regular Clergy*; they are Female Religious, who consecrate themselves to the Service of God, in the same Manner Monks and Friars do, and lead a cœnobitick Life in a Monastery, under the Government of an *Abbess*, or *Prioress*, and sometimes of both.

The Abbess has the same Rights, and Authority over her Nuns, that the Abbots Regular have over their Monks. The Sex, indeed, does not allow her to perform the spiritual Functions annex'd to Priesthood, wherewith the Abbot is usually invested; but there are Instances of some *Abbesses* who have a Right, or rather Privilege, to commission a Priest to act for them. *Abbesses* are made by a simple Benediction, like the Abbots, wear the pectoral golden Cross, and have the Crosier carry'd before them at Church, in high Festivals. They are *Abbesses* for Life, and in *France* at the King's Nomination. They have their Apartments apart, where they are attended by their favourite *Nuns*, and ordinarily serv'd by Lay Servants. They pretend to relieve immediately from the holy See, and are thereby exempted from the Visitation of their Diocesan. F. *Marten*, in his Treatise of the Rites of the Church, observes, that some *Abbesses* have formerly confess'd their Nuns. He adds, that their excessive Curiosity carry'd them such a Length, that there arose a Necessity of shaking it. St. *Basil*, in his Rules, allows the *Abbess* to be present with the Priest at the Confession of her Nuns; but these Rules have never been observ'd in the *Latin* Church, neither could they be well relish'd by the Nuns of our Days; and they are to be consider'd as contrary to that great Secrecy Confession is to be attended with. *Abbesses are not confin'd to a formal Cloyster*, as the Nuns are; for they can go out as often as the Affairs of their Abby require it; and they find always some Affairs to call them out: For I have had some Relations *Abbesses*, who were oftener at *Paris*, than in their Monastery. Though some of them are very religious Observers of the *Cloyster*, and keep neither Coaches, nor other Vehicles, to carry them Abroad. The *Abbess* of *Fontevrault*, in *France*, is Superior of the Monks, as well as of the Nuns, and they are all receiv'd to Profession by her.

An *Abbess* can take what Priests she pleases for her Chaplains, but can't commission them to hear the Confession of her Nuns, without the Approbation of the Diocesan. Under her there is a Prioress, who has the Direction of the Nuns, as to the Observance of the Rules of the Monastery, of which the *Abbess* seldom takes any Notice.

Nuns who have no *Abbess*, have a Superior, whom they chuse among them, commonly once in three Years, for they are never for Life; and those Monasteries are commonly better regulated than the Abbeys. They are under the Jurisdiction of the Diocesan, who has Right of Visitation, but seldom or never uses it.

There are Royal Abbeys of Nuns, where they receive none but Persons of the first Rank, and who are sometimes so infatuated with their Nobility, that they entertain those who visit them with nothing else but their noble Descent. All I can say of them, is, that most of them are Angels in mortal Bodies; for almost their whole Time is spent in the Service of God: The divine Office is perform'd by them with that Decency, Piety, Devotion, and Majesty, that to hear them is a Sort of anticipated celestial Felicity. And all that's said against their Modesty, Piety, and Virtue, are Impostures, or scandalous Romances, invented by the declar'd Enemies of a monastick Life. Perhaps once in two or three Centuries there have been one or two bad *Nuns* found; but is that a sufficient Reason to suspect them all of Debauchery? What! because my natural Infirmities, and vicious Inclinations, persuade me that the Practice of so much Virtue is above a human Strength; must I believe it impracticable, with the Help of an extraordinary Grace, which I am depriv'd of, because, perhaps, I do not desire it, nor ask for it? Methinks we should admire Virtue, where-ever it is to be found, even among the Enemies of the *Christian* Name, much more among those who believe in *Christ*, as we do. What! because there are some Members of the *English Clergy* who don't live according to their Profession, must we condemn them all? When we are conscious that there is so vast a Number of wholesome and worthy Members of the *Anglican* Church, the Radiancy of whose excellent Perfections can't so much as be eclips'd by the small Cloud of the Imperfections of very few of them.

The *Clergy* of the Church of *England*, are all *Seculars*, and they have reform'd the *Regular Clergy*, at the Reformation, for Reasons best known to themselves; ever since that Reformation, the King has been declar'd the Head of the *English Clergy*, and has under him Archbishops, Bishops, and the *inferior Clergy*, who all together compose an Hierarchy, almost in the same Form as the *Roman* Church does. Though the *English Clergy* formerly claim'd an Exemption from all secular Jurisdiction, yet *Matt. Paris* tells us, *William the Conqueror* subjected the Bishops, and Abbeys who held *per Baroniam*, and who, till then, had been exempt from all secular Service; and order'd that they should be no longer free from mortuary Services. To this Purpose, he prescrib'd arbitrarily what Number of Soldiers every Bishoprick and Abbey should provide, to serve him and his Successors in War, and laid up this Register of ecclesiastical Servitude in his Treasury. But, in Effect, the *Clergy* was not exempt from all secular Service till then, as being bound by the Laws of King *Edgar* to obey the secular Magistrate in three Things, *viz.* upon an Expedition to the Wars, and in contributing to the building and repairing of Bridges, *&c.*

The Privileges of the *English Clergy*, by the antient Statutes, are very considerable: Their Goods are to pay no Toll in Fairs or Markets; they are exempt from all Offices, but their own; from the King's Carriages, Posts, *&c.* from appearing at Sheriffs Tourns, or Frank-pledges; and are not to be fin'd or amerc'd, according to their spiritual, but their temporal Means. A *Clergyman* acknowledging a Statute, his Body is not to be imprison'd; if he be convicted of a Crime, for which the Benefit of *Clergy* is allow'd, he shall not be burnt in the Hand; and he shall have the Benefit of *Clergy in infinitum*, which no Layman can have but once. The *Clergy*, by Common Law, are not to be burthen'd in the general Charges with the Laity, nor to be troubled or incumber'd, unless expresly nam'd, and charg'd by the Statute; for general Words don't affect them. Thus, if an Hundred be su'd for a Robbery, the Minister shall not contribute, though the Words are, *Gentes demorantes:* Neither are they assess'd to the Highway, Watch, *&c.*

The Revenues of the *Clergy* were antiently more considerable than at present. *Ethelwolf*, in 855, gave them the Tithe of all Goods, and the Tenth of all the Lands of *England*, free from all secular Services, Taxes, *&c.* The Charter whereby this was given them, was confirm'd by several of his Successors, *Edmond*, *Edgar*, *Ethelred*, *Alfred*, and *William the Conqueror*; which last finding the Bishopricks so rich, erected them all into Baronies, each Barony containing thirteen Knights Fees, at least. But since the Reformation the Bishopricks are much impair'd, neither is it necessary that they should be so rich, for that would perhaps induce the Bishops to go a whoring again with *Babylon*. The Revenues of the *inferior Clergy*, in the general, are small; a third Part of the best Benefices being antiently, by the Pope's Grant, appropriated to Monasteries; upon the Dissolution whereof, they became Lay Fees. Indeed, an Addition was made, 2 *Annæ*; the whole Revenue of First-fruits and Tenths being then granted, to raise a Fund for the Augmentation of the Maintenance of the poor *Clergy*; pursuant to which, a Corporation was form'd, by the Name of *The Governors of the Bounty of Queen* Anne, *for the Augmentation of the Maintenance of the poor* Clergy; to whom the said Revenues were convey'd in Trust.

We have mention'd already, that there are two *Archbishops* in the *Anglican* Church, *viz.* the *Archbishops* of *Canterbury* and *York*, who are also call'd Primates, and Metropolitans; with this Difference only, that the former is call'd *Primate of all* England; and the latter, simply, *Primate of* England.

The *Archbishop* of *Canterbury* had antiently Jurisdiction over *Ireland*, as well as *England*, and was stil'd a Patriarch, and sometimes *alterius orbis Papa*, and *orbis Britannici Pontifex*. Matters were done and recorded in his Name, thus, *Anno Pontificatûs nostri primo*, &c. he was also Legate born of the holy See; he even enjoy'd some special Marks of Royalty; as to be Patron of a Bishoprick, which he was of *Rochester*; to make Knights, coin Monies, *&c.* He is still the first Peer of *England*, and next to the royal Family, having Precedence of all Dukes, and all great Officers of the Crown. He has, by Common Law, the Power of Probate of Wills and Testaments, and granting Letters of Administration. He has also a Power to grant Licences and Dispensations in all Cases formerly su'd for in the Court of *Rome*, which is an Expedient which even the *Roman Catholick* Princes should use, to hinder the Money from being transported out of the Kingdom. He also holds several Courts of Judicature; as Court of Arches, Court of Audience, Prerogative Court, and Court of Peculiars.

The *Court of* ARCHES, (thus call'd from the arch'd Church, or Tower of St. *Mary le Bow*, where it was wont to be held) is a Court to which Appeals lie in ecclesiastical Matters from all Parts of the Province of *Canterbury*. The Officers belonging to it, are the Judge, Actuary, Registers, Advocates, Proctors, *&c.* The Judge of the *Court of Arches* is call'd the *Dean of the Arches*, or the *Official of the Arches Court*, &c. with which Officiality is commonly join'd a peculiar Jurisdiction over thirteen Parishes in *London*, term'd a Deanery, exempt from the Authority of the Bishop of *London*, and belonging to the Archbishop of *Canterbury*; of which the Parish of *Bow* is one and the principal. Others suppose the Denomination and Functions of Dean of the *Arches* to have arose hence, that the Archbishop's Official, or Dean, being oft employ'd abroad in foreign Embassies, the Dean of the *Arches* was his Substitute in this Court. This Judge, on any Appeal made, forthwith, and without any further Examination of the Cause, sends out his Citation to the Appellee, and his Inhibition to the Judge, from whom the Appeal was made. The Advocates, who are allow'd to plead in the *Arches Court*, are to be Doctors of the Civil Law in one of the Universities.

The *Court of* AUDIENCE, is chiefly concern'd in Differences arising upon Elections, Consecrations, Institutions, Marriages, *&c.*

The *Archbishop* of *York* has the like Rights in his Province, as the *Archbishop* of *Canterbury*; has Precedence of all Dukes not of the Royal Blood, and all Officers of State, except the Lord High Chancellor. He had the Rights of a Count Palatine over *Hexamshire*, in *Northumberland*.

Under these two *Archbishops* are twenty-six Bishopricks, whereof twenty-two are reckon'd in the Province of *Canterbury*, and four in the Province of *York*; so that there are, besides the two *Archbishops*, twenty-four Bishops, all which, as we have already observ'd, have the Title of Lords, by Reason of their Baronies, annex'd to their Bishopricks, and have Precedence over all other Barons, both in Parliament, and in other Assemblies. Among these presides always the Bishop of *London*, who, by antient Right, is accounted Dean of the episcopal College of that Province, and by Virtue thereof is to signify the Pleasure of his Metropolitan to all the Bishops of the Province, to execute his *Mandate*, to disperse his Missives on all Emergencies of Affairs, to preside in Convocations of provincial Synods, during the necessary Absence of the Metropolitan. Next to *London*, in Parliament, precedes *Durham*, and then *Winchester*; all the rest of the Bishops take Place according to the Seniority of their Consecration.

The Functions of an *English Bishop* consist in that he may act, either by his episcopal Order, or by his episcopal Jurisdiction. By his episcopal Order he may ordain Deacons and Priests; may dedicate Churches and Burying-places, may administer the Rites and Ceremonies of Confirmation, without whom, none of these may be done. The Jurisdiction of a *Bishop* is either ordinary, or delegated; the ordinary is what, by the Laws of the Land, belongs to each *Bishop* in his

his own Diocese; the delegated is what the King is pleas'd to confer upon him, not as a *Bishop*, but as he is a Subject, and a considerable Member of the Kingdom; for all *Clergymen* are, in *England*, judg'd fit to enjoy divers temporal Honours and Employments: As, 1. To be in the Commission of the Peace. 2. To be of his Majesty's Privy Council. 3. To be employ'd in publick Treaties and Negotiations of Peace. 4. To enjoy some of the great Offices of the Crown; as to be Lord Chancellor, Lord Treasurer, *&c.*

In the ordinary Jurisdiction of a *Bishop*, as *Bishop*, may be consider'd, either the Jurisdiction itself, or what is instated in him by the Laws of the Land, for the better Execution of that Jurisdiction. The Jurisdiction itself is establish'd partly by Statute-Law, as to licence Physicians, Surgeons, and Schoolmasters; to unite and consolidate small Parishes, to assist the Civil Magistrates in the Execution of some Statutes concerning ecclesiastical Affairs, to compel the Payment of Tenths and Subsidies due from the *Clergy* to the King. Partly by Common Law; as upon the King's Writ to certify the Judges touching legitimate and illegitimate Births and Marriages; to require, upon the King's Writ, the burning of an obstinate Heretick, (which I think is against that meek Spirit of the Reformation) also to require the King's Writ for imprisoning the Body of one that obstinately stands excommunicated, for forty Days. And partly by Common and Ecclesiastical Law together; as to cause Wills of the Deceas'd to be prov'd, to grant Administration of Goods of such as die intestate, to give Orders for the gathering and preserving of perishable Goods, where none are willing to administer; to cause Accounts to be given of Administrations, to collate Benefices, to grant Institutions to Benefices upon Presentations of other Patrons, to command Inductions to be given, to order the collecting and preserving of the Profits of vacant Benefices, for the Use of the Successors; to defend the Franchises and Liberties of the Church, to visit their particular Dioceses once in three Years, and therein to enquire of the Manners, Carriages, Delinquencies, *&c.* of Ministers, of Churchwardens, of the rest of the Parishioners, and, amongst them, of Physicians, Surgeons, Schoolmasters, and Midwives; of Wardens of Hospitals, how they perform their several Duties and Trusts; also, of all others professing *Christianity*, and offending either against Piety, as by Blasphemy, Perjury, Errors against the Trinity, or other Articles of Faith, Schism, Conventicles, Absence from divine Service, unlawful Abstinence from the Sacraments; or else offending against Justice; as the delaying of the Legacies given to the Poor, or pious Uses, Dilapidations of Buildings, or Goods belonging to the Church; taking the Usury beyond the Rate allow'd by Statute, Simony, Perjury, *&c.* or by offending against Sobriety, as Drunkenness, Incest, Adultery, Fornication, filthy Speech, clandestine Marriages, as for want of thrice publishing the Banns, the want of Parents Consent, the want of Witnesses, which must be above two, or marrying in a private Place, in an undue Time, before Eight in the Morning, and after Twelve in the Day.

After a *Bishop* has been consecrated, himself, or his Proxy, which is usual, any Day between the Hours of Nine and Eleven in the Morning, is conducted into his Cathedral Church by the Archdeacon of *Canterbury*, by whom all the Bishops of that Province are install'd, (or else by his Proxy, sometimes) and first he declares his Assent to the King's Supremacy, and swears, that unless he be otherwise dispens'd with, he will be resident according to the Custom of that Cathedral, and observe the Custom of the said Church, and cause others to observe the same. Then the Archdeacon, with the petty Canons, and Officers of the Church, accompany the *Bishop* up to the Choir, and there place him on the Seat prepar'd for the *Bishops*, between the Altar and the right Side of the Choir, and then the Archdeacon pronounces these Words, in *Latin*, *Ego authoritate mihi commissâ induco & inthronizo Reverendum in Christo Patrem Dominum, N. N. Episcopum; & Dominus custodiat suum introitum & exitum, ex hoc nunc & in seculum*, &c. then the Subdean and the petty Canons sing the *Te Deum*; mean while, the *Bishop* is again conducted from his own Place to the Dean's Seat, and there, in Token of taking real Possession, he stands, till *Te Deum* is ended, together with other Prayers. After Prayers, the *Bishop* is conducted into the Chapter-House, and there plac'd on a high Seat; then the Archdeacon, and all the Prebends and Officers of the Church, come before the Bishop, and promise canonical Obedience to him: Finally, the publick Notary is by the Archdeacon requir'd to make an Instrument, declaring the whole Matter of Fact in this Affair. Then the said *Bishop* is introduc'd into the King's Presence, to do Homage for his Temporalities, or Barony, by kneeling down, and putting his Hands between the Hands of the King sitting in the Chair of State, and by taking a solemn Oath, to be true and faithful to his Majesty, and that he holds his Temporalities of him. Lastly, The new *Bishop* compounds for the First-fruits of his Bishoprick, that is, agrees for his first Year's Profits to be paid to the King, within two Years, or more, if the King pleases.

Antiently, *Bishops* in *England* did not ordinarily transact Matters of Moment, *sine Concilio Presbyterorum principalium*, who are then call'd *Senatores Ecclesiæ*, and Collegues of the *Bishops*, represented in some Sort by the Prebends. In every Cathedral, or Bishop's See, there is a Dean, and divers Prebendaries, or Canons, whose Number is uncertain. *Deans* of the old Foundations, founded before the Suppression of Monasteries, are brought to their Dignities much like Bishops, the King first sending forth his *Congé d'Elire* to the Chapter, they electing, and the King granting his Royal Assent, the Bishop confirms him, and gives his Mandate to instal him.

Deans of the new Foundations (upon Suppression of Abbeys or Priories, transform'd by *Henry* VIII. into Dean and Chapter) are by a shorter Course install'd by Virtue of the King's Letters Patents, without either Election or Confirmation.

Among the Canons, or Prebendaries, in the old Foundations, some are *Canonici Actu*, having *Prebendum sedile in Choro & Jus Suffragii in Capitulo*; others are *Canonici in verbo*, (as they are call'd) having Right to the next Prebend that shall become void, and having already a Stall in the Choir, but no Vote in the Chapter. A Prebend is properly the Portion which every Prebendary of a Collegiate or Cathedral Church receives in the Right of his Place for his Maintenance, *quasi pars, vel portio prebenda.*

ARCHDEACONS are next in the Government of the *English* Church, and their Office is the same as that of *Archdeacons* in the *Roman* Church, *viz.* to visit two Years in three, and to enquire of Reparations and Moveables belonging to Churches, to reform Abuses in ecclesiastical Matters, and to bring the more weighty Affairs before the Bishop of the Diocese. He is also, upon the Bishop's Mandate, to induct *Clerks* into their Benefices, and thereby to give them Possession of all the Benefices belonging thereto. Many *Archdeacons* have by Prescription their Court and Officials, as Bishops have.

After the *Archdeacons*, are the ARCHPRIESTS, or RURAL DEANS, whose Office is, upon Orders, to convocate the *Clergy*, to signify to them, sometimes by Letters, the Bishop's Pleasure, and to give Induction for the Archdeacon living far off.

Next are the PRIESTS of every particular Parish, who are commonly call'd the *Rectors*, unless the predial Tithes are impropriated; and then they are stil'd *Vicars, quasi vice fungentes Rectorum.* Their Office is, to take Care of all their Parishioners Souls, to catechize the Ignorant, reduce the Straying, confirm the Wavering, convince the Obstinate, reprimand the Wicked, confute Schismaticks, reconcile Differences among Neighbours, to exercise the Power of binding and loosing Souls, as Occasion shall offer, (which Clause

Clause confirms, that the Church of *England* is of the Sentiment of the *Roman* Church, as to the Power *Priests* receive, in their Ordination, of absolving a Sinner from his Sins, according to these formal and clear Terms of *Jesus Christ* himself, which want no Interpretation; John xix. 23. *Whose soever Sins you remit, they are remitted unto them; and whose soever Sins ye retain, they are retain'd*; to read duly divine Service, to administer the holy Sacraments, to visit the Sick, to marry, bury, render publick Thanks after Child-bearing, to keep a Register of all Marriages, Christenings, and Burials, that shall happen within the Parish, and to read divine Service, and Homilies appointed by Authority, without meddling, in their Sermons, with State Affairs, or stirring the Subjects up to Sedition against their Sovereign.

Lastly, DEACONS, whose Office is to take Care of the Poor, baptize, read in the Church, assist the Priest at the Lord's Supper, by giving the Cup only.

In the Church of *England*, instead of the *Acolythi*, *Ostiarii*, &c. of the *Roman* Church, who are in the lesser Orders, there are Laymen, call'd Churchwardens, whose Office is to see that the Church be in good Repair, fitly adorn'd, and nothing wanting for divine Service, Sacrament, and Sermons; that the Churchyard be fitly bounded and inclos'd; that there be an exact Terrier of the Glebe Land, and if any Thing belonging to the Church be detain'd, to sue for the same; to observe that all Parishioners come daily to divine Service, (but to do that they should be there themselves) to require the Penalty for Absence, to enquire after, admonish, and to present to the Bishop scandalous Livers; to collect the Charity of Parishioners for the poor Strangers, and not pocket it, nor spend it, in carouzing and revelling; to declare and to execute the Orders of the Bishop, to see that none presume to vent his own Conceptions in the Pulpit, unless he has a special Licence so to do. The *Churchwardens* are elected every *Easter* Week, usually by the Parson and Parishioners, if they so agree; if not, then one by the Parson, and the other by the Parishioners.

There are also, in great Parishes, join'd with the Churchwardens, *Testes Synodales*, antiently call'd *Synod Men*; now, by Corruption, call'd *Sides-men*, who are to assist the Churchwardens in Inquiries into the Lives of inordinate Livers, and in presenting Men at Visitations.

Lastly, The *Sacristan*, by Corruption the *Sexton*, or *Clerk*, who is ordinarily to be chosen by the Parson only; he ought to be twenty Years old, or above, of a good Life, that can read, write, and sing. His Office is, to serve at Church the Priest and Churchwardens.

The Church of *England* has also an ecclesiastical Government different from that of the *Roman* Church, and even of all other *Protestant* Congregations; for the ecclesiastical Laws, and more weighty Affairs of the Church, are consulted in a national Synod, or the general Assembly of the *Clergy*, summon'd by the King's Writ, call'd CONVOCATION. That Writ is directed to the Archbishop of each Province, requiring him to summon all Bishops, Deans, Archdeacons, *&c.* and all the *Clergy* of his Province; whereupon the Archbishop of *Canterbury* directs his Letters to the Bishop of *London*, as his Dean Provincial, first citing himself peremptorily, and then willing him, in like Manner, to cite all the Bishops, Deans, Archdeacons, Cathedral and Collegiate Churches, and all the *Clergy* of his Province, to that Place, and at the Day prefix'd in the Writ; but directs, withal, that one Proctor sent for each Cathedral and Collegiate Church, and two for the Body of the *inferior Clergy* of each Diocese may suffice. The Bishop of *London*, accordingly, directs his Letters to the Bishops of every Diocese of the Province, citing them, in like Manner, to appear, and to admonish the Deans and Archdeacons to appear personally; and the Cathedrals, Collegiate Churches, and *inferior Clergy* of the Diocese, to send their Proctors to the Place; and at the Day appointed to certify also to the Archbishop, the Names of all so summon'd by them.

The Place where the *Convocation* of the Province of *Canterbury* has usually been held, is St. *Paul's* Church; whence they have been prorogu'd to St. *Peter* in *Westminster*, in the Chappel of King *Henry* VII, or the *Jerusalem Chamber*, where there is an upper and lower House. The upper House, in the Province of *Canterbury*, consists of twenty-two Bishops, whereof the Archbishop is President; all, at the opening of a *Convocation*, in their scarlet Robes, and Hoods. The lower House consists of twenty-two Deans, fifty-four Archdeacons, twenty-four Prebendaries, and forty-four Clerks, representing the Diocesan *Clergy*.

The first Day, both Houses being assembled, the higher chuses a Bishop for their Prolocutor; and the lower, being requir'd by the higher, chuse them a Prolocutor, or Speaker; which done, they present him to the upper House, by two of the Members, whereof one makes a Speech in *Latin*; and then the elect Person makes another Speech in *Latin*; lastly, the Archbishop answers in *Latin*, and in the Name of all the Lords, approves of the Person. Both *Houses* debate, and transact only such Matters as his Majesty, by his Commission, expresly allows. Things are first usually propos'd in the upper House, then communicated to the lower.

In *Convocation* are debated only Matters concerning Religion and the Church, and sometimes of giving his Majesty Assistance in Money: For as the Laity can't be tax'd without their own Consent, signify'd by their Representatives in Parliament; so the *Clergy* can't be tax'd without their own Consent, signify'd by their own Representatives in *Convocation*. The *Clergy*, in *Convocation*, might antiently, without asking the King's royal Assent, and now may with the royal Assent, make Canons touching Matters of Religion, to bind, not only themselves, but all the Laity, without Consent or Ratification of the Lords and Commons in Parliament.

Till the great Rebellion, under *Charles* I, the Parliament did not at all meddle in making Canons, or in Matters doctrinal, or in Translation of Scriptures, or Annotations thereon, only by their civil Sanctions (when they were thereto requir'd) did confirm the Results and Consultations of the *Clergy*, that so the People might be easily induc'd to obey the Ordinances of their spiritual Governors.

Both Houses of *Convocation* have the same Privileges, for themselves and menial Servants, as the Members of Parliament have, and that by Statute.

The Archbishop of *York*, at the same Time, holds a *Convocation* of the *Clergy* of his Province, after the like Manner, at *York*; and by constant Correspondence does debate and conclude of the same Matters as are debated and concluded by that of *Canterbury*; not that the northern Province is oblig'd to follow what the southern one does. A Power is vested in the Archbishop to prorogue, with the Consent of his Suffragans, the lower House of *Convocation*.

The *Clergy* of *England* had antiently their Representatives in the lower House of Parliament, as appears by that antient Record much priz'd by my Lord *Coke*.

For the executive Power in Church Matters throughout the Kingdom of *England*, there have been erected divers Courts, whereof the highest for criminal Causes was the high Commission Court; for Jurisdiction whereof, it was enacted, 1 *Eliz.* that her Majesty, and Successors, should have Power, by Letters Patents, under the Great Seal, to nominate Commissioners to exercise Jurisdiction throughout the whole Realm; to visit, reform, and correct all Errors, Heresies, Schisms, Abuses, and Delinquencies, that may, by an ecclesiastical Power, be corrected and reform'd. This Court consisted of the greatest Persons in the Church and State, but the Use thereof was taken away in the long seditious Parliament, and has not been re-established since.

For civil Affairs that concern the Church, the highest

highest Court is the *Court of Delegates*, for the Jurisdiction whereof it was provided, 25 *Hen.* VIII, that it shall be lawful for any Subject of *England*, in Case of Defect of Justice, in the Courts of the Archbishop of *Canterbury*, to appeal to the King's Majesty in his Court of *Chancery*, and that upon such Appeal a Commission under the Great Seal shall be directed to certain Persons, particularly design'd for that Business; so that from the highest Court of the Archbishop of *Canterbury*, there lies an Appeal to this *Court of Delegates*, and beyond this to no other.

Next to the Court of Delegates, are the Courts of the Archbishop of *Canterbury*, where any ecclesiastical Suits between any Persons within his Province may (waving all inferior Courts) be decided. Among them, the highest Courts are, that of *Arches*, and of *Audience*, heretofore describ'd. The next is call'd the *Prerogative Court*, which judges of Estates fallen by Will, or by Intestates; so call'd, because the Archbishop, *Jure prerogativæ suæ*, has this Power throughout his whole Province, where the Party at the Time of Death had five Pounds, or above, in several Dioceses; and these two Courts have also the Archbishop of *York*. Lastly, The *Court of Peculiars*, which deals in certain Parishes lying in several Dioceses, which Parishes are exempt from the Jurisdiction of the Bishops of those Dioceses, and are peculiarly belonging to the Archbishop of *Canterbury*, in whose Province there are fifty-seven such *Peculiars*.

Besides these Courts, serving for the whole Province, every Bishop has his Court held in the Cathedral of his Diocese, over which he has a Chancellor, term'd antiently, *Ecclesiæcdicus*, & *Episcopi Ecdilus*, the Church Lawyer; who being skill'd in the Civil and Canon Law, sits there as Judge; and if his Diocese be large, he has in some more remote Place a Commissary, whose Authority is only in some certain Place of the Diocese, and some certain Causes limited to him by the Bishop in his Commission, and these are call'd *Consistory Courts*.

Every Archdeacon has also his Court and Jurisdiction, where smaller Differences arising within his Limits are pleaded; also the Dean and Chapter has a Court, and take Cognizance of Causes happening in Places belonging to the Cathedral.

There are likewise certain peculiar Jurisdictions belonging to certain Parishes, the Inhabitants whereof are exempt sometimes from the Archdeacon's Jurisdiction, and sometimes from the Bishop's Jurisdiction.

Causes belonging to ecclesiastical Courts, are, Blasphemy, Apostacy from *Christianity*, Heresies, Schisms, Ordinations, Institutions of Clerks to Benefices, Celebration of divine Service, Rights of Matrimony, Divorces, general Bastardy, Tithes, Oblations, Obventions, Mortuaries, Dilapidations, Reparation of Churches, Probate of Wills, Administrations, Simony, Incests, Fornications, Adulteries, Pensions, Procurations, Commutation of Penance, &c. the Cognizance whereof belongs not to the Common Law of *England*.

It is pretended, that the Foundation of these ecclesiastical Laws are the Canons made by the General Councils, the Opinion of the antient Fathers, and the Decrees of several Bishops of *Rome*: But I'll never persuade myself that a reform'd Church would chuse for the Foundation of her ecclesiastical Government, some of the Stones of *Babylon*, to which she has given so many violent Assaults, and has endeavour'd to destroy, from its very Foundation. Therefore it is better to have Recourse to all that has been enacted, ever since the Beginning of the Reformation, under *Henry* VIII.

The Manner of Trials by these Laws and Customs are different from the Trials at Common Law, and are briefly thus: First, Goes forth a Citation, then a Bill and Answer, then by Proofs, Witnesses, and Presumptions; the Matter is argu'd *pro* and *con*, and the *Canons* and *Civil Laws* quoted, then, without any Jury, the definitive Sentence of the Judge passes, and upon that, Execution: And this is the Manner of trying ecclesiastical and civil Causes. But ecclesiastical criminal Causes are try'd by Way of Accusation, Denunciation, or Inquisition; the first, when one takes upon him to prove the Crime: The second, when the Churchwardens present, and are not bound to prove, because it is presum'd they do it without any Malice, and that the Crime is notorious. Lastly, By Inquisition, when, by reason of common Fame, Enquiry is made by the Bishop, *ex Officio suo*, by calling some of their Neighbourhood to their Oaths, or the Party accus'd to his Oath, *ex Officio*, so call'd, because the ecclesiastical Judge does it, *ex Officio suo*, which is very antient, and was usual among the *Jews*. But this Method is obsolete, and no longer us'd.

The Punishments inflicted by these spiritual or ecclesiastical Courts, according to these spiritual or ecclesiastical Laws, proceed in this Manner. First, the Party delinquent is admonished; next goes forth *minor Excommunicatio*, whereby he is excommunicated or excluded from the Church; or if not from the Church, yet from the Communion of the Lord's Supper, is disenabled to be Plaintiff in a Law-Suit, &c. and this commonly for Stubbornness shewed, by not appearing in the ecclesiastical Court upon Summons, or not obeying the Orders of the Court. This Power of lesser Excommunication the Bishop may delegate to any Priest with the Chancellor.

Excommunicatio major, is not only an Exclusion from a Company of Christians in spiritual Duties, but also in temporal Affairs, and this commonly for Heresy, Schism, Perjury, Incest, and such grievous Crimes; and that it may be done with more Solemnity and Terror, it is to be pronounced by the Bishop himself; and being so excommunicated, a Man cannot in any civil or ecclesiastical Court be Plaintiff or Witness; and in Case any Man be so stubborn as to continue 40 Days excommunicated, the King's Writ *De Excommunicato Capiendo*, is granted forth of the Chancery against him; whereupon he is cast into Prison, without Bail, there to lie 'till he has satisfied for his Offence.

Next there is *Anathematismus* to be inflicted only upon an obstinate Heretick, whereby he is declared a publick Enemy of God, and rejected and cursed, and delivered over to eternal Damnation: And this to be done by the Bishop also, in his own Person, assisted by the Dean and Chapter, or twelve other Priests.

Lastly, there is *Interdictum*, whereby is prohibited all divine Offices, as christian Burial, Administration of Sacraments, &c. in such a Place, and to such a People; and if this be against a People, it follows them wheresoever they go; but if against a Place only, then the People of that Place may go to divine Offices elsewhere.

Besides these general Censures of the Church, with Respect to Church Communion, there is another which touches the Body of the Delinquent, called *publick Penance*, when any one is compelled to confess in publick his Fault before the whole Congregation in the Church; which is done in this Manner: The Delinquent is to stand in the Church-Porch, upon some *Sunday*, bare-headed, and bare-footed, in a white Sheet, and a white Rod in his Hand, begging every one that passes by to pray for him; then to enter the Church, falling down and kissing the Ground; then in the Middle of the Church, placed in a higher Place, in the Sight of all the People, and over-against the Minister, who declares his Crime odious to God, and scandalous to the Congregation, that God can no Way be satisfied, but by applying Christ's Sufferings; nor the Congregation, but by an humble Acknowledgment of his Sins, and testifying his sincere Repentance and Sorrow, &c. which being done, the Priest in Christ's Name pronounces the Remission of Sins, &c.

There remains one more Punishment, or ecclesiastical Censure, which touches the Body, and that is Denial of christian Burial, which is inflicted, not in *Pœna Mortuorum*, but in *Terrorem Viventium*, who naturally

desire, that after their Death, their Body may be decently interred. To these forenamed Censures and Punishments both Laity and Clergy are subject; but besides these there are Punishments whereunto the *Clergy* are only liable; as first *Suspensio ab Officio*, when a Minister for a Time is declared unfit to execute the Office of a Minister. Then *Suspensio a Beneficio*, when a Minister for a Time is deprived of the Profits of his Benefice; and these two Censures are for small Crimes. *Thirdly*, *Deprivatio a Beneficio*, when for a greater Crime a Minister is wholly and for ever deprived of his Living. And *Fourthly*, *Deprivatio ab Officio*, when a Minister is wholly and for ever deprived of his Orders, and this is *Depositio*, or *Degradatio*, and is commonly for some heinous Crime, meriting Death, and is performed by the Bishop, in a solemn Manner, pulling off from the Criminal his Vestments, and other Ensigns of his Order; and this is in the Presence of a civil Magistrate, to whom he is then delivered to be punished as a Lay-Man for the like Offence.

All *Dissenters* from the Church of *England* (called by the *English Clergy* their *Tender-Conscience Brethren*) as *Presbyterians*, *Independents*, &c. allow of no Hierarchy, no Subordination in the Persons of their Ministers: Bishops and Priests, they maintain, in the Time of the Apostles, were the same.

In lieu of a Series of Ministers one over another, in Quality of Priests, Bishops, and Archbishops, the Polity of the *Presbyterians* in particular, consists in a Series of Assemblies or Synods: Thus every Minister is to be obedient to the Classes under which he lives, and that Class to a Synod, Provincial, Classical, or Œcumenical. The Power of Ordination with them resides in a Classes; and none are admitted to administer the Sacrament but those ordained by the Imposition of Hands of other Ministers. They make Use of Deacons to take Care of their Poor; and in the Government of the Church call in Lay-Elders.

This is now the reigning Discipline in the Church of *Scotland*; as it was during the Interregnum in *England*.

Their *Kirk* or Church is divided into Sixty-nine Presbyteries, each consisting of a Number of Parishes, not exceeding 24, nor less than 12. The Ministers of these Parishes, with one ruling Elder, chosen half-yearly, constitute what they call a Presbytery; who, meeting in their chief Town, whence the Presbytery is denominated, chuse a Moderator, or rather Prolocutor half-yearly. They determine all Appeals from *Kirk* Sessions, *i. e.* from the several Parochial Assemblies; but can try nothing at the first Instance cognizable before a *Kirk* Session. They compose all Differences before Ministers and People; for which End they hold presbyteral Visitations in each Parish, where they examine the Registers of the *Kirk* Sessions, *&c.* They inquire into Repairs of Churches, see that the Glebe, *&c.* suffer no Dilapidations, appoint Schools in the Parishes, and see that the Funds be not misapplied. It is they alone can exclude from the Communion, license Probations, suspend, depose, and in Effect, determine all ecclesiastical Matters within their District. From the *Presbytery*, there lies an Appeal in all Cases to the Provincial Synod.

Note, That a Consistory of the Ministers, Elders, and Deacons of a Parish, form a *Kirk* Session. These meet once a Week, the Minister being Moderator, but without a negative Voice. It regulates Matters relating to publick Worship, Elections, Catechising, Visitations, *&c.* It judges in Matters of less Scandal; but greater, as Adultery, are left to the Presbytery, and in all Cases an Appeal lies from it to the Presbytery.

The INDEPENDENTS deny not only any Subordination among the *Clergy*, but also all Dependency on any other Assembly. They maintain that every separate Church, or particular Congregation has in itself radically and essentially every Thing necessary for its own Government; that it has all ecclesiastical Power and Jurisdiction; and is not at all subject to other Churches, or their Deputies, nor to their Assemblies or Synods.

Though the *Independents* do not think it necessary to assemble Synods, yet if any be held, they look on their Resolutions as weighty and prudential Councils, but not as Decisions to be peremptorily obeyed. They agree that one or more Churches may help another Church with their Advice and Assistance, and even reprove it when it offends, provided they do not pretend to any superior Authority, or Right to excommunicate, *&c.*

The different christian Churches spread throughout the *East*, have also their *Clergy* different, and a different Kind of ecclesiastical Government, as the *Armenians*, *Abyssinians*, *Cophti*, *Jacobins*, *Maronites*, &c. All those different Churches admit, with the Church of *Rome*, of the Division of the *Clergy* into secular and regular *Clergy*; and there is but very little or no Difference between their ecclesiastical Hierarchy and that of the *Roman* Church; and almost all their regular *Clergy* follow the Rules of St. *Basil*.

The COPHTI, or COPHTS, have a Patriarch, who resides at *Cairo*, as we have observed in our Treatise of the *Church*, but takes his Title from *Alexandria*: He has no Archbishop under him, but eleven or twelve Bishops. The Rest of the *Clergy*, whether secular or regular, is composed of the Order of St. *Anthony*, St. *Paul*, and St. *Macarius*, who have each their Monasteries.

Besides the Order of Priests, Deacons, and Subdeacons, the *Cophts* have likewise *Archimandrites*, the Dignity whereof they confer, with all the Prayers of a strict Ordination. This makes a considerable Difference among the Priests; and besides the Rank and Authority it gives them, with Regard to the Religious, comprehends the Degrees and Functions of Arch-priests, by a Custom of 600 Years standing, if a Priest elected Bishop be not already Archimandrite, the Dignity must be conferred on him before episcopal Consecration.

The second Person among the *Clergy*, after the Patriarch, is the Titular Patriarch of *Jerusalem*, who also resides at *Cairo*, by reason of the few *Cophts* at *Jerusalem*; he is in Effect little more than Bishop of *Cairo*, only he goes to *Jerusalem* every *Easter*, and visits some other Places in *Palestine* near *Egypt*, which own his Jurisdiction; to him belongs the Government of the *Cophtick* Church, during the Vacancy of the Patriarchal See.

To be elected Patriarch, it is necessary the Person have lived all his Life in Continence; and even that he be a Virgin: It is he confers the Bishopricks. To be elected Bishop, the Person must be in the Celibate; or if he has been married, it must not be above once. The Priests and inferior Ministers are allowed to be married before Ordination, but are not obliged to it, as *Ludolphus* mistakenly observes. They have an Infinity of Deacons, and even confer the Dignity frequently on Children. None but the lowest Rank among the People commences Ecclesiasticks; whence arises that excessive Ignorance found among them: Yet the Respect of the Laity towards the *Clergy* is very extraordinary.

The monastick Life is in great Esteem among the *Cophts*: To be admitted into it, there is required the Consent of the Bishop. The religious *Cophts* make a Vow of perpetual Chastity; renounce the World, and live with great Austerity in Deserts: They are oblig'd to sleep in their Cloaths, and in their Girld, on a Mat stretched on the Ground, and to prostrate themselves every Evening 150 Times with their Face and Breast on the Ground. They are all, both Men and Women, of the Scum of the People, and live on Alms. The Nunneries are properly Hospitals, and few enter but Widows reduced to Beggary.

The MARONITES have a Patriarch who resides in the Monastery of *Commubin* on Mount *Libanus*, and assumes the Title of Patriarch of *Antioch*. He is elected

elected by the *Clergy* and the People, according to the antient Custom; but since their Re-union with the *Roman Catholick* Church, he is oblig'd to have a Bull of Confirmation from the Pope. He keeps a perpetual Celibate, as well as the rest of the Bishops his Suffragans; for the rest of the Ecclesiasticks, they are allow'd to marry before Ordination; and yet the monastick Life is in great Esteem among them. Their Monks are of the Order of St. *Anthony*, and live in the most obscure Places in Mountains, far from the Commerce of the World.

CLOCK-MAKING.

CLOCK-MAKING, is the placing and ordering geometrically, within a Case, or a Frame, several dented Wheels, and other Members, of different Sizes and Proportions, in order to measure and strike the Time.

When the Wheels, *&c.* are of so little Compass, as to be easily disposed within the narrow Circumference of a small portative Case, so as to meet with no Opposition in their Motion, such Machine is call'd a *Watch*; and when they are larger, and require more Room, a *Clock*.

The Machine thus disposed, either in a large, or narrow Compass, is call'd *Movement*. This *Movement* is often divided into two Parts, *viz.* the *Watch-work*, which measures the Time; and the *Clock-work*, which strikes it; though most of the Instruments called *Pocket-watches* have but the watch Part; and sometimes those, also, improperly call'd *Clocks*, on Account of their larger Volume, calculated only to measure the Time.

There is no other Difference between the Watch-work of the Movement of a *Clock*, and that of the Movement of a *Pocket-Watch*, but in the Volume of the different Members they are both equally composed of; and the Rules to make both Movements are the same, though not the Materials; for the Movement of a *Clock* is made of Iron, and that of a *Watch* is made Part of Iron, and Part of Brass, *i. e.* that all the Wheels are made of Brass, and the Spindles, or Arbors, of the Wheels, the Springs, *&c.* made of Iron, and Steel. There is also this Difference between them, that the Movement of a *Clock* is plac'd within a Frame, composed of several Iron Bars, disposed square-wise; and that of a *Watch*, in a Case, composed of two round Brass Plates, supported, and join'd together, by four Brass Pillars.

The *Movement* consists (I mean for the Watch-work) of the *Ballance*, the *Crown-wheel*, the *Contrat-wheel*, or *first Wheel*, the *second*, *third*, &c. the *main Spring*, with its Appurtenances, lying in the *Spring-box*, and in the Middle thereof lapping about the *Spring-arbor*, to which one End of it is fasten'd. A-top of the *Spring-arbor* is the *endless Screw*, and its Wheels; but in *Spring-Clocks* this is a *Ratchet-wheel*, with its Click, that stops it. That which the *main Spring* draws, and round which the String is wrapp'd, is commonly taper in a *Watch*, and call'd *Fusy*; and in larger Work cylindrical, and call'd *Barrel*. The small Teeth at the Bottom of the *Barrel*, or *Fusy*, which stops it in winding up, is call'd the *Ratchet*; and that which stops it when wound up, and is for that End driven up by the Spring, the *Garde-gut*. All this Work is within the Frame, or Case; between the Frame and the Dial-plate, is the *Pinion of Report*.

The BALLANCE, is that Part, which, by its Motion, determines and regulates the *Beats*; the circular Part of it is call'd the *Rim*, and its Spindle the *Verge*, to which belong two *Palets*, or *Leaves*, or *Nuts*, which play in the Teeth of the Crown-wheel. Ever since the *Pendulum* has been invented, the *Ballance* has been out of Date, because the *Pendulum* makes a *Clock* go with a far greater Regularity than the *Ballance* did, so as not to err a single Second in several Days. The Parts of the *Pendulum* are, the *Verge*, or *Rod*, which must be plain; the *Pallets*, and the *Ball*, at the Bottom.

The CROWN WHEEL, which drives the *Ballance*, or *Pendulum*, and is plac'd a-top of all the other Wheels.

The CONTRAT-WHEEL, is that Wheel whose Teeth and Hoop lie contrary to those of other Wheels.

The GREAT WHEEL, or FIRST WHEEL, is that which the *Barrel* drives immediately; next to it is the *second Wheel*, next to the second, is the *third*, &c.

Note, That each Wheel is composed of its *Hoop*, or *Rim*, around which the Teeth are cut; of its *Radii*, or *Spokes*; and of its *Arbor*, or *Spindle*. The *Spokes*, or *Radii*, of the *Wheel*, is that Piece of Iron in Form of a Cross, which at its four Ends, or Extremities, is join'd to the Hoop of the Wheel. And the *Axis*, that Iron *Arbor*, or *Spindle*, fasten'd at one End in the Center, or Middle of the *Spokes*; and has the other introduc'd into a Hole made in the Frame for that Purpose, in which it remains loose, in order that it may perform freely its Circumvolutions. That End, thus introduc'd, is called *Pivot*, terminating in a Point.

The *Arbor*, or *Spindle*, of each Wheel, has its *Pinion*, *i. e.* several Notches, into which catch the Teeth of the next Wheel, in order to turn it round.

The *Wheels* and *Pinions* must be of several Sizes, and well proportion'd to each other. What are called *Teeth* in a *Wheel*, are called *Leaves* in the *Pinion*; but these *Teeth* and *Leaves* must be of the same Wideness, or very near the same Wideness, otherwise they could not fit so well each other; which the better to accomplish, in an arithmetical Manner, we must find first the Circumference of our *Wheel* and *Pinion*, by the Rule of Three, thus: As 7 is to 22; so is the Diameter to the Circumference; or, otherwise, as 1 is to 3,1416; so is the Diameter to the Circumference.

For Example, we have a Wheel of two Inches Diameter, and sixty Teeth, to which we would fit a *Pinion* of six *Leaves*. First, 7 : 22 : : 2 : 6,3; we find, that the Circumference of the Wheel is 6 Inches, and 3 Tenths of an Inch. Then we say, As the Teeth of the Wheel to the Circumference of it; so are the *Leaves* of the *Pinion* to the Circumference thereof. In Numbers thus, 60 : 6,3 : : 6 : ,63; the *Pinion* then is 63 hundredth Parts of an Inch round.

Now to find the Diameter, it is but the Reverse of the former Rule, *viz.* as 22 are to 7; so is the Circumference to the Diameter. In Numbers thus, for the foregoing *Pinion*, 22 : 7 : : 6,3 : 2; the Diameter, then, of the *Pinion*, must be 2 Tenths of an Inch, to fit the aforesaid Wheel of 2 Inches Diameter.

But, perhaps, we are unacquainted with decimal Arithmetick, and would be glad, notwithstanding, to fit our *Pinion* to our Wheel; we must therefore endeavour to do it mechanically, by drawing a Circle, and dividing it into as many Parts as we intend *Leaves* in the *Pinion* we would size; from two of the Points in the Circle we'll draw two or more Lines to the Center, to which we'll apply two of the Teeth of our Wheel, guiding them up and down, until they touch at the same Width on these Radii, or Lines: We mark, then, where this Agreement is, and draw a small Circle there, which will represent the Circumference of the *Pinion* sought after.

Having

Having taken these Measures to fit our *Pinions* to our *Wheels*, we are to calculate next the Numbers for our *Movement*.

1. We are to observe, that a Wheel divided by its Pinion, shews how many Turns the Pinion has to one Turn of the Wheel. Thus, a Wheel of 60 Teeth, driving a Pinion of 6, will turn round the Pinion 10 Times, in going round once.

2. That from the Fusy, or *Barrel*, to the *Ballance*, the Wheels drive the Pinions, and consequently the Pinions run faster, or go more Turns than the Wheels they run in; but it is the contrary from the Great Wheel to the Dial Wheel. Thus, in the last Example, the Wheel drives the Pinion 10 Times; but if the Pinion drives the Wheel, it must turn 10 Times, to drive the Wheel round once.

3. That the Wheels and Pinions are to be wrote down, either as vulgar Fractions, or in the Way of Division in common Arithmetick. For Example, a Wheel of 60 Teeth moving a Pinion of 5, may be set down, $\frac{60}{5}$, or better, 5)60; where the uppermost Figure 60, or Numerator, is the Wheel; the lowermost, or Denominator, is the Pinion: Or, in the other Example, the first Figure 5 is the Pinion, and the 60 is the Wheel. The Number of Turns which the Pinion has in one Turn of the Wheel, is set without a Hook on the right Hand; as 5)60(12, *i. e.* a Pinion 5 playing in a Wheel of 60, moves round 12 Times in one Turn of the Wheel.

Note, That a whole *Movement* may be wrote as in the adjoining Scheme; where the uppermost Number expresses the Pinion of Report 4, the Dial-wheel 36, and the Turns of the Pin 9; the second, the Pinion and Great Wheel; the third, the second Wheel, *&c.* the fourth, the Contrat-wheel; and the last, 17, the Crown-wheel.

4)36(9
5)55(11
5)45(9
5)40(8
17

Hence, 4. From the Number of Turns any Pinion makes in one Turn of the Wheel it works in, may be determin'd the Number of Turns a Wheel or Pinion has at any greater Distance, *viz.* by multiplying together the Quotients, the Product whereof is the Number of Turns.

For Example, Let us chuse the three Numbers in the Case adjoining; the first of which has 11 Turns, the next 9, and the last 8: If we multiply 11 and 9, it produces 99, for 9 Times 11 is 99; *i. e.* in one Turn of the Wheel 55, there are 99 Turns of the Pinion 5, or the Wheel 40, which runs concentrical, or on the same Arbor with the second Pinion 5; for as there are 11 Turns of the second Pinion 5, in one Turn of the great Wheel 55, or (which is the same) of the second Wheel 45, which is on the same Spindle with the Pinion 5; so there are 9 Times 11 Turns in the second Pinion 5, or Wheel 40, in one Turn of the great Wheel 55. Again, 99 multiply'd by 8, gives 792, the Number of Turns the last Pinion has in one Turn of the first Wheel 5; so that this third and last Pinion turns 792 Times, in one Turn of the first Wheel 55.

5)55(11
5)45(9
5)40(8

Hence we proceed to find, not only the Turns, but the Number of Beats of the Ballance in the Time of those Turns. For having found the Number of Turns the *Crown-wheel* has in one Turn of the Wheel sought, those Turns multiply'd by its Notches, give Half the Number of Beats in that one Turn of the Wheel. Suppose, for Example, the *Crown-wheel* to have 720 Turns, to one of the first Wheel; this Number multiply'd by 15, the Notches in the *Crown-wheel*, produces 10800, which are Half the Number of Strokes of the Ballance, in one Turn of the first Wheel, of 80 Teeth. The like may be done for any of the other Wheels, as the Wheel 54, or 40.

Note, That the *Ballance*, or *Swing*, has two Strokes to every Tooth of the *Crown-wheel*; for each of the two Pallets has its Blow against each Tooth of the *Crown-wheel*: Wherefore a Pendulum that vibrates Seconds, has its *Crown-wheel* only 30 Teeth.

From this general Knowledge of Calculation, we must enter into a Detail of the particular Rules for the *Watch-work*, which are as follow:

1. It is evident, that the same Motion may be perform'd either by one Wheel, and one Pinion; or many Wheels, and many Pinions; provided the Number of Turns of all the Wheels bear the Proportion to all the Pinions, which that one Wheel bears to its Pinion; or, which is the same Thing, if the Numbers produc'd by multiplying all the Wheels together, be to the Number produc'd by multiplying all the Pinions together, as that one Wheel to that one Pinion. Thus, suppose we had Occasion for a Wheel of 1740 Teeth, (too large a Number for one Wheel, with a Pinion of 28 Leaves) we may make it into three Wheels, of 36, 8, and 5; and three Pinions, of 4, 7, and 1: For the three Wheels, 36, 8, and 5, multiply'd together, give 1440, for the Wheels; and the three Pinions, 4, 7, and 1, multiply'd together, give 28, for the Pinions. We must observe, that it matters not in what Order the Wheels and Pinions are set, or which Pinion runs in each Wheel; only, for Contrivance Sake, the biggest Numbers are commonly put to drive the rest.

2. Two Wheels and Pinions of different Numbers may perform the same Motion. Thus, a Wheel of 36, drives a Pinion of 4, the same as a Wheel of 45, a Pinion of 5; or a Wheel of 90, a Pinion of 10, the Turns of each being 9.

3. If in breaking the Train into Parcels, any of the Quotient should not be lik'd; or if any other two Numbers to be multiply'd together, are desir'd to be varied, it may be done by this Rule: We'll divide our two Numbers by any two other Numbers which will measure them, and then multiplying the Quotients by the alternate Divisors, the Product of these two last Numbers found, will be equal to the Product of the two Numbers first given. Thus, if we will vary 36 Times 8, we'll divide these by any two other Numbers, which will measure them; as 36 by 4, and 8 by 1: The fourth Part of 36 is 9, and 8 divided by 1, gives 8. We multiply 9 by 1, the Product is 9; and 8 multiply'd by 4, produces 32: So that for 36 Times 8, we'll have found 32 Times 9; so that these Numbers are equal, *viz.* 36 Times 8 is equal to 32 Times 9, both producing 288.

4. If a Wheel and Pinion fall out with cross Numbers, too big to be cut in Wheels, and yet not to be alter'd by these Rules; in seeking for the Pinion of *Report*, we must find out two Numbers of the same, or a near Proportion, by this following Rule, *viz.* As either of the two Numbers given, is to the other; so is 360 to a fourth: We divide that fourth Number as also 360, by 4, 5, 6, 8, 9, 10, 12, 15, (each of which Numbers exactly measures 360) or by any of those Numbers that brings a Quotient nearest an Integer, or whole Number, thus: If we had, for Example, these two Numbers, 147 the Wheel, and 170 the Pinion, which are too great to be cut in small Wheels, and yet can't be reduc'd into less, because they have no other common Measure, but Unity: We therefore say, according to the last Paragraph, As 170 is to 147; or as 147 is to 170; so is 360 to a fourth Number sought. In Numbers thus; 170 : 147 :: 360 : 311; or 147 : 170 :: 360 : 416. We divide the fourth Number and 360 by one of the foregoing Numbers, as 311, and 360, by 6; it gives 52 and 60; in dividing them by 8, we have 39 and 45; and if we divide 360 and 416 by 8, we have 45 and 52 exactly; wherefore, instead of the two Numbers, 147 and 170, we may take 52 and 60; or 39 and 45; or 45 and 52, *&c.*

To come to the Practice in calculating a Piece of *Watch-work*, we must pitch first on the Train, or Beats of the Ballance, in one Hour; as whether a swift

swift one, of about 20000 Beats, (the usual Train of a common *Pocket-Watch*) or a slower, of about 16000, (the Train of the new *Pendulum Pocket-Watches*) or any other Train. Next, we resolve on the Number of Turns the Fusy is intended to have, and the Number of Hours the Piece is to go: Suppose, *e. gr.* 12 Turns, and to go 30 Hours, or 192 Hours, *i. e.* 8 Days, *&c.*

These Things being all soon determin'd, we next proceed to find the Beats of the Ballance, or Pendulum, in one Turn of the Fusy, or Barrel, *viz.* As the Turns of the Fusy, to the Hour of the Watch going; so is the Train to the Number of Beats in one Turn of the Fusy. In Numbers thus; 12 : 16 : : 20000 : 26666; which last Numbers are the Beats in one Turn of the Fusy, or great Wheel; and are equal to the Quotients of all the Wheels unto the Ballance multiply'd together. This Number, therefore, is to be broken into a convenient Parcel of Quotients, which is to be done thus: First, we halve the Number of Beats, *viz.* 26666, and we have 13333; next, we pitch upon the Number of the *Crown-wheel*, suppose 17; we divide 13333 into 17 Parts, and find, that 784 is one of them; this 784 is the Number left for the Quotients, or Turns, of the rest of the Wheels and Pinions, which being too big for one or two Quotients, may be best broken into three. Therefore we chuse three Numbers, which, when multiply'd all together continually, will come nearest 784: As suppose we take 10, 9, and 9; now 10 Times 9 is 90, and 9 Times 90 is 810, which is somewhat too much; therefore we try again other Numbers, as suppose 11, 9, and 8; these drawn one into another continually, produce 792; which is as near as can be, and convenient Quotients.

Having thus contriv'd the Piece from the great Wheel to the Ballance, but the Numbers not falling out exactly, as we first propos'd, we correct the Work thus: First, to find out the true Number of Beats in one Turn of the Fusy, we must multiply 792, aforesaid, (which is the true Product of all the Quotients we have pitch'd upon) by 17, the Notches of the *Crown-wheel*, the Product of which will be 13464, which is Half the Number of the Beats in one Turn of the Fusy. Then to find the true Number of Beats in an Hour, we say, As the Hours of the Watch going, *viz.* 16, to the 12 Turns of the Fusy; so is 13464, Half the Beats in one Turn of the Fusy, to 10098, Half the Beats in one Hour; the Numbers will stand thus, 16 : 12 : : 13464 : 10098. Then to know what Quotient is to be laid upon the Pinion of *Report*, we say, As the Hours of the Watch's going, *viz.* 16, to the Turns of the Fusy, *viz.* 12; so are the Hours of the Dial-plate, *viz.* 12, to the Quotient of the Pinion of *Report* fix'd on the great Wheel. In Numbers thus, 16 : 12 : : 12 : 9; the Quotient of the Pinion of *Report*.

Having thus found our Quotients, we shall find it easy to determine what Numbers the Pinions shall have, for chusing what Numbers the Wheels shall have; and multiplying the Pinions by their Quotients, the Product is the Number for the Wheels.

Thus, the Number of the Pinion of *Report* is 4, and its Quotient is 9; therefore the Number for the Dial-wheel must be 4 × 9, or 36: So the next Pinion being 5, its Quotient 11; therefore the great Wheel must be 5 × 11, or 55; and so of the rest.

```
4)36(9
5)55(11
5)45(9
5)40(8
   17
```

Such is the Method of calculating a 16 Hour *Watch*, which *Watch* may be made to go longer, by lessening the Train, and the Pinion of *Report*. Suppose we could conveniently slacken the Train to 16000, the Half of which is 8000; we'll say, As the halved Train, or Beats in an Hour, *viz.* 8000, to the half Beats in one Turn of the Fusy, *viz.* 13464; so are the Turns of the Fusy, *viz.* 12, to the Hours of the Watch's going: In Numbers thus, 8000 : 13464 : : 12 : 20: So that this Watch will go 20 Hours. Then for the Pinion of *Report*, we say, As 20 (the Continuance) to 12, (the Turns of the Fusy) so are 12 (the Hours of the Face) to 7, the Quotient of the Pinion of *Report*: In Numbers thus, 20 : 12 : : 12 : 7.

As to the Numbers, the Work is the same, only the Dial-wheel is but 28, because its Quotient is alter'd to 7, as appears in the Margin, by the Scheme of the Work.

```
4)28(7
5)55(11
5)45(9
5)40(8
   17
```

If we would give Numbers to a Watch of about 10000 Beats in an Hour, to have 12 Turns of the Fusy to go 170 Hours, and 17 Notches in the Crown-wheel; the Work is the same, in a Manner, as in the last Example; and consequently thus: 12 : 170 : : 10000 : 141666; which last Number is the Beats in one Turn of the Fusy; its Half, 70833, being divided by 17, gives 4167 for the Quotients: And because this Number is too big for three Quotients, we chuse four; as 10, 8, 8,6 $\frac{3}{5}$: These multiply'd together, as before, and with 17, make 71808; which are Half the true Beats in one Turn of the Fusy. By this, we are to find our true Train first, saying, as 170 to 12, so 71808 to 5069; which last is Half the true Train of our *Watch*. Then for the Pinion of Report, we say, As 170 to 12, so 12 to $\frac{144}{170}$; which Fraction arises thus: If we multiply 12 by 12, it makes 144; and divide 144 by 170, we can't; but by setting the Dividend 144 over the Divisor 170, arises this Fraction $\frac{144}{170}$, which is a Wheel and Pinion; the lower is the Pinion of Report, and the upper is the Dial-wheel. But these Numbers being too big to be cut in small Wheels, they must be varied by the fourth Rule above, thus:

As 144 : 170 : : 360 : 425;
Or 170 : 144 : : 360 : 305:

Then dividing 360, and either of these two fourth Proportionals, (as directed by the Rule) suppose by 15, we shall have $\frac{24}{28}$, or $\frac{20}{24}$; then the Numbers of the whole *Movement* will stand as in the Margin. Such is the Calculation of ordinary *Watches*, to shew the Hour of the Day; in such as shew Minutes and Seconds, the Process is thus:

```
24)20(20/24
6)60(10
6)48(8
5)40(8
5)33(6 3/5
   17
```

1. Having resolv'd upon our Beats in an Hour, we are next to find how many Beats there will be in a Minute, by dividing our design'd Train into 60 Parts; and, accordingly, finding such proper Numbers for the Crown-wheel, and Quotients, as that the Minute-wheel shall go round once in an Hour, and the Second-wheel once in a Minute.

An Example will make all plain. Let us chuse a Pendulum of 7 Inches in Length, which vibrates 142 Strokes in a Minute, and 8520 in an Hour; these Sums being halved, are 71, and 4260. Now the first Work to be done, is to break this half Number of Minutes 71, into good Proportions, which will fall as near as can be into one Quotient, and the Crown-wheel. First, the Crown-wheel must have 15 Notches, then 71 divided by 15, gives 5; so a Crown-wheel of 15, and a Wheel and Pinion whose Quotient is 5, will go round in a Minute, to carry a Hand to shew Seconds.

```
8)40(5
   15
```

Next, for a Hand to go round to shew Minutes; because there are 60 Minutes in an Hour, it is but breaking 60 into Quotients, (suppose 10 and 6, or 8 and 7½, *&c.*) and the Work is done. Thus, 4684 is broken, as near as can be, into proper Numbers.

```
8)64(8
8)60(7½
8)40(5
   15
```

But since it does not fall out exactly into the abovemention'd Numbers, we must correct, (as before directed) and find the true Number of Beats in an Hour, by multiplying 15 by 5, which makes 75; and 75 by 60, makes 4500, which is Half the true Train: Then finding out the Beats in one Turn of the Fusy, operate as before, *viz.* As the Number of Turns,

Turns, 16, to the Continuance, 192; so is 4500 to 54000, which are Half the Beats in one Turn of the Fusy. In Numbers thus, 16 : 192 : : 450 : 54000. This 54000 must be divided by 4500, which are the true Numbers already pitch'd upon, or Beats in an Hour; the Quotient will be 12; which not being too big for a single Quotient, need not be divided into more; the Work will stand as in the Margin. As to the Hour-hand, the Great Wheel, which performs only one Revolution in 12 Turns of the Minute-wheel, will shew the Hour; or it may be done by the Minute-wheel.

9)108(12
8) 64(8
8) 60(4½
8) 40(5
———
15

Having thus prepar'd all the different Pieces of the *Watch-work*, as well for a *Clock*, as for a *Pocket-Watch*, and made them ready to be put together; we must now observe how to fix our Pendulum to the Movement of our *Clock*, and follow, in that, the Directions of M. *Huygens*, by tying the Iron Rod, or Wier, which bears the Bob, or Bottom, a-top to a silken Thread, placed between two cycloidal Checks, or two little Arches of a Cycloid, made of Metal.

This is, doubtless, one of the most useful and ingenious Inventions many Ages have produc'd; by Means whereof, we have *Clocks* which will not err a single Second in several Days. It is true, the Pendulum is liable to its Irregularities, how minute soever they may be; and M. *De la Hire* thinks there is still Room to improve it: For he observes, that the silk Thread, by which it is suspended, shortens in moist Weather, and lengthens in dry; by which Means, the Length of the whole *Pendulum*, and consequently the Times of the Vibrations are varied. To obviate this Inconvenience, in Lieu of a silk Thread, he us'd a little fine Spring, which was not, indeed, subject to shorten, or lengthen, but which, he found, grew stiffer in cold Weather, and made its Vibrations faster than in warm. He had, therefore, Recourse to a stiff Wier, or Rod, firm from one End to the other. Indeed, by this Means, he renounc'd the Advantages of the Cycloid; but he found, as he says, by Experience, that the Vibrations in Arches of Circles are perform'd in Times as equal, provided they be not of too great Extent, as those in Cycloids. But the Experiments of Sir *Jonas Moor*, and others, have demonstrated the contrary.

Mr. *Derham* ascribes the ordinary Causes of the Irregularities of *Pendulums* to the Alterations in the Gravity and Temperature of the Air, which increase and diminish the Weight of the Ball, and by that Means make the Vibrations greater or less; an Accession of Weight in the Ball being found by Experiment to accelerate the Motion of the *Pendulum*. For, he says, that his own *Clock* having for some Years kept Time as well as could be expected, he hung upon its Weight an Addition of six Pounds, and found, that this Increase of Weight, although it made the Vibrations larger, yet they were quicker, and made the *Clock* gain about 13 Seconds every Day; even in the warmer Months, when all *Pendulum Clocks* are apt to go too slow, as much as in Winter they go too fast.

A general Remedy against all the Inconveniencies of *Pendulums*, and which is the usual Means in *England*, is, to make the *Pendulum* long, the Bob heavy, and to vibrate but a little Way; the cycloidal Checks of M. *Huygens*, and much approv'd by Sir *John Moor*, being generally over-look'd.

Another Thing to be remark'd in *Pendulums*, is, that the greater their Vibrations, the slower they are; for if two *isochrone Pendulums* moving, one the Quadrant of a Circle, the other not above 3 or 4 Degrees, this latter shall move somewhat quicker than the former; which is one Reason why small Crown-wheel *Pendulums* go faster in cold Weather, or when foul, than at other Times.

For the Calculation of all *Pendulums*, it is necessary to fix upon one, to be as a Standard to the rest; therefore we pitch upon a *Pendulum* to vibrate Seconds each Stroke.

M. *Huygens* lays down the Length of a *Pendulum* to swing Seconds each Stroke, to be 3 Feet, 3 Inches, and 2 Tenths of an Inch, according to Sir *J. Moor*'s Reduction of it to *English* Measure.

Sir *Jonas* says, that the Lord *Brouncker*, and Mr. *Rook*, found the Length to be 39,25 Inches, which a little exceeds the other; and perhaps was adjusted by M. *Huygens*'s Rule for the Center of Oscillation. For M. *Mouton*'s *Pendulum*, that shall vibrate 132 Times in a Minute, it will be found likewise 8 Inches, agreeing to 39,2 Inches *English*. That, therefore, of 39,2 Inches, may be call'd the universal Measure, and relied on to be the near Length of a *Pendulum* that shall swing Seconds each Vibration.

But as the different Size of the Ball will make some Difference in the Length of this Standard *Pendulum*, therefore to make it an universal Measure, to fit all Places, *&c.* we must measure from the Point of Suspension to the Center of Oscillation, which Center is found by this Rule; As the Length of the String from the Point of Suspension to the Center of a round Ball, is to the Semidiameter of that Ball; so is that Semidiameter to a fourth Number. We must add 2 Fifths of that fourth Number to the former Length, and we shall have the Center of Oscillation, and thereby the true Length of this *Standard Pendulum*.

This Center of Oscillation is that Point of the Ball at which (if we imagine it divided into two Parts, by a Circle whose Center is in the Point of Suspension) the lower Part of the Ball shall be of the same Weight with the upper.

Having thus fix'd a Standard for *Pendulums*, we must learn, at present, how to correct their *Motion*. The usual Method is, to screw and let down the Ball; but a very small Alteration here having a very great Effect, M. *Derham* prefers *Huygens*'s Method, which is, to have a small Weight, or Bob, to slide up and down the Rod above the Ball, which is to be immoveable; though he improves on the Method, and recommends having the Ball to screw up and down, to bring the *Pendulum* near its Gage; and the little Bob to serve for the nicer Corrections, as the Alteration of a Second, *&c.*

M. *Huygens* orders the Weight of this little Corrector to be equal to that of the Wier, or 50 of that of the great Ball; he adds a Table of the Alterations the several Shiftings thereof will occasion the *Motion* of the *Pendulum*; wherein it is observable, that a small Alteration towards the lower End of the *Pendulum*, makes as great an Alteration in Time, as a greater rising or falling does when higher.

M. *Derham* has also calculated the following Table, to shew what Alterations the screwing up, or letting down the great Ball will cause in 24 Hours of the *Clock*'s going.

Pendul. Length		Variation of Vibrat.		
In.	Ten.	Min.		Sec.
38	0	22	Faster	33
38	1	20		38
38	2	18		43
38	3	16		48
38	4	14		55
38	5	13		2
38	6	11		9
38	7	9		16
38	8	7		25
38	9	5		32
39	0	3		42
39	1	1		51
39	2	00		00
39	3	1	Slower	50
39	4	8		40
39	5	5		29
39	6	7		19
39	7	9		7
39	8	10		57
39	9	12		42
40	0	14		29

Supposing our *Pendulum* that vibrates Seconds to be 39 Inches and 2 Tenths, if we should shorten it to 39 Inches, it would go 3 Minutes 42 Seconds faster than before; but if we should lengthen it to 39 Inches and 3 Tenths, it would go 1 Minute 50 Seconds slower; and so of the rest of the Table.

If then the great Ball slides on a flat Piece of Brass divided into Inches and Tenths, it will be easy to discern what Alterations will be caused by the raising or falling of it.

The *Royal Pendulum*, is a Name given to a *Clock*, whose *Pendulum* swings Seconds, and goes 8 Days; shewing the Hour, Minute, and Second. The Numbers of such a Piece are thus calculated; first, cast up the Seconds in 12 Hours, and you will find them to be 43200 =

12×60×60. The Swing-wheel must be 30, to swing 60 Seconds in one of its Revolutions: Now let $\frac{1}{2}$ 43200 = 21600, be divided by 30, and you will have 720 in the Quotient, which must be broken into Quotients; the first of them must be 12, for the Great Wheel, which moves round once in 12 Hours. 720 divided by 12, gives 60, which may also be conveniently broken into two Quotients, as 10 and 6, or 5 and 12, or 8 and $7\frac{1}{2}$; which last is most convenient: And if you take all your Pinions 8, the Work will stand as in the Margin.

8)96(12
8)64(8
8)60($7\frac{1}{2}$
30

According to this Computation, the Great Wheel will go about once in 12 Hours, to shew the Hour; the second Wheel once in an Hour, to shew the Minutes; and the Swing-wheel once in a Minute, to shew the Seconds.

Spring, or *Pendulum Watches*, stand pretty much on the same Principle with *Pendulum Clocks*; whence their Denomination. If a *Pendulum*, describing little Arches of a Circle, make Vibrations of unequal Lengths in equal Times, it is by Reason it describes the greater with a greater Velocity. For the same Reason, a Spring put in Motion, and making greater or less Vibrations, as it is more or less stiff, and as it has a greater or less Degree of Motion given it, performs them nearly in equal Times. Hence, as the Vibrations of the *Pendulum* had been apply'd to large *Clocks*, to rectify the Inequality of their Motion; so to correct the unequal Motions of the Ballance of *Watches*, a *Spring* is added; by the Ischoronism of whose Vibrations the Correction is to be effected. The *Spring* is usually wound into a Spiral, that in the little Compass allotted it, it may be as long as possible, and may have Strength enough not to be master'd, and dragg'd about, by the Inequality of the Ballance it is to regulate. The Vibrations of the two Parts, *viz.* the *Spring* and *Ballance*, should be of the same Length, only so adjusted, as that the *Spring*, being more regular in the Length of its Vibrations than the *Ballance*, may, on Occasion, communicate its Regularity thereto.

Sometimes a *Clock* or *Watch-maker* wants to convert one *Movement* into another, *v. gr.* to change an old *Ballance Clock* into a *Pendulum*, or make any old Work serve for the Trial of new Motions, or apply it to any such like Use; which to perform, he must observe the following Rules:

1. He must draw a Scheme of his old Work, and will see, by that Means, what Quotients he has, and what he wants. For Example, If he designs to change an old *Ballance Watch* into a *Pendulum* of 6 Inches, he must consider, that the old Work is the Great Wheel 56, the Pinion 7; the next Wheel 54, the Pinion 6; the Crown-wheel 19, *&c.* and that the Quotients, and Crown-wheel, and 2 Pallets, multiplied together continually, produce 2736, which are the Strokes of the *Ballance* in one Turn of the Great Wheel; and by the Quotient of the Dial-wheel, which is 12, it appears, that the Great Wheel goes round once in an Hour. Therefore he must find the Beats in an Hour of the old Work; and next find, also, the Beats in an Hour of a 6 Inches *Pendulum*, the Number whereof is 9204; which being divided by 2736, he'll have the Quotient, which he must add to the Scheme of the old Work: This Quotient 2736)9204($\frac{2}{5}$ is 3 and near $\frac{2}{3}$, as in the Margin. The Work thus alter'd, will stand as in the Margin, *viz.* a Pinion 6, and a Contrate-wheel 21, must be added. According to this Way, the old Work will stand as before, only the Crown-wheel must be inverted; but because the Crown-wheel is too big for the Contrate-wheel, it will be best to make both Wheels new, and increase the Number of the Contrate-wheel, by diminishing that of the Crown-wheel; which to perform, he must pitch upon some convenient Number for the Crown-wheel; multiply all the Quotients and the Number of this new Crown-wheel, as before, and divide 9204 by it: Suppose he pitches upon 11 for the Crown-wheel; if he multiply 8, 9, and 11, the Product will be 792; which multiply'd by the 2 Pallets, makes 1584, which are the Beats in one Turn of the Great Wheel, or in an Hour. He must next divide 9204 by it; and he'll have near 6 for the Quotient of his Contrate-wheel: The Work thus order'd, will stand as follows:

4)48(12
6)54(9
6)21($3\frac{1}{2}$
19

4)48(12
7)56(8
6)54(9
6)36(6
11

2. But he has a Mind, perhaps, to change the former old *Watch* into a 30 Hour Piece, and to retain the old Ballance-wheel: In this Case, he must add a Contrate-wheel, and alter the Pinion of Report; and having chose for the Contrate-wheel such a Quotient as will best suit the rest of the Work, he multiplies all his Quotients, Crown-wheel, and 2 Pallets together, and so finds the Number of Turns in the Great Wheel, as before; then says, As the Beats in one Turn of the Great Wheel, to the Beats in an Hour; so are the Hours of the Dial, to the Quotient of the Pinion of Report. To the old Quotients 8 and 9, he may add another of 8, for the Contrate-wheel: These multiply'd, as above directed, make 21888, for the Beats in one Turn of the Great Wheel; and then for the Quotient of the Pinion of Report, he says in Numbers, thus, 21888 : 9368 :: 12 : 5. The Quotient for the Pinion of Report is something more than 5, which Overplus may be neglected, as is seen by the Scheme of the whole Work in the Margin. If it be wanted to know what Number of Turns the Fusy must have in this Work; in Numbers 'tis thus: 21888 : 9368 :: 30 : 13, almost. So that near 13 Turns will do.

6)30(5
7)56(8
6)54(9
6)48(8
19

3. If it be wanted, that, in altering an old *Watch*, it should shew Minutes, as well as Hours; the Beats in one Turn of the Great Wheel must be divided by the Beats in an Hour, the Quotient will shew in how many Hours the Great Wheel goes round once. If the Beats of the Great Wheel exceed the Train, the Minute-wheel must be chosen first, and multiply'd by the Quotient found, which will give the Pinion of Report. But if the Train exceeds the Beats of the Great Wheel, the Pinion of Report must be chosen first, and the Quotient being multiply'd by it, the Product is the Minute-wheel.

But it often happens, that the Train and Beats of the Great Wheel do not exactly measure one another; if so, the best Method is, to halve the two Numbers as far as they can admit of it; or divide them by some common Divisor; and so having brought them to as small Numbers as they can be brought, they may be supposed a Wheel and Pinion, and be reduc'd to lesser Numbers. Suppose, for Example, we would make the old *Movement* last mention'd a Minute *Watch*; we may reduce the Numbers of the Great Wheel 21888, and the Train 9368, to a Pinion and Wheel, 28)12; which Pinion 28 being set upon the Spindle of the Great Wheel, will drive a Wheel 12 once round in an Hour, to shew Minutes. If we make this Wheel 12 drive another of 48, concentrical to which is a Pinion 12, driving a Wheel 36, concentrical with a Minute-wheel, this will carry a Hand round in 12 Hours; but in this Case we must place the Pinion 28 on the Spindle of the Great Wheel, so as to slide round stifly, when we turn the Minute-hand to rectify the *Watch*.

Though the most simple *Movements* are always the best, and measure the Time with a greater Regularity than those which shew the Day of the Month and Year, the Moon's Age, Tides, Motions of the Planets, *&c.* but as those several different Motions please a vast Number of Persons, we'll here give the necessary Rules for effecting those Motions in the *Watch-work*.

These Motions must be made to depend upon the

Work already in the *Movement*, or elſe be meaſur'd by the Beats of *Ballance* or *Pendulum*.

If by meaſuring them by the Beats of a *Ballance* or *Pendulum*, we muſt contrive a Piece to go a certain Time with a certain Number of Turns. But then to ſpecify or determine the Motion intended, we can do it two Ways.

1. We muſt find how many Beats are in the Revolution, and dividing theſe Beats by the Beats in one Turn of the Wheel, or Pinion, which we deſign ſhall drive the intended Revolution; the Quotient ſhall be the Number to perform the ſame; which if too big for one, may be broken into more Quotients. Thus, if we would repreſent the ſynodical Revolution of the Moon, with a *Pendulum* that ſwings Seconds, the *Movement* to go 8 Days, with 16 Turns of the Fuſy, and the Great Wheel to drive the Revolution. We ſhould divide 2551500 (the Beats in 29 Days, $12\frac{3}{4}$ Hours, which is the ſynodical Revolution of the Moon) by 43200, (the Beats in one Turn of the Great Wheel) and we ſhall have 59 in the Quotient, which being too big for one, may be put into two Quotients.

The ſecond Manner of effecting it, is, by chuſing the Train, the Turns of the Fuſy, Continuance, *&c.* and then, inſtead of finding a Quotient for the Pinion of Report, to find a Number to ſpecify the Revolution, by this Rule: As the Beats in one Turn of the Great Wheel, (or any other Wheel we would have to drive the Revolution-work) is to the Train; ſo are the Hours of the Revolution we would perform, to the Quotient of that Revolution.

But if we would have the Revolution to be driven by the Dial-wheel, and the Work already in the *Movement*; we muſt know, firſt, the Days of the Revolution; and becauſe the Dial-wheel commonly goes round twice in a Day, we are therefore to double the Number of Days in the Revolution, and by that Means we have the Number of Turns of the Dial-wheel in that Time; we muſt break this Number of Turns into a convenient Number of Quotients for the Wheels and Pinions, as we'll ſee in the following Examples.

To make a *Motion* which ſhall ſhew the *Day of the Month*, we muſt divide a Ring into 30 or 31 Days, and into as many Teeth, like a Crown-wheel Teeth, which are caught and puſh'd forward once in 24 Hours, by a Pin in a Wheel that goes round in that Time.

To make a *Motion* which will ſhew the Age of the Moon, we muſt obſerve, that the Moon finiſhes her Courſe ſo as to overtake the Sun, in 29 Days, and a little above an Half; theſe $29\frac{1}{2}$ Days (not regarding the ſmall Exceſs) make 59 twelve Hours, or Turns of the Wheel, which is to be broken into convenient Quotients; which may be 5, 9 and 10; or $14\frac{3}{4}$ and 4. So that if we fix a Pinion of 10, concentrical with our Dial-wheel, to drive a Wheel of 40, which Wheel 40 drives a Pinion 4; it will carry about a Ring, or Wheel of 59 Teeth, once in $29\frac{1}{2}$ Days; which Ring may be divided into $29\frac{1}{2}$ Parts, or carry an Index to point to a Circle ſo divided.

The following Rules are for a *Motion* which is to ſhew the Day of the Year, the Sun's Place in the Ecliptick, the Sun's Riſing or Setting, or any other annual *Motion* of 365 Days.

The Double of 365 is 730, the Turns of the Dial-wheel in one Year, which may be broken into theſe Quotients, *viz.* $18\frac{1}{4}$, 10, and 4, according to the firſt Example in the Margin; or $18\frac{1}{4}$, 8, and 5, according to the ſecond. So that a Pinion of 5 is to lead a Wheel of 20; which, again, by a Pinion of 4, leads a Wheel of 40; which, thirdly, by a Pinion of 4, carries about a Wheel, or Ring of 73, divided into the 12 Months and their Days; or into the 12 Signs, and their Degrees; or into the Sun's Riſing and Setting, *&c.*

4)73(18¼	4)73(18¼
4)40(10	4)32(8
5)20(4	4)20(5

The *Tides* are ſhewn at any Part, without any other Trouble than the Moon's Ring, to move round by a fix'd Circle, divided into twice 12 Hours, and number'd the contrary Way to the Age of the Moon. To ſet this to go right, we muſt find out at what Point of the Compaſs the Moon makes full Sea at the Place we would have the *Watch* ſerve, to convert that Point into Hours, allowing for every Point North or South loſt, 45 Minutes of an Hour. Thus, at *London-Bridge*, it is imagin'd to be High Tide, the Moon at N. E. and S. W. which are four Points for the North and South. Or it may be done, by learning, from the Tide-Tables, how many Hours from the Moon's Southing it is High Water: Or by finding at what Hour it is High Water at the Full or Change of the Moon. As at *London-Bridge* the Full Tide is commonly reckon'd to be 3 Hours from the Moon's Southing, or at 3 of the Clock, at the Full and Change. The Day of Conjunction, or New Moon, with a little Stud to point, being ſet to the Hour ſo found, will afterwards point to the Hour of Full Tide.

That is the uſual Way of ſhewing the Tides; but it being always in Motion, as the Tides are not, a better Way can be found out, which is that of cauſing a Wheel, or Ring, to be mov'd forwards only twice a Day, and to keep Time, as near as can be, with the moſt correct Aſtronomical Tables.

We have thus far conducted our *Watch-work*, both for *Clocks* and *Pocket-watches*, and do not believe that any Thing relating to that excellent Piece of Workmanſhip has eſcap'd unobſerv'd; therefore leaving it to be put into a Caſe, or Frame, we'll paſs to the other Part, calculated to *ſtrike the Time*, viz. the *Clock-work*.

The CLOCK-WORK conſiſts of Wheels, and other Members, or Pieces.

The Wheels of the *Clock-work* are, 1. The *Great* or *Firſt Wheel*, which is that the Weight or Spring firſt drives: In 16 or 24 Hour *Clocks*, this has uſually Pins, and is call'd the *Pin-wheel*; in 8 Day Pieces, the ſecond Wheel is commonly the *Pin-wheel*, or *Striking-wheel*. 2. Next the *Striking-wheel*, is the *Detent*, or *Hoop-wheel*, having a Hoop almoſt round it, wherein is a Vacancy, at which the *Clock* locks. 3. The third or fourth Wheel, according to its Diſtance from the firſt, called, alſo, the *Warning-wheel*. 4. The laſt is the *flying Pinion*, with a Fly, or Fan, to gather Air, and ſo bridle the Rapidity of the *Clock*'s Motion. To this muſt be added, the *Pinion of Report*, which drives round the *Locking-wheel*, called, alſo, the *Count-wheel*, ordinarily with eleven Notches in it, unequally diſtant, to make the *Clock* ſtrike the Hour.

The other Members, or Pieces of the *Clock-work*, are, 1. The *Raſh*, or *Ratch*, which is a Kind of Wheel of twelve large Fangs, running concentrical to the Dial-wheel, and ſerving to lift up the Detents every Hour, and to make the *Clock* ſtrike. 2. The *Detents*, or thoſe Stops which being lifted up, or let fall, lock and unlock the *Clock* in ſtriking. 3. The *Hammers*, which ſtrike the Bell. 4. The *Hammer's Tails*, by which the ſtriking Pins draw back the Hammers. 5. The *Latches*, whereby the Work is lifted up, and unlock'd. 6. The *Lifting Pieces*, which lift up, and unlock the Detents.

In the Calculation of the ſtriking Part of a *Clock*, (tho' it conſiſts of many Wheels and Pinions) Regard muſt be had only to the *Count-wheel*, *Striking-wheel*, and *Detent-wheel*, which move round in this Proportion: The *Count-wheel* commonly goes round once in 12 or 14 Hours; the *Detent-wheel* moves round every Stroke the *Clock* ſtrikes, and ſometimes but once in 2 Strokes; whence it follows,

1. That as many Pins as are in the *Pin-wheel*, ſo many Turns has the *Detent-wheel* in one Turn of the *Pin-wheel*; or (which is the ſame) the Pins of the *Pin-wheel* are the Quotient of that Wheel divided by the Pinion of the *Detent-wheel*. But if the *Detent-wheel* moves but once round in two Strokes of the *Clock*,

Clock, then the ſaid Quotient is but Half the Number of Pins.

2. As many Turns of the *Pin-wheel* as are requir'd to perform the Strokes of 12 Hours, (which are 78) ſo many Turns muſt the *Pinion of Report* have, to turn round the *Count-wheel* once: Or thus, the Quotient of 78 divided by the Number of ſtriking Pins, ſhall be the Quotient for the *Pinion of Report* and the *Count-wheel*; and this is in Caſe the *Pinion of Report* be fix'd to the Arbor of the *Pin-wheel*, which is commonly done. The Example in the Margin will make all plain. Here the *Locking-wheel* is 48, the *Pinion of Report* is 8, the *Pin-wheel* is 78, the *Striking-pins* are 13, and ſo of the reſt; obſerving, however, that 78 divided by the 13 Pins, gives 6, which is the Quotient of the *Pinion of Report*. As for the *Warning-wheel*, and the *flying Pinion*, it matters little what Numbers they have, their Uſe being only to bridle the Rapidity of the Motion of the other Wheels.

8)48(6
6)78(13
6)60(10
6)48(8

The following Rules will be of good Service in this Calculation.

1. *To find how many Strokes a Clock ſtrikes in one Turn of the Fuſy, or Barrel.* We muſt reaſon thus; As the Turns of the *Great Wheel*, or *Fuſy*, are to the Days of the *Clock*'s Continuance; ſo are the Number of Strokes in 24 Hours, *viz.* 156, to the Strokes of one Turn of the *Fuſy*.

2. *To find how many Days the Clock will go.* As the Strokes in 24 Hours, are to thoſe in one Turn of the *Fuſy*; ſo are the Turns of the *Fuſy* to the Days of the *Clock*'s going.

3. *To find the Number of Turns of the Fuſy, or Barrel.* As the Strokes in one Turn of the *Fuſy*, are to thoſe of 24 Hours; ſo is the *Clock*'s Continuance to the Turns of the *Fuſy*, or *Great Wheel*.

4. *To fix the Pin of Report on the Spindle of the Great Wheel.* As the Number of Strokes in the *Clock*'s Continuance, are to the Turns of the *Fuſy*; ſo are the Strokes in 12 Hours, *viz.* 78, to the Quotient of the *Pinion of Report*, fix'd on the Arbor of the *Great Wheel*.

5. *To find the Strokes in the Clock's Continuance.* As 12 is to 78; ſo are the Hours of the *Clock*'s Continuance, to the Number of Strokes in that Time.

At preſent, we muſt reduce all theſe Rules to Practice, beginning with ſmall Pieces. Firſt, Having pitch'd upon the Number of Turns, and the Continuance of our *Clock*, we muſt find, by the laſt Rule, how many Strokes are in its Continuance; then if we make the *Great Wheel* the *Pin-wheel*, we'll divide theſe Strokes by the Number of Turns, which will give us the Number of *Striking-pins*; or we'll divide by the Number of Pins, and have the Number of Turns. Thus a *Clock* of 30 Hours, with 15 Turns of the *Great Wheel*, has 195 Strokes: For, by the laſt Rule, 12 : 78 :: 30 : 195. Dividing 195 by 15, it gives 13 for the *Striking-pins*. Or if we chuſe 13 for our Number of Pins, and divide 195 by it, it gives 15 for the Number of Turns, as is ſeen in the Margin.

15)195(13
13)195(15

But ſuppoſe we would calculate the Numbers of a *Clock* of much longer Continuance, which would oblige us to make our *Pin-wheel* further diſtant from the *Great Wheel*; we are to proceed thus: Having reſolv'd upon our Turns, we muſt find out the Number of Strokes in one Turn of the *Great Wheel*, or *Fuſy*, by the firſt of the above deſcrib'd ſix Rules. Thus, in an 8 Day Piece of 16 Turns, 16 : 8 :: 156 : 78. So in a Piece of 32 Days, and 16 Turns, 16 : 32 :: 156 : 312; theſe Strokes, ſo found, are the Number, which is to be broken into a convenient Parcel of Quotients, thus:

Firſt, we muſt reſolve upon our Number of *Striking-pins*, and divide the laſt nam'd Number by it; the Quotient ariſing from it is to be one or more Quotients, for the *Wheels* and *Pinions*. As in the laſt Examples, we'll divide 78 (the Number of Strokes in one Turn of the *Fuſy*) by it, (the uſual Number of Pins in an 8 Day Piece) and the Quotient will be $9\frac{3}{4}$, which is a Quotient little enough. So in the Month-piece, if we take our Pins 8, we'll divide 312 (the Number of Strokes in one Turn of the *Fuſy*) by it, and the Quotient will be 39; which being too big for one, muſt be broken into two Quotients, for *Wheels* and *Pinions*, or as near as can be; which may be 7 and 5, or 6 and $6\frac{1}{2}$; the latter is exactly 39, and may therefore ſtand, as appears in the following Scheme.

10)65($6\frac{1}{2}$
8)48(6
6)48(8 Pins.

The Quotients being thus determin'd, and, accordingly, the *Wheels* and *Pinions*, as we ſee; the next Work is to find a Quotient for the *Pinion of Report*, to carry on the *Count*, or *Locking-wheel*, once in 12 Hours, or as we pleaſe. If we fix our *Pinion of Report* on the Arbor of the *Great Wheel*, we muſt operate by our fourth Rule, as in the laſt Example of the Month-piece, by the ſixth Rule before. The Strokes in the Continuance of the *Clock*'s going are 4992; then, by the fourth Rule, we'll ſay, 4992 : 16 :: $78\frac{4992}{1248}$: Or thus, for a *Pinion* and *Wheel* 4992(1248; the firſt of which two Numbers is the *Pinion*, the next is the *Wheel*; which being too large, may be varied to $\frac{36}{9}$, or 36)9; or to $\frac{24}{6}$, or 24)6.

For the Calculation of the more uſual Numbers of a Month-piece, (the preceding ones being thoſe invented by Mr. *Derham*) they commonly increaſe the Number of *Striking-pins*, and ſo make the *ſecond Wheel* the *ſtriking Wheel*. Suppoſe we take 24 Pins, we'll divide 312 (the Number of Strokes in one Turn of the *Fuſy*) by it, and the Quotient will be 13, which is little enough for one Quotient, and may therefore ſtand as we ſee in the Scheme.

8)104(13
6)72(12.24 Pins.

Where the Quotient of the *firſt Wheel* is 13; in the *ſecond Wheel*, of 72 Teeth, are the 24 Pins, although its Quotient is but 12; becauſe the *Hoop-wheel* is double, and goes round but once in two Strokes of the *Pin-wheel*.

The *Pinion of Report*, here, is the ſame with the laſt, if fix'd upon the Arbor of the *Great Wheel*; but if we fix it on the Arbor of the *ſecond*, or *Pin-wheel*, its Quotient, then, moſt be found, by dividing 78 by 24, and the Number ariſing in the Quotient will be the Quotient of the *Pinion of Report*, which is $3\frac{1}{4}$. The *Pinion of Report*, then, being 12, the *Count-wheel* will be 39, as in the Margin.

12)39($3\frac{1}{4}$

For the Calculation of a Year-piece of *Clock-work*, we'll chuſe a Piece to go 395 Days, with 16 Turns, and 26 ſtriking Pins. By the firſt of our ſix Rules there are 3851 Strokes in one Turn of the *Great Wheel*; for 16 : 395 :: 156 : 3851; this laſt Number divided by the 26 Pins, leaves 148 in the Quotient, to be broken into two or more Quotients, for *Wheels* and *Pinions*; thoſe Quotients may be 12 and 12, which multiply'd makes 144, which is as near as can well be to 148, without Fractions. The Work thus far contriv'd, will ſtand as in the Scheme.

10)120(12
8) 96(12
78(26 Pins

To correct our Work, and ſee how near our Numbers come to what we propoſed at firſt; and firſt, for the true Continuance of our *Clock*: If we multiply 12 by 12, and 26 (*i. e.* the Quotients of the *Striking-pins*) we ſhall have the true Number of Strokes in one Turn of the *Great Wheel*; which, in this Example, makes 3744; for 12 Times 12 is 144; and 26 Times that is 3744.

Having thus the true Number of Strokes deſir'd, we may find the true Continuance to be only 384 Days; for 156 : 3744 :: 16384. If this Continuance does not pleaſe us, we may come nearer to our

 firſt

first proposed Number of 395 Days, by a small Increase of the Number of Turns, by making them almost $16\frac{1}{2}$; for 3744 : 156 :: 395 : $16\frac{1}{2}$, almost.

Lastly, for the *Pinion of Report*, if we fix it upon the *Great Wheel*, it will require an excessive Number; if we fix it upon the *Pin-wheel*, (which is usual) then by the fifth Rule the Quotient is 3, and the *Pinion of Report* being 13, the *Count-wheel* will be 39, as in the Margin.

13)39(3

But let us fix it on the Spindle of the *second Wheel*, its Quotient is 12, which multiply'd by 26, (the Pins) produces 312, which are the Strokes in one Turn of the *second Wheel*; then we'll divide 78 by 312, *i. e.* set them as a *Wheel* and *Pinion* thus, 312)78, and vary them to lesser Numbers, *viz.* 36)9, or to 24)6, or the like, and the Work is done.

Note, That it is needless to say any Thing of *Striking-Watches*, since their Calculation is the very same.

But perhaps we want our *Clock* to strike the *Quarters*, which are generally a distinct Part from that which strikes the Hour. In this Case, the *Striking-wheel* may be the *first*, *second*, &c. *Wheel*, according to our *Clock*'s Continuance; unto which *Wheel* we may fix the *Pinion of Report*. The *Locking-wheel* must be divided into 4, 8, or more unequal Parts, so as to strike the *Quarter*, and lock at the first Notch; the *Half Hour*, and lock at the second Notch, *&c.* and in doing this, we may make it to chime the *Quarters*, or strike them upon two Bells, or more.

It is usual for the *Pin-wheel*, or the *Locking-wheel*, to unlock the Hour Part in these *Clocks*, which is easily done by some Cog, or Latch, at the End of the last *Quarter*, to lift up the *Detents* of the Hour Part.

If we would have our *Clock* strike the *Hour* at the *Half Hour*, as well as the *whole Hour*, we must make the *Locking-wheel* of the *Hour* Part double, *i. e.* it must have two Notches of a Sort, to strike 1, 2, 3, 4, twice a-piece.

To calculate Numbers for *Chimes*, (a Kind of periodical Musick, produc'd at certain Hours of the Day, by a particular Apparatus added to the *Clock*;) and to fit and divide the *Chime-barrel*, it must be observ'd, that the *Barrel* must be as long in turning round, as we are in singing the Tune it is to play.

As for the *Chime-barrel*, it may be made up of certain Bars which run athwart it, with a convenient Number of Holes punch'd in them, to put in the Pins that are to draw each Hammer; by this Means, the Tune may be chang'd, without changing the *Barrel*. Such is the *Royal-Exchange Clock*, in *London*, and others. In this Case, the Pins, or Nuts, which draw the Hammers, must hang down from the Bar, some more, some less, and some standing upright in the Bar; the Reason whereof is, to play the Time of the Tune rightly: For the Distance of each of these Bars may be a Semibreve; but the usual Way is to have the Pins which draw the Hammers fixed on the *Barrel*.

For the placing of these Pins, we may proceed by the Way of Changes on Bells, *viz.* 1, 2, 3, 4, *&c.* or rather make Use of the musical Notes; where it must be observ'd, what is the Compass of the Tune, or how many Notes, or Bells, there are from the highest to the lowest; and, accordingly, the *Barrel* must be divided from End to End. Thus if the Tune be of 8 Notes Compass, the *Barrel* is accordingly divided into 8 Parts; these Divisions are struck round the *Barrel*, opposite to which are the Hammer-tails.

We speak here as if there was only one Hammer to each Bell, that it may be more clearly apprehended; but when two Notes of the same Sound come together in a Tune, there must be two Hammers to that Bell, to strike it: So that if in all the Tunes we intend to *chime*, of 8 Notes Compass, there should happen to be such double Notes on every Bell, instead of 8 we must have 16 Hammers; and accordingly we must divide our *Barrel*, and strike 16 Strokes round it, opposite to each Hammer-tail; then we are to divide it round about into as many Divisions as there are musical Bars, Semibreves, Minims, *&c.* in our Tune.

Thus the hundredth Psalm Tune has 20 Semibreves, and each Division of it is a Semibreve; the first Note of it is also a Semibreve, and therefore on the *Chime-barrel* must be a whole Division, from five to five.

Indeed, if the *Chimes* are to be compleat, we ought to have a Set of Bells to the Gamut Notes, so that each Bell having the true Sound of *Sol*, *la*, *mi*, *fa*, &c. we may play any Tune, with its Flats and Sharps; nay, we may, by this Means, play both the Bass and Treble with one *Barrel*; and by setting the Names of our Bells at the Head of any Tune, that Tune may easily be transferr'd to the *Chime-barrel*, without any Skill in Musick: But it must be observ'd, that each Line in the Musick is three Notes distant, that is, there is a Note between each Line, as well as upon it.

Before we conclude this Treatise of *Clock-making*, we'll set down here Numbers ready calculated for several Movements, for the Benefit of those who are unacquainted with the Art of Calculation, and for the Improvement of those who have some Tincture of it.

Numbers of an eight Day *Clock*, with 16 Turns of the Barrel, the Pendulum to vibrate Seconds, shew Minutes, Seconds, *&c.*

The Watch-Part.	*The Clock-Part.*
8)96	8)78
8)60—48)48—6(72	6)48.8 Pins
7)56	6)48
30	

In the *Watch-Part* the Wheel 60 is the Minute-wheel, placed in the Middle of the *Clock*, that its Spindle may go through the Middle of the Dial-plate, to carry the Minute-hand. Also, on this Spindle is a Wheel 48, which drives another Wheel of 48, which last has a Pinion 6, which drives round the Wheel 72 in 12 Hours. There are two Things to be observ'd here: 1. That the two Wheels 48, are of no other Use than to set the Pinion 6 at a convenient Distance from the Minute-wheel, to drive the Wheel 72, which is concentrical with the Minute-wheel. For a Pinion 6 driving a Wheel 72, would be sufficient, if the Minute-hand had two different Centers. 2. These Numbers 60—48)48—6(72, set thus, must be read thus, *viz.* the Wheel 60 has another Wheel 48 on the same Spindle, which Wheel 48 turns round another Wheel 48, which has a Pinion 6 concentrical with it; which Pinion drives a Wheel of 72. For a Line parting two Numbers, (as 60—48) denotes those two Numbers to be concentrical, or to be plac'd upon the same Spindle; and when two Numbers have a Hook between them, (as 48)48) it signifies one to run in the other.

In the *Striking-part* there are 8 Pins on the second Wheel 48; the Count-wheel may be fix'd to the Great-wheel, which goes round once in 12 Hours.

Numbers of a *Clock* of 32 Days, with 16, or 12 Turns both Parts; the *Watch* shewing Hours, Minutes, and Seconds; and the *Pendulum* vibrating Seconds.

The Watch-Part.

With 16 Turns.	With 12 Turns.
16)96	12)96
9)72	9)72
8)60—48)48—6)72	8)60—48)48—6)72
7)56	7)56
30	30

Or

Or thus, with 16 Turns.

12)72
8)64
8)60
7)56
30

The Striking Part,

with 16 Turns.	with 12 Turns.
10)130	8)128
8)96 { 24 Pins / 12)39	8)104 { 26 Pins. / 8)24
6)72 double Hoop.	8)96 double Hoop.
6)60	8)80

The Pinion of Report is fixed on the End of the Arbor of the Pin-Wheel: This Pinion in the first is 12, the Count-Wheel 39; Thus, 12)39, or it may be 8)26: In the latter (with 12 Turns) it may be 6)18, or 8)24.

Numbers of a *Two-month Clock*, of 64 Days, with 16 Turns; the Pendulum vibrates Seconds, and shews Minutes, Seconds, &c.

Watch-Part.	*Clock-Part.*
9)90	10)80
8)70	10)65
8)60—48)48—6)72	9)54 { 12 Pins. / 8)52
7)56	5)60 double Hoop.
30	5)50

Here the third Wheel is the *Pin-Wheel*, which also carries the Pinion of Report 8, driving the Count-Wheel 52.

Or Thus:

Watch-Part.	*Clock-Part.*
8)80	6)144
8)76	6) 78 { 26 Pins. / 8)24
8)60—48)48—6)72	6)72 double Hoop.
7)56	6)60
30	

Numbers for a *Clock* of thirteen Weeks, with Pendulum, Turns, and Motions, as before.

Watch-Part.	Or, Thus:
8)96	6)72
8)88	6)60
8)60—48)48—6)72	6)48—48)48—6)72
7)56	6)45
30	30

Clock-Part.	Or, Thus:
8)72	5)145
8)64—37)30	6) 90 { —30 Pins / —24)62
8)48—12 Pins	6)72
6)48 double Hoop	6)60
5)40	

Numbers for a *Seventh-Month Clock*, with Turns, Pendulum and Motions.

The Watch.	*The Clock.*
8)60	8)96
8)56	8)88—27)12
8)48	8)64—16 Pins
6)45—48)48—6)72	6)48 double Hoops.
5)40	6)48
30	

Numbers for a *Year Clock* of 384 Days, with Turns, Pendulum, and Motions.

The Watch.	*The Clock.*
12)108	10)120
9) 72	8) 96—36)9
8) 64	6) 78—26 Pins
8) 60—48)48—6)72	6) 72 double Hoop
7) 56	6) 60
30	

If we'll rather have the Pinion of Report on the Spindle of the Pin-wheel, it must be 13)39.

Numbers for a *Clock* of 30 Hours, the Pendulum about 6 Inches.

The Watch.	*The Clock.*
12)48	8)48
6)78	6)78—13 Pins
6)60	6)60
6)42	6)48
15	

Numbers for an *Eight-Day Clock* with 16 Turns, Pendulum about 6 Inches, to shew Minutes, Seconds, &c.

The Watch.
8)96
8)64—48)48—6)72
8)60
8)40
15

The *Clock* may be the same with the Eight-Day Piece.

All the heretofore described *Numbers* are for large Pieces, but the following ones are for *Pocket-Watches*.

Numbers for a *Watch* to go 8 Days, with 12 Turns, to shew Minutes and Seconds, the Train 1600.

Note, That the Train of a *Watch* is the Number of Beats which a *Watch* makes in an Hour, or any other certain Time.

6)96
6)48—12)48—12)36
6)45
6)42
19

On the Wheel 42 is the Second's Hand placed, and on the Wheel 48 the Minute Hand.

Numbers of another such a *Watch* without Minutes and Seconds, to go with only 8 Turns.

20)10
6)66
6)60
5)50
5)45
19

Numbers of a *Pocket-Watch* of 32 Hours, with 8 Turns, to shew Minutes and Seconds, Train as the last.

12)48
6)48—12)48—12)36
6)45——Second's Hand.
19

If this Crown-Wheel be too large, the following Numbers may be used.

12)48
6)48
6)45
6)48 Second's Hand.

15

The usual *Numbers* of 30 Hours Pendulum *Watches*, with 8 Turns, to shew the Hour and Minute.

12)48
6)54—12)48—12)36
6)48
6)45

15

We'll conclude this Treatise with a concise Historical Account of *Watch* or *Clock-Work*; which some Authors pretend to be a very antient Invention, and others that it is a modern one: Though they be all of Opinion that it is not so antient as the World, and that Sun-Dials were the only Instruments used by our Forefathers to measure the Time; though they are not pleased to inform us if there was such a Thing as a Sun-Dial in the Garden of *Eden*; and if *Adam*, looking at it, after he had sinned, did spy, perhaps, written on it, that excellent and witty Motto, written since, on that of that famous Structure the *Temple*, GO ABOUT YOUR BUSINESS; for in Fact that *Motto* smells a little of the Innocence and Simplicity of that first Age of the World.

For my Part I am of Opinion that our Forefathers had no other Instrument to measure Time with, than that which is yet familiar to our honest Peasants, who, living in Places where they can hear no Clock, measure their Time by their Observation of the Course of the Sun, and can more justly tell what is a Clock by looking at the Sun, or the Place of their House where it shines then, than a Person who has a *Tompion* in his Fob: Nay I have met with several of them so expert in that Art, that even, with a dark Horizon, they could tell very near the Hour of the Day.

We do not hear of any such Thing as a Sun-Dial, before that of *Ahaz*, and if it was really a Sun-Dial, such as we have made since, with a Gnomon, Figures, *&c.* or rather such-a-one as that above-mentioned, is what we know nothing of but by Conjecture.

That there were Sun-Dials among the *Romans* is unconteſtable; and *Pliny*, *Censorinus*, and *Vitruvius* assure us, that *Anaximenes Milesius* invented Dialing, and was the first that shewed a Sun-Dial at *Lacedæmon*. This *Anaximenes* was *Pythagoras*'s Temporary, and flourished about the Time of the Prophet *Daniel*.

Cornelius Nasica, the Censor, invented (according to *Censorinus* and *Pliny*) *Ann. Urb.* 595, at *Rome*, the Hour-Glasses, or *Clepsydræ*, which was a Vessel full of Water, having a little Hole at the Bottom, through which the Water ran to measure the Time. But however these Instruments cannot be considered as Pieces of *Watch* or *Clock-Work*.

The first Instrument Mr. *Derham* presents us with, as real Pieces of *Clock-Work*, though very different from ours, for Form and Use, are *Archimedes*'s Sphere, (who lived about 200 Years before our Saviour) mentioned by *Claudian* and that of *Posidonius* mentioned by *Cicero*.

But other Authors are not of Mr. *Derham*'s Sentiment, but pretend on the contrary that the Invention of *Clocks* with Wheels is of a great deal later Date, since they refer it to *Pacificus*, Arch-Deacon of *Verona*, who lived in the Time of the King of *France* and Emperor *Lotharius*, Son of *Louis* the *Debonnair*.

Others ascribe the Invention to *Boethius* about the Year 510, others to *Regiomontanus* towards the latter End of the 14th Century.

Be this as they will, it is certain that the Art of making *Clocks*, such as are now in Use, was either first invented, or at least retrieved in *Germany* about 200 Years ago.

The most eminent, for their Furniture, among modern *Clocks*, are those of *Lauden* in *Denmark*, of *Strasbourg*, and of *Lyons* in *France*. In the Dial of that of *Lauden* are seen distinctly the Year, Month, Day of the Week, and Hour, with the Feasts, both moveable and fixed; together with the Motion of the Sun and Moon, and their Course through the Zodiack: Whenever the Clock strikes two Horsemen encounter and beat the Hour on each other; a Door opens, and there appears on a Theatre the *Virgin Mary* with *Jesus Christ* in her Arms, the *Magi*, with their Retinue, marching in Order, and presenting their Gifts, two Trumpeters sounding all the while to proclaim the Procession. In that of *Strasbourg*, a Cock claps his Wings and proclaims the Hour, the Angel opens a Door and salutes the Virgin, the holy Spirit descends on her, *&c.* In that of *Lyons* a Cock also claps his Wings, and proclaims the Hour, by crowing three Times, an Angel opens a Door and salutes the *Virgin Mary*. There is such a Clock in the Apartments at *Versailles*.

The Invention of Pendulum *Clocks* was first put in Practice by *Christian Huygens*, in 1657, and the Description thereof printed in 1658: Though several Authors, and Dr. *Becher* in particular, refer that Invention to *Galileo*. He printed a Book in 1680, entitled *De novâ Temporis dimitiendi Ratione Theoria*, &c. wherein he says that Count *Magalotti*, the great Duke of *Tuscany*'s Resident at the Emperor's Court, told him the whole History of those Pendulum *Clocks*, and denied M. *Huygens* to be the Author of them; also that one *Treffler*, *Clock-Maker* to the Father of the then great Duke, related to him the like History; and added, that he had made the first Pendulum *Clock* at *Florence*, by the Command of the great Duke, and by the Directions of his Mathematician, *Galileus a Galileo*, a Model whereof was brought into *Holland*.

The Academy *de'l Cimento* says expressly, that the Application of the Pendulum to the Movement of a *Clock* was first proposed by *Galileo*, and first put in Practice by his Son *Vincenzo Galilei*, in 1649.

But the Inventor, be who he will, it is certain the Invention never flourished 'till it came into *Huygen*'s Hands, who insists on it, that if ever *Galileo* thought of such a Thing, he never brought it to any Degree of Perfection.

The first Pendulum *Clock* made in *England* was in the Year 1622, by M. *Fromentel*, a *Dutchman*, according to M. *Huygen*'s Method, which prevailed for several Years; 'till afterwards Mr. *Clement* invented a new Method, whereby the Pendulum was to go with less, and to vibrate but a small Compass, which is now the universal Method of the Royal Pendulums: But Dr. *Hook* denies Mr. *Clement* to have invented this, and says that it was his Invention, and that he caused a Piece of this Nature to be made, which he shew'd before the Royal Society soon after the Fire of *London*.

There is also a Dispute between the Partisans of M. *Huygens* and those of Dr. *Hook* for the Invention of *Pocket-Watches*.

Mr. *Derham*, in his artificial *Clock-Maker*, says roundly that Dr. *Hook* was the Inventor, and that he contrived various Ways of Regulation; one Way was with a Load-stone, another with a tender strait Spring, one End whereof played backward and forward with the Ballance, so that the Ballance was to spring as the Bob of a Pendulum, and the little Spring as the Rod thereof. A third Method was with two Ballances, of which there were divers Sorts, some having a spiral Spring to the Ballance for a Regulator, and others without. But the Way that prevailed, and which continues in Mode, was with one Ballance, and one Spring running round the upper Part of the Verge thereof. Though this has a Disadvantage, which those with two Springs were free from, in that a sudden

ſudden Jerk or confuſed Shake will alter its Vibrations and put it in an unuſual Hurry.

The Time of theſe Inventions was about the Year 1658, as appears among other Evidences, from an Inſcription on one of the double Ballance Watches, preſented to King *Charles* II. *viz. Rob. Hook, Invent.* 1658. *T. Tompion fecit*, 1675. The Invention preſently got Reputation both at Home and Abroad; and two of them were ſent for by the Dauphin of *France*.

After this M. *Huygens*'s Watch, with a ſpiral Spring, got Abroad, and made a great Noiſe in *England*, as if the Longitude could be found by it. One of theſe the Lord *Bruncker* ſent for out of *France*, where M. *Huygens* had a Patent for them. This Watch of M. *Huygens* agrees with that of Dr. *Hook*, in the Application of the Spring to the Ballance: Only M. *Huygens* had a longer ſpiral Spring, and the Pulſes or Beats were much ſlower. That wherein it differs is firſt, The Verge has a Pinion inſtead of Pallets; and a contrate Wheel runs therein, and drives it round more than one Turn. 2. The Pallets are on the Arbor of the Contrate-wheel. 3. Then follows the Crown-wheel, *&c.* 4. The Ballance inſtead of turning ſcarce quite round, (as Dr. *Hook*'s) does turn ſeveral Rounds every Vibration.

Mr. *Derham* ſays that this Watch of M. *Huygens*'s is a very pretty and ingenious Contrivance, but ſubject to ſome Defects, *viz.* That when it ſtands ſtill it will not vibrate, until it is ſet on vibrating: Which though it be no Defect in a Pendulum Clock, may be one in a Pocket-watch, which is expoſed to continual Jogs. That it alſo ſomewhat varies in its Vibrations, making ſometimes longer, ſometimes ſhorter Turns, and ſo ſome ſlower, ſome quicker Vibrations.

The Repetition of Watches was the Invention of Mr. *Barlow*, and firſt put in Practice by him in large Movements or *Clocks*, about the Year 1676. The Contrivance ſtrait ſet the other Artiſts to work, who ſoon contrived divers Ways of effecting the ſame: But its Application to Pocket-watches was not known before King *James* II's Reign, when the ingenious Inventor above-mentioned, having directed Mr. *Tompion* to make a repeating Watch, endeavoured with the Lord Chief Juſtice *Allebone*, and ſome others, to get a Patent for it. The Talk of a Patent engaged Mr. *Quare* to reſume the Thought of a like Contrivance which he had had in View ſome Years before: He now effected it, and being preſſed to endeavour to prevent Mr. *Barlow*'s Patent, a Watch of each Kind was produced before the King and Council; upon Trial of which the Preference was given to Mr. *Quare*'s. The Difference between them was, that *Barlow*'s was made to repeat by puſhing in two Pieces on each Side the Watch-box; one of which repeated the Hour, and the other the Quarter: Whereas *Quare*'s was made to repeat by a Pin that ſtuck out near the Pendant; which being thruſt in (as now it is done by thruſting the Pendant itſelf) repeated both the Hour and Quarter with the ſame Thruſt.

COINING.

COINING is the Art or Act of making Money, by impreſſing certain Marks or Figures on a Piece of Metal, either Gold, Silver, or Copper.

There are two Things requiſite for *Coining*, viz. the Metals to be coined, and the Inſtruments they are coined with.

The Metals moſt commonly coined, are Gold, Silver, and Copper, though in ſome Countries of *Europe*, beſides theſe three Metals, they coin Bullion, as in *France*, *Holland*, and the *Low-Countries*.

The Inſtruments, or rather Utenſils for *Coining* are, 1. Furnaces for the melting of Metals, of which there are two Kinds, *viz.* thoſe with Wind, and thoſe with Bellows. The *Wind-Furnace* (thus called, becauſe the Air entring through the Vent-Hole at Bottom, which is always open, ſerves the ſame Purpoſe as Bellows in other Furnaces) has a Bottom, a Hearth, made hollow in Manner of a Cupel, with a Vent-hole in the Fore-part thereof; over the Vent-hole is a Grate ſealed in the Maſſive of the Furnace; and over the Grate is the Place for the Crucible. *Furnace with Bellows* conſiſts of a flat Hearth at Bottom, into which the Air is admitted by a Hole contrived therein. On a Level with the Hearth is a ſecond Aperture, which gives Paſſage to the Pipe of the Bellows, from which the Furnace is denominated. About a Foot over this is a moveable Grate, which may be taken off and put on at Pleaſure. Over this is the Place where the Crucible is ſet, which is ſquare, and made of the ſame Earth with the Crucible; of Breadth ſufficient to bear a Range of Coals around the Crucible. Gold is uſually melted in this Kind of Furnaces, as requiring an intenſer Heat before it fuſes; and Silver and Copper are commonly melted by the *Wind-Furnace*.

2. *Earthen Crucible* for the melting of Gold; and *Pots* or *Crucibles* of *Iron* for Silver or Copper.

3. *Moulds* or *Frames* for caſting the Metals into long flat Bars.

4. *Models* or *Patterns*, which are flat Plates of Copper, about fifteen Inches long, and nearly of the Thickneſs of the Species to be ſtruck.

5. A *Mill* to prepare the Laminæ or Plates of Metal, and to give them the proper Thickneſs, Hardneſs, and Conſiſtence, before they be ſtruck or ſtamped. This Machine conſiſts of ſeveral Wheels dented like thoſe of a Clock, *&c.* which moves two Cylinders of Steel, between which the Metal is paſſed to be brought to its proper Thickneſs. It was formerly turned with Water, ſince with Horſes.

6. A *cutting Inſtrument* faſtened to the lower Extremity of an Arbor, whoſe upper End is formed into a Screw, which being turned by an Iron Handle turns the Arbor, and lets the Steel, well ſharpned in Form of a Punch-cutter, fall on the Plate, and thus is a Piece punched out.

7. *Files* or *Raſps* to bring the Pieces, by filing or raſping, to the Weight of the Standard, whereby they are to be regulated.

8. *Scales* to adjuſt the Pieces, and to ſeparate thoſe which prove too light from thoſe which are too heavy.

9. *Two Copper Veſſels*, wherein the Blanks are blanched or whitened.

10. A *Machine*, conſiſting of two Plates of Steel, in Form of Rulers, about the Thickneſs of a Line, on which the Legend or Edging is engraven, half on the one and half on the other, to mark the Edges of the Planchets, or Pieces to be ſtamped, to prevent the Clipping or paring of the Species.

11. The *Punchions* or *Dyes*, which are Pieces of good Steel of a cubick Form, wherein are engraven the Prince's Effigies, with the Arms, Legend, *&c.* They are alſo called *Matrices*, becauſe in the Cavities or Indentures thereof the Coins ſeem formed or generated, as Animals are in the Matrix of their Mother.

12. A *Mill* or *Preſs*, by the *French* called a *Balancier*, whoſe chief Parts are a Beam, Screw, Arbor, *&c.* all contained in the Body of the Machine, except the firſt, which is a long Iron Bar, with a heavy Ball of Lead at each End, and Rings, to which are faſtened Cords, which give it Motion; it is placed horizontally over the Body of the Machine. In the Middle of the Beam is faſtened a Screw, which, by turning the Beam, ſerves to preſs the Arbor underneath it; to the lower Extremity of which Arbor, placed perpendicularly, is faſtened the Dye or Matrice, of the Reverſe

or Arms Side, in a Kind of Box, or Case, containing the Dye of the Image Side, firmly fasten'd to the lower Part of the Engine.

This Machine was invented by a *Frenchman*, call'd *Antoine Brucher*, in 1553, and first try'd at the *Louvre*, the King of *France*'s Palace at *Paris*, for the *coining* of Counters; before this Invention, *Coining* was perform'd by the Hammer, which could never strike the Species with that Neatness and Perfection the *Balancier*, or Mill, does.

Having thus provided ourselves with all the necessary Implements for *Coining*, (though we are very scanty of the Materials necessary to work upon) we'll begin, by mixing and melting our Metal, for the *coining* of Guineas, or *Louis d'Or*, or *Spanish* Pistoles, or what Gold Species you please, for we are as much in a Condition to do the one, as the other; we mix the Metal, because there are no Species *coin'd* of pure Gold, or Silver, but always a Quantity of Alloy of Copper is mix'd with them: The Reasons are, partly the Scarcity of those two Metals, partly the Necessity of making them harder by some foreign Mixture, and partly to defray the Expences of *Coining*.

There are two Kinds of alloying, or mixing; the first where the Gold or Silver has not been used for Money before; the other, where several Kinds of Species, or Ingots of different Standards, and Values, are to be melted down into a new Money. The proportioning of the Alloy with the fine Metal, is easy in the first Case, in the other more difficult; though M. *Boisard* has given us a ready and easy Method of doing it, by advising us to write down the several Matters to be melted, their Quality, Weight, and Fineness, in two distinct Articles; the one containing those above the Standard; the other those under it. He says, that by casting up the first, we shall have the Excess; and, by the latter, the Defect; and by comparing the two Sums, afterwards, we shall find, by Subtraction, how much Alloy must be added, to bring the several Matters to the Fineness requir'd. We have follow'd this Method, and mix'd our Metal accordingly, *i. e.* two Carats of Silver and Copper (which is the Alloy for Gold) with a Pound *Troy* of Gold, to bring our Species to the *English* Standard.

We put our Metal, thus mix'd, in an earthen Crucible, place our Crucible on a little Plate of forg'd Iron, which we have before took Care to lay over the Grate of our Bellows-Furnace; we cover our Crucible with an iron or earthen Lid, then fill the Furnace with Charcoal, and when it is well lighted, and the Crucible sufficiently hot, we stop the Vent-hole, and throwing on fresh Coals, stop the Furnace with an iron Lid, thus continuing to work the Bellows, and supply fresh Fuel till the Metal being in *Balneo*, *i. e.* entirely melted, we stir it with a Stirrer of bak'd Earth; then take our Crucible off the Fire, with a Kind of Tongs, and pour the Metal into our Moulds, which we have had the Precaution to range near the Furnace, to be in Readiness to receive it, as it comes out of the Crucible.

We take our Bars, or Plates, out of the Mould, when cold, and after we have scrap'd and brush'd them, we heat them again in a Furnace, and quench them in Water, to soften, and render them more ductile; then pass them several Times through the Mill, to flatten them further, and bring them to the just Thickness of the Species to be *coined*.

These Plates, thus reduc'd, as near as possible, to their Thickness, are cut, with our cutting Instrument, into round Pieces, call'd *Blanks*, or *Planchets*, near the Size of the intended Species; these Pieces are given to be adjusted, and brought, by filing, or rasping, to the Weight of the Standard whereby they are to be regulated, saving what remains of the Plate between the Circles of the Instrument, to be melted again.

To know if the Pieces thus prepar'd are brought at last to the Weight of the Standard, they are weigh'd in a Ballance, and those too light separated from those too heavy; those too light are melted again, and those too heavy fil'd down: This Difference in the Weight, proceeds either from that the Mill through which the Plates have pass'd to be flatten'd, can never be so just, but there will be some Inequality, whence will arise a Difference in the *Blanks*, as from the Inequality of the Matter, some Parts being more porous than others.

When the *Blanks*, or *Planchets*, are exactly brought to the Standard, they are sent to the blanching, or whitening House, to be colour'd, which is done by heating them in a Furnace; and when taken out, and cool, boiling them successively in two Copper Vessels, with Water, common Salt, and Tartar; when they are of the Colour intended, they are taken out of the Boiler, and put in a Copper Sieve; then scour'd well with Sand, wash'd with common Water, and dry'd over a Wood Fire, in the same Copper Sieve they were put in when taken out of the Boilers.

When dry, they are sent to be edg'd, which is perform'd by Means of those two Plates of Steel in Form of Rulers, abovemention'd, one whereof is immoveable, and strongly bound with Screws to a Copper Plate, and that again to a strong Board, or Table; the other is moveable, and slides on the Copper Plate, by Means of a Handle, and a Wheel or Pinion of Iron, the Teeth whereof catch in a Kind of other Teeth, on the Surface of a sliding Plate. The *Planchet*, or Piece of Plate, is plac'd horizontally between these two Plates, and by that Time it has made Half a Turn, it is found mark'd all round.

The *Planchets*, thus edg'd, are carry'd to the *Balancier*, and laid one after another on the Image Matrice, upon which two Men draw, each on his Side, one of the Ropes of the Beam, and turns the Screw fasten'd to it; which by this Motion lowers the Arbor to which the Dye of the Arms is fasten'd; by which Means, the Metal being in the Middle, at once receives an Impression on each Side, from either Dye.

Silver is *coined* in the same Manner, with these few Differences; 1. That the Alloy of Silver is Copper alone, 18 Pennyweights of which are allow'd in a Pound *Troy* for Standard Silver in *England*. 2. Silver is melted in a Wind Furnace. 3. When melted, it is taken with a Ladle out of the Crucible, to be pour'd into the Aperture of the Mould.

When the *Blanks*, either of Gold, Silver, Copper, or Bullion, have all their Marks and Impressions both on the Edges and Faces, they become Money, but have no Currency till they have been weigh'd and examin'd; for which Reason, Monsieur *Boisard* very pertinently defines Money, a Piece of Matter, to which publick Authority has affix'd a certain Value and Weight, to serve as a Medium in Commerce.

The *Æra* of the Invention of Money is not easy to be determin'd; the first Tidings we hear of it is in the Time of *Abraham*, who paid 400 Shekels for a Burying-place. The *Greeks* refer the Invention of Money to *Hermodice*, Wife of King *Midas*; and the *Latins* to *Janus*. Money being a common Measure for reducing Wares to a Ballance, it was call'd by the *Greeks Nomisma*, not from King *Numa*, but from *Nomos*, as being establish'd by Law. By the *Latins* it was call'd *Pecunia*, either because the Wealth of those Days consisted in their Cattle; or, as *Pliny* will have it, because their first *Coin* was stamp'd with the Figure of a Cow. They also call it *Moneta*, *à monendo*, as *Suidas* observes, because when the *Romans* were in Want of Money, *Juno* admonish'd them to use Justice, and there should be no Want of Money. The Effect whereof, when they had found, she was sirnam'd *Juno moneta*, and Money was *coined* in her Temple.

Copper is that Money thought to have been first *coined*; afterwards *Silver*, and, lastly, *Gold*.

Among the antient *Britons*, Iron Rings, or, as some say, Iron Plates, were used for Money; among the *Lacedemonians*, Iron Bars quench'd with Vinegar, that they might not serve for any other Use. *Seneca* observes, that there was antiently stamp'd Money of Leather, which was also practised during the *Barons* Wars in *England*, and by *Frederick* II, at the Siege of *Milan*.

Milan. In 1574, the *Hollanders coined* great Quantities of Pasteboard, reduc'd to it by Necessity; for they had not, then, those Tuns of Gold they have reckon'd by since. *Numa Pompilius* made Money of Wood and Leather, neither does it appear that the *Romans* were much acquainted with the Art of *coining* in Metal, during the Time of their Kings. The first Silver Money they *coin'd* was in the Year of *Rome* 484, and their first Gold Money in 546.

Some Authors pretend, on the contrary, that the first Moneys were of Metals, and that it was natural for Men to have Recourse to them, as being almost the only Things whose Goodness, and, as it were, Integrity, is not diminish'd by Partition, besides their Firmness, Neatness, Cleanliness, Durableness, Universality, and the Conveniencies of melting and returning them again into a Mass of any Size, or Weight. That it was this Property of Metals which first accustom'd People, who traffick'd together, to account them in lieu of Quantities of other Merchandizes in their Exchanges; and at length, to substitute them wholly in their Stead. That they would not say that in the first Ages, Money, or Coins of Metal, had any determinate Form, or Shape; that, on the contrary, they are of Opinion, that each Person could cut his Metal into what Forms and Sizes he pleased, according to the Quantity he thought he could give, or according to the Demand of the Seller, or the Quantity stipulated between them; that by Degrees it was found more commodious to have Pieces ready weigh'd, and as there were different Weights requir'd, according to the Value of the different Wares, all those of the same Weight began to be distinguish'd with the same Mark, or Figure; that at length the growing Commerce of Money beginning to be disturb'd by Frauds, both in the Weight and the Matter, the publick Authority interposed, and hence the first Stamp, or Impression, on Money; to which succeeded the Names of the Moniers, and at length the Effigy of the Prince, the Date, Legend, and other Precautions, to prevent the Alterations of the Species; and that thus were Coins compleated, and a right Form given to Money, which Form has been very various, as to the Weight, Figure, Impression, and Value.

It is believ'd by several, that the *Jews* were the first who made any Impression on Money; it is true, that we find Shekels, in the Cabinets of Antiquaries, one Side whereof is stamp'd with the golden Pot which had the Manna, and the other with *Aaron*'s Rod; but we do not know precisely the Time when those Shekels were stamp'd: Though we have all the Reason imaginable to suppose that the Shekel was their first Coin, which had been perpetuated among them ever since *Abraham*, and, consequently, that they were the first Nation who made Use of a regular Coin. Besides the Shekel, they had, in Process of Time, several other Coins, both of Gold and Silver.

The Silver Coins were, the *Gerah*, *Bekah*, *Shekel*, *Maneh*, or *Mina Hebraica*, and *Talent*. Ten *Gerahs* made a *Bekah*; twenty *Gerahs* made two *Bekahs*; and two *Bekahs* a *Shekel*: Twelve hundred *Gerahs* made an hundred and twenty *Bekahs*; an hundred and twenty *Bekahs* fifty *Shekels*; fifty *Shekels* a *Maneh*, or *Mina Hebraica*. Sixty thousand *Gerahs* made six thousand *Bekahs*; six thousand *Bekahs* made three thousand *Shekels*; three thousand *Shekels* sixty *Manehs*; and sixty *Manehs* a *Talent* of Silver.

	Sterling. l.	s.	d.
A *Gerah* was worth ———	00	00	$1\frac{50}{100}$
A *Bekah* ——— ———	00	01	$1\frac{11}{100}$
A *Shekel* ——— ———	00	02	$3\frac{1}{6}$
A *Maneh* ——— ———	05	14	$0\frac{1}{4}$
A *Talent* ——— ———	342	03	9

The Gold Coins among the *Hebrews*, were,

	Sterling. l.	s.	d.
The *Solidus Aureus*, or *Sextula*, worth	00	12	$0\frac{1}{2}$
The *Solidus Aureus* ———	01	16	6
The *Talent* of Gold ———	5475	00	0

The *Dardans* stamp'd on their Money two Cocks fighting; the King of *Macedon*, a Horse; the *Athenians*, an Owl, or an Ox: Whence the Proverb, on brib'd Lawyers, *Bos in Lingua*. They of *Ægina*, a Tortoise; whence that other Proverb, *Virtutem & Sapientiam vincunt Testudines*.

The current Money of the *Greeks* were of three Sorts of Metals, *viz.* of Copper, Silver, and Gold. The Copper Money were the *Lepton*, *Chalcus*, *Dichalcus*, *Hemiobolium*, *Obolus*, *Diobolum*, and *Tetrobolum*. That of Silver were, the *Drachma*, *Didrachmon*, *Tetradrachmon*, *Stater*, and *Pentadrachmon*. And that of Gold, the *Stater Aureus*, *Stater Cyzicenus*, *Stater Philippicus*, *Alexandrinus*, *Daricus*, and *Crœsius*.

For the Value of the Brass Money, 7 *Leptons* made a *Calchus*; 14 *Leptons* made 2 *Calchus's*; and 2 *Calchus's* a *Dichalcus*; 28 *Leptons* made 4 *Chalcus's*; 4 *Chalcus's* 2 *Dichalcus's*; and 2 *Dichalcus's* an *Hemiobolium*; 5 *Leptons* made 8 *Chalcus's*; 8 *Chalcus's* 4 *Dichalcus's*; 4 *Dichalcus's* 2 *Hemioboliums*; and 2 *Hemioboliums* an *Obolus*; 112 *Leptons* made 16 *Chalcus's*; 16 *Chalcus's* 8 *Dichalcus's*; 8 *Dichalcus's* 4 *Hemioboliums*; 4 *Hemioboliums* 2 *Obolus's*; and 2 *Obolus's* a *Diobolum*; 224 *Leptons* made 32 *Chalcus's*; 32 *Chalcus's* made 16 *Dichalcus's*; 16 *Dichalcus's* 8 *Hemioboliums*; 8 *Hemioboliums* 4 *Obolus's*; 4 *Obolus's* 2 *Diobolums*; and 2 *Diobolums* a *Tetrabolum*. The Copper Money went no further.

The Value of this Copper Money, in *English* Coin, is as follows:

	Sterling. s.	d.	q.
The *Lepton* ——— ———	0	0	$0\frac{31}{32}$
Chalcus ——— ———	0	0	$0\frac{31}{48}$
Dichalcus ——— ———	0	0	$1\frac{7}{24}$
Hemiobolium ——— ———	0	0	$2\frac{7}{12}$
Obolus ——— ———	0	1	$1\frac{1}{6}$
Diobolum ——— ———	0	2	$2\frac{1}{3}$
Tetrobolum ——— ———	0	5	$0\frac{2}{3}$

The Silver Money were the *Drachma*, *Didrachmon*, *Tetradrachmon*, *Stater*, and *Pentadrachmon*. The *Drachma* was worth 336 *Leptons*, 48 *Chalcus's*, 24 *Dichalcus's*, 12 *Hemioboliums*, 6 *Obolus's*, 3 *Diobolums*, and $1\frac{1}{2}$ *Tetrobolums*; the *Didrachmon* was worth 662 *Leptons*, 96 *Calchus's*, 48 *Dichalcus's*, 24 *Hemioboliums*, 12 *Obolus's*, 6 *Diobolums*, 3 *Tetrobolums*, and 2 *Drachma's*; the *Tetradrachm Stater* was worth 1324 *Leptons*, 112 *Chalcus's*, 96 *Dichalcus's*, 48 *Hemioboliums*, 24 *Obolus's*, 12 *Diobolums*, 6 *Tetrobolums*, 4 *Drachma's*, and 2 *Didrachmons*; the *Pentadrachmon* was worth 1660 *Leptons*, 384 *Chalcus's*, 120 *Dichalcus's*, 60 *Hemioboliums*, 30 *Obolus's*, 15 *Diobolums*, $7\frac{1}{2}$ *Tetrobolums*, 5 *Drachma's*, $2\frac{1}{2}$ *Didrachma's*, and $1\frac{1}{2}$ *Tetradrachm Stater*.

	Sterling. s.	d.	q.
The *Drachma* was worth ———	0	7	3
Didrachmon ——— ———	1	3	2
Tetradrachm Stater ———	2	7	0
Pentadrachmon ——— ———	3	2	3

The *Grecian* Gold Coin was worth, in *English Sterling*, viz.

	l.	s.	d.
The *Stater Aureus* ——— ———	0	16	$1\frac{1}{4}$
According to our Proportion of Gold to Silver ——— ———	1	00	9
The *Stater Cyzicenus*, *Philippicus*, and *Alexandrinus* ——— ———	0	18	1
The *Stater Daricus*, and *Crœsius* ———	1	12	$3\frac{1}{2}$

Among the *Romans* the *Monetarii* sometimes impressed

preſſed on the Coins the Images of Men that had been eminent in their Families; but no living Man's Head was ever ſtamp'd on a *Roman* Coin till after the Fall of the Commonwealth; from that Time they bore the Emperor's Head on one Side, and hence the Practice of ſtamping the Prince's Image on Coins has obtain'd.

The *Romans* had, likewiſe, Money of Copper, Silver, and of Gold. The Copper Money were the *Teruncius*, *Semilibella*, *Libella*, and *As*; ſometimes *Triens*, *Sextans*, *Uncia*, *Sextula*, and *Dupondius*. The Silver Money were, the *Seſturius*, *Quinarius*, *Victoriatus*, and *Denarius*. And the Gold Coin was the *Aureus*.

In the Copper Money, 2 *Teruncius's* made a *Semilibella*; 4 *Teruncius's* 2 *Semilibella's*, and 2 *Semilibella's* a *Libella*. The *As* was the ſame with the *Libella*, or Pound, it had ſeveral Diviſions; the principal were, the *Uncia*, or Ounce, which was the twelfth Part of the *As*; *Sextans*, the ſixth Part of the *As*, or two Ounces; *Quadrans*, the fourth Part of the *As*, or three Ounces; *Triens*, the third Part of the *As*, which was four Ounces; *Quincunx*, was five Ounces; *Semis*, Half the *As*, that is, ſix Ounces; *Septunx*, ſeven Ounces; *Bes*, two Thirds of the *As*, or eight Ounces; *Dodrans*, three Fourths of the *As*, or nine Ounces; *Dextans*, ten Ounces; and *Deunx*, eleven Ounces. In *Tullus Hoſtilius*'s Time, the *As* was Braſs, and weigh'd actually a Pound, or twelve Ounces; but 420 Years after, the firſt *Punick* War having exhauſted the Treaſury, they reduc'd the *As* to two Ounces. In the ſecond *Punick* War, *Hannibal* preſſing hard on them, the *Aſſes* were further reduc'd to an Ounce a-piece. Laſtly, by the *Papirian* Law, they took away Half an Ounce more, and reduc'd the *As* to a bare Half Ounce; and it is generally thought that it reſted here all the Time of the Commonwealth, and even till *Veſpaſian*'s Reign. This laſt was call'd the *Papirian As*, in Regard the Law juſt mention'd was paſs'd in the Year of *Rome* 563, by *C. Papirius Carbo*, then Tribune of the People; thus there were four different *Aſſes* in the Time of the Commonwealth. The Figure ſtamp'd on the *As* was at firſt a Sheep, Ox, or Sow. From the Time of the Kings, a *Janus*, with two Faces on one Side, and the Roſtrum, or Prow of a Ship on the Reverſe.

Theſe *Roman* Copper Coins were worth, in *Engliſh Sterling*, viz.

	s.	d.	q.
The *Teruncius*	0	0	$0\frac{775}{1000}$
Semilibella	0	0	$1\frac{55}{100}$
Libella	0	0	$3\frac{1}{10}$

The *Seſtertius*, the firſt of the Silver Coins, was worth 10 *Teruncius's*, or 5 *Semilibella's*, or $2\frac{1}{2}$ *Libella's*; the *Victoriatus* was worth 20 *Teruncius's*, or 10 *Semilibella's*, or 5 *Libella's*, or 2 *Seſtertius's*; the *Denarius* was worth 40 *Teruncius's*, or 20 *Semilibella's*, or 10 *Libella's*, or 4 *Seſtertius's*, or 2 *Victoriatus's*, *Engliſh Sterling*; viz.

	s.	d.	q.
The *Seſtertius* was worth	0	1	$3\frac{1}{4}$
Victoriatus	0	3	$3\frac{1}{2}$
Denarius	0	7	3

	l.	s.	d.
The *Aureus*, the ſole *Roman* Gold Coin, which weigh'd generally double the *Denarius*, was worth, in *Engliſh Sterling*, according to the firſt Proportion of *Coinage*, mention'd by *Pliny*	1	04	$03\frac{3}{4}$
According to the Proportion that obtains now among us	1	00	09
According to the decuple Proportion mention'd by *Livy* and *Julius Pollux*	0	12	11
According to the Proportion mention'd by *Tacitus*, and which afterwards obtain'd, whereby the *Aureus* chang'd for 25 *Denarii*.	0	16	$01\frac{1}{4}$

Chamberlayn, and others, ſay, that it was the *Romans* who brought firſt the Uſe of Gold, Silver, and Braſs Coin, into *Great-Britain*, when *Julius Cæſar* invaded the Iſland; that ſoon after the *Britons* imitated them, *coining* both Gold and Silver with the Images of their Kings ſtamp'd on them. When the *Romans* had ſubdu'd the Kings of the *Britons*, they alſo ſuppreſſed their Coins, and brought in their own, which were current here from the Time of *Claudius* to that of *Valentinian the Younger*, about the Space of 500 Years. *Cambden* obſerves, that the moſt antient *Engliſh* Coin he had known, was that of *Ethelbert*, King of *Kent*, the firſt *Chriſtian* King in the Iſland, in whoſe Time all Money Accounts began to paſs by the Names of Pounds, Shillings, Pence, and Mancuſes.

Pence ſeems borrow'd from the *Latin pecunia*, or rather from *pendo*, on Account of its juſt Weight, which was about three Pence of the preſent Money; theſe were coarſly ſtamp'd with the King's Image on one Side, and either the Mint-maſter's, or the City's where it was *coin'd*, on the other. Five of theſe Pence made their Scilling, probably ſo call'd from *Scilingus*, which the *Romans* uſed for the fourth Part of an Ounce. Forty of theſe Scillings made their Pound, and 400 of theſe Pounds were a Legacy, or a Portion for a King's Daughter; as appears by the Laſt Will of King *Alfred*. By theſe Names they tranſlated all Sums of Money in their old *Engliſh* Teſtaments, Talents by *Pounds*; *Judas*'s 30 Pieces of Silver, by *thirty Scillinga*; Tribute-money, by *Penining*; the Mite, by *Furthling*. But it muſt be obſerv'd, that they had no other real Money but Pence only, the reſt being imaginary Moneys, *i. e.* Names of Numbers, or Weights. Thirty of theſe Pence made a *Mancus*, which ſome take to be the ſame with a Mark; *Manca*, as appears by an old Manuſcript, was *quinta pars unciæ*. Theſe *Manca's*, or *Mancus's*, were reckon'd both in Gold and Silver; for in the Year 680, we read, that *Ina*, King of the Weſt *Saxons*, oblig'd the *Kentiſh* Men to buy their Peace at the Price of 30000 *Manca's* of Gold. In the Notes on King *Canute*'s Laws, we find this Diſtinction, that *Mancuſa* was as much as a Mark of Silver; and *Macna* a ſquare Piece of Gold, valu'd at thirty Pence.

The *Danes* introduc'd a Way of reckoning Money by ORES, *per Oras*, mention'd in *Domeſday-Book*; but whether they were ſeveral Coins, or a certain Sum, does not plainly appear. This, however, may be gather'd from the *Abbey-Book* of *Burton*, that 20 *Ores* were equivalent to 2 Marks. They had alſo a Gold Coin call'd *Bizantine*, or *Bezant*, as being *coin'd* at *Conſtantinople*, then call'd *Byzantium*; the Value of which Coin is not only now loſt, but was ſo entirely forgot, even in the Time of King *Edward* III, that whereas the Biſhop of *Norwich* was fin'd a *Bizantine* of Gold, to be paid the Abbot of *St. Edmond's-Bury*, for infringing his Liberties, (as it had been enacted by Parliament in the Time of the *Conqueror*) no Man then living could tell how much it was; ſo it was referr'd to the King to rate how much he ſhould pay; which is the more unaccountable, becauſe but an hundred Years before, two hundred thouſand *Beſants* were exacted by the Soldan of *Egypt* for the Ranſom of St. *Louis*, King of *France*, which were then valu'd at one hundred thouſand Livres.

Though the *coining* of Money be a ſpecial Prerogative of the King, yet the antient *Saxon* Princes communicated it to their Subjects; inſomuch, that in every good Town there was at leaſt one Mint, but at *London* eight, at *Canterbury* four for the King, two for the Archbiſhop, one for the Abbot at *Winchester*, ſix at *Rocheſter*, at *Haſtings* two, *&c.*

The *Norman* Kings continu'd the ſame Cuſtom of *coining* only Pence, with the King's Image on one Side, and on the other the Name of the City where it was *coin'd*, with a Croſs ſo deeply impreſs'd, that it might be eaſily parted, and broken into two Halves, which, ſo broken, they call'd Half-pence; or into four Parts, which they call'd *Fourthings*, or Farthings.

In the Time of King *Richard* I. Money *coin'd* in the

the East Parts of *Germany* came in special Request in *England*, on Account of its Purity, and was call'd *Easterling Money*, as all the Inhabitants of those Parts were call'd *Easterlings*; and shortly after, some of those People skill'd in *Coining* were sent for hither, to bring the Coin to Perfection, which since has been call'd *Sterling*, for *Easterling*.

King *Edward* I, who first adjusted the Measure of an Ell by the Length of his Arm, herein imitating *Charles the Great*, King of *France*, and Emperor, was the first, also, who establish'd a certain Standard for the Coin, which is express'd to this Effect, by *Gregory Rockley*, Mayor of *London*, and Mint-master: 'A Pound of Money contains twelve Ounces; in a 'Pound there ought to be eleven Ounces, two Easter-'lings, and one Farthing, the rest Alloy. The said 'Pound ought to weigh twenty Shillings, and three 'Pence, in Account and Weight. The Ounce ought 'to weigh twenty Pence, and a Penny twenty-four 'Grains and a Half. Note, that eleven Ounces two 'Pence *Sterling* ought to be of pure Silver, call'd '*Leaf Silver*, and the Minter must add of other 'Weight seventeen Pence Halfpenny Farthing, if 'the Silver be so pure.'

The first Gold Coin was *coin'd* in *England*, by *Edward* III, about the Year 1320, and that Coin call'd *Florences*, because *Florentines* were the first Coiners thereof; the same Prince *coin'd* Nobles afterwards, then Rose Nobles, current at six Shillings and eight Pence; Half Nobles, call'd *Half-pennies*, at three Shillings and four Pence of Gold; and Quarters at twenty Pence, call'd *Farthings of Gold*.

In the 27th Year of his Reign, a Pound Weight of Gold of the *old Standard*, made by Tale 45 Nobles, amounting to 15 Pounds, or a proportionable Number of Half, or Quarter Nobles; and a Pound Weight of Silver of the *old Sterling*, made by Tale, 75 Grosses, or Groats, amounting to 25 Shillings; or 150 Half Groats current, at 2 Pence a-piece; or 300 Sterlings, at 1 Penny a-piece. The 30th, the like was *coin'd*, with only the Addition of Half Sterlings, whereof 600 were made of a Pound *Troy*.

The 37th and 46th of *Edward*, 18th of *Richard* II, and 3d of *Henry* IV, the Standard and Coins were the same.

The 9th Year of *Henry* V, a Pound Weight of Gold, of the said *old Standard*, made by Tale 50 Nobles, or 100 Half Nobles, or 200 Quarter Nobles, amounting to 16 Pounds, 13 Shillings, 4 Pence, in Tale. A Pound Weight of Silver, of the *old Standard*, made by Tale 90 Groats, or Grosses; or 180 Half Groats; or 360 Sterlings, or Pennies; or 720 Mailes, or Halfpennies; or 1440 Farthings, amounting to 30 Shillings.

The first Year of *Henry* VI, a Pound Weight of Gold, of the *old Standard*, was *coin'd* into 45 Rials, at 10 Shillings a-piece; or 90 Half Rials, at 5 Shillings a-piece; or 180 Rial Farthings, at 2 Shillings and 6 Pence a-piece; or 67 Angels and a Half, at 6 Shillings and 8 Pence a-piece; or 135 Angelets, at 3 Shillings and 4 Pence a-piece; and consequently the Pound *Troy* of Gold was *coin'd* into 22 Pounds 10 Shillings by Tale. A Pound Weight of Silver, of the *old Sterling*, was *coin'd* into 112 Groats and an Half, or 225 Half Grosses, or 250 Sterlings, or Pennies; or 500 Mailes, or Halfpence; or 1000 Farthings; making in Tale 37 Shillings and 6 Pence. In the fourth of his Reign the Value of the Silver, as well as of the Gold, in the Coins, was brought down; the Coins being the same with those of the 9th of *Henry* V; the Pound Weight of Gold, of the *old Standard*, being reduc'd to 16 Pounds, 13 Shillings, and 4 Pence; and the Pound Weight of Silver, of the *old Sterling*, was reduc'd to 30 Shillings. In the 49th Year, a Pound Weight of Gold, of the said *old Sterling*, made by Tale 67 Angels and a Half, at 6*s.* 8*d*; or 135 Angelets, at 3*s.* 4*d.* a-piece; amounting to 22*l.* 10*s*; and a Pound Weight of *old Sterling* Silver, made by Tale 112 Grosses, or Groats, and a Half; amounting to 37 Shillings and 6 Pence, or proportionable in the lesser Coins, being the same as in the first Year of this Reign.

In the 4th Year of *Edward* IV, a Pound Weight of Gold, of the *old Standard*, was made 20 Pounds, 16 Shillings, and 8 Pence; and a Pound Weight of Silver, *old Sterling*, made 37*s.* and 6*d.* In the fifth Year, a Pound Weight of Gold, of the *old Standard*, made 45 Nobles, at 10 Shillings a-piece; or 90 Half Nobles, at 5 Shillings a-piece; or 180 Quarter Nobles, at 2 Shillings and 6 Pence a-piece; or 67 of the Pieces impressed with Angels, at 6 Shillings and 8 Pence a-piece, and consequently was *coin'd* into 22 Pounds 10 Shillings by Tale: And the Silver Money was shorn at 36 Shillings and 6 Pence the Pound Weight *Troy*, and the Coins were the same until

The first Year of *Henry* VIII, when the Gold that was *coin'd* was of different Alloys, *viz.* the Sovereigns, Rials, Angels, George Nobles, and Half Angels, were of the *old Standard*; and a Pound Weight of the said Gold was *coin'd* into 27 Pounds by Tale, *viz.*

Into 24 Sovereigns, at 22 Shillings and 3 Pence a-piece.
Or 48 Rials, at 11 Shillings and 3 Pence a-piece.
Or 72 Angels, at 7 Shillings and 6 Pence a-piece.
Or 81 George Nobles, at 6 Shillings and 8 Pence a-piece.
Or 144 Half Angels, at 3 Shillings and 9 Pence a-piece.
Or 142 Four-penny Pieces, at 3 Shillings and 4 Pence a-piece.

And one Pound Weight of Gold, of the *new Standard*, *viz.* of 22 Carats pure Gold, and 2 Carats Alloy, was *coin'd* into 25 Pounds, 2 Shillings, and 6 Pence, by Tale, *viz.*

Into 100 Crowns, and a Half of the Double Rose.
Or 201 Half Crowns.

And one Pound Weight of Silver, of the *old Sterling*, was *coin'd* into forty-five Shillings by Tale, *viz.*

Into 145 Groats.
Or 270 Half Groats, or 2 Pennies.
Or 540 Sterlings, or Pennies.
Or 1080 Half-pence.
Or 2160 Farthings.

In the 34th Year, a Pound Weight of Gold, of 23 Carats fine, and 1 Carat Alloy, was *coin'd* into 28 Pounds, 16 Shillings, by Tale; by which Indenture was then *coin'd*,

Sovereigns, at 20 Shillings a-piece.
Half Sovereigns, at 10 Shillings.
Angels, at 8 Shillings.
Angelets, at 4 Shillings.

And a Pound Weight of Silver, at 10 Ounces fine, and 2 Ounces Alloy, was *coin'd* into 48 Shillings, *viz.*

Into *Testoons*, at 12 Pence a-piece.
Groats, at 4 Pence.
Half Groats, at 2 Pence.
Pence.
Half-pence.
Farthings.

In the 36th Year of the same King's Reign, a Pound Weight of Gold, of 22 Carats fine, and 2 Carats Alloy, was *coin'd* into 30 Pounds by Tale; to wit,

Into 30 Sovereigns, at 20 Shillings a-piece.
Or 60 Half Sovereigns, at 10 Shillings a-piece.
Or 120 Crowns, at 5 Shillings a-piece.
Or 140 Half Crowns, at 2 Shillings and 6 Pence a-piece; and the King had 2 Carats of fine Gold for *Coinage*, which yielded him 50 Shillings.

Silver was *coin'd* by the same Indenture, of 6 Ounces fine, and 6 Ounces Alloy, into 48 Shillings Tale, to wit,

Into Testoons.
Groats.
Half Groats.
Pence.
Half-pence.
Farthings.

In the 37th Year of his Reign, a Pound Weight of Gold, of 20 Carats fine, and 4 Carats Alloy, was *coin'd*

coin'd into 30 Pounds by the Tale, as in the last, and the King had 4 Carats, which yielded him 5 Pounds, 2 Shillings, and 6 Pence, for *Coinage*. And a Pound Weight of Silver, of 4 Ounces fine, and 8 Ounces Alloy, was *coin'd* into 40 Shillings by the Tale, which raised the Pound Weight of fine Gold to 36 Pounds, and the Pound Weight of fine Silver to 7 Pounds, 4 Shillings.

In the first Year of *Edward* VI, a Pound Weight of Gold, of 20 Carats fine, and 4 Carats Alloy, was *coin'd* into 30 Pounds by Tale; out of which the King had a great Profit.

And a Pound Weight of Silver, of 4 Ounces fine, and 8 Ounces Alloy, was *coin'd* into 48 Shillings; after which Rate, every Pound of fine Silver made it current Money 7 Pounds, 4 Shillings; and the King's Profit in every Pound Weight, was 4 Pounds, 4 Shillings. In this Year were *coin'd*, of Gold, two Sorts of Sovereigns, some went at 30 Shillings, some at 20 Shillings.

Half Sovereigns.
Crowns.
And Half Crowns.

These, with other Coins, the same of those in the preceding Year.

In the 3d Year of his Reign, a Pound Weight of Gold, of 20 Carats fine, and two Carats Alloy, was *coin'd* into 34 Pounds by Tale, to wit,

Into Sovereigns, at 20 Shillings a-piece.
Half Sovereigns, at 10 Shillings a-piece.
Crowns, at 5 Shillings a-piece.
And Half Crowns, at 2 Shillings and 6 Pence a-piece.

And a Pound Weight of Silver, of 6 Ounces fine, and 6 Ounces Alloy, was *coin'd* into 72 Shillings, which Shillings went for 12 Pence a-piece, by Tale; of which, the Merchant receiv'd, for every Pound Weight of fine Silver, 3 Pounds, 4 Shillings, and the King above 4 Pounds Gain.

In the 6th Year, a Pound Weight of Gold, of the *old Standard*, of 23 Carats, 3 Grains and a Half fine, was *coin'd* into 28 Pounds, 16 Shillings, by Tale, to wit,

Into Sovereigns, at 24 Shillings a-piece.
Half Sovereigns, at 12 Shillings a-piece.
Angels, at 8 Shillings a-piece.
Half Angels, at 4 Shillings a-piece.

In the 5th Year, a Pound Weight of Silver, of 3 Ounces fine, and 9 Ounces Alloy, was *coin'd* into 27 Shillings, at 12 Pence a-piece; and the Merchant receiv'd for every Ounce of fine Silver which he should bring into the Mint, 10 Shillings of such Money; by which Means, 12 Ounces of fine Silver was exorbitantly raised to 14 Pounds, 8 Shillings.

In the 6th Year, a Pound Weight of Gold, of the *old Standard*, was *coin'd* into 36 Pounds by Tale, to wit,

Into 24 Sovereigns, at 30 Shillings a-piece.
72 Angels, at 10 Shillings a-piece.
144 Half Angels, at 5 Shillings a-piece.

And a Pound Weight of Crown Gold, of 22 Carats fine, and 2 Carats Alloy, was *coin'd* into 33 Pounds, by Tale, to wit,

Into 33 Sovereigns.
Or 66 Half Sovereigns, at 10 Shillings a-piece.
Or 132 Crowns, at 5 Shillings a-piece.
Or 264 Half Crowns, at 2 Shillings and 6 Pence a-piece.

And a Pound Weight of Silver, consisting of 11 Ounces, and 1 Pennyweight, fine Silver, and 19 Pennyweights Alloy, was *coin'd* into 3 Pounds by Tale, to wit,

Into 12 Crowns, at 5 Shillings a-piece.
Or 24 Half Crowns, at 2 Shillings and 6 Pence a-piece.
Or 60 Shillings, at 12 Pence a-piece.
Or 120 Sixpenny Pieces.
Or 720 Penny Pieces.
Or 2880 Farthing Pieces, or Quarter-pennies.

In the first Year of Queen *Mary*, a Pound Weight of Gold, of 23 Carats, 3 Grains and a Half fine, was *coin'd* into 36 Pounds by Tale; and a Pound Weight of Silver, 11 Ounces fine, was *coin'd* into 3 Pounds by Tale.

And in the Reign of *Philip* and *Mary*, the *old Standard* for Gold and Silver was *coin'd*.

In the 2d Year of Queen *Elizabeth*, a Pound Weight of Gold, of the *old Standard*, of 23 Carats, 3 Grains and a Half fine, was *coin'd* into 36 Pounds by Tale, to wit,

Into 24 Sovereigns, at 30 Shillings a-piece.
Or 48 Rials, at 15 Shillings a-piece.
Or 72 Angels, at 10 Shillings a-piece.
Or 144 Half Angels, at 5 Shillings a-piece.

And a Pound Weight of Crown Gold, of 22 Carats fine, and 2 Carats Alloy, was *coin'd* into 33 Pounds by Tale, to wit,

Into 33 Sovereigns, at 20 Shillings a-piece.
Or 66 Half Sovereigns, at 10 Shillings a-piece.
Or 132 Crowns, at 5 Shillings a-piece.
Or 264 Half Crowns, at 2 Shillings and 6 Pence a-piece.

And a Pound Weight of *old Sterling* Silver, of 11 Ounces, 2 Pennyweights fine, and 18 Pennyweights Alloy, was *coin'd* into 3 Pounds by Tale, to wit,

Into 120 Half Shilling Pieces.
Or 180 Groats.
Or 240 Quarter Shilling Pieces.
Or 720 Penny Pieces.
Or 2880 Farthing Pieces.

In the 19th Year, a Pound Weight of Gold, of the *old Standard*, was *coin'd* into 36 Pounds by Tale, to wit,

Into 72 Angels, at 10 Shillings a-piece.
Or 144 Half Angels, at 5 Shillings a-piece.
Or 288 Quarter Angels, at 2 Shillings and 6 Pence a-piece.

And a Pound Weight of *old Sterling* Silver, into 3 Pounds by Tale, to wit,

Into 120 Half Shillings.
Or 180 Groats.
Or 140 Quarter Shilling Pieces.
Or 720 Penny Pieces.
Or 2880 Farthing Pieces.

In the 25th Year of her Reign the same.

In the 26th Year, a Pound Weight of Gold, of the *old Standard*, was *coin'd* into 36 Pounds by Tale, to wit,

Into 48 Nobles, at 15 Shillings a-piece.
Or 24 Double Nobles, at 30 Shillings a-piece.

In the 35th, a Pound Weight of Gold, of 22 Carats fine, and 2 Carats Alloy, was *coin'd* into 33 Pounds by Tale, to wit,

Into 33 Sovereigns, at 20 Shillings each.
Or 66 Half Sovereigns, at 10 Shillings each.
Or 132 Crowns, at 5 Shillings each.
Or 264 Half Crowns, at 2 Shillings and 6 Pence each.

In the 43d Year of her Reign, a Pound Weight of Gold, of the *old Standard*, was *coin'd* into 36 Pounds, 10 Shillings, by Tale, to wit,

Into 73 Angels, at 10 Shillings each.
Or 146 Half Angels, at 5 Shillings each.
Or 292 Quarter Angels, at 2 Shillings and 6 Pence each.

And the Pound Weight of Gold, of 22 Carats fine, and 2 Carats Alloy, was *coin'd* into 33 Pounds, 10 Shillings, in Tale, to wit,

Into 33 Sovereigns and a Half, at 20 Shillings a-piece.
Or 67 Half Sovereigns, at 10 Shillings.
Or 134 Crowns, at 5 Shillings.
Or 268 Half Crowns, at 2 Shillings and 6 Pence.

And one Pound Weight of Silver, of the *old Standard*, was *coin'd* into 3 Pounds, 2 Shillings, by Tale; to wit, into Crowns, Half Crowns, Shillings, Sixpences, Twopences, Pence, and Halfpence.

In the 2d Year of *James* I, a Pound Weight of fine Gold,

Gold, of 22 Carats fine, and 2 Carats Alloy, was *coin'd* into 37 Pounds, 4 Shillings, by Tale, *viz.*

Into Unites, at 20 Shillings a-piece.
Or Double Crowns, at 10 Shillings a-piece.
Or Britain Crowns, at 5 Shillings a-piece.
Or Thistle Crowns, at 4 Shillings a-piece.
Or Half Crowns, at 2 Shillings and 6 Pence.

And a Pound Weight of Silver, of the said *old Standard*, into 62 Shillings, by Tale, namely,

Into Shillings.
Sixpences.
Twopences.
Pence.
Halfpence.
Crowns.
And Half Crowns.

In the 3d Year of his Reign, a Pound Weight of Gold, of the *old Standard*, of 23 Carats, 3 Grains and a Half fine, was *coin'd* into 40 Pounds, 10 Shillings, by Tale, to wit,

Into Rose Rials, at 30 Shillings a-piece.
Or Spur Rials, at 15 Shillings a-piece.
And Angels, at 10 Shillings a-piece.

In the 9th Year, there was a Proclamation for raising Gold 2 Shillings in every 20 Shillings.

In the 10th Year, a Pound of Gold, of the *old Standard*, was *coin'd* into 44 Pounds by Tale, to wit,

Into Rose Rials.
Or Spur Rials.
Or Angels.

And a Pound Weight of Gold, of 22 Carats fine, was *coin'd* into 44 Pounds, 18 Shillings, and 4 Pence, by Tale, to wit,

Into Unites, at 22 Shillings a-piece.
Or Double Crowns, at 11 Shillings a-piece.
Or British Crowns, at 5 Shillings and 6 Pence.
Or Thistle Crowns, at 4 Shillings and 4 Pence $\frac{3}{4}$.
Or Half British Crowns, at 2 Shillings and 9 Pence a-piece.

In the 2d Year of *Charles* I, a Pound Weight of Gold, of the *old Standard*, of 23 Carats, 3 Grains and a Half fine, and Half a Grain Alloy, was *coin'd* into 44 Pounds, 10 Shillings, by Tale, to wit,

Into Rose Rials, at 30 Shillings a-piece.
Or Spur Rials, at 15 Shillings a-piece.
Or Angels, at 10 Shillings a-piece.

And a Pound Weight of Gold, of 22 Carats fine, and 2 Carats Alloy, was *coin'd* into 41 Pounds by Tale, to wit,

Into Unites, at 20 Shillings a-piece.
Double Crowns, at 10 Shillings a-piece.
British Crowns, at 5 Shillings a-piece.

And a Pound Weight of Silver, of the *old Standard*, of 11 Ounces 2 Pennyweights fine, and 18 Pennyweights Alloy, was *coin'd* into 62 Shillings in Tale, to wit,

Into Crowns, at 5 Shillings Value.
Half Crowns, at 2 Shillings and 6 Pence Value.
Shillings, at 12 Pence Value.
Half Shillings.
Twopences, Pence, and Halfpence.

There was a great deal of Money *coin'd* in the first Year of this King, both in Gold and Silver, besides the forementioned Species, Groats, Threepences, and other various Kinds of Money, which the Distractions of the latter Part of his Reign discover'd.

There is very little of the *English* gold Coins of this King's to be met with at this Time, although it is said there were coined in his Time, one million five hundred thousand Pounds *Sterling*, by Reason the Distractions in his Reign render'd People's Properties so very uncertain, that they were glad to invest it in this Metal for Security, so that People gave 6 or 7 *per Cent.* to exchange Silver for Gold, and being thus engrossed chiefly into private Hands, was either conveyed beyond Sea, or committed to its Mother-Earth for Security, where, undoubtedly a great Part remains to this Day.

Soon after King *Charles* was beheaded, the Parliament then in being agreed upon a new Sort of *Coin*, whereof there were *coined* Crowns, Half-Crowns, Shillings, Six-pences, Two-pences, Pence, and Halfpence. The larger Pieces were inscribed, the COMMONWEALTH OF ENGLAND, *St. George's Cross* in a Shield, betwixt a Palm-Branch and a Laurel: Reverse, the same conjoined to another Shield, with a *Harp* for *Ireland* (vulgarly called the *Breeches*) above which XII. the Legend GOD WITH US. The Six-pences have VI. above the Shields. The lesser Pieces, *viz.* Twopences and Pence have no Inscriptions, only the initial Figures, and the Half-penny only the single Shield with the Harp on the Reverse.

There were also *coined* Pieces of fine Gold of the same Form and Inscription as the Silver Money *xx.* above the Arms; the half of it has *x.* the Six-pence 1651 is, strictly speaking, the first milled Money (Queen *Elizabeth*'s being only marked on the flat Edge) and is a great Rarity as well as the Copper Farthing, with a Cross under a Garland, *England*'s Farthing, Reverse for necessary Change, a *Harp*.

But soon after this, the Power being surrender'd to *Oliver Cromwel*, he took upon him the Stile of Protector; his Crown-piece, which is inimitably performed, and preserved as a choice Medal in the Cabinets of the curious, being the first milled Money that had an Inscription upon the Rim: It has his Head, *Laureat a la Romaine*, *Oliver*, D. G. R. P. ANG. SCO. HIB. *&c.* PRO. Reverse in a Shield crowned with the Crown of *England*, *St. George's Cross* in the first and fourth Quarters; *St. Andrew*'s for *Scotland* in the second, and the *Harp* for *Ireland* in the third, and in an Escutcheon of Pretence his paternal Coat, *viz.* a *Lion Rampant*; *Legend*, PAX QUÆRITUR BELLO, 1658. Upon the Rim HAS NISI PERITURUS MIHI ADIMAT NEMO. This Piece of *Oliver*'s is the more rare, there not having been so many of these *coined* as of the Shillings or Half-Crowns, and the Dye of the Crown having the Mischance to receive a Flaw or Crack the first Stroke, leaves a Shark upon the Money just below the Neck, by which it may be the easier distinguished from the Counterfeit: The Half-Crown is equally beautiful, though not so rare; the Shilling is likewise a very fair Piece, milled on the Edge, and very rare.

In the 22d Year of *Charles* II. a Pound-weight of Crown-gold of 22 Carats fine, and 2 Carats Alloy was *coined* into 44 Pounds 10 Shillings by Tale, to wit,

Into 10 Shilling Pieces,
or 20 Shilling Pieces,
or 40 Shilling Pieces,
or 100 Shillings or 5 Pound Pieces.

And a Pound-weight of Silver of the old Standard was *coined* into three Pounds two Shillings by Tale, to wit,

Into Crowns,
or Half-crowns.
or Shillings.
or Half Shillings.
or Groats,
or Half Six-pennies,
or Half-Groats,
or Pennies.

However the first Money that bore the Name of King *Charles* the Second was *coined* at *Pontefract-Castle*; round which is inscribed CAROLUS SECUNDUS, 1648. On each Side the Hand in the middle Tower is D C. Reverse a Crown with CR. DUM SPIRO, SPERO. A Crown with CAROLUS II. D. G. MAG. B. F. ET H. REX, 1648. Reverse D C. above the Castle, POST MORTEM PATRIS, PRO FILIO, but this is so exceeding rare, that the Governor's Son declared he had heard of it, but never seen any.

The Current Money of this King's was of three Sorts; the Hammered, the Milled upon the Side, and those with the Graining or Letters on the Edges.

Upon

Upon the hammered Money which was first used, he is represented with the half Face, Crown and Band, &c. CAROLUS II. D. G. MAG. BRIT. FR. ET HIB. REX. Reverse the Arms in one Shield not crown'd, with his Father's Motto, CHRISTO AUSPICE REGNO, which is used upon all this Sort of Money, from the Half-Crown (which is punched to prevent Clipping) to the Penny, which was the least Piece of Silver *coined* by him, or any of his Successors.

The Shilling is very fair, and is now a Curiosity: They have a Crown the Mint Mark. Of these there are two Sorts, one with XII. behind the Head, which the others want; as also the inner Circle, but is much the neatest.

The Six-pences are like the Shillings, but VI. instead of XII. the lesser Pieces from the Groat to the Penny are marked with the initial Figures IIII. III. II. I. behind the Head, except upon some of the Two-pences, which want the Figures; and upon the Penny the Stile is abbreviated to M. B. FR. ET H. but the Reverse has it every Letter, as the larger Pieces. There is another Sort which differs from the milled Money, called *Cutters*; the *Legend* whereof passes quite round the Head, which it does not in the following.

The second is like Queen *Elizabeth*'s upon the broad Side only. There are Pence, Two-pences, Three-pences, and Groats: The *Legend* in these begins at the Neck, which in the former began at the Crown, and have the King's-Head crowned; the initial Figures behind the Arms, and the *Legend* as the former.

This hammer'd Money was the only current *Coin* 'till the Year 1663, when the pernicious Custom of Clipping was come to such an Height, as appears in the Books of one of the Tellers of the Exchequer, that the Weight of 120 Bags, of one hundred Pounds each, which should have weighed 46451 Ounces 10 Penny-weight, was found to weigh but 23496 Ounces 15 Penny-weight, although there were some Pieces of full Weight among them, so that the Money was reduced to about one half the Value: Therefore it being absolutely necessary to devise some new Method, for future Coinage, that was not liable to be curtailed by this pernicious Practice of Clipping, by a Warrant dated the 5th of *November* 1662, another dated the 8th of *April* 1663, and a third, dated the 24th of *December* 1663. Another Sort, called *Milled Money*, was first fabricated to be current in *England*.

Of this first milled Money, *Anno* 1662, is a very fair Crown, having a Rose under the King's-Head *Laureat*, from thence vulgarly called the *Rose-Crown*, CAROLUS II. DEI GRA. *Reverse*, MAG. BR. FRA. HIB. REX, 1662, the Arms of the four Kingdoms, but *France* and *England* are quarter'd together in the first and fourth Shields, each Shield is crowned, with C's, interlinked, and *St. George's Cross* radiant in the Center, and upon the Rim *Decus et Tutamen*. Another fair Crown-piece of the same Year has CAROLUS II. DEI GRATIA, without the *Rose*, in all other Respects like the former.

The other Crown-pieces are not so well struck, but have the Year mentioned upon the Rim, and bear the Arms singly in four separate Shields.

The Half-crowns are like the Crowns; one other has the Year expressed in Figures upon the Rim, *Anno Regni* XVIII. All the milled Money has the King's-Head looking the contrary Way from the hammer'd.

The milled Shillings are neatly struck, having the C's between the four Shields crowned, with the Arms single, and inscribed as the Crown; upon some is an Elephant, upon others the Princes Feathers under the Head, a third has a Scepter, as a Guinea, stamped upon the Reverse, and a very fair Shilling in the last Year of his Reign. The Sixpence is like the Shilling. The Groat has four C's interlinked with a Rose, Thistle, Fleur de Lis and Harp in the Vacancies. The Three-pence, Two-pence, and Penny, have as many C's thereon crowned, and are of the Year 1672, 3, 4, 5, having a Crown for the Mint Mark; the Inscriptions are the same as on the larger Pieces, but want the Crenelling upon the Edge, which the Six-pence and Shilling have.

Note, That in this Reign private Persons had the Liberty of *Coining* Pennies, Half-pennies, and Farthings, for the Conveniency of Trade. This began *Anno* 1633. These Penny and Half-penny Pieces of Cities, Towns or Villages generally expressed the Name of the Place, and Value of the Piece on one Side, and on the other the Arms of the City or Town, or some other Device, as those of private Persons, expressed the Town or Street where they lived, their Sign and Trade. They were of different Sizes and Forms, and generally shamefully light, and continued current 'till the Year 1672, when the King's Copper Half-pence and Farthings took Place.

The five Pounds, three Pounds, and forty Shilling Pieces of Gold, CAROLUS II. DEI GRATIA, the King's-Head Laureat: On the Reverse the Arms of the four Kingdoms single, in the four separate Shields crowned, a Scepter in each of the Vacancies, with a Rose, Fleur-de-Lis, Thistle and Harp at the Points, and the C's interlinked in the Center, MAG. BR. FRA. ET HIB. REX, 1673. Upon the Rim, DECUS ET TUTAMEN, ANNO REGNI VICESSIMO QUINTO.

This King was the first that coined Guineas and Half-Guineas, which he did in his 22d Year, and were ordained to go at the Rate of 20 Shillings the Guinea, although they never went for so little: These bore the same Impression and Inscription as the five Pound Pieces, except the Rim which was milled. A very neat Guinea in 1672 exactly resembles the five Pound Piece. A third Sort, 1674, exhibits the Head considerably larger; and a fourth Sort has an Elephant under the King's Head, being coined of the *African* Gold.

In the first Year of King *James* the second, a Pound-weight Troy of Gold 22 Carats fine, was *coined* into 44 Pounds 10 Shillings by Tale, *to wit*, into Guineas, Half-guineas, and larger Pieces, which are well struck, and exhibit his Majesty's Head *Laureat*, JACOBUS II. DEI GRATIA. Reverse, the Arms single, in separate Shields, with the Scepters, but nothing in the Center; some have the Elephant under the King's Head, being *coined* of the *African* Gold. The five Pound Piece is like the Guinea, but has DECUS, &c. upon the Rim.

And a Pound-weight of Silver of the *old Standard* was *coined* into three Pounds two Shillings by Tale; and the Silver Money, current at this Time, of this King's, are of the Years 1685, 86, 87, and 88 in *England*, and 91 in *Ireland*.

The Crown-piece has his Head in *Laureat*, JACOBUS II. DEI GRATIA. Reverse, the Arms in four separate Shields crowned, MAG. BR. FRA. HIB. REX, 1688: Upon the Rim DECUS ET TUTAMEN, &c. The Half-crowns are the same, and the Shilling and Six-pence the like, excepting the Inscription upon the Rim: The lesser Pieces, from the Groat to the Penny, have as many initial Letters of his Name crowned, as they go for Pence, but the same Inscription to a Letter as the Crown-Piece.

The Tin Farthing and Half-penny have the King's Head, JACOBUS SECUNDUS. Reverse BRITANNIA. Circumscribed BRITANNIA upon the Rim, 1685, NUMMORUM FAMULUS.

The Plantation Half-Penny of Tin has the King on Horseback, JACOB. II. D. G. MAG. BRI. FRA. HIB. REX. Reverse, the Arms in four separate Shields crowned, and linked together, *Val.* 24. *Port. Real. Hispan.*

His *Irish* Half-penny was of Copper, of the like Standard of *Charles* the second by Patent, exhibiting his Head *Laureat*, inscribed JACOBUS II. DEI GRATIA. Reverse a crowned Harp, MAG. BRI. FRA. ET HIB. REX, 1686. There was none of Tin in *Ireland*, or Copper in *England*.

Soon after King *James* landed in *Ireland*, which was in

in *March* 168⅞, he was reduced to so great a Scarcity of Money, that he was forced to melt old brass Guns, and Utensils of the most refuse Metal to *coin* into Money for the Subsistance of his Army, which was made Current, as *sterling* Silver, by Proclamation, the 18th of *June* 1689; a Pound of this Metal being worth but three-pence or four-pence when *coined*, was five Pounds by Tale, and upon *re-coining* the Half-crowns as much more. Of this Sort of Money in *June* 1689 were *coined* Six-pences, and in the Month following Shillings, and in *August* following Half-Crowns, somewhat bigger than an *English* Half-penny; the Shilling was broader than a Farthing, but not so thick; and the Six-pence in Proportion, whereof it has been said there were *coined* between *June* 1689, and *July* 1690, about a Million of Pounds.

These Pieces were all alike, inscribed round the King's Head *Laureat*, JACOBUS II. DEI GRATIA. Reverse, MAG. BR. FRA. ET HIB. REX. a Crown and two Scepters, with the Year 1689 or 90, and the Value VI. XX. or XXX. above, and the Month below the Crown, which is placed between the initial Letters J. R. but there being no Circulation to bring this back into the Treasury, they were called in by Proclamation; and the Half-Crown which before was stamped with a Face, was then stamped with the Figure of the King on Horseback, and then delivered to those that brought them in as Crowns, and the smaller Pieces were melted down, and *re-coined* under the same Denomination though with less Metal.

This Proclamation was supposed to begin *April* 1690, for there is to be met with at this Time the great Half-crown, which by this Proclamation was fabricated to a Crown; and also another, which is not half so big, of the same Month; and so likewise the Shillings, for *April*, of both Sizes; but the large ones, after that Date, are very rarely met with. These new Crown Pieces had the King on Horseback, JAC. II. DEI GRATIA. MAG. BRI. FRA. ET HIB. REX. Reverse, a Crown the Midst of four Shields crowned. CHRISTO VICTORE TRIUMPHO, *Anno Dom.* 1690. It is plainly to be discerned upon many of these Crown Pieces that they were double stamped, there appearing oftentimes upon the same Piece two Dates 1689, which was when they were *coined* for Half-crowns; and 1690, when they commenced Crowns.

Before King *James* left *Ireland*, even Brass and Copper failed; so that a Proclamation was preparing for the Currency of Pewter Money; but King *William* passing the *Boyne*, hindered the publishing of it; nevertheless some few were actually *coined*, and found in the Treasury of *Dublin*; the Fashion, Size, and Inscription of which were the same with the brass Crown, with this *Legend* added on the Rim, MELIORIS TESSERA FATI. ANNO REGNI SEXTI. These are so very rare, says an ingenious Author, there being but few *coined*, that he never met with any Person that saw any, but the few that fell into his Hands.

The same Year another Author conjectures there were *coined* Pennies of Lead, having behind the King's Head 1 d. round it JACOBUS II. DEI GRATIA. Reverse, MAG. BR. FRA. ET HIB. REX. with a crowned Harp between 60 and 90; the Half-penny the same, but without the Value set upon it.

After King *James* left *Ireland* there was another Sort of Brass Money *coined* at *Limerick*, called *Hibernia*'s with JACOBUS II. DEI GRATIA. Reverse, *Ireland* represented by a Woman with her left Hand leaning upon a Harp, and in her Right holding a Cross, HIBERNIA, 1691.

The gold Money of King *William* and Queen *Mary*'s Reign was *coined* of Crown Gold, of 22 Carats fine, and 2 Carats Alloy, and this into Guineas, Half-guineas, and larger Pieces. The Guineas with both their Heads. Reverse, the Arms in a single Shield crowned. Those of the King alone have the four Shields crowned, Sceptres in the Vacancies, and an Orange in the Center. Those *coined* of *African* Gold have an Elephant under the Head. There are also very fair five Pound Pieces with the same Difference.

In this Reign, the Guinea which was first ordained to go at 20 Shillings, and 10 Shillings the Half-guinea; the Guinea was current at 30 Shillings, and the Half-guinea at 15 Shillings, by Reason of the Badness of the Silver Money, which was so exceedingly counterfeited and clipped, that the common People would take Guineas almost at any Rate, rather than be troubled with the Hazard and Vexation of the Silver Money; which being considered by the King, he *re-coined* the Money that had been clipped, with very little Grievance to his Subjects, and at a Time of the greatest Danger and Expence. For this Purpose, besides the Mint in the *Tower*, where six Presses were wrought, there were other Mints erected in the most populous Towns and trading Cities, *viz. York*, where alone was *coined* 312520 Pounds Sterling; *Chester*, *Norwich*, *Bristol*, and *Exeter*, to prevent the Inconveniencies that might happen to Trade in the mean Time: And from the Year 1691 to the 14th of *August* 1697, there was no less than eight Millions, four hundred thousand Pounds of this clipp'd and hammered Money brought to the several Mints in *London* and the Country. The Pieces *coined* at the said Places were marked with the initial Letters of the Cities, *Anno* 1696, 1697, as Y for *York*, C for *Chester*, &c. In other Respects the same as the *London* Shilling, *&c.* the small Pieces having the Value expressed by Figures. There was also in the 13th Year of this Reign Half-Crowns, Shillings, and Six-pences of Sir *Carbery Price*, or Sir *Humphrey Mackworth*'s Mines in *Wales*, with the Feathers betwixt the Shields: Likewise there were Six-pences with the Rose in the Quarters, being from the Mines in the *West* of *England*, which were *coined* for a Trial, *Anno* 1699, but would not answer, each Shilling standing the Proprietor in five Groats.

The Current Silver Money of *William* and *Mary* is from a Crown to a Penny. The Crowns and Half-crowns have both their Majesties Side-Faces looking the same Way; that of the King *Laureat*, GULIELMUS ET MARIA, DEI GRATIA. Reverse, the four Shields of Arms crowned, the Arms of *Orange* in the Center, the Date of the Year about it, and *W. M.* interlinked in the Quarters, MAG. BR. FR. ET HIB. REX, ET REGINA, with DECUS, *&c.* upon the Edge. Another Sort has Arms in a single Shield crowned 1689, and *France* is put in the last Quarter of Arms. Another the Arms of *France* and *England* quarterly in the first and fourth Quarters.

The Shillings are very neat, like the Crowns, with W. M. interlinked in the Quarters. The lesser Pieces from the Groat to the Penny are distinguished by the Figures 1, 2, 3, and 4, crowned.

The Half-pennies and Farthings have their Majesties Heads, the same as the Crowns, *&c.* with GULIELMUS ET MARIA. Reverse, BRITANNIA, and under it the Date.

The Tin Half-pence and Farthings, called white Half-pence and white Farthings, were the same of the Copper ones, and upon the Rim NUMMORUM FAMULUS, 1690. But this Metal being frequently counterfeited in their last Year, Half-pence and Farthings were coined again of Copper.

The Money of King *William*, after the Death of Queen *Mary*, differed in having only a single Head, GULIELMUS III. DEI GRATIA. Reverse, MAG. BR. FRA. ET HIB. REX, 1696.

The Gold *Coins* of Queen ANNE's Reign are Guineas, Half-Guineas, and larger Pieces: And the Silver Monies are from the Crown-piece to one Penny; all which *Coins* exhibit her Majesty's Head, ANNA DEI GRATIA. On the reverse Side the four Shields of Arms crowned, and the Cross of St. *George* radiant in the Center, MAG. BRI. FR. ET HIB. REG. the Date. The Gold Money has the Sceptres added in the Quarters; and the Crowns and Half-crowns, which are of Silver, have on the Edge or Rim DECUS ET TUTAMEN, *&c.* The lesser Pieces, *viz.* the Groats, Three-pences, Two-pences, and Pennies, have the Figures

Figures 1, 2, 3, 4 crowned, denoting their Value. Besides these, are Sixpences, Shillings, and Half Crowns, with *Vigo* under the Queen's Head, being of the Silver brought from thence.

The *Welsh* Half Crowns, Shillings, and Sixpences, of Silver, have the Prince's Device in the Quarters, between the Shields, 1704. ANNO REGNI TERTIO. And the like Pieces there are of Silver, with the Rose and Feathers, interchangeably, in the Quarters; these are call'd the *Quakers Money*, from some of that Persuasion that were Proprietors of the Mines.

The *Money* coin'd after the Union, has the Arms of *England* and *Scotland* impal'd in the first and fourth Shields, *France* in the second, and *Ireland* in the third.

There were likewise Pence and Farthings of two different Kinds, *Anno* 1713, and 1714, of fine Copper; but there were so very few of these *coin'd*, that they are preserv'd as great Rarities, (I had one Farthing, but some Body borrow'd it never to return it again;) on one Side is represented her Majesty's Head, ANNA DEI GRATIA; on the reverse Side, BRITANNIA, circumscrib'd BRITANNIA, 1713; the other 1714, has the Date under BRITANNIA.

In the Reign of King GEORGE I, that most excellent Prince, Gold and Silver Money go under the same Denominations, and are current at the same Value of those of Queen ANNE's; the Money of this King has his Majesty's Head *Laureat*, GEORGIUS. D. G. MAG. BR. FR. ET. HIB. REX. F. D. Reverse, BRUN. ET. L. DUX. S. R. I. A. TH. ET. EL. the four Shields of Arms crown'd, and the Cross of St. *George* radiant in the Center. The Arms of *England* and *Scotland* are quarter'd together in the first Shield, *France* in the second, the Arms of *Brunswick*, &c. in the third, and of *Ireland* in the fourth.

The *Welsh*, *Quakers*, and *Scotch* Shillings, with an E. under the Head, being *coin'd* at *Edinburgh*, have the same Marks on the late King's, as well as on his PRESENT MAJESTY's Coins, as they have had upon Queen *Anne*'s, by which they may be known.

The *Monies* of his PRESENT MAJESTY's are the same of his Father's; his Head *Laureat*, looking the contrary Way, GEORGIUS II. DEI GRATIA; on the Reverse, the four Shields of Arms crown'd, with the Arms quarter'd the same, with St. *George*'s Cross radiant in the Center, M. B. F. E. H. REX, F. D. B. ET L. D. S. R. I. A. T. ET E. 1727.

Formerly there was here, as there is still in other Countries, what is call'd the Right of *Seignorage* and *Brassage*; but since the 18th Year of King *Charles* II, there is nothing taken either for the King, or for the Expences of *Coining*; it having been settled by Act of Parliament, that all *Money* should be struck at the publick Expence: So that Weight is return'd for Weight, to all Persons who carry their Gold or Silver to the *Tower*.

The present current *Coins* in *England*, are of Gold, Silver, and Copper. The Gold *Coins* are, the *Guinea* and *Half Guinea*; the Silver are, the *Crown*, *Half Crown*, *Shilling*, and *Sixpence*; the Copper are, the *Halfpenny*, and *Farthing*.

Two Farthings make a Halfpenny; 48 Farthings, or 24 Halfpence, make a Shilling; 120 Farthings, or 60 Halfpence, or $2\frac{1}{2}$ Shillings, make Half a Crown; 240 Farthings, or 120 Halfpence, or 5 Shillings, or 2 Half Crowns, make a Crown; 960 Farthings, or 480 Halfpence, or 20 Shillings, or 8 Half Crowns, or 4 Crowns, make a Pound *Sterling*; 1008 Farthings, or 504 Halfpence, or 21 Shillings, or 8 Half Crowns $\frac{1}{7}$ and $\frac{1}{7}$, or 4 Crowns and $\frac{1}{3}$, or 1 Pound and $\frac{1}{20}$, make a Guinea, or Piece.

In *Scotland*, by the Articles of Union, it is appointed, that all *Coins* be reduced to the *English*, and the same Accounts observed throughout; till then, the *Scots* had their Pounds, Shillings, and Pence, as in *England*; but their Pound was but 20 Pence *English*, and the others in Proportion. Accordingly, their Mark was $13\frac{1}{3}$ *s. Scotch*, current in *England* at $13\frac{1}{4}$ *d.* their Noble in Proportion. Besides these, they had their turnorer Pence and Halfpence, their Penny $\frac{1}{12}$ of that of *England*; besides base *Money* of Achisons, Babees, and Placks; the Bodle, $\frac{1}{6}$ of the Penny, $\frac{1}{4}$ of the Achison, $\frac{1}{3}$ of the Babee, and $\frac{1}{2}$ of the Plack.

In *Ireland*, the *Coins* are as in *England*, viz. Shillings, Pence, &c. with this Difference, that their Shilling, or Harper, is but equal to 9 Pence *Sterling*; whence their Pound is only $\frac{3}{4}$ of the *English* Pound, or 15 *s.*

The Species *coin'd* in *England* are esteem'd contraband Goods, and not to be exported; all foreign Species are allow'd by Act of Parliament, made in 1643, to be sent out of the Realm, as well as Gold and Silver in Bars, Ingots, Dust, &c. Indeed, in the Session of Parliament in 1718, Endeavours were made to put a Stop to this Licence, which drains *England* of its richest Metals, but in vain; the Parliament having laid aside the Bill, without coming to any Resolution.

The *French* have a greater Variety of *Coins* than any other Nation in *Europe*, of Gold, Silver, Bullion, and Copper, and all those different *Coins*, those of Copper excepted, are far above their *intrinsick Value*, which is raised and lowered, at the King's Pleasure, *i. e.* very often; so that a Subject's Fortune changes sometimes three or four Times a Year, by no other Means than that of raising and lowering the Value of the Species. Sometimes he grows, all of a sudden, immensely rich, especially when he has a considerable Quantity of *ready Money* by him; and, all of a sudden, returns to his former Condition, or, perhaps, becomes a great deal poorer. Any Kind of *Coin*, either of Gold or Silver, is current but for a Time; for when the King designs to alter the Species, he *decrees* them, as they call it; so that these Species being thereby depriv'd of their Currency, the Subjects are forced to carry them to the Mint, to change them for new Species. I remember, that while at *Paris* at the Time of that destructive Scheme of the *Agiot*, or *Mississipi*, I have seen the Species chang'd twice in a Week, and the Crowns of eight to the Mark, which were *coin'd* for six Livres, raised to fourteen, in the Space of three Weeks, and return again, in the same Space of Time, to eight Livres. This was a Piece of the most crafty Politicks, to oblige the most silly among the *French* to carry their ready Cash to the Bank, and change it there for Bank Notes; nay, Tradesmen themselves were so infatuated with the Hope of an extravagant Gain, by Means of those Bank Notes, that they were Fools enough to refuse ready Money in Payment for their Wares, and would take nothing but Bank Notes; which Bank Notes came at last to the Use they were intended for, *i. e. B--f--res.* For when his Royal Highness, the Duke Regent, saw that his Turn was serv'd, that he had called in almost all the Species of Gold and Silver of the Kingdom, as well as a vast Quantity of foreign *Coins*, that he had paid, in Paper, all the Debts of the Nation, which amounted then, as reported, to nineteen hundred thousand millions of Livres, he caused all those Bank Notes to be *decriées*, as we call it; so that those who the Day before were worth, perhaps, a million of Livres, were reduced, then, to a Halfpennyworth of Paper. There happen'd then a pleasant Adventure, which diverted much those who had been idle Spectators of that Tragi-comedy; which was, that three younger Brothers, of three noble Families of *Normandy*, having united all their Faculties, (which amounted, when join'd, to fifty thousand Livres) to turn *Agiotors*, as those Fools were call'd, finding, at last, all their Finances chang'd into that useless Paper, and themselves reduc'd to Beggary, and Despair, hearing that the *Receipt*, *i. e.* the King's *Money* raised in that Province, was to pass by the Place where they liv'd, they went to wait for it on the Road, carrying along with them their fifty thousand Livres worth of Paper, and along with it each a Pair of Pistols, well loaded. They stopp'd those who escorted the *Money*, open'd the Male, took out fifty thousand

thousand Livres in Cash, and put in lieu of it their fifty thousand Livres in Paper, bidding the *Hoctons* to tell the Regent, their Master, that he had been pleased to give them that Paper for the fifty thousand Livres they took, but as he knew better what to do with that Paper than they, they thought they could do him no Injury, by drawing back their *Money*, and returning his Paper: But, however, as they suspected that his Royal Highness would not perhaps approve of the Drawback, they judg'd proper to draw themselves back likewise.

The frequent Changes happening in the *French* Species, is a very good Piece of Politicks to hinder them from being exported into foreign Parts, and to draw in foreign *Coins*, which succeeds to the Wishes of the *French* Ministry: For an *Englishman*, for Example, is sure that as soon as he is landed in *France* his *Money* increases by a Half, and that if he was to export the *French Coin* into *England*, it would diminish by a Half.

The only *Gold Coin* now current in *France*, is the *Double Louïs*, the *Louïs*, and the *Half Louïs d'Or*; the *Double Louïs* is 48 Livres, the *Louïs* 24 Livres, and the *Half Louïs d'Or* 12 Livres; the intrinsick Value of the *Louïs d'Or* is very near the same with that of a Guinea; but as the Value of those *Coins* changes so often, it is impossible to fix any Equality between them and foreign *Coins*.

The *French Silver Species* are, the Crown, which should be always three Livres, tho' there are Crowns of four Livres, five Livres, six Livres, and eight Livres; and all far above their intrinsick Value; for sometimes a Piece which had been *coined* for forty Pence, will rise to a Crown of three Livres; and a Crown of three Livres to four Livres, and thus of other Species in Proportion: On the contrary, a Piece which had been *coined* for twenty Pence, will fall to fifteen, sometimes to ten. Besides the 40 Pence, 20 Pence, 10 Pence, and 8 Pence Pieces, there were also formerly 4 Penny Pieces, call'd *Invalids*, because *coined* on Purpose to pay the *Invalids*, which were but very little above their intrinsick Value. The Silver *French Coin* is the purest in *Europe*.

The Bullion *Coins* are, the five Farthing Piece, called *Sol Marqué*, and the ten Farthing Piece, call'd *Mousquetaire*.

The *Copper Coins* are, the *Liard*, or Farthing; and the *Deniers*; three *Deniers* make a *Liard*; and four *Liards*, or twelve *Deniers*, make a *Sol*, or Penny; but those *Deniers* are not current, but in some Provinces of the Kingdom, as *Britanny*, *Normandy*, *Poitou*, &c.

The *Spanish Coin* current, is divided into *old* and *new Coin*; the *old Coin*, current in *Sevil*, *Cadiz*, *Andalusia*, and some other Places, is worth 25 *per Cent.* more than the *new*, current at *Madrid*, *Bilboa*, *St. Sebastian*, &c. *i. e.* 100 Pounds *old* is equal to 125 Pounds *new*. This Difference is owing to their King *Charles* II, who in 1688, to prevent the Export of *Money* Abroad, raised it 25 *per Cent.* which, however, he was only able to effect in Part; several Provinces, as we have observ'd, still retaining the antient Rate.

The *Spanish Coin* is, like that of the other Countries of *Europe*, either Gold, Silver, or Copper; are the *four Pistole Pieces*, or *quadruple*; the *double Pistole*, or *Doublons*; the *Pistole*, *Half Pistole*, and the *Castillans* of Gold.

The *Pistole* is equal to 16 Shillings *Sterling*, and in *Spain* to 4 Pieces of Eight, or 32 Rials, or 1088 *Maravedi's*, or 1360 *Maravedi's* of *Bullion*; the other Gold Species in Proportion.

The *Silver Coins* are, the *Piastre*, or Piece of Eight Rials, and its Diminutions; as also the simple Rial, with its Diminutions. The *Rial* is equal to about Sixpence ¼ *Sterling*, and to 34 Silver *Maravedi's*, which Silver *Maravedi* is about a Farthing *Sterling*.

The *Copper Coins* are, the *Octruvo's*, or *Octavo's*, which are of two Kinds; the one equal to four *Maravedi's*, and ordinarily call'd *Quarta*; the other double this, and call'd *double Quarta*.

The *Maravedi* is nearly equal to Half a Farthing; the Word is *Arabick*, and took its Rise from the *Almoravides*, a Dynasty of *Moors*, who passing out of *Africa* into *Spain*, imposed their own Name on this *Coin*, which, by Corruption, was afterwards chang'd into *Maravedi*.

The *Spaniards* always count by *Maravedi's*, both in Commerce, their Finances, &c. tho' the *Coin* itself is no longer current among them. Sixty-three *Maravedi's* are equivalent to a Rial of Silver; so that the *Piaster*, or Piece of 8 Rials, contains 504; and the *Pistole*, or four Pieces of Eight, 2060 *Maravedi's*. In the Laws of *Spain*, we meet with several Kinds of *Maravedi's*; *Alphonsine Maravedi's*, white *Maravedi's*, *Maravedi's* of good Money, *Maravedi's Combrenos*, black *Maravedi's*, and old *Maravedi's*. When we find *Maravedi's* alone, and without any Addition, it is to be understood of those mention'd above; the rest were different in Value, Fineness of Metal, Time, &c. *Mariana* asserts, that this *Coin* is older than the *Moors*; that it came from the *Goths*; that it was antiently equal to a third Part of the Rial, and consequently twelve Times the Value of the present *Maravedi*. Under *Alphonsus* XI, the *Maravedi* was 17 Times, under *Henry* II, 10 Times, under *Henry* III, 5 Times, and under *John* II, 2½ Times the Value of the present *Maravedi*.

The *Piaster*, or *Piece of Eight*, is equal to 4 *s.* 6 *d.* *Sterling*; there are two Kinds of *Piasters*, the one struck at *Potosi*, the other at *Mexico*; these latter are a small Matter heavier than the former, but in Return they are not quite so fine. The Exchange between *Spain* and *England* is made in *Piasters*.

The *Spanish Coinage* is esteem'd one of the least perfect in *Europe*; it is settled at *Sevil* and *Segovia*, the only Cities where Gold and Silver are struck. It is true, there are brought from *Mexico*, *Peru*, and other Provinces of the *Spanish America*, such vast Quantities of *Pieces of Eight*, and other Species, both of Gold and Silver, that it must be own'd, there is no State in the World where so much *Money* is *coin'd*, as in that of the King of *Spain*.

In *Portugal*, they *coin*, likewise, Gold, Silver, and Copper; their Gold *Coins* are the most beautiful, and boldest in the whole World. They are, the *Milleray*, or St. *Stephen*; the *Moeda d'Oro*, and, of late Years, that beautiful Piece which is equal to 36 Shillings *Sterling*.

The *Moeda d'Oro*, or *Moidore*, is properly the *Portuguese Pistole*, and is equivalent to two *Millo-roes*, and to 27 Shillings *Sterling*; there are also *Doppio Moidores*, or *double Pistoles*, equivalent to 2 Pounds 14 Shillings *Sterling*; and *double Doubloons*, equivalent to 3 Pounds 12 Shillings *Sterling*.

Their Silver *Coins* are, the *Cruzada*, *Pataca*, or *Piece of Eight*, and the *Vintem*; whereof they have two Sorts, the one Silver, and the other Billion.

The *Res*, or *Rez*, which is equal to ⅕ of a Farthing *Sterling*, is of Copper, and serves them in Accompts. 20 *Res* make a *Vintem*; 400 *Res*, or 20 *Vintems*, a *Cruzada*; 100 *Res*, or 50 *Vintems*, or 2½, a *Mi-moeda*, or *Half Pistole*; 2000 *Res*, or 100 *Vintems*, or 5 *Cruzada's*, or 2 *Mi-moeda's*, a *Moidore*; 4000 *Res*, or 200 *Vintems*, or 10 *Cruzada's*, or 4 *Mi-moeda's*, or 2 *Moeda d'Oro*, a *Doppo Moeda*; 10000 *Res*, or 500 *Vintems*, or 25 *Cruzada's*, or 10 *Mi-moeda's*, or 5 *Moedas d'Oro*, or 2½ *Doppio Moeda's*, a *Ducat* of fine Gold: Therefore,

	l.	*s.*	*d.*
A *Mimoeda* is equivalent to ———	0	13	6
A *Moidore* to ——— ———	1	07	0
A *Doppio Moeda* to ——— ———	2	14	0
A *Ducat* to ——— ———	6	15	0

There are as many different Sorts of current *Coins* in *Italy*, as there are States; tho' there are some common to them all, as the *Sequin* of Gold, and the *Ducatoon*, and *Florin*, of Silver. The *Sequin* is equivalent to 9 *s.* *Sterling*, except that of *Venice*, which is worth, by Weight, 9 Shillings and 3 Pence, or 4 Pence. The *Ducatoon* is struck particularly at *Milan*, *Venice*,

Venice, *Florence*, *Genoa*, *Lucca*, *Mantua*, and *Parma*; they are equivalent to about 4 *s.* 8 *d. Sterling*. *Italian Florins* are worth about 8¼ *d. Sterling*.

The *Coins* peculiar to *Rome*, are; those of Silver,

	s. d.
The *Jule*, equal to ———	0 6 7/100 *Sterling*.

Those of Copper,

	s. d.
The *Bayoco* —— ——	0 0½ Penny and ⅕

The *Pignatel*, very near ½ a Farthing *Sterling*.

Those peculiar to *Venice*, are,

	s. d. Sterling.
The *Justine*, equal to ——	4 9
The *Derlingue*, equal to ——	1 2¼

That peculiar to *Naples*, is,

The *Carlin*, equal to ———	0 6

That peculiar to *Genoa*, is,

The *Croisat*, equal to ———	4 4

Those peculiar to the Principality of *Monaco*, are,

	s. d.
The *Monaco*, equal to ———	4 4
The *Louis*, equal to ———	0 3

Those peculiar to *Piedmont* and *Savoy*, are; Those of Gold,

	s. d.
The *Louis d'Or*, equal to ——	16 0

That of Silver,

The *Lep*, equal to ———	2 6

In *Holland*, there are *Coins* of Gold, of Silver, of Billion, and of Copper; their Gold *Coin* is commonly a *Double Ducat*, equal to 18 Shillings *Sterling*, and of the purest Gold that can be *coined*, tho' they are not so just in all the foreign *Coins* they are pleas'd to counterfeit, which are either of base Alloy, or clipp'd.

Their Silver *Coins* are, Crowns, or *Dollars*, *Ducatoons*, *Florins*, and Shillings; each whereof has its Diminution. The *Stiver*, or common Shilling, is of Billion; the *Duyt* and *Penny* of Copper.

One *Penny* and a Half make a *Duyt*; 6 *Pennies*, or 4 *Duyts*, make a *Gros*; 12 *Pennies*, or 8 *Duyts*, or 2 *Gros*, make a *Stuyver*; 72 *Pennies*, or 48 *Duyts*, or 12 *Gros*, or 6 *Stuyvers*, make a *Scalin*; 236 *Pennies*, or 160 *Duyts*, or 40 *Gros*, or 20 *Stuyvers*, or 3⅓ *Scalins*, make a *Florin*, or *Gilder*; 708 *Pennies*, or 480 *Duyts*, or 120 *Gros*, or 60 *Stuyvers*, or 10 *Scalins*, or 3 *Florins*, make a *Dollar*, or a *Ducatoon*.

	s. d. Sterling.
The *Stuyver* is equal to ———	0 1⅕
The *Scalin* to —— ———	0 7
The *Florin*, or *Gilder*, to ——	2 0
The *Dollar*, or *Ducatoon*, to —	6 0

The Gold *Coins* in *Flanders* are, the *Imperials*, *Rides*, or *Philips*, *Alberts*, and *Crowns*. Those of Silver are, *Philips*, *Rixdollars*, *Patagons*, *Scalines*, and *Guldens*. The *Patards* are of Copper.

	s. d. Sterling.
The *Stuyver* is equal to ———	0 1¼
The *Scaling* to ———	0 7½
The *Gulden* to ———	2 0
The *Rixdollar*, *Dollar*, *Patagon*, to	4 6
The *Imperial* to ———	11 3

All foreign *Coins* are current in *Switzerland*, and the *Swiss* have no *Coins* peculiar to themselves but the *Ratzes* and *Blazes* of Billion, the *Ratze* being something above ⅓ of a Penny *Sterling*.

The *Danes* coin the *Horse*, the *Marc lubs*, and the *Schesdal*, of Silver.

	s. d. Sterling.
The *Horse* is equal to ———	1 1½
The *Marc lubs* to ———	1 6
The *Schesdal* to ———	3 0

The *Swedes* coin both Silver and Copper Species; the Silver Species are, the *Christines*, *Carolines*, and *Cavaliers*. Those of Copper are, the *Roustique*, *Alleuvre*, *Mark*, and *Money*.

	s. d. Sterling.
The *Christine* is equal to —	1 1½
The *Caroline* to ———	1 5¼
The *Mark* to ———	0 2½
The *Roustique* to ———	0 0¼ and 1/8 of 1/4
The *Alleuvre* to ———	0 0⅛ and 1/16 of 1/4

The *Swedish* Money, properly so call'd, is a Kind of Copper, very soft and malleable, cut in little square Pieces, or Plates, about the Thickness of three *English* Crowns, and weighing five Pounds and a Half, stamp'd at the four Corners with the *Swedish* Arms, and current in *Sweden* for a *Rixdollar*, or *Piece of Eight*; so that a Man must have a tolerably large Fob, or Pouch, to be capable to contain a few of those genteel Pieces, invented, as I suppose, for Counters for *Gargantua*, or *Pantagruel*, when they play'd at Ombre, with the Lady *Gargamelle*.

The *Poles* being, for the Generality, very greedy of Money, which they receive often *with both Hands*, especially at the Election of a new King, all foreign *Coins* are current among them; therefore they struck no other *Coins*, besides the *Rixdollar*, which is the same here, as in other Countries; but Silver *Roups*, *Abras*, and *Grochs*.

	s. d. Sterling.
The *Groch* is equal to ———	0 0½ and ⅓
The *Roup* to — ———	0 4¾
The *Abra* to —— ———	1 0⅝

In *Muscovy*, they strike no Money but of Gold and Silver, and that only in the Cities of *Moscow*, *Novogrode*, *Twere*, *Plescow*, and *Petersbourg*. The *Coinage* of each of these Cities is let to farm, and makes Part of the Czar's Revenue; they have but the Name *Copecs*, for both Kinds, tho' those *Copecs* have their Diminution, *viz.* the *Polusk*, which is ½ of the *Copec*, and the *Mostosfke*, which is ¼ of the *Copec*.

	s. d. Sterling.
The *Copec* of Gold is equal to —	1 6 1/12
The *Copec* of Silver, of an oval Form	0 1
The *Polusk* to — ———	0 0½
The *Mostofke* ——— —	0 0¼

Throughout the *Turkish* Empire there is no other Money *coined* but of Gold and Silver, on which is only inscrib'd the Prince's Name, with the Year of the Transmigration of their Prophet. Their Gold *Coin* is the *Sultanin*, call'd also *Scheriff*, or *Sequin*, equal to 9 Shillings *Sterling*. Their Silver *Coins* are, the *Parat*, or *Parasi*, the *Shakee* of *Aleppo* and *Scanderoon*, and the *Aspre*.

	s. d. Sterling.
The *Parat*, or *Parasi*, is equal to	0 1½
The *Shakee* to ——— —	0 3½
The *Aspre* to ——— ——	0 0⅔

In the Dominions of the Emperor of *Morocco*, on the Coast of *Barbary*, are struck, *viz.* at *Morocco*, the *Metacal* of Gold, which is a Kind of Ducat of different Fineness, consequently of different Value; which Difference arises hence, that there is no Mint fix'd, or regular *Coiners* at *Morocco*, but every *Jew* and Goldsmith strikes Ducats after his own Manner in open Shop. The *Rubies*, *Medians*, and *Ziams*, also of Gold, and struck at *Fez*, *Algiers*, and *Tunis*; these three Places *coin*, also, *Doubla's* of Silver, and *Burba's* of Copper. *Tunis* coins, besides, *Nafares*, and *Blanquilles*, of Silver, and *Felours* of Copper.

The *Rubee* is equal to 35 *Aspres*; the *Menian* to 50 *Aspres*; the *Ziam*, *Zian*, or *Dian*, to 100 *Aspres*; the *Doublas* to 18 *Aspres*; the *Burba* is the twelfth Part of an *Aspre*; the *Blanquille* is equal to 4 *Aspres*; the *Felours* is ⅛ of the *Blanquille*; the *Merigal* is equal to about 390 *Aspres*; and the *Pardo* to 22 *Aspres*.

	s. d. Sterling.
The *Rubie* is worth ———	1 9
The *Menian* ———	2 7
The *Ziam*, &c. ———	5 2
The *Double* —— ———	4 6
The *Burba* ——— ———	0 0 1/12
The *Blanquille* —— ——	0 2¼
The *Felours* — ———	0 0¼ and 1/16

The other *Coins* of *Africa* are, the *Merigal* of Gold current in *Sofala*, and the Kingdom of *Monomotapa*; and the *Pardo* of Silver, current in *Mosambica*.

	s. d. Sterling.
The *Merigal* is equal to —	18 0
The *Pardo* to — ———	1 3

All the Money made in *Persia* is struck with the Hammer,

Hammer, and the ſame may be underſtood of the reſt of *Aſia*, *America*, and the Coaſts of *Africa*, and even *Muſcovy*; the Invention of the Mill not being yet gone out of *Europe*, nor even eſtabliſh'd in every Part of it. The King's Duty, in *Perſia*, is $7\frac{1}{2}$ *per Cent.* for all the Monies *coin'd*, which are now reduc'd to Silver and Copper, there being no Gold *coin'd* there, except a Kind of Medals, call'd *Tela*, at the Acceſſion of a new Sophi; tho' this *Tela*, or *Cheraſis*, has ſome Courſe in Commerce, becauſe there is always a vaſt Quantity ſtruck on ſuch Occaſion. Their Silver *Coins* are, the *Abaſſi*, *Mamoudi*, *Shakee*, and *Biſti*; thoſe of Copper are, the *Kabeſki*, and *Half Kabeſki*.

	s. d. Sterling.
The *Abaſſi* is equal to ——	1 $4\frac{1}{2}$
Mamoudi to ——	0 $8\frac{1}{4}$
Shakee to ——	0 $4\frac{1}{2}$
Caſbequi to ——	0 $0\frac{9}{12}$

The *Chineſe*, following the Cuſtom of antient Times, have no Money *coin'd*, but cut their Gold and Silver into Pieces of different Weights; thoſe of Gold are call'd *Golchuts*, by the *Dutch*, from their reſembling a Boat; there are two Kinds of theſe *Golchuts*, *viz.* the *Golchut* an Ingot, which, at 3 Pounds 3 Shillings *per* Ounce, uſually amounts to 101 Pounds 5 Shillings *Sterling*; and other *Golchuts*, which only weigh Half as much; their Value in Proportion. Their Silver *Coin* is the *Leam*, call'd, by the *Portugueze*, *Tael*, which is equal to 6 Shillings and 8 Pence *Sterling*; their Copper Money is $\frac{1}{1000}$ of the *Leam*, or ſomewhat more than $\frac{1}{4}$ of a Farthing.

The *Chineſe* have, beſides the abovemention'd Species, a ſmall Money of Lead mix'd with the Scum of Copper, with Holes in the Middle, to ſtring them on, for the Eaſe of numbering; they call theſe Species *Caxa*, *Caſes*, or *Pitis*; and the String, which uſually holds 200 of them, is call'd *Santa*. They are ſo very brittle, that they never fall without breaking into a great Number of Pieces, and, if left all Night in Salt Water, ſtick ſo cloſe together, that they can't be ſeparated. One of theſe *Caxa's* is equal to $\frac{1}{3}$ of a Farthing *Sterling*, and 300000 of them nearly equal to 56 *Dutch* Livres.

The *Japoneſe* coin Gold, Silver, and Copper; they call their Gold and Silver Coins *Coupant*; they have two Sorts of Gold *Coupants*, viz. *Coupants* of a long oval Figure, weighing one Ounce, ſix Drachms, and equal to ſix Pounds, twelve Shillings, and Sixpence, *Sterling*; and other *Coupants*, near one Third of the former, amounting to about two Pounds, four Shillings, and two Pence. The Silver *Coupant* is equal to four Shillings and ſix Pence *Sterling*. Their Copper Money is equal to $\frac{7}{15}$ of a Farthing *Sterling*; they bore them in the Middle, like thoſe of *China*, and ſtring them. The *Japoneſe* have, beſides, like the *Chineſe*, *Ingots*, which they cut of three different Weights; the largeſt of 6 Rials, or 48 *Taels*, the *Tael* equivalent to 75 *Dutch* Styvers; the ſecond equal to 6 *Taels* and a Half; and the third to $\frac{5}{8}$ of a Rial, or 1 *Tael* and $\frac{1}{16}$.

In the Dominions of the *Great Mogul* are coin'd *Reupes*, both of Gold and Silver; *Mamouda's*, of Silver; and *Pecha's* of Copper.

	l. s. d. Sterling.
The *Rupee* of Gold is equal to	1 11 6

There are two Kinds of Silver *Rupees*, *viz.* the *old Rupees*, and the *new Rupees*; and three different Sorts of both Kinds, *viz.* the *old Rupees* of *Madras*, and the *new Rupees* of *Madras*; the *old Rupees* of *Surat*, and the *new Rupees* of *Surat*; the *old Rupees Siccas*, and the *new Rupees Siccas*.

	Sterling. s. d.
The *old Rupees* of *Madras* are equal to	1 11
New Rupees of *Madras*, to —	2 $05\frac{1}{2}$
Old Rupees of *Surat*, to ——	2 00
New Rupees of *Surat*, to ——	2 03
Old Sicca's, to —— ——	2 04
New Sicca's, to —— ——	2 11

There are two Sorts of *Mamouda's*, *viz.* the *great* and *ſmall Mamouda*.

	s. d. Sterling.
The *Great Mamouda* is equal to	0 11
Little Mamouda, to ——	0 $06\frac{1}{2}$
Pecha, or *Peſſa*, to ——	0 $00\frac{1}{2}$

The Princes tributary to the *Great Mogul* have alſo each their particular *Coins*, *viz.*

The King of *Matoucha*, whoſe Territories lie to the North of *Agra*, the Capital of the *Mogoliſtan*, ſtrikes a ſmall Silver *Coin*, equal to an *Engliſh* Halfpenny.

The *Raja* of *Parta-jajamoula*, to the North of *Patua*, ſtrikes, likewiſe, little Pieces, both of Silver and Copper, of ſmall Value.

The RAJA, or King of *Ogden*, who commands between *Brampour*, *Seronge*, and *Amadaboth*, coins a Silver Money equal to 6 Pence *Sterling*; and another of Copper, equal to a Halfpenny *Sterling*.

The King of *Cheda* and *Peza*, a Tin Money, call'd, alſo, *Cheda*, of which there are two different Sorts, *viz.* one octagonal, equal to 1 *d.* $\frac{3}{4}$ *Sterling*; and the other round, equal to $\frac{1}{3}$ of a Penny *Sterling*.

The King of *Achem* coins little ſlight Gold Pieces, worth about 15 Pence *Sterling*; and Tin Pieces, 80 of which are equal to the *Engliſh* Penny, current in the Iſles of *Sumatra*.

The King of *Macaſſar* coins a Gold Piece, equal to 1 Shilling and 10 Pence Halfpenny *Sterling*.

The King of *Cambaya* ſtrikes only Pieces of Silver and Copper; his Gold, wherein he abounds, is negotiated by Weight.

The Kings of *Java* and *Bantam*, in the ſame Iſland of *Java*, and thoſe of the *Molucca* Iſlands, ſtrike only Copper *Coins*; they allow foreign Silver Species to be current in their Countries, but coin none.

On the Coaſts, and in the Iſlands of the *Indies*, beſides the *Pagodo's*, *Rupees*, *Lazins*, *Fano's*, or *Fanons*, and *Coupants*, both of Gold and Silver, which are the generally current *Coins*, ſeveral of thoſe Places have their particular *Coin*, *viz.* at *Goa*, the *St. Thomas* of Gold, and the *Fardos*, and *Xeraphin*, of Silver.

	s. d. Sterling.
The *St. Thomas* is equal to ——	9 0
Fardos, to ——	2 $8\frac{1}{2}$
Xeraphin, to ——	2 1

Along the Gulph of *Perſia*, about *Mecca*, and throughout *Arabia*, the *Larin*, which is in Form of a round Wire, or Cylinder, equal to the Barrel of a Pen, bent in two, and a little flatted at each End, to receive the Impreſſion of ſome *Arabick*, or *Perſian* Characters. The *Larin* is equal to eleven Pence *Sterling*.

At *Bantam*, the *Fardos* already mention'd. At *Malabar*, the *Tare*, equal to a Halfpenny *Sterling*.

At *Surat*, *Agra*, and the Reſt of *Indoſtan*, the *Pecha*, and *Doudous* of Copper; and the *Baſarucos* and *Chedas* of Tin.

	s. d.
The Pecha is equal to — —	00 $00\frac{1}{2}$
The Doudous alſo to — —	00 $00\frac{1}{2}$
The Baſaruco to —— ——	00 $00\frac{1}{20}$
Octogonal Cheda to — —	00 $00\frac{3}{4}$
The round Cheda to — —	00 $00\frac{1}{3}$

At preſent for the *Coins* generally current through all theſe different States.

	l.	s.	d. Sterling.
The Pagodo of Gold thus denominated from its Impreſſion, an *Indian* Idol, is equal to	00	5	00
The ſmalleſt Pagodo of Silver is equal to	00	8	00
The largeſt Fanos of Gold is equal to	00	9	00
The ſmalleſt to ——	00	0	$2\frac{1}{2}$
The Fanos of Silver to —	00	0	$1\frac{1}{4}$

Beſides all theſe different *Coins* above-mentioned, the Kingdom of *Siam* has its particular Species of Gold, Silver, and Copper. The gold Species are five or ſix

Grains heavier than the half *Spanish* Pistole, and are equal to seven Shillings *Sterling*, but they are seldom seen in the Commerce. The Silver *Coins* are the *Tical* of *Baat*, the *Mayam* or *Seling*, the *Foans*, and *Sanpayc*. These Pieces resemble Nuts, a little flatted at the Extremities; and are some of them cloven like Horse-shoes: On two of the Sides are some *Siamese* Letters. The Copper Money are the *Bia* and the *Cauris*.

	s.	d. *Sterling*.
The Tical or Baat is equal to	06	$11\frac{1}{3}$
The Mayam to ——	00	$5\frac{1}{4}$ and $\frac{1}{6}$
The Foans to — —	00	$2\frac{3}{4}$
The Sanpayc to ——	00	$1\frac{1}{4}$ and $\frac{1}{48}$
The Bia to —— —	00	$00\frac{6}{160}$

In some Parts of the *East-Indies*, particularly in the States of the great *Mogul*; in a considerable Part of *Africa*, particularly in the Kingdoms of *Angola* and *Congo*; and in some Part of *America*, Shells serve for Money. Those current in the *East-Indies* are brought from the Maldives, where they are dug out of the Ground: The *Indians* call them *Cowries*, or *Boages*, sixty-five of them are reckoned equivalent to the *Pone*, a small Copper Coin, worth about an Half-penny *Sterling*; which brings each *Cowry*, to $\frac{1}{130}$ of a Penny *Sterling*.

In the Kingdoms of *Angola* and *Congo* those Shells are called *Zimbis*, 2000 *Zimbis* make what the Negroes call a *Maccuta*, which is no real Money, whereof there is none in this Part of *Africa*; but a Manner of reckoning: Thus, two *Flemish* Knives they esteem a Macoute; a Copper Bason two Pound weight, and twelve Inches Diameter, three Macoutes; a Fusy ten, *&c.*

The same Shells are called *Porcelains* in *America*, and are on the same Footing with the *Cowries*.

After this strict and curious Examen of the different current *Coins*, both antient and modern, of all the Countries of the known World, of their different Matter, Form, Value, *&c.* It will not be improper to observe here, that there are false or base *Coins*, which are either struck by an unqualified Person, and of unstatutable Metals; or those which have lost of their Weight, either by being clipped on the Corners, or filed on the Edges, or by having some of their Surface peeled off; if Gold by *Aqua Regalis*, if Silver by *Aqua Fortis*. Those who apply themselves to that black Art are the most barbarous of all Robbers, and should be punished as such, without the least Compassion, for they not only rob a private Person, but a whole Commonwealth, the poorest Member as well as the rich; for that Money thus clipped will perhaps fall to the Lot of a poor Handicraft-man, who has worked all the Week like a Slave, in Hopes to have at the End a certain Sum of Money, on which his Family depended to supply their present Wants, when he'll find himself disappointed, not by the Fault of the Person who is to pay him, but by his being paid in a *Coin* which has lost two or three Shillings of its Value, more or less, in the infamous Hands of a cruel Clipper. This infamous Practice of clipping, filing, *&c.* has been long in Vogue in *England*, and is not yet entirely abolished; for if the Officers of the Mint would be pleased to inspect narrowly into it, they will find yet some of those Ruffians lurking in their Holes, and applied to their Deeds of Darkness. Let them be routed out and bleed that innocent Blood they have fed themselves with.

Another Kind of false *Coins* are those made of Pieces of Iron, Copper, or other Metal, covered on each Side with a thin Plate, or Leaf of Gold or Silver, neatly soldered and joined around the Edges, and struck like other *Coins*, with Figures, Legends, *&c.* only to be distinguished from them by the Bulk, Weight, and Sound. I would ask our Divines, if those who set off those false or clipped *Coins* after they have discovered the Fraud, though they be Losers by it, are not as guilty as the Clippers, or false *Coiners* themselves.

The Place where the Money is *coined* is called MINT. In *France* there are as many *Mints* as there are Letters in the Alphabet, and it is known by the Letter of the Alphabet placed in the Exergue of the *Coin*, where the Piece has been struck. All the Species *coined* at *Paris* are marked with the Letter A. *Those coined* at *Roüen* in *Normandy* with the Letter B. *&c.* In my Province of *Brittanny* we have two *Mints*, one at *Rennes*, where the Money is marked 9. and another at *Nantz*, where they are marked with the Letter T.

Though there were antiently *Mints* in most Cities of *England*, there is at present but one, and that in the *Tower of London*. This *Mint* was made a Corporation by a Charter of King *Edward* III. and consists, 1. Of the Warden or Keeper of the Exchange and *Mint*, whose Office is to receive the Bullion brought in by Merchants, Goldsmiths and others, to pay them for it, and to over-see all the other Officers. 2. The Master-worker, who receives the Bullion from the Warden, causes it to be melted, delivers it to the Moneyers, and takes it from them again, when *coined*: His Allowance formerly was not any Set-Fee, but according to the Pound-weight; as by an Indenture under the Great Seal. 3. The Comptroller, who sees that the Money be made to the just Assize, to oversee the Officers, and reprimand them if the Money be not as it ought to be. 4. The Assay-Master, who weighs the Silver and Gold, and sees whether it be Standard. 5. The Auditor, who takes and makes up the Accompts. 6. The Surveyor of the Melting, who is to see the Silver cast out, and that it be not altered after it is delivered to the Melter, *i.e.* after the Assay-Master has made Trial of it. 7. The Clerk of the Irons, who is to see that the Iron be clean, and fit to work with. 8. The Graver who engraves the Dies and Stamps for the *Coinage* of Money. 9. The Melters, who melt the Bullion before it comes to *coining*. 10. The Blanchers, who anneal or boil and cleanse the Money. 11. The Porters, who keep the Gate of the *Mint*. 12. The Provost of the *Mint*, who provides for all the Moneyers, and oversees them. And *lastly*, The Moneyers, some of which shear the Money, some forge it, some stamp or *coin* it, and some round and mill it.

COMMERCE.

COMMERCE is the Exchange of Commodities; or the buying, selling, or trafficking of Merchandize, Money, or even Paper; in Order to profit by the same.

Commerce is divided into Foreign, and Domestick or Inland *Commerce*.

Foreign *Commerce* is either by Land or by Sea; and that by Sea, by long or short Voyages. And Domestick or Inland *Commerce* is either by wholesale or retale; and sometimes by both.

There are some general Qualifications common to all Sorts of *Commerce*, and some peculiar to each Sort of *Commerce*, requisite in the Person who undertakes to be a Merchant, under either of the aforesaid Denominations, and which he must endeavour to acquire before he can expect to drive on a *Commerce*, with Hope of obtaining the End proposed by it.

The first general Qualification is to have a Fund of Stock sufficient to trade with Credit and Reputation, both at Home with his Partners, if he has any, and Abroad with his Correspondents, that he may be capable to bear his Share of all the Charges and Expences,

pences, and of the Losses, when they happen, with the one, and to answer all the Demands of the other, which are not contrary to the established Rules of a lawful *Commerce*, without being obliged to the shameful Necessity of protesting a Bill of Exchange, *&c.* because he has no Cash to pay it.

The second Qualification is Probity, which will always make a Merchant deal fairly and candidly with every Body, to be contented with a reasonable and honest Profit; to put none but the best Goods in the Hands of his Customers; to pay honestly and exactly all the Handicraft-Men he is obliged to employ, without taking the cruel Advantage of their Necessity, to undervalue their Work, and to avoid those fraudulous Bankruptcies, which is the worse Theft, and for which no Legislature has found yet Punishment severe enough.

The third general Qualification is to understand very well every Branch of the *Commerce* he undertakes, that he may not be obliged to rely entirely on the Conduct, Honesty, and Capacity of Agents, Brokers, Clerks, Book-keepers, *&c.* who have seldom all the good Qualities necessary to qualify them for their Trust; for if they understand very well their Business, they perhaps want Honesty; or if they are honest, they want Conduct; but even suppose that they had all the good Qualities imaginable; that they were honest, capable, diligent, careful, *&c.* which is very rare; it is notwithstanding always very dangerous for a Merchant to confide wholly in Servants for the entire Management of his Affairs; for his Negligence or Carelessness alone would, perhaps, put them in Mind to act otherwise, than they designed to do when they enter into his Service; for we have an old Proverb in *French*, which, though vulgar, is nevertheless very just *l'Occasion fait le Larron*, the Occasion makes the Thief; therefore a Merchant, let him be ever so rich, or so great, should never believe it beneath him, to visit often his Warehouses, to see what Care is taken of the Goods reposited there, and what Kind of Wares are brought in: He should also hear, with some Familiarity, the Servants he has appointed to those Places, in Order to discover by their Discourse, if none of them appropriate to their own Use, or to speak in plain *English*, rob their Master; which is but too often the unhappy Fate of plain-dealing honest Merchants, who, infatuated with the supposed Honesty of their Servants, leave them a full Career, to act as they please, and would even think it a Sort of Injustice in them to suspect a Servant, who all the while, sells their Goods for his own Use, and reduces them at last to the shameful Necessity of sacrificing their Credit and Reputation to the Security of their Person, by a Bankruptcy. A Merchant should also inquire if the Artificers, who bring Goods to his Warehouses, do not make Presents to the Warehouse-keepers, or Clerks, in Order to engage them to take bad as well as good Merchandizes, as it happens but too often, and which contribute much towards lessening the Credit of a Merchant, who sees his *Commerce* declining daily, without being capable to discover the Cause thereof, when there is no other than the Perfidy of their Servants, who put bad Goods in the Hands of his Customers, while at the same Time he designs they should be supplied with the best, since he pays for the best; a few Turns in his Warehouses, at least twice a Week, would remedy that destructive Inconveniency. He should likewise sit often in his Compting-Houses, and watch narrowly the Conduct of his Book-keepers, and examine often his Books himself, especially the most essential ones, as the Ledger, Cash-book, Book of Invoice, and of Remittances, *&c.* and therefore should be himself a very good Accomptant, or Arithmetician.

If a Merchant carries on a Domestick or Inland *Commerce*, besides all the heretofore-mentioned general Qualification, he must have these particular ones; *viz.* 1. To be very well skilled in the Commodities he deals in, so as to be a perfect Judge of their Goodness; never employing, or never buying but from the best Artificers; and never attempting to lower their Price, when he knew that it is impossible they could afford the best Sort of Goods for less; for then he would necessitate them for Fear of losing his Custom, and at the same Time have the same Gain; to impose bad Goods upon him. 2. To never retale his Goods if he has set up for a wholesale Merchant, since thereby he prejudices vastly the Retalers; or if he be obliged to do it, never allowing his Merchandize, thus retaled, at a lower Price than the Retalers can afford to sell them, since he is always sure to dispose of his Goods to those Retalers, whereas, was he to sell them at the same Price they are allowed to the Retalers, those poor Retalers Shops would be deserted, since 'tis reasonable enough to suppose that we can find a greater Choice, and better Merchandizes in a Warehouse than in a Retaler's Shop, and who would forbare resorting to it, if, besides these Advantages, he is sure also to buy there at a lower Price. 3. A wholesale Dealer should never give too much Credit to Retalers, unless he be very sure of his Money; neither will an honest Retaler, who designs to pay, or is in a Condition to pay, insist upon being trusted too much or too long, which is always very detrimental to a wholesale Dealer, who can gain a great deal more by the quick Return of his Money, than by the exorbitant Profit he expects from trusting, besides the great Risk he but too often runs of losing both Principal and Interest. 3. A wholesale Dealer ought not, under that Pretext of trusting, to put bad Merchandizes, or the Rubbish of his Warehouses, to Retalers, since he reduces them thereby to the Necessity of selling those bad Merchandizes often cheaper than prime Cost, and consequently to the Impossibility of repaying him, besides exposing their Shops to be discredited. 4. A Retaler can scarcely commit a greater Crime than that of taking Merchandizes at any Rate, and of any Sorts, good or bad, of a wholesale Dealer, with the premeditated Design of never paying for them, and of selling them at any Rate, with no other View than that of getting Money for his own Use. Another Crime as enormous as this, in a Retaler, is to sell by bad Weight or Measures, which is robbing impudently a whole Commonwealth, and distressing in particular the poorest Members of it; who, when they pay for a Pound or a Yard, *&c.* of Merchandize, are cheated, perhaps, by the Retaler of half an Ounce, or an Ounce in that Pound, or a Nail in that Yard. Though the Legislature in *England* has took all the necessary Precautions against such barbarous Frauds, by fixing a Standard for the Weights and Measures of the Kingdom, and appointed besides a Set of Men to visit from Time to Time the Retalers Shops, and examine their Weights and Measures, with Power to fine the Delinquents; but their Design is but too often frustrated in that Case; for those Persons, who were appointed for that Visit, should come on the Retaler unaware, or when he expects them less: They have not only a certain fixed Time for their Visit, but they likewise make them with so much Ceremony or Formality, that the unfair Dealer, being apprized of it, has all the Time to hide his bad Weights and Measures, and to put in their Place, those at the Standard, which are never seen in his Shop, but at the Time of those Visits; and if, by Chance, the Retaler is surprised in flagrant Delict, by thrusting some Money into the Hands of the Visitors, his Fraud is concealed, and he escapes unpunished. The Fraud does not consist wholly in the Weight, for a Retailer may have his Weights at the Standard, and nevertheless defraud his Customers; for a certain very honest Scale-maker, in *Maiden-lane*, *Wood-street*, in the City, told me once, that there are very few Shops, especially Chandlers Shops, who have not an Art to give a Turn to their Scales, and that they commonly thrust a Pin in the Loop a-Top of the String (in the Scales with Strings) on that Side they put the Merchandize in, to make that Side bare down sooner than the other, wherein they put the Weights.

A Merchant who carries on a Foreign Trade, should be very well acquainted with the different Products of the

the Country, or Countries he trades to, and which Part of those Countries produces the best Goods, and perfectly know the best, readiest, and cheapest Means to come at them, and consult the best Method how to have them the soonest Imported; for that Purpose he should have always (especially if he carries on a considerable *Commerce* capable to defray the Expences of it) a trusty and honest Factor (if such a Thing can be found) at the Place where he trades to; to whom he shall allow an honest Salary, and the Liberty to trade for himself if he pleases, (to take off all Sort of Temptation of Cheating) which Factor should take a particular Care, and spare neither Money nor Trouble, to have always the best Merchandize against the Time fixed for the Exportation; that the Carriages, or Ships should not wait through his Negligence, which Delays, let them be ever so little, are always attended with very great Inconveniencies, and always prove very prejudicial to his Merchant; for if he trades either by Land or Sea, he runs the Risk of losing, perhaps, the Sale of his Merchandize when arrived, or, at least, of keeping it longer on his Hands, than he had done, if his Factor had been more expeditious; for the Factors of other Merchants, who deal in the same Commodities, having used a greater Diligence in supplying their Masters, have put them in a Condition to supply the Country with the Goods it wanted, and with as much, perhaps, as it wanted at that Season, before the unhappy Master of the indolent Factor can receive his. The other Inconveniencies are, that if the Merchandizes are to be exported by Sea; the Ships, by those Delays, will lose the Opportunity of a fair Wind, and be detained one, perhaps two, four, and sometimes six Months longer in the Harbour than they should, during which Time the Provisions are exhausted, and a fresh Stock must be provided, the Wages of the Sailors run, and the Cargo is exposed, perhaps, to be damaged; besides the losing, if in Time of War, the Advantage of a Convoy, and of being exposed thereby to fall in the Enemy's Hands, or to a greater Inconstancy of the Weather, to Tempest, *&c.* by the Change of the Season, during which Ships are often lost.

But if the Negligence of a Factor is always prejudicial to a Merchant, his being over diligent can also be attended with some Inconveniencies, especially if he stuffs his Warehouses with damageable Goods, and which are not of a long keeping, a long while before they can be exported, because, perhaps, he meets with a Bargain; for of what Service can be that Bargain to his Merchant, if when he receives his Merchandizes they are not fit to be exposed to Sale, and he'll be obliged, perhaps, to sell them a great deal cheaper than prime Cost, or throw them in the Street?

If a Factor embarks Bale Goods, he must take Care to have them well pack'd up, that the Water could not reach them to damage them, and see himself that they be put in that Part of the Ship, where they are less exposed to Dangers of that Kind: If Wines or other Liquors, he must have them put into well conditioned Casks, strong and very well hoop'd, for otherwise, by the continual Motion of the Ship, they would chance to burst the Cask, and be lost, which happens but too often. He must visit the Ship before it sets Sail, to see if there are any necessary Reparations wanted, and see them done, and also consult the Wind as often, and even oftner than the Master of the Ship himself does, that he may lose no Opportunity of sailing when the Wind serves, and there is no just Cause to hinder it.

Besides all this above-mentioned, a Factor is to be very exact in observing the Commission or Order of his Merchant; he ought to inform himself carefully of the Commodities his Merchant deals in, and what sells best, and of the Course of Exchange; to inform his Merchant whenever he buys or sells, Ships off, or receives Goods; for if he sells a Parcel of Goods, and neglects to give Advice thereof, and in the mean Time the Buyer proves insolvent, the Factor shall pay the Debt, although he had an absolute Commission; for no Man gives Commission to have his Goods sold, and not to know of it, though the Commission be absolute.

I say absolute Commission, for there are two Sorts of Commissions given to Factors, *viz.* an absolute Commission, and a limited one.

An absolute Commission is when a Merchant gives his Factor free Power to buy, sell, or barter a Commodity, at Discretion, or as he thinks fit; in which Commission are usually these Words, *Buy or sell such Commodity as the Market goes:* Or, *As to Price, I leave it wholly to you, and desire you to act as for your self.* But a limited Commission does bind, or tye the Factor to a certain Price, for the buying or selling any Kind of Merchandise; in which Commission are usually these Words, *Buy or sell such a Commodity at so much, or if you cannot, let it alone:* Or, *If you cannot sell such Commodity, at such a Price, keep it till farther Order.*

If a Factor, says *Malons*, sells Goods for his own Account to another, payable at Time, and receives the same when it is due; and, in the mean Time, lets other Men's Money remain in that Man's Hands unpaid, for Goods by him formerly sold; this Factor is to be answerable for that Money to those other Men, although he should never recover a Penny of it: For he can't, without Fraud, bear with the Non-payment of other Men's Money, when due, and procure the Payment of his own.

If a Factor buy a Commodity according to Commission, and afterwards the Price advances, and the Factor fraudulently converts the Gain to his own Use; the Merchant, in this Case, may recover Damages from his Factor, by the Custom of Merchants, upon Proof thereof.

If a Factor, by the Advice of his Merchant, buy a Commodity with his Merchant's Money, or by his Credit, and his Factor, without Advice, sells the same again for his own Benefit; the Merchant shall recover this Gain of the Factor, and, moreover, shall be amerced for the same.

If a Factor sells his Merchant's Goods to a Man discredited, and that Buyer breaks before Payment, the Factor shall pay for the said Goods, unless he can prove that he was ignorant of it, and that he trusted the Man for Goods of his own also.

If a Factor do, by false Entry at the Custom-House, conceal Part of the Custom, without Advice of his Merchant, whereby the Goods become forfeited to the Prince; the said Factor shall answer the Value thereof to his Merchant, as they cost, if for Goods to be exported; or as they might have been sold, if it be for Goods to be imported.

If a Factor, or Merchant, in *England*, procures a Merchant Stranger Goods, to pay but *English* Custom, by entering them as his own; such Factor, or Merchant, shall forfeit all his Goods to the King.

If a Factor makes any Return to his Merchant for the neat Produce of Goods sold, in prohibited Goods, without Commission, the Factor shall bear the Loss, or Damage; but if a Factor do any unlawful Act, by Order of his Merchant, the Merchant shall make good the same, and the Factor shall pay triple Damages.

If a Factor be robb'd of his Merchant's Goods, he shall bear the Loss.

If a Factor buys Goods which afterwards become damag'd by Accident, the Merchant shall bear the Loss.

A Factor is only accountable for the Money he receives for Goods sold by him, *&c.* but if any Part prove false Coin, or bad, he is to make it good.

If a Factor, by Bill of Exchange, makes a Sum of Money payable to a Person that breaks before the said Bill is due; the Factor, in this Case, may, and ought to countermand his Bill from the Acceptor, which if he has paid the broken Merchant before due, he is answerable for the same to the Factor.

If a Factor has Orders from his Merchant to insure Goods, *&c.* for a certain Voyage, and has Money in his

his Hands sufficient to pay the *Premium*; if this Factor neglects the same, and does not insure, and the said Ship or Goods perish at Sea, the Factor shall be answerable for the Damage to his Merchant, unless he gives very strong Reasons why he did not insure.

If a Factor, having insur'd Goods, *&c.* which happen to be lost, and the Factor (having no Order or Commission to act at Discretion) makes Composition with the Insurers, he shall be answerable to his Merchant for what Abatements he makes, as well as for the rest that was insured.

If a Factor wrongs his Merchant by Errors in Accounts, he is to make good the same, not only the Principal, but likewise the Interest thereof; and the contrary, if the Factor happens to wrong himself by not charging the Merchant. It is therefore usual for all Factors, in their Account of Sales, or Invoices, to write at the Foot of the Accounts, *Errors excepted.*

Factorage, Provision, or Commission, is the Wages of a Factor, and is so much to the Factor for every hundred Pounds Value of the Produce of Goods bought or sold by the said Factor; which Provision is usually more or less, according to the Distance of the Factory, or Place of Trade. Thus, a Merchant at *London* allows his Factor,

At *Barbadoes*, and most other Parts of the *West-Indies* —	5 *l. per Cent.*	Commission for buying, and as much for selling.
At *Smyrna*, *Aleppo*, and other Parts of *Turkey* —	3 *l. per Cent.*	
At *Leghorn*, and other Parts of *Italy* —	2½ *l. per Cent.*	
At *Spain*, *Portugal*, or *France* —	2 *l. per Cent.*	
At *Hamburg*, and other Parts of the East-Land —	2 *l. per Cent.*	
At *Rotterdam*, and other Parts of the *United Provinces*	1½ *l. per Cent.*	
Inland Factors have usually —	1¼ *l. per Cent.*	

Which Factorage, or Commission-money, is inserted among the other Charges the Factor has been at, concerning his Merchant's Goods; as Warehouse-Room, Brokage, Wharfage, Custom, *&c.* and being deducted out of the total Sum the Factor sold his Merchant's Goods for, the Remainder is call'd the neat Proceed of the Account.

A Merchant who trades by Sea, being provided with a Factor thus qualified, at all the principal Ports he trades to; must also take Care, if he designs to make all the Advantage he can of his *Commerce*, whom he intrusts with the Command of his Ships; for the bad Conduct, Knavery, *&c.* of a Master of a Ship, is oftner the Cause of the entire Ruin of a Merchant, than any other Accident that can happen to him: He should search Masters for his Ships, which, besides being very expert in the Art of Navigation, should have his Interest as much at Heart as his own; and not employ those indolent, and lazy Fellows, who are so tedious in their loading and unloading, that they devour Half the Profit of their Freight, before they can be persuaded to quit the Harbour; and unless they have always a Merchant, or his Factor, at their Backs, are two or three Months in doing what could have been easily done in a Month or six Weeks; who pretend to be always hunting after their Sailors, and their Sailors after them, so that neither of them wish to find one another: Nor those barbarous Wretches, who use their Sailors worse than if they were rowing in a Galley in *Turkey*; beating them inhumanly, and sometimes killing them; which is the Cause, as might reasonably be supposed, why the Crew of so many *English* Merchant Ships rise against the Master, and run away with the Ship, which does not happen in an Age in another Country, where they use Sailors, especially in *France*, with a great deal of Humanity and Moderation; never beating the Sailors, but for some great Fault committed, and then they receive the Punishment prescrib'd by the King's Ordinances, for the good Order to be observed in the Navy. For if, in *France*, the Master of a Merchant Ship has used a Sailor barbarously, during the Voyage; that Sailor, by making his Complaint, at his Return, to the *Commissary*, or *Intendant* of the Marine, may expect an ample Satisfaction, and the Master to be punished according to the Heinousness of the Crime: And if he was to kill one of his Sailors, which never happens, he could not escape from being hanged. Nor those mercenary Masters, who seldom consider how good the Sailors are, but how cheap they can have them; or who starve their Sailors, or feed them with bad Provisions; or so overload a Ship, that it can neither sail, nor be worked well; hence its being always in Danger of being lost, in hard Weather: Or those, who, to save Wages, never take a sufficient Number of Hands to work the Ship: Nor those who are so infatuated with their pretended Skill in the Art of Navigation, as to be above following any other Advice but their own; and often go to break their Noses against a Coast, and wreck on a Rock, *&c.* when they have been forewarned against it. For the Master of a Ship, let him be ever so expert, can't fail with too much Caution, when he thinks himself near any imminent Danger. Nor those infamous Thieves, who wreck their Merchant's Ship on purpose, to defraud those who have insured it, or for some other private View. Was I a Merchant, I would never intrust with the Command of a Ship, a Master who is universally hated by all the Sailors that know him; for it is a Sign that he really uses them very ill, and would, perhaps, lay hold of any Opportunity to be revenged of him, at the Merchant's Expence.

A Merchant employs, also, oftentimes, *Brokers*, which are a Kind of Factors, who are usually decay'd Merchants, or Men that know their Trade well, but perhaps have not a Stock to trade themselves, but having great Acquaintance, are employ'd by Merchants to bring Customers to buy their Merchandise, for which the Merchant usually allows the Brokers about Half *per Cent.* These Men are mostly of known Integrity, and upon the Broker's Word the Merchant gives often the Buyer Credit.

These are the principal Persons commonly employ'd by Merchants who carry on a very considerable foreign *Commerce*; and they should also take Care, that among those, especially their Factors, Cashiers, and Warehouse-keepers, should speak several Languages, especially the most universally spoken in the Countries they trade to. If they trade to the *West-Indies*, their Factors there should speak *Spanish*; if to the *Levant*, or *Turkey*, the *Lingua Franca*; if to *Italy*, *Italian*, or *French*; if to the *North*, *German*, or *French*; if to the *Low Countries*, *French*; if to *Holland*, *Dutch*, or *French*: And I can venture to say, that a Factor, who speaks *French*, can serve for all Parts of the World, except *Turkey*, and the *West-Indies*. The Merchants themselves, if it was possible, should understand several Languages, if it was but only to read their Letters; they should also know something of naval Architecture, or the Construction of a Ship, that they may be capable to judge of its Soundness, when it wants repairing, and when well repair'd; of the Goodness of the Rigging, *&c.*

The next Thing which a Merchant should be thoroughly acquainted with, are, the different Products of the several Countries he trades to; and to help our Pupils to acquire that Knowledge, I'll put here a Catalogue of all the Commodities which the several Parts of the World can supply him with, alphabetically digested; mentioning, likewise, under each Article,

ticle, the principal trading Port-towns of each Part of the World where a Ship is to put to; and beginning with

AFRICA.

Note, That *Africa* is about 1200 Times as big as *England*; and the Isle of *Madagascar* is near twice as big as *England*.

The principal Towns of Trade, or Ports, in that Part of *Africa* call'd *Barbary*, are, *Sally*, *Morocco*, *Tangier*, *Fez*, *Ceuta*, *Algiers*, *Sancta Crux*, *Saphia*, *Tripoli*, and *Barca*. Along the Sea Coast between *Guinea* and the Cape of *Good Hope*, are, St. *James*'s Fort, in the River *Gambia*, *Sierra Leona*, *Sherboro*, *Madre-bomba*, Cape *Miserado*, *Cormontyn*, *Emacham*, *Rio Nuno*, the *Ivory Coast*, *Widdah*, and Cape *Coast Castle* on the Gold Coast.

That Part of *Africa* between *Guinea* and the Cape of *Good Hope* produces, chiefly, Gold Dust, Ambergrease, *Guinea* Pepper, Elephants Teeth, Civet, Ostrich Feathers, Amber, Ebony, Canes, Cocoa-nuts, Cloves, Saffron, Crystal, and abundance of Negroes, which furnish all the Plantations of the *Europeans* in *America* with Slaves. The other Part, call'd *Barbary*, produces Hides, Wax, Sanders, Sugar, Oil, Cordovans, Hemp, Flax, Dates, Almonds, Indico, Gum, Rice, Citrons, Lemons, Copper, *&c.*

The Commodities exported out of *Europe* into *Guinea*, and from thence as far as the Cape of *Good Hope*, are, Fire and other Arms, Knives, Hatchets, and all Sorts of hard Wares, *&c.* Tobacco, Brandy, Beads for Necklaces, of all Sorts of Colours, Shells, call'd Porcelains, or Zimbi's, for Coins, *&c.* Those exported into *Barbary*, are, all Kinds of light woollen Manufactures, of all Colours, especially yellow, red, and green, *&c.*

The chief Towns of Trade in *Madagascar*, are, *Charamboule*, and *Faushere*. *Madagascar* produces Ginger, Cloves, Red Sanders, Saffron, Wax, Amber, Gum, Ebony, Crystal, Cocoa-nuts, and Metals. The Commodities exported out of *Europe*, into those Places, are the same as those exported into *Guinea*, the Shells excepted.

AMERICA.

Note, That *America* is about 90 Times as big as *England*, and that it is divided into three Parts, *viz.* *North America*, the *Middle Part*, and *South America*.

The chief trading Towns, and Places, of *North America*, are, *Quebeck*, *Brest*, *Port Royal*, *Inquebet*, *Port Nelson*, *Hudson's Bay*, and *Padousack*. The principal Commodities of all these Places, are, Bever, and other rich Furs, Whale-Oil, Stockfish, *&c.*

The chief trading Places of the *Middle Part* of *America*, are, *Boston*, and *London*, in *New England*, *New York*, *Philadelphia* in *Pensilvania*, *Oxford* in *Maryland*; *James Town*, and *Wiccomoco*, in *Virginia*; *Charles Town* in *Carolina*, *Port Royal*, *Sevil*, and *St. Jago*, in *Jamaica*; *St. Domingo*, *Cape Francois*, *Port de Paix*, *Leogane*, &c. in the Isle of *St. Domingo*; *Port Royal*, &c. in *Martinico*; *Antego*, and *Barbadoes*, in the *Caribbee Islands*; and also *Porto Bello*, *Panama*, *Carthagena*, *Curasco*, *Caracco*, *Porto Rico*, *Acapulco*, *Mexico*, and *Vera Cruz*. The chief Commodities of all these Places, are, Cotton-wool, Sugar, Tobacco, Furs, Indico, Ginger, Cloves, Mace, Nutmegs, Rosin, Turpentine, Copper, Tar, Deal Boards, Gold, Silver, Pearls, Cocoa-nuts, Cochineal, Honey, Balm, Amber, Hides, Tallow, Salt, medicinal Drugs, and Log-wood.

The chief trading Towns of *South America*, are, *Caramantu*, *St. Maguel*, and *Morequinto*, in *Firm Land*; *Poston*, *Cusco*, *Lima*, *Gucaquil*, *Buesa*, and *Creux de Nueva*, in *Peru*; *St. Salvador*, *St. Vincent*, and *St. Sebastian*, in *Brasil*; *Assumption*, *Conception*, *Villa Rico*, and *Cividada*, in *Paraguay*; and *St. Jago*, *Mondoc*, and *Serona*, in *Chili*. The principal Commodities of those Places, are, beside Venison, Fish and Fowl, Gold and Silver in abundance, Balsam, Precious Stones, Long Pepper, Gums, Rosin, Drugs, Cottons, Tobacco, Cochineal, Brasil-wood, Sugar, Train-Oil, Brass, Iron, Copper, and Honey.

The chief Commodities exported out of *Europe* into *America*, are, all Sorts of *European* Manufactures, as Woollen and Linnen Cloth, Hats, Stockings, Gloves, *&c.* Fire and other Arms, Toys, *&c.* besides Meal, Wine, *&c.*

ARABIA.

Note, That this Country is about 15 Times as big as *England*, and borders South-west on the *Red Sea*, where the Children of *Israel* pass'd thro' on dry Land.

The chief Towns of Trade in *Arabia*, are, *Medina*, *Mecca*, *Aylan*, *Heratt*, *Janama*, *Ziden*, and *Dhafar*. *Arabia* produces, chiefly, Gold, Precious Stones, Coffee, Cinnamon, Myrrh, Balm, Frankincense, Olibanum, Benzoin, Storax, Manna, Cassia, *&c.* The chief Commodities exported out of *Europe* into *Arabia*, are, Woollen Manufactures particular for that Country.

CHINA and TONQUIN.

Note, That *China* is about 18 Times as big as *England*, and is said to contain 1885 Cities.

The chief Towns of *Commerce* in *China*, are, *Pekin*, *Cachao*, *Kianguing*, *Hangchen*, *Cinan*, *Hean*, *Danea*, and *Quangchen*. *China* produces Gold, Silver, Precious Stones, Porceline, China Ware, Quicksilver, China Wood, Sugar, Cottons, Silks, Camphor, Rhubarb, Civet, Musk, and Ginger. The chief Commodity exported into *China*, is Money.

EAST-INDIES.

Note, That the *East-Indies*, *i. e.* the *Mogul*'s Empire, is about 19 Times as big as *England*.

The chief Places of *Commerce* (on this Side of the Peninsula, or nearest Part of *India*, on the *Malabar* Coast) are, *Surat*, *Bombay*, *Cambay*, *Goa*, and *Daman*; and on the further Side of the Peninsula, on the *Coromandel* Coast, *&c.* the chief Towns are, *Fort St. George*, *Bissuagar*, *Maliapur*, *Negapitan*, *Hughley*, *Balescar*, and *Agra* the Seat of the *Great Mogul*; also, *Achin*, *Bencouli*, and *Indrapore*, *English* Factories, on the Coast of the Island of *Sumatra*; which, tho' near, are not in the Territories of the *Mogul*.

The *East-Indies* produce Callicoes, Canes, Cottons, Velvets, Silk, Taffata's, Carpets, Muslin, Indico, Aloes, Sattins, Saltpetre, Spices, Amber, Borax, Ambergrease, Rhubarb, Wormseed, Sal Ammoniack, Rice, Tea, Fans for Women, Cornelian Rings, Agates, Rough Diamonds, Pearl, China Ware, Cocoa-nuts, Cinnamon, Ginger, Pepper, Cassia, Gold and Silver, Porceline Earth, Bengals, and Alabaster. The chief Commodity imported into *India*, is Money.

ENGLAND, or GREAT-BRITAIN.

Note, That *Great-Britain* contains 38 Counties of *England*, 16 Counties of *Wales*, and 35 of *Scotland*.

The chief Cities, or Towns, of *Commerce*, in *Great-Britain*, are, *London*, *Bristol*, *Liverpool*, *Newcastle*, *Hull*, *Plymouth*, and *Norwich*, in *England*; *Edinburgh*, *Aberdeen*, *St. Andrews*, *Glascow*, and *Leith*, in *Scotland*.

England produces, chiefly, very fine, and great abundance of Sheep's Wool; as that of *Herefordshire*, *Lei-*

Leicestershire, the *Isle of Wight*, *Devonshire*, *Gloucestershire*, *Yorkshire*, &c. Stuffs, as those of *Norwich* Crapes, Grograms, Barateens, Camlets, Calamanco's, Anterines, Paragons, *&c.* of *Exeter*, as Says, Semperternums, Perpetuano's, *&c.* Druggets, Serges, Fustians, Bays, Silks, Velvets, Sattins, Flannels; Leather, Tin, Copper, Lead, Allum, Copperas; Hops, Cheese, Tobacco-pipes, Bricks, Lime, Soap, Pot-Ashes, Glass, and Saffron; Sea-Coal and Scots-Coal, in the North call'd Cannel; Beer, and Ale. The chief Commodities imported into *England*, are, a great deal of *Portugal* and *Spanish* Coins, Raw Silk, Wine, Brandy, Linnen Cloth, Oil, Currants, Raisins, Marble, *&c.*

FRANCE.

Note, That *France* is near 4 Times as big as *England*, and contains 12 *Governments*, besides the Dutchy of *Lorrain*, and the *French* County.

The chief Towns, or Places of *Commerce*, in *France*, are, *Nantz*, *St. Malo*, *Port Louïs*, or *Lorient*, *Morlaix*, *Rochelle*, the *Isle of Ré*, *Havre de Grace*, *Bourdeaux*, *Dunkirk*, &c. on the Ocean; and *Marseilles*, *Toulon*, *Antibes*, &c. on the *Mediterranean*.

France produces Wines, Paper, Almonds, Coral, Linnen Cloths, Salt, Brandy, Silks, Velvets, Buckrams, Glass, Wheat, and all Kinds of Grain, Rosin, Pruans, *&c.* The chief Commodity imported into *France*, is Money.

GEORGIA in *ASIA.*

Note, That *Georgia* is 3 Times as big as *England*.

The chief Towns of *Commerce* in *Georgia*, are, *Tettlis*, *Sophia*, and *Zittach*.

Georgia produces Bevers, Martins, and other Furs; Leather, Wax, Linnen, Thread, and Honey.

GERMANY.

Note, That *Germany* is more than 3 Times as big as *England*, and is divided into 10 Circles.

The chief Cities, or Towns of *Commerce*, in *Germany*, are, *Vienna*, *Noremberg*, *Quedlinburg*, *Brunswick*, *Emden*, *Strasburgh*, *Frankfort*, and *Cologne*.

Germany produces, chiefly, Wool, Steel, Latten, and Iron Ware, Fustians, Lead, Copperas, Allum, Hams, Linnen Cloth, Yarn, Paper, Bell-metal, Quicksilver, Mum, Rhenish Wine, Tin, and Iron Work. The chief Commodity imported into *Germany*, is Money.

IRELAND.

Note, That *Ireland* is about 3 Fifths of *England*, and contains 32 Counties.

The chief trading Towns, and Places, in *Ireland*, are, *Dublin*, *Kinsale*, *Galloway*, *Limerick*, *Drogheda*, and *Cork*.

Ireland produces Wool, Yarn, Flax, Linnen Cloth, Furs, Hides, Tallow, Hemp, Honey, Wax, Herrings, and many other Sorts of Fish; Frizes, Rugs, Salt Beef, Pipe-Staves, Cattle, black and white; Butter, Cheese, Salt, Wheat, and most other Grains; Iron, and Lead. The chief Commodities imported into *Ireland*, are, Money, Wine, Brandy, *&c.*

ITALY.

Note, That *Italy*, including the Republick of *Venice*, and the Isles, is as big as 1 and a Half of *England*, and is divided into 12 Provinces, besides the Isles of *Sicily*, *Sardinia*, and *Corsica*.

The chief Towns, or Places of *Commerce*, in *Italy*, are, *Leghorn*, *Venice*, *Genoa*, *Naples*, *Messina*, *Palermo*, &c.

Italy produces Sarsenets, Velvets, Taffata's, Fustians, Cloth of Gold and Silver, Wine, Cottons, Currants, Rice, Raw Silk, Allum, Vitriol, fine Glass, Grograms, Thrown Silk, Sattin, Corn, Marble, Oil, *&c.* The chief Commodities imported into *Italy*, are, all Kinds of Woollen Manufactures, especially Broad Cloath, Hats, Stockings, *&c.* also all Kinds of Linnen Manufactures, *&c.*

LOW COUNTRIES, or 17 *PROVINCES.*

Note, That the *Low Countries* are about 1 Third of *England*.

The chief Cities, Towns, or Places of *Commerce*, in the *Low Countries*, are, *Amsterdam*, *Rotterdam*, *Ostend*, *Bruges*, *Antwerp*, and *Middleburg*.

The *Low Countries* produce, chiefly, Tapestry, fine Linnen, Silks, Velvets, Ropes, Butter, Cheese, Buff, Leather, Ox-Hides, Armour, Bruges Thread, Chimney-backs, Steel, Hops, Brushes, Grograms, Camlets, fine Tape, Bottles, Pots, large Horses, Soap, Sword-blades, *&c.* The Commodities imported into the *Low Countries*, are, chiefly, Money, Wine, Brandy, Salt, Oil, *&c.*

POLAND.

Note, That *Poland* is about three Times as big as *England*.

The chief trading Towns of *Poland*, are, *Dantzick*, *Wilna*, *Warsaw*, *Cracow*, and *Breste*.

Poland produces, chiefly, Masts for Ships, Linnen, Pitch, rich Furs, Wax, Rosin, Soap, Corn, Amber, Ashes, Milk, Butter, Cheese, *&c.* The chief Commodities imported into *Poland*, are, Money, Woollen Manufactures, as Cloth, Stockings, Hats, and also Silks, Velvets, *&c.*

RUSSIA, or *MUSCOVY.*

Note, That *Russia* is 12 Times as big as *England*, and is divided into 17 Provinces; but a great Part of it is uninhabited.

The chief Towns of *Commerce* in *Russia*, are, *Moscow*, *Archangel*, *Petersbourg*, *Riga*, &c.

Russia produces, chiefly, fine Leather, Furs, Martins, Sables, Train Oil, Wax, Honey, Slad, Hemp, Flax, Iron, Saltpetre, Brimstone, *&c.* The principal Commodities imported into *Russia*, are, all Kinds of Woollen Manufactures, Wine, Brandy, *&c.*

SPAIN and *PORTUGAL.*

Note, That *Spain* is more than twice as big as *England*, and is divided into 20 Kingdoms or Provinces.

The principal Places for *Commerce* in *Spain* and *Portugal*, are, *Bilboa*, *Cadiz*, *Lisbon*, *Gallicia*, *Barcelona*, *Malaga*, *Sevil*, *Oporto*, &c.

Spain and *Portugal* produce, chiefly, Wine, Wool, Madder, Sugar, Oil, Almonds, Anchovies, Annifeed, Figs, Raisins, Bayberries, Oranges, Lemons, Saffron, Soap, Iron, Allum, white Marble, Liquorice, Shumack, Cork, Woad, Rice, Silk, and Lamb-Skin. The principal Commodities imported into *Spain* and *Portugal*, are, all Kinds of Woollen and Linnen Manufactures.

SWEDEN, *NORWAY*, *DENMARK*, and Places about the *Baltick*.

Note, That *Sweden* is twice as big as *Denmark*, and, together, they are more than four Times as big as *England*, and contain 13 Provinces, or Parts.

The

The chief Places of *Commerce* in these Kingdoms, are, *Hamburgh*, *Copenhagen*, *Stockholm*, *Wibourg*, *Sleswick*, *Lubeck*, *Bergen*, *Calmar*, *Abo*, *Nottemburgh*, *Bremen*, *Narva*, *Leipsick*, and *Riga*.

Sweden, *Denmark*, and Places adjacent, produce, Ox-Hides, Goat and Buck-Skins, rich Furs, Metals, Oak, Fir, Honey, Tallow, Bow-Staves, Ashes, Cables, Canvas, Masts, Deal and Clapboards, Pitch and Tar, Cordage, Ropes, Hemp, Flax, Linnen, Yarn, Stockfish, Wax, Wainscote, Wheat, Rye, *&c.* The Commodities imported into those Places, are, chiefly, Money, Wine, Brandy, Salt, *&c.*

TARTARY.

Note, That *Tartary* is the biggest Empire in the World, being 70 Times as big as *England*; though the North-East is little known.

Tartary produces, chiefly, rich Furs, as Sables and Martins, Musk, Cinnamon, Silk, Flax, Camblets, Rhubarb, and other Drugs.

TURKEY in *ASIA.*

Note, That *Turkey* in *Asia* is about 6 Times as big as *England*, and is divided into three Parts, *Natolia*, *Syria*, and *Armenia*; and they subdivided into 19 *Beglerbegs*, besides the Isles of *Cyprus*, *Rhodes*, &c.

The chief trading Towns of *Turkey* in *Asia*, are, *Aleppo*, *Scanderoon*, *Smyrna*, *Famagusta* in *Cyprus*, *Maraz*, *Acsar*, *Bursa*, *Tarso*, *Cogni*, *Amasia*, *Acra*, *Siam*, *Tripoli*, *Schame*, *Damat*, *Gaza*, *Jerusalem*, *Erzerum*, and *Balsora*.

Turkey in *Asia* produces Raw Silk, Cotton Wool, Drugs, as Opium, Galls, Rhubarb, *&c.* Soap, Camlets, Tapestry, excellent Balm, Wine, Oil, Cotton Yarn, Mohair, Honey, Goats Hair, Worsted, Box Wood, and many other Commodities of lesser Note.

TURKEY in *EUROPE.*

Note, That *Turkey* in *Europe* is about 5 Times as big as *England*, and contains 18 Provinces.

The chief Towns for *Commerce* in *Turkey* in *Europe*, are, *Nipoli*, *Nisithra*, *Corfu*, *Salonicha*, *Belgrade*, *Adrianople*, *Setines*, and *Bialogrod*, or *Badizlack*.

Turkey in *Europe* produces, chiefly, Wine, Oil, Metals, Damasks, Velvets, Vitriol, Sulphur, and *Turkey* Grogram. The principal Commodities imported into *Turkey*, are, Woollen Manufactures of a particular Make, and dy'd yellow, green, red, *&c.*

Although our Merchant be thus very well acquainted with all the chief Products of the several Countries the known inhabited World is divided into; he must, also, perfectly know which, among so infinite a Number of different Sorts of Merchandizes, can best serve his Purposes, and are of greatest Request in the Places he wants to dispose of them; in order to have a quick Return of his Money; and thereby, having always a sufficient Fund by him to carry on his *Commerce*, without Intermission, be capable to lay hold of all Bargains which Merchants are often forced to let slip, for want of ready Cash, unless they borrow it at an extravagant Interest, which lessens much their Gain.

A Merchant must likewise, before he can be entirely qualify'd to trade in either of those Countries, know the different Species, or Coins of those Countries, their Weights, Measures, *&c.*

As for the real Coins of the several Countries of the World, and their Value, we have already mention'd them, in so particular and exact a Manner, and so well circumstanced, in the preceding Article of *Coining*, that it would be needless to repeat it here; but as Merchants use as often *imaginary Money*, as *real Coins*, we must inform our Pupils what *imaginary Money* is, and how it is used.

IMAGINARY MONEY, call'd, also, *Money of Account*, is that which has never existed, or, at least, which does not exist in real Species, but is a Denomination invented, or retain'd, to facilitate the stating of Accounts, by keeping them still on a fix'd Footing, not to be chang'd like current Coins, which the Authority of the Sovereign raises, or lowers, according to the Exigency of State: Of which Kind are *Pounds*, *Livres*, *Maravedi's*, &c.

Boisard says, that *Money of Account* is a Sum of Money, or a certain Number of Species, which may change in Substance and Quantity, but never in Quality. Thus, fifty Pounds consists of fifty Pieces call'd *Pounds*, which are not real, but may be paid in several real Species, as in Guineas, Crowns, Shillings, *&c.* which are changeable, as Guineas, *v. gr.* which are sometimes higher, sometimes lower.

Almost every Nation has its different *imaginary Money*, or Manner of reckoning Money; I say almost every Nation, for the *Americans* have none; the respective *Money of Account* of the *Europeans*, who have there made Settlements, being establish'd with them. As to *Africa*, the Cities of *Barbary* and *Egypt*, whither the *Europeans* traffick, reckon much after the same Manner as in the *Levant*, and in the Dominions of the *Grand Seignior*; for the rest throughout the vast Extent of the Coast of *Guinea*, where the *Europeans* trade for Negroes, Gold-Dust, Elephants Teeth, Wax, Leather, *&c.* either the miserable Inhabitants do not know what *Money of Account* is, or if they have any, it is only what Strangers, settled among them, have introduc'd. Therefore I'll confine myself to the *Money of Account* in *Asia*, and in *Europe*; taking, however, some Notice of the *Macoute*, and the *Piece*, which are the *Money of Account* used in some Parts of *Africa*.

The *Money of Accounts* used in *Asia*, are, the *Turkish*, *Persian*, *Chinese*, *Japonese*, *Mogul*, &c. *Money of Accounts*.

The *Turks*, both in *Europe*, *Asia*, and *Africa*, account by Purses either of Silver or Gold, (the last only used in the *Seraglio*) with Half Purses of Gold, call'd, also, *Rizes*. The Purse of Silver, equal to 150 *French* Livres, or 112 *l.* 10 *s.* *Sterling*, the Half Purse in Proportion; the Purse of Gold 15000 Sequins, equal to 30000 *French* Crowns, or 6750 Pounds *Sterling*, seldom used but for Presents to Favourites; so that a Purse simply signifies a Purse of Silver, or 1500 Livres. They are call'd *Purses*, because all the Money in the Treasury of the *Seraglio* is kept in leathern Bags, or Purses, of those Contents. The Merchants, also, use *Dutch* Dollars, call'd *Asliani*, or *Abouquels*, with *Meideins*, and *Aspres*; the Dollar equal to 35 *Meideins*, and the *Meidein* to 3 *Aspres*, the *Aspre* to $\frac{1}{2}$ *Sterling*.

In *Persia* they account by the *Toman*, (call'd, also, *Man*, and *Tumein*) and the *Dinar-bisti*. The *Toman* is composed of 50 *Abassi's*, or 100 *Mamodi's*, or 200 *Chapes*, or 10000 *Dinars*; which, accounting the *Abassi* on the Foot of 18 *French* Sols, or the *Dinar* on that of a *Denier*, amounts to 3 *l.* 12 *s.* 6 *d.* *Sterling* the *Toman*. They also account by *Larins*, especially at *Ormus*, and on the Coasts of the *Persian* Gulph; the *Larin* equivalent to 11 *d.* *Sterling*, and on that Footing used also in *Arabia*, and a great Part of the *East-Indies*.

In *China* the *Money of Accounts* are, the *Pic*, *Picol*, and *Tael*; which, though, in Effect, Weights, do likewise serve as *Money of Accounts*, obtaining in *Tonquin*, as well as *China*. The *Pic* is divided into 100 *Cati's*, some say 125; the *Cati* into 16 *Taels*, each *Tael* equal to 1 Ounce 2 Drachms; the *Picol* contains 66 *Cati's* $\frac{2}{3}$; the *Tael* equivalent to 6 *s.* 8 *d.* *Sterling*.

Japonese Money of Accounts are, the *Sbuites*, *Cockeins*, *Ocbans*, or *Oubans*, and *Taels*. Two hundred *Sbuites* are equal to 500 *Dutch* Pounds; the *Cockein* equal to 10 *Loco Country* Pounds; 1000 *Ocbans* make 45000 *Taels*.

At *Surat*, *Agra*, and the rest of the Estates of the *Great Mogul*, they use, for *Money of Accounts*, *Lacres*, *Acres*,

Acres, or *Leeths*; implying an hundred thousand: Thus, a *Lacre* of *Rupees* is 100000 *Rupees*, the *Lacre* being nearly on the Footing of the Million in *France*, or the Tun of Gold in *Holland*.

Throughout *Malabar*, and at *Goa*, they use *Tanga's*, *Vintins*, and *Pardos Xeraphin*. The *Tanga* is of two Kinds, *viz.* of good and bad Alloy; hence their Custom is, to count by good or bad Money. The *Tanga* of good Alloy is $\frac{1}{5}$ better than the bad, so that 4 *Tanga's* good Alloy being allow'd the *Pardos Xeraphin*, there will be requir'd 5 of the bad. Four *Vintins* good, make a *Tanga*, likewise, good; 15 *Baruco's* a *Vintin*; the good *Baruco* is equal to a *Portuguese Rec*, a *French Denier*, or $\frac{1}{15}$ of a Penny *Sterling*.

In the Island of *Java* they use the *Sonta*, *Sapacou*, *Fardos*, and *Catis*; which last Money, together with the *Leeth*, or *Lacre*, is much used throughout all the *East-Indies*. The *Santa* is 200 *Caxa's*, or those little Pieces hung on a String, mention'd in our Treatise of *Coining*, and is equal to $\frac{10}{12}$ of a Penny *Sterling*; 5 *Santo's* make the *Sapacou*; the *Fardos* equal to 2 *s.* 8 *d.* *Sterling*; the *Cati* contains 20 *Taels*, the *Tael* 6 *s.* 8 *d.* *Sterling*.

There are Islands, Cities, and States of the *East-Indies*, whose *Money of Accounts* is not here expressed, partly because reducible to some of those abovemention'd; and partly because we find no certain consistent Account of them in any of the Authors or Memoirs herein consulted.

The *Money of Accounts* used in *Europe*, are, the *French*, *English*, *Spanish*, *Italian*, *Sicilian*, *Polish*, *German*, *Dutch*, *Swedish*, *Danish*, and *Muscovite Money of Accounts*.

The *French Money of Account* was antiently the *Parisis*, *Tournois*, and the *Ecu*, or Crown; but since the Ordonnance of 1667, they only reckon by *Livres*, *i. e.* Pounds; *Sols*, *i. e.* Shillings; and *Deniers Tournois*, *i. e.* Pence. The *Livre* 20 *Sols*, or $\frac{1}{3}$ of the *Ecu*, or Crown; the *Sol* 12 *Deniers*. The *Maille*, *Obole*, or Halfpenny *Tournois*, is also, now, a *Money of Account*, though antiently a real Coin. The *Maille* is divided into two *Pits*, and each *Pit* into two *Semipits*, all *Money of Accounts*; to which must be added, the *Franc*, of the same Value with the *Livre*, viz. 20 *Sols Tournois*; and the *Blanc*, 5 *Deniers Tournois*; and the *Carolus* 10; all three antiently real Coins.

In ENGLAND they account by *Pounds*, *Shillings*, and *Pence*, *Sterling*; the *Pound* containing 20 *Shillings*, and the *Shilling* 12 *Pence*.

In SPAIN the *Money of Accounts* are, the *Peso*, *Ducat* of Silver, and *Vellon*, *Rial* of *Vellon*, and *Cornado's* and *Maravedi's* of Silver and Vellon. The *Peso* is to the *Ducat* as 12 to 10; the *Ducat* of Silver contains 11 *Rials* of Silver; and that of Vellon, 11 *Rials* of Vellon; which makes a Difference of near one Half; the Silver *Rial* being current for 7 *s.* *Sterling*, and that of Vellon only at 3 *s.* 8 *d.* *Sterling*; 34 *Maravedi's* make the *Rial* of *Vellon*; and 63 that of Silver; the *Maravedi* is divided into 4 *Cornaro's*.

In ITALY the *Money of Accounts* are various, almost as the Cities of *Commerce*. At ROME they account by *Pounds*, *Shillings*, and *Pence*, of Gold *di Stampa*. At VENICE, by *Ducats*, and *Gros di Banco*; the *Ducat* divided into 24 *Gros*, each *Gros* equal to $2\frac{1}{2}$ *d.* *Sterling*; and by *Ducats* current, call'd also *Sequins*, equal to 9 *s.* 2 *d.* *Sterling*; and by *Pounds*, *Shillings*, and *Pence*. At LUCCA, and BERGAMO, they use the four last, and only the three last at *Bologna*, *Mantua*, and *Savoy*. In *Geneva*, besides *Pounds*, *Shillings*, and *Pence*, they account also by *Florins*, containing 6 *Soldi's*, or $6\frac{1}{2}$ *d.* *Sterling*. At LEGHORN and GENOA, besides *Pounds*, *Shillings*, and *Pence*, they account by *Piasters*, equal to 4 *s.* 6 *d.* *Sterling*. At NOVA their *Money of Accounts* are, *Crowns*, *Shillings*, and *Pence* of Gold *Marc*; at RACONIS, *Pounds*, *Shillings*, and *Gros*; at ANCONA, *Crowns*, *Shillings*, and *Pence*; at NAPLES, *Ducats*, *Grains*, and *Tarins*, equal to 1 *s.* *Sterling*, divided into 20 Grains.

At MESSINA, *Palermo*, and throughout *Sicily*, they account by *Pounds*, *Ounces*, *Tarins*, *Grains*, and *Picoli's*; which are summ'd by 30, 20, and 6; the *Ounce* being 30 *Tarins*, the *Tarin* 20 *Grains*, and the *Grain* 6 *Picoli's*. At MALTA they account by *Pounds*, *Ounces*, *Carlins*, and *Grains*; the *Ounce* 30 *Tarins*, or 60 *Carlins*, or 600 *Grains*; the *Carlin* equal to $6\frac{1}{2}$ *d.* *Sterling*.

Throughout POLAND, most of the Dominions of the King of *Prussia*, and *Dantzick*, they account by *Rixdollars*, *Roups*, and *Grochs*; the *Rixdollar* equal to 4 *s.* 6 *d.* *Sterling*, and divided into 32 *Roups*; and again, in the *Prussian* Territories, into 24 *Grochs*; in *Poland*, into 90 *Grochs*. Sometimes they use the *Florin*, *Groch*, and *Penin*.

In SWITZERLAND, and many of the chief Cities of *Germany*, particularly *Francfort*, they account by *Florins*, (but on a Footing different from that of *Holland*) *Creuxes*, or *Cruetzers*, and *Pennins*; the *Florin* equal to 3 *s.* *Sterling*, and divided into 60 *Creux*, or *Kreutz*, and the *Creux* into 8 *Pennins*. In others, as *Hambourg*, *Berlin*, &c. by *Rixdollars*, *Marks Lubs*; *Schellings Lubs*, and *Deniers Lubs*; the *Rixdollar* and *Dollars* on the Foot of the *French* Crown, or 4 *s.* 6 *d.* *Sterling*, divided into 3 *Marks*, the *Mark* into 16 *Schellings*, and the *Schelling* into 12 *Pennins*. At *Hambourg* they also use the *Livre*, *Schelling*, and *Denier de Gros*. At AUSBOURG, and *Bolzamont*, they account by *Dollars* and *Creuxes*; the *Dollar* equal to 4 *s.* 6 *d.* *Sterling*, divided into 90 *Creuxes*. At *Nambourg*, by *Rixdollars*, *Gros*, and *Fenens*; the *Rixdollar* equal to 4 *s.* 6 *d.* *Sterling*, divided into 36 *Gros*, and the *Gros* into 12 *Fenins*. At STRASBOURG, by *Florins*, *Creux*, and *Pennins*; the *Florin* equal to 1 *s.* 6 *d.* *Sterling*, divided into 60 *Creuxes*, and the *Creux* into 8 *Pennins*.

In HOLLAND, *Zealand*, *Brabant*, and *Cologn*, they use the *Pundt*, or *Livre de Gros*; *Schelling*, or *Sol de Gros*; and *Penning*, or *Deniers Gros*. The *Pundt* containing 20 *Schellings*, and the *Schelling* 12 *Pennings*; the *Pundt* equal to 7 *Livres*, 4 *Sols*, *French*, or 10 *s.* $\frac{3}{10}$ *Sterling*. They also account by *Florins*, or *Guilders*, *Patards*, and *Pennings*; the *Florin* is equal to $\frac{1}{6}$ of the *Pundt*, or 20 *Patards*; and the *Patard* 12 *Pennings*: The Merchants use each Method of accounting, indifferently.

In SWEDEN they account by *Dalles*, equal to 32 *Sols Lubs*, or 3 *s.* *Sterling*. In DENMARK by *Rixdollars*, and *Stivers*, the *Rixdollar* divided into 48 *Stivers*. In MUSCOVY they account by *Roobles*, *Altins*, and *Grifs*, or *Grives*; the *Rooble* equal to 100 *Copecs*, or 2 *Rixdollars*, or 9 *s.* *Sterling*, divided into 10 *Grifs*; 3 *Altins* and $\frac{1}{2}$ make the *Grif*, or 10 *Copecs*; the *Copec* at 13 *d.* $\frac{1}{4}$ *Sterling*.

From Cape VERD in *Africa*, to the Cape of *Good Hope*, all Exchanges, and Valuations of Merchandizes, are made on the Foot of the *Macoute* and *Piece*; which though no *Money of Accounts*, (for those Barbarians having no *real Moneys*, need no *imaginary* ones to estimate them by) yet serve in lieu thereof. At *Loango de Boiric*, and other Places on the Coast of *Angola*, the Estimations are made by *Macoutes*; and at *Malinbo* and *Cabindo*, on the same Coast, the Negroes reckon by *Pieces*. Among the first, the *Macoute* is equivalent to 10; 10 *Macoutes* make 100; which, likewise, leaves us a Kind of *imaginary Money*, to estimate any Purchase, Exchange, &c. they fix on the one Side the Number of *Macoutes* requir'd, *E. gr.* for a Negro; on the other for how many *Macoutes* they agree to receive each Kind of Merchandise requir'd for the Negro; so that there are several Bargains made for one. Suppose, *v. gr.* the Slave be fix'd at 3500, this amounts to 350 *Macoutes*; to make up this Number of *Macoutes* in Merchandizes, they fix the Price of each in *Macoutes*; 2 *Flemish Knives*, for Example, are accounted 1 *Macoute*; a Copper Bason, 2 Pounds Weight, 3; a Barrel of Gunpowder 3, &c. For the *Piece*, it serves, in like Manner, to estimate the Value of Goods, Duties, &c. on either Side. Thus the Natives require 10 *Pieces* for a Slave; and the *Europeans* put, for Example, a Fusee at 1 *Piece*, a Piece of *Salampoures* Blue at 4 *Pieces*, &c.

Having

Having thus inform'd ourselves of the different *Money of Accounts* of all Nations, we must endeavour, next, to acquire, likewise, a perfect Knowledge of their different *Weights* and *Measures*, since it would be impossible to trade among them, with Safety, and in any wise to our Advantage, if we were to trust to their Probity for the Quantity of the Merchandizes we buy from them; since we are even oblig'd to use all the Precaution imaginable, to prevent being cheated by the very *Weights* and *Measures* we are thoroughly acquainted with. Therefore,

WEIGHT, in *Commerce*, denotes a Body of a known *Weight*, appointed to be put in the Ballance against other Bodies whose *Weight* is requir'd. Those *Weights* are usually of Lead, Iron, or Brass; though in divers Parts of the *East-Indies* they are common Flints, and in some Places a Sort of little Beans.

The Security of *Commerce* depending, in some Measure, on the Justness of these *Weights*, there is scarce any Nation but what has taken proper Measures to prevent the Falsification thereof. The surest Means are, the stamping, or marking them, by proper Officers, from some Original, or Standard, deposited where Recourse may be had to them. This Expedient is very antient, and many Authors are of Opinion, that what among the *Jews* was call'd *Shekel of the Sanctuary*, was not any particular Kind of *Weight* different from the common one; but a Standard, or original *Weight*, preserv'd by the Priests in the Sanctuary.

Thus, also, in *France*, the Standard *Weight* is kept under several Keys in the Cabinet of the *Cour des Monoyes*; and in *England* in the Exchequer, by a particular Officer, call'd the *Clerk*, or *Comptroller of the Market*.

Most Nations, where there is any Thing of *Commerce* flourishing, have their particular *Weights*, and even sometimes different *Weights* in the different Provinces, and for the different Kinds of Commodities. This Diversity of *Weights* makes one of the most perplexing Articles in *Commerce*, but is irremediable.

The reducing of *Weights* of different Nations to one, is not only impracticable; but even the Reduction of those of the same Nation; witness those vain Attempts made for reducing the *Weights* in *France*, by so many of our Kings, *Charlemaign*, *Philip the Long*, *Louis* XI, *Francis* I, *Henry* II, *Charles* IX, *Henry* III, and *Louis* XIV.

There are as many different Sorts of *Weights*, throughout the whole known inhabited World, as there are different Nations, or Countries; and even some Countries have as many different *Weights* as they contain Provinces; especially those which are of a vast Extent, or which have been enlarg'd by new Acquisitions, or Conquests.

Weights are commonly divided into *antient* and *modern*, and these last subdivided into *foreign* and *domestick*.

Though *antient Weights* are, in some Measure, foreign to our Subject, it will not be improper to gratify our Curiosity, to take here some Notice of them, especially of the *Jewish* and *Roman Weights*, the one being often mention'd in the Scripture, and the other in Prophane History, and to reduce them both to *English Weights*.

The *Jewish Weights* were, the *Shekel*, *Manch*, and *Talent*.

Shekels		*Manches*		*Talent*
60	made	1		
3000	made	50	made	1

Reduced to English Troy Weight.

	lb.	*oz.*	*pwt.*	*gr.*
1 *Shekel* makes ———	00	00	09	$02\frac{4}{7}$
1 *Manch* ———	02	03	06	$10\frac{2}{7}$
1 *Talent* ———	113	10	01	$10\frac{2}{7}$

The *Grecian* and *Roman Weights* were, the *Lentes*, *Siliqua*, *Obolus*, *Scriptulum*, *Drachma*, *Sextula*, *Sicilicus*, *Duella*, *Uncia*, and *Libra*.

Lentes		*Siliqua*		*Obolus*		*Script.*		*Drach.*		*Sext.*		*Sicil.*		*Duel.*		*Unc.*		*Lib.*
4		1		1														
12		3		2		1												
24		6		6		3		1										
72	made	18	made	8	made	4		$1\frac{1}{3}$		1								
96		24		12		6	made	2	made	$1\frac{1}{2}$		1						
144		36		16		8		$2\frac{2}{3}$		2	made	$1\frac{1}{2}$		1				
192		48		48		24		8		6		4	made	3		1		
576		144		576		288		96		72		48		36	made	12	made	1
6912		1728																

Reduced to English Troy Weight.

	lb.	*oz.*	*pwt.*	*gr.*
The *Lentes* makes ———	0	0	0	$0\frac{85}{192}$
Siliqua ——— ———	0	0	0	$0\frac{1}{28}$
Obolus ——— ———	0	0	0	$9\frac{3}{28}$
Scriptulum ———	0	0	0	$18\frac{3}{14}$
Drachma ——— ———	0	0	2	$6\frac{9}{14}$
Sextula ——— ———	0	0	3	$0\frac{6}{7}$
Sicilicus ———	0	0	4	$13\frac{2}{7}$
Duella ——— ———	0	0	6	$1\frac{5}{7}$
Uncia ——— ———	0	0	18	$5\frac{1}{7}$
Libra ——— ———	0	10	18	$13\frac{5}{7}$

The Subdivisions of the *Roman As*, *Libra*, or Pound.

	Uncia, or *Ounces*.
1 *As*, or *Libra*, &c. contain'd ———	12
$\frac{11}{12}$ *Deunx* ——— ——— ———	11
$\frac{5}{6}$ *Dextans* ——— ——— ———	10
$\frac{3}{4}$ *Dodrans* ——— ——— ———	9
$\frac{2}{3}$ *Bes* ——— ——— ———	8
$\frac{7}{12}$ *Septunx* ——— ——— ———	7
$\frac{1}{2}$ *Semis* ——— ——— ———	6
$\frac{5}{12}$ *Quincunx* ——— ——— ———	5
$\frac{1}{3}$ *Triens* ——— ——— ———	4
$\frac{1}{4}$ *Quadrans* ——— ——— ———	3
$\frac{1}{6}$ *Sextans* ——— ——— ———	2
$\frac{1}{12}$ *Uncia* ——— ——— ———	1

The *Roman* Ounce is the *English Averdupoise* Ounce, which they divided into 7 *Denarii*, as well as 8 *Drachms*, and since they reckon'd their *Denarius* equal to the *Attick Drachm*, this will make the *Attick Weight* $\frac{1}{8}$ heavier than the correspondent *Roman Weight*.

Note, The *Grecians* divided their *Obolus* into *Chalci*, λεπτα. Some, as *Diodorus* and *Suidas*, divided the *Obolus* into 6 *Chalci*, and every *Chalcus* into 7 λεπτα; others divided the *Obolus* into 8 *Chalci*, and every *Chalcus* into 8 λεπτα, or *Minuta*.

Modern Weights are divided, as we have already observ'd, into *foreign* and *domestick Weights*. *Domestick Weights* are those of the Country we live in, as the *English Weights*, with Respect to us who live in *England*, and all other *Weights* are consider'd by us as *foreign*.

Though by the 27th Chapter of *Magna Charta* the *Weights* are to be the same all over *England*, there are, notwithstanding, two different Sorts of *Weights* for different Sorts of Commodities, *viz.* *Troy Weight*, and *Averdupoise Weight*; both these *Weights* having their Origin from the Grain of Wheat, gather'd in the Middle of the Ear.

In *Troy Weight*, 24 of these Grains make a *Pennyweight Sterling*; 20 *Pennyweights* make an *Ounce*; and 12 *Ounces* a *Pound*. By this *Weight* the *English* weigh Gold, Silver, Jewels, Grains, and Liquors.

The

The Apothecaries, alſo, uſe the *Troy Pound*, *Ounce*, and *Grain*; but they differ from the reſt in the intermediate Diviſions: For they divide the *Ounce* into 8 *Drachms*, the *Drachm* into 3 *Scruples*, and the *Scruple* into 20 *Grains*.

In *Averdupoiſe Weight* the *Pound* contains 16 *Ounces*, but the *Ounce* is leſs, by near $\frac{1}{12}$, than the *Troy Ounce*; this latter containing 490 *Grains*, and the former only 448. The *Ounce* contains 16 *Drachms*; 80 *Ounces Averdupoiſe* are only equal to 73 *Ounces Troy*; and 17 *Pounds Troy* equal to 14 *Pounds Averdupoiſe*. By *Averdupoiſe Weight* are weigh'd Mercury, Grocery Wares, baſe Metals, Wool, Tallow, Hemp, Drugs, Bread, *&c.*

A TABLE *of* Troy Weight *uſed by Goldſmiths.*

Grains.		*Pwt.*		*Oz.*		*lb.*
24	make	1		00		00
480		20	make	01		00
5760		240		12	make	01

A TABLE *of* Troy Weight *uſed by Apothecaries.*

Grains.		*Scruple.*		*Drachm.*		*Oz.*		*lb.*
20	make	1		00		00		00
60		3	make	01		00		00
480		24		08	make	01		00
576		288		96		12	make	01

A TABLE *of* Averdupoiſe Weight.

Scruples.		*Drachms.*		*Oz.*		*P.*		*Quintal.*		*Tun.*
3	make	1		00		00		00		00
24		8	make	01		00		00		00
384		128		16	make	01		00		00
43008		14336		1792		112	make	01		00
860160		286720		35840		2240		20	make	01

The Moneyers, Jewellers, *&c.* have a particular Claſs of *Weights* for Gold and Precious Stones, *viz. Carat*, and *Grain*; and for Silver, the *Pennyweight*, and *Grain*; the *Carat* conſiſts of 4 *Grains*. Mint-men fix the higheſt Purity of Gold at 24 *Carats*, and the ſeveral Degrees are eſtimated from the Diviſions thereof, *viz. Grains*: But it is to be obſerv'd, that what Care ſoever is taken in purifying Gold, to clear it from Droſs, it can never be brought to 24 *Carats*, but ſtill comes ſhort, at leaſt $\frac{1}{4}$ of a *Carat*, or a *Grain*; this *Grain* they call a *Sixteenth*, and this *Sixteenth* they ſubdivide into *two Eighths*, and each of thoſe *Eighths* into *two Sixteenths*; on which Calculation, they ſay, Gold may be purify'd as far as the firſt *Sixteenth* of the ſecond *Eighth*, but no further. Gold of 22 *Carats*, is that which has 22 Parts of fine Gold, and 2 of Silver, or other Metal; or that which in refining loſes 2 Parts in 24 of its *Weight*. The Goldſmiths generally work in Gold of 22 *Carats*; by the Law of *France* they are prohibited from working in Gold below 23 *Carats*.

Carat fine, as above, is the 24th Part of the Goodneſs of a Piece of pure Gold.

Carat Price, is the 24th Part of the Value of an Ounce, or Mark of Gold. They alſo ſometimes ſay, the *Carat Weight*, which is the 24th Part of the *Weight* of the Ounce, or Mark. Two *Troy Grains* make a *Carat Grain*.

The Moneyers have alſo a particular Subdiviſion of the *Grain Troy*, thus;

$$\text{The}\left\{\begin{matrix}\textit{Grain}\\ \textit{Mite}\\ \textit{Droit}\\ \textit{Peret}\end{matrix}\right\}\text{ into }\left\{\begin{matrix}20\ \textit{Mites.}\\ 24\ \textit{Droits.}\\ 20\ \textit{Perets.}\\ 24\ \textit{Blanks.}\end{matrix}\right.$$

The Dealers in Wool have likewiſe a particular Set of *Weights*, *viz.* the *Sack*, *Weigh*, *Tod*, *Stone*, and *Clove*.

A *Sack* of Wool contains 2 *Weighs*, or 312 Pounds, *Averdupoiſe*; the *Weigh* 6 *Tod* and a Half; the *Tod* 2 *Stones*; the *Stone* 2 *Cloves*; and the *Clove* 7 Pounds; 12 *Sacks* make a *Laſt*, or 4368 Pounds.

In *France* they have different Sorts of *Weights* in their ſeveral Provinces; the common, or *Paris* Pound, is 16 Ounces, which is divided two Ways; the firſt Diviſion is into 2 *Marks*; the *Mark* into 8 *Ounces*; the *Ounce* into 8 *Gros*; the *Gros* into 3 *Pennyweights*; the *Pennyweight* into 24 *Grains*; the *Grain* equivalent to a *Grain* of Wheat.

The ſecond Diviſion of the *Pound*, is into 2 *Half Pounds*; the *Half Pound* into 2 *Quarters*; the *Quarter* into 2 *Half Quarters*; the *Half Quarter* into 2 *Ounces*; and the *Ounce* into 2 *Half Ounces*.

The *Weights* of the firſt Diviſion are us'd to weigh Gold, Silver, and the richer Commodities; and the *Weights* of the ſecond Diviſion for Commodities of leſs Value.

A TABLE *of the* Weights *of the firſt Diviſion.*

Grains.		*Pwt.*		*Gros.*		*Oz.*		*Marc.*		*L.*
24	make	1		00		00		00		00
72		3	make	1		00		00		00
576		24		8	make	1		00		00
7008		192		64		8	make	01		00
9216		384		128		16		02	make	01

A TABLE *of the* Weights *of the ſecond Diviſion.*

Half Oz.		*Oz.*		*Half Qr. P.*		*Qr. P.*		*Half P.*		*Pound.*		*Quintal.*
2	make	1		00		00		00		00		00
4		2	make	1		00		00		00		00
8		4		2	make	1		00		00		00
16		8		4		2	make	1		00		00
32		16		8		4		2	make	1		00
3200		1600		800		400		200		100	make	01

At *Lyons* the City *Pound* is only 14 *Ounces*; ſo that 100 *Lyons Pounds* make only 88 *Paris Pounds*. Beſide the City *Pound*, they have another at *Lyons* for Silk, containing 16 *Ounces*.

At *Tholouſe*, and throughout the upper *Languedoc*, the *Pound* is $13\frac{1}{2}$ *Ounces* of *Paris Weight*. At *Marſeilles*, and throughout *Provence*, the *Pound* is 13 *Ounces* of *Paris Weight*.

At *Rouen*, beſides the *Paris Pound*, and *Marc*, they have the *Weight* of the *Vicomte*, which is $16\frac{1}{4}$ *Ounces*, and $\frac{1}{6}$, of the *Paris Weight*.

The *Weights* enumerated under the Article of *Engliſh* and *French Weights*, are the ſame that are us'd throughout the greateſt Part of *Europe*; only under ſomewhat different Names, Diviſions, and Proportions.

Particular Nations have also certain *Weights* peculiar to themselves; as *Spain*, *Portugal*, *Italy*, *Germany*, *Flanders*, *Holland*, the *Hanse Towns*, *Sweden*, *Denmark*, *Muscovy*, *Turkey*, &c.

SPAIN has its *Arroba's*, containing 25 *Spanish* Pounds, or $\frac{1}{4}$ of the common Quintal; its *Quintal Macho*, containing 150 Pounds, or $1\frac{1}{2}$ of the common Quintal, or 6 *Arroba's*; its *Adarmi*, containing $\frac{1}{100}$ of its Ounce. And for Gold, it has its *Castillan*, or $\frac{1}{100}$ of a Pound; its *Tomin*, 12 Grains, or $\frac{1}{5}$ of a *Castillan*. The same are in Use in the *Spanish West-Indies*.

PORTUGAL has its *Arroba*, containing 32 *Lisbon Arratels*, or Pounds; *Savary* also mentions its *Faratelle*, containing 2 *Lisbon* Pounds; and its *Rottoli*, containing about 12 Pounds: And for Gold, its *Chego*, containing 4 *Carats*. The same are us'd in the *Portuguese East-Indies*.

ITALY, and particularly *Venice*, have their *Migliaro*, containing four *Mirres*; the *Mirre* containing 30 *Venice* Pounds; the *Saggio* containing a 6th Part of an Ounce. GENOA has five Kinds of Weights, whereby all Merchandizes are weighed at the Custom-House; *Cash-weights* for Piasters and other Species; the *Cantara* or *Quintal* for the coarsest Commodities; the large Ballance for raw Silks; and the small Ballance for the finer Commodities. SICILY has its *Rottolo* 32 and a half Pounds of *Messina*.

GERMANY, *Flanders*, *Holland*, the *Hanse-Towns*, *Sweden*, *Denmark*, *Poland*, &c. have their *Schippondt*, which at *Antwerp* and *Hambourg* is 300 Pounds; at *Lubeck* 320; and at *Coningsberg* 400 Pounds. In *Sweden* the *Schippondt* for Copper is 320 Pounds; and the *Schippondt* for Provisions 400 Pounds. At *Riga* and *Revel* the *Schippondt* is 400 Pounds; and at *Dantzick* 340 Pounds; in *Norway* 300 Pounds; at *Amsterdam* 300 Pounds, containing 20 *Lyspondts*, each weighing 15 Pounds.

In MUSCOVY they weigh their large Commodities by the *Bercheroet* or *Berkewits*, containing 400 of their Pounds. They have also their *Poet* or *Poed*, containing 40 Pounds, or $\frac{1}{10}$ of the *Bercheroet*.

In TURKY, at *Smyrna*, &c. they use the *Batman* or *Battement*, containing six *Occos*, the *Occo* weighing 3 Pounds $\frac{4}{5}$ *English*. They have another *Batman* much less, consisting as the former of six *Occos*; but the *Occo* only containing 15 Ounces *English*; 44 *Occos* of the first Kind make the *Turkish Quintal*; for the better Intelligence thereof here follows:

A TABLE *of* Smyrna *Weights reduced to* English *Weights.*

	Smyrna Drams		English Drams		English l.	oz.	dr.
	0.57	=	1.01	=	00	00	01
	1.00	=	1.753	=	00	00	$01\frac{3}{4}$
	146.0	=	256.0	=	01	00	00
1 Rotto	180	=	315	=	01	03	11
1 Occo of	400	=	701	=	02	11	13
1 Occo of	250	=	438	=	01	11	06
1 Occo of	120	=	210	=	00	13	02
1 Quintal	18000	=	31545	=	123	02	09
1 Quintal	17600	=	30844	=	120	07	12
1 Battman	2400	=	4207	=	16	06	15
1 Chique	800	=	1402	=	5	07	10

By the *Occo* of 400 Drachms are weighed Cloves, Mace, Pepper, Benzoin, Gum Arabic, Sea-horse Teeth, Galbanum, Ginger, Indigo, Gum Adragant, Vacetoes, white Cordefant, Scammony, Worm-seed, Cochineal, Salsa-parella, Nutmegs, Cinnamon, Rhubarb, Senna and Cassia.

By the *Occo* of 250 Drachms is weighed Opium, and by that of 120 Drachms Saffron.

There are two Sorts of *Quintals*; the first containing 45 *Occos* of 400 Drachms each, or 18000 *Smyrna* Drachms: By which *Quintal* are weighed Gauls, Allom, Cotton, Yarn, Lead, *Brazil*-Wood, *Valonia* Logwood, Steel, Sugar, Wax, *&c.* The second *Quintal* contains 44 *Occos* of 400 Drachms each, or 17600 *Smyrna* Drachms, by which they weigh Cotton-wool, Sheeps-Wool, Tin, Box-wood, and Aniseeds.

The *Battman* contains 6 *Occos* of 400 Drachms each, or 2400 Drachms, by which they weigh Legee, Ardas and Sherbafee-Silk.

The *Chique* contains 2 *Occos* of 400 Drachms each, by which they weigh Goats-Wool.

At CAIRO, *Alexandretta*, *Aleppo*, and *Alexandria*, they use the *Rotto*, *Rotton*, or *Rottoli*. The *Rottoli* at *Cairo* and other Parts of *Egypt* is 144 Drachms; being somewhat over an *English* Pound. At *Aleppo* there are three Sorts of *Rottos*, the first 420 Drachms, making about 7 Pounds *English*, and serving to weigh Cottons, Galls, and other large Commodities: The Second is 624 Drachms, used for all Silks but white ones, which are weighed by the third *Rotto* of 700 Drachms. At *Seyda* the *Rotto* is 600 Drachms. The other Ports of the *Levant* not named here use some of these Weights, particularly the *Occo*, the *Rottoli* and *Rotto*.

To shew the Proportion of these several Weights to one another, we shall add a Reduction of the divers *Pounds* used throughout *Europe*, by which the other Weights are estimated to one Standard Pound, *viz.* of *Amsterdam*, *Paris*, and *Bourdeaux*; as calculated with great Accuracy, by M. *Ricard*, a *Frenchman*, and published in the Edition of his excellent *Traite de Commerce* in 1732.

Proportion of the Weights *of the chief Cities in* Europe, *or those of* Amsterdam.

An hundred Pounds of *Amsterdam* are equal to

108 *Pounds* of *Alicant*.
105 *lb.* of *Antwerp*.
120 *lb.* of *Archangel*, or three *Poedes*.
105 *lb.* of *Arschot*.
120 *lb.* of *Avignon*.
98 *lb.* of *Basil* in *Switzerland*.
100 *lb.* of *Bayonne* in *France*.
160 *lb.* of *Bergamo*.
97 *lb.* of *Berg ap zan*.
95 *lb.* $\frac{1}{4}$ of *Bergen* in *Norway*.
111 *lb.* of *Bern*.
100 *lb.* of *Besançon*.
100 *lb.* of *Bilboa*.
105 *lb.* of *Bois le Duc*.
151 *lb.* of *Bologna*.
100 *lb.* of *Bourdeaux*.
104 *lb.* of *Bourg en Bress*.
103 *lb.* of *Bremen*.
125 *lb.* of *Breslaw*.
105 *lb.* of *Bruges*.
105 *lb.* of *Brussels*.
105 *lb.* of *Cadiz*.
105 *lb.* of *Cologn*.
125 *lb.* of *Coningsberg*.
107 *lb.* and $\frac{1}{2}$ of *Copenhagen*.
87 *Rottos* of *Constantinople*.
113 *lb.* and $\frac{1}{2}$ of *Dantzic*.
100 *lb.* of *Dort*.
97 *lb.* of *Dublin*.
97 *lb.* of *Edinburgh*.
143 *lb.* of *Florence*.
98 *lb.* of *Frankfort on the Maine*.
105 *lb.* of *Gaunt*.
89 *lb.* of *Geneva*.
163 *lb.* of *Genoa* Cash-weight.
102 *lb.* of *Hambourg*.
106 *lb.* of *Leiden*.
105 *lb.* of *Leipsick*.
105 *lb.* and $\frac{1}{2}$ of *Liege*.
114 *lb.* of *Lisle*.
143 *lb.* of *Leghorn*.
106 *lb.* and $\frac{1}{2}$ of *Lisbon*.
109 *lb.* of *London* Averdupois-weight.
105 *lb.* of *Lovaine*.
105 *lb.* of *Lubeck*.
141 *lb.* and $\frac{1}{2}$ of *Lucca*, light Weight.
116 *lb.* of *Lyons*, City-weight.
114 *lb.* of *Madrid*.
105 *lb.* of *Malines*.
123 *lb.* and $\frac{1}{2}$ of *Marseilles*.
154 *lb.* of *Messina*, light Weight.
168 *lb.* of *Milan*.
120 *lb.* of *Montpelier*.
125 *Bercheroets* of *Muscovy*
100 *lb.* of *Nantz*.
106 *lb.* of *Nancy*.
169 *lb.* of *Naples*.
98 *lb.* of *Nuremberg*.
100 *lb.* of *Paris*.
112 *lb.* and $\frac{1}{2}$ of *Revel*.
109 *lb.* of *Riga*.
100 *lb.* of *Rochel*.
146 *lb.* of *Rome*.
100 *lb.* of *Rotterdam*.
96 *lb.* of *Rouen* Vicomte Weight.
100 *lb.* of *St. Malo*.
100 *lb.* of *St. Sebastian*.
158 *lb.* and $\frac{1}{4}$ of *Saragosa*.
106 *lb.* of *Seville*.
114 *lb.* of *Smyrna*.
110 *lb.* of *Stetin*.
81 *lb.* of *Stockholm*.
118 *lb.* of *Tholouse* and *Upper Languedoc*.
151 *lb.* of *Turin*.
158 *lb.* and $\frac{1}{4}$ of *Valencia*.
182 *lb.* of *Venice*, small Weight.

They

They have also different Weights in the several Parts of the *East-Indies*, viz. in *Persia*, the Dominions of the *great Mogul*, *China*, *Siam*, *Golconda*, *Visapour*, *Goa*, &c.

In *Persia* they use the *Battman*, or *Man*, which may be looked on as the common Weight of the *East-Indies*, though under several different Appellations. There were two Kinds of *Persian Battmans*; the one called *Cachi* or *Cherai*, which is the King's Weight; and the other *Battman* of *Tauris*, from the Name of one of the chief Cities of *Persia*. The first weighs, according to *Tavernier*, 13 Pounds 10 Ounces *English*; the second $6\frac{1}{4}$. According to Sir *J. Chardin*, the King's *Battman* is 13 Pounds 14 Ounces, and the *Battman* of *Tauris* $6\frac{1}{2}$.

The Divisions of the *Battman* are the *Ratel*, or a 16th; the *Derhem*, or *Drachm*, which is the 50th; the *Mescal*, which is half the *Derhem*; the *Dung*, which is the 6th Part of the *Meschal*, being equivalent to six *Carat-grains*; and *lastly*, the *Grain*, which is the 4th Part of the *Dung*. They have also the *Vakie*, which exceeds a little the *English* Ounce: The *Salt-Cheray*, equal to 1170th Part of the *Derham*: And the *Toman* used to weigh out large Payments of Money without telling; its Weight is that of 50 *Abassis*.

Throughout the State of the *Great Mogul* they also use two Kinds of *Man*, viz. the King's *Man*, or Weight, and the *Man* simply. The first is used to weigh common Provisions, and contains 40 *Seers* or *Serres*, each *Seer* being a just *Paris* Pound. Though *Tavernier*, the Traveller, will have the *Seer* near a seventh less than the *Paris* Pound. The common *Man* used in the weighing of common Merchandize consists likewise of 40 *Seers*, but each Seer is only estimated at 12 *Paris* Ounces, or $\frac{3}{4}$ of the other *Seer*.

In *China* they use the *Pice* for large Commodities, which *Pice* is divided into 100 *Catis*, though some say into 125: The *Cati* into 16 *Taels*, each *Tael* equivalent to $1\frac{1}{3}$ of an Ounce *English*, or the Weight of one *Rial* and $\frac{1}{12}$, and containing 10 *Mass* or *Masses*; and each *Mass* 10 *Condrins*, so that the *Chinese Pice* amounts to 137 Pounds *English* Averdupois, and the *Cati* to 1 Pound 8 Ounces. The *Picol* for Silk containing 66 *Catis* and $\frac{3}{4}$: The *Bahar*, *Bahair*, or *Barr*, containing 300 *Catis*. *Tonquin* has all the same Weights as *China*. And the *Japonese* have but only one Weight, *viz.* the *Catti*, which however is different from that of *China*, as containing 20 *Taels*.

In the Kingdom of *Siam* they use the *Pice*, which contains 2 *Schans* or *Cattis*; but the *Siamese Catti* is only half the *Japonese*, the latter containing 20 *Taels*, and the former only 10; though some make the *Chinese Catti* only 16 *Taels*, and the *Siam* 8. The *Tael* contains 4 *Baats* or *Ticals*, each about a *Paris* Ounce; the *Baat* 4 *Selings* or *Mayons*; the *Mayon* 2 *Fouangs*; the *Fouang* 4 *Payes*; the *Paye* 2 *Clams*; the *Sanpaye* half a *Fouang*. It is to be observed that these are the Names of their Coins, as well as Weights; Silver and Gold being Commodities there sold as other Things by their Weights.

In the Isle of *Java*, and particularly at *Bantam*, they use the *Gantam*, which amounts to near 3 *Dutch* Pounds. In *Golconda* at *Visapour* and *Goa*, they have the *Furatelle*, containing 1 Pound 14 Ounces *English*: The *Mangalis*, or *Mangelin*, for weighing Diamonds and precious Stones; weighing at *Goa* 5 Grains, at *Golconda*, &c. $5\frac{1}{2}$ Grains, they have also the *Rotolo* containing $14\frac{1}{4}$ Ounces *English*; the *Metricol* containing the sixth Part of an Ounce; the *Vall* for *Piastres* and *Ducats*, containing the 73d Part of a *Rial*.

They have no other Weights in *America* than those of the *European* Colonies settled in those Parts, each Colony making Use of the Weights of the States, or Kingdoms of *Europe* they belong to. For as to the *Aron* of *Peru*, which weighs 27 Pounds, it is evidently no other than the *Spanish Arroba*, with a little Difference in the Name.

Few Places in *Africa* have any Weight, except *Egypt* and the Coasts of *Africa*, whose Weights are enumerated among those of the Ports of the *Levant*. As to the Coasts beyond *Cape Verd*, viz. *Guinea*, *Congo*, to *Soffola*, *Mosambica*, &c. they have no Weights; only the *French*, *English*, *Portuguese*, and *Danes*, have introduced their own Weights in their respective Settlements. The Isle of *Madagascar*, indeed, has its particular Weights; but it has none that exceeds the Drachm, nor are they used for any Thing but Gold and Silver. Other Commodities they never weigh.

Thus far we have examined the different Weights used by all Nations, their Divisions and Subdivisions; and demonstrated them in so plain and intelligible a Manner, that it is almost impossible our Pupils should be mistaken in either of them; but as Measures are as essential to *Commerce* as Weight, and the Knowledge thereof as indispensably necessary to our Merchants, we must likewise enter into a strict Detail of the different Measures of those same Nations whose Weights we have examined; I mean of those Measures which have any Report to *Commerce*; for there are several other Measures which we'll refer to other Subjects, as being entirely Foreign to this.

MEASURE in *Commerce* denotes a certain Quantity, or Proportion of any Thing bought, sold, valued, or the like; therefore there are as many various *Measures* as there are various Kinds and Dimensions of the Things to be measured.

Measures are either *Antient* or *Modern*, *Foreign* or *Domestick*, *Dry* or *Liquid*.

Though the antient *Measures* are not used in our *Commerce*, and seems to be foreign to our present Purpose; nevertheless, as we have took some Notice of the antient *Weights*, we'll also take Notice of some of the antient *Measures* used in *Commerce*, particularly of the *dry* and *liquid Attic Measure*; the *dry* and *liquid Jewish Measure*, and the *dry* and *liquid Roman Measure*, which we'll reduce all to *English Measures*.

The *Dry Attick Measures* were the *Cochlearion*, *Cyathus*, *Oxubaphon*, *Cotyle*, *Xestes*, *Chionix*, and *Medimnus*.

Ten *Cochlearions* made a *Cyathus*; 15 Cochliarions, or $1\frac{1}{2}$ Cyathus made 1 *Oxubaphon*; 16 Cochliarions, or 6 *Cyanchus*, or 4 Oxubaphons made 1 *Cotyle*; 120 Cochliarions, or 12 Cyathus, or 8 Oxubaphons, or 2 Cotyles made 1 *Xestes* or *Sextary*; 180 Cochlearions, or 18 Cyathus's, or 12 Oxubaphons, or 3 Cotyles, or $1\frac{1}{2}$ Xestes made a *Choinix*; 8640 Cochlearions, or 864 Cyathus's, or 576 Oxubaphons, or 144 Cotyles, or 72 Xestes, or 48 Chionix made a *Medimnus*.

These Measures *are reduc'd to* English *thus*:

	Pecks	*Gall.*	*Pints*	*Sol.*	*Inches.*
The Cochliarion make	0	0	$1\frac{1}{12}$	0	$276\frac{7}{12}$
The Cyathus	0	0	$1\frac{1}{2}$	2	$763\frac{1}{2}$
The Oxubaphon	0	0	$\frac{1}{8}$	4	$144\frac{3}{4}$
The Cotyle	0	0	$\frac{1}{2}$	16	579
The Xestes or Sextary	0	0	1	33	158
The Chionix	0	0	$1\frac{1}{2}$	15	$705\frac{3}{4}$
The Medimnus	4	0	1	3	501

The *Liquid Attick Measures* were the *Cochelarion*, *Cheme*, *Mystron*, *Concha*, *Cyathus*, *Oxubaphon*, *Cotyle*, *Xestes*, *Chos*, *Congius*, *Metretes*, *Amphora*.

Two *Cochelarions*, made 1 *Cheme*; $2\frac{1}{2}$ Cochilarions, or $1\frac{1}{4}$ Chemes, made 1 *Mystron*; 5 Cochilarions, or $2\frac{1}{2}$ Chemes, or 2 Mystrons, made 1 *Concha*; 10 Cochilarions, or 5 Chemes, or 4 Mystrons, or 2 Concha's, made 1 *Cyathus*; 15 Cochilarions, or $7\frac{1}{2}$ Chemes, or 6 Mystrons, or 3 Concha's, or $1\frac{1}{2}$ Cyathus, made 1 *Oxubaphon*; 60 Cochilarions, or 30 Chemes, or 24 Mystrons, or 12 Concha's, or 6 Cyathus's, or 4 Oxubaphons, made 1 *Cotyle*; 120 Cochilarions, or 60 Chemes, or 48 Mystrons, or 24 Concha's, or 12 Cyathus's, or 8 Oxubaphons, or 2 Cotyles, made 1 *Xestes*, or *Sextary*; 720 Cochilarions, or 360 Chemes, or 288 Mystrons, or 144 Concha's, or 72 Cyathus's, or 48 Oxubaphons, or 12 Cotyles, or 6 Xestes, made 1 *Chos*, or *Congius*; 8640 Cochilarions, or 4320 Chemes, or 3456 Mystrons, or 1728 Concha's, or 864 Cyathus's, or 576 Oxubaphons, or 144 Cotyles,

 or

or 72 Xestes, or 12 Chos, or Congius's, made a *Metretes*, or *Amphora*.

These Measures *reduced to* English *Wine* Measure.

	Gall.	Pints.	In.	Dec.
The *Cochilarion* makes	0	$\frac{1}{120}$		$0356\frac{5}{12}$
Cheme ——	0	$\frac{1}{60}$		$0712\frac{5}{6}$
Mystron ——	0	$\frac{1}{48}$		$089\frac{11}{48}$
Concha ——	0	$\frac{1}{24}$	0	$178\frac{11}{24}$
Cyathus ——	0	$\frac{8}{12}$	0	$356\frac{11}{24}$
Oxubaphon ——	0	$\frac{1}{8}$	0	$535\frac{3}{8}$
Cotyle ——	0	$\frac{1}{2}$	2,	$141\frac{1}{2}$
Xestes ——	0	1	4,	283
Chos ——	0	6	25,	698
Metretes ——	10	2	19,	626

The *Jewish Dry Measures* were, the *Gachal*, *Cab*, *Gomor*, *Seah*, *Epha*, *Letteeth*, and the *Chomes*, or *Coron*.

Twenty *Gachals* made 1 *Cab*; 36 Gachals, or $1\frac{4}{5}$ Cabs, made 1 *Gomor*; 120 Gachals, or 6 Cabs, or $3\frac{1}{3}$ Gomors, made 1 *Seah*; 360 Gachals, or 18 Cabs, or 10 Gomors, or 3 Seahs, made 1 *Epha*; 1800 Gachals, or 90 Cabs, or 50 Gomors, or 15 Seahs, or 5 Epha's, made 1 *Letteeth*; 3600 Gachals, or 180 Cabs, or 100 Gomors, or 30 Seahs, or 10 Epha's, or 2 Letteeths, made a *Chomer*, or *Coron*.

These Measures *reduced to* English Measures.

	Pecks.	Gall.	Pints.	In.	Dec.
The *Gachal* makes	0	0	$0\frac{17}{120}$	0	31
Cab	0	0	$2\frac{5}{6}$	0	73
Gomor	0	0	$5\frac{1}{10}$	1	211
Scah	1	0	1	4,	036
Epha	3	0	3	12,	107
Letteeth	1.6	0	0	26,	500
Chomer	32	0	1	18,	969

The Jewish Liquid Measures were the *Caph*, *Log*, *Cab*, *Hin*, *Seah*, *Bath*, *Epha*, *Choran*, *Chomer*. One and $\frac{1}{3}$ of a *Caph* made one *Log*. $5\frac{1}{3}$ Caph's, or 4 Logs made 1 Cab; 16 Caphs, or 12 Logs, or 3 Cabs made 1 *Hin*; 32 Caphs, or 24 Logs, or 6 Cabs, or 2 Hins made a Seah; 96 Caphs, or 72 Logs, or 18 Cabs, or 6 Hins, or 3 Seahs made one Bath, Epha; 960 Caphs, or 720 Logs, or 180 Cabs, or 60 Hins, or 30 Seahs, or 10 Baths, Epha's made a Coron Chomer.

These Measures *reduced to* English *Wine* Measures.

	Gall.	Pints.	Inch.
The *Caph* makes	0	$0\frac{5}{8}$	177
Log	0	$0\frac{5}{6}$	211
Cab	0	$3\frac{1}{3}$	844
Hin	1	2	2,533
Seah	2	4	5,067
Bath or *Epha*	7	4	15,20
Coron, *Chomer*	75	5	7,625

The *Jews* had also *Long Measures*, or *Measures of Application*, viz. the *Digit*, *Palm*, *Span*, *Cubit*, *Fathom*, *Ezechiel's Reed*, *Arabian Pole*, *Schœnus's measuring Line*.

Four *Digits* made a *Palm*; 12 Digits or 3 Palms made a *Span*; 24 Digits or 6 Palms, or 2 Spans made a *Cubit*; 96 Digits, or 24 Palms, or 8 Spans, or 4 Cubits made a *Fathom*; 144 Digits, or 36 Palms, or 12 Spans, or 6 Cubits, or $1\frac{1}{2}$ Fathoms made *Ezechiel's Reed*; 192 Digits, or 48 Palms, or 16 Spans, or 8 Cubits, or 2 Fathoms, or $1\frac{1}{4}$ Ezechiel's Reed made an *Arabian Pole*; 1920 Digits, or 480 Palms, or 160 Spans, or 80 Cubits, or 20 Fathoms, or $13\frac{1}{3}$ Ezechiel's Reeds, or 10 *Arabian* Poles made a *Schœnus*.

These Measures *are reduc'd to* English Measures.

	English Feet.	Inch.	Dec.
The *Digit*	0	0	912
Palm	0	3	648
Span	0	10	944
Cubit	1	9	888
Fathom	7	3	552
Ezechiel's Reed	10	11	328
Arabian Pole	14	7	104
Schœnus	145	11	04

The *Roman Dry Measures* were the *Ligula*, *Cyathus*, *Acetabulum*, *Hemina*, *Sextarius*, *Semimodius*, *Modius*.

Four Ligula made a *Cyathus*; 6 Ligula, or $1\frac{1}{2}$ Cyathus made 1 *Acetabulum*; 24 Ligula, or 6 Cyathus's, or 4 Acetabulums made 1 *Hemina*; 48 Ligula, or 12 Cyathus, or 8 Acetabulums, or 2 Heminas made 1 *Sextarius*; 384 Ligula, or 96 Cyathus's, or 64 Acetabulums, or 16 Heminas, or 8 Sextarius's made a *Semimodius*; 768 Ligula, or 192 Cyathus's, or 128 Acetabulums, or 32 Heminas, or 16 Sextarii, or 2 Semimod made 1 *Modius*.

These Measures *reduced to* English.

	Pecks.	Gall.	Pints.	Inch.	Dec.
The *Ligula* makes	0	0	$0\frac{1}{48}$	0	01
Cyathus	0	0	$0\frac{1}{12}$	0	04
Acetabulum	0	0	$0\frac{1}{8}$	0	06
Hemina	0	0	$0\frac{1}{2}$	0	24
Sextarius	0	0	1	0	48
Semimodius	0	1	0	3	84
Modius	1	0	0	7	68

The *Roman Liquid Measures* were the *Ligula*, *Cyathus*, *Acetabulum*, *Quartarius*, *Hemina*, *Sextarius*, *Congius*, *Urna*, *Amphora*, *Culeus*.

Four *Ligula* made a *Cyathus*; 6 Ligula or $1\frac{1}{2}$ Cyathus made 1 *Acetabulum*; 12 Ligula, or 3 Cyathus's, or 2 Acetabulums made a *Quartarius*; 24 Ligula, or 6 Cyathus's, or 4 Acetabulums, or 2 Quartarius's made 1 *Hemina*; 48 Ligula, or 12 Cyathus's, or 8 Acetabulums, or 4 Quartarius's, or 2 Heminas made a *Sextarius*; 288 Ligula, or 72 Cyathus's, or 48 Acetabulums, or 24 Quartarius's, or 12 Hemina's, or 6 Sextarius's made a *Congius*; 1152 Ligula, or 288 Cyathus's, or 192 Acetabulum's, or 96 Quartarius's, or 48 Hemina's, or 24 Sextarius's, or 4 Congius's made 1 *Urna*; 2304 Ligula, or 576 Cyathus's, or 384 Acetabulums, or 192 Quartarius's, or 96 Hemina's, or 48 Sextarius's, or 8 Congius's, or 2 Urna's made 1 *Amphora*; 46080 Ligula, or 11520 Cyathus's, or 768 Acetabulums, or 3840 Quartarius's, or 1920 Hemina's, or 960 Sextarius's, or 160 Congius's, or 40 Urna's, or 20 Amphora's made a *Culeus*.

These Measures *are reduced to* English *Wine* Measure.

	Gall.	Pints.	Inch.	Dec.
The *Ligula* makes	0	$0\frac{1}{48}$	0	$117\frac{4}{5}$
Cyathus	0	$0\frac{1}{12}$	0	$469\frac{3}{5}$
Acetabulum	0	$0\frac{1}{8}$	0	$704\frac{1}{2}$
Quartarius	0	$0\frac{1}{4}$	1	409
Hemina	0	$0\frac{1}{2}$	2	818
Sextarius	0	1	5	636
Congius	0	7	4	942^{2}
Urna	3	$4\frac{1}{2}$	5	33
Amphora	7	1	10	66
Culeus	143	3	10	095

Modern Measures are either Domestick (as the *English* with Respect to us) or Foreign; and are also divided into *Long-Measures*, or *Measures of Application*, *Dry Measures* and *Liquid Measures*.

The *English long Standard Measure* for *Commerce* is the YARD, containing three *English* Feet, equal to 3 *Paris* Feet 1 Inch $\frac{1}{11}$ of an Inch, or $\frac{7}{9}$ of a *Paris* Ell. Its Divisions are the Foot, Span, Palm, Inch, and Barley-Corn. The Foot is divided into 12 Inches, and the Inch into three Barley-Corns. The Span is a *Measure*

Measure taken from the Space between the Thumb's End and the Tip of the little Finger, when both stretched out; and is estimated at three Hand's Breadth, or 9 Inches. The Palm is three Inches, and the Inch 3 Barley-Corns.

Three Inches make a Palm, 9 Inches, or 3 Palms make a Span; 12 Inches, or 4 Palms, or $1\frac{1}{3}$ make a Foot; 18 Inches, or 6 Palms, or 2 Spans, or $1\frac{1}{2}$ make a Cubit; 36 Inches, or 12 Palms, or 4 Spans, or 3 Feet, or 2 Cubits make a Yard.

English Dry or *Corn-Measures* are raised from the *Winchester* Gallon, which contains $272\frac{1}{4}$ solid Inches, to hold of pure running or Rain-water 9 Pounds 13 Ounces. By an Act of Parliament made in 1627, it is decreed that a round Bushel, 18 Inches $\frac{1}{2}$ wide, and 8 deep, is a legal *Winchester* Bushel; the Divisions thereof are as follows:

Three hundred and $\frac{1}{32}$ solid Inches make a *Pint*; $272\frac{1}{4}$ solid Inches, or 8 Pints make a *Gallon*; $544\frac{1}{2}$ solid Inches, or 16 Pints, or 2 Gallons make 1 *Peck*; 2178 solid Inches, or 64 Pints, or 8 Gallons, or 4 Pecks make 1 *Bushel*; 17424 solid Inches, or 128 Pints, or 16 Gallons, or 8 Pecks, or 2 Bushels make 1 *Strike*; 256 Pints, or 32 Gallons, or 16 Pecks, or 4 Bushels, or 2 Strikes make 1 *Charnock* or *Coom*; 512 Pints, or 64 Gallons, or 32 Pecks, or 8 Bushels, or 4 Strikes, or 2 Charnocks, make 1 *Seam*, or *Quarter*; 3072 Pints, or 384 Gallons, or 192 Pecks, or 48 Bushels, or 24 Strikes, or 12 Charnocks, or 6 Seams, or Quarters, make 1 *Wey*; 5120 Pints, or 640 Gallons, or 320 Pecks, or 80 Bushels, or 40 Strikes, or 20 Charnocks, or 10 Seams, or Quarters, or 12 Weys, make a *Last*.

English *Liquid Measures* were originally rais'd from *Troy* Weight, it being enacted, by several Statutes, that eight Pounds *Troy* of Wheat, gather'd from the Middle of the Ear, and well dry'd, should weigh a Gallon of *Wine Measure*; the Divisions and Multiplications whereof should form the other *Measures*. At the same Time it was order'd, that there should be but one *Liquid Measure* in the Kingdom; yet Custom has prevail'd, and there having been introduc'd a new Weight, *viz.* the *Averdupoise*, there is now, in *England*, a second standard Gallon adjusted thereto, and therefore exceeding the former, in the Proportion of the *Averdupoise* Weight to *Troy* Weight. From this latter Standard are rais'd two several *Measures*, the one for Ale, the other for Beer.

The seal'd Gallon at *Guildhall*, which is the Standard for Wines, Spirits, Oils, *&c.* is suppos'd to contain 231 Cubick Inches; yet, by actual Experiment made in 1688, before the Lord Mayor, and Commissioners of Excise, it was only found to contain 224 Cubick Inches: It was, however, agreed, to continue the common suppos'd Contents of 231 Cubick Inches in the Ale Gallon; but, in Effect, the Ale Quart contains $70\frac{1}{2}$ Cubick Inches, on which Principle, the Ale and Beer Gallon will be 282 Cubick Inches. The several Divisions and Multiples of these *Measures*, are as follow:

Of the English *Wine Measure*, $28\frac{7}{8}$ solid Inches make a *Pint*; 231 solid Inches, or 8 Pints, make 1 *Gallon*; 4158 solid Inches, or 144 Pints, or 18 Gallons, make a *Rundlet*; $7276\frac{1}{2}$ solid Inches, or 252 Pints, or $31\frac{1}{2}$ Gallons, or $1\frac{3}{4}$ Rundlet, make a *Barrel*; 9702 solid Inches, or 336 Pints, or 42 Gallons, or $2\frac{1}{3}$ Rundlets, or $1\frac{1}{3}$ Barrel, make a *Tierce*; 14553 solid Inches, or 504 Pints, or 63 Gallons, or $3\frac{1}{2}$ Rundlets, or 2 Barrels, or $1\frac{1}{2}$ Tierce, make 1 *Hogshead*; 19279 solid Inches, or 672 Pints, or 84 Gallons, or $4\frac{1}{3}$ Rundlets, or $2\frac{2}{3}$ Barrels, or 2 Tierces, or $1\frac{1}{3}$ Hogshead, make 1 *Punchion*; 29106 solid Inches, or 1008 Pints, or 126 Gallons, or 7 Rundlets, or 4 Barrels, or 3 Tierces, or 2 Hogsheads, or $1\frac{1}{2}$ Punchion, make 1 *Butt*; 58212 solid Inches, or 2016 Pints, or 252 Gallons, or 14 Rundlets, or 8 Barrels, or 6 Tierces, or 4 Hogsheads, or 3 Punchions, or 2 Butts, make 1 Tun.

Of *Ale Measure*, 8 *Pints* make 1 *Gallon*; 64 Pints, or 8 Gallons, make 1 *Firkin*; 128 Pints, or 16 Gallons, or 2 Firkins, make 1 *Kilderkin*; 256 Pints, or 32 Gallons, or 4 Firkins, or 2 Kilderkins, make 1 *Barrel*; 512 Pints, or 64 Gallons, or 8 Firkins, or 4 Kilderkins, or 2 Barrels, make 1 Hogshead.

Of *Beer Measure*, 8 *Pints* make 1 *Gallon*; 72 Pints, or 9 Gallons, make 1 *Firkin*; 144 Pints, or 18 Gallons, or 2 Firkins, make 1 *Kilderkin*; 288 Pints, or 36 Gallons, or 4 Firkins, or 2 Kilderkins, make 1 *Barrel*; 576 Pints, or 72 Gallons, or 8 Firkins, or 4 Kilderkins, or 2 Barrels, make 1 Hogshead.

Foreign Measures, are either *French*, *Spanish*, *Portuguese*, *Italian*, *German*, *Dutch*, &c.

French *Measures*, in *Commerce*, are, also, either *long*, *dry*, or *liquid Measures*.

The *French long*, or *standard Measure*, is the *Aune*, or *Ell*, containing 3 *Paris* Feet, 8 Inches, 8 Lines; or 1 Yard $\frac{2}{7}$ *English*; the *Paris* Foot Royal exceeding the *English* by $\frac{68}{1000}$ Parts. This *Ell* is divided two Ways, *viz.* into Halfs, Thirds, Sixths, and Twelfths; and into Quarters, Half Quarters, and Sixteenths.

This *Ell* holds throughout the greatest Part of *France*, except at *Troyes* in *Champagne*, at *Arc* in the *Barrois*, in some Parts of *Picardy* and *Burgundy*, where the *Ell* contains only 2 Feet, 5 Inches, 1 Line; in *Bretagne*, where it contains 4 Feet, 2 Inches, 11 Lines; and at *St. Genoux* in *Berry*, where it exceeds the *Paris Ell* by 8 Lines. But in *Languedoc*, *Provence*, *Guienne*, particularly at *Marseilles*, *Montpelier*, and *Thoulouse*, they *measure* by the *Canna*, which at *Thoulouse*, and in *Guienne*, contains 5 *Paris* Feet, 5 Inches, and 6 Lines; or 1 *Paris Ell* and a Half. At *Montpelier*, and throughout the lower *Languedoc*; as also in *Provence*, *Avignon*, and *Dauphine*, the *Canna* is 6 Feet, and 9 Lines; or 1 *Paris Ell* two Thirds.

The French *Dry Measures* are, the *Litron*, *Bushel*, *Minot*, *Mine*, *Septier*, *Muid*, and the *Tun*. The *Litron* is divided into 2 Demi *Litrons*, and 4 Quarter *Litrons*; and contains 36 Cubick Inches of *Paris*. By Ordonnance, the *Litron* is to be 3 Inches and a Half high; and 3 Inches 10 Lines broad. The *Litron* for Salt is larger, and is divided into 2 Halves, 4 Quarters, 8 Demi Quarters, and 16 *Measurettes*. The Bushel is different in different Jurisdictions; at *Paris* it is divided into Demi Bushels, each Demi Bushel into 2 Quarts, the Quart into 2 Half Quarts, and the Half Quart into 2 *Litrons*; so that the Bushel contains 16 *Litrons*. By Ordonnance the *Paris* Bushel is to be 8 Inches, 2 Lines and a Half high; and 10 Inches broad, or in Diameter within-side. The *Minot* consists of 3 Bushels; the *Mine* of 2 Minots, or 6 Bushels; the *Septier* of 2 Mines, or 12 Bushels; and the *Muid* of 12 Septiers, or 144 Bushels. The *Bushel* for Oats is estimated double that of any other Grain; so that there go 24 Bushels to make the *Septier*, and 288 to make the *Muid*. It is divided into 4 *Picotins*, the *Picotin* containing 2 Quarts, or 4 Litrons. The *Bushel for Salt* is divided into 2 Half Bushels, 4 Quarters, 8 Half Quarters, and 16 Litrons. Four Bushels make a *Minot*; 16 a *Septier*; and 192 a *Muid*. The *Bushel for Wood* is divided into Halves, Quarters, and Half Quarters; 8 Bushels make the *Minot*; 16 a *Mine*; 20 *Mines*, or 320 Bushels, the *Muid*. For *Plaister*, 12 Bushels make a *Sac*; and 36 *Sacs* a *Muid*. For *Lime*, 3 Bushels make a *Minot*; and 48 *Minots* a *Muid*.

The *Minot* is by Ordonnance to be 11 Inches, 9 Lines high; and 14 Inches, 8 Lines, in Diameter. The *Minot* is compos'd of 3 Bushels, or 16 *Litrons*; 4 *Minots* make a *Septier*, and 48 a *Muid*.

The *Mine* is no real Vessel, but an Estimation of several others. At *Paris*, the *Mine* contains 6 Bushels, and 24 make the Muid. At *Rouen*, the *Mine* is 4 Bushels; at *Dieppe* 18 *Mines* make a *Paris* Muid.

The *Septier* differs in different Places; at *Paris* it contains 2 Mines, or 8 Bushels, and 12 *Septiers* the Muid. At *Rouen* the *Septier* contains 2 Mines, or 12 Bushels; 12 *Septiers* make a Muid at *Rouen*, as well as *Paris*; but 12 of the latter are equal to 14 of the former. At *Toulon* the *Septier* contains a Mine and a Half, 3 of which Mines make the *Septier* of *Paris*.

The *Muid*, or *Muy*, of *Paris*, consists of 12 Septiers, and is divided into Mines, Minots, Bushels, &c. that for *Oats* is double that for other Grain, *i. e.* contains twice the Number of Bushels. At *Orleans* the *Muid* is divided into Mines, but those Mines only contain 2 *Paris* Septiers and a Half.

In some Places they use the *Tun* in lieu of the Muid, particularly at *Nantz*, and almost throughout the Province of *Bretagne*, where it contains 10 Septiers, of 16 Bushels each, and weighs about 3300 Pounds. Three of these *Tuns* make 28 *Paris* Septiers. At *Rochel*, and throughout the *Aunis*, the *Tun* contains 42 Bushels, and weighs 2 *per Cent.* less than that of *Nantz*. At *Breste* it contains 20 Bushels, is equal to 10 *Paris* Septiers, and weighs about 2240 Pounds.

The FRENCH *Liquid Measures* at *Paris*, and in a great Part of the Kingdom, (beginning by the smallest) are, the *Posson*, which contains 6 Cubick Inches; 2 Possons make the *Demi Septier*; 2 Demi Septiers the *Septier*, or *Chopine*; 2 Chopines a *Pint*; 2 Pints the *Quart*, or *Pot*; 4 Quarts the *Gallon*, or *Septier of Estimation*; and 36 Septiers the *Muid*; which is subdivided into 2 *Demi Muids*, 4 *Quarter Muids*, and 8 *Half Quarter Muids*. From the Quarts are likewise rais'd the *Measures* us'd in other Parts; as the *Queue* us'd at *Orleans*, *Blois*, &c. containing a *Paris* Muid and a Half, or 420 Pints; the *Tun* us'd at *Bayonne* and *Bourdeaux* consisting of 4 Bariques, and equal to 3 *Paris* Muids; at *Orleans* to 2: So that the first *Tun* contains 864 Pints; and the second 576. The *Demi Queue* us'd in *Champagne* 96 Quarts; the Pipe us'd in *Anjou* and *Poitou* containing 6 Buffards, equal to 2 *Demi Queues* of *Orleans*, &c. or a Muid and a Half of *Paris*, or 432 Pints. The *Millerolle* us'd in *Provence*, containing 66 *Paris* Pints; and the *Poinçon* us'd at *Nantz*, the *Touraine*, and the *Blessois*, equal to Half the *Orleans Tun*. The *Poiçon* us'd at *Paris*, is the same with the *Demi Queue*.

The SPANISH *Long Measure*, is the *Vara*, or Yard, in some Places call'd the *Barra*; containing $\frac{17}{27}$ of the *Paris* Ell. But the *Measures* in *Castile* and *Valencia* are, the *Pan*, *Span*, or *Palm*; which is us'd, together with the *Canna*, at *Genoa*. In *Arragon*, the *Vara* is equal to a *Paris* Ell and a Half, or 5 Feet, 5 Inches, and 6 Lines. In *Portugal*, the *Long Measure* is the *Covedas*, containing 2 Feet, 11 Lines, or $\frac{4}{7}$ of the *Paris* Ell; and the *Vara*, 106 whereof make 100 *Paris* Ells.

The SPANISH and PORTUGUESE *Dry Measures* are, at *Cadiz*, *Bilboa*, and *St. Sebastian*, the *Fanega*, 23 whereof make the *Nantz*, or *Rochel* Tun, or 9 *Paris* Septiers and a Half: The *Bilboa Fanega* is somewhat larger, insomuch that 21 *Fanega's* make a *Nantz* Tun. At *Seville*, &c. they use the *Anagoras*, containing a little more than the *Paris* Mine; 36 *Anagora's* make 19 *Paris* Septiers. At *Bayonne*, &c. the *Concha*, 30 whereof are equal to 9 *Paris* Septiers and a Half. At *Lisbon*, the *Alqueir*, a very small *Measure*, 240 whereof make 19 *Paris* Septiers, and 60 of the *Lisbon* Muid.

The SPANISH *Liquid Measures* are, the *Bota*, containing between 36 or 37 *Dutch* Stekans, holding about 1000 Weight. The *Bota* consists of 30 *Arroba's*, each weighing 28 Pounds; each *Arroba* is again divided into 8 *Azumbres*, and the *Azumbre* into 4 Quarts. The *Pipe* consists of 18 *Arroba's*.

The PORTUGUESE *Liquid Measures* are, *Bota's*, *Almudes*, *Cavada's*, *Quarta's*; and for Oil, *Alqueirs*, or *Cantars*. The *Portuguese Bota* is somewhat smaller than the *Spanish*, being equal only to 25 or 26 Stekans. The *Quarta* is $\frac{1}{4}$ of the *Cavadas*; the *Cavadas*, or *Cavado*, is the same with the *Dutch* Mengle; 6 *Cavada's* make an *Alquier*; and 2 *Alquiers* 1 *Almade*, or *Almoud*; 26 *Almouds* a *Bota*.

In ITALY they use, for a *Long Measure*, the *Brachio*, Brace, or Fathom; which obtains in the State of the Duke of *Modena*, in *Venice*, *Florence*, *Lucca*, *Milan*, *Mantua*, *Bologna*, &c. but of different Lengths. At *Venice* the *Brachio* contains 1 *Paris* Foot, 11 Inches, 3 Lines, or $\frac{3}{5}$ of the *Paris* Ell. At *Bologna*, *Modena*, and *Mantua*, it is the same as at *Venice*. At *Lucca* it contains 1 *Paris* Foot, 9 Inches, 10 Lines; or Half a *Paris* Ell. At *Florence* it contains 1 Foot, 9 Inches, 4 Lines; or $\frac{49}{100}$ of a *Paris* Ell. At *Milan* the *Brace*, for *measuring* of Silks, is 1 *Paris* Foot, 7 Inches, 4 Lines; or $\frac{4}{9}$ of a *Paris* Ell: That for woollen Cloth is the same with the Ell of *Holland*. At *Bergama*, the *Brace* is 1 Foot, 7 Inches, 6 Lines; or $\frac{5}{9}$ of a *Paris* Ell. The usual *Measure* at *Naples*, is the *Canna*, containing 6 Feet, 10 Inches, and 2 Lines; or 1 *Paris* Ell, and $\frac{15}{17}$.

The ITALIAN *Dry Measures* are, the *Staro*, or *Staio*, and *Tomolo*, *i. e.* at *Venice*, *Legborn*, and *Lucca*; they use the *Staro*; and at *Naples* and *Sicily* the *Tomolo*. The *Staro* of *Legborn* weighs 54 Pounds; 112 *Staro's*, and $\frac{7}{8}$, are equal to the *Amsterdam Last*. At *Lucca*, 119 *Staro's* make the *Last* of *Amsterdam*. The *Venetian Staro* weighs 128 *Paris* Pounds; the *Staro* is divided into 4 *Quarters*; 35 *Staro's*, and $\frac{1}{3}$, or 140 *Quarters*, and $\frac{4}{5}$, make the *Last* of *Amsterdam*. At *Naples*, the *Tomolo*, or *Tomalo*, is equal to 1 Third of the *Paris* Septier; 36 *Tomoli* and a Half make the *Carro*; and 1 *Carro* and a Half, or 44 *Tomoli*, make the *Last* of *Amsterdam*. At *Palermo*, 16 *Tomoli* make the *Salma*; and 4 *Mondili* the *Tomolo*; 10 *Salma's* and $\frac{3}{7}$, or 171 *Tomoli* $\frac{3}{7}$, make the *Last* of *Amsterdam*.

At ROME they use, for *Liquid Measure*, the *Boccale*, or *Pot*, containing a little more than a *Paris* Pint; 7 Boccales and a Half make the *Bubbo*; and 13 Bubbo's and a Half the *Brenta*; so that the *Brenta* contains 96 Boccales. At *Florence*, the *Staro*, or *Staio*, containing 3 *Bariles*, and the Barile 20 *Fiasco's*, or *Flasks*, nearly equal to a *Paris* Pint. At *Verona*, they use the *Bassa*, 16 whereof make a *Brenta*; the Brenta contains 96 *Boccales*, or 13 *Rubbots* and a Half. At *Venice*, the *Amphora*, containing 2 *Bottes*; the Botte 4 *Biguncio's*; the Biguncio 4 *Quarts*; the Quart 4 *Tischauffera's*. The *Venetian Botte* is again divided into *Mostachio's*, 76 whereof make the *Amphora*. At *Ferrara*, the *Mastilly*, containing 8 *Sechio's*. In *Istria*, *Sechio's*, 6 whereof make the *Urna*. In *Calabria* and *Apulia*, *Pignatoli's*, equal to a *French* Pint; 32 Pignatoli's make the *Staro*, or *Staio*; and 10 Staro's the *Salma*.

The *Standard Measure* in *Holland*, *Flanders*, *Sweden*, a good Part of *Germany*, many of the *Hanse Towns*, *Dantzick*, *Hambourg*, *Geneva*, *Frankfort*, &c. is the *Ell*; which differs, in all these Places, from the *Paris Ell*: For in *Holland* it contains 1 *Paris* Foot, 11 Lines; or $\frac{4}{7}$ of the *Paris Ell*. The *Flanders Ell* contains 2 Feet, 1 Inch, 5 Lines, and Half a Line; or $\frac{7}{11}$ of the *Paris Ell*. The *Ell* of *Germany*, *Brabant*, &c. is equal to that of *Flanders*.

The *Muscovite Measures* are, the *Cubit*, equal to 1 *Paris* Foot, 4 Inches, 2 Lines; and the *Arun*, 2 whereof are equal to 3 *Cubits*.

The *Dutch*, *Swedish*, *Polish*, *Prussian*, and *Muscovite Dry Measures*, are, the *Last*, *Lest*, *Leth*, or *Letch*, so call'd, according to the various Pronunciations of the People who use it. In *Holland* the *Last* is equal to 19 *Paris* Septiers, or 38 *Bourdeaux* Bushels; and weighs about 4560 Pounds. The *Last* they divide into 27 *Mudes*, and the *Mude* into 4 *Schepels*. In *Poland* the *Last* is 40 *Bourdeaux* Bushels, and weighs about 4800 *Paris* Pounds. In *Prussia* the *Last* is 133 *Paris* Septiers. In *Sweden* and *Muscovy* they measure by the *great* and *little Last*; the first containing 12 Barrels, and the second Half as many. In *Muscovy* they likewise use the *Chefford*, which is different in various Places; that of *Archangel* is equal to 3 *Rouen* Bushels.

At *Amsterdam* their *Liquid Measures* (to begin with the Diminutions) are, *Mengles*, or *Bottles*, equal to *French Pots*, containing 2 Pounds, 4 Ounces Marc, of an ordinary Liquor. The *Mengle* is divided into 2 Pints, 4 Half Pints, 8 *Muffies*, 16 *Half Muffies*, &c. 770 *Mengles* make their *Tun*. The *Viertel*, or *Quarter*, consists of 5 *Mengles*, and 1 Sixth; the Wine *Viertel* is just 6 Mengles; the *Stekan*, or *Stekanen*,

men, contains 60 Mengles; the *Anker* contains 2 Stekans; and 4 Ankers the *Avon*. For Oil, they use the *Tun*, which contains 6 *Awms*, or *Ahms*; equal to 1600 *Paris* Pints.

Throughout almost all *Germany*, they use the *Fuder* for their *Liquid Measure*, but with some Difference in its Length, as well as its Subdivisions. The *Fuder* is suppos'd the Load of a Cart with two Horses; 2 Fuders and a Half make the *Roeder*; 6 *Awns* the Fuder; 20 *Fertels* the Awn; and 4 *Massems*, or *Maasses*, the Fertel: So that the Roeder contains 1200 Maasses; the Fuder 480; the Awn 80; and the Fertel 41. At *Nuremberg*, the Division of the *Fuder* is into 12 *Heemers*; at *Ausbourg*, the *Fuder* is divided into 8 *Jez*; the Jez into 2 *Müids*, or 12 *Besons*; the Beson into 8 *Maasses*; which makes 768 Maasses in the Fuder, as in that of *Nuremberg*. At *Vienna* they divide the *Fuder* into 32 *Heemers*; the Heemer into 32 *Achtelings*; and the Achteling into 4 *Selitins*. The *Awm*, there, is 80 *Maasses*; the *Fertel*, call'd also *Schrewe*, 4 Maasses; and the *Wiclinck* 24 *Heemers*. At *Heidelberg*, the *Fuder* into 10 *Awms*; the Awm into 12 *Vertels*; and the Vertel into 4 *Maasses*. At *Wittemberg*, the *Fuder* is divided into 6 *Awms*; the Awm into 16 *Yunes*; and the Yune into 10 *Maasses*.

The *Long Measures* in TURKEY, and the LEVANT, are, the *Picq*, containing 2 Feet, 2 Inches, and 2 Lines; or 3 Fifths of the *Paris* Ell. The *Cobre* in *China*, 10 whereof are equal to 3 *Paris* Ells. In *Persia*, and some Parts of the *Indies*, the *Guere*, whereof there are two Kinds; the *Royal Guere*, call'd also the *Guere Monkelser*, containing 2 *Paris* Feet, 10 Inches, 11 Lines; or 4 Fifths of the *Paris* Ell; and the *shorter Guere*, call'd simply *Guere*, only two Thirds of the former. At *Goa*, and *Ormus*, the *Measure* is the *Vara*, the same with that of the *Portuguese*, having been introduced by them. In *Pegu*, and some other Parts of the *Indies*, the *Cando*, or *Candi*, equal to the Ell of *Venice*. At *Goa*, and other Parts, they use a larger *Cando*, equal to 17 *Dutch* Ells; exceeding that of *Babel*, and *Balsora*, by $\frac{7}{8}$ *per Centum*; and the *Varra* by $6\frac{1}{2}$. In *Siam* they use the *Ken*, short of 3 *Paris* Feet by 1 Inch. The *Ken* contains 2 *Soks*; the Sock 2 *Keubs*; the Keub 12 *Nious*, or Inches; the Niou to be equal to 8 Grains of Rice, *i. e.* to about 9 Lines. At *Camboia* the *Haster*, in *Japan* the *Tatam*, and the *Span* on some of the Coasts of *Guinea*.

It may be here observ'd, that most, if not all the eastern Nations, with whom the *Europeans* traffick, have not any such Things as *Measures of Capacity*, either for Things liquid or dry; but that they sell all Things, even Liquors, by the Weight. We may, however, rank among the Number of *Liquid Measures*, the *Coco's* and *Canan* of *Siam*; the first are the Coco's-shells clear'd of their Kernel; and since these are not all of the same Capacity, they measure them with Cauri's, or little Shells found in the *Maldive's*, which also serve for Money in some States of the *Indies*. Some Coco's hold a thousand Cauri's, and some only five hundred. Above the Coco's is the *Canan*, a little Measure used in the same Country, and called by the *Portuguese Choup*, holding about a *Paris* Quart. On the Coasts of *Barbary* they used the *Rotolo*, or *Rotoli*, for *Liquid Measure*; at *Tripoli* 32 Rotoli make the *Matuli*; at *Tunis* 42 of the Rotoli of *Tripoli* make a *Matara*, or *Mataro*; and the other Places on the same Coast use nearly the same *Measures*.

The usual *Measure* of Wood for Firing, is the *Cord*, 4 Feet high, as many broad, and 8 long; divided into 2 Half *Cords*, called *Ways*, and by the *French Membres*; and also, in several Provinces of the Kingdom, *Voye de Bois*, as being supposed Half a Waggon Load.

The *Measure* for Horses, is the Hand, or Handful, which by the Statute contains 4 Inches.

The next Thing our Pupil should know, before he can be reasonably supposed qualified for a Merchant, and which must be one of his most essential Qualifications, the most intricate, and consequently the most difficult in the Acquisition, is, that of EXCHANGE; which is the Profit which a Merchant, Negotiant, or Broker, makes of a Sum of Money receiv'd, and for which a *Bill of Exchange* is drawn, payable in some other Place, and some other Person; for the Interest of his Money, and the Salary and Reward of his Negotiation. Thus,

A BILL OF EXCHANGE is so noble and excellent in its Nature, that though it can't be called a Speciality, because it wants those Formalities required by the Common Law of *England*, as Seal, Delivery, and Witnesses; yet it is equivalent thereto, and may be reckoned to exceed any Speciality, or Bond, in its Punctuality of Payment; it carrying a commanding Power with it, although it shall be directed from a Servant to his Master: For if he accepts it, the Concern is as great, in Respect to his Honour and Credit, for him to see it paid in due Time, as the Servant can desire, or the Party to whom it is made payable can expect; in Regard the Accepter's Credit lies at Stake; and if he fails Payment at the precise Day, presently there will issue forth a Protest, which may tell Tales, and soon put a Stop to his *Commerce*; for a Merchant who does not pay his accepted *Bills* at the Time of Payment, or Time appointed, must not expect to keep up long his Credit; and he wounds, at the same Time, that of the Drawer, since both the Accepter and Drawer are bound until Payment is made.

Twelve Things are to be observ'd in drawing a *Bill of Exchange*; 1. There must be set down, at the Top of the *Bill*, the Place where, and the Day when the *Bill* is drawn, without forgetting the Difference between old and new Stile. 2. It is common to set down, in the same Line, the Sum for which the *Bill* is drawn. 3. The Time of Payment. 4. The Quality of the *Bill*. 5. The Name of the Person in whose Favour the *Bill* is drawn. 6. For what Sum of Money. 7. The Quality of the Money. 8. The Price of the Exchange. 9. How the Value is receiv'd, and of whom. 10. What Advice the Person upon whom the Draught is made must expect. 11. The Subscription, or Name of the Drawer. Lastly, The Address, or Direction to the Person who is to pay the *Bill*.

The two first of these twelve Articles wanting no further Explication, we'll begin to explain the ten following by the third, which relates to the Payment of a *Bill of Exchange*; with Regard to which, these Things are to be considered, that *Bills of Exchange* are either at Sight, *i. e.* to be paid when accepted; or at some Days or Months Sight; which may be one, two, three, four, or eight Days, or Months, after they are presented for Acceptance; which, when they come to Hand, the Day of the Month when accepted must be mentioned, with the Acceptance: Or at one or more *Usances*, which Space of *Usance* differs in several Countries: Or payable at a certain Day specified in the *Bill*, without any Relation to the Date of the *Bill*, or Time of accepting the same: Or payable at certain Fairs, as is customary in some particular Places; as at *Lyons* in *France*; *Frankfort*, *Leipsick*, &c. in *Germany*, where *Bills* are usually drawn payable at such or such a Fair.

The Thing meant by the *Quality of a Bill of Exchange*, is, that if it be the *first*, *second*, or *third*, which must be mentioned in the Bill, since that Precaution is used among Merchants, and others, to take two, sometimes more *Bills of Exchange*, for the same Sum of Money; that in Case the first should be lost, the second may supply its Place; and that the Drawer may not be subject to any Inconveniency, by the Multiplicity of Bills for the same Sum of Money, they are distinguish'd by the Quality of first, second, &c. and either of these being paid, the other remains void, and of no Effect; so that no Person will take a *Bill of Exchange* without a second with it, except it be accepted; and then the second is needless; or unless it be specified in the Bill, *This my only Bill of Exchange for the Sum*; which is a Form often used by Merchants, when the Payer and Drawer live in the same

Place, or in neighbouring Towns, *&c.* when they think there is no Danger of losing the Bill, and so don't take the Trouble of making out two.

The Christian Name and Sirname of the Person to whom the Bill is to be paid, must be set down distinctly; and if it be to two Copartners, both their Sirnames must be set down, *viz.* Mess. *A* and *B*, Merchants in *London*. It is also the Custom, to mention in the Bill the Employs, or Trades of the Parties.

Note, That a *Bill of Exchange* is always made payable to his, her, or their Orders; otherwise it could not be easily negotiated, nor endors'd to any other Person.

The *Sum for which the Bill is drawn* must be expressed in Words at Length distinctly; the Number of Pounds, Shillings, Pence, or of Livres, Sols, Deniers, *&c.*

There ought to be great Care taken to express the Sort of Specie of Money; that's to say, whether in Bank or Current Coin; because of the many different Sorts of Money in all Nations.

The *Price of Exchange* must be expressed in Words at length in the Bill, *v. g.* Suppose the *Bill* was drawn between *London* and *Paris*, there must be specified how many Pence, *&c. English* for the Crowns of sixty Sols *Tournois*; and if between *England* and *Holland*, how many Skillings and *Groots Dutch* Money for twenty Shillings *English*.

There must be inserted in all Bills of Exchange, the Name and Sirname of the Person who pays the Value of the Bill, and in what Manner it is paid, for the Satisfaction of the Person in whose Favour the *Bill* is drawn. The Method commonly practised, in this Case, is these general Terms, *Value received of* T. B. or *Value received.*

It is common to end Bills of Exchange with these or the like Words; *Place it to Accompt, as per Advice, from your humble Servant*, D. C. Under this is usually written, as in any other Letter, the Name or ordinary Subscription of the Drawer.

The *Address* or Direction to the Party who is to pay the *Bill* is commonly written under the *Bill* towards the left Hand, over-against the Subscription, leaving a small Space for Acceptance between the Directions and Subscription; in which must be set down the Name, Sirname, Character, and Place of Residence of the Party, whom the Bill is drawn upon.

Note, That it is not Customary for Merchants to accept or pay *Bills of Exchange*, without particular Letters of Advice from the Drawers, in which they take Notice of their having drawn a certain Sum, expressing likewise the Species or Sorts of Money, and all the other Circumstances very exactly, and very particularly, to the Order of such a Person, payable at such a Time: And it is of such Consequence to be punctual in giving such Advices, that though the Person, upon whom a *Bill* may be drawn, has Provision in his Hand for the Payment of it, he may suffer it to be protested for Want of Advice from the Drawer.

To reduce all this into Practice, I have drawn here several Forms of *Bills of Exchange.*

FORMS *of Bills of Exchange.*

London, $\frac{1}{2}$ *June*, 1742. *Exchange* 196 l. *Sterling*, at 34 s. 5 d. *per Pound Sterling.*

At three Day's Sight, pay this my only Bill of Exchange to Mr. *P. T.* or Order, the Sum of one hundred ninety-six Pounds Sterling in Bank-Money, at thirty-four Skillings and five Pence per Pound Sterling, Value received of *M. R. B.* as *per* Advice, from

Your most Humble Servant,

To M. *P. D.* *L. M.*
Merchant in *Rotterdam.*

London, $\frac{2}{13}$ *July*, 1742. *Crowns* 946, at 34 d. *per Crown.*

At Sight, pay this my first of Exchange to *M. Olive*, or Order, the Sum of nine hundred forty-six Crowns *Tournois*, at sixty Sols *Tournois per* Crown, Value received, at thirty-four Pence Sterling *per* Crown, as *per* Advice, from

Your humble Servant,

To M. *George Waters* *D. C.*
Banker in *Paris.*

Crowns 946, at 34 d. *per Crown*, *London* $\frac{2}{13}$ *July*, 1742.

At Sight, pay this my second of Exchange (my first not being paid) to *M. Olive*, or Order, the Sum of nine hundred forty-six Crowns *Tournois*, at sixty Sols *Tournois* per Crown, Value received, at thirty-four Pence Sterling *per* Crown, as *per* Advice, from

Your humble Servant,

To M. *George Waters*, *D. C.*
Banker in *Paris.*

The third *Bill of Exchange* agrees in every Thing with the first and second, only with this Addition, *Pay this my third* Bill of Exchange, *my first and second not being paid.*

Exchange 200 l. *Sterling*, at 33 s. *per Pound Sterling*, *London*, $\frac{7}{12}$ *July*, 1742.

At ten Days Sight pay this our first of Exchange to the Order of Mess. *P. T.* the Sum of two hundred Pounds Sterling in Bank Money, Value in two Bills of Exchange receiv'd of them, at thirty-three Skillings *per* Pound Sterling, as *per* Advice, from

Your most humble Servant,

To Messieurs *E. F.* *T. D.*
Merchants in *Amsterdam.*

Note, That as the foregoing Bill is suppos'd to be drawn by *T. D.* Partners, Merchants in *London*, to the Order of *P. T.* Merchants at the same Place, upon *E. F.* suppos'd to be Partners, Merchants in *Amsterdam*; in such Case of Partnership, it is usual for the Partners to sign with their Sirnames only, except when a Partner is absent: For then the Partner present signs both his Name and Sirname for Partners and Company; else the Bill, Bond, or Obligation, can be no Ways binding, or of any Force, against the Party or Parties that have not sign'd.

Exchange 500 *Crowns*, at 35 d. *per Crown*, *London*, $\frac{17}{28}$ *August*, 1742.

At Usance pay this my first of Exchange to M. *R. S.* or Order, the Sum of five hundred Crowns, at sixty Sols *Tournois per* Crown, Value receiv'd in Goods of the said *R. S.* at 35 d. Sterling *per* Crown, as *per* Advice, from

Yours, &c.

To M. *L. N.*
Merchant in *Rouen.*

Exchange 560 *Crowns*, *London*, $\frac{15}{28}$ *October*, 1742.

The 19th of *November* next pay this my first of Exchange to the Order of M. *D. B.* the Sum of five hundred and sixty Crowns, at sixty Sols *Tournois per* Crown, Value in Account, with M. *M. R.* as *per* Advice, from

Yours, &c.

To M. *F. M.*
Merchant in *Bourdeaux.*

Exchange 1000 *Crowns*, *London*, 27 *January*, / 7 *February*, 1741.

At the usual Fair of *Easter*, pay this my first of Exchange to M. *O. P.* or Order, the Sum of one

one thousand Crowns, at sixty Sols *Tournois per* Crown, Value receiv'd, of Sir *B. W.* as *per* Advice, from

Yours, &c.

To M. *P. S.*
Merchant in *Lions*.

Note, That any Bill of Exchange whatsoever is properly call'd a *Draught*, with Regard to the Drawer, and to the Person upon whom it is drawn, who is to pay the Contents; and at the same Time it is properly called a *Remittance*, with Regard to the Person who buys the Bill, and pays the Value, as well as to the Person to whom the Bill is sent or remitted, and who consequently receives the Contents. Hence the Terms of *Draughts* and *Remittances* used in *Commerce*.

By all this it is easily understood, that *Exchange* is nothing else, in Reality, but to give or take up Money in one City, or Town, to the End to have it again, or to restore the just Value thereof in Money in another Town, according to the Price which shall be agreed upon between the Taker and Deliverer, to allow or pay for the Exchange of the Money, and the Loss of Time, which shall be from the Time that the Money is taken up and delivered, until it be restored or received again. And this Method of negotiating Money, is only selling or disposing of Bills of Exchange, by transferring them to other Persons, according to certain Conditions stipulated or agreed upon between the Drawer and Buyer.

This Sort of *Commerce* of Bills of Exchange can't be carried on but three Ways, *viz.* at the *Par*, with *Profit*, or with *Advance to the Remitter*, or *Loss to the Drawer*.

A Bill is negotiated at the *Par*, when the Drawer receives precisely the same Sum contained in the Bill. It is negotiated *with Profit*, when the Drawer receives more Money than is contained in the Bill of Exchange. And *with Advance to the Remitter*, or *Loss to the Drawer*, when the Drawer receives a lesser Sum of Money than is contained in the Bill.

In the *Commerce* of Bills of Exchange there occur, sometimes, what is called *dry*, and *feigned Exchange*.

Dry EXCHANGE, is when a Person, having Occasion for Money, desires a Banker, or any other Person, to lend him some, perhaps 100 Pounds, at Interest, for a certain Time; the Banker, unwilling to let him have it at Interest, offers him the 100 Pounds by Exchange, at *Amsterdam*, whereunto they both agree: But the Party having no Correspondence there, the Banker bids him make his Bill of Exchange for so much Money, at double or triple Usance at *Amsterdam*, to any imaginary Person, at the Price the Exchange shall then go, with which the Party accordingly agrees. Now the Time being run out, there comes a Protest from *Amsterdam* for Non-payment, with the Exchange of the Money from *Amsterdam* to *London*; all which, with Costs, the Party must repay to the Banker in *London*, for the Money he has so borrowed.

Feigned EXCHANGE, is when a Person owes a Banker Money, and having no ready Cash to pay, desires Time. The Banker grants him that Time, provided he will be bound to pay him his Money at the Time at *Hambourg* by Exchange; and it is further agreed between them, if it shall be paid in the Time at *London*, the Party shall be free, otherwise he shall stand bound as before. In the Interim, the Banker writes to his Friend at *Hambourg*, to send him from thence a Bill of Exchange for the like Sum, feigning, that he owes him that Money. After the Time is expired, comes a Bill of Exchange from *Hambourg*, to pay here that Sum owed there, with the Re-change; all which the Banker puts to the Party's Account; and by the Agreement the Banker can oblige the Party to pay, in Case he does not pay him in *London* at the Time agreed upon.

Inland Bills of Exchange are as binding as the outland Bills of Exchange; for as all Bills of that Kind are nothing else but Orders given by Merchants, Bankers, *&c.* to furnish others for certain Sums of Money, for Value receiv'd of the Persons in whose Favour such Orders are made, the *Inland Bill of Exchange* made for Money taken up at *York*, *Bristol*, or any Part of *Great Britain*, and payable at *London*, is as effectual, and binding, as an outland Bill taken up at any Part beyond the Seas, and made payable here in *London*, they being both for Value taken up by Exchange; and further, the Exchange of Money may be as well made from one Town to another, as from one Kingdom or State to another; and the Customs of Negotiators are observed to be equally the same.

Four Persons are commonly employ'd in taking up Money, and remitting it by Exchange, (besides the Broker that procures the Bill) *viz.* two at the Place where the Money is taken up, and two at the Place where the Money is to be repaid.

The two Persons at the Place where the Money is taken up, are, the Party that delivers the Money by Exchange, who is called the Deliverer, and the Taker, or the Party that takes up Money by Exchange, which is commonly call'd the Drawer.

The two Persons at the Place where the Money is to be repaid, are, the Party that is to repay the Money, or the Party upon whom the Bill is drawn, and the Party to whom the Bill is sent to get it accepted, and to receive the Money, when it shall become due.

But, however, three Persons, and even two, can negotiate a Bill of Exchange.

A Bill of Exchange can be negotiated by three Persons, *viz.* by the Taker, Deliverer, and the Party on whom the Bill is drawn, by the Taker making and subscribing a Bill of Exchange for so much Money by him received of the Deliverer; the Deliverer ordering the Bill to be made payable to himself or Assigns, for the Value of himself; and the Party on whom the Bill is drawn paying it to the Deliverer, or Assigns. For Example, a Merchant of *London* sets out for *Bristol*, where he intends to lay out a certain Sum of Money; he delivers his Money to another Person in *London*, and takes his Bill of Exchange, drawn upon some Friend or Servant of his at *Bristol*, payable to the Deliverer: This Bill the Deliverer takes with him, and receives his Money again when he gets at *Bristol*, by Virtue of his Bill of Exchange.

There is a second Method, whereby three Persons are only wanted to negotiate Money by Bills of Exchange; which is this: The Drawer (having Money in his Hands belonging to the Party he makes his Bills payable to) makes a Bill of Exchange himself, confessing the Value in his own Hands, which Bill he draws upon his Factor, or Servant, payable to the Party he is indebted to.

A third Way of negotiating Bills of Exchange between three Persons, is this: Supposing a Person at *Bristol*, *Exon*, *Norwich*, &c. designing for *London*, takes up Money at any of the Places aforesaid, he subscribes a Bill for the Money, and says for Value receiv'd, and draws it upon himself, payable to such Person the Deliverer shall appoint to receive the Money in *London*.

Two Persons can likewise negotiate a Bill of Exchange, in this Manner: The Drawer makes a Bill of Exchange payable to himself, or Order, for the Value receiv'd of himself, and subscribes the Bill, and directs it to the Party that owes him Money, and is to pay it by Exchange. The Person upon whom the Bill is drawn accepts it, and returns it to the Drawer. The Drawer finding an Opportunity before the Bill becomes due, negotiates it with another Person, and receives the Money at the Place of his Residence, only making an Assignment on the Bill, payable to the Party that pays him the Value.

Because it often happens in foreign Bills of Exchange, they are made payable to the Party that delivers the

Value, or his Order, or to ſome other Perſon at the Place where the Party reſides that draws the Bill, who ſends it only to be accepted by the Perſon it is drawn upon, and afterwards have it returned to him again, that he may negotiate it, and receive the Value thereof in the Place of his Reſidence, by making an Aſſignment, either on the accepted Bill, or on the other Bill of the ſame Date and Tenor not accepted, as he ſhall ſee convenient; and that if an Aſſignment ſhould come on the ſecond Bill, payable to another Perſon, without Directions where to take up the firſt accepted Bill; this ſecond Bill being preſented to the Party that accepted the firſt, would deny the Acceptance of the ſecond, becauſe he thinks himſelf in no Manner obliged to accept both; but becauſe he don't know, perhaps, to whom, and whoſe Hands the Bill is in he has accepted, the Party who has the ſecond, for Want of Acceptance, gets it immediately proteſted; to prevent which, all Merchants ſhould note down, in a Memorandum-Book, all Bills preſented to them for Acceptance, and the Name and Place where the Perſon lives that preſents the Bill to be accepted; that in Caſe the ſecond Bill ſhould be preſented for Acceptance, by another Perſon, he who has accepted the firſt Bill ſhould be able to tell the Party who ſhall preſent the ſecond, the Name of the Perſon to whom he has accepted the firſt Bill, and where he lives; whereby he will prevent the ſecond Bill being proteſted.

It is alſo of a very great Utility to a Merchant to take a Copy of a *Bill of Exchange* before it be preſented for Acceptance, in a Book for that Purpoſe; ſince thereby he may know who are the uſual Drawers and Deliverers of Money by Exchange in the Places whence the Bills come, and can know at any Time how the Exchanges go in thoſe Places. For if a Merchant ſhould receive ſeveral Bills by the ſame Poſt, and deliver them out of his Hands to get them accepted, before he notes them down in his Book; if they ſhould be left at the Places for Acceptance, he may chance to forget ſome of them, which may cauſe him to diſappoint his Friend, in not anſwering him in due Time, for want of the Bill or Bills that are miſſing; to the Diſadvantage of his Friend, eſpecially if they ſhould be Bills ſent only to get accepted, and to be ſent back again to be negotiated.

It is cuſtomary among Merchants, eſpecially great Dealers in *Bills of Exchange*, to keep Accounts of Bills receivable and payable; which they do either by keeping two Copy-Books, or dividing one Book into two different Parts; the one for copying of Bills payable, or thoſe drawn upon themſelves to be by them accepted and paid; and the other for Bills receivable, or thoſe drawn on other Perſons, and remitted to them to get them accepted, and receive the Money when they'll become due. Thoſe Merchants are commonly ſo exact in this, as to copy the Bill *verbatim* in their Books, and even ſpell it after the ſame Manner, altho' ſome Words may happen to be falſe ſpelt: They copy it out Letter by Letter; nay, even other Blemiſhes, which may happen in a Bill, they endeavour to imitate in the Copy; which neceſſary Precaution they uſe to be the more capable, if the Bill ſhould chance to be loſt, to reclaim it, by comparing it with the Copy, if it ſhould come again to Hand.

When they have accepted a Bill, they ſet down underneath the Copy of ſuch Bill, the Day of the Month when accepted, alſo the Party's Name that preſents the Bill, his Place of Abode, and when the Bill does become due; as in the following Example.

Exchange 3456 *Guilders*, 16 *Stivers* ½ *Banco*, at 34. 10. *Amſterdam*, $\frac{20}{30}$ *June*, 1742.

At Uſance pay this my firſt of Exchange, to M. *James Cavendiſh*, or Order, the Sum of three thouſand, four hundred, fifty-ſix Guilders, ſixteen Stivers and a Half Banco Exchange, at thirty-four Shillings, ten Groots *per* Pound Sterling, Value receiv'd, and put it to Account, as *per* Advice, from

Your humble Servant,
William Stanhope.

To M. *Richard Du Cane*,
Merchant in *London*.

4 *July* accepted to *John Stub*, Servant to M. *Peter French*, in St. *Mary Axe*, due $\frac{23}{5}$ *July*, 330 l. 15 s. 11 d. Sterling.

And when a Bill comes to Hand to get accepted, they uſually write, under the Directions, in the Copy where the Merchant lives that accepted the Bill, and the ſame Memorandum as above, when accepted, when due, *&c.*

It is an Error to think that there are three Days Reſpite allow'd for the Acceptance of a *Bill of Exchange*, before it can be proteſted; for as ſoon as the Bill has been preſented, (which muſt be done as ſoon as it comes to Hand) and Acceptance refus'd, the very ſame Day the Bill may be proteſted; but we muſt not miſtake for a Refuſal of Acceptance, the Time which a Merchant deſires, when a Bill is preſented to it, to conſider before he accepts it, ſince he demands nothing but what is uſual between Merchant and Merchant: For according to the Cuſtom of the Merchants the Party on whom the Bill is drawn may have 24 Hours to conſider whether he will accept the Bill or not; but that Time being expired, one may in Civility demand of the Perſon on whom the Bill is drawn, the Bill of Exchange he left with him to be accepted. If he ſhould anſwer, he has not accepted it, and deſires we may call for it another Time; the 24 Hours being expir'd, it is at our Choice whether we will ſtay longer, or not; for then we may deſire a Notary to go to the Dwelling-Houſe of the Party that has the Bill, accepted, or not accepted; and, in Default of preſent Delivery thereof, we may cauſe a Proteſt to be made in due Form.

Though this may be lawfully done, yet among Merchants who are acquainted with one another, they do not uſually proceed ſo ſtrictly for Acceptance, but leave the Bill, ſometimes, two or three Days with the Party it is directed to, if it be no ways prejudicial, the Poſt not going out in the Interim: But if the Poſt is to depart within two or three Days, then the Bills may reaſonably be demanded to be accepted, or not accepted, that they may give Advice to thoſe who ſent them the Bills, or delivered the Value thereof, if paid.

A verbal Acceptance is as binding as a written one, though not always conceived in formal Terms. For Example, if a Merchant tells me, *Leave your Bill with me, and I will accept it*; or *Call for it To-morrow, and it ſhall be accepted:* Theſe Words oblige as effectually, by the Cuſtom of Merchants, and according to Law, as if the Party had actually ſigned and ſubſcribed it. Likewiſe, if a Merchant ſhould ſay, *Leave your Bill with me, I will look over my Accounts and Books between the Drawer and me; and call To-morrow, and accordingly the Bill ſhall be accepted*; this ſhall amount to a compleat Acceptance: For this Mention of his Books and Accounts is really intended to ſee if there are Effects in his Hands to anſwer the Draught, without which, perhaps, he would not anſwer the ſame.

If afterwards the Perſon that has thus accepted the Bill ſhould refuſe to ſet his Name to it, and to write under it, *Accepted by me, according to Cuſtom here in England*; then the Perſon the Bill is made payable to may reſt ſatisfied, by ſuch an Acceptance, until the Time of Payment; and then if the Payment be not made by the Party, he may take his Courſe in Law againſt him.

A Bill once accepted, can't be revok'd by the Party that accepted it, tho' immediately after the Acceptance, and before it becomes due, he has Advice that the Drawer is broke. For Example, if a Bill of Exchange

change is presented to me, and I should accept the said Bill, and deliver it back to the Owner, and soon after receive Advice that the Drawer is fail'd; there is no such Thing as cancelling my Acceptance, or of making my Deed void, without mutual Consent; but I stand liable to the Payment, and must make it good, if I am able.

When we present a Bill for Acceptance, if the Party the Bill is drawn upon should refuse to accept the same, unless it be for a longer Time than the Bill is drawn for; we must, in such a Case, cause a Protest to be made for want of Acceptance, according to the Tenor of the said Bill. Or if we should leave the Bill for Acceptance, and he should, without our Knowledge, accept it for a longer Time, or for a lesser Sum than is mentioned in the Bill; in either of these Cases, we must carry the Bill to a Publick Notary, and get it protested, for want of Acceptance of the full Sum, or according to the Tenor of the same, and not eraze, or blot out his Acceptance; for by his Acceptance he makes himself Debtor, and acknowledges the Draught upon him by his Correspondent, and can't refuse or discharge the same; and when the Money becomes due, according to the Tenor of the Bill, we must demand Payment, and if he refuses to pay, we must cause a second Protest to be made for Non-payment; this Protest must be sent away to the Deliverer, but we must keep the Bill by us, that we may receive the Money it is accepted for, at the Time it is accepted at, unless we have express Orders from the Deliverer to the contrary, which Orders are to be our Guide.

When we have got our Bills accepted, we must cast up the Time when they fall due; and if they be drawn from *Holland*, *France*, *Italy*, or any other Parts, in foreign Money, look in the Bills for the Price of the Exchange they are drawn at, and reduce them to *Sterling*, and then note on the Back of our Bills, close to the Top, or at one End of the Bills, in short, the Time when they will be due, and the Sum we are to receive at the Time, according to the Tenor of the Bills, before we lay them up; by which Means we'll at any Time readily know when our Bills will be due, and the Money we are to receive, by inspecting only the Back-side of the Bills, which will make our Business easy to us.

A Bill drawn on two Persons jointly, must have a joint Acceptance. For Example, if a *Bill of Exchange* come directed to two or more Persons in these Terms, *To M.* James Newman, *and M.* John Pemberton, *Merchants in* London; in this Case, both *Newman* and *Pemberton* ought to accept the Bill: For if one of them accepts it, and the other refuses to accept it, that Bill must be protested for want of due Acceptance. But if the Bill be directed thus, *To M.* James Newman, *or M.* John Pemberton; or thus, *To M.* James Newman, *or, in his Absence, to M.* John Pemberton; or if they should be joint Traders, or Copartners, *To Messieurs* James Newman, *and* John Pemberton; or *To M.* James Newman, *and Company:* It is sufficient, in this Case, that the Bill should be accepted by *Newman* or *Pemberton*, because it is accepted according to the Tenor of the Bill.

If a Factor of the *Turkey*, *India*, or *South Sea* Company, draws a Bill on the same, and a Member accepts it; this, perhaps, may make him liable, but no other Member. Likewise, if 10 Merchants employ a Factor in some foreign Port, and the Factor draws a Bill on them all, and one of them accepts the Bill, but afterwards refuses Payment; this does not affect the rest. But if there be three joint Traders for the common Stock and Benefit of all three, and their Factor draws a Bill on them, the Acceptance of the one will oblige the rest of the Company.

A Man's Wife, a Friend, or Servant, can't accept a Bill of Exchange in his Absence, without sufficient Authority from him by Letter of Attorney under his Hand and Seal, deliver'd in the Presence of sufficient Witnesses for the doing of it. A Man's Word, as if he should say to his Wife, Friend, or Servant, *If any Bill of Exchange should come drawn upon me, in my Absence, accept them for me*; it is not sufficient: Neither will a bare Letter serve, written to his Wife, Friend, or Servant; but there must be Hand and Seal, and Witnesses, which, if Occasion should be, may prove his legal Consent to such Acceptance. But if the Wife or Servant have formerly accepted several Bills of Exchange during his Absence, and when return'd to Town he approv'd of it, and paid those Bills from Time to Time, and this could be prov'd, it would appear, perhaps, in the Eye of the Law, a sufficient Authority.

If a Bill is left with a Merchant to accept, and he loses the Bill, or, at least, it is so mislaid that it can't be found; the Party must request the Merchant to give him a Note for the Payment, according to the Time limited in the *Bill of Exchange*; otherwise there must be two Protests, one for Non-acceptance, the other for Non-payment. But if a Note be given for Payment, and there happens to be a Failure; yet, in that Case, there must be a Protest for Non-payment. If we should lose a Bill after we have got it accepted, as soon as we miss it, we should give Notice of it to the Person that accepted it, that he may stop it if it should be brought for Payment: If we should suspect that the Accepter will not regard our Notice, we may forewarn him at his Peril not to pay the Bill to the Bringer, without our special Order; and this by notifying the same to the Accepter, by a Publick Notary, which will serve for a Testimony that the Bill is lost; and when the Bill becomes due, we may receive our Money; for the Accepter is not exempted from paying because the Bill is lost: For if he refuses Payment, under Pretence that the Bill should be produced, he may be sued at Law for the Money, (without the accepted Bill) and be compelled to pay it, with Costs and Damages.

But perhaps the Bill is lost, when left to be accepted, either by the Person it was left with to be accepted, or by his, having delivered it, or his Servants, to a wrong Person: In this Case, the Person the Bill was drawn upon, must either pay the Money upon the second Bill, if it comes to Hand within the Time; or, in Default thereof, give a Note under his Hand, for the Payment of the Money mention'd in the Bill to the Party it is made payable to, or his Assigns, at the Time limited in the Bill: But in Case the Person that thus loses the Bill should refuse to give such a Note under his Hand, then he that presents the Bill, or the Person that left it to be accepted, must presently cause a Protest to be made in due Form, and send the Protest away by the first Post; and likewise make a Demand for the Money at the Time it falls due, tho' he has neither Note, nor Bill of Exchange; and in Default of Payment, he must cause a second Protest to be made, and sent away as the former: But in Case there is such a Note made, and no second Bill comes to Hand, he must go to receive the Money upon that Note, and, in Default of Payment, cause a Protest to be made for Non-payment upon that Note, as if he had *had* the accepted Bill, or the second Bill was come to Hand, but not paid at the Time it fell due.

It often happens, that a Bill is drawn upon one Place, and made payable to another. For Instance, a Merchant in *London* orders his Correspondent at *Rouen* to load a Ship at that Port for his Account for *London*, and the Loading comes to 9000 Livres; the Merchant of *London* having Effects to that Value in the Hands of another at *Paris*, he draws a Bill upon that Merchant, payable in *Rouen*; in which Case, that Merchant in *Paris*, when he accepts the Bill, must mention, in the Acceptation, the Name of his Correspondent at *Rouen*, at whose House the Payment of the Bill is to be made; as is seen in the following Model.

Exchange 9000 *Livres*, *London*, $\frac{5}{16}$ *June*, 1742.

At two Usance, pay this my first of Exchange in the City of *Rouen*, to M. *A. B.* Merchant there,

or Order, the Sum of 9000 Livres Value, in Account with him, as *per* Advice, from

Yours, &c.

To *George Waters*,
Merchant in *Paris*. D. C.

Accepted to pay at the House of M. *A. B.* Merchant in *Rouen*.

A Bill being thus drawn up, and accepted by a Merchant in *Paris*, to be paid at *Rouen*; the Accepter at *Paris* must take Care to remit the Value to his Friend in *Rouen*, at whose House the Bill is to be paid; which if he fails to do, the Bearer of the Bill, upon Refusal or Neglect of the Payment at *Rouen*, is not to send the Bill to be protested at *Paris*, at the House of the Accepter, but must immediately get it, to be protested at *Rouen*, at the House where it ought to have been paid; which being done, the Accepter at *Paris* becomes liable to all the Damages that happen to the Drawer or Endorser, as much as if the Bill had been protested at *Paris*.

Where a Merchant has accepted a Bill, and before that Bill becomes due himself becomes insolvent, or at least has lost his Credit, there must be a Protest; but previously to it a Demand is made, which once coming, the Drawer is compellable to give better Security.

If a *Bill of Exchange* be paid before it is due, and he to whom 'tis paid breaks afterwards; he that has paid it shall be compell'd to pay it again to the Deliverer of the Money, within the Time it is payable.

If a Bill be accepted, and the Party who has accepted it should die before it is due; there must be a Demand made of his Executors, or Administrators; and, in Default or Delay of Payment, a Protest must be made: And tho' it may fall out that the Money may become due before there can be Administrators, or the Probate of the Will be granted; yet that is Delay sufficient for a Protest, in Case of Non-payment; so that if the Acceptor dies before the Bill becomes due, we must, at the Time the Bill falls due, demand the Money of his Executor, *&c.* at his last Dwelling-House, or Place of Abode; and, upon their Refusal, or Delay of Payment, protest for Non-payment in the same Manner we would have done if the Acceptor had been living, and had not paid it at the Time it fell due.

If the Party to whom the Money is to be paid dies before it is due, and the Money is ready to be paid, and there is no Person that can legally give a Discharge, yet a Protest is not to be made for Non-payment, because there is no Person that has any Authority, either in Deed, or in Law to make it; and a Notary ought not to make it, for if he does, and the Party has receiv'd any Prejudice thereby, an Action of the Case may be against him for his Pains: As it avails not that a Security is offer'd to save him harmless against the Executors or Administrators, for that is an Act left to their own Discretion; for perhaps the Security may not be lessen'd: But whether good or bad, makes nothing as to oblige him in Law.

If a *Bill of Exchange* is sent to you to get accepted, and you should carry it, and find no Body at Home at the Dwelling-House, or Place of Abode of the Person the Bill is drawn upon, nor any Body to appear in his Behalf; you must cause a Protest to be made, either for Non-acceptance, or Non-payment, at his Dwelling-House, or Lodging; which is as effectual as if the same had been made to him in Person: For if no Protest could be legally made without speaking to the Party himself, a Protest might be prevented at Pleasure; but it is not in the Power of the Person the Bill is drawn upon to hinder the protesting of a Bill.

If a *Bill of Exchange* is made payable positively to such a Person, and not to such a Person or his Order, or his Assigns; then an Assignment upon the Bill signifies nothing; but the Money, in the Strictness of the Letter, must be paid positively to such a Man in Person; and he must be known to be the same Man mention'd in the *Bill of Exchange*, that the Money may not be paid to a wrong Person, and so the Acceptor be forced to pay it over again; and if the Bill is made payable positively to such a Person, as it was said before; such Person's Name written upon the Back of the Bill in Blank, is no sufficient Warrant for another Person to come in his Name to receive the Money, but the Party himself, the Bill is payable to, must appear in Person.

If a *Bill of Exchange*, by contrary Winds, or other Inconveniencies, be so long in the Way that the Usance, or Time limited in the Bill be expir'd, and being tender'd, both Acceptance and Payment are denied; Protest for both must be made, and the Drawer must answer the Value Re-change and Damage.

If, through a Mistake, the Figures, and the Words of the same Sum in the Bill at Length should disagree, *i. e.* either the Figures should express more, and the Words less; or the Words more, and the Figures less; in either, and all such Cases, we ought to mind the Words at Length, and not the Figures, until we receive further Advice concerning the same: Because a Person is more subject to mistake a Figure, than a Word. Besides, the Figures a-top of the Bill serve only, as it were, for Abbreviation of the Contents; but the Words at Length are in the Body of the *Bill of Exchange*, and are the chief Substance of the Bill, and therefore are more to be minded; and tho' it may fall out that the Sum mention'd in Figures in the Letter of Advice, and the Sum in Figures in the Bill of Exchange, do agree; yet if the Sum mention'd at Length in the same Bill disagree, we are to follow the Order mention'd in Words at Length in the Bill, and not the Order in Figures, for the Reasons aforesaid.

If the Name of the Party the *Bill of Exchange* is payable to should chance to be alter'd, or interlin'd in the Bill, and the Bill is accepted by the Party it is drawn upon; it is no sufficient Warrant for the Acceptor to refuse Payment when it becomes due, to the Party whose Name is mended or interlin'd in the Bill, or to his Order, or Assignment, if the Bill was so mended when he accepted it; for he could not but take Notice of the Error before he accepted it, and ought to have satisfied himself about it before he accepted it: And if he should say that it was not so mended or interlin'd when he accepted it, that he must prove.

If a *Bill of Exchange* comes without being directed to any Person, but in the Letter of Advice to the Person it is payable to, the Name of the Person it is drawn upon is mention'd, that Person in whose Favour that Bill is drawn, ought to present it for Acceptance; and in Case the Person refuses to accept it, because there is no Direction to him upon the Bill, the Party that presents that Bill for Acceptance ought to protest it for Non-acceptance; for then he protests against the Drawer, because he should have taken Care to direct the Bill, that it might have been accepted by some Body, and the Drawer is to bear the Charges thereof, for his Omission and Oversight: But, however, if the Person the Bill is presented to has Advice of the Bill from the Drawer, he may, upon sufficient Ground, accept the Bill upon that Advice, altho' the Direction to him be omitted upon the Bill.

Any Time before the Money becomes due, the Drawer may countermand the Payment of a *Bill of Exchange*, altho' the Bill has been accepted. The Countermand is usually made before a Notary, but if it comes without, so that it comes under the Party's Hand, it is well enough. If the Bill be accepted, and the Party desires to have the Money before it is due, and it is paid; and then comes a Countermand, it has been believ'd that it ought not to be allow'd: For as he could not enlarge the Time, so he could not shorten it; for he ought to have followed his Order. Therefore,

It is dangerous to discount, or pay *Bills of Exchange*, before they become due; for if he pays Money on a Bill before it be due, and the Party breaks; it has been conceiv'd, that the Party who pays it ought to

to answer the Drawer, for this Reason, that the Drawer might have countermanded the Payment, or made the Bill to be payable to another. So that if a Bill of Exchange is made payable to Usance, double Usance, thirty Days Sight, or at any longer or shorter Time, and when the Bill is offer'd for Acceptance, or at any other Time before the Bill is due, the Person the Bill is payable to shall desire present Payment upon Consideration of a Discount; or if the Party the Bill is drawn upon, having Money by him, and willing to improve it, should sollicit the Person the Bill is made payable to, to take his Money before it is due, with a *Proviso*. of allowing him a Discount; the Party that shall so pay a *Bill of Exchange* before it is due, runs some Hazard in not observing Order: For if the Money remitted be really and properly belonging to the Party that deliver'd the same to the Drawer; and if the Bill be made payable to Factor, Servant, Agent, or Friend of the Deliverer's, only to, and for the Deliverer's Use, and if the Deliverer should send his *Countermand* before the Bill is due, that the Acceptor may not pay the Money to such Factor, Servant, Agent, or Friend, to whom it was payable by the Tenor of the Bill, but to some other Person he shall appoint: In this Case, the Party the Bill is drawn upon ought to be liable to the Payment thereof, according to that Countermand, to the Person who shall thereupon be appointed to receive the same. For as it is not in the Power of the Person the Bill is drawn upon to prolong the Time for Payment; so it can't warrantably be in his Power to shorten it; for the Agreement is made between the Deliverer and Taker, and therefore particular Regard ought to be had to it; for tho' a Countermand does not happen often, it nevertheless does sometimes; and who can be certain the same may not come to him in the Payment of *Bills of Exchange*, before they become due?

Tho' no greater Affront can be offer'd to a Merchant than to protest his Bills; nothing, notwithstanding, is more common, than such Protest, which is a Summons made by a Notary Publick to a Merchant, Banker, or the like, to accept or discharge a *Bill of Exchange* drawn on him, after his having refused either to accept, or pay the same. It is call'd a *Protest*, because containing a Protestation that the Party will return the Bill, and even take up Money at Interest, and charge all Costs, Damages, Carriage, and Recarriage, on the Refuser.

There are two Kinds of *Protests*, the one for Want of Acceptance, the other for Want of Payment; the first to be made by the Bearer of the Bill at the Time of presenting it, in Case the Person, on whom it is drawn, refuse to accept it for the Time, or the Sum there express'd. The latter is made as the Bill falls due, whether it have been accepted, or not. The Bearers of *Bills of Exchange* that have been accepted, or which become payable at a certain Day, are oblig'd to have them either paid, or protested within three Days after due, on the Penalty of answering for the Omission: And it must be observ'd, that if the third Day happens to be a Holiday, the *Protest* is to be made on the Eve thereof.

At *Paris* and *Hambourg* the *Protest* is to be made within 10 Days; at *Venice*, where all Bills are paid in Banco, the *Protest*, for want of Payment, is to be made within six Days; but then the Bank is supposed open, otherwise no Protest to be made. At *Rome*, Protests for want of Payment are to be made within 15 Days. At *Leghorn*, *Milan*, and *Bologna*, there is no Time fix'd. At *Amsterdam*, they are to be made within 5 Days.

The Negotiants of some Places, as those of *Rome*, M. *Savary* observes, do not look on themselves as oblig'd to protest in Default of Payment; but some condemn this Opinion as contrary to universal Custom and Reason; since, till after Protestation, they have no Remedy or Resource against the Drawer or Endorser, nor any Title to be re-imburs'd. M. *Ricard* adds, that *Bills of Exchange* drawn from *Amsterdam*, or *Antwerp*, or *Spain*, are to be *protested* in Default of Payment, within 14 Days after they fall due; after which Time, the Bearer runs the Risque and Chance of the *non-protested* Bill, not the Drawer, or Endorser; in Case the Party happens to fail after the said 14 Days.

In *England*, a Merchant, upon the Receipt of a *Protest* return'd to him for want of Acceptance, or better Security, must immediately have Recourse to the Drawer or Endorser, with the *Protest*, that upon Sight thereof the Endorser or Drawer may give him such Security as he shall desire, for the Money taken up to repay the same, with Re-change and Costs, in Case the Bill be not paid in due Time. The usual Custom, in that Case, is this; the Drawer or Endorser having receiv'd the Value, must procure some able Man to under-write the *Protest* that comes for Non-acceptance, or for want of better Security, in Words of this Nature: *I* W. R. *do bind myself as Principal for the Money contained in the Bill of Exchange whereupon this Protest was made*, London, *this 5th of* June, &c.

If a *Protest* should be return'd for Non-payment, and Security has already been given on the *Protest* for Non-acceptance, or for want of better Security; when the Merchant receives the *Protest* for Non-payment, he may acquaint the Drawer or Endorser with it, then wait about the same Time the Bill was made payable, reckoning it from the Day it fell due, before he demands the Principal, with the Re-change and Charges of the Drawer, or his Security: For, according to the Laws of Merchants, the Drawer, or his Sureties, are oblig'd to pay upon the first *Protest* for Non-payment; but if there comes no *Protest* upon the Bill until it falls due, and then there comes a *Protest* for want of Payment; in such Case, the Merchant must take Security upon that *Protest* for Non-payment, in the same Manner as upon the *Protests* for Non-acceptance, except the Drawer pays him presently the Principal, Interest, and Charges, from the Day the Bill became due, to the very Day he shews him the *Protest* for Non-payment, and he consents to it; for otherwise, in Case a Bill is accepted for Non-payment, and the *Protest* be shewn to the Drawer, he may, if he gives Security, keep one out of the Money for as long a Time after the Bill was due, as the Bill was made payable in, before he can be compell'd to pay. For Instance, suppose the Bill should be dated *London*, the 26th of *May*, and payable at Usance in *Amsterdam*, and protested for Non-payment; the Drawer may claim the like Usance for Re-payment thereof, so as there was one Month for the Exchange of the Money from *London* to *Amsterdam*. So, likewise, there must be another Month for Re-exchange of the Money back again from *Amsterdam* to *London*; and thus it will be two Months before you can have your Money with Re-exchange thereof at *London*: But if the Drawer will not pay, nor yet give Security upon the *Protest*, then you may immediately take a Course in Law against him, and compel him to re-pay the same, with Costs and Damages.

If a Bill is made payable to one Man for the Value of another, and the Party the Bill is drawn upon has accepted it, but at the Time it falls due he fails in the Payment, whereupon *Protest* is made for Non-payment; and by Virtue of that *Protest* the Person that deliver'd the Value recovers Satisfaction of the Drawer; in this Case, the Drawer is discharg'd, against the Parties the Bill was made payable to, either immediately in Bill, or mediately by the Assignment, or Assignments, were there never so many on the Bill; so that neither the Person the Bill was made payable to, nor any other Person the Bill shall be assign'd to, ought to molest or trouble the Drawer, or legally, according to the Law of Merchants, sue, or prosecute the Drawer, because he has re-paid the Money to the right Party, whose Receipt and Discharge for the same is a sufficient Release against all further Trouble; neither can he to whom the first Bill is made payable (if but an Assign of the Deliverer) prosecute the Acceptor, after the Drawer has given Satisfaction to the Party that deliver'd the Value, no more than my Assign can protest,

protest, and prosecute a Surety upon a Bond made payable unto me after I have receiv'd Satisfaction from the Principal: For tho' it must be confess'd, in this Case, the Acceptor is not wholly discharg'd, for it is suppos'd he did accept the Bill by Order of the Drawer, or for some other's Account, to whom he must therefore be answerable; yet, in Reference to the Party that deliver'd the Value first, and the Party to whom it was payable, (supposing himself to be only an Assign of the Deliverer) the Acceptor does but only confirm what the Deliverer has done; and the Drawer has made Satisfaction to the Deliverer. The Acceptor is likewise discharg'd against the Deliverer, and against the Person the Bill was made payable to, (if he be but an Assign) but the Acceptor, by Virtue of his Acceptance, makes himself Debtor, and is still liable to the Drawer, or to the Account for which he accepted the Bill, until he makes Satisfaction.

The following Rules are to be observ'd by the Drawer, before the Delivery of a *Bill of Exchange*; and by the Buyer at the Acceptation thereof.

1. The Drawer is bound to furnish the Buyer with *Bills of Exchange* for the Sum agreed on; and they should both see that the Bill is well made, and all the necessary Particulars be duly express'd before the one delivers it, and the other takes the same.

2. A Buyer acts imprudently, if he should accept of one sole Bill for a Sum negotiated, altho' the same should be payable to himself.

3. A Drawer is oblig'd, according to the Notice or Direction given him by the Buyer, to divide the Sum agreed on into as many *Bills of Exchange* as the Buyer desires, or has Occasion for; and the Buyer is oblig'd to accept of several *Bills of Exchange*, drawn upon several Persons, which, together, amount to the Sum agreed on.

4. A Drawer is to blame when he makes two or three *Bills of Exchange* for the same Sum, and of the same Contents; but if the Buyer desires it, he may make one for the Sum he shall require, and divide the others into different Sums, amounting, in all, to the desir'd Sum.

5. A Drawer must be careful that he does not make two first, or two second *Bills of Exchange*, for one and the same Sum, but clearly distinguish the same in the Body of the Bill, and also in the Superscription; and it is prudent in a Drawer, if a second *Bill of Exchange* be desir'd of him, for any Sum whereof he is not sure whether he has already made a second, or not, to make a third Bill instead of a second, or a fourth instead of a third, if ask'd of him, if he is any ways doubtful of his delivering out such Bills before. And the Drawer must always be mindful, that all the *Bills of Exchange* he makes for one and the same Sum, be dated alike, and be alike in all the Parts of the Contents, and Superscription; only with this Distinction, that it be a first, second, or third *Bill of Exchange*.

6. The Drawer may make the *Bill of Exchange* for the Account of whom he pleases, and the Person drawn upon may bind himself, by the Acceptation of his Servant, if he be abroad himself. A prudent Drawer will make no *Bill of Exchange* payable upon Sight, but some Days, Weeks, or Months after Date, or Sight. Nor will he make any *Bill of Exchange* payable to the same Person that he draws it upon, except he is well satisfied of his Sufficiency, fair Dealing, and Honesty.

8. A Drawer is oblig'd, at the Desire or Request of the Buyer, to alter the *Bills of Exchange* in the Manner he shall desire, altho' they shall be made according to his first Order or Directions, whether he would have them payable to another, or the Sum divided, if no Body else have put their Hands to them; but it is with this Condition, that the Buyer must pay the Postage of the Drawer's Letters of Advice to the Acceptor, concerning such Alterations: But when the Bill is accepted, or endorsed by another Party, the Drawer must be very cautious of altering any Thing.

9. A Drawer must also be careful he does not alter any Thing in one of the *Bills of Exchange*, and leave the others unalter'd.

10. A Buyer must be prudent in treating about, or accepting ready-made Bills, drawn and accepted by a sufficient Man, tho' he knows his Hand Writing, when the Seller is a Stranger to him; and he must be cautious of taking *Bills of Exchange* that are payable to the Order of the Drawer, or endors'd by him, when he does not take the Drawer to be very sufficient, and when the Acceptor is unknown to him.

11. When in contracting or closing of the Bargain the Broker has positively pass'd his Word to the Buyer that the Drawer shall furnish him with Bills ready made, drawn, or endors'd by a Party known to the Buyer to be a sufficient Man; in such Case, the Buyer is not oblig'd to accept of the Drawer's own, or unaccepted Bills, or any other endors'd by him.

12. If we agree for Bills upon Sight, we are not oblig'd to accept of *Bills of Exchange* that are expir'd, or whereof the Days of Grace are expir'd, or near expiring, before the Bill arrives at the Place where the Payment is to be made; except we get the Seller to warrant us that we have our Recourse to him, notwithstanding the Expiration of the Days of Grace. The Bill must be presented for Payment, and, if refus'd, must be protested.

A Merchant is also oblig'd, if he designs to deal fairly, and in a regular Way, to keep an Account of the Exchange, in the following Manner:

1. Before he delivers a Bill to Broker or Buyer, he must write down distinctly and exactly, in his Books, the Contents of it, and mention the Day when, whither, or to what Place or Fair, in whose Name, and for whose Account, what Sum, and at what Rate he draws, and at what Time, and to whom payable; that in Case of any Accident, a third or fourth *Bill of Exchange* being ask'd, he may be able to make it all together of the same Tenor with the first and second.

2. A Buyer should, upon the Receipt of a Bill, or at least before he pays the Drawer the Value, book it, whether he remits or dispose of the Bill to draw it back again.

3. When *Bills of Exchange* of the Bearer endorsing are deliver'd to the Buyer, he must set down of what Date they are, from whence, and by whom they are made or drawn, of what Sum, when, and to whom payable, at what Price he has negotiated, and to whom the Bills are afterwards endorsed.

4. The Drawer and Buyer of *Bills of Exchange* must set down the Broker's Name, by whom the same has been negotiated, that they may, in Case of any Difficulty, and also in reviewing the Account of Brokerage, know by what Broker the Bargain has been concluded.

5. A Buyer that does not really remit, but dispose of his Money in Exchange for a Time, and gets the *Bills of Exchange* made or endors'd to be paid to his Order, to draw the same in again at a convenient Opportunity, ought also, underneath, or at the Side of the *Memorandum* of such Negotiations of Exchange, to set down the Day the *Bill of Exchange* expires, and ought likewise to leave a Space under the *Memorandum*, that when he comes to draw the Bill back again, or to remit it, he may set down, under the first *Memorandum*, when the Drawing-in, or Transport has been made, to whom the Bill is endors'd, and from whom the Value.

6. When a Buyer sends a *Bill of Exchange*, in order to have it accepted, he must insert, in his Book of Exchange, by way of *Memorandum*, to whom, and when he sent such a Bill, and cancel such *Memorandum* when it comes to Hand again, accepted.

7. He to whom *Bills of Exchange* are sent, to get them accepted, and to keep them till they are re-demanded by the Sender, ought to keep a *Memorandum* from whom he has receiv'd the same, and to whom he delivers them, together with the Day of Expiration, that when the Payment does not happen to be made in due Time, he may, within the Days of Grace, by Virtue

Virtue of the accepted Bill, ſollicit and ſecure the Payment, by getting other Securities, or the Money paid into a third Hand, if any Diſpute ſhould happen.

8. As ſoon as a Merchant receives Bills remitted to him, or at leaſt before they are deliver'd for Acceptance, he muſt book them, and take Notice from what Place, by whom, for whoſe Account, in whoſe Letter, of what Date, what Sum, upon whoſe Account, when and to whom payable, Remittances are made to him; and when a re-drawn or endors'd Bill comes, muſt then add to it, when and where expir'd, and how the ſame is afterwards endors'd to him; and beſides, when the Bill is remitted for his Account, at what Rate his Correſpondent has negotiated it, and for what Sum, to credit it for it accordingly.

9. As ſoon as a Merchant receives Advice from the Drawer that he has drawn upon him, he muſt book the Bills down, mentioning from what Place, by whom, what Sum, of what Date, and to whom, or to whoſe Order payable, and at what Price, and for what Sum; that he may charge it to the Account of his Correſpondent, without waiting for the Preſentation to be accepted.

10. When he has receiv'd Advice that a Bill is payable to Order, he muſt note the Time it is preſented for Acceptance, and whether there be any Endorſement on it; and at the Day it expires, before the Payment is made, he muſt ſet down all the Endorſers Names, in the ſame Manner ſucceſſively they ſtand upon the Bill.

11. The Acceptor muſt always be careful to mark in his Book the Time when he accepts a Bill, and if any more Bills ſhould come to his Hands of the ſame Tenor and Date from the ſame Drawer, and any Endorſements ſhould be on them; he muſt make a *Memorandum* of the Names, and adviſe the Drawer thereof that he has accepted the firſt or ſecond Bill, which came firſt to his Hand.

Merchants who deal in *Exchange*, muſt be very punctual to give Advice, and to return Anſwers. The Drawer muſt give Advice to his Correſpondent by the firſt Poſt, of what Bills he ſhall draw, that the Bills may not come to his Hands for Acceptance before he has Notice of it; and in his Letter of Advice be very particular in mentioning for whoſe Account the Bills are drawn, what Date they bear, for what Sum, to whom, when payable, and from whom the Value is receiv'd, *&c.*

When *Bills of Exchange* are for Account of the Drawer, or a third Party, and not for him they are drawn upon in a foreign Denomination of Money, or in Money unknown in the Place of Payment; in ſuch Caſe, let the Bill be for whoſe Account whatever, the Price of *Exchange* muſt be given Notice of in the Letter of Advice, as well as the Sum drawn for.

The Deſign of a Drawer giving Advice, is principally to requeſt or order his Correſpondent he draws upon, to honour the Bill with Acceptance when it ſhall come to his Hands, and to recommend the Payment of it when it ſhall fall due, ſo that he may enter it in his Books accordingly. It is likewiſe uſual for a Drawer to confirm his firſt Advice by the firſt Poſt, and if the Bill be on Sight for a conſiderable Sum of Money, to give Advice of it by ſeveral Ways, if it be poſſible.

When a Bill lies unaccepted, the Remitter ought to recommend to his Correſpondent the Bill ſent for procuring Acceptance, to get it accepted; and in Caſe of Refuſal, to do what is wanted according to the Law of *Exchange*. He that remits, ought alſo to inform his Agent or Correſpondent he ſends the Bill to, for whoſe Account he does remit, for what Sum, in whoſe Bill, of what Date, when, to whom payable, and, if the ſame be for Order, by whom endors'd.

When an accepted Bill lies in the Preſenter's Hands who procur'd the Acceptance at the Place where the Payment is to be made, and it ſhould not be noted in an unaccepted Bill that is endors'd; then the Remitter muſt mention, in his Letter of Advice, with whom the accepted Bill is to be found.

The Remitter muſt take Care that the *Bill* or *Bills of Exchange* which he remits be ſent to the right Party who is to procure the Payment, or to him they are made payable to, or endors'd, and that they be not inclos'd in a wrong Letter, nor directed to a wrong Place. He muſt never ſend a firſt and ſecond Bill by the ſame Poſt, or together, but one after another; that in Caſe one ſhould fail, or not fall into the right Hands, his Correſpondent may get the ſecond Bill, and by the ſame may demand the Acceptance and Payment. When he has but one ſingle accepted Bill, or when the accepted Bill is at the Place where the ſame is payable, ſo that he can ſend but one Bill; in ſuch Caſe, the Remittances that are made muſt be confirm'd clearly by the following Poſt, with the Circumſtances, and Contents of the *Bill of Exchange* that has been ſent; the Party it is remitted to may apply himſelf to him upon whom it is drawn with this Letter of Advice, and forbid him to make Payment of it to any Body but himſelf; and at the Day of Expiration itſelf, no Body appearing to demand the Payment, by Virtue of this Poſt, Advice, or Confirmation; he may perſuade him that it is drawn upon to pay him upon Security, or to conſign the Amount of the *Bill of Exchange* in another Hand, or upon Refuſal of both to proteſt againſt him.

A Drawer or Remitter for Account of a third Perſon, muſt be quick in giving Advice to the ſaid Party, for whoſe Account a Sum is drawn or remitted, mentioning to what Place, to whom, and what Sum, the Time when payable, at what Price, and how much he is charged or credited for the ſame.

If a Bill is drawn upon a Merchant, if it ſhould be doubted, he muſt immediately write to the Drawer, to know if he does accept the drawn Bill for Account of him that is mention'd in his Letter of Advice, or not; and if he ſhould make a Difficulty to accept the ſame as it is, he muſt immediately give the Drawer Notice of it, and deſire his further Advice, and not ſtay till the Acceptation ſhall be demanded of him.

When no ſudden Advice can be given whether the *Bills of Exchange* will be accepted, or not, either becauſe he that it is drawn upon lives out of the Way, or could not be met with; or becauſe the ſame is kept in Suſpence: It is nevertheleſs the Duty of him a Bill is ſent to, in order to provide for Acceptation thereof, to give the Remitter Advice of it; and if the Acceptation be made afterwards, to give him alſo Advice that he has got it accepted: However, this laſt Advice may be ſpar'd, if he gives Notice in his firſt that he will uſe his Diligence to get it accepted, or upon Refuſal, proteſt: So that when by the next Letters no Proteſt follows, the Remitter will judge that the Bill is duly accepted.

When Bills are drawn, or Remittances are made for the Account of the Drawer, or Remitter, or a third Perſon, or do only concern them in Part; then he that is drawn upon, after Payment is made, ſhould give Notice of it to each of his Correſpondents that is concern'd in the ſame. But when the Bills are drawn, or Remittances are made for the Account of him they are drawn upon, or remitted to; then it is unneceſſary to give any Account of the Payment.

He that receives Advice that he is to be drawn upon, muſt, by the firſt Opportunity, write back to his Correſpondent whether he will accept and honour ſuch a Bill, or not.

He that deals in *Exchange*, muſt truſt, but he muſt conſider whom he does truſt; the Buyer muſt look to the Sufficiency of the Drawer, and the Drawer to that of the Buyer. Nor ſhould the Buyer pay his Money without he has the Bills; nor ſhould the Drawer give up the *Bills of Exchange* without getting Payment of the Value, which is commonly paid in ready Money; and if the Drawer pleaſes, he may take Goods for the Value, inſtead of Money; Goods being deem'd in Payment the ſame as ready Money.

At *Amſterdam*, all *Bills of Exchange* for 600 Guilders, and upwards, muſt be paid in the Bank of Ex-

change, under Penalty of 25 Guilders for each Offence. And that Brokers may not offer themselves, nor suffer themselves to be employ'd in the discounting or paying any *Bill of Exchange* of 100*l. Flemish*, or upwards, out of the Bank, or to evade the Law, shall make a Bill for a lesser Sum, *viz.* instead of one Bill for a larger Sum, shall make two, or more lesser Bills for the same Sum; in such Cases, they are liable to be depriv'd of their Employ.

A Buyer is not to delay the Payment of the Value, except at the Conclusion he does positively make it in his Bargain to have a certain Time for paying the Value. When he bargains not to pay the Value until he has Advice that the *Bill of Exchange* is accepted; in making such Bargains it is adviseable for the Buyer to make a Bargain with the Drawer himself. If he has in the Conclusion made his Bargain not to pay the Value of a *Bill of Exchange* before he receives Advice of the Bill being accepted, he is not bound, in Case the *Bill of Exchange* comes back protested, to pay the Value; but if the same is accepted, tho' by one of no great Credit, he is oblig'd to pay the Value.

At *Amsterdam*, a cautious Buyer will not pay the Value of a *Bill of Exchange* discounted in current Money, but upon an Assignment or Acquittance of the Drawer plainly expressing that such Sum is in Payment of such a *Bill of Exchange*; nor will he pay the Value of a Bill by Transcription in the *Bank of Exchange* upon another's Account, but by an Order of the Drawer in Writing. He also takes Care to not pay the Value, which he is oblig'd to pay in *Banco*, in current Money, without an Assignment or Acquittance, by reason such a Payment is not valid by the Statutes.

When a Drawer, at *Amsterdam*, has the Value of a *Bill of Exchange* transferr'd by another Party for the Buyer's Account, if the Transferrer does not express in the Assignment of the Sum transferred for whose Account he should demand from such Party, under his Hand, an Act or Writing, wherein must be acknowledg'd that such Sum or Parcel has been transferred by him for the Buyer's Account.

It is not adviseable for Drawers to make *Bills of Exchange* payable to Order, in all Cases; nor a Buyer, for his own Account, will cause *Bills of Exchange* to be made, or endors'd, payable to the Order of his Correspondent, whom he remits a Bill to, when such Correspondent lives at the Place where the Bill is to be paid; neither will he cause (if he deals for his own Account) his *Bills of Exchange* to be made payable to his own Order, and endorse the same: For if he should, he will make them his own Bills, and bind himself to make good the Re-exchange and Charges, *&c.* but when he gets them made directly payable to his Principal, or Order, he is answerable for no more than the Sum he receives. If for Account of another, to remit to a third Party who lives at the Place where the Bill is to be paid, he must not get the Bill made payable to the Order of him to whom the Bill is remitted, except he has positive Orders for it from his Principal, for whose Account he remits.

If we remit for our own Account with Design to draw the Money back again, or to get it drawn back again for another's Account to some other Place, we must take Care that the Bills be made to his Order, or endors'd to the Order of him who shall draw them back, or shall cause them to be drawn back; for no Body can draw a *Bill of Exchange* back, nor discount it again, except the same be made payable to his Order; since a *Bill of Exchange* that is directly payable to one, must be paid to the same, and may not be paid to another, without an Endorsement.

In the discounting of a *Bill of Exchange*, the Discounter is absolutely look'd upon as Drawer, and whom he discounts with as Buyer; so that an Endorser of a *Bill of Exchange* is as strictly bound for the same, as the Drawer; and the Bearer of the *Bill of Exchange* has as much, and the same Right upon him, as upon the Drawer.

An Acceptor, or the Party the Bill is drawn upon, is free, as well as another, to discount a *Bill of Exchange* upon his own Account, that is payable to the Bearer, or first Endorser; and when he gets it endors'd by the Discounter, he may discount the same Bill again, and draw, or cause it to be drawn in, and the first Endorser's remain, for all that, no less bound for the same.

In the *exchanging* to, or upon any Place, the Buyer or Bearer may demand the *Acceptation* of a *Bill of Exchange* as soon as it shall come to Hand; but such *Bills of Exchange* as are payable at Fairs or Markets, no *Acceptation* can be demanded sooner than at the Fair or Market. Not only the Purchaser, Owner, or Proprietor of a *Bill of Exchange*, but whosoever is entrusted with it, is qualified to demand the *Acceptation*.

It lies in the Choice of the Party drawn upon to accept the Bill, or not; nor is a Master bound to accept *Bills of Exchange* drawn by his Factor, Agent, or Servant, in his own Name. Altho' the Party the Bill is drawn upon has promis'd the Drawer, by Letters, to accept and pay his Bills for Account of a third Party; he can't, however, be forc'd by the Presenter or Bearer to accept the Bill upon that Promise: But, nevertheless, he remains accountable to the Drawer, for so far as he can shew, and make it appear, that relying upon, and trusting to that Promise, he has concern'd himself with that third Party, for whose Account he has drawn such *Bills of Exchange*.

He that keeps a *Bill of Exchange*, drawn for some Time after Sight, or at Usance, (where the Usance is reckon'd from the Time of the *Presentation*) for some Days together in his Hands, without declaring whether he shall accept the same, and afterwards resolve upon it; he is oblig'd to date the *Acceptation* from the Day the *Bill of Exchange* was first presented to him.

When a Drawer is dubious whether the Party he draws upon will accept his Bill, he ought, at the same Time, to recommend it, or get it recommended to some other Merchant residing at the Place upon which it is drawn, that in Case the other should refuse, he may honour it with *Acceptance*.

When a *Bill of Exchange* is remitted, in order to get it accepted, the Party who sends such Bills ought to let his Correspondent know whether he should keep it by him, or return it again after it is accepted.

When a *Bill of Exchange* is presented for *Acceptation*, the Acceptor ought to examine whether the Tenor and Contents of it be conformable to the Advice of the Drawer before he accepts it.

An Acceptor must be cautious of accepting a *Bill of Exchange* without Advice from the Drawer; and he must likewise be as cautious of accepting a Bill prior to the Date of the last Letters, by the Post from the Place where it was drawn, if they make no mention of that Bill, tho' the Presentor delivers a Letter of Advice with the Bill.

A Person upon whom a Bill is drawn by an unknown Hand, in the Name of a third Person, is not to accept the same without some Advice from the Person upon whose Account he accepts it.

When a Bill is presented to us for *Acceptation*, and we are suspicious that we have already accepted one of the same Tenor and Date, we ought not to do it, but under *Protestation*; that in Case such another Bill be already accepted, the *Acceptation* of the last shall be void, and of no Effect.

A Servant must be prudent in accepting of the *Bills of Exchange* which his Master draws upon him; for when they are drawn upon him, and he accepts them in his Name, he thereby binds himself personally, and must pay as certainly as if it had been his own Debt, tho' he drives no other Trade but for the Account of his Master; but the Effects which the Servant has in his Possession belonging to his Master, are on the other Side engag'd to him, and so far as they shall fall short, he becomes Creditor to his Master.

If

If he accepts a *Bill of Exchange* drawn simply upon himself, tho' he does it in his Master's Name, himself is liable for the Payment; but if the Bill be drawn upon his Master's Account, he is not liable.

To facilitate the *Commerce* of *Exchange*, the Bankers, Merchants, and Negotiators, of several Places of *Europe*, have introduced a voluntary Custom among themselves, of giving Time to those on whom *Letters of Exchange* are drawn, that they may receive their Provisions to pay the Bill before it falls due; because the Bearer of a *Bill of Exchange* could have it protested for want of Payment at the Day it falls due; and those Days are call'd *Days of Grace*. All *Bills of Exchange* must be paid immediately after those *Days of Grace* are expir'd, and the Bearer can wait till that Time to have them protested, for want of Payment, without running any Risque.

At *Amsterdam*, there are six *Days of Grace* allow'd, after that Day the Bill falls due, including *Sundays* and *Holidays*; and tho' the Acceptor pays on a *Holiday*, the Payment is not reckon'd to be made before the Time, but is good, and well made, and the Bearer must rest satisfied with it. But when the Letter is to be paid in Banco, and the six *Days of Grace* are not yet elapsed, when the Bank is shut up to make new Books, or to ballance its Accounts; the Acceptor can prolong the Payment till the third Day of the opening of the said Bank, and then have his Letter written.

At *Rotterdam*, *Middlebourg*, and *Antwerp*, there are likewise six *Days of Grace* given, including *Sundays* and *Holidays*; but Bills payable at Sight, must be paid according to the Custom, immediately, or 24 Hours after; as likewise at *Cologne*, *Breslaw*, and *Nuremberg*; but in these three last Places the *Sundays* and *Holidays* are excluded. *Venice* gives, also, six *Days of Grace*.

In *London*, there are but three *Days of Grace*. At *Frankfort*, out of the Time of the Fairs, *four Days*; and the Bills payable at Sight, or at two or three Days Sight, must be paid immediately, or at least in 24 Hours after they have been presented. At *Leipsick* and *Nuremberg*, five *Days Grace* are given between the two Fairs; and likewise at *Ausbourg*, where Bills at Sight are to be paid in 24 Hours, at fartherest.

Naples gives eight *Days Grace*; *Dantzick* ten; *Paris*, *Rouen*, *Nantz*, *Bourdeaux*, and throughout all the Kingdom of *France*, ten; the Day the Bill falls due excluded; and that of the Protest, *Sundays*, and all Sorts of *Holidays*, even the most solemn, included. *Hambourg* gives twelve *Days Grace*, the Day the Bill falls due included; but no Protest is admitted, *Sundays* nor *Holidays*. *Stockholm* gives, also, twelve *Days Grace*. *Madrid*, *Cadiz*, *Seville*, and throughout all *Spain*, fourteen Days; *Genoa* thirty Days. There is no Time settled at *Leghorn*, *Milan*, nor in several other Places of *Italy*, where the Bearer of a Bill can give what *Days of Grace* he pleases, or have it protested immediately, without any Risque.

There is a customary Time for the Payment of *Bills of Exchange* from one Country to another, call'd Usance, or *Uso*.

The Usance of *Venice*, *Genoa*, *Leghorn*, and of all *Italy*; of *Cadiz*, *Madrid*, *Seville*, and all *Spain*; of *Lisbon*, *Oporto*, and all *Portugal*; are reckoned at *Amsterdam* of two Months current after the Date of the Bills of Exchange.

The Usance of *Paris*, *Lions*, *Rochelle*, *Rouen*, *Nantz*, *Bourdeaux*, and of all *France*; of *London*, and all *England*; of *Antwerp*, *Lisle*, *Ghent*, *Bruges*, and of all *Brabant* and *Flanders*; of *Middlebourg*, *Flessingue*, *Rotterdam*, and all other Places of *Holland* and *Zeland*, are at *Amsterdam* of a Month current after the Date of the Bills of Exchange; *Double Usance*, is two Months; and *Half Usance* is always fifteen Days; let the Months in which the Bills of Exchange are due be of 28 or 31 Days.

The Usance of *Dantzick*, and of *Coningsberg*, is at *Amsterdam* a Month's Sight; two *Usances* are two Months; and *Half Usance* is fifteen Days Sight; but of *Dantzick* upon *Amsterdam* the *Usance* is reckon'd of forty Days of the Date; and of *Coningsberg* of 41 Days; or the *Usance* of *Dantzick* is of a Month and ten Days; and that of *Coningsberg* of a Month and eleven Days.

The Usance between *Amsterdam* and *Dantzick* is of 40 Days Date; and that between *Amsterdam* and *Coningsberg* of 41 Days.

Ordinarily the Usance of *Frankfort*, *Nuremberg*, *Ausbourg*, *Vienna*, and other Places of *Germany*, is reckon'd, at *Amsterdam*, of 14 Days Sight, or after the Bills have been presented; *Half Usance* is of 7 Days, or a Week; and *Double Usance* of 28 Days, or four Weeks; and not a Month after Acceptation. The *Usance* on *Leipsick* and *Nuremberg* is reckon'd in the same Manner.

The Usance of *Amsterdam*, and of all *Holland*; on *Italy*, *Spain*, and *Portugal*, is reckon'd reciprocally of two Months of the Date; on *England*, *Brabant*, *Flanders*, &c. The *Usance* on *Paris*, and all *France*, according to the Ordonnance of *Louis* XIV, is reckon'd of a Month of 30 Days, let the Month have more or less Days.

The Usance of *England*, or *London*, upon *France*, *Holland*, *Brabant*, *Zeland*, *Flanders*, and *Hambourg*, is of a Month of 30 Days, of the Date of the Bills of Exchange; and *Double Usance* is of 60 Days, or two Months; on *Cadiz*, *Seville*, *Madrid*, and all *Spain*; on *Lisbon*, *Oporto*, and all *Portugal*, of 2 Months, or 60 Days; on *Venice*, *Genoa*, *Leghorn*, and all *Italy*, of 3 Months after the Date of the Bills reciprocally between them.

The Usance of *Amsterdam* upon *Frankfort*, *Nuremberg*, *Ausbourg*, *Vienna*, and other Places of *Germany*, is of 15 Days Sight; *Double Usance* of 30 Days; an *Usance* and a Half of 23 Days; and a *Half Usance* of 8 Days Sight. They change on *Hambourg* at so many Weeks of the Date; and on *Breslaw* at 6 Weeks also of the Date: But when the Change is at *Usance*, or *Double Usance*, they are to be reckon'd like those of *Frankfort*, or of *Leipsick*, of 14 Days Sight.

Tho' the Time of the Bills of Exchange payable at *Usance* begins to run from the Day and Date of the Bill or Bills, and ends at the Day and Date which accomplishes the Month, except at *Amsterdam*; it is a very good Precaution to have them accepted.

According to the Custom of *Amsterdam*, when a Bill of Exchange is, for Example, dated the 28th of *February*, payable at a Month of the Date, or at *Usance*, and the *Usance* is reckon'd of a Month of Date, (or after Date) it falls due the 28th of *March*; but when it is dated the 1st of *February*, it falls the 1st of *March*; so that a Bill of Exchange dated *June* 30, will fall due the 30th of *July*; and if it be the 29th of *June*, it falls the 29th of *July*: Thus, according to this Custom, when a Bill of Exchange is payable to one or some Months Date, it falls due the same Day of the other Month the Bill is dated; and if we do not reckon so many Days in that Month, it falls the last Day of the same Month. For Example, a Bill of Exchange drawn from *France*, at *Usance*, dated the 7th of *January*, payable in *Amsterdam* at a Month's Date, falls due in *Amsterdam* the 7th, and not the 8th of *February*. But a Bill of Exchange dated *Old Style*, payable in a Month of the Date, or at *Usance*, in a Place where they follow the *New Style*; does not always become due a Month after the Date of the *Old Style*, but a Month after the Day which follows the Date of the Bill. For Example, a Bill of Exchange dated in *London* the 25th of *April*, *Old Style*, payable at *Usance* in *Amsterdam*, where they follow the *New Style*, does not become due the 25th of *May*, *Old Style*, which is the 5th of *June* of the *New Style*, but the 6th of *June*; for while they reckon'd in *London* the 25th of *April*, *Old Style*, they reckon'd at *Amsterdam*, where they follow'd the *New Style*, the 6th of *May*, *New Style*; from which Time the *Usance* must be reckon'd. On the contrary, a Bill of Exchange dated in *Amsterdam* the 5th of *April*, *New Style*, payable in *London* a Month after Date, does not become

become due the 5th of *May*, *New Stile*, which is the 24th of *April*, *Old Style*, but the 26th of *April*, *Old Style*; for while they reckon'd at *Amsterdam* the 5th of *April*, *New Style*, they were writing in *London* the 25th of *March*, *Old Style*, from which Day the Month or *Usance* takes its Beginning; which Difference of the *Old* and *New Style* causes two Days, if the Year be Bissextile, and three if the Year is not; which must be taken Notice of by a Negotiator in Change.

Note, That *Paris*, *Lyons*, and all *France*: *Madrid*, *Cadiz*, *Bilboa*, and all *Spain*: *Lisbon*, *Oporto*, and all *Portugal*: *Leghorn*, *Venice*, *Genoa*, and all *Italy*: *Amsterdam*, *Rotterdam*, *Antwerp*, *Harlem*, *Middlebourg*, *Ghent*, *Brussels*, *Brabant*, and most of the *Netherlands*; also all the Catholick *Electorates* and *Principalities*: *Dantzick*, *Augsbourg*, and all *Poland*, reckon their Dates by *New Stile*.

Great Britain, *Ireland*, and all the Protestant *Electorates* and *Principalities* in *Germany*; all *Denmark*, *Embden*, the Protestant *Cantons* of *Switzerland*, *Hambourg*, *East Friezland*, *Geneva*; all *Sweden*, *Holstein*, *Lubeck*, *Stratzbourg*, all *Saxony*, *Riga*, and *Leipsick*, reckon their Dates by *Old Style*, which is eleven Days after the *New*.

Money can also be had on Exchange by way of *Letters of Credit*, which are not Bills of Exchange, but produce very good Effects, tho' not so much in use among Merchants, as *Bills of Exchange*, because of the great Risks which those who furnish these Sorts of *Letters*, are oblig'd to run.

There are two Sorts of LETTERS OF CREDIT, the one *general*, and the other *special*.

A *General* LETTER OF CREDIT, is open, directed to all Merchants and others, that shall furnish my Servant, Factor, or any other, with such and such Monies; for Repayment of which, he binds himself to answer and pay all such Bills of Exchange as shall be drawn upon him, upon Receipt of the Value, by his Servant, Factor, or other Person; if there be really Money advanced on this Letter of Credit, and paid to the Factor, Servant, or other, and Bills of Exchange are sent to the Party who gave such *Letter of Credit*, and he refuses to accept them; yet according to the Custom of Merchants he is bound to pay: The Reason is, for that there was no Respect had to the Ability of the Taker-up, but to him that gave his *Letter of Credit*; and therefore in such Case, if an Action at Law be brought, the particular Custom, as to that Point, must be carefully set forth.

A *Special* LETTER OF CREDIT, is that which a Merchant gives his Factor, and directed to his Correspondent to furnish his said Factor, with a certain Sum of Money, on his Account, is in the following Form.

London the 26 of *June*, 1742.

Sir,

Be pleas'd to furnish *John Grove*, my Factor, Bearer of the Present, or to cause that he may have Credit, as far as Two Thousand Rixdollars, to be employ'd in buying Merchandizes, according to the Orders I have given him; of which Sum, or of what he shall have received, you'll be pleased to take his Receipts, for which you may draw upon me, and I'll not fail honouring your Letters, as by Advice of

Yours, &c.

To M. *Vandrevelt*,
Merchant in *Amsterdam*.

To avoid the Inconveniencies which could happen to the Bearer of a *Letter of Credit*, who might be robb'd by the Way, and to hinder those who might rob him, from making any Use of his *Letter of Credit*, he that gives the *Letter of Credit*, must in his Letter of Advice, describe to his Correspondent the Person of his Factor, his Height, his Complexion, his Hair, *&c.* and the Correspondent must take Receipts for the Sums he pays to the Bearer; and he must mention in the Acquittance, that he receives them in consequence of the *Letter of Credit* of his Master; in Date of such a Day; it would be still better if the Receipt was put on the Back of the Letter.

There are also *Letters of Credit* furnish'd by a Merchant on his Correspondent, in Favour of a Person, who is not a Merchant; as in the following Form.

Gentlemen, *London*, *June* 20, 1742.

The Bearer of this, called Mr. *Peter Trueman*, Son of Mr. *John Trueman*, going to travel into *Italy*, shall want Money at *Rome*; for his Expences, and other particular Affairs; therefore be pleased to furnish him at the said Place, with all the Money he shall want; I'll account for all the Sums paid to him, in sending me the Receipts of the said Mr. *Peter Trueman*; and you may take Advantage of it on me; I'll not fail to answer your Letters with Honour, as by Advice of

Yours, &c.

To Messieurs *C.* and *D.*
Merchants at *Lyons*.

A *Letter of Credit* given to a Friend, to receive what Money he pleases, is only to do him Honour; and it would be very dangerous for those who furnish such unlimited Letters, if they did not know very well the Person, to whom they give such Letter; because it might happen that the Bearer, having not all the Prudence one could wish, would take such Sums, which would discommode the Relations of the Bearer, who do not design that their Children should make needless Expences, in Gaming, Carousing, *&c.* because they are obliged to return the Money given in virtue of the *Letters of Credit*. Therefore the Merchant who gives such Letter, if he finds that the Bearer has not much Discretion, must inform his Correspondent, in the Letter of Advice, that tho' he has desired him to pay, or furnish the Bearer, with all the Money he'll want, he, notwithstanding, must give him but such a Sum; and that if the *Letter of Credit* is indefinite, it is for no other Reason than to do Honour to the Bearer.

He that gives the *Letters of Credit* must take a Writing of the Relations or Friends of those to whom they have been furnish'd, otherwise they would run the Risk of losing their Money; because the Persons to whom those Letters are given, are commonly young Gentlemen under Age, who when of Age, could refuse Payment; and not be compelled to it by Law.

The just and true Exchange of Money, that is, this Day, used in *England* (by Bills) is *par pro pari*, according to Value for Value; so as the *English* being grounded on the Weight and Fineness of their own Monies, and the Weight and Fineness of the Monies of each other Country, according to their several Standards, proportionable to their Valuations, which being truly and justly made, ascertains and reduces the Price of *Exchange* to a Sum certain for the *Exchange* of Monies, to any other Nation or Country whatsoever; as for Instance, if one receives 100 *l.* in *London* to pay 100 *l.* in *Exeter*, this is by *Par*.—But if a Merchant receives 100 *l.* in *London* to pay 100 *l.* in *Paris*, there the Party is to compare and examine the *English* Weight with the Weight of *France*; the *English* Standard with the *French* Standard; if that at *Paris* and that at *London* differs not in Proportion, then the *Exchange* may run at one Price, taking the Denomination according to the Valuation of the Monies of each Country; but if they differ, the Price accordingly rises and falls; and the same is easily known, by knowing and examining the real Fineness of a *French* 5 *s.* Piece, and an *English* 5 *s.* Piece, and the Difference which is to be allow'd for the Want of Fineness or Weight, is the *Exchange*; and so proportionable for any Sum of Money of any other Country, the which is called *Par*, or giving Value for Value.

But the Course of *Exchange* is of later Years abused, and

and now Monies are made a mere Merchandize, and do over-rule Commodities; and Monies rise and fall in Price according to the Plenty or Scarcity of Monies or Bills; so that Sir *Robert Cotton*, and several others are of Opinion, that there can be no certain Rule set on the *Par* of *Exchange*, to answer justly the Value of the Coins of foreign Parts, by Reason of the Diversity of them, and of their intrinsick Value.—However, according to M. *Ricard*, the *Par* of several Sorts of Monies compared with the *Rixdollar* of *Holland*, is as follows.

The *Rixdollar* of 50 Stivers, according to this Estimation, is worth, as he tells us,

In *France*, a *French* Crown in Specie, whatever be the current Value,
In *England*, 4 *s.* 6 *d.* Sterling.
In *Brabant*, 48 Stivers, or 96 Deniers Grosses, or Groots.
In *Hambourg*, the same Number of Stivers Lubs.
In *Nuremberg*, the Rixdollar of 90 Cruitzers.
In *Francfort*, the same.
In *Dantzick* the Rixdollar of 90 Grosses.
In *Koningsberg*, the same.
In *Berlin*, the Rixdollar of 30 Grosses.
In *Breslau*, the same.
In *Leipsick*, the Rixdollar of 24 Grosses.
In *Spain*, the Piece of Eight, or *Peso*.
In *Venice*, 150 Soldi.
In *Genoa*, the Pezzo of 5 Livres, or 100 Soldi.
In *Leghorn*, *ditto*, of 6 Livres, or 120 Soldi.
In *Geneva*, the Crown of 10 Livres, 6 Soldi of that Place.

The *Par* of *Exchange*, by the same M. *Ricard*, between *Paris* and

London, the Crown of 60 Sols in Specie, for 54 *d.* Sterling.
Amsterdam, the same for 50 Stivers.
Antwerp, and *Hambourg*, the same for 48 Stivers,
Spain, the same for the Peso of 272 Maravedies.
Portugal, the same for 600 Rees.
Francfort, the same for 73 Cruitzers $\frac{4}{5}$ of *Exchange*.
Nuremberg, the same for 90 Cruitzers current.
Venice, 100 *ditto* for $100\frac{20}{35}$ Ducats Banco.

Between *London* and

Paris, 54 *d.* Sterling for the *French* Crown of 60 Sols in Specie.
Amsterdam, 1 *l.* Sterling for 37 *s.* $\frac{4}{9}$*d.* or $444\frac{4}{9}$ Grof.
Hambourg, and *Antwerp*, 1 *l.* Sterling for 35 *s.* 6 *d.* $\frac{2}{3}$, or $426\frac{2}{3}$*d.* Grof.
Spain, 74 *d.* $\frac{00}{130}$ Sterling for the Ducat of 375 Maravedies.
Spain, 74 *d.* Sterling for the Peso of 272 Maravedies.
Portugal, 7 *s.* 6 *d.* Sterling for the 1000 Rees.

Between *Amsterdam* and

Paris, 50 Stivers for the *French* Crown in Specie.
London, $444\frac{4}{9}$*d.* for 1 *l.* Sterling.
Spain, 137 *d.* $\frac{19}{68}$ for the Ducat of 375 Maravedies.
Portugal, 66 *d.* $\frac{2}{3}$ for the Crusade of 400 Rees.
Antwerp, 100 *d.* for 96 *d.*
Dantzick, and *Koningsberg*, 1 *l.* for 216 *Polish* Grosses.
Francfort, 100 *d.* for the Rixdollar of 90 Cruitzers current.
Francfort, 88 *d.* $\frac{28}{369}$ for the Florin of 65 Cruitzers of *Exchange*.
Hambourg, 33 Stivers $\frac{1}{3}$ for the Dollar of 2 Marks, or 32 Stivers Lubs.
Nuremberg, 72 *d.* $\frac{1}{3}$ for the Florin of 65 Cruitzers current.
Venice, 99 *d.* $\frac{1}{5}$ for the Ducat of 24 Grosses Banco.
Leghorn, 100 *d.* for the Pezzo of 6 Lires.
Genoa, 100 *d.* for the Pezzo of 5 Lires.

Between *Antwerp* and

Amsterdam, 96 *d.* for a 100 *ditto*.
Hambourg, the same for 48 Stivers Lubs.
Paris, Crown 60 Sols in Specie for 48 Stivers Lubs.
London, 35 *s.* 6 *d.* $\frac{2}{3}$ for the Pound Sterling.
Francfort, 88 *d.* $\frac{68}{123}$ for the Florin of 65 Cruitzers of *Exchange*.
Nuremberg, 69 *d.* $\frac{1}{3}$ for the Florin of 65 Cruitzers current.
Venice, 95 *d.* $\frac{29}{125}$ for 1 Ducat Banco.

Between *Hambourg* and

Paris, the Rixdollar of 48 Stivers Lubs for the Crown of 60 Sols Specie.
London, 35 *s.* 6 *d.* $\frac{2}{3}$ for 1 *l.* or 20 *s.* Sterling.
Spain, 132 *d.* $\frac{6}{17}$ for the Ducat of 375 Maravedies.
Portugal, 64 *d.* for the Crusade of 400 Rees.
Venice, 95 *d.* $\frac{29}{125}$ for 1 Ducat of *Venice*.
Amsterdam, the Dollar of 32 Stivers Lubs for 33 Stivers $\frac{1}{3}$.
Antwerp, the same for 32 Stivers.
Francfort, the Dollar of 32 Stivers for 49X$\frac{1}{5}$ of *Exchange*; or 100 Rixdollars for 99 $\frac{27}{37}$ Rixdollars *Francfort* of *Exchange*.
Dantzick, and *Koningsberg*, the Dollar of 32 Stivers Lubs, for 61 *Polish* Grosses $\frac{7}{8}$.
Nuremberg, the same Dollar for the like Number of Cruitzers current of *Nuremberg*.

Between *Francfort* and

Paris, 73X$\frac{4}{5}$ of *Exchange* for the *French* Crown in Specie.
Venice, 122 Florins $\frac{2}{125}$ of 60X of *Exchange* for 100 Ducats Banco.
Amsterdam, the Florin of 65X of *Exchange* for 88 *d.* $\frac{28}{369}$ Grosses.
Antwerp, the same.
Hambourg, 100 Rixdollars for 99 Dollars $\frac{27}{37}$ of *Exchange*.
Nuremberg, 100 Florins of 60X of *Exchange* for 120 Florins $\frac{19}{20}$.

Between *Nuremberg* and

Paris, 90X or Cruitzers current for the *French* Crown in Specie.
Venice, 148 Florins $\frac{4}{5}$ current for 100 Ducats Banco.
Amsterdam, the Florin of 65 Cruitzers current for 72 *d.* $\frac{2}{9}$ Grof.
Antwerp, *ditto* for 69 *d.* $\frac{1}{3}$ Grof.
Hambourg, 32 Cruitzers current for 32 Stivers Lubs.
St. Gale, 100 Florins Current for 113 Florins $\frac{1}{3}$ of *St. Gale*.

Between *Venice* and

London, the Ducat Banco for 53 *d.* $\frac{21}{125}$ Sterling.
Amsterdam, the same for 99 *d.* $\frac{1}{5}$ Grof.
Antwerp, the same for 95 *d.* $\frac{29}{125}$ Grof.
Francfort, 100 Ducats Banco for 122 Florins $\frac{2}{125}$ of 60X of *Exchange*.
Nuremberg, the same for 148 Florins $\frac{4}{5}$ Current.
Paris, 100 Ducats Banco $\frac{25}{30}$ for 100 *French* Crowns in Specie.

By the foregoing M. *Ricard*'s Account of the *Pars* of the *Exchanges*, one may find out with Ease, at any time, what any Country gains or loses in negotiating of Monies by *Bills of Exchange* from one Kingdom to another; for that Country that receives a lesser Quantity of Money than the *Par* of the same Sum in other Species, must certainly be a Loser in such *Exchange*; and on the contrary, if they receive in other Species more than the *Par*, they must be Gainers by the same. As for Instance:

Suppose the *Exchange* between *London* and *Amsterdam*, is but at 34 *s.* *per* Pound Sterling; if the *Exchange* between *London* and *Amsterdam* had been 37 *s.* 00 *d.* $\frac{1}{9}$ *per* Pound Sterling, *England* would receive the same Quantity of fine Silver, as there is in 20 Shillings Sterling, which is Value for Value; now the *Exchange* being but at 34, which is less than *Par* by 3 *s* 00 *d.* $\frac{4}{9}$

in 37*s.* 0*d.* $\frac{4}{9}$; and if the Exchange should be no higher, for the 20*s.* Sterling, *England* would then lose about 8$\frac{1}{3}$ *per Cent.* but if *Holland* gave *England* in Exchange 38*s.* for 20*s.* Sterling, then *England* would gain 11*d.* $\frac{5}{9}$ in 38*s.* which is about 2$\frac{3}{5}$ *per Cent.*

Likewise, to know the Profit or Loss in a Bill of Exchange drawn at *Amsterdam* upon *Paris*, of 1000 Crowns of 60 Sols *Tournois*, when the Price of Exchange is at 90*d.* Gros for 1 Crown.

By the Rule it will come 900|0*d.* Gros.

These Deniers Gros reduc'd, will make 225 Florins, of 20 Sols.

But the Business is, to know if the said 2250 Florins Banco Money (or current) are worth at *Par*, more or less, than the abovemention'd 1000 Crowns, which make 3000 Livres *Tournois*. If the said 1000 Crowns, or 3000 Livres *Tournois*, are worth less than the said 2250 Florins, which are suppos'd to be current Money, tho' most of the Changes are made in Bank Money, *Amsterdam* gains, and *France* loses all that will be wanted of the 3000 Livres; but if, on the contrary, the 1000 Crowns, or 3000 Livres, are worth more; it is a Loss for *Amsterdam*, and a Profit for *France*.

If it be objected, that this Knowledge of the *Profit* and *Loss* made on Bills of Exchange depends entirely on the Return of the Sums to their Principal, and that the *Par of Money* is but a needless Speculation; it may be answer'd to that, that if the Knowledge of the *Profit* and *Loss* made on Bills of Exchange depend on the Return of the Sums to their Principal, the same can't be said of those which never return, by their being employ'd, or spent in the Country, either to buy Merchandizes, or for Board, or other particular Affairs. Besides, if it was wanted to wait that Return, to know the *Profit* made on a Bill of Exchange; it should be concluded, that at the Time we give or take Money in Change, we do not know it; and if we should not know it, it would be negotiating at a Venture, and without Knowledge, since we should be ignorant of the *Profit* or *Loss* we make by our *Commerce*. And if that Supposition was true, it would be a Thing very prejudicial, not only to the *Commerce* of the Change and Bank, but likewise to that of foreign Merchandizes. For suppose that a Factor of *Amsterdam* was in *London* to buy some *English* Cloth, or other Merchandizes; and that he should be ask'd for such Commodities, so many Pounds, Shillings, and Pence, Sterling; how could he buy those Merchandizes as he should do, if he don't know the Value of the Pound, Shilling, and Pence, Sterling, in current Money of *Holland?* Likewise, if his Merchant at *Amsterdam* receives afterwards the Merchandizes sent him by his Factor, with the Facture, and sees at each Piece of Cloth what it cost, according to the *English* Measure, and Money; how can he mark the Price he will sell them at, with Profit, if he don't know what they cost him? He'll know, perhaps, what they cost, *English Money*, but that is not enough; for he must know, likewise, what they cost him *current Money* of *Amsterdam*, that he may be capable to increase it with the lawful Profit he expects to make by it.

After I have treated as briefly as I could of all the different Products of the several Countries of the World a Merchant can deal in; of the Weights and Measures used in *Commerce*; of their Differences, Rapport, and their Reduction to one another, either for extended Bodies, heavy Bodies, and liquid Bodies; and of all the principal Things relating to Change: I must treat, at present, of the real Monies, and of Change, (of which we have already given a general Idea, both in our Treatise of *Coins*, and this present Treatise of *Commerce*, *i. e.* of the real Monies in the former, and of those of Exchange in this latter) which are in Use among so many foreign Nations; and give an easy Method of reducing one to the other, and in what Manner are made, reciprocally, Remittances, &c. by Bills of Exchange, beginning by *England*; and observing, previously to it, that in all Countries where there are Banks, (except in *England*, where there is no Difference in the Value of the Monies) the *Bank Money* is considerably higher than the *current Money*; and all Bills that are not expressly drawn in *current Money* are payable in *Bank Money*, and the Difference of Value between *Bank Money* and *current Money*, is call'd the *Agio*, which may be more or less *per Cent.* according to the Exigencies or Emergencies of the Times: And, indeed, the Word *Agio* is much used Abroad among Negotiators, instead of the Words *Exchange*, or *Change*.

The Price of Exchange of *Money* from one Country to another, is usually made from and to the most eminent Cities or Towns in each Nation or Country, where the *Commerce* or Trade is held between Merchants in Exchange of Monies; and the Trade ceasing at any Place, the Price current of Exchange for that Town ceases also with it. For Instance, when the *English* Merchants Adventurers had their Factors and Company at *Delft*, then there was a Price current of Exchange from *London* to *Delft*; but the Company removing from *Delft* to *Rotterdam*, and this last Place and *Amsterdam* becoming the greatest Places of Trade, there is now no Price current of Exchange from *London* to *Delft*, but from *London* to *Amsterdam* and *Rotterdam*. The like may be said of Money in other Towns, which have been formerly Places of great Trade, that have met with the like Fate of *Delft*. However, the current Prices of Exchange between *London* and other Places in *Europe*, &c. where there is a settled Exchange, is as follows:

LONDON *gives to* HOLLAND.

LONDON gives to *Amsterdam*, *Rotterdam*, *Antwerp*, and *Hambourg*, 1*l.* or 20*s.* Sterling, for 30 or 38*s.* of those Countries.

To FRANCE.

London gives to *France* from 25*d.* to 40*d.* Sterling, for 1 *Ecu*, or 3 Livres *Tournois*; and sometimes the Pound Sterling from 20 to 30 Livres, of 20 Sols *Tournois*.

To SPAIN.

Madrid, *Cadiz*, and *Bilboa*, 36 to 62*d.* Sterling, for 1 *Peso*, or Piece of $\frac{8}{3}$, valued at 8 Rials, or 272 Maravedi's.

To PORTUGAL.

Lisbon, and *Oporto*, 52 to 78*d.* Sterling, for 1000 Rees, or 1 Milliera.

To ITALY.

To *Venice*, 40 to 70*d.* *per* Ducat, of 24 Gros Banco.
To *Genoa*, the same for 1 *Pezzo*, of 5 Livres.
To *Leghorn*, the same for 1 *Pezzo*, of 6 Livres.

LONDON has also an Exchange with *Germany*, *Sweden*, *Denmark*, *Muscovy*, *Switzerland*, *Savoy*, &c. but it is commonly done by the Way of *Amsterdam* and *Hambourg*.

LONDON exchanges with *Ireland* by the Pound Sterling, the latter allowing so much *per Cent.* in Favour of *London*; and this is more or less, according to the Circumstances and Emergencies of the Times.

There is likewise an Exchange between *London* and the other Towns in *Great Britain*, by the Pounds, with a small Allowance by way of Consideration for the Exchange of so much in the Pound.

The Prices of Exchange of *London*, *Amsterdam*, and *Hambourg*, have a great Influence upon those of all the rest of *Europe*.

DUBLIN, and all IRELAND, exchange with foreign Countries mostly by the Way of *London*; they also exchange, keep their Accounts, and reckon their Monies just the same as they do in *London*.

The Exchange between *London* and *Dublin* varies according to the Demand either of Money or Bills, between 4 and 15 *per Cent.* Loss to *Dublin*, or in Favour of *London*.

Th:

The Exchange of the ENGLISH PLANTATIONS in *America* with *London*, is the same as *Ireland*, at 10, 20, 30, but commonly more *per Cent*. Loss to themselves, or in Favour of *London*; and they keep their Accounts, and reckon their Money the same Way as they do in *London*. They have more *Spanish Money* among them, than any other Coin; and in some Places where Money is scarce, they deal by Truck, or Bartering, and pay their Debts by so many Pounds of Sugar, Tobacco, *&c.* They deal from Plantation to Plantation, commonly by way of Barter; and likewise draw and remit Money, when Occasion offers.

ENGLAND *upon* Amsterdam, Lisle, *and* Antwerp.

A Merchant or Negotiator of *London*, or any other Place in *England*, will draw upon or remit to any of the abovemention'd Places, either at Sight, at Usance, or in a longer or shorter Time, $340\frac{2}{3}$ *l.* at $32\frac{1}{2}$ *d.* Gros, to know what must be receiv'd at any of the abovesaid Places.

Operation on Amsterdam.

Multiply ——— $340\frac{2}{3}$ *l.*
By the Price of Exchange, at $32\frac{1}{2}$ Sols Gros, for 1 *l.* Sterling,
It will come ——— 1107|$1\frac{2}{3}$ Sols Gros.

Take the $\frac{1}{2}$, to have 553 *l.* $11\frac{2}{3}$ Sols Gros;
Multiply then by ——— 6 Florins, Value of the *l.* Gros,
And you'll have ——— 3321 Florins, 10 Sols, to receive at *Amsterdam*.

The *Par* is taken on the Foot of 1 *l.* Sterling, for $444\frac{4}{9}$ Deniers Gros current.

The Proof is seen by the Change of *Holland* or *Amsterdam* upon *London*.

Upon Antwerp, Lisle, *and* Middleburg.

Multiply the ——— $248\frac{2}{3}$ *l.*
By the Price of Exchange, at $32\frac{2}{3}$ Sols Gros, or Shillings;
It will come ——— 8|12|3 Sols, $1\frac{1}{3}$ Denier Gros.
Take the $\frac{1}{2}$, to have ——— 406 *l.* 3 Sols $\frac{1}{3}$ Denier Gros;
Multiply them by ——— 6 Florins, Value of the *l.* Gros,
And you'll have ——— 2436 Florins, 18 Sols, 8 Penn. to receive at *Antwerp*.

The *Par* is taken on the Foot of 1 *l.* Sterling, for $444\frac{4}{9}$ Deniers Gros current.

Upon Hambourg.

Multiply the ——— $254\frac{1}{3}$ *l.* Sterling
By the Price of Exchange at $32\frac{1}{3}$ Sols Gros, or Shillings;
It will come ——— 822|3 Sols, $5\frac{1}{3}$ Deniers Gros.
Take the $\frac{1}{2}$, to have ——— 411 *l.* 3 Sols, $5\frac{1}{3}$ Deniers Gros;
Multiply them by ——— $7\frac{1}{2}$ Marks Lubs, Value of the *l.* Gros,
And you'll have ——— 3083 Marks, $12\frac{2}{3}$ Sols Lubs to receive at *Hambourg*.

LONDON *upon* France *Exchange* per Ecu.

London negotiates with *France* 194 *l.* 10 *s.* 6 *d.* Sterling; the Exchange at 39 *d.* Sterling *per Ecu*, or 60 Sols *Tournois*; to know how many Livres, Sols, and Deniers *Tournois* it will amount to.

Reduce the Sum of the Exchange, and the Price to be negotiated, both into one Name, *viz.* into Pence,

l.	*s.*	*d.*
194	10	6
20		
3890		
12		
46686 Pence		

Divide by the Price, 39)46686(1197 Ecu's
76
378
276
Remainder 3
Multiply by 20
Divide by 39)60(1 Sol.
Remainder 21
Multiply by 12
Divide by 39)252(6 Deniers
18

Multiply the 1197 Ecu's, 1 Sol, 6 Deniers, $\frac{18}{39}$ of an Ecu, by the Livres in an Ecu, *viz.* 3 Livres;

The Answer will be, 3591 Livres, 4 Sols, 7 Deniers $\frac{5}{13}$, it will amount to *Tournois*.

LONDON *upon* France per *Pound Sterling*.

London negotiates with *France* 476 *l.* 10 *s.* 10 *d.* Sterling Exchange, at 22 Livres, 10 Sols, *per* Pound Sterling; to know how many Livres, Sols, and Deniers *Tournois* it will amount to.

Multiply ——— 476 *l.* 10 *s.* 10 *d.*
By ——— 22 Li. 10 Sols,

	953	01	08
	9530	16	08
For 10 Sols ———	238	05	05
	Livres.	Sols.	Den. *Tournois*.
The Product is the Answer	10722	03	09

LONDON *upon* Spain.

A Merchant of *London*, or other Place of *England*, will draw upon, or remit to *Cadiz*, *Seville*, or *Bilboa*, either at Sight, Usance, or Double Usance, 586 *l.* 2 *s.* 6 *d.* at 60 *d.* *per* Piastre; to know how much he is to receive at those Places.

Multiply the ——— $586\frac{1}{8}$ *l.* Sterling
By ——— 240 *d.* adding 30 for $\frac{1}{8}$;
It will come ——— 140670 *d.* Sterling, to be divided by 60 *d.* the Price of Exchange;
The Answer will be ——— $2344\frac{1}{4}$ Piasters, to receive at *Seville*, *Cadiz*, or *Bilboa*.

The *Par* is taken on the Foot of 54 *d.* Sterling for 1 Piaster, or for 272 Maravedi's.

LONDON *upon* Venice.

A Merchant of *London* wants to draw upon, or remit to *Venice* 380 *l.* 12 *s.* 6 *d.* it is ask'd how much he is to receive at that Place?

Multiply the ——— 387 *l.* 12 *s.* 7 *d.* Sterling
By ——— 240 Deniers, adding 151 Deniers for the 12 *s.* 7 *d.*
You'll have ——— 93031 *d.* to be divided by 62 *d.* Price of Change
The Answer is ——— $1500\frac{1}{4}$ Ducats Banco, to be receiv'd at *Venice*.

The reciprocal Usances between *England* and *Venice*, is of 3 Months Date. The *Par* is on the Foot of $53\frac{71}{125}$ *d.* Sterling for 1 Ducat Banco.

LONDON *upon* Milan.

A Merchant in *London* desires to draw upon, or remit to *Milan*, 230 *l.* 13 *s.* 4 *d.* we ask how much he is to receive at that Place?

Multiply the ——— 230 *l.* $\frac{2}{3}$
By ——— 240 *d.* Sterling,
There will arise ——— 55360 *d.* Sterling, to be divided by 64 *d.* the Price of Exchange.

The Anſwer is, that the Merchant is to receive at *Milan* 865 Ducats, of 5 Livres, 15 Soldi.

ENGLAND *upon* Rome.

An *Engliſh* Merchant will draw upon, or remit to *Rome*, 237 *l.* 3 *s.* 4 *d.* we aſk, how much he is to receive there.

Multiply the 237$\frac{1}{6}$ *l.* Sterling
By ——— 240 *d.* Sterling,

There will ariſe 56929 *d.* Sterling, to be divided by 60 *d.* the Price of Exchange.

The Anſwer is, that he muſt receive at *Rome* 875$\frac{9}{13}$ Ecu's of Stamp.

ENGLAND *upon* Florence.

An *Engliſh* Merchant will draw upon, or remit to *Florence*, 227 *l.* 16 *s.* 8 *d.* we aſk what he ſhould receive at *Florence*.

Multiply the 227$\frac{1}{6}$ *l.* Sterling
By ——— 240 *d.* Sterling,

There will ariſe 54680 *d.* Sterling:
Then by — 2 at 65$\frac{1}{2}$ *d.* Sterl. for 1 Crown,

And we'll have 109360, to be divided by 130 Half Pence;

Divide the 109360 by 131, there will ariſe 804$\frac{106}{131}$ Ecu's, to receive at *Florence*.

ENGLAND *upon* Genoa.

A Merchant in *London* draws upon *Genoa* 217 *l.* 10 *s.* 0 *d.* Sterling; what is he to receive at that Place?

Multiply the 217 *l.* Sterling
By ——— 240 *d.* Sterling,

There will ariſe 52200 *d.* Sterling:
Then by ——— 4

And you'll have 208800, to divide by 260 Fourths.

Divide the 208800 by 261, and you'll have 800 Piaſters to receive at *Genoa*.

Multiply them by 5 Lires, Value of the Piaſter, and there will ariſe 4000 Lires current Money.

ENGLAND *upon* Leghorn.

A Merchant of *London* negotiates at *Leghorn* for 275 *l.* Sterling, what muſt he receive at *Leghorn?*

Multiply the 275 *l.* Sterling
By ——— 240 *d.* Sterling,

There will ariſe 66000 *d.* Ditto, to be divided by 66 *d.* the Price of Exchange,

And you'll have 1000 Piaſters to receive at *Leghorn*.

Multiply by — 6 Lires, Value of the Piaſter,

You'll have — 6000 Lires, of 20 Soldi.

ENGLAND *upon* Liſbon *and* Oporto.

A Merchant in *London* will remit to *Liſbon*, or *Oporto*, 503 *l.* 5 *s.* 3 *d.* Sterling, at Uſance of 2 Months, or at 25, 30, or 40 Days Sight, at the Rate of 6$\frac{1}{4}$ Shillings for 1000 Rees, 400 of them making 1 Cruzade; we aſk how much he is to receive at thoſe Places.

Multiply the 503 *l.* 5 *s.* 3 *d.* Sterling
By ——— 240 *d.* and add 63 *d.* for the 5$\frac{1}{4}$ Shillings;

There will ariſe 12078 *d.* Sterling, to be divided by 78 *d.* Value of the 6$\frac{1}{4}$ Shillings;

Divide the 12078 by 78 *d.* Value of the 6$\frac{1}{4}$ Shillings of the Price of the Exchange, and you'll have 1548500 Rees; which Number being divided by 400 Rees, it will produce 3871 Cruzades, 100 Rees, to receive at *Liſbon*, &c.

LONDON *upon* Ireland *or* Dublin.

London remits to *Ireland* 475 *l.* the Exchange at 8$\frac{1}{2}$ *per Cent.* in Favour of *London*; to know what muſt be receiv'd in *Ireland*, ſay,

If 100 *l.* of *London* 108$\frac{1}{2}$ of *Ireland*, 475 of *London*.

Multiply by 108$\frac{1}{2}$

51300
$\frac{1}{2}$ of 475 *l.* is 237 10

Divide by 1|00)515|37 10
20

Muſt be receiv'd in *Ireland*, 515 *l.* 7 *s.* 6 *d.* 7|50
12
6|00

Ireland *or* Dublin *upon* London.

Dublin draws upon *London* 515 *l.* 7 *s.* 6 *d.* paying Exchange 8$\frac{1}{2}$ *per Cent.* to *London*: To know what muſt be received in *London*, ſay,

If 108 *l.* $\frac{1}{2}$ of *Dublin*, 100 *l.* in *London*, 515 *l.* $\frac{1}{2}$ of *Dubl.*

8 — 868

8 — 4123

Multiply by 100

Divide by 868)412300(*Qu.* 475 *l.*
Remains 000

Muſt be received in *London* 475 *l.* Sterling.

The Engliſh *Plantations, or the* Weſt-Indies, *upon* London.

Bills upon *London* for any of the *Carribbee* Iſlands, are uſually charged with 50 *per Cent.* in favour of *London*; that is, if *St. Chriſtophers*, *Montſerrat*, *Antegoa*, &c. ſhould draw upon *London* 100 *l.* the Merchants of *London* charge the Drawer with 150 *l.* for the ſaid 100 *l.* and for *Jamaica*, *Virginia*, *Maryland*, *New-England*, *Penſilvania*, &c. the Difference is at moſt Times much greater. So that if any of the ſaid Places ſhould draw upon *London* 192 *l.* 10 *s.* Sterling Exchange, at 60 *per Cent.* in favour of *England*, to know how much the Drawer muſt be charged with in the *Weſt-Indies*, ſay,

If 100 *l.* *Lond.* is 160 *l.* *W.Ind.* what ſhall 192 *l.* 10 *s.* *Lond.*

20 — 2000 Shillings

20 — 3850 Shillings

Multiply by 160

Divide by 2|000)616|000(308 *l.*

The Drawer muſt be charg'd for 308 *l.*

CHANGES *of* FRANCE, *or of* Paris, Lyons, *&c.*

We have ſaid already that the *French* Monies are expreſſed by Livres, Sols, and Deniers *Tournois*; and becauſe the Changes are ordinarily made by Ecu's of 60 Sols, or of 3 Livres *Tournois*, or of 20 Sols of Gold, the Livres muſt be reduced into *Ecu's*, or Crowns, by taking the third of thoſe Livres; and if there be Sols, and Deniers, under three Livres, they muſt be reckoned as Parts of the ſaid *Ecu* of 60 Sols *Tournois:* As for Example, 2 Livres *Tournois* make $\frac{2}{3}$ of the ſaid *Ecu*, which are to be conſidered but as 40 Sols *Tournois*, &c.

Paris *upon* Amſterdam.

A Merchant, in *Paris*, wants to draw upon or remit to *Amſterdam* 1840$\frac{2}{3}$ Ecu's at 90 Grots, we aſk what he muſt receive at *Amſterdam?*

Multiply the ——— 1840$\frac{2}{3}$ Ecu's of 60 Sols *Tournois*,
By the Price of Exchange at 90 *d.* Gros Bank Money,

You'll have ——— 16566|0 Deniers Gros, from which take off the 0,
Take the $\frac{1}{4}$ to have 4141$\frac{1}{2}$ Flor. of 20 Sols Bank of *Amſterdam*.

Note,

Note, That by taking off the last Figure of 165660 Deniers Gros, and taking the fourth of the preceding ones, it is dividing by 40 Deniers Gros, which makes 1 Florin of 20 Sols; and because there remain 2, which with 0 make 20 Deniers, we take half of it to have 10 Sols or $\frac{1}{2}$ Florin; and thus of all the rest.

Note, also, that at the said Price of Exchange of 90 Deniers for 1 *Ecu*, it is at the Rate of 90 Rixdollars of 50 Sols, for 100 Ecu's: For Proof of this say,

If 100 *Ecu's*, are worth 90 Rixdollars, how much $1840\frac{2}{3}$ *Ecu's?*

You'll have $1656\frac{2}{3}$ Rixdollars.

These $1656\frac{2}{3}$ Rixdollars of 50 Sols, make $4141\frac{1}{2}$ Florins of 20 Sols as above.

Note, That at what Price soever the Exchange be in current Money for 1 Ecu of 60 Sols *Tournois*: $33\frac{1}{3}$ Ecus, or 100 Livres *Tournois*, return only as many Livres (or Parts of Livres) which the said Price of Exchange bears in the said Current Money (and not in Bank Money, because of the Price of the Agio.).

If the Bearer of a Bill of Exchange of the said Sum of $1840\frac{2}{3}$ Ecus, at the said Price of 90 Deniers Gros of Bank for 1 Ecu, was to agree with him who should pay it, to receive the Payment in ready Cash, when the Agio of the Bank would be, for Example, at 5 *per Cent.* in that Case the $4141\frac{1}{2}$ Florins should be reduced in Current Money, saying thus:

If 100 Florins of Bank are worth 105 Deniers current, how much $4141\frac{1}{2}$ Florins or the Bank?

We should have 4348 Florins $11\frac{1}{2}$ Sols current.

If the 60 Sols *Tournois* of *France* be reduc'd to the *Par* of 50 Sols current of *Holland*, we shall find that the 4348 Florins $11\frac{1}{2}$ Sols current, should give but 5218 Livres, 5 Sols, $9\frac{3}{5}$ Deniers, instead of 5522 Livres *Tournois*, (Value of the $1840\frac{2}{3}$ Ecu's) which being known, we may say,

If 120 Livres are worth 100 Florins current, how much 5218 Livres, 5 *s.* $9\frac{3}{5}$ *d.*

The Product will be 4348 Florins, $11\frac{1}{2}$ Sols current.

1 Ecu of 60 Sols *Tournois*, is at the *Par* of 100 D. or 50 Sols current.

Paris *upon* Antwerp, Lisle, *and* Middlebourg.

A Merchant in *Paris*, *Lyons*, &c. negotiates at *Antwerp*, *Lisle*, or *Middlebourg*, for $2569\frac{2}{3}$ Ecu's, at $90\frac{1}{2}$ Gros; what is he to receive at any of these Places?

Multiply the ——— $2569\frac{2}{3}$

By the Price of Exchange, at $90\frac{1}{2}$ Gros, Exchange Money, or of Permission, ———

The Product is ——— $23255|4\frac{5}{6}$ Gros, from which must be taken off the $4\frac{5}{6}$;

Take the $\frac{1}{4}$, to have 5813 Florins, 17 Sols $6\frac{2}{3}$ Pen.

Then the $\frac{1}{6}$, to have 968 *l.* 19 *s.* $6\frac{5}{6}$ *d.* Gros, to receive at *Antwerp*, &c.

Paris *upon* England.

A Merchant in *Paris*, *Lyons*, &c. negotiates with *London* for 1600 Ecu's, at 58 Pence Sterling; what is he to receive at that Place?

Multiply the ——— 1600 Ecu's, of 60 Sols *Tournois*,

By the Price of Exchange, at $58\frac{1}{2}$ *d.* Sterling for 1 Ecu, ———

The Product will be — 93600 *d.* Sterling, to be divided by 240 *d.* Sterl. ———

Or take $\frac{1}{3}$, which is — 31200

Then $\frac{1}{4}$ of the 31200, 4800 Sols, or Shellings,

And the $\frac{1}{6}$ of 780, to have 39 *l.* Sterling to receive at *London*.

Paris, Lyons, *&c. upon* Hambourg.

A Merchant in *Paris* will draw upon, or remit to *Hambourg*, $1000\frac{5}{6}$ Ecu's, at 44 Sols Lubs; what is he to receive at *Hambourg?*

Multiply the ——— $1000\frac{5}{6}$ Ecu's, of 60 Sols *Tournois*,

By the Price of Exchange, at 44 Sols Lubs Bank Money for 1 Ecu; ———

The Product is ——— $44036\frac{2}{3}$ Sols Lubs; to be divided by 60 Sols Lubs.

If the $44036\frac{1}{3}$ Sols Lubs be divided by 16 Sols Lubs, Value of the Mark; the Answer is, that he is to receive at *Hambourg* 2752 Marks, $4\frac{2}{3}$ Sols, of the Bank.

If instead of dividing the $44036\frac{2}{3}$ Sols Lubs by 16 Sols, they be divided by 48 Sols Lubs, Value of the Rixdollar; or else the 2752 Marks, $4\frac{2}{3}$ Sols Lubs, by 3 Marks Lubs, the Value, likewise, of the said Rixdollar; we shall have 917 Rixdollars, 20 Sols, 8 *d.* Lubs, for the said $1000\frac{5}{6}$ Ecu's. The Change is the same upon *Lubeck*; and *France* draws often upon that Place payable at *Hambourg*.

Paris, *&c. upon* Frankfort *on the* Main.

A Merchant at *Paris*, &c. wants to draw upon, or remit to *Frankfort*, $2450\frac{1}{3}$ Ecu's, at $72\frac{1}{2}$ Crutzers; what is he to receive at that Place?

Multiply the ——— ——— $2450\frac{1}{3}$ Ecu's, of 60 Sols *Tournois*;

By the Price of Exchange, at $72\frac{1}{2}$ Crutzers of Change, at 60 for the Florin; ———

The Product will be ——— 177649 Crutzers, $0\frac{2}{3}$ Deniers of Change.

Divide the 177649 Crutzers, $0\frac{2}{3}$ Deniers of Change, by 60 Crutzers, Value of the Florin; or by 74 Crutzers, Value of the Dale of Change:

The Answer is, 2960 Florins, 49 Crutzers, $0\frac{2}{3}$ Deniers; or 2400 Dales, 49 Crutzers, $0\frac{2}{3}$ *d.* Change, to be receiv'd at *Frankfort*.

Paris, Lyons, *&c. upon* Madrid, Seville, *and* Cadiz.

Most of the Remittances of *Paris*, *Lyons*, &c. to *Spain*, are made by means of the Correspondencies of *Amsterdam*, *Antwerp*, and *Hambourg*; because, in lieu of Money, which should be remitted thither by Bills of Exchange, the *French* send Merchandizes, as Linnen Cloths, Ribbands, Silk, Stuffs, Castors, and other Effects; to have the Return in Silver Bars, Ingots of Gold, Pieces of Eight, or in Bills of Exchange upon the said Places, at so much the Gros, or Parts of the Gros. For 1 Ducat of 11 Reals, 1 Maravedi, or of 375 Maravedi's. But if the Occasion offer'd to draw directly upon those Places, either in giving Ecu's for a certain Number of Maravedi's, or Louis d'Or for a certain Number of Pistoles, which are worth 32 Reals, or 1088 Maravedi's, on the antient Footing; in these two Manners of Exchange, the following Method is to be observ'd.

For Example, a Merchant at *Paris*, *Lyons*, &c. will draw upon, or remit to *Madrid*, *Seville*, and *Cadiz*, $2350\frac{1}{2}$ Ecu's, at 280 Maravedi's; what is he to receive at any of these Places?

Operation, by Ecu's *for* Maravedi's.

Multiply the ——— $2350\frac{1}{2}$ Ecu's, of 60 Sols *Tournois*,

By the Price of the Change, at 280 Maravedi's for 1 Ecu; ———

The Product is ——— 658140 Maravedi's:

Divide the 658140 Maravedi's by 375, Value of the Ducat; and he'll have to receive at *Madrid*, *Seville*, or *Cadiz*, $1755\frac{1}{25}$ Ducats.

Note, That the Price of Exchange is always lower for *Madrid*, than for *Seville* or *Cadiz*; because the Ducat of *Madrid* is of new Plate, and that of *Seville* or *Cadiz* of old Plate; the Difference between them being of 25 *per Cent.*

Operation, by Louis d'Or.

But if, instead of changing Ecu's for Maravedi's, we want to change, for Example, 630 Louis d'Or, of 11 Livres a-piece, at the Rate of 105 Louis d'Or for 100 *Spanish* Pistoles; we'll say, by the Rule of Three,

If

If 105 Louis d'Or give but 100 Piſtoles, how many 630 Louis d'Or?

The Product is 600 *Spaniſh* Piſtoles;
Multiply them by 1088 Maravedi's, which are the Value of the *Spaniſh* Piſtole;
And you'll have 652800 Maravedi's, 34 of which make 1 Real:

Divide the 652800 by 375 Maravedi's, the Product will be 1740⅘ Ducats, for the Value of the ſaid 600 *Spaniſh* Piſtoles, which ſhould be received for the 630 Louis d'Or; or elſe the Merchant ſhould receive 1920 Reals.

Paris, Lyons, *&c. upon* Liſbon, *and* Oporto.

Commonly the Remittances from *France* to *Portugal*, or *Liſbon*, are made by means of the Correſpondencies of *Amſterdam*, *Antwerp*, and *Hambourg*; but, however, let's ſee how they are made directly.

A Merchant at *Paris*, *Lyons*, &c. negotiates with *Liſbon*, or *Oporto*, for 4200 Ecu's, at 660 Rees; what ſhould he receive at thoſe Places?

Multiply the ——— 4200 Ecu's, of 60 Sols *Tournois*,
By the Price of the Change, at 660 Rees for 1 Ecu;
The Product will be —— 2772000 Rees:

Divide the 2772000 Rees, by 400 Rees, Value of the Cruzade; the Anſwer will be, that our Merchant ſhould receive at *Liſbon*, or *Oporto*, 6930 Cruzades.

The *Par* is taken at the Rate of 1 Ecu for 600 Rees.

Paris, Lyons, *&c. upon* Genoa.

Lyons changes upon *Genoa*, in giving from 200 to 240 Ecu's, of 20 Sols Gold, to have 100 Ecu's of Mark at *Genoa*; which 100 Ecu's of Mark make 122 Ecu's, 8 Sols, Silver, the ſaid Crown of 7 Lires, 12 Soldi.

Suppoſe it was wanted to draw upon, or remit from *Lyons* to *Genoa*, 6300 Livres *Tournois*, at the Rate of 225 Ecu's, of 20 Sols of Gold Sol, for 100 Crowns of Mark.

We'll reduce — 6300 Livres *Tournois* into Ecu's, We'll take ⅓, which is 2100 Ecu's, of 20 Sols of Gold Sol; then ſay,

If 225 Ecu's of Gold Sol, give 100 Ecu's of Mark; how many 2100 Ecu's of Gold Sol?

The Product will be, 933 Ecu's, 6 Sols, 8 *d.* of Mark.

We'll ſay again, If 100 Ecu's of Mark, are worth 122 Ecu's, 8 Sols, of Silver; how many 933⅓ Ecu's of Mark?

The Product will be 1142 Ecu's, 8 *s.* of Silver.
Multiply the Ecu's by 7 Lires 12 Soldi,

And you'll have 8682 Lires, 4 Soldi 9⅓ *d.* to receive at *Genoa*.

Paris, Lyons, *&c. upon* Milan.

A Merchant at *Paris*, *Lyons*, &c. negotiates with *Milan* for 1472⅔ Ecu's, of 60 Sols *Tournois*, at 95 Imperial Soldi; what is he to receive at *Milan?*

Multiply the ——— 1472⅔ Ecu's, of 60 Sols *Tournois*,
By the Price of the Change, at 95 Imperial Soldi for 1 Ecu;
The Product will be —— 13990|3⅓ Soldi Ditto:
Take the ½, to have —— 6995 Lires, 3⅓ Soldi, Change Money.

Paris, Lyons, *&c. upon* Bologna.

A Merchant at *Paris*, *Lyons*, &c. negotiates with *Bologna* 1560 Ecu's, at 84 Soldi, or Bouligni's; what muſt he receive at that Place?

Multiply the ——— 1560 Ecu's, of 60 Sols *Tournois*,
By the Price of the Change, at 84 Soldi for 1 Ecu;
The Product will be —— 13104|0 Soldi:
Take the ½, to have —— 6552 Lires to receive at *Bologna*.

Paris *upon* Venice, Naples, Rome, Leghorn, *and* Lucca.

We have ſeen, in the preceding *Changes*, the Manner of changing by one ſingle *French* Ecu; and we'll ſee, at preſent, the Manner we are to change by 100 Ecu's, of 60 Sols *Tournois*, for a Number of Ducats, Crowns, *&c.* ſo that the Merchant who ſhall know how to make, for Example, the *Change* of *Lyons* upon *Venice*, will know, likewiſe, how to make that upon *Naples*, *Rome*, &c. there being no other Difference, but with Reſpect to the Monies of foreign *Changes*. Therefore,

A Merchant, or Negotiator of *Paris*, or *Lyons*, &c. will draw upon, or remit to the Places abovemention'd, either at Uſance, or Double Uſance, or for longer or ſhorter Terms, *viz.* on *Venice* 1000 Ecu's, at 103 Ducats Banco of 24 Gros; what is he to receive at the ſaid Place?

Say, by the Rule of Three, If 100 Ecu's give 103 Ducats Banco; how many will give 1000 Ecu's?

There will ariſe 1030 Ducats Banco, to receive at *Venice*.

Multiply them by 6⅓ Lires Banco, Value of the Ducat, ———
And you'll have 6386 Lires Banco.

Paris, Lyons, *&c. upon* Naples.

A Merchant of *Paris* or *Lyons* will draw upon, or remit to *Naples*, 2434⅔ Ecu's, of 60 Sols *Tournois*, at 120 Ducats of 10 Carlins; what muſt he receive at *Naples?*

Multiply the ——— 2434⅔ Ecu's,
By the Price of the Change, at 120 Ducats, of 10 Carlins;

The Product is { Ducats 2921|60 Ducats, 10 Carlins; Carlins 6|00 }

The whole will give 2921 Ducats, 6 Carlins, to receive at *Naples*.

Paris, Lyons, *&c. upon* Rome.

A Merchant of *Paris* or *Lyons* negotiates with *Rome* 2350 Ecu's, at 55½ Ecu's Stamp, of 15 Julio's; what muſt he receive?

Multiply the ——— 2350 Ecu's, of 60 Sols *Tournois*,
By the Price of the Change, at 55½ Ecu's, of 15 Julio's for 100 Ecu's;
The Product will be —— 1304|25

And you'll have 1304¼ Ecu's of Stamp to receive at *Rome*.

Paris *upon* Florence.

A Merchant of *Paris*, *Lyons*, &c. will draw upon, or remit to *Florence*, 1254⅓ Ecu's, at 72¼ Ecu's of 7½ Lires? what is he to receive?

Multiply the ——— 1254⅓ Ecu's, of 60 Sols *Tournois*,
By the Price of the Change, at 72¼ Crowns, of 7½ Lires Exchange Money;

The Product is { Crowns 909|39½; 20 Soldi, adding 3 *s.* 4 *d.* for the ½. Soldi 7|83½; 12 Deniers. Deniers 10|00 }

The Anſwer will be, that our Merchant ſhould receive at *Florence*, 909 Crowns, 7 Soldi, 10 Deniers.

Paris, Lyons, *&c. upon* Leghorn.

The *Paris* Merchant negotiates with *Leghorn* 1221 Ecu's, at 81½ Ecu's of 7½ Lires; what is he to receive at that Place?

Multiply the ——— 1221 Crowns, of 60 Sols *Tournois*,
By the Price of the Change, at 91 Piaſters of 6 Lires, for 100 Ecu's;
The Product will be —— 1111|11 Piaſters:

That

That is to say, ——— 1111$\frac{11}{100}$ Piasters:
Multiply them by ——— 6 Lires, Value of the Piaster,
And the Merchant will have 6666 Lires, 13 Soldi, 2$\frac{2}{3}$ *d.* current at *Leghorn.*

Paris, Lyons, *&c. upon* Lucca.

If the *Paris* Merchant was to draw upon, or remit to *Lucca*, 1200 Ecu's, at 81$\frac{1}{2}$ Ecu's of 7$\frac{1}{2}$ Lires; what should he receive?
Multiply the ——— 1200 Ecu's, of 60 Sols *Tournois*,
By the Price of the Change, at 81$\frac{1}{2}$ Crowns, of 7$\frac{1}{2}$ Lires;
And you'll have ——— 978 Crowns, of 7$\frac{1}{2}$ Lires, to receive at *Lucca.*

Of the EXCHANGES *of* HOLLAND, *and, previously to it, of the* Banks *of* Amsterdam *and* Rotterdam.

The *Bank* of *Amsterdam* was establish'd by the Authority of the States, in the Month of *January* 1609; and for the speedier Improvement of it, it was determin'd, that all Payments of Bills of Exchange, or Sums for Goods, not being under 600 Florins, and no Sum under that can be enter'd in the Bank-Books by any Person, unless it be for the *East* and *West-India* Companies; but when such Privilege is allow'd to private Persons, they must pay 6 Stivers for every such Entry. So that in this Manner the Bank of *Amsterdam* is become the universal Depository of the Riches of all its Inhabitants, and of a great many Foreigners, its Credit being so good, that no Body pretends to call it in Question: And, indeed, it is plain, that it can't well fail, so long as the Government of the Country subsists; for the City of *Amsterdam* is its Security: Nor would there be any Reason to question the Security of the Bank of *Amsterdam*, tho' the City were no ways engag'd for it; it being certain, that there is a real Treasure, much more than is sufficient to answer all Demands, as will plainly appear, by the following Instance.

In the Heat of the War, in the Year 1672, between *France* and the *United Provinces*, the King of *France* having taken *Utrecht*, and a great many other Towns; People being jealous of the Event of that War, and fearing that he might likewise render himself Master of *Amsterdam*; vast Numbers of those who had Money in the Bank, demanded it, and their Demands were punctually answer'd; and some who were in remoter Places not having Patience till they could conveniently be paid at the Bank, dispos'd of the Sums they had in it at a considerable Loss, giving 105 or 106 Florins in Bank for 100 Florins current: So that considering the intrinsick Value of the Monies, they lost ten or twelve *per Cent.* the Bank Money being generally five or six *per Cent.* higher than current Money. But the Affairs of the War soon taking another Turn, those of the Bank were likewise restor'd to their former Condition.

The real Treasure of the Bank of *Amsterdam*, which is believ'd to be the greatest in the World, consists in real Species, and Bars of Silver and Gold; the Species are receiv'd at a certain Rate, and the Bars of Gold and Silver, and other Bullion, by the Ounce, according to their Alloy and Fineness, which is tried by a publick Officer, who is appointed for that Service. This Treasure is kept in a vast Vault under the *Town-House*, and secur'd by all the Means that human Prudence can invent, from any Danger of Robbers, Thieves, or other Accidents.

The Books of the Bank are kept in the ordinary Denomination of the Monies of the Country, *viz.* Florins, Stivers, and Deniers. All Persons who desire an Account in the Bank, must pay 10 Florins for having their Account opened; and a Stiver for every Transfer they make afterwards in the Book; and any Person who pleases may carry Money or Bullion to the Bank, and may demand it again at the same Value, whenever he pleases, paying only $\frac{1}{16}$ *per Cent.* for keeping it. If their Money be in Ducatoons, they will be received at 3 Florins a-piece; if in Bullion, it will be received at its just Value; and if in current Money, the Party may either agree with one of the Cash-keepers, or Bankers, for the Price of the *Agio*; or negotiate it with some Merchants upon the *Exchange*, who may probably give something more for it; and assign the Value on his Account on the Bank.

The *Agio* is the Difference between the Value of the Bank and current Money, which is commonly between 5 and 6 *per Cent.* then the Bank Money is higher, or more valuable than the current Money.

Any Person that has an Account in Bank, and would transfer the whole, or any Part thereof, to another Party; he must either carry a Note thither himself, or give Power to another to do it, in the Presence of the Book-keepers of the Bank, or some of them, or else it will not be receiv'd. The Note or Order must be to the Effect, and in the Form following.

Folio 475.

Messieurs, the Commissioners of the Bank, shall please to pay to *B. P.* the Sum of two thousand four hundred eighty-seven Florins, 10 Sols, at *Amsterdam*, the Day of, *&c.*

Florins 2487, 10 Sols. *P. G.*

The *Folio* 475, above the Order, denotes the Leaf of the Bank Book upon which *B. P.*'s Account stands, which must never be neglected to be inserted.

But if a Merchant should credit another in the Bank upon the Account of a third Person, he must not fail to express it in the Note, after the following Manner.

Folio 345.

Messieurs, the Commissioners of the Bank, shall please to pay to *B. P.* upon the Account of *P. G.* the Sum of two thousand four hundred eighty-seven Florins, 10 Sols, at *Amsterdam*, the Day of

Florins 2487, 10 Sols. *P. G.*

Such Notes may be carried to the Bank at any Time between the Hours of 7 and 11 in the Forenoon; or if there be a Necessity of making a Transfer, in the Afternoon, the Party making it must pay 6 Stivers.

If there be any odd Deniers to be written in the Bank, if they be 8, they are written down; if above 8, they write down 1 Stiver; and if under 8, no Notice is taken of them.

A Party credited in the Bank for any Sum, can't write it off again, or transfer it to any other the same Day, except it be the second Day that the Book is open after ballancing the Accounts; he being oblig'd, in the Penalty of 3 Florins, for every 100 Florins transferred, to wait till the next Day, that he has informed himself whether the Sum he pretends to have been credited for be actually written off, and transferr'd to his Account.

They must always go, or send before Eight in the Morning, to know if the Sums they expect to be credited for in the Bank be actually writ off to them; whoever goes after 8, and before 9, must pay 2 Stivers to be informed; and those that go between 9 and 3 in the Afternoon, must pay 6 Stivers. Or a Merchant may agree with the Book-keepers for 10 Ducatoons a Year, and he may have an Account brought to him every Morning of the Sums that have been transferred to him the Day before.

If a Party should write off more to another Person's Account than he has in Bank, he will forfeit 3 Florins for every 100 Florins he shall so write off.

The Commissioners ballance the Accounts of the Bank twice every Year, once towards the End of *January*, and once towards the End of *July*; and such as have Accounts open in it, are oblig'd to go thither, or send some other Person with a Power from them to report what they have remaining due to them in the Bank; and if such Reports agree with the Bank Books, the Book-keepers tell them the *Folio* on which the Ballance of their Accounts are transferred to in the New Books; But if there be any Difference, the Party must

muſt carry an Account of the particular Sums they have been credited for, that the Bank may the readier diſcover the Error. No Perſon muſt neglect to go and have their Ballance adjuſted, at the aforeſaid Seaſons of *January* and *July*, or within ſix Weeks afterwards, under the Penalty of 25 Florins.

When a Perſon receives a Bill of Exchange at *Amſterdam*, he muſt leave it with the Acceptor, if he deſires the Party to give him Time to conſult his Advices, and book the Bill: However, it muſt be called for before the Poſt goes off, that the Proteſt may be ſent to the Drawer, in Caſe it be not accepted: But Bills of Exchange payable in current Money are ſeldom left in the Hands of the Acceptors.

All Bills of Exchange upon *Amſterdam* are payable in Bank, exeept it be otherwiſe named to the contrary in expreſs Terms in the Bill; and muſt all be paid within the ſix Days of Grace, at the lateſt, unleſs they be thoſe that are payable in Bank, and ſhall become due whilſt the Bank is ſhut up: In ſuch Caſe, they muſt be paid by writing off the Value in the Bank within three Days after it is open; and if they be not ſatisfied in that Time, they muſt be proteſted.

When a Bill becomes due, the Bearer thereof generally carries it to the Perſon that is to pay it, having firſt written the following Order upon the Back of it.

Write the Contents of the other Side upon my Account in Bank at Amſterdam, *the of* D. C.

And the Bill being left with the Acceptor, he accordingly writes off the Value the next Day in the Bank.

If the Bearer of a Bill does not care to deliver it to the Acceptor till the Value is wrote off in Bank, he muſt ſhew him the Bill, and let him know that he will find it in the Bank; but then he muſt pay 6 Stivers to the Book-keepers, and deſire them not to deliver it to the Acceptor till the Value be written off in the Books: And when he ſhall return and find it wrote off, he muſt order them to give it up to the Party that wrote off the Value, who ought to go and call for it; but if the Value be not wrote off in Time, the Bearer muſt demand the Bill again, and cauſe it to be proteſted for Non-payment.

If the Bearer of a Bill has no Account in the Bank, and is not deſirous of any, he may receive that Value of the Bill in current Money; for it is only agreeing with the Acceptor for the Price of the *Agio*; and when he has received the Money, muſt write a Receipt upon the Back of the Bill, mentioning he has receiv'd the Value in current Money, and *Agio*, at ſo much *per Cent*.

If the Bearer of the Bill can't agree with the Acceptor for the *Agio*, he may negotiate it with a Banker or Caſh-keeper, or any Body elſe: and in ſuch Caſe, the Bill muſt be endorſed thus:

Write for me the Contents of the other Side to P. D. *in Bank, Value of him at* Amſterdam, *the Day of* M. R.

If the Endorſement was ſimply for Value received, it would not be valid; no ſuch Bill being reputed paid, without a ſpecial Endorſement, except it be written in Bank. The Endorſements upon the Bills may be made in *French*, *Engliſh*, or any other Language underſtood by the Acceptor; but Orders in Bank muſt be written in the Language of the Country.

If any Perſon has a Mind to negotiate Bank Money for current Money, he need only go to *Dam*, a Place before the Bank, or *Town-Houſe*, between 10 and 11 in the Forenoon, where the Caſh-keepers or Bankers do uſually meet, who will furniſh thoſe that want with either Bank or current Money, at an agreed Price of *Agio*; and ſometimes ſuch Negotiations are done upon the Exchange by Brokers, who have commonly 1 *per* Thouſand Brokerage.

The Salaries of the Officers of the Bank are paid by the City; and all that ariſes by Fines, Tranſfers, and other Monies coming from Things of that Nature, are applied to none other but charitable Uſes.

When a Party's Account in Bank is full, and a new one muſt be begun, the Party having Notice thereof, muſt go to the Bank, to compare his Account with theirs, in the ſame Manner as when the Bank makes a general Balance.

When any Perſon takes his Money out of the Bank, if the *Agio* is under 5 *per Cent*. the Treaſurers pay the Party the Difference, the Bank receiving it at that Rate.

When any Difference happens between Merchants, concerning any Sum in the Bank, it is determined by two or three Commiſſioners choſen among the Magiſtrates, who decide all ſuch Matters ſummarily.

At the Death of any Perſon who has Money in the Bank, their Heirs and Succeſſors muſt prove their Titles by authentick Deeds, before the Book-keepers muſt transfer the Sums belonging to the Deceaſed to the Heirs or Succeſſors Account.

If a Party takes up Money by *Exchange*, the Party that is furniſhed with the Bill ought not to pay for the ſame in current Money, without taking a Receipt of the Perſon that furniſhes him, expreſſing the Sum that was delivered in current Money, the Price of the *Agio*, and the Sum in Bank Money contained *in the* Bill.

If a Perſon ſhould be ſick, or otherwiſe indiſpoſed, that he cannot go himſelf in Perſon to write in the Bank, but is obliged to depute another to do it for him, the Party thus deputed ought to have proper Vouchers to prove his Authority; for without a Letter of Attorney, or ſome ſuch Warrant, a Bill cannot be received, nor can the other Party write; and theſe Vouchers muſt be received every ſix Months or oftner, if the Commiſſioners of the Bank ſhall ſo require.

Moſt Bills of Exchange are negociated by the Aſſiſtance of Brokers; and in Caſe any Difference ſhould happen between the Party's negociating, the Report of a legal ſworn Broker is taken, and the Differences adjuſted accordingly. Brokerage is paid at *Amſterdam* by both Parties concerned, each paying one half; which according to the Regulations in *Amſterdam*, for negociating of Bills of Exchange, they are allowed 3 Stivers for every 100 Florins; and in exchanging Bank and current Monies 1 for 1000.

The Bank of Rotterdam is not ſo conſiderable as that of *Amſterdam* abovementioned; it was eſtabliſhed *April* 18, 1635. According to the eſtabliſhed Regulations, it is allowable for the Bank to receive in Payment $\frac{1}{10}$ part of the Sum in baſe Money, and the other $\frac{9}{10}$ in fine Money.

All foreign Bills upon *Rotterdam*, in Caſe of Non-payment, muſt be proteſted the ſixth Day after they become due, including *Sundays* and Holidays, except they happen to fall due during the Time the Bank is ſhut up; in which Caſe they need not be proteſted till the ſecond or third Day after the Bank is open again: Such Delay does not any ways render the Bearer anſwerable for Damages. The Exchanges of this Place, and Monies are the ſame as at *Amſterdam*; but they commonly give ſomething more for Monies and foreign Bills, than they do at *Amſterdam*.

Having already given an exact, and very particular Account in my Treatiſe of *Coining*, of the real Money of *Holland*; and in the Beginning of this of the imaginary, or Money of Account of thoſe Places, I'll proceed to

The current Prices of the Exchanges *of* Holland, *or* Amſterdam, *with the Principal Places in* Europe.

Amsterdam gives to *Antwerp*, *Brabant*, *Flanders*, and *Zealand* 100*l*. for 95 to 105*l*. of their Monies; and ſometimes they exchange Florins for Florins.

With *Liege* and *Maeſtrich*, 100 Rixdollars of *Amſterdam*, for the like proportionable Number of Florins of 20 Stivers *Liege*; they commonly exchange about a *Par*.

To *Dantzick*, *Riga*, *Coningſberg*, 1*l*. for 220, to 280 *Poliſh* Groſſes; or 100 Rixdollars of *Amſterdam* for 125, to 130 Rixdollars of 30 Groſſes.

Bremen, 100 Rixdollars for 115, to 130 Rixdollars of 72 Groſſes.

Emden,

Emden, 100 Rixdollars for 120, to 140 Rixdollars of 54 Stivers.

Stetin, 100 Rixdollars for 100, to 105 Rixdollars of 48 Stivers Lubs.

Berlin, 100 Rixdollars for 118, to 130 Rixdollars of 30 Groſſes.

Cologne, 100 Rixdollars for 120, to 130 Rixdollars of 78 Albus's.

Stockholm, and all *Sweden*, 1 Rixdollar for 25 or 26 Copper Marks, and ſometimes at ſo much *per Cent.* in favour of *Amſterdam*.

Copenhagen, and all *Denmark* and *Norway*, 100 Rixdollars for 125, to 130 Rixdollars of 9 Groſſes.

Muſcovy, or *Ruſſia*, 1 Rixdollar for a Rouble, or ſomething more or leſs than a Rouble.

Note, That *Amſterdam* gives a certain Sum to all the abovementioned Places in Exchange, and to the following ones an uncertain.

Amſterdam gives to *London* 3 Skillings to 38 Skillings, for 1 *l.* Sterling; and by their Correſpondents in *London* they have an Exchange with all the conſiderable Towns in *Great Britain* and *Ireland*; and in caſe of Neceſſity, Bills might be found in *Amſterdam* upon moſt of the trading Towns directly.

To *Paris*, and all *France*, 50, to 80 Groots for 1 *Ecu* of 3 Livres or 60 Sols *Tournois*.

Spain, 80, to 130 Groots for 1 Ducat of 375 Maravedies.

Portugal, 40, to 100 Groots, for 1 Cruſade of 400 Rees.

Nuremberg, from 70 to 80 Groots, for the Florin of 65 Cruitzers current, or 100 Rixdollars of 50 Stivers for 120, to 135 Rixdollars of 95 Cruitzers of the Empire.

Geneva, 80, to 100 Groots for the Crown of that Place of 60 Sols *Geneva*.

Venice, 85, to 100 Groots, for 1 Ducat of 24 Gros *Banco*.

Genoa, and *Novi*, 90, to 100 Groots for the Pezzo of 5 Lires.

Leghorn, 90, to 100 Groots, for the Pezzo of 6 Lires.

Francfort, 80, to 90 Groots, for 1 Florin of 65 Cruitzers of Exchange, or 100 Rixdollars of 50 Stivers for 115, to 130 Rixdollars of 90 Cruitzers of the Empire.

Leipſick, *Naumbourg*, and *Hanover*, 100 Rixdollars of 50 Stivers for 115, to 135 Rixdollars of 24 Gros. Or they give from 35 to 45 Stivers for a Rixdollar of 24 Gros of *Leipſick*.

Hambourg, 30, to 34 Stivers for 1 Dollar of 2 Marks, or 100 Rixdollars of 50 Stivers for 98, to 105 Rixdollars of 48 Stivers Lubs.

Breſlaw, 30, to 40 Stivers for 1 Dollar of 30 Imperial Groſſes; or 100 Rixdollars of 50 Stivers, for 130 to 150 Rixdollars of 30 Groſſes.

Note, That in *Flanders* they have a Diſtinction between their current Money, and what they call Permiſſion Money; this latter is better than the former; and the Permiſſion Money of *Brabant* and *Flanders* being reckoned equal to the Money of Exchange of *Amſterdam*, they often exchange at the *Par*, and ſeldom run very far above, or under an Equality, excepting upon extraordinary Occaſions.

Note alſo, That *Holland*, or *Amſterdam*, changes upon all the principal Places of *Europe*, viz. *England*, *France*, *Spain*, *Portugal*, *Italy*, &c.

Amſterdam *upon* London.

Holland negotiates with *London* for 3321¼ Florins Money of the Bank, at the Rate of 32½ Sols Gros, or Shillings, for 1 Pound Sterling, at Uſance of 40 Days, or for a longer or ſhorter Term, we aſk of how many Pounds, Shillings, and Pence Sterling, the Bill of Exchange muſt be?

Reduce into Sols Gros the Bank Money, by multiplying by 20 *d.* for the ½; — 332½ Florins 40 *d.* adding

The Product will be — 132860 *d.* Gros:

Reduce, likewiſe, into *d.* Gros, the of the Price of the Change, in multiplying by 32½ Sols Gros, 12 *d.* Gros,

The Product will be — 390 *d.* Gros; Bank Money.

Divide the 132860 *d.* Gros, by the 390 *d.* of the Price of the Change for 1 *l.* Sterling, multiplying what will remain of the firſt Diviſion by 20 Shillings Sterling, which is the Value of the Pound Sterling; and of the ſecond, by 12 Pence Sterling, reducing the Surplus into Fractions, if there be any; and the Anſwer will be, that there muſt be receiv'd in *London*, or other Places of *England*, 340 *l.* 13 *s.* 4 *d.* Sterling.

Note, That at the aforeſaid Price of Exchange of 32½ Sols Gros, which are 390 *d.* Gros, the ſaid Change comes to 390 Rixdollars, of 4 Sols Money of the Bank for 100 Pounds Sterling; for Proof thereof, take off the 60 from the 132860 *d.* there will remain 1328⅗ Rixdollars of 50 Sols Money of the Bank; which being known, ſay,

If 390 Rixdollars are worth 100 *l.* Sterling; how much 1326⅗ Rixdollars?

There will ariſe, 340⅔ Sterling.

Amſterdam *upon* France.

A Merchant of *Amſterdam*, or of any other Place of *Holland*, will draw upon, or remit to *Paris*, *Lyons*, or any other Part of *France*, 4141 Florins, 10 Sols or Skillings, at 90 Sols for 1 Ecu; what is he to receive at the ſaid Places?

Reduce into Sols Gros, the Money, — 4141½ Florins Bank

In multiplying the Florin by or 10 Sols; — 40 *d.* adding 20 *d.*

The Product will be — 165660 *d.* Gros.

Divide the 165660 Deniers Gros, by the 90 Deniers of the Price of Exchange for 1 Ecu; and multiply what remains of the firſt Diviſion by 60 Sols *Tournois*, which is the Value of the ſaid Ecu; and of the ſecond Diviſion by 12 Deniers *Tournois*, dividing the Products by 90 Deniers; the Anſwer will be, 1840⅔ Ecu's, of 60 Sols *Tournois*.

Multiply them by 3 Livres *Tournois*, and our Merchant will receive at *Paris*, &c. 5522 Livres *Tournois*.

Amſterdam *upon* Spain.

Holland negotiates with *Madrid*, *Seville*, *Cadiz*, &c. for 4634 Florins, 6 Sols, at 121 Groots, or Deniers, for 1 Ducat; what muſt he receive at thoſe Places?

Reduce into Groots the Bank Money, — 4534 Florins, 6 Sols,

In multiplying the Florin by 12 Groots for the 6 Sols; — 40 Groots, adding

The Product will be — 185372 Groots.

Divide the 185372 Groots by the 121 Groots, of the Price of Exchange, for 1 Ducat of 375 Maravedi's, and multiply what remains of the firſt Diviſion by 20 Sols, and of the ſecond by 12 Groots; and you'll have for Anſwer, that there muſt be received at *Madrid*, *Cadiz*, &c. 1532 Ducats, of 375 Maravedi's. Multiply the Ducats by 11 Reals, 1 Maravedi,

The Product will be 16897 Reals, 2 Maravedi's:

Divide the Reals by 8, to have 2112 Piaſters, 1 Real, 2 Maravedi's.

Amſterdam *upon* Portugal.

Holland negotiates with *Liſbon*, *Oporto*, &c. for 2282 Florins, 3 Sols, 8 Pen. at 51¾ Groots, for 1 Cruzade; what muſt be received in *Portugal*?

Reduce into Groots the Money, — 2282 Flor. 3½ Sols, Bank

In multiplying the Flor. by Groots for the 3½ Sols; — 40 Groots, adding 7

The Product will be — 91287 Groots.

Then by 4, because of the $\frac{3}{4}$, at $51\frac{3}{4}$ *d. per* Cruzade; and you'll have 365148 Quarters, to divide by 207 Quarters.

Divide the 365184 by 207, and multiply what remains of the first Division by 20 Sols, and of the second by 12 Groots; and you'll have, for Answer, 1764 Cruzades, of 400 Rees, at *Lisbon*.

Multiply them by 400 Rees, the Value of the Cruzade; the Product will be 7050600 Rees.

Amsterdam *upon* Venice.

Amsterdam negotiates with *Venice* 2779 Flor. 17 S. 8 Pen. at 90 Groots for 1 Ducat; what are they to receive at *Venice?*

Reduce into Groots the 2779 Flor. 17 S. 8 Pen. Bank Money,
In multiplying the Florins by 40 Groots, adding 35 Groots for the $17\frac{1}{2}$ Sols, ——
The Product will be —— 111195 Groots.

Divide the 111195 Groots by 90 Groots, the Price of the Change for 1 Ducat of 20 Gros Banco, multiplying what remains by 20 and 12; you'll have $1235\frac{1}{2}$ Ducats Banco, to receive at *Venice*.

Amsterdam *upon* Genoa.

Holland negotiates with *Genoa* for 4264 Flor. 10 Sols, at 90 Groots for 1 Piaster; what are they to receive at *Genoa?*

Reduce into Groots the $4264\frac{1}{2}$ Florins Bank Money,
In multiplying the Flor. by 40 Groots, adding 20 *d.* for the $\frac{1}{2}$ Flor. ——
The Product is —— 170580 *d.* Gros.

Divide the 17058 Deniers Gros, or Groots, by the 90 Groots of the Price of the Change for 1 Piaster of 5 Lires or 100 Soldi, operating for the remaining as in the preceding Articles, and the Answer will be, that they are to receive at *Genoa*, $1895\frac{1}{3}$ Piasters, of 5 Lires.

Multiply them by 5 Lires, and they'll have 9476 Lires, $13\frac{1}{3}$ Soldi current.

Amsterdam *upon* Leghorn.

Holland negotiates with *Leghorn* for 2780 Flor. 16 S. 12 Pen. at $91\frac{1}{2}$ Groots for 1 Piaster; what must they receive at *Leghorn?*

Reduce into Groots the 2780 Flor. $16\frac{3}{4}$ Sols, Bank Money,
In multiplying the Flor. by 40 Groots, adding $33\frac{1}{2}$ *d.* for the $16\frac{3}{4}$ S. ——
The Product will be —— $111233\frac{1}{2}$ Deniers de Gros.
Then because of the $\frac{1}{2}$ D. by 2 at $91\frac{1}{2}$ Deniers, ——
And you'll have —— 222467

Divide the 222467 by 183, multiplying the Remainder by 20 and 12, for the Reasons heretofore alledged; and you'll have for Answer, that there should be received at *Leghorn*, $1215\frac{2}{3}$ Piasters.

Multiply them by 6 Lires, Value of the Piaster, ——
You'll have — 7294 Lires, current Money.

Amsterdam *upon* Frankfort.

Amsterdam negotiates with *Frankfort* for 3249 Flor. S. 8 Pen. at $48\frac{1}{2}$ Denier Gros for 1 Florin; what are they to receive at *Frankfort?*

Reduce into Deniers Gros the of the Bank, 3249 Flor. 0 S. 8 Pen.
In multiplying the Florins by 40 D. adding 1 D. for the 8 Pen. ——
The Product will be — 129961 D. Gros:
Because of the $\frac{1}{2}$ Denier, multiply by 2 at $84\frac{1}{2}$ Denier, ——
You'll have —— 259922, to divide by 169 Half Deniers.

Divide the 259922 by 169, multiplying the Surplus by 20 and 12, and you'll have for Answer, that they must receive at *Frankfort* 1538 Flor. of 60 Crutzers of the Change.

Amsterdam *upon* Nuremberg.

Holland negotiates with *Nuremberg* for 2205 Flor. at 70 D. for 1 Florin; what must they receive at *Nuremberg?*

Reduce into Groots the 2205 Flor. Bank Money,
In multiplying the Flor. by 40 Groots; ——
The Product will be — 88200 Groots.

Divide the 88200 by 70 Groots of the Price of the Exchange for 1 Florin, of 60 Crutzers current, multiplying the Remainder by 20 and 12; and the Answer will be, that they should receive at *Nuremberg*, 1260 Florins, of 60 Crutzers current.

Amsterdam *upon* Hambourg.

Holland negotiates with *Hambourg* for 3797 Flor. 8 Sols, at $33\frac{1}{2}$ Sols *per* Dealder of 32 Sols Lubs; what should be received at *Hambourg?*

Reduce into Groots the 3497 Flor. 8 Sols, Bank Money,
In multiplying by —— 40 Groots, adding 16 Groots for the 8 Sols; ——
The Product will be — 139896 Groots.

If the $33\frac{1}{2}$ Groots Bank Money be reduced into Half Groots, you'll have 67 Groots, with which Number you'll divide the 139896 Groots, multiplying what might remain of the first Division by 32 Sols Lubs, which is the Value of the Dealder, and of the second by 12 Groots, which is the Value of the Sols Lubs; and you'll have for Answer, that there should be receiv'd,

At *Hambourg*, { —2088 Dealders of 32 Sols Lubs of the Bank, or 1392 Rixdollars of 48 Sols Lubs of the Bank, or 4176 Marks of 16 Sols Lubs of the Bank.

Amsterdam *upon* Breslaw.

Holland negotiates with *Breslaw* for 2526 Flor. $17\frac{1}{2}$ Sols, at 35 Sols *per* Rixdollar of 30 Gros; what are they to receive at *Breslaw?*

Reduce into Sols the 2526 Flor. $14\frac{1}{2}$ Sols of the Bank,
In multiplying the Flor. by 20 Sols, adding $17\frac{1}{2}$ Sols; ——
The Product will be — $50537\frac{1}{2}$ Sols Bank Money.

Divide the $50537\frac{1}{2}$ Sols of the Bank by the 35 Sols of the said Money, for 1 Rixdollar of 30 Gros, and you'll have for Answer, that they should receive at *Breslaw* $1443\frac{13}{17}$ Rixdollars of 30 Gros, or 90 Crutzers.

Amsterdam *upon* Leipsick.

Amsterdam negotiates with *Leipsick* for 4591 Flor. 7 Sols, at 39 Sols *per* Rixdollar of 24 Gros; what are they to receive?

Reduce into Sols the 4591 Flor. 7 Sols, current Money,
In multiplying by —— 20 Sols, adding to it the 7 Sols; ——
The Product will be 91827 Sols current.

Divide the 91827 Sols by the 38 Sols current of the Price of the Change for 1 Rixdollar or Ecu, of 24 Gros, multiplying what should remain of the first Division by 24 Gros, and of the second by 12 Fenins, which is the Value of the Gros; and you'll have for Answer, that they should receive at *Leipsick*, $2416\frac{1}{2}$ Rixdollars of 24 Gros.

Amsterdam *upon* Dantzick *and* Coningsberg.

A Merchant of *Amsterdam* will remit to *Dantzick*, or *Coningsberg*, 3300 Florins of 20 Sols Bank or current Money, at the Rate of 270 *Polish* Gros, or of *Brandenbourg*, or of *Prussia*, for 1 Liv. Gros, or at the Rate of 100 Rixdollars of 50 Sols of the aforesaid Money, for 125 Rixdollars of 90 Gros (or 3 Florins) of *Poland*, or of *Brandenbourg*, or of *Prussia*; we ask how many Florins or Rixdollars must be told or received at those Places?

Operation by Livres Gros.

Reduce into *l.* Gros the 3300 Flor. of 20 S. Bank or current Money,

In

In taking the $\frac{1}{5}$, which is 550 Liv. Gros;
Multiply them by 270 *Polish* Gros, or of *Prussia*,
The Product will be 148500 Gros.

Divide the 148500 by 30, you'll have 4950 Florins; or by 90, and you'll have 1650 Rixdollars, of *Poland* or *Prussia*.

Operation by Rixdollars.

Reduce into Rixdollars the 3300 Flor. of 20 Sols Bank or current Money, in taking twice the $\frac{1}{5}$, which is 660; the Product will be 1320 Rixdollars, of 50 *Dutch* Sols.

Amsterdam *upon* Antwerp, Brussels, *&c.*

Amsterdam draws upon *Antwerp* 614 Livres Gros, Money of Exchange, or of Permission, at $\frac{3}{4}$ *per Cent.* Advance, for the Person in whose Favour the Bill of Exchange is drawn, and Loss for the Drawer; we want to know what Sum the last is to be received in Bank.

Operation.

At $\frac{3}{4}$ *per Cent.* Advance	for the Drawer.	Say,
L. Gros.	L. Gros.	L. Gros.
If $100\frac{3}{4}$	give but 100	how many will give 614
4	4	400
403 Divis.	400 Multipl.	245600

Divide the 245600 by 403, multiplying what will remain of the first Division by 20 Sols, and of the second by 12 Deniers Gros, reducing the Surplus into Fractions; and you'll have 609 Liv. 8 S. 7 D. and a little more, Gros, than the Drawer must receive in Bank.

Reduce into Florins, Sols, and Pennins, the 609 L. Gros, 8 S. 7 D. and a little more, in multiplying by 6 Flor. Value of the Livre Gros;

The Product will be, 3656 Flor. 11 S. 8 Pen. and a little more.

Amsterdam *upon* Ghent.

We suppose that there has been remitted to *Frankfort* a Bill of Exchange upon *Ghent* of 360 Livres Gros, which can be negotiated on the Change at *Amsterdam* at $\frac{1}{2}$ *per Cent.* Loss, and Advance for the Person it is negotiated to; we ask, what Sum must be received in Bank?

We ought to know, first, that $108\frac{1}{3}$ Livres Gros, current Money, make 100 Livres Gros, Exchange Money, or of Permission; which being known, the 360 Livres Gros, current Money, must be reduced into Money of Exchange, in the following Manner:

At $\frac{1}{4}$ *per Cent.* Advance, for the Person that gives the Money; say,

Current.	Of Exchange.	Current.
If $108\frac{1}{3}$ L. give	100 L.	how many 360
3	3	300
325 Divis.	300 Multipl.	108000

Divide the 108000 by 325, and multiply what remains of the first Division by 20 Sols, and of the second by 12 Deniers Gros, reducing the Surplus into Fractions; it will produce 332 Liv. 6 Sols, 1 Denier Gros, and a little more.

Say,

Of Exchange.	Of Ex.	Of Exchange.
If $100\frac{1}{2}$ L. give	100 L.	how many 33 L. 6 S. 1 D. (and a little more.
2	2	200 (more.
201 Divis.	200 Multiplic.	66460 16 8 and

Divide the 66460 16 8 by 201, and multiply what remains of the first Division by 20 Sols, and of the second by 12 Deniers Gros, reducing the Surplus into Fractions; and you'll have to receive in Bank, the Sum of 330 Liv. 13 Sols, and a little more.

Multiply by 6 Flor. Value of the Livre Gros, (more.

It will produce 1983 Flor. 8 Sols, of the Bank, and

Amsterdam *upon* Bremen.

Holland negotiates with *Bremen* 4780 Rixdollars, the Exchange at 113 Rixdollars of 72 Grosses, for 100 Rixdollars of 50 Sols; to know what must be receiv'd at *Bremen*.

Say, 100 *Amsterdam* 113 *Bremen* 4782 *Amsterdam*.

This done, by the common Rule of Three, the Answer will be, 5403 Rixdollars, and 47 Grosses.

Amsterdam *upon* Embden.

Holland negotiates 7872 Rixdollars, at 125 Rixdollars, of 54 Stivers, for 100 Rixdollars of *Amsterdam*; to know what must be received at *Embden*.

If 100 *Amsterdam* 125 *Embden* 7872 *Amsterdam*
Take $\frac{1}{4}$ Part 1968

These added together, the Answer is, 9840 Rixdollars must be received at *Embden*.

Amsterdam *upon* Berlin.

Holland negotiates 752 Rixdollars of 50 Stivers with *Berlin*, Exchange 123 Rixdollars of 30 Grosses, for 100 Rixdollars of *Amsterdam*; to know what must be received at *Berlin*.

If 100 *Amsterdam* 123 *Berlin* 752 *Amsterdam*

This done, by the common Method, the Answer is, 924 Rixdollars, 28 Grosses, must be received at *Berlin*.

Amsterdam *upon* Sweden, *or* Stockholm.

When *Amsterdam* changes upon *Sweden*, or *Stockholm*, it is done by *Sweden* giving to *Amsterdam* Rixdollars of 50 Stivers current, to receive Marks at *Stockholm*, 4 of which make a Dealler, which is the *Swedish* Rixdollar, or Crown; of those Marks there are 20 to 27 given for the said Rixdollar of 50 Stivers, or Sols: So that if it was wanted to draw, or remit, for Example, 1500 Rixdollars of 50 Stivers, at the Rate of 23 Marks *per* Rixdollar; it must be done in the following Manner:

Multiply the 1500 Rixdollars, of 50 Stivers,
By the Price of the Change, at 23 Marks for 1 Rixdollar;
The Product is 34500 Marks.

Take the $\frac{1}{4}$, which is 8625 Deallers of Copper; and divide by 6, to have $1437\frac{1}{2}$ Rixdollars of 24 Marks.

Amsterdam *upon* Denmark, *or* Copenhagen.

There are seldom any Remittances made by *Amsterdam* to *Copenhagen*, but almost all Remittances are by *Copenhagen* upon *Amsterdam*, and are from 2 to 10 *per Cent.* Loss for *Denmark*, where the Rixdollars are reckoned at 96 Stivers, or at 6 Marks *Dan*, or *Danish*, or 3 Marks Lubs, making the Mark of 16 Stivers, or Skellings *Dan*, or of 32 Groots. Suppose, then, that *Amsterdam* would change upon *Copenhagen* 200 Rixdollars of 50 Sols current Money, at the Rate of $105\frac{1}{2}$ Rixdollars of 6 Marks *Dan*, for 100 Rixdollars of 50 aforesaid; the Operation must be as follows:

If 100 current Rixdollars of 50 Stivers, give $105\frac{1}{2}$ Rix. of 6 Marks; how many 200 current Rix. of 50 Stivers?

The Product will be, 211 Rix. of 6 Marks.

Amsterdam *upon* Stetin.

The Remittances between *Amsterdam* and *Stetin* are ordinarily made by Rixdollars of 50 Stivers, current Money of *Amsterdam*, to receive at *Stetin* Rixdollars of 36 Skellings Lubs of 1 to 5 Profit for *Amsterdam*, and of Loss for *Stetin*, where there is seldom any Change made. But suppose *Amsterdam* should want to change upon *Stetin* 150 Rixdollars at the Rate of 50 Stivers current Money, at the Rate of 105 Rixdollars of 36 Skellings, for 100 Rixdollars of 50 Stivers; the Operation is thus:

If 100 current Rix. give 105 Rix. of 56 Skel. how many 150 current Rix. of 50 Stivers?

The Product is $157\frac{1}{2}$ Rix. of 36 Skell.

Amsterdam

Amsterdam *upon* Muscovy, *or* Russia.

Holland draws upon *Russia* for 7429 Rixdollars, Exchange at 104 Copecks *per* Rixdollar; to know what Sum this Draught will come to in *Russia*: Multiply the Rixdollars by the Copecks, and divide the Product by 100; the Answer will be, 7726 Roubles, 16 Copecks.

Amsterdam *upon* Cologn.

Holland negotiates 3450 Rixdollars of *Amsterdam* with *Cologn*, Exchange 126 of *Cologn* for 100 of *Amsterdam*; to know how many must be received at *Cologn*.

If 100 *Amsterdom* 126 *Cologn* 3450 *Amsterdam*.

This done, by the common Rule of Three, the Answer will be, 4347 Rixdollars.

Amsterdam *upon* Liege *and* Maestrich.

Amsterdam changes upon *Liege* and *Maestrich* at so much *per Cent.* Profit or Loss, and oftner at the *Par*: Therefore *Amsterdam*, wanting to draw upon, or remit to *Liege* 2500 Florins of 20 Stivers, of current Money, at the *Par*; to know how much must be receiv'd at *Liege*. The 20 Stivers of *Liege* are worth but $12\frac{1}{2}$ Stivers current at *Amsterdam*.

Suppose 2500 Florins of 20 Stivers current of *Amsterdam* are drawn, or remitted;

Take the $\frac{1}{2}$, which is	1250
Then the $\frac{1}{5}$ of the 1250	250
The whole will give ——	1500 Florins, current Money of *Liege*.

The current Prices of the Exchanges *of* Brabant, Flanders, *&c.*

Brabant, *Flanders*, &c. give to *London* from 26 Skillings to 38, for 1 Pound of 20 Shillings Sterling; and to

Holland, from 100 to 108 Liv. *Flemish*, for 100 of *Amsterdam* or *Holland*.

France, from 60 to 80 Groots, for 1 Ecu of 60 Sols, or 3 Livres *Tournois*.

Spain, from 80 to 100 Groots for 1 Ducat of 375 Maravedi's.

Portugal, from 40 to 60 Groots, for 1 Cruzade of 400 Rees.

Hambourg, from 33 to 35 Stivers, for 1 Dollar of 32 Stivers Lubs.

Venice, from 90 to 100 Groots, for 1 Ducat of 24 Grosses Banco.

Genoa, from 90 to 100 Groots, for the Pezzo of 5 Lires.

Leghorn, from 92 to 100 Groots, for the Pezzo of 6 Lires.

Frankfort, from 80 to 90 Groots, for the Florin of 65 Crutzers of Exchange.

Nuremberg, from 70 to 80 Groots, for the Florin of 65 Crutzers current.

Note, That these Places do also exchange with some other Towns in *Germany*, and elsewhere, in the same Manner as *Holland* or *Amsterdam* does with the same Places.

Of the Bank *and* Exchanges *of* Hambourg.

HAMBOURG is an imperial and Hanse Town of *Germany*, in the *Lower Saxony*, situated on the River *Elbe*, free, and very considerable for its great *Commerce*. It is a Republick, which only pays some Acknowledgment to the King of *Denmark* as Duke of *Holstein*, (*Hambourg* being a City of that Dutchy) but that Acknowledgment is in Form of Peage, because of the *Gluckstads*, at the Mouth of the *Elbe*.

The Bank of *Hambourg* is one of the best in *Europe*; and tho' it be not so rich as that of *Amsterdam*, it is, notwithstanding, as secure. The Monies received in it are, the Rixdollars in Species, the $\frac{1}{4}$, $\frac{1}{8}$, and $\frac{1}{8}$ of Rixdollars; which Species are ordinarily worth $\frac{1}{4}$ or $\frac{1}{8}$ *per Cent.* more than the Money written by Bills in *Bank*, *i. e.* that if Rixdollars be wanted in Species, there must be wrote in *Bank* $\frac{1}{4}$, $\frac{1}{8}$, and as far as $\frac{1}{8}$ *per Cent.* more than the Sum received. If on the contrary, Money in Species be placed in the *Bank*, the Cash of the *Bank* makes good $\frac{1}{8}$ and sometimes $\frac{1}{4}$ *per Cent.* Benefit on the Species; and it is in those Sorts of Species that all the Payments are made in the *Bank*.

The *Bank* is under the Directions and Management of four of the most eminent Persons of the City; who are all appointed by the whole Body of the Republick. And in case any of the Officers, Directors, or Managers should, by Connivance, or otherwise, suffer any Diminution to be made on the Treasury of the *Bank*, the said Body of the Republick stand engaged for making good the Deficiencies: However, to prevent all Frauds, the Officers are obliged to state and clear all Accounts twice a Week. They keep their Accounts in Marks, Stivers, and Deniers Lubs.

The Senate has nothing to do with the *Bank*, on which they cannot seize, no body having any Knowledge of the Fund of Particulars, because the Book-keepers, before they are promoted to the Post, are obliged to take an Oath of Secrecy. None but the Inhabitants of the City have the Privilege of having an Account in the *Bank*; and if any Person has occasion they are obliged to pay 50 Rixdollars of 3 Marks Lubs to have an Account open'd for them.

For every Sum enter'd in the *Bank* under 300 Marks Lubs, they pay 2 Stivers Lubs for entering it; and no Sum under 100 Marks Lubs can be enter'd there; if there happens to be an odd Sum of 9, 10, or 11 Deniers, they write down a Stiver; if it be but 7 or 8, they write but 6 Deniers; and if they be under 6 they take no Notice of them.

The Time of Writing in the *Bank* is from 7 to 10 in the Forenoon; they may write from 10 to 1, and from 3 to 5 in the Afternoon; but the Party so writing must be obliged to pay 2 Stivers for every Sum enter'd at such Hours.

The Time for inquiring whether a Sum is enter'd, is also from 7 to 10; and the Party may be inform'd between the Hours of 10 and 3 and 5 in the Afternoon; but he that knows after 3, must pay two Stivers Lubs to be inform'd; but then he may be answered many Questions of that Nature for the said two Stivers: But the Merchants who have considerable Dealings in the *Bank*, do commonly give 20, 30, or 40 Marks Lubs *per Annum*, for any extraordinary Trouble they may give the Officers at undue Hours.

Any Person that has occasion for Money may borrow it at the *Bank*, leaving a Pledge of Jewels, precious Stones, Gold or Silver Vessels, *&c.* upon Condition to restore the Sum and Interest in six Months; and if they fail in so doing, the Effects are forthwith exposed to sale, upon a Day specified in a Placart affixed at the Bar to give Notice to any Person that has a Mind to buy them.

The *Bank* is commonly shut up from the last of *December* to the 15th of *January*.

Those who deal only in Exchange keep their Accounts in Bank Money; and those that deal in any other *Commerce*, keep them in Current Money, which rises and falls according to the Course of the *Agio*, which is generally between 9 and 18 *per Cent.* the Bank Money being so much better than Current Money.

The Custom of *Hambourg* is not to sign the Acceptation of the Bills of Exchange, they only put *accepted*, with nothing else, which may be done by a Servant, as well as by the Master himself, which is a bad Custom for Acceptations, because they could be denied.

Hambourg has heretofore observed the Old Style, or *Julian* Calendar, but ever since the 1st of *March*, 1701, they observe the New Style, or *Gregorian* Calendar.

Hambourg gives, for the current Prices of Exchanges, to

France, from 20 to 90 Stivers Lubs for 1 Ecu of 3 Livres, or 60 Sols *Tournois*.

London, from 28 to 38 Shillings for 1 Pound, or 20 Shillings Sterling.

Spain, from 78 to 125 Groots for 1 Ducat of 375 Maravedies.

Portugal, from 40 to 60 Groots for 1 Crusade of 400 Rees.

Holland or *Brabant*, 1 Dollar of 32 Stivers Lubs for 31 to 35 Stivers, or 98 to 102 Rixdollars of 48 Stivers, for 100 Rixdollars of *Holland*.

Francfort, from 1 Dollar of 32 Stivers Lubs for 45 to 55 Cruitzers of Exchange, or 100 Rixdollars of 48 Stivers Lubs for 115 to 130 Rixdollars of 90 Cruitzers Common.

Nuremberg, from 1 Dollar of 33 Stivers Lubs for 60 to 70 Cruitzers Current, or 100 Rixdollars of 48 Stivers Lubs for 115 to 130 Rixdollars of 90 Cruitzers Current.

Venice, from 85 to 100 Groots for 1 Ducat of 24 Grosses Bank.

Leipsick, from 100 Rixdollars of 48 Stivers Lubs for 115 to 135 Rixdollars of 24 Grosses.

Berlin, from 100 Rixdollars of 48 Stivers Lubs for 115 to 135 Rixdollars of 30 Grosses.

Dantzick, from 100 Rixdollars of 48 Stivers Lubs for 95 to 118 Rixdollars of 90 Grosses.

Flanders, from 16 Stivers Lubs for $16\frac{1}{2}$ to $17\frac{1}{2}$ Stivers of *Flanders*.

Sweden, from 1 Rixdollar to 25 or 26 more or less Copper Marks, and sometimes at so much *per Cent.* in Favour of *Hambourg*.

Muscovy, from 1 Rixdollar for a Ruble, or something more or less, or at so much *per Cent.* in favour of *Hambourg*.

Note, That they exchange with *Geneva* the same as *Paris* and *Lyons*; and Bills are drawn upon *Lubeck* payable at *Hambourg*. It is from this last Place the Term *Lubs* comes, it being the Place where the Stivers Lubs are coined.

Hambourg *upon* England *or* London.

A Merchant of *Hambourg* will remit to *London* 3083 Marks $12\frac{2}{3}$ Stivers Lubs Bank Money, at the Rate of 32 Stivers 4 Groots for 1 Pound Sterling, what Sum must be received in *London?*

Reduce into Groots the Lubs Bank Money, — 3983 Marks $12\frac{2}{3}$ Stivers
In multiplying the Marks by 32 Groots, adding $25\frac{1}{3}$ for the $12\frac{2}{3}$ Stivers
The Product will be 98681$\frac{1}{3}$ Groots or Grosses.
Multiply afterwards the Price of Exchange, — 32 Stivers 4 Groots of the
By the Value of a Stiver the 4*d.* to it — 12 Deniers of Grosses, adding
And you'll have 388 Groots for the Price of Exchange.

Divide the 98681$\frac{1}{3}$ Groots, by the 388 Groots, multiplying what remains of the first Division by 20*s.* Sterling, and of the second by 12*d.* Sterling, reducing the Surplus, if there be any, into Fractions, and you'll have for Answer, that there should be received in *London* $254\frac{1}{3}$ *l.* Sterling.

Note, That when it is wanted to change upon *Ireland*, or *Dublin*, it is done by Means of the Correspondents of *London*.

Hambourg *upon* France *or* Paris, *&c.*

A Merchant of *Hambourg* will remit to *Paris*, *Lyons*, &c. 2752 Marks, $4\frac{2}{3}$ Stivers Lubs Bank Money, at the Rate of 88 Grosses, or 44 Stivers Lubs for 1 Ecu of 60 Sols, or 3 Livres *Tournois*; or rather, he wants to change 917 Rixdollars 20 Stivers 8 Grosses Lubs, of 40 Stivers for each Rixdollar, at the Rate of 100 Rixdollars for $109\frac{1}{6}$ Ecus's, how many Ecu's or Parts of Ecu's he must receive in *France?*

First Operation by Stivers *and* Grosses Lubs.

Reduce into Grosses the Lubs of the Bank, — 2752 Marks $4\frac{2}{3}$ Stivers
In multiplying the Marks by 32 Grosses, or by 16 Stivers Lubs,
The Product will be 88073$\frac{1}{3}$ Grosses to be divided by 88 Grosses.
Take the half and you'll have 44036$\frac{2}{3}$ Stivers Lubs to be divided by 44 Stivers.

Divide the 88073$\frac{1}{3}$ Grosses by the 88 Grosses, or the 44036$\frac{2}{3}$ Stivers by the 44 Stivers, Price of Exchange, multiplying what remains of the first Division by 60 Sols *Tournois*, and of the second by 12 Deniers, reducing the Surplus into Fractions, and you'll have for Answer, that our Merchant should receive at *Paris*, *Lyons*, &c. 1000$\frac{5}{6}$ Ecu's.

Second Operation by Rixdollars *of* 48 Stivers Lubs.

If 100 Rixdollars of 48 Stivers of the Bank—109 Ecu's—917 Rixdollars $20\frac{2}{3}$ Stivers Bank,

The Product will be as above 1000$\frac{4}{6}$ Ecu's to be received at *Paris*.

Hambourg *upon* Spain.

Hambourg will remit to the abovemention'd Places, either at Usance of 2 Months, or double Usance of 4 Months, *viz.*

Upon *Cadiz* and *Seville*	1925	Marks Lubs, at	124 Deniers for 1 Ducat.
Upon *Lisbon* and *Oporto*	930		50 Deniers for 1 Crusade.
Upon *Venice*	2500		90 D. for 1 Duc.

what Sums must be received at the said Places?

Reduce into Grosses the said Mark of 16 Stivers Lubs, in multiplying them by 32 Grosses, Value of the Mark, and the Stivers by 2 Grosses.

You'll have for *Seville*	61600	Deniers Lubs.
Lisbon and *Oporto*	29760	
Venice	80000	

Divide the Grosses by the Price of Exchange of each Place, in particular, and multiply what might remain of the first Divisions by 20 Sols, and the second by 12 Deniers, considering the Ducats and Crusades as 20 Sols, and the other Parts in proportion; by which means there must be received

at *Seville* or *Cadiz*	496 Ducats 15 S.	$5\frac{25}{30}$ Deniers.
Lisbon or *Oporto*	595 Crusades 4 S.	
Venice	888 Ducats 17 S.	$9\frac{1}{3}$ Deniers.

Hambourg *upon* Amsterdam.

A Merchant of *Hambourg* negotiates with *Amsterdam* for 2088 Dealders of the Bank, at $33\frac{1}{2}$ Stivers, what Sum must he receive at the said Place?

First Operation by Stivers.

Multiply the — 2088 Dealders of 32 Stivers Lubs of the Bank
By the Price of the Change at $33\frac{1}{2}$ Common Stivers, also of the Bank,
The Product will be 6994|8 Stivers.
Take the $\frac{1}{2}$ to have — 3497 Florins, 8 S. of the Bank to receive at *Amsterdam*.

Second Operation by Rixdollars.

If 100 Rixdollars of 48 Stivers Lubs.—102 Rixdollars of 50 Stivers.—540 Rixdollars of 48 Stivers Lubs.

The Product will be $550\frac{4}{5}$ Rixdollars of 50 Stivers Bank.

Third Operation by Marks Lubs.

If 120 Marks of 16 Stivers Lubs.—102 Florins of 20 Stivers.—1620 Marks of 16 Stivers Lubs.

The Product will be 1377 Florins of 20 Stivers Bank.

According to these three Operations, there should be received at *Amsterdam*

for 2088 Dealders at $33\frac{1}{2}$ Stiv.	—3497 Flor. 8 Stivers.
540 Rixdol. at 2 *per Cent.*	—$550\frac{4}{5}$ Rixdollars.
620 Marks at 2 *per Cent.*	—377 Florins.

The whole in Bank Money at both Places.

The current Prices of the Exchanges *of* Frankfort *upon the* Main.

FRANKFORT on the *Main*, in *Franconia*, distinguish'd from *Frankfort* on the *Oder*, in the Marquisate of *Brandenbourg*, is one of the imperial Cities of *Germany*, in the Diocese of *Mentz*, or *Mayance*. It is divided into two Parts by the River, and very famous as well by its Fairs, as by its great *Commerce* of Bills of Exchange on the principal Parts of *Europe*.

Every Year there are two Fairs at *Frankfort*, viz. the *Fair of Easter*, or *Half Lent*; and that of *September*, or *Autumn*. That of *Easter* begins always the *Sunday* before *Palm Sunday*, which is 14 Days before *Easter*. That of *September* begins before the Nativity of the Virgin *Mary*, which is the 8th of *September*. If that Feast happens on *Monday*, *Tuesday*, or *Wednesday*, the Fair begins the *Sunday* before; but if it happens on *Thursday*, *Friday*, or *Saturday*, it begins but the *Sunday* following; and if that Feast happens on *Sunday*, the Fair begins that very same Day.

The Bell of Entrance begins always to ring the *Sunday* before *Palm Sunday*, for the Fair of *Easter*; and for that of *September* the *Sunday* before the Nativity of the blessed Virgin.

These Fairs last ordinarily two Weeks, or fourteen Days. The first Week is call'd the *Week of Acceptation*, and the last the *Week of Payment*.

The Monies of *Frankfort* are expressed, and the Merchants Books and Accounts are kept either in Florins, Cruitzers, and Fenins; or in Rixdollars, Cruitzers, and Fenins. The Florin is composed of 60, and the Rixdollar of 90 Cruitzers. They likewise sometimes reckon by Deniers, computing the Florin at 20 Stivers, and the Rixdollar at 30 Stivers; the Stiver of 3 Cruitzers, or 12 Deniers; and the Cruitzer of 4 Deniers, or 8 Fenins.

Frankfort exchanges with *Amsterdam* several Ways, *viz.*

In the Time of the Fairs, they generally give the Florin, of 65 Cruitzers of Exchange, for 80 to 90 Groots of *Amsterdam*.

At other Times they exchange, for the most Part, giving 125 to 130 Rixdollars, of 90 Cruitzers current, for 100 Rixdollars of 50 Stivers of *Amsterdam*. And sometimes they exchange by the Florin of 60 Cruitzers current.

Frankfort exchanges with *London* by the way of *Amsterdam*.

To *France*, 50 to 60 Cruitzers of Exchange for 1 Ecu of 3 Livres, or 60 Sols.

To *Hambourg*, 45 to 55 Cruitzers of Exchange for a Dollar of 32 Sols Lubs.

To *Venice*, 72 to 74 Cruitzers of Exchange for 1 Ducat Banco, or 120 to 125 Florins of 60 Cruitzers for 100 Ducats Banco.

To *Nuremberg*, 97 to 104 Dollars of Exchange for 100 to 104 Rixdollars.

To *Leipsick*, 94 to 98 Rixdollars for 100 Rixdollars of 24 Grosses.

To *Dantzick*, 1 Rixdollar of 90 Cruitzers for 80 to 100 Grosses *Polish*.

They have so great a Variety of Prices of Exchange at *Frankfort*, occasioned by the many different Sorts of Money current there, the Empire of *Germany* being divided into a great Number of Sovereignties, independent of one another, but all paying some Sort of Homage to the Emperor as Head, and every one coining a different Sort of Money current in his own Dominions, and most of those different Sorts of Money going current in *Frankfort*, and other Places of Trade in *Germany*; that it is very difficult to give any Account of the Species.

Frankfort exchanges with *Geneva*, the same as with *Paris*.

Cologne, the same as with *Amsterdam*.

Berlin, the same as with *Leipsick*.

Vienna, *Bolzano*, and *Augsbourg*, the same as with *Nuremberg*.

The current Prices of the Exchanges *of* Nuremberg.

NUREMBERG gives to *Holland*, 1 Florin of 65 Cruitzers current for 70 to 80 Groots; or 120 to 135 Rixdollars of 90 Cruitzers, for 100 Rixdollars of 50 Stivers.

France, 60 to 75 Cruitzers current for 1 Ecu of 3 Livres, or 60 Sols *Tournois*.

Hambourg, 60 to 70 Cruitzers current for 1 Dollar of 33 Stivers Lubs; or 120 to 140 Rixdollars of 90 Cruitzers for 100 Rixdollars of 48 Stivers Lubs.

Frankfort, 100 to 104 Rixdollars of 90 Cruitzers, for 97 to 104 Dollars of 74 Cruitzers.

Venice, 140 to 150 Florins of 60 Cruitzers, for 100 Ducats Banco.

Dantzick, 1 Florin of 65 Cruitzers, for 50 to 80 *Polish* Grosses.

Leipsick and *Naumbourg*, 98 to 105 Rixdollars of 90 Cruitzers, for 100 Rixdollars of 24 Grosses.

Berlin, 98 to 105 Rixdollars of 90 Cruitzers, for 100 Rixdollars of 30 Grosses.

Augsbourg and *Vienna*, 95 to 100 Rixdollars of 90 Cruitzers, for 100 Rixdollars.

St. Gall, 100 Florins of 60 Cruitzers, for 110 to 115 Florins.

They exchange with *Antwerp*, the same as with *Amsterdam*.

Geneva, the same as with *France*.

Balzano, the same as with *Augsbourg* and *Vienna*.

France, sometimes in Florins for 100 Livres.

Frankfort, sometimes in Florins.

Hambourg, so many Florins for the Mark Lubs.

The current Prices of the Exchanges *of* Augsbourg.

AUGSBOURG exchanges with other Places, giving either the Cruitzer, the Florin of 60 Cruitzers, or the Rixdollars of 90 Cruitzers: They give to

France, 60 to 70 Cruitzers.

Geneva and *Novi*, 120 to 130 Rixdollars, for 100 Crowns Marks.

Amsterdam, 101 to 105 Rixdollars, for 100 Rixdollars of 50 Stivers.

Frankfort, 95 to 99 Rixdollars, for 100 Dollars of Exchange.

St. Gall, 100 Florins of 60 Cruitzers, for 110 to 115 Florins.

Bolzano, 100 Rixdollars, for 95 to 98 Rixdollars.

The Exchange with *London* by the way of *Amsterdam*, or *Lyons*, or *Bourdeaux*.

Of the Fairs *and* Exchanges *of* Leipsick, Naumbourg, *and* Hanover.

At *Leipsick* and *Naumbourg* are kept certain Fairs, at which Time most Bills of Exchange are payable.

At LEIPSICK, the three memorable Fairs that are kept there every Year, are publickly proclaimed the first Day of each Fair; and the like is done when they end.

The first *Fair*, which is that of the *New Year*, begins on the first Day of the new Year, except when *New Year's Day* falls on a *Sunday*; then the *Fair* begins on the *Monday* following. The second *Fair*, which they call *Easter Fair*, begins the third *Monday* after *Easter*. The third *Fair*, of *Michaelmas*, begins the first *Sunday* after St. *Michael's* Day; and if that Feast falls on a *Sunday*, it begins that Day Sevennight, and every *Fair* lasts fourteen Days.

The Elector of *Saxony* has decreed, in Regard the Merchants have hitherto complained that the *Nuremburghers* observe no certain Time in returning Home, and yet the Time of their uncertain Return is the Period upon which both the Payment, and protesting the Bills, does entirely depend, that *Thursday* in the Pay Week shall be the Term; or if the *New Year Fair* begins on *Sunday*, the fifth Day of the Pay Week, reckoning from that Day upon which the *Fair* is prohibited, upon the Expiration of the first Week; and the Protest of Bills shall pass till Ten a-Clock at Night, but none shall be received after that Hour.

The

The current Monies of *Leipsick*, are, the *Rixdollar*, of 24 Grosses.

Pieces of 3 3ds of the said Rixdollars, or 16 Grosses.

Pieces of 1 3ds, or 8 Grosses.

Pieces of 1 6ths, or 4 Grosses.

Pieces of 1 12th, or 2 Grosses.

Pieces of 1 and a Half, and others of 1 Gros, 3ds.

Gros, of 12 Fenins.

And *Pieces* of 9, 8, 6, 4, and 3 Fenins, or Deniers.

The *Bank*, or *Monies of Exchange*, are between 10 and 20 *per Cent.* better than the *current Money*.

Bills of Exchange that are drawn for *current Money*, are paid 3 4ths of the Contents in 4 Gros Pieces, and the other 4th in Grosses.

Bills that are drawn for *Bank*, or *Money of Exchange*, are paid in Rixdollars, which are sometimes call'd *Crowns of Exchange*.

Bills of Parcels, and *Notes*, are paid in Grosses. Four Grosses Pieces are worth more than the Grosses about one Half *per Cent.*

Old Thirds, or 8 Grosses Pieces of *Lunenbourg*, *Brandenbourg*, and *Saxony*, are worth more than the 4 Grosses Pieces and Grosses together, being call'd *current Money* about 2 *per Cent.*

NAUMBOURG no ways differs in their *Monies*, and way of *Exchange*, from *Leipsick*; except that it has only one *Fair* in the Year, which is that of St. *Peter* and St. *Paul*, beginning upon that Holiday which is the 29th of *June*, and holds 8 Days.

Leipsick exchanges with *London*, commonly by the way of *Amsterdam*, *Hambourg*, *Paris*, or *Lyons*; and gives to

Amsterdam, 115 to 135 Rixdollars of 24 Grosses, for 100 Rixdollars of 50 Stivers, and sometimes the Rixdollar for 35 to 45 Stivers.

Hambourg, 115 to 135 Rixdollars, for 100 Rixdollars of 48 Stivers Lubs.

France, 90 to 100 Rixdollars, for 100 Ecu's of 60 Sols.

Frankfort, 100 Rixdollars for 94 to 98 Rixdollars of 90 Cruitzers common.

Nuremberg, 100 Rixdollars for 98 to 103 Rixdollars of 90 Cruitzers.

Augsbourg, 90 to 100 Rixdollars for 100 Rixdollars.

Breslaw, 90 to 95 Rixdollars for 100 Rixdollars.

BRESLAW.

The Monies current of *Breslaw*, are, a *Rixdollar*, valued at 30 Imperial or *Bohemian* Silver Grosses; or 45 white Grosses; or 90 Grosses.

An Imperial, or *Bohemian* Gros, is 3 Cruitzers; or 4 Grosses; or 6 Dryers; or 12 Pence; or 1 white Gros and a Half.

A white Gros is 2 Cruitzers, or 3 Dryers; a Cruitzer 4 Pence; a Gros 3 Pence; a Dryer 2 Pence; a 2 3d Piece 20 Imperial Grosses.

An imaginary Slis Dollar is worth 24 Imperial Grosses; or 36 white Grosses; or 72 Cruitzers.

Breslaw exchanges with *Amsterdam*, giving the Rixdollars of 30 Imperial Grosses for 30 to 34, more or less, Stivers of *Amsterdam*; or at so much *per Cent.* in Rixdollars, in Favour of *Amsterdam*.

To *Hambourg* the same.

They have an Exchange with *Berlin*, and other Places.

The Price current of the Exchanges *of* Prussia, *or* Berlin.

BERLIN exchanges with *London* by the way of *Amsterdam*, or *Hambourg*, and directly sometimes, *per* the Rixdollar between 4 and 5 Shillings Sterling Exchange.

Berlin gives to *Amsterdam* the Rixdollars of 30 Grosses, for 30 to 40 Stivers.

Or 118 to 130 Rixdollars of 30 Grosses, for 100 Rixdollars of 50 Stivers.

To *Hambourg*, 115 to 135 Rixdollars, for 100 Rixdollars of 48 Stivers.

To *Augsbourg* and *Nuremberg*, 100 Ditto, for 98 to 105 Rixdollars of 90 Cruitzers.

To *Breslaw*, 90 to 96 Rixdollars, for 100 Rixdollars of *Breslaw*.

To *Switzerland*, 128 to 130 Rixdollars, for 100 Rixdollars.

A Pound Sterling in Exchange is worth between 4 and 5 Rixdollars of 30 Grosses.

BREMEN.

Bremen is an Archbishoprick which belongs to the King of *England*, as Duke of *Hanover*, situated on the *Weser*, fifteen Leagues Distance from the *German* Ocean, between *Hambourg* and *Embden*. The Rixdollars are reckon'd there at 48 Sols Lubs, or 72 Grosses.

Bremen changes with *Amsterdam* by the aforesaid Rixdollars, for Rixdollars of 50 Sols current Money, from 115 to 130 Rixdollars, of 72 Grosses, for 100 Rixdollars of 50 Sols.

Therefore suppose it should be wanted to change from *Bremen* on *Amsterdam* 343 Rixdollars $14\frac{2}{5}$ Grosses, at the Rate of 120 Rixdollars of 48 Sols, (or of 3 Marks, or of 72 Grosses Lubs, the Mark of 24 Grosses) for 100 Rixdollars of 50 Sols current Money of *Amsterdam*; to know how much must be received at *Amsterdam*, we'll say,

If 120 Rix. of 72 Grosses, give 100 Rix. of 50 Sols; how many will give 343 Rix. $14\frac{2}{5}$ Grosses, of 72 Grosses?

The Product will be, 286 Rix. of 50 Sols.

After we have multiplied the 345 Rix. by 100, we must likewise multiply the 14 Grosses by 100, and divide the Product by 72 Grosses, (Value of the Rixdollar) there will arise 20, which must be added to the Product of the 343 multiplied by 100, and divide the whole by 120, to have, as above, 286 Rixdollars to receive at *Amsterdam*.

EMBDEN.

The Rixdollars of *Embden* are at the Rate of 54 Sols, or of 2 Florins 14 Sols, current Money; and that Place changes on *Amsterdam*, in giving from 120 to 140 Rixdollars aforesaid for 100 Rixdollars of 50 Sols current Money; and they change, likewise, sometimes, in Florins, at 30 to 35 *per Cent.* Difference.

Suppose one should want to change upon *Amsterdam* 500 Rixdollars of 54 Sols, at the Rate of 125 Rixdollars aforesaid for 100 Rixdollars of 50 Sols current of *Amsterdam*, or 1350 Flor. of 20 Sols of *Embden*, at the Rate of 135 Flor. of this last Place, for 100 Flor. current of *Amsterdam*; he must say, by the Rule of Three,

If 125 Rix. of 54 Sols, give 100 Rix. of 50 Sols; how many will give 1350 Flor. of 54 Sols?

The Product will be, 400 Rix. of 50 Sols.

If 135 Flor. of 20 Sols, give 100 Flor. of 20 Sols; how many will give 1350 Flor. of 20 Sols?

The Product will be, 1000 Flor. of 20 Sols current at *Amsterdam*.

Of the Exchanges *of* Sweden, *or* Stockholm.

STOCKHOLM is the Capital of *Sweden*, as its Port is the most famous, and most frequented, of that Kingdom. There are, notwithstanding, other very good Ports and Towns along the Coast of *Sweden*, which is watered on one Side by the *Baltick*, and on the other by the Gulph of *Bothnia*; but the Inhabitants traffick only with Barks, which serve to carry their Commodities to *Stockholm*, and to bring back what they want: So that there are but *Riga* and *Revel* which are privileged.

Riga is between *Livonia*, a Province of *Sweden*, and *Courland*, a Province of *Poland*.

Revel is likewise in *Livonia*, on the Frontiers of *Muscovy*, and on the Gulph of *Finland*. They trade with *Poland* by *Riga*, and with *Muscovy* by *Revel*.

Sweden, or *Stockholm*, changes upon *Amsterdam*, in giving from 20 to 24 Marks for 1 Rixdollar of 50 Sols current, or $83\frac{1}{3}$ Rixdollars 24 Marks, at 100 Rixdollars

lars alſo of 24 Marks, for 100 Rixdollars of 50 Sols current. Therefore ſuppoſe one would remit to *Stockholm* upon *Amſterdam* 34500 Marks, at the Rate of 23 Marks for 1 Rixdollar of 50 Sols; it muſt be done as above, by the Rule of Three; ſaying,

If 23 Marks give 1 Rixdollar of 50 Sols; how many will give 34500 Marks?

The Product will be, 1500 Rixdollars of 50 Sols.

The current Prices of Exchanges of Denmark *or* Copenhagen, *and* Norway.

Theſe Places exchange with *Hambourg* at the reciprocal Uſance of eight Days Sight, and give 14 *per Cent* more or leſs *Agio* to be paid in *Daniſh* Crowns for Rixdollars in *Hambourg*, to

Amſterdam, more or leſs than 10 *per Cent. Agio*, in *Daniſh* Crowns for the Rixdollars of *Amſterdam*.

France, 82 more or leſs Rixdollars in *Daniſh* Crowns, for 100 Ecu's of 60 Sols *Tournois*.

London, they give between 4 and 5 Rixdollars in *Daniſh* Crowns for 1 Pound of 20 Shillings *Sterling*; or *London* gives between 4 and 5 Shillings *Sterling* for the Rixdollar.

Leipſick, 84 more or leſs Rixdollars in *Daniſh* Crowns for 100 Rixdollars of New 2 3ds of *Leipſick*.

Note, That they make all their Payments in *Daniſh* Crowns, and value their Exchanges by the Rixdollar. From this it is plain, that in *Denmark* and *Norway*, they keep their Accounts in *Daniſh* Crowns, Marks, and Shillings, reckoning 4 Marks to a Crown, and 16 Shillings to a Mark.

Changes of Stetin *in* Pomerania.

STETIN is one of the faireſt, and greateſt of the Hanſe Towns, Capital of *Pomerania*, divided into two unequal Parts by the *Oder*, and 18 Leagues diſtant from the principal Port, where there is a very fine Road. Ships go up by 9 or 10 Foot Water, as far as *Stenwet*, diſtant 2 Leagues from the Road, where they load and unload; or at *Wolgaſt* which is two Leagues further.

A Rixdollar is reckoned in this Dutchy at 36 Stivers Lubs.

Draughts and Remittances between *Stetin* and *Amſterdam* are commonly made by Rixdollars of 36 Stivers Lubs, for the Rixdollars of 50 Stivers in *Amſterdam*, at 1 to 5 *per Cent*. Loſs to *Stetin*.

Exchanges of Bolzano.

This Place has very great Dealings in Exchanges with ſeveral Parts of *Germany*, *France*, *Italy*, and *Switzerland*, and very great Fairs are kept there for Exchange.

The moſt conſiderable Money is *German* Dollars and Rixdollars. Their Rixdollars are of two Sorts, *viz.* of 93 Cruitzers and 90 Cruitzers; and there is but a very ſmall Difference between their Dollars and the Dollars of Exchange of *Francfort*: They likewiſe make uſe of the Florin of 60 Cruitzers.

They exchange in four different Manners with moſt of the conſiderable Towns in *Italy*, *Germany*, *France*, *Switzerland*, &c. for they give to

Lions, 80 to 90 Cruitzers, for 1 Crown of 60 Sols *Tournois*.

Florence, 115 to 120 Cruitzers for 1 Crown of $7\frac{1}{2}$ Lires.

Francfort, *Augsbourg*, and *Nuremberg*, } 95 to 98 Rixdollars for 100 Rixdollars of thoſe Places.

Bergam, the Rixdollar of 93 Cruitzers, for 150 to 170 Soldi.

Bologn, the Florin of 60 Cruitzers, for 55 to 79 Soldi.

Venice, the Florin of 93 Cruitzers, for 130 to 140 Soldi Banco.

Ancona, the Florin of 60 Cruitzers, for 55 to 60 Bayoks.

St. Gall, 100 Florins of 60 Cruitzers, for 110 to 115 Florins.

Exchanges of Archangel *and* Peterſburgh *in* Muſcovy.

ARCHANGEL is a conſiderable Port in *Muſcovy*, on the River *Wina*, which diſembogues into the *White Sea*, at 7 or 8 Leagues from the Town. There has formerly been kept here a conſiderable Market or Fair every Year, which uſually begun in the Month of *September*, and terminated in the Month of *December*; but ſince the Trade is removed with the Merchants to *Peterſburgh*, the Fair is removed thither: However, the uſual Way of Dealing in theſe Fairs was commonly by way of Truck, or bartering one Country Goods for another; and ſometimes Goods were bought for part Money, and part Goods: And this uſually was obſerved among the Merchants; thoſe that had Money to ſpare in the Fair Times, were ſure to make greater Advantages by it than could be made at any other Time, by reaſon the *Agio's* were conſiderable higher at thoſe Times, between that Place, *Amſterdam*, and *Hambourg*, than it was at other Seaſons in the Year.

Ruſſia gives to *Hambourg*, the Rouble for the Rixdollar of 48 Stivers Lubs.

And to *Amſterdam*, the ſame for the Rixdollar of 50 Stivers.

Ruſſia exchanges with *London* generally by Bills upon *Amſterdam* or *Hambourg*; but when they exchange directly with *London*, the Exchange runs between 4 and 5 Shillings Sterling, *per* Rouble.

Exchanges of Geneva *upon the Principal Places of* Europe.

GENEVA, a City of the antient *Allobroges*, on the Frontiers of *Savoy*, is ſituated on the *Rhoſne*, at the Extremity of the Lake *Leman*; it is a ſort of Commonwealth.

The current Monies of *Geneva*, are, the Rixdollar, worth 10 Flor. 6 Sols; the *Spaniſh* Piſtole, worth 38 Flor. 6 Sols; the Piſtole of *Italy*, worth 37 Flor. 6 Sols; the Croizat of *Genoa*, worth 15 Flor. 6 Sols; the Ducatoon of *Milan* or *Savoy*, worth 12 Florins 6 Sols; the Florin, worth 12 S. or 6 Sols of *France*; the Sol, worth 12 Deniers.

The ſmall Money of *Geneva* differs from that of *Switzerland* and *France* of 5 *per Cent.* for 40 Sols of *Geneva*, or $3\frac{1}{2}$ Florins, make 10 Buts of *Switzerland*, and 20 Sols *Tournois*; i. e. that the Florin of 12 Sols make but 5 Sols, $8\frac{4}{7}$ Deniers *Tournois*; but notwithſtanding the ſaid Florin is reckoned as 6 Sols of *France*.

The foreign Monies current at *Geneva*, are, the old Louis d'Or of *France*, which are worth $11\frac{1}{4}$ Liv. of *France*; or $3\frac{3}{4}$ Ecu's; or 3 Bajoires; or 3 Ducatoons of *Holland*; the Ducatoons of *Holland* are worth $3\frac{3}{4}$ Livres of *France*; the Patagons or Talers, of *Burgundy* and *Germany*, 3 Liv. of *France*; the Ducatoons of *Venice*, $3\frac{2}{3}$ Liv. of *France*; the Croizats of *Genoa*, $4\frac{1}{2}$ Livres of *France*; the Piſtoles of *Italy*, which are thoſe of *Piedmont*, &c. 10 Liv. to 17 or 18 S. of *France*; the Ducats, 6 Liv. 2 to 3 Sols of *France*.

The Money of *Geneva* is worth 5 *per Cent.* leſs than that of *France*.

Geneva *upon* Holland *or* Amſterdam.

A Merchant of *Geneva* will draw upon or remit to *Holland*, or *Amſterdam*, $816\frac{2}{3}$ Crowns, at 90 Groots, for 1 Ecu of *Geneva*, how much is he to receive at that Place?

Multiply the ——— $816\frac{2}{3}$ Ecu's of *Geneva*,
By the Price of the Exchange at 90 Groots of the Bank, ———
The Product will be — 7595|0 Groots.
Take the $\frac{1}{4}$ to have — $1898\frac{3}{4}$ Florins of 20 Sols at *Amſterdam*.

Geneva *upon* Paris, Lyons, *&c.*

Geneva negotiates with *Paris*, *Lyons*, &c. for $1940\frac{1}{3}$ Ecu's, at 105 Ecu's of *France*, for 100 Ecu's, what muſt be received at *Paris*?

Say by the Rule of Three, If 100 Ecu's of *Geneva* make

make 105 Ecu's of *France*, how many will make 1904$\frac{16}{20}$ Ecu's of *Geneva?*

The Product will be 200000.

Divide the 200000 by 100, in taking off the two last Figures, and you'll have for Answer, that there must be received at *Paris* or *Lyons*, &c. 2000 Ecu's of 60 Sols *Tournois*.

Geneva *upon* Leghorn.

Geneva negotiates with *Leghorn* for 1224 Ecu's at 100 Piastres for 102 Ecu's, how much must they receive at *Leghorn?*

If 102 Ecu's of *Geneva* give 100 Piastres, how many give 1224 Ecu's of *Geneva?*

There will be 1200 Piastres to receive at *Leghorn*.

Geneva *upon* Genoa.

Geneva negotiates with *Genoa* 1545 Ecu's, at 100 Piasters for 103 Ecu's of *Geneva*; what should they receive at *Genoa?*

If 103 Ecu's of *Geneva* make 100 Piasters; how many will make 1545 Ecu's of *Geneva?*

There will be, 1500 Piasters to receive at *Genoa*.

Exchanges *of* Savoy *and* Piedmont.

SAVOY is a sovereign Dutchy in *Europe*, between *Piedmont* and the *Vallaix*, *Switzerland*, the *Rhosne*, *Dauphine*, and *Provence*.

PIEDMONT is a Principality of *Italy*, belonging to the Duke of *Savoy*, and *Turin* the Capital thereof.

In *Savoy* and *Piedmont* they make Use more commonly of the Gold and Silver Species of *France*, than those of *Savoy*; and in all Bargains, Purchases, Markets, *&c.* no other Species are mention'd but *Florins*, tho' they be imaginary ones.

The real and imaginary Monies of *Savoy* and *Piedmont*, are,

The *Madonines*, or Pistoles of *Savoy*, worth 13 Lires; the Ducatoons, worth 7 Flor. or 84 Sols; Ecu's of *Savoy*, worth 3 Lires 12 Sols; the Lires, worth 20 Soldi; the Soldi, worth 4 Quart. or 4 Liards. The Ecu of 3 Lires, or 3 Lires 12 Soldi, is worth 5 Sols of *Holland*, or 60 Sols of *France*.

Their Accounts are kept in *Lires*, *Soldi*, and *Quatrins*.

All Draughts and Remittances, from *Turin* upon *Holland*, or *Amsterdam*, are made by means of the Correspondencies of *Geneva*.

Suppose it should be wanted to draw upon, or remit to *Geneva* 1464 Ducatoons 24 Soldi of *Savoy*, at the Rate of 82 Soldi for 1 Ecu of *Geneva*. The 1464 Ducatoons 24 Soldi must be reduced into Soldi, in multiplying the Ducatoons by 84 Soldi, its Value.

The Product will be, with the 24 Soldi, 123000 Soldi of *Savoy*.

Divide the 123000 Soldi by the 82 Soldi of the Price of the Change, and you'll have 1500 Rixdollars (or Ecu's) to receive at *Geneva*, which are chang'd afterwards for *Holland*, according to the Change of *Geneva* upon *Amsterdam*.

One can draw directly from *Amsterdam* upon *Turin*.

The Exchanges *of* St. Gall.

ST. GALL is a Republick on the Frontiers of *Suabia*; the Prince is the Abbot of the celebrated Monastery of *St. Gall*, of the Order of St. *Benedict*.

The real Monies of *St. Gall*, are,

The Rixdollars of *St. Gall*, worth 102 Cruitzers, or 25$\frac{1}{2}$ Batz; the Florins, or Gouldens, worth 60 Cruitzers, or 15 Batz; the Shillings, worth 6 Cruitzers, or 1$\frac{1}{2}$ Batz; the good Batz, or Baches, worth 5 Cruitzers; the ordinary Batz, worth 4 Cruitzers; the Cruitzers, or $\frac{1}{4}$ of Batz, worth 4 Deniers.

The current Prices of the Exchanges of *St. Gall*, are,

For *Lyons*, 84 to 100 Cruitzers for 1 Ecu of 60 Sols.

Geneva, 102 to 106 Cruitzers for 1 Ecu of the same Value.

Milan, 16 to 20 Cruitzers for 1 Livre of *Milan*.

Augsbourg, 110 to 115 Florins for 100 Florins of *Augsbourg*.

Bolzano, 110 to 115 Florins for 100 Florins of *Bolzano*.

Nuremberg, 110 to 115 Florins for 100 Florins of *Nuremberg*.

Vienna, 80 to 115 Florins for 100 Florins of *Vienna*.

Venice, 160 to 170 Florins for 100 Ducats Banco of *Venice*.

Genoa, 20 to 24 Cruitzers for 1 Livre of *Genoa*.

Frankfort, 112 to 115 Florins for 100 Dales of 74 X of Exchange.

They keep their Accounts in *Florins*, *Cruitzers*, and *Deniers*.

120 Cruitzers, or 30 Batz, are at the *Par* of 50 Sols of *Holland*, or 60 Sols *Tournois* of *France*.

St. Gall negotiates with *Lyons* for 2730 Florins 12 Cruitzers, at the Rate of 93$\frac{1}{2}$ Cruitzers for 1 Ecu of 60 Sols *Tournois*; to know how much he is to receive at *Lyons?*

Reduce into Cruitzers the		2730 Florins 12 Cruitzers,
In multiplying them by	—	60 Cruitzers, adding the 12 X;
The Product will be	—	163812 Cruitzers, at 93$\frac{1}{2}$ X for 1 Ecu.
Reduce them into $\frac{1}{2}$ X	—	2
You'll have	—	327624 to be divided by 187 Half Cruitzers.

Divide the 327624 by 187, and you'll have 1752 Ecu's of 60 Sols to receive at *Lyons*.

They follow, yet, the *Old Style*, at *St. Gall*.

Exchanges *of* Vienna *in* Austria.

The real Monies of VIENNA in *Austria*, are,

The Louis d'Or of *France*, worth 7 Florins, 30 Cruitzers; the *Spanish* Pistoles, worth 7 Flo. 30 Cruit. the Sequins of *Venice*, worth 4 Flo. 15 Cruit. the Gold Ducats, Imperial, and others, worth 4 Flo. the Gold Ducats of *Bavaria*, worth 3 Flo. 30 Cruit. the Crowns of *Venice*, worth 2 Flo. 18 Cruit. the Rixdollars in Species, worth 2 Flo. the Rixdollars imaginary Money, worth 1 Flo. 30 Cruit. the Florins, at present an imaginary Money, worth 60 Cruit. the 17 Cruitzers, real Money, which were worth formerly 15 X, at present 17 Cruit. the 7 X real Money, worth formerly 6 X, at present 7 Cruit. the Sols, or Shillings, 7 X 2 D; the Grosses, worth 3 Cruit. 12 D; the Patres, worth 4 Cruit. the Half Patres, worth 2 Cruit. the Cruitzers, worth 4 Den. the Half Cruitzers, worth 2 Den. the Fenins, worth 1 Den. the Dreyers, worth 3 Den.

The current Prices of Exchanges of *Vienna*, are as follow, *viz.*

Upon *Lyons*, 95 to 98 Rixdollars of 90 Cruitzers, for 100 Ecu's of 60 Sols.

Frankfort, 95 to 98 Rix. Ditto, for 100 Rix.

Nuremberg, 100 Rix. Ditto, for 95 to 100 Rix.

Augsbourg, 100 Rix. Ditto, for 95 to 100 Rix.

Venice, 100 to 98 Rix. Ditto, for 100 Ducats Banco.

St. Gall, 100 Flo. of 60 X, for 105 to 110 Flo.

Their Accounts are commonly kept in *Florins*, *Cruitzers*, and *Fenins*.

Exchanges *of* Italy, *and all the* Mediterranean.

Exchanges *of* VENICE.

VENICE is a very considerable Republick in *Italy*, which has subsisted for twelve hundred Years past.

There are two Banks in *Venice*; in the one, Payments are made in current Money; and in the other only in Bank Money; the latter being better than the former, according to the Decree of the Senate 20 *per Cent.* which is the establish'd *Agio*.

The latter of these two Banks, which pays only in Bank Money, is one of the most considerable in *Europe*, having a Fund of five millions of Ducats deposited by the Subjects into the Hands of the Republick, who

who are Sureties for the ſame, and pay the Salaries of all the Book-keepers, Caſhiers, and other Officers, for whoſe Honeſty and Care the Republick ſtands engaged, and make Reſtitution of all the Monies or Sums to the Bank, which may happen to be loſt by fraudulent Practices, or may otherwiſe be embezzell'd by the Miſmanagement of the Officers.

This Bank is ſhut up four Times in the Year, to wit, on the twentieth of *March*, the twentieth of *June*, the twentieth of *September*, and the twentieth of *December*; and remains twenty Days ſhut every Time. During the ſhutting, it is no Impediment in Trade, by reaſon the Merchants may negotiate and diſpoſe of Sums in Bank upon the Exchange, as well as when it is open: And it is likewiſe ſhut every *Friday*, to ballance the Books, unleſs there be a Holiday in the Week. It is alſo ſhut for eight or ten Days at *Shrovetide*, and the *Paſſion Week*.

The Value of Bills of Exchange drawn upon other Places, and for Fairs, are commonly paid in Bank Money.

No endorſed Bills of Exchange can be paid in Bank, but the Perſon in whoſe Favour a Bill is drawn upon the Bank of *Venice* muſt ſend a Procuration to receive the Money for him, or elſe muſt get the Bills drawn in his Correſpondent's Name.

Bills of Exchange payable in Bank, are not to be proteſted while the Bank is ſhut, nor till the ſixth Day after it is open'd.

Notwithſtanding what has been ſaid before, in Relation to endorſed Bills, it ſeems the Bankers of *Venice* have found a Way to evade the Law relating thereto, the Procuration being only a Trick of theirs to take in their Proviſions. However, to prevent the Loſs of Time, Damages in returning, *&c.* the ſureſt Way is, to let the Bills be drawn payable to ſuch Perſons you intend to ſend them to.

They keep their Accounts in ſeveral different Manners, at *Venice*; for there are Merchants, or Bankers, who keep them by Livres, Sols, and Deniers Gros; others by Ducats Banco, and Ducats current; but the Republick keep them by Ducats and Groſſes.

Venice gives to

London, 1 Ducat, for 55 to 60 *d.* Sterling.

France, 90 to 105 Duc. for 100 Ecu's of 60 Sols *Tournois*.

Spain, 1 Duc. for 380 to 400 Maravedi's.

Holland, *Brabant*, and *Hambourg*, 1 Duc. for 90 to 100 Groots.

Novi, 180 to 190 Duc. for 100 Ecu's of Mark.

Genoa, 100 to 124 Soldi, for 1 Ecu of 4 Lires.

Milan, 150 to 200 Soldi, for 1 Ducat of 115 Soldi.

Naples, 100 Duc. for 90 to 100 Ducats of 10 Carlins.

Rome, 100 Duc. for 50 to 80 Crowns of Stamp.

Florence, 100 Duc. for 70 to 80 Crowns of $7\frac{1}{2}$ Lires.

Leghorn, 100 Duc. for 95 to 100 Piaſters of 6 Lires.

Lucca, 100 Duc. for 80 to 85 Crowns of $7\frac{1}{2}$ Lires.

Frankfort, 100 Duc. for 120 to 124 Flo. of 60 Cruitzers.

Nuremberg, 100 Duc. for 140 to 150 Flo. of 60 Cruit.

St. Gall, 100 Duc. for 150 to 170 Flo. of 60 Cruit.

Venice *upon* London.

Venice negotiates with *London* for $1500\frac{1}{2}$ Ducats, at 62 *d.* Sterling *per* Ducat; to know what muſt be receiv'd in *London*.

Multiply the ———— $1500\frac{1}{2}$ Ducats Banco, of 24 Groſſes,
By the Price of the Change, at 62 *d.* Sterling;

The Product will be —— 93031 *d.* or Pence Sterling.

Divide the 93031 Pence Sterling by 240 Pence, (Value of the Pound Sterling) multiplying what remains of the firſt Diviſion by 20, and of the ſecond by 12 Pence Sterling, dividing the Product by 240; the Anſwer will be, that there ſhould be received in *London*, 387 *l.* 12 *s.* 7 *d.* Sterling.

Venice *upon* France.

Venice negotiates with *Paris*, *Lyons*, &c. for 1030 Ducats, at 103 Ducats for 100 Ecu's of 60 Sols *Tournois*; to know what muſt be receiv'd at *Paris*, *Lyons*, *&c.* ſay,

If 103 Ducats give but 100 Ecu's, how many will give 1030 Ducats?

The Anſwer is, that 1000 Ecu's, of 60 Sols *Tournois*, ſhould be receiv'd at *Paris*.

Venice *upon* Amſterdam, *or* Brabant.

A Merchant of *Venice* will draw upon, or remit to *Amſterdam*, *Antwerp*, &c. $1235\frac{1}{2}$ Ducats, at 90 Groots for 1 Ducat; what muſt he receive at *Amſterdam*, *Antwerp*, &c.

Multiply the ———— $1235\frac{1}{2}$ Ducats Banco, of 24 Groſſes,
By the Price of the Change, at 90 Groots;

The Product will be —— 11119|5 Groots.
Cut off the 5, and take $\frac{1}{4}$, to have 2779 Flor. $17\frac{1}{2}$ S. Banco to receive at *Amſterdam*.
Take the $\frac{1}{6}$, to have —— 460 Liv. $6\frac{1}{3}$ Stivers of Exchange at *Antwerp*, &c.

Venice *upon* Hambourg.

Venice negotiates with *Hambourg* for 888 Ducats, 17 S. $9\frac{1}{3}$ D. at 90 Deniers for 1 Ducat; what ſhould be the Sum to be receiv'd at *Hambourg*?

Multiply the ———— 888 Ducats, 17 S. $9\frac{1}{3}$ D. Bank,
By the Price of the Change, at 90 Deniers;

The Product will be —— 80000 Groſſes, to be divided by 32 Groſſes.
Or take the $\frac{1}{4}$, which is — 20000
Again the $\frac{1}{4}$, which is — 5000
Then the $\frac{1}{2}$, to have —— 2500 Marks of 16 Stivers Lubs of the Bank, to receive at *Hambourg*.

Venice *upon* Spain.

Venice negotiates with *Seville*, *Cadiz*, &c. for $961\frac{1}{2}$ Ducats, at 390 Maravedi's for 1 Ducat; what is the Sum to be receiv'd at thoſe Places?

Multiply the ———— $961\frac{1}{2}$ of the Bank, of 24 Groſſes,
By the Price of the Change, at 390 Maravedi's;

The Product will be —— 374920 Maravedi's, to be divided by 375 Maravedi's.

The Anſwer is, that the Sum to be receiv'd is 999 Ducats of 295 Maravedi's.

Venice *upon* Novi.

A Merchant of *Venice* remits to *Novi* $2312\frac{1}{2}$ Ducats at 185 Duc. for 100 Ecu's; to know what he is to receive at *Novi*, ſay,

If 185 Ducats give but 100 Ecu's Mark; how many will $2312\frac{1}{2}$ Ducats?

The Anſwer is, that he is to receive at *Novi* 1250 Ecu's Mark.

Venice *upon* Genoa.

Venice negotiates with *Genoa* for 960 Ducats, at 110 S. for 1 Ecu of 4 Lires; what is the Sum to be receiv'd at *Genoa*?

Multiply the 96 Ducats of Bank, of 24 Groſſes,
By ———— 124 *Venetian* Soldi, Value of the Ducat;

The Product is 119040 Soldi of the Bank, to be divided by 110 S. of *Venice*.

The Anſwer will be, that there ſhould be receiv'd at *Genoa* $1082\frac{2}{11}$ Crowns of 4 Lires.

Venice *upon* Milan.

A Merchant of *Venice* remits to *Milan* 1260 Duc. at 160 *Venetian* Soldi for 1 Duc. of 115 Soldi; what muſt he receive at *Milan*?

Multiply

Multiply the —— 1260 Ducats of 24 Gros.
By —— 124 *Venetian* Soldi, Value of the Ducat.
The Product will be 156240 Soldi of the Bank, to be divided by 160 Soldi of *Venice*.

And the Answer is, That the Merchant is to receive at *Milan*—976½ Ducats of 15 imperial Soldi.

Venice *upon* Naples.

Venice negotiates with *Naples* for 686¾ Duc. at 96 Duc. of 10 Carlins, what are they to receive at *Naples?*

Multiply the — 686¾ of the Bank of 24 Gros.
By the Price of the Change at 96 Ducats of 10 Carlins.

The Product	Ducats	659	28
			10 Carlins
	Carlins	2	80
			10 Grains
	Grains	8	00

to receive at *Naples*.

Venice *upon* Rome.

VENICE negociates with *Rome* for 600 Ducats 65½ Ecu's stamp, to know what must be received at *Rome*; say,

If 100 Bank Ducats——give 65½ stamp Ecu's—— how many 600 Bank Ducats?

The Answer is 393 Ecu's, to receive at *Rome*.

Venice *upon* Florence.

Venice negotiates with *Florence* for 2500 Ducats, at 8½ Ecu's of 7½ Lires, to know what, *&c.* to receive at *Florence*; say,

If 100 Bank Ducats—give 81½ Ecu's of 7½ Lires—how many 2500 Bank Ducats?

The Answer is 2037½ to receive at *Florence*.

Venice *upon* Leghorn.

Venice negotiates with *Leghorn* for 968½ Ducats at 96 Piastres of 6 Lires, to know what Sum must be received at *Leghorn*; say,

If 100 Bank Ducats—give 96 Piastres of 6 Lires—how many 968½ Bank Ducats?

The Answer is 929½½ Piastres of 6 Lires to receive at *Leghorn*.

Venice *upon* Lucca.

A Merchant of *Venice* remits to *Lucca*, 490 Ducats, at 80 Ecu's of 7½ Lires, to know what he must receive at *Lucca*; say,

If 100 Bank Ducats—give 80 Ecu's of 7½ Lires—how many 490 Bank Ducats?

The Answer is 392 Ecu's of 7½ Lires, to receive at *Lucca*.

Venice *upon* Frankfort.

Venice negotiates with *Frankfort* with 2000 Ducats at 120 Flor. of 60 X. to know what Sum must be received at *Frankfort*; say,

If 100 Bank Ducats—give 120 Flor. of 60 X. Exchange—how many 2000 Bank Ducats?

The Answer is 2400 Flor. of 60 X of Exchange to receive at *Frankfort*.

Venice *upon* Nuremberg.

Venice negotiates upon *Nuremberg* for 2000 Ducats, at 148 Flor. of 60 X current, to know what Sum must be received at *Frankfort*; say,

If 100 Bank Ducats—give 140 Flor. of 60 X current—how many 2000 Bank Ducats?

The Answer is 2960 Flor. of 60 X current, to receive at *Nuremberg*.

Venice *upon St.* Gall.

Venice negotiates with St. *Gall* for 1500 Ducats at 160 Florins of 60 X current, to know what Sum must be received at *St. Gall*; say,

If 100 Bank Ducats—give 160 Flor. of 60 X current—how many 1500 Bank Ducats?

The Answer will be 2400 Flor. of 60 X current to receive at *St. Gall*.

Exchanges of Rome *upon the principal Places of* Europe.

ROME is the Capital of *Italy*, and once of a most famous Empire, and of the finest Part of the Universe; by its Magnificence, Antiquities, and the great Number of curious Things to be seen there, it is esteemed one of the fairest Cities of the whole World.—*Rome* is situated on the *Tiber*.

When there is any Exchange made at *Rome*, the Banker who furnishes the Bill of Exchange, receives its Value, in calculating the stamp Crown, at the Rate of 1523 half Quatrins, 5 whereof make 1 Bayock, so that the 1523 half Quatrins make up 761½ Quatrins, which make up 15 Jules, 2 Bayocks, 1½ Quatrins.

But when a Bill of Exchange drawn upon somebody is paid, the Bearer does not receive the Value thereof otherwise than by calculating 1525 half Quatrins for every Ecu of stamp, which produces on 100 Ecu's 2 *Jules* Profit.

Rome gives to *London*, the *Suedi Moneta*, or Crown of 10 *Jules*, which is reckoned to be worth above 5 Shillings *6d Sterling*, for between 55d to 65*d*, *Sterling*.

To *Genoa* ditto, for 115 to 125 Soldi.

To *Bergham* ditto, for 170 to 190 Soldi.

To *Bologne* ditto, for 95 to 100 Soldi.

To *Ancona* 100 ditto, for 99 to 100 Crowns.

To the following Places they give the Crown in Gold or half Pistole valued at 15 Jules or 15 Jules ½, this *Agio* being between the taking up of Bills of Exchange at *Rome* for other Places, and the receiving of the Money for Bills when they shall become due at *Rome*, which is commonly between 2 and 3 Jules in 100 Crowns of Gold, or 2 or 3 Bayocks *per* Crown.

Rome gives

To *Spain*, 1 Crown for 360 to 400 Maravedi's.

Bolsam, 1 ditto for 155 to 170 Cruitzers.

Naples, 100 ditto for 120 to 124 Ducats.

France, 30 to be ditto for 100 Ecu's of 60 Sols *Tournois*.

Venice, 50 to 83 ditto, for 100 Ducats Banco.

Leghorn, 80 to 90 ditto, for 100 Pezzo's of 7 Lires.

Novi, 98 to 104 ditto, for 100 Crowns *Novi*.

Lucca, 100 ditto, for 90 to 95 Crowns 7 Lires ½.

The half Pistole of Crown Gold is reckoned to be worth between 8 and 9 Shillings *Sterling*.

Exchanges of Bergam.

Bergam gives to *Novi*, 200 to 220 Crowns for 100 Crowns of *Novi*.

To *Milan* 180 to 190 Soldi's, for 1 Ducat of 115 Soldi.

To *Lyons*, 120 to 130 Soldi, for 1 Ecu *Tournois*.

To *Rome*, 170 to 190 Soldi, for 1 Crown of 10 Jules.

To *Venice*, 1 Crown of 7 Lires for 115 to 120 *Venetian* Soldi.

In *Bergam* they keep their Books and Accounts in Lires, Soldi, and Deniers, reckoning 20 Soldi's to a Lire, and 12 Deniers to a Soldi.

The current Prices of the Exchange of Ancona.

ANCONA gives to *Venice*, 80 to 100 Crowns for 100 Ducats *Banco*.

To *Florence*, 100 to 115 ditto, for 100 Crowns of 7 Lires and ½.

To *Rome*, 99 to 102 ditto, for 100 Crowns of 10 Jules.

To *Novi*, 150 to 160 ditto, for 100 Crowns of *Novi*.

To *Bologne*, 95 to 98 ditto, for 100 Crowns of *Bologne*.

The Difference between the Money of Exchange, and the current Money is according to the Quality of the Specie they make their Payment in.

Exchanges *of* FLORENCE.

FLORENCE, a City of *Italy*, Capital of *Tuscany*, is situated on the River *Arno*, which divides it into two unequal Parts, join'd together by four very large Stone Bridges: It is rank'd among the greatest Cities of *Italy*, having very near 6 Miles Circuit.

The Usances are reckon'd at *Florence* on the following Places, *viz.*

Upon

Upon *Antwerp*, of 2 Months Date.
London, of 3 Months.
Spain, of 2 and 3 Months.
Lyons, at the Fairs and Payments.
Rome, at 10 Days Sight.
Naples, 20 Days Date.
Venice, 20 Days Date.
Novi, at the Fairs.

The real Monies of *Florence*, or *Tuscany*, are,

The *Pistole* of *Florence*, valued at 20 Lires, or 30 Jules; but Merchants make it pass sometimes for 21 Lires, or 31½ Jules.

The *Ducat*, *Crown*, or *Pezzo*, valued at 7 Lires.

The *Spanish Pezzo*, at 5 Lires, or 15 Soldi; which passes current among Merchants for 6 Lires.

The *Testoon*, at 2 Lires, or 3 Jules.

The *Jule* of 8 Grains, at 40 Quatrins.

The *Lira*, or *Livre*, at 20 Soldi, or 1½ Jule.

The *Quilo*, at 13 Soldi, 4 Deniers, which is in the same Proportion the Part of a Lire, as a Mark of 13 Shillings and 4 Pence is of a Pound Sterling.

The *Grace* is 1 Soldo, 2 3ds or 5 Quatrins.

Twelve *Graces* make 20 Soldi.

The *Imaginary Soldo* is worth 3 Quatrins.

The *Black Quatrin* is 1 Double.

60 Quatrins make up 20 Soldi.

The *Graces* are of Silver mix'd with Copper; and the *Quatrins* of base Alloy: These two Sorts of Monies serve to pay the Merchandizes bought daily in the Shops.

The Books and Accounts are kept at *Florence*, by *Crowns*, *Sols*, and *Gold Deniers* of 7½ Lires.

They are summed up by 12 and 20; because 20 Deniers make the Sol, and 20 Sols the Gold Crown. Some keep their Books by Piasters, which are call'd Crowns.

Florence (in Exchange) gives to

London, 1 Crown of 7½ Lires, for 55 *d.* to 75 *d.* Sterling.

Spain, 1 Ditto, for 400 to 430 Maravedi's.

Portugal, 1 Ditto, for 600 to 750 Rees.

Milan, 1 Ditto, for 100 to 130 Sols of the Empire.

Palermo and *Messina*, 1 Ditto, for 20 to 30 Carlins.

France, 50 to 70 Ditto, for 100 Ecu's *Tournois*.

Novi, 120 to 140 Ditto, for 100 Crowns of *Novi*.

Venice, 50 to 80 Ditto, for 100 Ducats Banco.

Naples, 100 Ditto, for 115 to 130 Ducats.

Leghorn, 115 to 120 Soldi, for 1 Pezzo of 6 Lires.

Lucca, 100 Ditto, for 100 to 110 Crowns of 7½ Lires.

Rome, 100 Ditto, for 70 to 90 *Roman* Crowns.

Florence exchanges with *Amsterdam*, *Antwerp*, and *Genoa*, in the same Manner as *Leghorn* does upon the said Places.

Exchanges *of* Leghorn.

LEGHORN, call'd, in the Language of the Country, *Livorno*, a famous Port of *Italy*, in *Tuscany*, 5 Leagues distant from *Florence*, where almost all the Vessels of all Nations, which sail for the *Levant*, cast Anchor to take in fresh Provisions, or Bills of Exchange, or Money, for *Alexandria*, *Cairo*, *Smyrna*, *Aleppo*, and other Places of the *Levant*, as Piasters, or Pieces of 8 Reals; because they are current in all the aforesaid Places; which is the Reason why they are sometimes purchased at 2 or 3 Sols above their just Value.

The Usances, as well as the Money of *Leghorn*, are the same as those of *Florence*.

Leghorn (in Exchange) gives to

Holland, the *Pezzo* of 6 Lires, for 85 to 100 Groots.

London, Ditto, for 43 to 78 *d.* Sterling.

France, Ditto, for 70 to 80 Sols *Tournois*, or 60 to 80 Pezzo's for 100 Ecu's *Tournois*.

Portugal, the Pezzo for 600 to 750 Rees.

Florence, the Pezzo for 115 to 120 Soldi.

Genoa, 100 Pezzo's for 105 Pezzo's of *Genoa*, or 1 Pezzo for 100 to 105 Soldi.

Venice, 93 to 100 Pezzo's for 100 Ducats Banco.

Naples, 100 Pezzo's for 112 to 115 Ducats of 5 Turins.

Novi, 180 to 190 Pezzo's for the 100 Crowns Mark.

Rome, 100 Pezzo's for 80 to 90 Crowns of Gold.

Geneva, 100 Pezzo's for 100 to 105 Crowns of *Geneva*.

Leghorn exchanges with *Hambourg*, *Spain*, and *Marseilles*, the same Way as *Florence* does with the same Places, by giving Pezzo's, or Pieces of Eight, to receive the same Species at so much *per Cent*. Profit or Loss, according to the Demands or Occurrences in Trade.

Exchanges *of* Genoa.

GENOA, a City of *Italy*, on the *Mediterranean*, is the Capital of a small Country called the *State of the Republick of* Genoa. The Coast, or River of *Genoa*, extends itself from the *Var* to the *Magre*, which contains 160 Miles.

Genoa is the most trading City (except *Venice*) of all the others situated on the *Mediterranean* Sea. There are found there Merchants who keep a Correspondence with almost all Parts of the World.

There is a Bank at *Genoa* call'd the *Mont St. Bernard*, where the Pieces of 8 Reals of the Republick are put at 4 *per Cent*.

The Monies of *Genoa* are expressed, and Books are kept in *Lires*, *Soldi*, and *Deniers*; reckoning 12 Deniers to a Soldo, and 20 Soldi to a Lire; tho' some keep their Books in Pezzo's of 100 Soldi, and some keep their Accounts in Crowns Marks of Gold, dividing the Crown into 20 Parts, which they call Soldi, and the Soldi into 12 Parts, which they call Deniers of a Crown.

Genoa gives in Exchange to

London, the Pezzo of 5 Lires for 45 to 76 *d.* Sterling.

Holland, or *Brabant*, 1 Ditto for 90 to 100 Groots.

France, 100 Crowns Mark for 220 to 260 Ecu's *Tournois*, or the Pezzo for 70 to 90 Sols *Tournois*.

Spain, the Pezzo for 400 to 430 Maravedi's.

Portugal, Ditto for 600 to 750 Rees.

Venice, 1 Crown of 4 Lires for 100 to 125 Soldi.

Geneva, 100 Pezzo's for 101 to 135 Crowns.

Novi, 118 to 124 Ditto for 100 Crowns Mark.

Milan, 1 Crown of 4 Lires for 80 to 100 Imperial Soldi.

Rome, 115 to 125 Soldi for the Crown of 10 Jules.

Leghorn, 100 to 105 Pezzo's for 100 Ditto of *Leghorn*.

Naples, 68 to 92 Soldi for 1 Pezzo of 9 Carlins.

Exchanges *of* Novi.

NOVI is in the State of the Republick of *Genoa*, on the Confines of *Lombardy*. There are commonly kept the Fairs of *Genoa*, call'd, at present, the Fairs of *Novi*, which are four, kept regularly every Year. The first begins on the 1st of *February*, call'd the *Fair of the Purification*, or of *Candlemas*. The second begins the 2d of *May*, and is call'd the *Fair of Easter*. The third the 1st of *August*, call'd the *Fair of August*. And the fourth the 2d of *November*, call'd the *Fair of All Saints*.

Each Fair lasts 8 Days, and they are sometimes continued 2 or 3 Days longer, to facilitate the Affairs of Bankers and Merchants.

The Books and Accounts are kept, at *Novi*, in *Crowns*, *Sols*, and *Gold Deniers Mark*, which are summed up by 12 and 20, because 12 Deniers make 1 Sol, and 20 Sols 1 Crown Mark; which Crown Mark is imaginary, and is, notwithstanding, reckon'd to be worth Half a *Spanish* Pistole; because commonly 49½ make 100 Crowns Mark, which Crown never changes Price.

Novi exchanges with

Spain, 1 Crown Mark for 500 to 600 Maravedi's.

France, 100 Crowns Mark for 210 to 230 Ecu's *Tournois*.

Venice, 100 Ditto, for 118 to 190 Ducats.

Rome, 100 Ditto, for 98 to 104 Crowns of Gold.

Florence, 100 Ditto, for 100 to 104 Crowns of 7½ Lires.

Leghorn,

Leghorn, 100 Ditto, for 180 to 190 Pezzo's of 6 Lires.
Genoa, 100 Ditto, for 120 to 124 Pezzo's.
Milan, 1 Ditto, for 150 to 220 Soldi.
Lucca, 100 Ditto, for 140 to 160 Crowns, of 7½ Lires.
Naples, 100 Ditto, for 140 to 160 Ducats of 5 Tarins.
Palermo and *Messina*, 1 Ditto, for 15 to 30 Carlins.
Bologne, 100 Ditto, for 170 to 180 Crowns of 85 Soldi.
Bergam, 100 Ditto, for 250 to 290 Crowns of 7 Lires.
Ancona, 100 Ditto, for 150 to 160 Crowns of 7½ Lires.

Exchanges *of* Milan *on the principal Places of* Europe.

MILAN, a City of *Italy*, Capital of the Dutchy of the same Name, is one of the greatest in *Europe*, and carries on a very considerable *Commerce*.

Milan exchanges with
London, 1 Ducat for 55 to 67 *d.* Sterling.
Spain, 1 Ditto, for 400 to 450 Maravedi's.
Venice, 1 Ditto, for 150 to 200 Soldi.
France, 70 to 90 Soldi, for 1 Ecu *Tournois*.
Florence, 100 to 130 Soldi, for 1 Crown of 7½ Lires.
Genoa, 80 to 100 Soldi, for 1 Crown of 4 Lires.
Novi, 150 to 200 Soldi, for 1 Crown Mark.
Rome, 100 Ducats, for 80 to 90 Crowns Gold.

Exchanges *of* Lucca *on the principal Places of* Europe.

LUCCA is a Republick in the States of *Tuscany*, where the Crowns of Exchange are reckoned at 7 Lires 10 Soldi, the Lire at 20 Soldi, and the Soldo at 12 Deniers.

Lucca exchanges with
France, 40 to 70 Crowns of 7½ Lires, for 100 Ecu's *Tournois*.
Florence, 100 to 110 Ditto, for 100 Crowns of 7½ Lires of *Florence*.
Novi, 140 to 160 Crowns of 7½ Lires, for 100 Crowns Mark.
Rome, 90 to 95 Ditto, for 100 Crowns of Gold.
Venice, 80 to 85 Ditto, for 100 Ducats Banco.
Bologne, 1 Crown of 7½ Lires, for 100 to 110 Soldi of *Bologne*.

Exchanges *of* Bologne *with the principal Places of* Europe.

BOLOGNE, call'd the *Grassa*, because of the Fertility of its Soil, is one of the fairest Cities of *Italy*, where most of the Streets are border'd with Porches which support the Houses, and where the *Commerce* is very considerable.

There are several Mounts in *Bologne*, distinguish'd by *perpetual Mounts*, and *free Mounts*; these are Places where ready Cash is receiv'd, for which they give, at the *perpetual Mounts*, 7 or 8 *per Cent.* for a Year; and at the *free Mounts* 4 *per Cent.*

The current Species of *Bologne*, are, the
Spanish Pistoles, of 15½ Lires, or 310 Soldi, or Boligni's.
Italian Pistoles, of 15 Lires, or 300 Soldi, or Boligni's.
Sequin of *Venice*, of 9 Lires, or 180 Soldi, or Boligni's.
Hongor of Gold, of 8 Lires 10 Soldi, or 170 Soldi, or Boligni's.
Ducatoon of *Milan*, 5 Lires 2 Soldi, or 102 Soldi, or Boligni's.
Silver Crown of *Genoa*, 6 Lires 4 Soldi, or 124 Soldi, or Boligni's.
Pope's, or *Roman Crown*, 5 Lires, or 100 Soldi, or Boligni's.
Spanish Pezzo, or *Crown*, 4 Lires 5 Soldi, or 85 Soldi, or Boligni's.
Testoons, of 1 Lire 10 Soldi, or 30 Soldi, or Boligni's.
Jule, of 20 Quatrins, or 3 Soldi 13 *d.* or Boligni's.
Soldo, or *Boligni*, is valued at 6 Quatrins.
Bayock, is valued at the same of the *Soldo*, and is the same Thing.

The Books and Accounts are kept at *Bologne* in *Lires*, *Soldi*, and *Quatrins*; reckoning twenty Soldi to a Lire, and six Quatrins to a Soldo.

Bologne exchanges with
Venice, 1 Crown of 85 Boligni's or Soldi of *Bologne*, for 125 to 130 Soldi Banco of *Venice*.
France, 50 to 60 Boligni's for 1 Ecu of 6 Sols *Tournois*.
Rome, 95 to 100 Soldi or Boligni's, for the Crown of 10 Jules.
Novi, 170 to 180 Crowns of 85 Boligni's, for 100 Crowns Mark of *Novi*.
Lucca, 100 Crowns to 110 Boligni's or Soldi, for 1 Crown of 7½ Lires.
Florence, 100 to 105 Soldi for the Ducat, or Crown of 7 Lires.
Naples, 90 to 100 Ditto, for the Ducat of 10 Carlins.

Exchanges *of* Naples *on the principal Places of* Europe.

In NAPLES they commonly reckon by *Carlins*, as in *Holland* they do by Guilders or Florins, or in *Great Britain* by Pounds Sterling; and they keep their Accounts in *Ducats*, *Tarins*, and *Grains*; reckoning 5 Tarins to a Ducat, and 20 Grains to a Tarin.

The real Monies of *Naples* are, the
Spanish Pistole, valued at 33 Carlins.
Italian Pistole, valued at 30 Ditto.
Sequin, valued at 18 Ditto.
Gold Ducat, valued at 12 Ditto.
Gold Crown, valued at 13 Ditto.
Current Ducat, valued at 10 Ditto.
Current Crown, valued at 11 Ditto.
Spanish Pezzo, valued at 9 Ditto.
Tarin, valued at 2 Ditto.
Carlin, valued at 10 Grains.
Grain, valued at 3 Quatrins.

They give in Exchange, the
Gold Crown, of 13 Carlins.
A *Gold Ducat*, of 22 Ditto.
A *Current Crown*, of 11 Ditto.
A *Current Ducat*, of 10 Ditto.
A *Spanish Pezzo*, of 9 Ditto.

NAPLES exchanges with
Spain, the Ducat of 10 Carlins, for 380 to 400 Maravedi's.
Genoa, the Pezzo of 9 Carlins, for 60 to 90 Soldi.
Palermo, the Ducat of 10 Carlins, for 160 to 170 Ponti.
Leghorn, 112 to 115 Ditto, for 100 Piasters of 6 Lires.
Venice, 90 to 100 Ditto, for 100 Ducats Banco.
Florence, 115 to 130 Ditto, for 100 Crowns.
Rome, 120 to 124 Ditto, for 100 Crowns Gold.
Novi, 140 to 160 Ditto, for 100 Crowns Mark.
France, 70 to 100 Ditto, for 100 Ecu's *Tournois*.

Exchanges *of* Palermo *and* Messina, *on the principal Places of* Europe.

The real Monies, and those of Exchange, of *Palermo* and *Messina*, are, the
Ducat, worth 13 Tarins, or 26 Carlins.
Crown, current Gold and Silver, worth 12 Tarins, or 24 Carlins.
Piaster, current of *Sicily*, worth 10 Tarins, or 20 Carlins.
Spanish Piaster, worth 11 Tarins, or 22 Carlins.
Florin, worth 6 Tarins, or 12 Carlins.
Tarin, worth 2 Carlins, or 20 Grains.
Carlin, worth 10 Grains.
Ounce, imaginary Money, worth 30 Tarins, or 60 Carlins, or 20 Grains.
Grain, worth 6 Piccoli,
Eight Piccoli, worth 1 Ponti.

The Books and Accounts are kept by *Ounces*, *Tarins*, *Grains*,

Grains, and *Piccoli*, which they sum up by 30, by 20, and by 6, since the *Ounce* is worth, as we have observed already, 30 Tarins, the *Tarin* 20 Grains, and the *Grain* 6 *Piccoli*.

Palermo and *Messina* exchanges with,

Spain, 1 Florin of 6 Tarins, for 230 to 250 Maravedes.

Florence, 20 to 30 Carlins for 1 Crown of 7 Lires $\frac{1}{2}$.

Novi, 15 to 30 Carlins, for 1 Crown Mark.

Naples, 160 to 170 Ponti, for 1 Ducat of 5 Tarins.

Note, That *Palermo* and *Messina* exchange with one another at 10 *per Cent*. Profit or Loss acccording to the Course of the Exchange: And besides the abovementioned Places, the *Sicilians* do sometimes exchange with *London*, *Antwerp*, *Venice* and *Lyons*, by giving their Ducats of 13 Tarins, or their current Crowns of 12 Tarins, for a certain Quantity of the Money of these Places, according to the Course of the Exchange.

Island of Malta.

The celebrated *Island of Malta*, called anciently *Melita*, is situated on the *African* Sea, six Leagues or thereabouts, distant from *Sicily*, the Cape of *Passero*, being North of it. The Sea between both Places, is called the Channel of *Malta*.

There are two considerable Towns in the Island of *Malta*, *viz.* the *old Town*, or *Cevita Vecchia*, and that called *Malta*.——The *Maltese* have two Sorts of Money, one of *Silver*, and the other of *Copper*. When they treat or bargain for any Thing, it must always be expressed whether the Payment be in Silver Money or Brass Money; the Silver Money being worth more or less than 50 *per Cent*. more than the Brass Money; so that 100 Crowns of Silver are always worth 150 of Copper.

The real Species of the Island of *Malta*; are,

The *Italian Pistoles*, worth 58 Tarins.

The *Sequins* or *Ducats*, worth 32 Tarins.

The *Piastres*, Ecu, or Real of Otto, worth 16 Tarins.

The *Deci Tarini*, worth 10 Tarins.

The *Tarins*, worth 20 Grains.

The *Carlins*, worth 10 Grains.

The *Grains*, worth 6 Piccoli.

Exchanges *of* TURKEY.

CONSTANTINOPLE.

The foreign Monies current at *Constantinople*, are;

The *Venetian Sequin*, worth 280 Aspres.

The *Hongre*, worth 240 to 250 Aspres.

The *Pezzo* or *Piastre*, worth 108 to 110 Aspres.

Note, That this Pezzo, when of full Weight, passes in Exchange for Goods for 118 to 120 Aspres.

The *Caragrough*, a *German* Piece, worth 120 Aspres.

The *Dollars* of *Inspruck*, and several others, worth 115 Aspres.

The *Asselanis*, and *French* Ecu, worth 80 Aspres.

The *Alrass*, a *Polish* Money, worth 28 to 30 Aspres.

The *Turk*, a Piece of *Lorrain*, worth 38 to 40 Aspres.

The *Izelote*, a *German* Piece, worth 78 to 80 Aspres.

Note, That the *French* Pieces of 5 Sols used to pass formerly at *Constantinople* for 4 Sols 6 Deniers, and the 12 to make 1 Piastre Asselani, but they are no more current there, because of the vast Quantity of false ones which had been sent thither.

Of SMYRNA.

SMYRNA, by the *Turks* called *Ismir*, is situated in *Natolia* towards the *Archipelago*, and belongs to the *Ottoman* Empire; it is the most considerable of all the *Echelles* of the *Levant*, as well for its great Commerce as for the vast Number of Vessels from all Parts of *Europe*, which anchor there, but especially from *France*, *Italy*, *England* and *Holland*, besides the *Persian* Caravans.

The *French* Merchants carry ordinarily to *Smyrna*, *Sevilian* Piastres of a great Weight, which they buy at *Marseilles* 60 Sols 6 Deniers, or more, according as they are in want of them; because in considerable Payments they are weighed together, and every 150 Drachms, are reckoned 17 Piastres, which are 8 Drachms for a Piastre; and a Merchant would lose 4 or 5 *per Cent*. upon 8 Piastres.

Their current Money is the *Asselany* of 80 Aspres; but they have Pieces of Gold called Scherifts, worth 2 Pezzo's and $\frac{1}{2}$, or $2\frac{1}{2}$ Piastres.

Of ALEXANDRETTA, *or* SCANDAROON.

ALEXANDRETTA, by the *Turks* called *Scandaroon*, is a City of *Syria*, at the Extremity of the *Mediterranean Sea*, and is no otherwise considerable than because it is the Port nearest to *Aleppo*, where all Vessels anchor, though it be 25 Leagues distant from *Aleppo*.——All the Merchandizes unloaded at *Alexandretta*, are sent by Caravans to *Aleppo*, which is one of the principal, and best peopled Cities of the *Ottoman* Empire.

The current Money of *Alexandretta* and *Aleppo*, is a sort of Piastre much like the Asselany of *Constantinople*, and is worth 80 Aspres, *i. e.* 44 to 45 Stivers current of *Holland*, or 54 to 55 Sols *Tournois* of *France*.

Of ALEPPO.

ALEPPO, a City of *Syria*, is situated between *Alexandretta* and the *Euphrates*; its Commerce consists in Silk, Camlets, Goats Hair, Galls, Soap, and several other Merchandizes. Merchants from all Parts of *Europe* resort thither, without mentioning the *Turks*, *Arabs*, *Persians*, and *Indians*.

The current Money of *Aleppo* is the same as that of *Alexandretta*.

Of SEYDA.

SEYDA, a Town of *Phœnicia* in *Syria*, is situated on the Sea-side.—*Seyda* is very rich, its Port was formerly very good, and could contain several Vessels, but at present none but very small Ships can enter it, the great ones anchor in the Road, at some Miles from the Town.

The current Money of *Seyda* is the same as that of *Alexandretta* and *Aleppo*. The *Persians* regulate almost always the Course of Exchange, which is sometimes high, and sometimes low, according as they want to draw or to remit.

Exchanges of Spain *with the principal Places of* Europe.

SPAIN is the most westward Kingdom of *Europe*; *Madrid* is the Capital thereof and the ordinary Mansion of the Kings. *Madrid* is a new City situated on the little River *Mazanarer*.

Seville on the *Guadalquivir* is the Capital of *Andalousia*, the greatest City in *Spain* after *Madrid*, and one of the richest and the most trading of *Europe*. This City and *Segovia*, are the only two in *Spain*, where there are fabricated Pieces of Gold and Silver. Travellers admire the Neatness of the Place where Merchants meet, to treat of their Commerce: There are several Things to be admired in *Seville*, and it is in that Sense that the *Spaniards* say, *qui no ha vista Sevilla, no ha vista Maravilla*; i. e. *He that has not seen* Seville, *has not seen a Wonder*.

CADIZ, an Island on the Western Coast of *Andalousia*, northward of the Streight of *Gibraltar*, is joined to the main Land on the East by a Bridge called the *Bridge of the Sac*. The City is peopled with a great Number of very rich Merchants, who have very beautiful Magazines, or Warehouses.

At *Cadiz* arrive the Fleets and Galleons from the *West-Indies*, with Gold, Silver, and other Merchandizes which the *Spaniards* draw from *America*, where all other Nations are forbid trading, under Pain of Death.

The Bills of Exchange drawn from *Antwerp* and *Amsterdam* upon *Spain*, are to be protested, at the Failure of Payment, at *Cadiz*, fourteen Days after they are become due; but if the Person that has one or two Bills of Exchange neglect protesting at that Time, *i. e.* the

the 14th Day, at the fartheſt, and the Acceptors happen to break; thoſe Letters, then, are on the Account of the Bearers, and not on that of the Drawers or Endorſers.

Spain gives to

Holland, *Brabant*, *Flanders*, *Zeland*, and *Hambourg*, 1 Ducat for 78 to 125 Groots.

England, the Peſo for 52 *d.* to 72 *d.* Sterling.

France, between 230 and 290 Maravedi's, for 1 Ecu of 3 Livres, or 60 Sols *Tournois*.

Portugal, 100 Ducats for 180 to 200 Cruzades, or a Piſtole for 280 to 300 Rees.

Novi, between 500 and 550 Maravedi's for 1 Crown Mark.

Rome, between 360 and 400 Ditto, for a Roman Crown.

Venice, between 350 and 390 Ditto, for 1 Ducat Banco.

Florence, between 400 and 430 Ditto, for 1 Ducat of 7 Lires 10 Sol.

Leghorn, between 400 and 435 Ditto, for 1 Pezzo of 6 Lires.

Genoa, between 400 and 435 Ditto, for 1 Pezzo of 5 Lires.

Milan, between 420 and 450 Ditto, for 1 Ducat of 115 Sols.

Naples, between 370 and 400 Ditto, for 1 Ducat of 10 Carlins.

Palermo and *Meſſina*, between 240 and 260 Ditto, for 1 Florin of 6 Tarins.

They have an Exchange with many other Places, and commonly give the Ducat; and the Places of Trade in this Kingdom have a reciprocal Exchange among themſelves, commonly at ſo much *per Cent.* more or leſs, according as Occaſion offers. The Merchants of *Spain* are not ſo ſtrict in obſerving the Law of Exchange, as they are in *England*.

A Merchant of *Cadiz*, *Seville*, &c. negotiates with *Holland* for 1532 Ducats of old *Plata*, at 121 Groots *per* Ducat; to know how much he is to receive at either of thoſe Places.

Multiply the ——— 1532 Duc. of 375 Maravedi's,
By the Price of the Change, at 121 Groots;

The Product is ——— 185372 Groots; from which take off the laſt Figure.
Take the $\frac{1}{4}$, to have —— 4634 Flor. 6 Stivers Bank at *Amſterdam*,
Then take the $\frac{1}{6}$, to have — 772 Livres, 7 S. 8 Gr. at *Antwerp*.

The 185372 Groots can be divided by 40, and by 240 Groots, if they be divided by 40, and the Half be taken of what will remain to be divided; or it be multiplied by 20 Stivers, dividing the Product by 40 Groots, Value of the Florin; the Product will be, as above, 4634 Flo. 6 S. Bank Money to receive at *Amſterdam*.

If the 185372 Groots were divided by 240 Groots, and what remains of the firſt Diviſion ſhould be multiplied by 20 Stivers, and of the ſecond by 12 Groots; the Product would be, as above, 772 Liv. 7 Sols, 8 Groots, Bank or Permiſſion Money at *Antwerp*.

Spain *upon* Hamburgh.

Spain negotiates with *Hambourg* for 496 Ducats, 15 Stivers, $5\frac{25}{40}$ Groots; to know what Sum muſt be receiv'd at *Hambourg*.

Multiply the ——— 496 Ducats, 15 Stivers, $5\frac{25}{40}$ Groots,
By the Price of the Exchange, at 124 Groots for 1 Ducat of 375 Maravedi's; ———
The Product will be ——— 61600 Groots.

Divide the 61600 Groots by 32 Groots, (Value of the Mark Lubs) or by 64 Groots, (Value of the Dealder) or by 96 Groots, (Value of the Rixdollar) taking the Half to have Stivers, and Deniers Lubs; and there will be receiv'd, at *Hambourg*, 1925 Marks, or $962\frac{1}{2}$ Dealders, or $641\frac{2}{3}$ Rixdollars, Bank Money.

Spain *upon* England *or* London.

SEVILLE, or *Cadiz*, will draw upon, or remit to *London*, (or other Places of *England*) $2344\frac{1}{2}$ Piaſters, or Pieces of 8 Reals, at the Rate of 60 *d.* Sterling for 1 Piaſter, worth 272 Maravedi's; to know what they are to receive in *London*.

Multiply the ——— $2344\frac{1}{2}$ Piaſters, or Pieces of 8 Reals,
By the Price of the Exchange, at 60 *d.* Sterl. for 1 Piaſter; ———
The Product will be ——— 140670 *d.* Sterl. to be divided by 240.

Take the Half, to have 586 Pounds, $2\frac{1}{2}$ *d.* Sterling to receive in *London*.

Spain *upon* France.

CADIZ, *Seville*, &c. negotiates with *Paris*, *Lyons*, *&c.* for $1755\frac{1}{25}$ Ducats, at 280 Maravedi's for 1 Ecu; or for 600 Piſtoles, at 100 Piſtoles for 105 Louis d'Or; to know what muſt be receiv'd at *Paris*, *Lyons*, *&c.*

Operation by Maravedi's.

Reduce into Maravedi's the $1755\frac{1}{25}$ Ducats,
In multiplying the Ducats by 375 Maravedi's;

The Product will be —— 658140 Maravedi's.

Divide the 658140 Maravedi's by 280 of the Price of the Change for 1 Ecu *Tournois* of 60 Sols, multiplying what remains of the firſt Diviſion by 60 Sols, and of the ſecond by 12 Deniers; and the Anſwer will be, $2350\frac{1}{2}$ Ecu's of 60 Sols to be received at *Paris*, *Lyons*, &c.

Operation by Piſtoles.

Say, If 100 Piſtoles give 105 Louis d'Or, how many 600 Piſtoles?

The Anſwer is, 330 Louis d'Or to be received at *Paris*, *Lyons*, &c.

Note, That there are but few Bankers at *Madrid* for *France*; there are only Merchants, and ſome other Perſons who give Bills to *Auvergnats*, from whom they take 5, 6, 7, and as far as 10 *per Cent.* Profit, Piſtoles for Piſtoles, *i. e.* that they muſt give in *Spain* from 105 to 110 Piſtoles, to receive 100 in *France*. Moſt of the Treats and Remittances of *Spain* upon *France*, are made by means of the Correſpondencies of *Amſterdam*, *Antwerp*, or *Hambourg*.

Spain *upon* Novi.

Spain negotiates with *Novi* for 944 Ducats, at 590 Maravedi's for 1 Crown Mark; to know what Sum muſt be received at *Novi*.

Multiply the 944 Ducats
By ——— 375 Maravedi's, Value of the Ducat; ———
You'll have 354000 Maravedi's.

Divide the 35400 Maravedi's by 590 Maravedi's of the Price of the Exchange for a Crown Mark of *Novi*, multiplying what remains of the firſt Diviſion by 20 Sols, and of the ſecond by 12 Deniers; and you'll have 600 Crowns Mark to receive at *Novi*.

Spain *upon* Rome.

Spain negotiates with *Rome* for 394 Ducats, and 250 at 370 Maravedi's for 1 Crown Stamp; to know what Sum muſt be receiv'd at *Rome*.

Multiply the ——— 394 Ducats, 250 Maravedi's,
By the Value of the Ducat, which is 375 Maravedi's, adding the 250; ———
The Product will be ——— 148000 Maravedi's, to be divided by 370 P. Ch.

And you'll have 400 Crowns Stamp, of $15\frac{1}{2}$ Jules, to receive at *Rome*.

Spain *upon* Genoa.

Spain negotiates with *Genoa* for 739 Ducats, and 255, at 402 Maravedi's for 1 Piaſter; to know what muſt be receiv'd at *Genoa*.

Multiply

Multiply the —— —— 739 Ducats,
255 Maravedi's,
By the Value of the Ducat, which is 375 Maravedi's, adding the 255;
The Product will be —— 277380 Maravedi's, to be divided by 402 P. Ch.

And you'll have 690 Piasters 5 Lires to receive at *Genoa*.

Spain *upon* Florence.

Spain negotiates with *Florence* for 480 Ducats, and 200 Maravedi's, at 400 Maravedi's for 1 Crown of $7\frac{1}{2}$ L. to know what Sum they must receive at *Florence*.

Multiply the —— —— 480 Ducats,
200 Maravedi's,
By the Value of the Ducat, which is 375 Maravedi's, adding the 200;
The Product will be —— 180200 to be divided by 400, Price of the Exchange.

You'll have $450\frac{1}{2}$ Ecu's, of $7\frac{1}{2}$ Lires, to receive at *Florence*.

Spain *upon* Venice.

Spain negotiates with *Venice* for 999 Ducats 295 Maravedi's, at 390 Maravedi's for 1 Ducat; to know the Sum to be receiv'd at *Venice*.

Multiply the — 999 Ducats, 295 Maravedi's,
By —— —— 375 Maravedi's, adding the 295;
The Product will be 374920 Maravedi's, to be divided by 390, Price Ch.

And you'll have $961\frac{1}{3}$ Ducats to receive at *Venice*.

Spain *upon* Milan.

Spain negotiates with *Milan* for 271 Ducats, 235 Maravedi's, at 440 Maravedi's for 1 Ducat; to know what Sum must be receiv'd at *Milan*.

Multiply the 271 Ducats 235 Maravedi's,
By —— — 375 Maravedi's, adding the 235;
The Product will be 101860 Maravedi's, to be divided by 440, Price of the Exchange.

And you'll have $231\frac{1}{2}$ Ducats, of 115 Soldi, to receive at *Milan*.

Exchanges *of* Portugal, *or of* Lisbon *and* Oporto.

PORTUGAL is an hereditary Kingdom in *Europe*, westward of *Spain*; these Dominions are the smallest in *Europe*, but are, nevertheless, the most considerable, for their Fertility and Riches. They contain six hundred privilegiate Towns, or Boroughs, and more than four thousand Parishes. Among the Towns, or Cities, *Lisbon* is the capital, one of the fairest and richest of *Europe*, situated upon the *Tagus*, which disembogues into the Ocean. Thither resort, at all Times, an extraordinary Number of Merchants of all Nations.

OPORTO is a trading Town of the same Kingdom, towards the Mouth of the *Douro*; it is one of the most considerable of *Portugal*, as well for its *Commerce*, as for its Antiquity.

The Books and Accounts are kept at *Lisbon*, and other Places of *Portugal*, by Millions, Thousands, and Hundred Rees; dividing and separating the Thousand from the Hundred by an ⊖ with a Line cut through the Middle, as the Millions from the Thousands only by a Point, or Dot, as underneath.

5.279⊖560
17.186⊖475
6.573⊖349

29.039⊖384

Portugal gives to

London, 1000 Rees, for 52*d.* and 80*d.* Sterling.

Holland, *Brabant*, *Hambourg*, &c. 1 Crusade of 400 Rees, for 40 to 60 Groots.

Spain, between 180 and 200 Crusades, for 100 Ducats of 375 Maravedi's.

France, between 500 and 650 Rees, for 1 Ecu of 60 Sols *Tournois*.

Florence, between 600 and 750 Rees, for 1 Crown of $7\frac{1}{2}$ Lires.

Genoa, between 600 and 750 Rees, for 1 Pezzo of 5 Lires.

Leghorn, between 600 and 750 Rees, for 1 Pezzo of 6 Lires.

Note, When they exchange with *France*, it is by the way of *Amsterdam*, *Antwerp*, or *Hambourg*; and if this Country draws, or remits upon *Flanders*, or any of the *Low Countries*, it is done by the way of *Lisbon*. The Exchanges practised at *Oporto*, and other Towns of this Kingdom, to foreign Countries, are the same of those practised at *Lisbon*.

Portugal *upon* England, *or* London.

Portugal negotiates with *London* for $3871\frac{1}{4}$ Crusades, at 1000 Rees for $6\frac{1}{2}$ Shillings Sterling; to know what Sum must be received in *London*.

Multiply the — $3871\frac{1}{4}$ Crusades
By —— —— 400 Rees,
The Product will be 1548500 Rees; which divided by 100 Rees, will produce $1548\frac{1}{2}$ Thousands.

Multiply the $1548\frac{1}{2}$ Thousands by $6\frac{1}{2}$ Shillings, Price of the Exchange, and reduce the Shillings into Pounds Sterling; you'll have 503*l.* $5\frac{1}{4}$ Shillings Sterling to receive in *London*.

Portugal *upon* Paris *or* Lyons.

Portugal negotiates with *Paris* or *Lyons* for 6930 Crusades, at 660 Rees for 1 Ecu of 60 Sols *Tournois*; to know the Sum which must be received at *Paris* or *Lyons*.

Reduce into Rees the 6930 Crusades,
In multiplying them by 400 Rees;
The Product will be 2772000 Rees, to be divided by 660 Rees, Price Ch.

And you'll have to receive at *Paris* or *Lyons* 4200 Ecu's of 60 Sols *Tournois*.

Portugal *upon* Florence.

Portugal negotiates with *Florence* for $937\frac{1}{2}$ Crusades, at 750 Rees for 1 Crown of $7\frac{1}{2}$ Lires; to know the Sum to be received at *Florence*.

Multiply the — $937\frac{1}{2}$ Crusades
By —— —— 400 Rees.
The Product will be 375000 Rees, to be divided by 750 Rees.

And you'll have 500 Crowns, of $7\frac{1}{2}$ Lires, to receive at *Florence*.

Portugal *upon* Genoa.

Portugal negotiates with *Genoa* for $1121\frac{1}{4}$ Crusades, at 650 Rees for 1 Piaster of 5 Lires; to know what Sum must be received at *Genoa*.

Multiply the — $1121\frac{1}{4}$ Crusades
By —— —— 400 Rees,
The Product will be 448500 Rees, to be divided by 650 Rees.

And you'll have 690 Piasters, of 5 Lires, to receive at *Genoa*.

Portugal *upon* Leghorn.

Portugal negotiates with *Leghorn* for 200 Crusades, at 675 Rees for 1 Piaster of 6 Lires; to know what Sum must be received at *Leghorn*.

Multiply the 200 Crusades
By —— — 400 Rees,
The Product will be 80000 Rees, to be divided by 675.

You'll have $118\frac{4}{7}$ Piasters to receive at *Leghorn*.

Portugal *upon* Amsterdam.

Portugal negotiates with *Amsterdam* for 1764 Crusades, at $51\frac{1}{4}$ Groots for 1 Crusade; to know what Sum must be received at *Amsterdam*.

Multiply

Multiply the ——— 1764 Crusades, of 400 Rees,
By the Price of the Exchange, at 51¾ Groots;

The Product will be ——— 9128|7 Groots.
Take the ¼, to have —— 2282 Flor. 3½ Stivers Bank Money to receive at *Amsterdam*.

Having thus given an exact, and very particular Detail, of all the different *Exchanges* of the several Kingdoms and States of *Europe*; the last Thing which falls under our Consideration, relating to that important Subject, are, the *Orders*, *Commissions*, and *Arbitration*.

We understand by *Orders* and *Commissions*, a certain Order, which Bankers, Merchants, and Dealers, send their Correspondents and Factors, to remit to any certain Place a certain Sum of Money, at a certain Price of the Exchange; and then to value themselves back again, (as they call it) to draw upon some other Place, at some certain Price, for the Value of the Sum remitted: In Consequence of which, a small Allowance of so much *per Cent.* is made them.

But as it happens that the Price of the Exchange often varies, and falls and rises, perhaps, twice in a Day, but commonly every Post; it is at such a Time the Factor must consider whether the Exchanges be fallen at one of the Places mentioned in his Commission, and risen, perhaps, in another; he ought, therefore, in such Cases, to consider, whether in performing the one Part of his Commission, will be sufficient to compensate the Loss for the other: For discovering of which, several Operations must be perform'd, and these, among the Exchanges, are call'd *Arbitrations*.

To perform such Operations, it is requisite for the Practitioner to understand perfectly the certain and uncertain Prices of the Exchanges; that is, what Places give the uncertain, and what give some certain and fix'd Price in Exchange with other Countries; as *England* does to *Holland*, it always giving one Pound *English* for an uncertain Number of Skillings and Groots *Dutch*; and so, consequently, *Holland* gives always the uncertain to *England*.

All this will be justified by the following Propositions, which will be resolved by general and infallible Rules.

Commission *sent to a Place where the* certain *is given.*
Amsterdam, Paris, *and* London.

A of *Amsterdam*, orders *B* of *Paris* to remit, for his Account, to *C* of *London*, 1000 Ecu's of 60 Sols, or 3 Livres *Tournois*, at 53 *d.* Sterling for 1 Ecu, and to draw upon him at ¼ *per Cent.* at 91 Groots *per* Ecu; but upon the Receipt of the Order he finds the Exchange of *Paris* upon *London* at 52½ *d.* Sterling for the Ecu: The *Query* is, what Price the Exchange of *Paris* upon *Amsterdam* must be, to make the Value of the Draught upon *Amsterdam* equal to the Remittance to *London*; because *Paris*, where the Commission is given, exchanges always at the Rate of the said Ecu, as well for *London* as for *Amsterdam*, which is the *certain* with Regard to *France*, and the *uncertain* with Regard to *London* and *Amsterdam*.

Example.

53 *d.* Sterling, 91 Groots,	Prices according to Order,	52½ Sterling, Price found at the Time of the Commission receiv'd.

Say, If 52 *d.* Sterling are equal to 91 Groots; how many will be to 52½ *d.* Sterling?

The Answer will be, 90 $\frac{1}{10}\frac{5}{6}$ Groots for 1 Ecu, or Crown.

If *A* of *Amsterdam*, orders *B* of *Paris* to remit to *C* of *London* 1000 Crowns, at 53 *d.* Sterling *per* Crown, and to draw upon him at 91 Groots for the said Crown; if in Execution of this Order *B* remits to *C* of *London* at 52½ *d.* Sterling, and draws upon *A* at 90 $\frac{1}{10}\frac{5}{6}$ Groots; we ask, what Advantage *A* receives at *London*?

	l.	*s.*	*d.*
At 53 *d.* Sterling, he has at *London*	220	16	8
At 52½ *d.* Sterling, he has but ——	218	15	0
Sterling;			
Therefore at 53 *d.* it is more advantagious by	2	01	8

Commission *sent to a Place where they give the* uncertain.
Paris, Amsterdam, *and* London.

D of *Paris*, orders *E* of *Amsterdam* to remit to him 2000 Crowns, at 94 Groots for 1 Crown, and to draw his Advance, with his Provision, at ⅓ *per Cent.* upon *F* of *London*, at 34 S. 2 Gr. for 1 Pound Sterling; but at the Time of the Reception of the Order the Exchange of *Amsterdam* upon *Paris* is at 96 Groots; the *Query* is, at what Price must be the Exchange of *Amsterdam* upon *London*, that the Order may be executed with the same Advantage to the *Committer* of *Paris*.

24 — Groots, 34 S. 2 Groots,	Prices according to the Order,	96 Groots, Price of the Exchange found at the Time the Commission was receiv'd, 34 S. 2 Gr.
94 Gr.	410 Gr.	96 Groots.

The Product will be, 34 S. 10 $\frac{34}{47}$ Groots, or 418 $\frac{34}{47}$ Groots.

For as 94 Gr. are to 34 S. 2 Groots; so 96 Gr. are to 34 S. 10 $\frac{34}{47}$ Groots; for in Proportion that the Exchange rises in *London*, that of *Amsterdam* falls, which makes a just Compensation, and consequently an Equality.

Commission *sent to a Place where the* certain *is given to one of the Places where the* Commission *is to be executed, and the* uncertain *to the other Place.*
Paris, London, *and* Amsterdam.

G of *Paris*, orders *H* of *London* to remit to him 200 Pounds Sterling, at 52 *d.* Sterling for 1 Ecu, or Crown of 60 Sols *Tournois*, and to value himself upon *I* of *Amsterdam* for his Advance and Provision at ⅓ *per Cent.* at 33 S. 9½ Groots for 1 Pound Sterling; but at the Time of the Reception of the Order the Exchange of *London* upon *Paris* is found at 53½ *d.* Sterling; we ask, at what Rate must *London* draw upon *Amsterdam?*

53—*d.* Sterling, 33 S. 9½ Groots,	Prices according to the Order,	53½ *d.* Sterling, when the Commission was receiv'd.

Say, If 53 *d.* Sterl. are at 33 S. 9½ Groots; at how many will be 53½ *d.* Sterl.

Multiply by ——— 12 Groots, adding the 9½ *d.*
The Product will be 405½ Groots.
Multiply by ——— 53 *d.* Sterling,

21491½ *d.* Sterling, at 53½ *d.* for 1 Crown.

42983—Half *d.* to be divided by 107 Half *d.*

The Answer will be, 33 S. 5 $\frac{76}{107}$ *d.* or 401 $\frac{76}{107}$ Gr. for 1 *l.* Sterling.

Commission *sent to a Place where the* certain *is given.*
Amsterdam, Lyons, London, *and* Hambourg.

K of *Amsterdam*, orders *L* of *Lyons* to remit 1000 Crowns, of 60 Sols *Tournois*, upon one of the three Places abovemention'd, where he'll find more his Advantage, *viz.* to *Amsterdam*, *London*, or *Hambourg*; informing him, at the same Time, that the Course of Exchange is then,

Upon *London*, at 34 S. 6 Gr. for 1 Pound Sterling.
Upon *Hambourg*, at 33 S. common, for 1 Dealder.

L, to execute the Order of *K* of *Amsterdam*, finds the Course of the Exchange, *viz.*

Upon *Amsterdam*, at 95 Gr.
Upon *London*, at 53 *d.* Sterling.
Upon *Hambourg*, at 3¾ Loss upon the Bills.

We ask, upon which of the aforesaid Places it will be more advantageous for *K* of *Amsterdam?*

Answer, at $95\frac{1}{4}$ Gr. or at $47\frac{5}{8}$ S. Lubs for 1 Crown.

If 1 *l.* Sterling — 34 S. 6 Gr. — 4*s.* 5 *d.* Sterling.

If 240 *d.* Sterling are at 414 Gr. at how many will be 53 *d.* Sterling?

The Product will be $91\frac{51}{120}$, or $91\frac{77}{40}$ Gr.

To reduce the $3\frac{1}{4}$ *per Cent.* lost upon *Hambourg*, multiply the 33 S. Commons (of the Change of *Amsterdam* upon *Hambourg*) by 3, there will arise 99, from which must be taken off the $3\frac{3}{4}$ *per Cent.* there will remain $95\frac{1}{4}$ Gr. or $47\frac{5}{8}$ S. Lubs for 1 Crown.

Therefore it is more advantageous to remit from *Lyons* upon *Hambourg*, than from *London*, since *K.* of *Amsterdam* would receive at *Hambourg* $95\frac{1}{4}$ Gr. or $37\frac{5}{8}$ S. Lubs, for 1 Crown, when as upon *London* he would receive but $91\frac{17}{40}$ Gr. and upon *Amsterdam* but 95 Gr. and $1\frac{1}{2}$ Month later.

Proof.

If 1000 Crowns at 95 Gr. give at *Amsterdam* 2375 Flor. S. P.

If 1000 Crowns at $91\frac{17}{40}$ Gr. would give but 2285 Flor. 12 S. 8.

If 1000 Crowns at $95\frac{1}{4}$ Gr. or $47\frac{1}{8}$ S. Lubs, give at *Hambourg* 2676 Mar. 9 S. Lubs, or 1488 Deal. 9 S. Lubs.

2375 Flor. of *Amsterdam.*
20 S.

47500 S. to be divided by 33 S. the Product will be 1439 Deald. 12 S. $7\frac{3}{11}$ D. Lubs.

Amsterdam, London, Paris, *and* Antwerp.

M. of *Amsterdam* orders *N.* of *London* to remit to *O.* of *Paris* at 54 *d.* Sterling for 1 Crown, and to draw upon *P.* of *Antwerp* at $33\frac{1}{2}$ S. Gros. for 1 *l.* Sterling; but when *N.* receives the Order, the Change of *London* is upon *Paris* at $54\frac{1}{2}$ *d.* Sterling for the said Crown, what Price of the Exchange *N.* of *London* must draw to follow the Order?

Answer, at 33 S. $2\frac{34}{109}$, or $398\frac{34}{109}$ Gr.

Say, if 54 *d.* Sterling give $33\frac{1}{2}$ S. or 402 Gr. how many will give $54\frac{1}{2}$ *d.* Sterling?

54 *d.* by 402 Gr. — 21708 by 2 — 43416 to be divided by 109, the Product is $398\frac{34}{109}$ Gr. or 33 S. $2\frac{34}{109}$ Gr.

$54\frac{1}{2}$ *d.* 2 — 109 Divis.

Proof.

If *M.* of *Amsterdam* had ordered *N.* of *London* to remit to *O.* of *Paris* at 54 *d.* Sterling for 1 Crown, and to draw upon *P.* of *Antwerp* at 33 S. $2\frac{34}{109}$ Gr. for 1 *l.* Sterling; *N.* of *London* finding the Course of Exchange upon *Antwerp* at $33\frac{1}{2}$ S. Gros for the said Pound Sterling, what Price of Exchange must *N.* of *London* remit to *O.* of *Paris*, to follow precisely the Order of *M.* of *Amsterdam?*

Answer, at $33\frac{1}{2}$ S. Gros for 1 *l.* Sterling.

Say, if $54\frac{1}{2}$ *d.* Ster. give $398\frac{34}{109}$ Gr. or 33 S. $2\frac{34}{109}$ Gr. how much will 54 *d.* Sterling give?

$398\frac{34}{109}$ Gr.
$54\frac{1}{2}$ *d.* Ster.

21708, to be divided by 54 *d.* the Product 402 *d.* or $33\frac{1}{2}$ S. Gr.

Proof.

1000 Crowns	1000 Crowns
at 54 *d.* Ster.	at $54\frac{1}{2}$ *d.* Ster.
54000 *d.*	54500 *d.*
make 225 *l.* Ster.	make 227 *l.* 1 *s.* 8 *d.* Ster.
at 402 Gr.	at $398\frac{34}{109}$ Gr.
Product 9045|0 Gr.	Product 9045|0 Gr.
the $\frac{1}{4}$ 2261 Flor. 5 S.	the $\frac{1}{4}$ 2261 Flor. 5 S.

London, Hambourg, *and* Amsterdam.

London negotiates with *Hambourg* at 34 *s.* 6 *d.* *per* Pound Sterling, and with *Amsterdam* at 35 *s.* 1 *d.* what must be the Exchange between *Hambourg* and *Amsterdam?*

Say, if 34 *s.* 6 *d.* *Hamb.*—35 *s.* 1 *d.* *Amst.*—32 *s.* *Hamb.*

12 — 414 — 414 × 12 = 4968; 4968 × 32 = 1052 — 1052 × 12 = 12630 — 12630 + 842 = 13472

414)13472(32 $\frac{1}{2}$ *Amst.* *per* Dollar of 62 S. Lubs. $\frac{324}{414}$ or $\frac{1}{2}$

Amsterdam, London, *and* Hambourg.

Amsterdam negotiates with *London* at 35 *s.* 1 *d.* *per* Pound Sterling, and with *Hambourg* at $32\frac{1}{2}$ Stivers *per* Dollar of 32 S. Lubs, what must be the Exchange between *London* and *Hamburgh?*

If 32 Stiv. $\frac{1}{2}$—32 S. Lubs.—35 *s.* 1 *d.*

12 — 309 — 309 × 32 = 9888 — 9888 + 2 = 9890 — 9890 × 12 = 118680 — 118680 + 6 = 118686 — 118686 + 8 = 118694

Remains 204 — 12 multip. and take in 8,

39|0)1347|2(34 *s.* 6 *d.* *per* Pound Sterling.
177
212
12
39|0)254|4(6 *d.*
20

Hambourg, London, *and* Amsterdam.

Hambourg remits to *London* at 34 *s.* 6 *d.* *per* Pound Sterling, and to *Amsterdam* at 32 S. $\frac{1}{2}$ *per* Dollar Lubs, at what Rate must be the Exchange between *London* and *Amsterdam?*

If 32 S. *Hamb.*—$32\frac{1}{2}$ *Amst.*—34 *s.* 6 *d.* *Hambourg.*

$32\frac{1}{2}$ — 69 0 — 1135 0 — 17 3 — 1 5 — 32)1122 8(35 *s.* 1 *d.* *Amst.* *per* Pound Sterling.
162
2
12
32)32(1 *d.*

London, Amsterdam, *and* Venice.

London negotiates with *Amsterdam* at 35 S. *per* Pound Sterling, and to *Venice* at 52 *d.* Sterling *per* Ducat Banco, what must be the Exchange between *Amsterdam* and *Venice?*

If 20 *s.* Sterling —— 35 S. *Amst.*—— 52 *s.* Sterling.

Or thus, 20 —— 52 —— 35
35
260
156
2|0)182|0

Answer 91 *d.* *Amst.* *per* Ducat Banco.

London, Antwerp, *and* Leghorn.

London negotiates with *Antwerp* at 35 S. *per* Pound Sterling, and to *Leghorn* at 54 *d.* *per* Pezzo, what must be

be the Exchange between *Antwerp* and *Leghorn?*

If 20*s.* Sterl.——35 *s. Amst.*——54 *d.* Sterl.

Or thus,

20——54——35
35
———
270
162
———
2)1890
———

Answer. $94\frac{1}{2}$ *Amst. per* Pezzo of *Leghorn.*

London, Amsterdam, *and* Lyons.

London negotiates with *Amsterdam* at 34 *s.* 8 *d. per* Pound Sterling, and with *Lyons* at $32\frac{1}{2}$ *d. per* Crown *Tournois*; at what Rate will be the Exchange between *Amsterdam* and *Lyons?*

If 20 *s.* Ster.——34 *s.* 8 *d. Amst.*——0 *s.* 32 $d.\frac{1}{2}$ Ster.

Or thus,

20——$32\frac{1}{2}$——34 08
$32\frac{1}{2}$
———
69 04
1040 00
17 04
———
2|0)112|6 08
———

Answer. $56\frac{1}{3}$ *per* Ecu.

Amsterdam, Antwerp, *and* Lisbon.

Amsterdam draws upon *Antwerp* 1000 Livres Gros, at $1\frac{3}{4}$ *per Cent.* Advance, payable at 18 Weeks Date, for which Draught *Amsterdam* receives 6105 Florins, whereof, after $1\frac{1}{2}$ Livres Gros, or 9 Florins have been deducted for Brokerage, there remain 6096 Florins, and *Antwerp* is order'd to draw upon *Lisbon*, when the Sum will be due, 4630 Crusades, 15 *s.* 5 *d.* at 52 Gr. *per* Crusade; and afterwards *Amsterdam* remits to *Lisbon* 4646 Crusades, at $52\frac{1}{2}$ Gr. *per* Crusade, for its Provision; we ask the Profit or Loss of *Amsterdam.*

Answer. 1 Flor. $19\frac{13}{30}$ S. Loss *per Cent.*

Proof.

1000 Liv. Gros Dr.	1000 L. Gr.
At $1\frac{3}{4}$ *per Cent.* Adv.	$3\frac{1}{2}$ for Prov. *Ant.*
$1017\frac{1}{2}$ Liv. Gr.	$1003\frac{1}{3}$ Liv. Gr.
Deducted $1\frac{1}{2}$ for Brok.	By 240 Gr.
1016 Liv. Gr.	240800 Gr. to be divi-
By 6 Flor.	(ded by 52.
6096 Flor.	

Divide the 240800 Gros by the 52 of the Price of Exchange of *Antwerp* upon *Lisbon* for 1 X; the Product will be 4630 Crusades 15 *s.* 5 *d.* and a little less.

15——8——7 for Provis.
———
(of *Lisbon.*
4646 Crusad. 4 S.
At $53\frac{1}{2}$ Gr.
———
24857|2 *d*
The $\frac{1}{4}$ 6214 Flor. 6 S.
6096 Flor. Sols, to be deducted
———
(from the Draught of *Amst.*
It remains 118 Flor. 6 S. Loss.

If 6000 Flor. lose 118 Flor. 6 S. how many will lose 100 Flor.

Answer. 1 Flor. $19\frac{12}{50}$ S. Loss *per Cent.*

If 6 Months lose 1 Flor. $19\frac{12}{50}$ S. how many will 12 Months?

Answer. 3 Flor. $18\frac{1}{3}\frac{1}{3}$ Sols.

Bourdeaux, Amsterdam, *and* Frankfort.

B of *Bourdeaux*, orders *A* of *Amsterdam* to draw for him at 90 Gr. *per* Ecu, and to remit to *C* of *Frankfort* at 82 Groots *per* Florin of 60 Cruitzers of Exchange, and no lower. *A* finds the Change upon *Bourdeaux* at 92 Groots, and upon *Frankfort* at 84 Groots; we ask if *A*, who draws upon *B* at the Course of the Exchange found, and remits to *Frankfort*, accomplishes the Order?

Answer. Frankfort receives $\frac{40}{189}$ *per Cent.* less than the Order.

Order 90 Gr. X 92 Gr. Course,
82 Gr. 84 Gr.
———
(the Order.
Order 7560 Gr. 7544 Course, which accomplishes
Multiply 90 by 84, and afterwards 82 by 92.

If *B* pays 1 Ecu of 60 Sols, *A* receives 90 Groots, and at *Frankfort* $1\frac{4}{41}$ Flor. Divide 90 by 82, there will be $1\frac{4}{40}$ Flor. according to Order.

If *B* pays 1 Ecu of 60 Sols, *A* receives 92 Groots, and *Frankfort* $1\frac{2}{40}$ Flor. Divide 92 by 84, there will be $1\frac{2}{21}$ Flor. according to the Exchange.

Order Course
$1\frac{4}{41}$ Flor.——$1\frac{2}{21}$ Flor.——100 Flor.
There comes $99\frac{1}{189}\frac{9}{}$.
———
$\frac{40}{189}$ *per Cent.*
less than the Order.

Lyons, Venice, *and* Amsterdam.

G of *Lyons*, draws upon *H* of *Venice* 2000 Ecu's of 60 Sols, at the Rate of 100 Crowns for 102 Ducats, with Order to *H* to draw the same Sum, when due, the Provision included, upon *I* of *Amsterdam*, at 91 Groots for 1 Ducat Banco; and *I* of *Amsterdam* draws upon *G* of *Lyons* at 89 Groots *per* Ecu; we ask the Profit or Loss for *Lyons.*

Answer. 102 Ecu's, 18 S. $2\frac{39}{89}$ *d.*

2000 Ecu's	2040 Ducats Banco
At 102 Duc. for 100 Ecu's	$6\frac{4}{5}$ Provision
2040|00	$2046\frac{4}{5}$ Ducats
	At 91 Groots
2040 Ducats Banco	(less.
	18625|0 Gr. and a little
Divide 187159 Gr. by	$\frac{1}{4}$ is 4646 Flor. $9\frac{1}{2}$ Sols
89 Gr.———	22 — 10 of Br. and
Product 2102 Ecu's 18 S. $2\frac{38}{89}$ *d.*———	(Prov.
Drawn 2000 Ecu's	4678 Flo. $19\frac{1}{2}$ S.
	By 40 Gr.
Profit 102 Ecu's 18 S.	(by 89 Gr.
$2\frac{38}{89}$ *d.*	187159 Gr. to be divided

London, Lyons, Cadiz, *and* Amsterdam.

O of *London*, orders *P* of *Lyons* to draw upon him, and to remit the Value to *Q* of *Cadiz*, and *Q* of *Cadiz* to *R* of *Amsterdam*; *P* of *Lyons* draws upon *O* of *London* at $54\frac{1}{2}$ *d.* Sterling for 1 Ecu, and remits to *Q* of *Cadiz* at 270 Maravedi's *per* Ecu, and *Q* remits to *R* at 120 Groots *per* Ducat of 375 Maravedi's; and, lastly, *O* of *London* draws upon *R* of *Amsterdam*, so that he loses 5 Pounds, 16 *s.* $5\frac{44}{107}\frac{27}{}$ *d.* Sterling *per Cent.* (without reckoning the Charges and Provision, which are not included here) we ask, at what Price of Exchange *O* of *London* has drawn upon *R* of *Amsterdam.*

Answer. At $33\frac{2}{3}$ S. Gros, for 1 Pound Sterling.

Proof.

100 Ecu's	100 Ecu's $33\frac{2}{3}$ Skillin. Gros
At $54\frac{1}{2}$ *d.* Sterl.	At 270 Marav. 12 Groots
5450 *d.* Sterl. to	27000 Mar. 404 Groots
be divided by	
240 *d.*——22 *l.*	By 375——72 Ducats
14 *s.* 2 *d.* Sterl.	At ——— 120 Groots
	8640 Groots
	To be divided by 404 *d.*——21 *l.* 7 *s.* $8\frac{96}{101}$ *d.* Sterl.
	22 *l.* 14 *s.* 2 *d.* Sterl.
	21 *l.* 07 *s.* $8\frac{96}{101}$ *d.* St.
	1 *l.* 06 *s.* $5\frac{105}{101}$ *d.* St.

It

l. s. d.	l. s. d.	l.
If 22 14 2	lose 1 6 $5\frac{33}{101}$	how many 100 Sterl.
240 *d.*	240 *d.*	$317\frac{33}{101}$ *d.*
5450 *d.* St.	$317\frac{33}{101}$ *d.* Sterl.	$31732\frac{68}{101}$ *d.* S.
Divis.	Multiplic.	to be divided.

There comes 5 *l.* 16 *s.* $5\frac{4427}{10005}$ *d.* Sterl. Loss *per* 100.

Dantzick, Amsterdam, *and* Paris.

M of *Dantzick*, orders *N* of *Amsterdam* to remit to *O* of *Paris* at 90 Groots *per* Ecu, and to draw upon him at 268 *Polish* Grosses *per* L. Gros, or at what other Price he'll think fit, provided it does not prove disadvantagious for *M* of *Dantzick*; *N* of *Amsterdam* can't remit but at 91 Groots *per* 1 Ecu: We ask, at how many *N* must draw upon *M*, to follow the Order?

90 Gr.———268 Gr.———$91\frac{1}{2}$ Gr.

90	2
24120	183 Divis.
2	

48240 to be divided by 183.

The Product is, $263\frac{37}{61}$ *Polish* Grosses.

Note, That having so often mention'd, throughout this whole Treatise of *Exchange*, the Prices of *Exchange certain*, and *uncertain*; it is very proper we should mark the Difference between the *certain* and *uncertain*.

By the Word *certain*, we understand a Price fix'd and limited, and which is not subject to Variation, *i. e.* a certain determinate Quantity; as are the *French* Crowns of 60 Sols, or 3 Livres *Tournois*; the *Spanish* Ducats of 375 Maravedi's, (or 11 Rials 1 Maravedi) the Ducats Banco of 24 Grosses, or 6 Livres 4 Soldi of *Venice*; the Crusades of 400 Rees of *Portugal*; the Florins, or Gouldens, of 65 Cruitzers of Exchange of *Frankfort*, or the Florins of 60 Cruitzers of Exchange of the said Place; or the Dealders of 32 Sols, or of 2 Marks 16 Sols Lubs of *Hambourg*; the Pound Sterling of *England*; the Livre Gros of 6 Florins of *Holland*, *Brabant*, *Flanders*, and *Zeland*.

By the Term *uncertain*, we must understand an undeterminate and variable Quantity of Deniers, or other Sort of Money, given in one Place, to receive the Equivalent at another; as are the Exchanges made from *Amsterdam*, and other Places of *Holland*, *Antwerp*, *Brussels*, and other Parts of *Brabant*, on the foreign Places with which they keep a Correspondence.

Note, also, That there are Places which give sometimes the *certain*, and sometimes the *uncertain*, which is done with Regard to the other Places they correspond with. As for Example, the Exchanges of *London* upon *Amsterdam*, made at the Rate of 1 Pound Sterling, to receive at *Amsterdam*, &c. Scallins, Groots, *&c.* and those of *London* upon *France*, *Spain*, and *Italy*, are made at an *uncertain Price*, by giving the Pence Sterling for 1 Ecu, 1 Ducat, *&c.* so that *England* has the *certain* with Regard to *Holland*, *Brabant*, &c. and the *uncertain* with Regard to *France*, *Spain*, *Italy*, &c.

Having thus exactly treated of *Commerce by Exchange*, and enter'd into a very particular Detail of all the Branches thereof, we must pass to what is called in *Commerce*, *Discount*, or *Rebate*.

Rebate, in *Commerce*, is a Term much used at *Amsterdam* for a Discount or Abatement in the Price of certain Commodities, when the Buyer advances the Sum in Hand, for which he might have taken Time.

Rebate (in *England* is usually call'd *prompt Payment*) is estimated by Months, and is only allow'd for certain Kinds of Merchandizes, which, according to the Custom of *Amsterdam*, are, *German* Wools, which are sold at 15 Months *Rebate*; Ashes, and Pot-ashes, at 18 Months *Rebate*; *Italian* Silks, at 33 Months *Rebate*; Sugars of *Brasil*, at 18 Months *Rebate*; and *Spanish* Wool, at 21 Months *Rebate*.

That is, these Commodities are sold for ready Money, only deducting, or *rebating* the Interest of the Money, which ought not to be paid till the End of 15, 18, *&c.* Months.

This Interest, call'd *Rebate*, is commonly regulated on the Footing of 8 *per Cent. per Annum*.

The Reason of this Expedient, is, that the Merchants, having not always wherewithal to pay for their Goods in Hand, by means of the *Rebatement*, such as have, will find their Account in it; and such as have not, will be engaged to discharge themselves as soon as possible, in Hopes of the *Discount*.

This *Discount*, or *Rebate*, is made in two different Manners at *Amsterdam*, and other Places of *Holland*.

The first (which is neither very just, nor reasonable) is, to *discount* or *rebate* upon certain Merchandizes sold or bought for ready Money, (which ready Money is to be paid in 6 Weeks) in such a Manner, that there is Profit for the one or the other of the Parties, who, satisfied with drawing the Exchange of the Sum which is to be *discounted*, and having subtracted the Exchange, what remains, say they, is the neat Sum to be paid; because if the *Seller* discount to the *Buyer* the Exchange of the whole Sum, he discounts the Exchange of the Exchange which he does not receive, and thus he loses; since it must be considered, that the Sum is composed of the Principal and Interest: Therefore the Term which represents the Principal, must be added with that of the Exchange, or Interest.

The second Manner of *Rebate* (which is more just) is 2, 3, 4, 5, 10, 20, and as far as 30 on an hundred, *i. e.* that 102, loses 2; 103, 3; and thus of the other Sums in Proportion; which is reckoned at the Rate of 8 *per Cent. per Annum*, reckoning 1 for an hundred for the *Discount* of 6 Weeks, or 1 Month and a Half; 2 for an hundred for 3 Months; and thus of the other Sums and Times.

If, for Example, it be wanted to know the *Rebate* of 21 Months; a Third must be taken off 21, which is 7, there will remain 14 for an hundred for the *Rebate* of 21 Months, at the Rate of 8 *per Cent. per Annum*. If, further, we want to know the *Rebate* of 24 Months, which are 2 Years; we'll take off, likewise, a Third from 24, which is 8, there will remain 16 for an hundred for the *Discount* of 24 Months; which shews, that it is but at the Rate of 8 *per Cent. per Annum*. If, on the contrary, we want to know how many Months of *Rebate* give 14 or 16 *per Cent.* we must add to the said Numbers the Half of the same Numbers, as 7 to 14, and 8 to 16, and we'll have 21 and 24 Months *Rebate*, as above.

The Facility of discounting is the most solid Profit a Merchant Retailer can make; because a Merchandize which will have cost, for Example, 100 Florins, or 130 Livres, on Condition of 8 *per Cent. Rebate* for one Year, becomes, thereby, cheaper, which amounts to considerable Sums, when the Retail is great; so that he who is deprived of the Means of discounting, can't afford it so cheap as a Merchant who has Money, and can discount; as is plainly seen by the following Example.

We ask the *Rebate* at 8 *per Cent.* (according to the second Method of discounting) of 4500 Florins, or Livres.

If 100 Flo. lose 8 Flo. how many will lose 4500?
There will be $333\frac{1}{3}$ Flo. for the *Rebate*.
Take off the $333\frac{1}{3}$, there will remain $4166\frac{2}{3}$ to pay.
According to this Method, the Seller should receive $4166\frac{2}{3}$ Flor.

But perhaps our Pupil Merchant will be glad, one Time or other, to trade in *Company*, which is an Association of several Merchants, who unite in one common Interest, and contribute, by their Stock, Counsels, and Study, to the setting on Foot, or supporting some lucrative Establishment.

Though Company, and Society, or Fellowship, be, in Effect, the same Thing; yet Custom has made a Difference between them; Society, or Partnership, being

being understood of two or three Dealers, or not many more; and Company of a great Number. A second Difference between Companies and Societies, is, that the first, especially when they have exclusive Privileges, can't be established without the Concession of the Prince, and need Letters Patents, Charters, &c. whereas for the latter, it is sufficient to have the Consent of the Members fixed and certified by Acts and Contracts, and authorized by Laws. In this Sort of Company, or Association, each Partner furnishes his *Quota*, to have each their Part of ½, ⅓, ⅙, &c. according to the Agreement enter'd into among them; and to each Associate in particular is deliver'd an Account in Company for his Portion, according to the Contract or Act of the Society.

But the Word *Company* is more particularly appropriated to those grand Associations set on Foot for the *Commerce* of the remote Parts of the World; as the *English* and *Dutch East-India Company*, *South-Sea Company*, *Royal Company* of both the *Indies* in *France*, &c. the Rise and Establishment whereof we shall here set before our Pupils, beginning with the *English Companies*.

The most considerable *Companies* in *England*, are, the *East-India Company*, *Royal African Company*, *Hamburgh Company*, *Russia Company*, *North-Sea Company*, *Turkey Company*, *South-Sea Company*, *Harborough Company*, and the *Scotch Darien Company*.

The *English* East-India Company was formed towards the latter End of the Reign of Queen *Elizabeth*, their Charter being dated in 1599. Their first Fleet, sent out in 1600, brought back so rich a Cargo, that in a few Years they numbered 20 Ships. King *James* I, to shew how much he had its Interest at Heart, sent several Embassies to the Great Mogul, Kings of *Persia*, *Japan*, and other Princes, to make Treaties of *Commerce* in his Name, and that of the *Company*; some of which subsist still. The King of *Persia*, in particular, granted the *Company* several extraordinary Favours, in Recompence for the Service the *English* had done him, in assisting him to expel the *Portuguese* from *Ormus*, who, by means of their Lodgment there, engrossed the whole *Commerce* of the *Persian* Gulph.

But the greatest Favours the *Company* receiv'd, were from King *Charles* II, who, by a Charter in 1669, granted them the Port and Island of *Bombay*, with all the Rights thereof, as surrendered to him by the *Portuguese*; only reserving to himself the Sovereignty and Homage thereof, with a yearly Acknowledgment of 10*l. per Annum* in Gold. By another Charter, in 1674, he granted them, in like Manner, the Island of St. *Helena*, belonging to him by Right of Conquest, from the *Dutch*, who had before taken it from the *English*. By a third Charter, he granted them the Power to erect a Court of Judicature, composed of a Lawyer and two Merchants, in all their Places, Settlements, Factories, &c. to judge of Seizures, and all marine Disputes; as also, about Bargains, Exchange, &c. and even of all Crimes committed on the high Seas, or in the Countries or Territories of the *Company*, in *Asia*, *Africa*, and *America*; the whole, however, agreeable to the Usages and Customs of Merchants, and the Laws of *England*.

In 1662, the same Prince granted the *Company* a Charter, which contained a Confirmation of the antient ones of King *James* I. and Queen *Elizabeth*; or rather a new Charter, granting them Abundance of Privileges which they had not before enjoyed: This Charter is properly the Basis of the *Company*, and that whereon are founded all the Rights, and the Policy of the new *Company*, afterwards established in 1698. It consists of twenty-eight Articles: In the *first* the King erects the *Company* into a Corporation, or Body Politick, under the Name of the *Governor and Company of Merchants trading to the East-Indies*. The *third* granting them a common Seal: The *fourth* a Governor, and twenty-four Directors, or Assistants chosen out of the Proprietors, or Stock-holders: The *sixth*, *seventh*, *eighth*, and *ninth*, regulate the Order and Policy of the *Company*, settle the Officers, Manner of Election, Authority, general Meetings, &c. The *tenth*, fixes the Extant of the Grant; permits all those of the *Company*, their Children of 21 Years of Age, their Apprentices, Factors, and Domesticks, to trade to the *Indies*, and any part of *Asia*, *Africa*, and *America*, beyond the Cape of *Good Hope*, and the Streights of *Magellan*: The *eleventh* grants them Power to make By-Laws to be observed by the Officers, Factors, &c. and to enjoin Penalties, provided those Laws be not contrary to the standing Laws of *England*: By the *twelfth*, the Payment of the Duties, Customs, &c. of Goods, exported or imported is delayed; one half of it for half a Year, the other half a whole one: Providing withal, that if the Goods thus imported, be exported again in the Space of thirteen Months, no Duties shall be paid for such Export, provided it be done on board *English* Vessels: The *thirteenth* Article grants them a Power of exporting Foreign Gold for their Service abroad, and even *English* Gold coined in the *Tower*; provided the Sum do not exceed 50,000 *l. Sterling* at a Voyage: By the *fourteenth*, and *fifteenth*, they are allowed six large Ships, and six Pinks, to pass freely through all the Limits of their Grant, without the King being able to lay any Embargo on them on any Occasion: The *sixteenth*, grants them an exclusive Privilege; to have the sole Right of Dealing to the *Indies*: Ordering the Seizure and Confiscation of all Vessels, &c. which shall interfere: The *nineteenth*, obliges them to bring at least as much Gold and Silver into the Kingdom, as they carry out each Voyage: The *twenty-first*, fixes the Sum in the capital Stock necessary to have a Vote in the Meetings, at 500 *l. Sterling*: allowing however, several of those who have less, to join several together to form a Voice: Lastly, the *twenty-sixth* allows them to send Vessels of War, and even to make Peace and War with all the Nations not Christian, in the Extent of their Grant.

All these four Charters of King *Charles* II. were confirmed by King *James* II. especially the last, which was enforced with new Sanctions, particularly the Article of Exclusion; which in the Time of King *Charles* had been but little regarded, but was now enforced with such rigorous Prohibitions, that all Interlopers seemed for ever excluded.

The Shares or Subscriptions of the *Company*, were originally only of 50 *l. Sterling*: But the Directors having a considerable Dividend to make in 1676, it was agreed to join the Profit to the Original, instead of withdrawing it; and thus the Shares were doubled, and became of 100 *l. Sterling*.

The *Company* had from time to time undergone great Losses; first in 1680, by the Loss of *Bantam*, out of which they were driven, and their Magazines plundered by the *Dutch*, under Pretence of assisting Sultan *Agui* against Sultan *Agan*, his Father. *Secondly*, in 1682, when the great Number of Interlopers, to whom King *Charles* II. too easily granted Permissions, lowered their Shares *Cent. per Cent*. *Thirdly*, by the War which the *Company* maintained in the *Indies* against the Great Mogul; wherein it was obliged to abandon the Factory of *Surat*, and to retire to *Bombay*. But still she repaired her Stock, and supported the Reputation of her Commerce, till the Revolution which happened soon after; when the War, and the incredible Losses the *Company* sustained by the *French* Privateers, &c. put it into so desperate a Condition, that appearing scarce possible to be supported, a new one was erected.

The Charter of the new *East-India Company* was of the Year 1698. Its Stock was so considerable, and the Subscriptions so very ready, that in two Years Time, the *Company* had 40 Vessels equipped in its Service; which was double of what the old one ever had; and sent to the *Indies (Communibus Annis)* a Million *Sterling* in Silver; whereas the former had never sent above 500000 *l.* After the two *Companies* had subsisted a few Years in a separate State, Means were contrived to unite them, which was effected in 1702, when a new Charter

Charter of Union was granted them, under the Name of the *United Company of the Merchants of* England *trading to the* East-Indies: Which being since expired, another Charter with new Powers was granted them in 1730.

The Cargo which the *Company* sends to the *East-Indies*, is chiefly Silver, Bullion, and Pieces of Eight; with Cloth, either Scarlet or Blue: They also send some Iron, and Lead.

The Returns from the *Indies* are chiefly Silks, both raw and manufactured, Cottons, Callicoes, Muslins, Drugs; Tea, Coffee, China-Ware, Rice, Sago, Red-wood, Salt-petre, Pepper, Carmania Wool, Indigo, *&c.*

For the Œconomy and Policy of the *United Company*; all Persons without Exception, are admitted Members of it, native and Foreigners, Men and Women, with this Circumstance, that 500 *l.* in the Stock of the *Company* gives the Owner a Vote in the general Courts, and 2000 *l.* qualifies him to be chosen a Director. The Directors are twenty-four in Number, including the Chairman and Deputy Chairman; but may be re-elected for four Years successively. They have a Salary of 150 *l. per Ann.* and the Chairman of 200 *l.* The Meetings or Courts of Directors, are to be held at least once a Week, but are commonly summoned as Occasions require.

Out of the Body of Directors are chosen divers Committees, who have the peculiar Inspection of certain Branches of the *Company*'s Business: As the Committee of Correspondence, Committee of Buying, Committee of Treasury, Committee of Warehouses, Committee of Shipping, Committee of Accompts, Committee of private Trade, Committee of House, and Committee to prevent the Growth of private Trade.

Other Officers of the *Company* are—a Secretary, an Assistant with six Clerks; two Cashiers, with five Clerks; a chief Accomptant with three Assistants, and twenty-two Clerks; a head Accomptant of the freight Accompts, with three Clerks; a Paymaster, with two Assistants, and one Clerk; to which may be added a Surveyor of Ships and two Assistants; a Ships-husband for receiving the *Company's* Goods at the Water-side, with an Assistant, and three Elders, a Sollicitor for Law Affairs, besides Warehouse-keepers, Elders, and Labourers employed in the several Warehouses.

The Warehouses or Magazines of the *Company* are—that for *Bengal* Goods, which is managed by a Warehouse-keeper, and his Assistant, with three Elders; under whom are a Number of Porters, employed at daily Wages. *St. Helen*'s Warehouse for Coast and *Surat* Goods, in which are two Warehouse-keepers, and four Elders, besides Labourers. The Drugs Warehouse for Drugs and China Wares. Pepper Warehouse—Lastly, the private Trade Warehouse, all officered much like the first.

The *Company* has no Ships of its own, except few small Crafts used in the *Indies*: The rest, whereby their Commerce is carried on, belong to other Persons who build and let them out on Freight to the *Company* for each Voyage, according to the Terms of a Charter-party agreed on. By the By-laws of the *Company* no Vessels are to be hired, wherein any Director is concerned, directly or indirectly, either as Owner or Part-owner: A Regulation which, it is said, is not strictly observed.

No Persons are allowed to have any private Trade, except the *Company*'s Officers and Seamen sent to *India* on board their Ships, who are licensed to carry out and bring back Commodities to a certain Value, greater or less according to their Rank: But at their Return their Cargoes are to be consigned to the *Company*, and sold by them at their next Sale: The *Jews* also, and other Dealers in Diamonds, are allowed to trade for themselves by the *Company*'s Ships, on allowing so much *per Cent.* to the *Company* for Freight.

The Company has three principal Settlements, *viz.* Fort *William* in *Bengal*; Fort *St. George* on the Coast of *Coromandel*, and the Island of *Bombay*; each of which has several subordinate Factories.

The Factories dependant on Fort *William*, are *Cassimbuzar*, *Patna*, *Dacca*, *Ballasore* and *Jugdea*. Those on Fort *St. George*, are Fort *Marlborough*, Fort *St. David*, *Vizagapatam*, *Ingeram*, and *Madipollam*. Those on the Island of *Bombay*, are *Ganbroon*, *Surat*, *Anjingo*, and *Tellicherry*.

The Royal African Company, established for the Commerce of the Coasts of *Guinea*, is governed much like that of the *East-Indies*; its Privilege is exclusive: It sends out, yearly, ten or a dozen Ships of about 150 Ton, loaden with old and new Draperies, Iron Works, Scissars, Knives, Muskets, Cottons, and other less considerable Merchandizes. The Returns are in Gold-dust, Elephants Teeth, Wax, and Leathers: But the best Article of its Commerce is the Negroes, which it sends to *Jamaica*, *Barbadoes*, and other *English* Isles in *America*; frequently even to the Ports of *New Spain*.

The first Eablishment of this *Company*, was by a Charter granted in 1661, in Favour of the Duke of *York*, afterwards King *James* II. securing to him the Commerce of all the Country, Coasts, Islands, *&c.* belonging to the Crown of *England*, or not possessed by any Christian Prince; from Cape *Blome* in 20 Deg. North Lat. to the Cape of *Good Hope* in 34 Deg. 30 Min. South Lat. The Charter was soon after returned into the King's Hand by the Duke, and revoked by Consent of the Parties associated with him in the Enterprize; and a new Charter granted in 1663, with ampler Privileges than the former. The principal Adventurers here, were Queen *Katherine* of *Portugal*, Queen *Mary* of *France*, the Duke of *York*, *Henrietta Maria*, Duchess of *Orleans*, Prince *Rupert*; in brief, the whole Court came into it. The other Adventurers, *i. e.* those who were to be charged with the Management of Affairs, were chosen from among the wealthiest and ablest Merchants, especially those who had already dealt to those Countries. By this Charter the Grant was enlarged, and the *Company* put in Possession of all the Countries, *&c.* between the Port of *Sally* in S. *Barbary* to the Cape of *Good Hope* for a thousand Years; only reserving to the Crown the Homage thereof, with the Acknowledgment of two Elephants to be presented the King or his Successors, every Time any of them should set Foot within the Countries and Colonies in their Grant.

The Privileges granted by the Charter are, first, that the *Company* shall be a Corporation, or Body Politick; shall have a Common Seal bearing on one Side an Elephant, supported by two Negroes; on the other the King's Portrait. That the Governor with his Deputy, and seven of the twenty-four Assistants, be authorized to take on them the Direction of Affairs; that they may hold Courts, make Laws, inflict Punishments, *&c.* provided, still, they be equitable, and consistent with the Laws of *England*. That the Adventurers may transfer their Stock at Pleasure; provided the transfering be made in open Court and be registered: That they may equip and send out what Vessels they please, for Commerce or War; but that they pay the Duties and Customs. That no Vessels but those of the *Company*, and those authorized by it, shall traffick within the Limits of its Grant, on pain of Confiscation: That the *Company* may make War, in Defence of its Colonies, against Invaders, *&c.* that it have the Benefit of all the Mines in its Territories; the King only reserving to himself two Thirds of the Gold Mines, upon bearing two Thirds of the Expence. Lastly, that the King reserves for himself and his Successors, the Right of intervening, and being admitted at any Time a Sharer in the Stock, upon contributing a proportionable Sum to the rest.

This Charter was confirmed by new Letters Patent in 1673; followed by a Proclamation, inforcing the Observance of the Article of Exclusion; but neither Charter nor Proclamation being able to secure them from Interlopers, they had Recourse to the Protection of King *James* II. who had been twice of the Number of Merchants Adventurers; of whom they obtained a most severe Declaration in their Behalf, in the Year 1685.

On

On this Foot the *Company* has stood ever since, till the Year 1720; when a new *African Company* being formed by the Duke of *Chandois* and others; and a Charter purchased at the Expence of 250,000 *l. Sterling*; the two Companies soon became united.

The HAMBURGH COMPANY is the oldest trading Establishment in *England*, though not always known by that Name, nor restrained to those narrow Bounds, under which it is now confined. It was first called the *Company* of Merchants trading to *Calais*, *Holland*, *Zealand*, *Brabant*, and *Flanders*: Then it acquired the general Title of *Merchant Adventurers* of *England*; as being composed of all the Merchants trading to the *Low Countries*, the *Baltick*, and the *German* Ocean. Lastly, it was called the *Company of Merchant Adventurers of* England *trading to* Hamburgh.

This *Company*, as well as others in *England* built on its Model, is very different from those abovementioned; and differs widely from the ordinary Plan and System of such Societies. In effect, this is not a Society of Dealers, each furnishing a Part of the Sum to constitute the capital Stock of the *Company*; but a mere Association, or Body of Merchants, who have nothing in common but the Grant and Privilege of trading to *Hamburgh*, and some other Cities of *Germany*; each managing his own Commerce, and on his own Bottom; only observing a certain Discipline, and some Regulations which none but the *Company* can establish or change.

The first Charter, whereby the *Hamburgh Company* was established, was in 1406, under the Reign of King *Henry* IV; it was afterwards confirm'd, and augmented with divers Privileges, by many of his Successors; among the rest, by *Henry* V, in 1413; *Henry* VI, in 1422; *Henry* VII, in 1493, 1505, and 1506; *Henry* VIII, in 1509, 1517, and 1531; *Edward* VI, in 1547; Queen *Mary*, in 1553; *Elizabeth*, in 1564, and 1586; *James* I, in 1605; and *Charles* II, in 1661. But of all these Charters, there are properly none but those of *Henry* IV, *Henry* VII, *Elizabeth*, *James*, and *Charles*, that are of any Importance, or that give the *Company* any Thing new; the rest being only simple Confirmations.

Before the Charter of *Henry* IV, all the *English* Merchants who trafficked out of the Realm, were left to their own Discretion, and managed Affairs with Foreigners as might be most for their respective Interests, without any Regard to the general *Commerce* of the Nation. *Henry* observing this Disorder, endeavoured to remedy it, by uniting all the Merchants in his Dominions into one Body; wherein, without losing the Liberty of trading each for himself, they might be governed by a *Company* still subsisting, and be subject to Regulations, which should secure the general Interest of the national *Commerce*, without Prejudice to the Interest of Particulars. With this View, he granted all the Merchants of his Dominions, particularly those of *Calais*, then in his Hands, a Power of associating themselves into a Body Politick, with Directors and Governors, both in *England* and Abroad, to hold Assemblies, both for the Direction of Business, and the deciding of Controversies among Merchants; make Laws, punish Delinquents, and impose moderate Duties and Taxes on Merchandizes and Merchants, to be employed in the Service of the Corporation.

These few Articles of the Charter of *Henry* IV, were much augmented by *Henry* VII, who first gave them the Title of *Merchant-Adventurers* to *Calais*, *Holland*, &c. gave them a Power of proclaiming and continuing free Fairs at *Calais*, and ordered that to be reputed a Member of the Society, each Person should pay 20 Marks Sterling; and that the several Members should attend the general Meetings, or Courts appointed by the Directors, whether at *London*, *Calais*, or elsewhere. The Non-execution of this last Article, and Contempt of some of the rest, occasioning great Inconveniencies to the *Company*'s Affairs, another Charter was procured, whereby the Pain of Imprisonment was menaced, for those who should absent themselves from the Meetings without a lawful Cause; or should disobey the Laws.

A Petition being made to Queen *Elizabeth*, in 1564, for an Explanation of certain Articles in the Charter of *Henry* VII, and a Confirmation of the rest granted by other Kings; that Princess, by a Charter of the same Year, declares; that to end all Disputes, they shall be incorporated a-new, under the Title of the *Company of Merchant-Adventurers of* England; that all who were Members of the former *Company*, should, if they desired it, be admitted Members of this: That they should have a common Seal; that they should admit into their Society what other Persons, and on what Terms they pleased, and expel them again, on their Misbehaviour: That the City of *Hamburgh*, and neighbouring Cities, should be reputed within their Grant, together with those of the *Low Countries*, &c. in that of the former *Company*. That no Member should marry out of the Kingdom, nor purchase Lands, *&c.* in any City beyond Sea; and that those who do, shall be, *ipso facto*, excluded for ever.

Twenty-two Years after this first Charter, Queen *Elizabeth* granted them a second, confirming the former; and further granting them a Privilege of Exclusion, with a Power of erecting in each City within their Grant, a standing Council.

The woollen Manufacture being the principal Object of their Application, they met with great Opposition therein, first from the *Hanse*, who forc'd them frequently to change their Mart, or Staple; and afterwards under King *James* I, who having erected a Corporation in 1616, in Favour of some private Persons, who offered to set up a Manufacture for dying and pressing Cloth, *&c.* under Pretence whereof, the *Company* of *Merchant-Adventurers* was prevented dealing therein. But the Project not succeeding, and the Charter being revoked two Years afterwards, the *Merchant-Adventurers*, whose *Company* had been dissolved two Years before, were restored, in 1617, to their antient Privileges, and a new Charter was given them, confirming their exclusive Right, and allowing them to have Officers in the several Custom-Houses, to have an Eye that they were not prejudiced in their woollen Manufacture, under Pretence of the like Merchandizes which others were allowed to send to other Parts. This Charter of King *James*, is the last of those confirm'd by *Charles* II, in the grand Charter of 1661.

The Revolutions which had happen'd in the *Low Countries* towards the End of the 16th Century, and which laid the Foundation of the Republick of *Holland*, having hinder'd the *Company* from continuing their *Commerce* with their antient Freedom; it was oblig'd to turn it almost wholly to the Side of *Hamburgh*, and the Cities on the *German* Ocean; from which Change, some People took Occasion to change its Name to that of *Hamburgh Company*.

The RUSSIA COMPANY was first projected towards the Reign of King *Edward* VI, executed in the 1st and 2d Years of *Philip* and *Mary*; but had not its Perfection till its Charter was confirm'd by Act of Parliament under Queen *Elizabeth*, in 1566. It had its Rise from certain Adventurers who were sent in three Vessels on the Discovery of new Countries, and to find out a *North-East* Passage to *China*: These falling into the White Sea, and making up to the Port of *Archangel*, were exceedingly well receiv'd by the *Muscovites*, and at their Return sollicited Letters Patents to secure to themselves the *Commerce* of *Russia*, for which they had form'd an Association.

The Charter was promised them by *Edward* VI, but he dying, was first dispatch'd by Queen *Mary*, in 1555. By this Charter, the Association was declar'd a Body Politick, under the Name of the *Company of Merchant Adventurers of* England, *for the Discovery of Lands, Territories, Islands*, &c. *unknown, or unfrequented*. Their Privileges were, to have a Governor, 4 Consuls, and 24 Assistants, for their *Commerce*; for their Policy to make Laws, inflict Penalties, send out Ships

to make Discoveries, take Possession of them in the King's Name, set up the Banner Royal of *England*, plant them, and, lastly, the exclusive Privilege of trading to *Archangel*, and other Ports of *Muscovy*, not yet frequented by the *English*.

This Charter not being sufficiently guarded, was confirm'd by Parliament, in the 8th Year of Queen *Elizabeth*; wherein it was enacted, that in Regard the former Name was too long, they should now be called the *Company of* English *Merchants for discovering new Trades*; under which Name, they should be capable of acquiring, and holding all Kinds of Lands, Manors, Rents, *&c.* not exceeding 100 Marks *per Ann.* and not held of her Majesty. That no Part of the Continent, Island, Harbour, *&c.* not known or frequented by the first Enterprize of the Merchants of their *Company*, situate to the *North*, *North-West*, or *North-East* of *London*, nor any Part of the Continent, Islands, *&c.* under the Obedience of the Emperor of *Russia*, or in the Countries of *Armenia*, *Media*, *Hircania*, *Persia*, or the *Caspian Sea*, shall be visited by any Subjects of *England*, to exercise any *Commerce*, without the Consent of the said *Company*, on Pain of Confiscation. The said *Company* shall use no Ships in her new *Commerce*, but those of the Nation; nor transport any Cloths, Serges, or other woollen Stuffs, till they have been dyed and pressed. That in Case the *Company* discontinue of itself to unload Commodities in the Road of the Abbey of St. *Nicholas* in *Russia*, or some other Port on the *North* Coasts of *Russia*, for the Space of 3 Years; the other Subjects of *England* shall be allow'd to traffick to *Narva*, while the said *Company* discontinues its *Commerce* into *Russia*, only using *English* Vessels.

This *Company* subsisted with Reputation almost a whole Century, till the Time of the Civil Wars. It is said, the Czar then reigning (who was *Alexis Michael*) hearing of the sacrilegious Murder of King *Charles* I, order'd all the *English* in his Dominions to be expell'd; which the *Dutch* taking the Advantage of, settled in their Room. After the Restoration, the Remains of the *Company* re-establish'd Part of their *Commerce* at *Archangel*, but never with the same Success as before; the *Russians* being now well accustom'd to the *Dutch* Merchants and Merchandize.

This *Company* subsists still, nearly on the Foot of that of *Hamburgh*, and the *Northern* and *Turkey Companies*, *i. e.* each Member thereof trafficks for himself, and on his own Bottom, only paying an Acknowledgment of 12 or 13 *l.* Sterling, besides some other Dues impos'd from Time to Time for the Occasions of the *Company*, and the *Commerce* in general.

The NORTH-SEA COMPANY, or, as some, more agreeably to its Charter, call it, *East-Land Company*, is establish'd on the Foot of that of *Hamburgh*, from whence it appears to have been dismember'd. Its Charter is dated in the Year 1579; by the first Article the *Company* is erected into a Body Politick, under the Title of the *Company of Merchants of the East*; to consist of *Englishmen*, all real Merchants, who have exercis'd the Business thereof, and traffick'd thro' the Sound, before the Year 1568, into *Norway*, *Sweden*, *Poland*, *Livonia*, *Prussia*, *Pomerania*, &c. as also, *Revel*, *Koningsberg*, *Dantzick*, *Copenhagen*, &c. excepting *Nerva*, *Muscovy*, and its Dependencies. Most of the following Articles grant them the usual Prerogatives of such *Companies*; as a Seal, Governor, Courts, Laws, *&c.*

The Privileges peculiar to this *Company*, are, that none shall be admitted a Member, who is already a Member of any other *Company*; not any Retail Dealer at all. That no Merchant qualified be admitted, without paying 6 Pounds, 13 Shillings, and 6 Pence. That a Member of another *Company*, desiring to renounce the Privileges thereof, and to be receiv'd into that of the *East*, shall be admitted *gratis*, provided he procures the same Favour for a Merchant of the *East*, willing to fill his Place. That the *Merchant-Adventurers* who never dealt in the *East*, in the Places expressed in the Charter, may be receiv'd as Members of the *Company*, on paying 40 Marks. That notwithstanding this Union of the *Adventurers* of *England* with the *Company* of the *East*, each shall retain its Rights and Privileges. That they shall export no Cloths but what are dy'd and press'd, except 100 Pieces *per Ann.* which are allow'd them *gratis*.

The Charter was confirm'd by *Charles* II, in 1661, with this Addition, that no Person, of what Quality soever, living in *London*, should be admitted a Member, unless he were free of the City.

The TURKEY COMPANY, or LEVANT COMPANY, is establish'd on the Foot of the *Hamburgh Company*, *i. e.* there is no common Fund, wherein the *Adventurers* deposit their Stock, to make one single *Commerce*, but the *Commerce* thither is free, each Member trafficking for himself; but observing, withal, the Rules and Orders of the *Company*, and contributing occasionally towards the common Expences.

This flourishing Body had its Rise under Queen *Elizabeth*; *James* I. confirm'd its Charter in 1606, adding new Privileges. During the Civil Wars, there happen'd some Innovations in the Government of the *Company*; many Persons having been admitted Members, not qualified by the Charters of Queen *Elizabeth* and King *James*, or that did not conform to the Regulations prescrib'd. *Charles* II, upon his Restoration, endeavour'd to set it upon its antient Basis, to which End, he gave them a Charter, containing not only a Confirmation of their old one, but also several new Articles of Reformation. By this the *Company* is erected into a Body Politick, capable of making Laws, *&c.* under the Title of the *Company of Merchants of* England *trading to the Seas of the* Levant. The Number of Members is not limited, but is ordinarily about 300. The principal Qualification requir'd, is, that the Candidate be a Freeman of *London*, and a Wholesale Merchant, either by Family, or by serving an Apprenticeship of seven Years. Those under 25 Years of Age, pay 25 *l.* Sterling, at their Admission; those above, twice as much. Each makes Oath, at his Entrance, not to send any Merchandizes to the *Levant*, but on his own Account; and not to consign them to any but the *Company*'s Agents, or Factors.

The *Company* has a Court, or Board, at *London*, compos'd of a Governor, Deputy-Governor, and 12 Directors, or Assistants; who are all actually to live in *London*, or the Suburbs. They have also a Deputy Governor in every City and Port, where there are any Members of the *Company*. The Assembly at *London* sends out the Vessels, regulates the Tariff for the Price at which the *European* Merchandizes, sent to the *Levant*, are to be sold; and for the Quality of those return'd. It raises Taxes on Merchandizes, to defray Impositions, and the common Expences of the *Company*; presents the Ambassador which the King is to keep at the Port, elects two Consuls for *Smyrna* and *Constantinople*, &c.

One of the best Regulations of the *Company*, is, not to leave the Consuls, or even Ambassador, to fix the Imposition on Vessels for defraying the common Expences, (a Thing fatal to the *Companies* of most other Nations) but to allow a Pension to the Ambassador and Consuls, and even to the chief Officers; as Secretary, Chaplain, Interpreters, and Janizaries; that there may not be any Pretence for their raising any Sum at all on the Merchants, or Merchandizes.

In extraordinary Cases, the Consuls, and even Ambassador himself, have Recourse to two Deputies of the *Company* residing in the *Levant*; or, if the Affair be very important, assemble the whole Nation. Here are regulated the Presents to be given, the Voyages to be made, and every Thing to be deliberated; and on the Resolutions here taken, the Deputies appoint the Treasurer to furnish the Monies, *&c.* requir'd. It is true, the Ambassador and Consuls may act alone on these Occasions; but the Pension being allow'd them on Condition of declining them, they chuse rather to sit still.

The ordinary *Commerce* of this *Company* employs from 20 to 25 Vessels, from 25 to 30 Pieces of Cannon

The Merchandizes exported thither are Cloths of all Kinds and Colours, Pewter, Lead, Pepper, Cochineel, and a great deal of Silver, which they take up at *Cadiz*: The Returns are in raw Silks, Galls, Camlets, Wools, Cottons, Morocco Leather, Ashes for making Glass and Soap, and several Gums, and medicinal Drugs.

The Commerce of this *Company* to *Smyrna*, *Constantinople*, and *Scandaroon*, is not esteemed much less considerable than that of the *East-India Company*; but is, doubtless, more advantageous to *England*; in regard it takes off more of the *English* Manufactures than the other, which is chiefly carried on in Money.

The Places reserved for the Commerce of this *Company* are all the States of *Venice*, in the Gulph of *Venice*; the State of *Ragusa*; all the States of the Grand Seignior, and the Ports of the *Levant*, and *Mediterranean*; excepting *Carthagena*, *Alicant*, *Barcelona*, *Valencia*, *Marseilles*, *Toulon*, *Genoa*, *Leghorn*, *Civitta Vecchia*, *Palermo*, *Messina*, *Malta*, *Majorca*, *Minorca*, and *Corsica*, and other Places on the Coast of *France*, *Spain* and *Italy*.

Many take the SOUTH-SEA COMPANY, established towards the Close of the 17th Century, to have been originally intended, rather as a political Contrivance for raising a Fund of Money, to serve in the pressing Occasions of the State, than as a real Establishment for the Sake of Commerce. For the Nation being exhausted of Money by the long Wars with *France (and who but Madmen could wish for another)* it is no Wonder the Phantom of a new *Company* should be raised to bring in the Subscriptions of the monied Men, as the only Expedient to be supplied with Money, without dissatisfying the People, already wore out with Subsidies, *&c.* Be this as it will, it is certain the Ministry never thought seriously, during the whole Course of the War, about making any Settlement on the Coast of *South-America*; which was the Thing wherewith the People were first flattered: Besides, that the Fund having been apparently perverted to defray the Expences of the War, its Value was so lowered, that it must, in all Probability, have sunk outright, but for the unexpected Help it met with in 1713, by the *Treaty of Utrecht*, the Business of the *French* Assiento *Company*, which was to furnish the *Spanish West-Indies* with Negroes, was resigned to the *English*, in favour of the *South-Sea Company*; which by this Turn relieved itself from its languishing Condition, and became in a Condition to vie with the most flourishing *Companies* of Commerce in *England*. The Treaty of this *Company* with the *Spaniards* commences from *May* 1713, and was to hold 30 Years; during which Time the *Company* was to furnish the *Spanish America* with 144,000 Negroes, of both Sexes, between fifteen and twenty-five Years of Age, sound, *&c.* at the rate of 4800 *l. per Ann.* and for all they furnished besides, only to pay half the Dues to the King of *Spain*, for the first 25 Years of the Farm, or *Assiento*. It may be added, that in Consideration of 200,000 Piastres paid in Advance to the King of *Spain*, to be reimbursed as the Dues rise for the first ten Years, the *Company* was only to pay Dues for 4000. The King's Due is 33 Piastres ½ *per* Head.

Note, that a *Negro* between 17 or 18 and 30 Years of Age, was antiently only valued at about 45 Shillings, in their own Country, and in the Commodities proper for that Country, which are Brandies, Iron, Linnen, Paper, Brass Pots, Basons, *&c.* But their Value is now much enhanced, and it is seldom they meet with a good *Negro*, for 5 *l.* they frequently give 7 or 8.

There are various Ways of procuring them: Some, to avoid Famine, sell themselves, their Wives and Children, to their Princes, or great Men, who have wherewithal to subsist them. Others are made Prisoners in War; and great Numbers seized in Excursions made for that very Purpose, by the Petty Princes upon one anothers Territories; in which it is usual to sweep away all, both Old and Young, Male and Female. The Negroes make a frequent Practice of surprizing one another while the *European* Vessels are at Anchor, and drag in those they have caught, to them, and selling them in spite of themselves; and it is no extraordinary Thing to see the Son sell, after this Manner, his Father or Mother, and the Father his own Children, for a few Bottles of Brandy, and a Bar of Iron.

As soon as the Ship has its Complement, it immediately makes off; the poor Wretches, while yet in Sight of their Country, falling into such deep Grief and Despair in the Passage, that a great Part of them languish, fall into Sickness, and die; others dispatch themselves by refusing their Food; others by stopping their Breath, in a Manner peculiar to themselves, by turning and folding their Tongue, which immediately strangles them; others dash out their Brains against the Ship; and others jump overboard. The only sure Means to preserve them is to have some musical Instrument play to them, be it ever so mean. But this excessive Love for their Country abates as they get further off. At their Arrival in the Colonies each *Negro* is sold for 38 or 40 *l.* they make the chief Riches of the Inhabitants of the Islands, *&c.* a Man, *v. gr.* who has twelve *Negroes* is esteemed a rich Man.

The last Article of the Treaty between the *Spaniards* and the *South-Sea Company*, gave them a farther Privilege, which was, that the *English Assientists* should be allowed, every Year, to send to the *Spanish America*, a Ship of 500 Tons, loaden with the same Commodities the *Spaniards* usually carry thither; with a Licence to sell the same concurrently with them, at the Fairs of *Porto Bello*, *Carthagena*, and *Vera Cruz*. This additional Article was supposed as advantageous to the *Company*, as the whole Contract besides; being granted contrary to the usual *Spanish* Policy, which has ever preserved the Commerce of their *America* to themselves. Some new Articles had been added since, to the antient *Assiento*; as that the *English* should send their Register Ships yearly, even though the *Spanish* Flota and Galleons should not go; and that for the first ten Years the said Ships may be of 650 Ton.

The chief Establishment of the *French Assiento Company* was at *Buenos Ayres*, a Town of considerable Trade on the Coast of *South-America*. The *South-Sea Company*, who, without changing their Name, took on them the *Assiento*, or Farm of Negroes, preserved the same Establishment; and it is here their Vessels disembarked their Negroes, which they had purchased through all the Coasts of *Africa* within their Grant.

The *Company*, it is certain, set out with good Success; and there was room to hope still better; since, besides that the Value of their Stock the first five Years, rose faster, in Proportion, than that of any other Company; his late Majesty, after purchasing 10,000 *l. Sterling* therein, was pleased to condescend to be their Governor.

Under the Auspices of this *South-Sea Company*, was formed, in 1720, that monstrous Scheme, the Execution thereof in 1720-21, proved oppressive to the whole Nation in general, and caused the entire Ruin of a great Number of Families, which were not in the infamous Secret.

The pretended Design of these Undertakings, was to raise a Stock for the retrieving, setting on Foot, and carrying on some promising and useful Branch of Trade, Manufacture, Machinery, or the like. In order to which Proposals were given out, shewing the Advantages of the Design, and inviting Persons into it. The Sum necessary to carry on the Affair, together with the Profit expected from it, were divided into a certain Number of Shares, or Subscriptions, to be purchased by Persons disposed to adventure therein. The real Design, in some, was to raise a Sum for the private Advantage of the Projectors; to be laid out by them in *South-Sea* Stock, *&c.* in hopes by the Rise thereof, to be able to refund the Subscribers Money, with

with Profit to themselves. In others the Design was absolutely to defraud the Adventurers of their Subscription-money, without any View to Restitution.

There was a third Kind somewhat different: The Projectors of these, to proceed the more securely, proposed to have Books opened and Subscriptions taken at some Time to come; and in the mean Time took Money, by way of Premium, to entitle Persons to be admitted Subscribers, as soon as the Affair should be ripe, for dividing into Shares: Several thousand Shares were thus frequently bespoke in one Day; and Premiums from one Shilling to some Pounds, paid thereupon, to the Profit of the Projectors.

The Number of BUBBLES, and their Qualities, were very extraordinary: Some of them too authorized by Patents; and in others, the Projectors and their Proprietors formed into Corporations: Some for Fisheries, some for Insurances, some for the digging of their Mines, &c. but all in general for picking Pockets. Posterity, doubtless, will be surprised to hear of BUBBLES, for cleaning the Streets, others for furnishing Shoes, others for Stockings, others for Physick, others for the Maintenance of Bastard Children, others for buying bad Titles, others for the lending of Money, &c.

The HARBOROUGH COMPANY, was designed to set on Foot an immediate Commerce, between the Subjects of *England*, and those of his Britannick Majesty's *German* Territories. The first Scheme was laid in 1717; and a Charter obtained some Time after.

The WEST-INDIA COMPANIES, or those of the *English* Colonies in *North-America*, are of a lower Class than those abovementioned; and too numerous to be here described. Their Names are, the *Hudson's Bay Company*, *Virginia Company*, *New England*, *New York*, *Pensilvania*, *New Scotland*, *Massachuset*, *Connecticut*, *Bermudas*, *Tobago*, and *Carolina Companies*.

The SCOTCH DARIEN COMPANY, was established with a good Prospect at *Edinburgh*, in 1699, for the Commerce of *South-America*. They sent an Armament and a Colony, which they endeavoured to establish in the Isthmus of *Darien*, which parts *North* and *South-America*: But the *English* Ministry not thinking proper to avow the first Successes of the *Company*, which had alarmed *Spain*, ever jealous of this Part of her Territories, the *Scotch* Colony was dispersed by the *Spaniards* in 1700: And thus vanished the best Project that ever was formed, for disputing with that Nation the Possession of those Countries, from which she pretends to exclude all other Nations.

There are likewise several *Companies of Commerce* established in *France*, viz. the *East-India Company*, *West-India Company*, *French Missisippi Company*, *Company of the West*, *India Company*, *Company of the Bastion of France*, *Guinea Company*, and *Assiento Company*. Among those different Companies some of them have been suppressed, some incorporated, and others are yet subsisting.

Of these last is the FRENCH EAST-INDIA COMPANY, established in 1664, with an exclusive Privilege to trade for 30 Years in all the Seas of the *East-Indies* and *South-Sea*: No Adventurer to be admitted without 1000 Livres in Stock; and Foreigners who have 20,000 Livres in Stock, to be reputed Regnicoles. The Patent grants them the Island of *Madagascar*; and the King to be at one Fifth of the Expence of the three first Armaments, without Interest; the Principal to be refunded in ten Years; or if the *Company* find it loses on the whole, the Loss to fall on the King's Side.

The capital Fund of the Company, which was mostly furnished by the King, was seven or eight Millions of Livres, but was to have been 15 Millions. But though no Means were wanting to support the *Company*, yet it still drooped, and still struggled; till having subsisted ten Years without any Change in its Form, and being no longer able to discharge its Engagements, there were new Regulations concerted; but to little purpose. At length Things not being disposed for a new *East-India Company*, nor much Good to be expected from the old one, in 1708 the Ministry allowed the Directors to treat with the rich Traders of St. *Malo*, and resign to them their Privilege under certain Conditions. In the Hands of these last the *Company* began to flourish.

Its chief Factory is at *Pontichery*, or *Pondichery*, on the Coast of *Coromandel*: This is the Residence of the Director-general; the other Factories are inconsiderable. The Merchandizes which the *Company* brings into *France*, are Silks, Cottons, Spices, Coffee, Rice, Salt-petre; several Kinds of Gums and Drugs, Woods, Wax, printed Callicoes, Muslins, &c.

The FRENCH WEST-INDIA COMPANY, was established in 1664: Their Charter gave them the Property and Seigniory of *Canada*, *Acadia*, *Antilles* Islands, Isle of *Cayenne*, and the *Terra Firma* of *America*, from the River of the *Amazons* to that of *Oroonoko*; with an exclusive Privilege for the Commerce of those Places, as also of *Senegal* and the Coasts of *Guinea*, for forty Years, only paying half the Duties. The Stock of the *Company* was so considerable, that in less that six Months, 45 Vessels were equipped; wherewith they took Possession of all the Places in their Grant, and settled a Commerce; yet it only subsisted nine Years. In 1674 the Grant was revoked, and the Countries above re-united to the King's Dominions, as before; the King reimbursing the Actions of the Adventurers. This Revocation was owing partly to the Poverty of the *Company* occasioned by its Losses in the Wars with *England*, which had necessitated it to borrow above a Million; and even to alienate its exclusive Privilege for the Coasts of *Guinea*; but also to its having in good Measure answered its End; which was to retrieve the Commerce of the *West-Indies* from the *Dutch*, who had tore it from them: For the *French* Merchants being now accustom'd to the Traffick to the *Antilles*, by Permission of the *Company*, were so attach'd to it, that it was not doubted they would support the *Commerce* after the Dissolution of the *Company*.

The FRENCH MISSISIPPI COMPANY was first establish'd in 1684, in Favour of the Chevalier *De la Salle*; who having projected it in 1660, and being appointed Governor of the Fort *Frontigniac*, at the Mouth of that River, travell'd over the Country in the Year 1683, and return'd to *France* to sollicit the Establishment. This obtain'd, he set sail for his new Colony, with four Vessels laden with Inhabitants, &c. but entering the Gulph of *Mexico*, did not, it seems, know the River that had cost him so much Fatigue, but settled on another River unknown, where his Colony perish'd, by Degrees; so that in 1685 there were not 100 Persons remaining. Making several Expeditions to find the *Missisippi*, he was kill'd in one of them by a Party who mutiny'd against him; whereupon, the Colony was dispers'd, and lost. M. *Hiberville* afterwards succeeded better; he found the *Missisippi*, built a Fort, and settled a *French* Colony: But he was poison'd, it is said, by the Intrigues of the *Spaniards*, who fear'd such a Neighbour. In 1712, M. *Crozat* had the whole Property of trading to the *French* Territories call'd *Louisiane*, granted him for 15 Years.

In 1717, the Sieur *Crozat* surrender'd his Grant, and in the same Year a new *Company* was erected, under the Title of COMPANY OF THE WEST; to which, besides every Thing granted to the former *Company*, was added the *Commerce* of *Castor*, enjoy'd by the *Canada Company* from the Year 1706, but expiring in 1717. In this Establishment, an equal View was had to the Finances, and the *Commerce* of the Nation; and, accordingly, Part of the Conditions of its Establishment regarded the settling a Colony, Trade, &c. the other the vending Part of the *Bills of State*, which could no longer subsist on their present Footing. The former are no more than are usual in such Establishments; for the latter, the Actions are fix'd at 500 Livres, each payable in *Bills of State*, the Actions to be esteem'd as Merchandize; and in that Quality to be bought, sold, and traffick'd. The *Bills*

Bills of State which make the Fund of the Actions, to be converted into yearly Revenue. To put the finishing Hand to the *Company*, in 1717, its Fund was fix'd at an hundred millions of Livres, which being fill'd, the Cash was shut up.

The Junction of the former *Company* with that of *Canada*, was immediately follow'd by its Union with that of *Senegal*, both in the Year 1718, by an Arret of Council, which at the same Time granted the new *Company* the *Commerce* of *Castor*, and made it Mistress of the *Negro*, or *Guinea* Trade, to the *French* Colonies in *America*.

Nothing was now wanting to its Perfection, but an Union with the *East-India Company*, and with those of *China* and *St. Domingo*, which was effected; with the two first in 1719, and with the third in 1720. This Union of the *East-India* and *China Companies* with the *Company* of the *West*, occasion'd an Alteration of the Name, and it was henceforth call'd the INDIA COMPANY.

The Reasons of the Union were, the Inability of the two former to carry on their *Commerce*, the immense Debts they had contracted in the *Indies*, especially the *East Company*, Complaints whereof had been sent to Court by the *Indians*, which discredited the *Company* so, that they durst not appear any longer at *Surat*; lastly, the little Care they took to discharge their Engagements, and their having transferr'd their Privilege to the private Traders of *St. Malo*, in Consideration of a Tenth in the Profits of the Returns of their Ships.

The antient Actions of the *Company* of the *West* which were not at *Par* when this Engraftment was projected, e're it was compleated, were risen to 300 *per Cent.* which unexpected Success gave Occasion to conclude the new Actions of the united *Companies* would not bear less Credit. The Concourse of Subscribers was so great, that in a Month's Time there were above fifty Millions subscrib'd for: The first twenty-five Millions Actions which were granted to the *India Company* beyond the 100 Millions of Stock allow'd the *Company* of the *West*, being fill'd as soon as the Books were open'd; to satisfy the Earnestness of the Subscribers, the Stock was increas'd by several *Arrets* to three hundred Millions. Credit still increasing, the new Actions rose to 1200 *per Cent.* and those of the antient *Company* of the *West* to 1900 *per Cent.* an exorbitant Price, to which no other *Company* ever rose.

Its Condition was now so flourishing, that in 1719 it offer'd the King to take a Lease of all his Farms for 9 Years, at the Rate of 3500000 Livres *per Annum* more than had been given before; and to lend his Majesty twelve hundred Millions to pay the Debts of the State. These Offers were accepted; and the King, in Consideration hereof, granted them all the Privileges of the several Grants of the *Companies* united to that *Company*, to the Year 1770; on Condition, however, of discharging all the Debts of the old *East-India Company*, without any Deduction at all. The Loan of twelve hundred Millions (which are above sixty Millions Sterling) not being sufficient for the Occasions of the State, was augmented, three Months afterwards, with three hundred Millions more; which, with the former Loan, and another of one hundred Millions before, made sixteen hundred Millions: For which the King was to pay Interest at the Rate of 3 *per Cent.*

The Duke of *Orleans*, in *February* 1720, did the *Company* the Honour to preside in their Assembly, where he made several Proposals to them on the Part of the King: The principal was, that they should take on them the Charge and Administration of the Royal Bank. This was accepted, and Mr. *Law*, Comptroller-General of the Finances, was nam'd by the King, Inspector-General of the Company and Bank united.

This Union, which, it was propos'd, would have been a mutual Help to both those famous Establishments, prov'd the fatal Point from whence the Fall of both commenced. From this Time, both the Bank Bills, and the Actions of the Companies, began to fall; in Effect, the first perish'd absolutely, and the other had been drawn along with it, but for the prudent Precautions taken for its Support.

The first Precaution was, the revoking the Office of Inspector-General, and obliging Mr. *Law* to quit the Kingdom: The antient Directors were discarded, and new ones substituted; and to find the Bottom of the Company's Affairs, it was order'd, that they should give an Account of what they had receiv'd, and disburs'd, both on the Account of the Company, and of the Bank, which they had *had* the Management of near a Year. Another Precaution to come at the State of the Company, was, by endeavouring to distinguish the lawful Actionaries, from the *Missisippi*, Extortioners; whose immense Riches, as well as their criminal Address in realizing their Actions into Species or Merchandize, were become so fatal to the State; in order, if possible, to secure the honest Adventurers their Stock. To this End, an Inquisition was made into their Books, *&c.* by Persons appointed by the King; and the new Directors, or, as they were call'd, *Regisseurs*, began seriously to look about for their *Commerce* Abroad.

The *French* have had several other Companies, some whereof have fallen of themselves, the rest upon the Expiration of their Grants; as the

COMPANY OF THE BASTION OF FRANCE, which was at first a simple Association of two Merchants at *Marseilles*, in the 15th Century, for fishing of Coral in the Gulph of *Stora-Couzcoury*, on the Coast of *Barbary*, on the Frontiers of *Algiers* and *Tunis*. Having obtain'd Leave of the Sultan, *Soliman* II, to make an Establishment; and having likewise treated with the *Moorish* Princes of the Country; in 1561, they built a little Fort, call'd the *Bastion of France*, whence the Company took its Name. The first Undertakers not being successful, a new Grant was obtain'd of *Mahomet* III, in 1604, to new Undertakers: In 1628, it began to flourish, and the Colony consisted of 800 People; but the Death of their Governor, in 1633, gave them a Blow they never recover'd.

Several of the Companies have since endeavour'd to set up the fishing of Coral on its antient Foot, but hitherto in vain.

The GUINEA COMPANY was establish'd in 1685; its Grant expir'd in 1705, but it continu'd its Trade of *Negroes*, by the King's Permission, under the Name of *Assiento Company*, to the Year 1713; when, by the Treaty of *Utrecht*, that Trade was surrender'd (as we have observ'd already) to the *English South-Sea Company*.

The Term *Assiento*, or *Assionta*, is originally *Spanish*, and signifies a Bargain. Accordingly, the first *Assiento* was a Contract made with the *French Guinea Company*, whereby they were put in Possession of a Privilege for furnishing the *Spanish* Dominions in *America* with *Negro* Slaves, in Consideration of a certain Duty which they were to pay to the King of *Spain*'s Farms, for every *Negro* thus furnish'd.

This Contract was sign'd in the Year 1702, to last 10 Years, with a further Liberty allow'd the *Assientists* of two Years more, in Case they had not furnish'd the whole Number stipulated before. The two principal Articles regarded, first, the Number of *Negroes* to be provided, which was 3800 while the War lasted, and 4800 in Case of Peace. 2. The Duty to be paid the King of *Spain*, during the Farm, or *Assiento*; which was fix'd at 33 Pieces of Eight *per* Head, or *Pieza de India*.

The *Dutch* have, likewise, several Companies of *Commerce*, *viz.* the *Dutch East-India Company*, the *West-India Company*, the *North Company*, and the *Levant Company*.

The DUTCH EAST-INDIA COMPANY had its Rise in the midst of the Struggle which that People had for their Liberty: For the *Spaniards* having forbid all *Commerce* with them, and shut up all their Ports; Necessity inspir'd some *Zealanders* to seek a new *North-East* Passage to *China*.

This

This Enterprize proving unsuccessful to three several Armaments, in 1594, 1595, and 1596; a second Company was form'd, under the Name of the *Company of the remote Parts*; which in 1595 took the ordinary Rout of the *Portuguese* to the *Indies*, and return'd in two Years and a Half's Time, with little Gain, but good Hopes.

This Company, and a new one just establish'd at *Amsterdam*, being united, equipp'd other Fleets, and these occasion'd other Companies at *Amsterdam*, *Rotterdam*, *Zealand*, &c. insomuch, that the States began to apprehend they might be prejudicial to each other. Under this Concern, they call'd all the Directors of the several Companies together, who all consented to an Union, the Treaty whereof was confirm'd by the States in 1602; a very remarkable *Epocha*, as being that of the most solid and celebrated Establishment of *Commerce* that ever was in the World.

Its first Capital was 6440200 Florins, which was employ'd in the Equipment of two Fleets, one of 14 Vessels, which sail'd from *Holland* in the Month of *February* 1603; and the other of 13, which sail'd in the Month of *December* following. In this Fund, the undermention'd Cities of *Holland* participated, *viz.*

		Florins.
Amsterdam for the	$\frac{1}{4}$	3686430
Zealand	$\frac{1}{4}$	1275653
Delft	$\frac{1}{16}$	466552
Rotterdam	$\frac{1}{16}$	174562
Hoorn	$\frac{1}{16}$	268430
Enchuysen	$\frac{1}{16}$	568563
The whole Capital		6440200

At the Return of the two Fleets, the Company made so considerable a Profit, that in *April*, 1610, there was a Repartition made

Of —— —— 75 *per Cent.* in *Mace.*
In *November* following, of 50 *per Cent.* in *Pepper.*
In *December*, the same Year, of $7\frac{1}{2}$ *per Cent.* in *Cash.*

In all $132\frac{1}{2}$ *per Cent.* as above.

In *March*, 1612, there was a Repartition made,

Of —— —— 30 *per Cent.* in *Money.*
In *December* following, of $57\frac{1}{2}$ *per Cent.* in *Money.*

In all $87\frac{1}{2}$ *per Cent.* as above.

And in *August*, 1613, another Repartition made,
Of —— —— $42\frac{1}{2}$ *per Cent.* in *Money.*

This Company is grown so powerful, and has so many Vessels, and Means to equip them, that it is a Thing almost incredible. It often wages War against the most powerful Princes of the *East*, and, notwithstanding, continues its *Commerce*. It has in the *Indies* 160 Vessels, from 30 Pieces of Cannon to 60; and, in Time of War, can arm 40 of the largest.

The Company is govern'd by 60 Directors, divided into several Chambers; 20 in that of *Amsterdam*, 12 in that of *Zealand*, 14 in that of *Delft* and *Rotterdam*, and a like Number in those of *Sluys* and *Hoorn*. As each Grant expires, the Company is oblig'd to procure a new one, which it has already done four Times since the first, *viz.* one in 1622, for 21 Years, like the first; another for 21 Years, commencing in 1647; and a third in 1665, for 25 Years; a fourth in Advance, commencing in 1698, which ended in 1740. Each Grant cost the Company a considerable Sum; that in 1647 cost 1600000 Livres, and the two following ones more. The last of 1698 was confirm'd by a Placard of the States General, granting them an exclusive Privilege.

Their Factories, Residences, *&c.* in the *East-Indies*, are almost infinite, reaching from the *Persian* Gulph to the Coasts of *China*. The principal is that of *Batavia*, the Center of their Commerce: Here resides their General, with the State and Splendor of a Sovereign Prince: he never goes out but he has Horse Guards before his Coach, and Soldiers behind, with Pages walking by the Side of his Coach; and when he gives Audience to the Embassadors of the Eastern Kings, it is with an incredible Magnificence.

The other more considerable Factories are *Taicuam* on the Coast of *China*, *Nungisack* in *Japan*, *Malaca*, *Surat*, *Amboyna*, *Banda*, *Siam*, *Moluccas*, &c. several on the Coast of *Coromandel*, and at *Ispaban*, Cape of *Good Hope*, &c. in all, they number 40 Factories and 25 Fortresses.

The principal Merchandizes which the Company import into *Europe*, from the *East-Indies*, are brown and white Pepper, Salt-petre, Cinnamon, Nutmegs, Cloves, Cotton Cloths, Silk from *Persia*, *Bengal*, and *China*, Copper from *Japan*, Tin, Druggs, Musk, Amber, Pearls, Diamonds, *&c.*

Cloves, Nutmegs, and Mace, are Merchandizes peculiar to this *Company*, because they are found no where but in the *Molucca* Islands, the whole Commerce whereof the *Dutch* have engrossed to themselves. The Sale of these Commodities is held by the *Company* at two different Times, *viz.*

One half is sold in the Chamber of *Amsterdam*.
One fourth in that of —— *Middleburgh*.
One sixteenth in that of —— *Delft*.
One sixteenth in that of —— *Rotterdam*.
One sixteenth in that of —— *Hoorn*.
One sixteenth in that of —— *Anchuysen*.
All the Merchandizes are sold in Bank Money.

The *Dutch West-India* COMPANY, was established in 1621, with an exclusive Privilege to trade 24 Years along the Coasts of *Africa*, between the Tropick of *Cancer*, and the Cape of *Good Hope*, &c. and in *America*, from the South Point of *Newfoundland*, through the Streights of *Magellan*, that of *Le Meire*, or others to the Streight of *Anian*, both in the North and South Sea.

The Directors are divided into five Chambers (as in the *East-India Company*) out of which 19 are chosen for the general Direction of Affairs. In 1647 the *Company* renewed its Grant for 25 Years, but was scarce able to hold out the Term, by reason of its great Losses, and Expences in taking the Bay of *Todos los Santos*, *Fernambuck*, and the greatest part of *Brasil* from the *Portugueze*. The Weakness of this *Company*, which had several Times in vain attempted to be joined to that of the *East-Indies*, occasioned its Dissolution at the Expiration of its Grant.

In 1674 a new *Company*, composed of the antient Proprietors and their Creditors, was settled in the same Rights and Establishments with the former; and still subsists with Honour: Their first Capital was about six Millions of Florins. Its principal Establishments, are, one at Cape *Verd*, another on the Gold Coast of *Africa*, at *Tobago*, *Curasao*, &c. in *America*.

The *Dutch North* COMPANY, has no exclusive Privilege; the Advantages of its Patent being of another Kind, and very inconsiderable.

There are also in *Holland*, Companies for the *Baltick* Sea, the Fishery of *Nova Zembla*, *Davis*'s Streights, and *Greenland*: Yet none of these Fisheries are interdicted to private Traders; all the Difference between these and the *Companies* consisting in this, that the former may not go ashore to cut their Fish in Pieces, and melt their Lard; but must bring their Luggage to *Holland*.

In Strictness there is no *Levant Company* in *Holland*: But the Commerce of the private Traders is so considerable, that the State has taken the Regulation there of on itself. To this End they have established a Chamber of Direction at *Amsterdam*, composed of six Deputies and a Register; who, under the Burgomasters, take Care of every Thing relating to the Commerce of the *Mediterranean*; especially that of *Smyrna* and *Constantinople*. This *Company* names the Consuls, appoints

points the Number and Strength of Convoys, terminates Differences among the Traders; and has a Right on Occasion, to add new Regulations to the old ones; though those be of no Force, till confirmed by the States-General.

There are three *Companies* established in *Denmark*, *viz.* the *North Company*, the *Iceland Company*, and the *East-India Company*.

The *North* COMPANY, was established at *Copenhagen*, in 1647; its Establishments are very considerable in *Norway*; besides which it sends Vessels to *Waranger*, whence they convey their Merchandizes by Land into the *Danish Lapland*; and by Sledges drawn by Rein-Deers into the *Muscovite Lapland*. It sends others for *Borandai* and *Siberia*; where its Agents take them up, and convey them, in like Manner, on Sledges to *Panigorod*, the Capital of this Part of the *Muscovite* Empire.

The Commodities it sends thither are Rixdollars, Tobacco, and Linens; it returns nothing but Furs and Skins.

The *Iceland* COMPANY was established in the same Year with the *North Company*: Its chief Factory is *Kirkebar*, a large Town in that Island.

The *Danish East-India* COMPANY was established in the Middle of the 17th Century; their chief Factory is at *Tranquebar*, whither they send two or three Vessels every Year.

The *Genoese* had a *Levant* COMPANY established in 1664, and confirmed by the Porte. Its chief Commerce was to be in Pieces of 5 Sols, which the *Genoese* had before furnished the *Turks* withal, though in the *French* Name, and under their Banner; they were now to do it under their own Banner; and accordingly while the Humour of these Pieces lasted, as they served not only for Money, but were likewise used by the *Greek* and *Turkish* Women of the Islands, as Ornaments in their Head-dress, at the Bottom of their Vesres, or Petticoats, which were covered with them; the *Company* succeeded well enough; but that Money being decried in 1670, the Company has languished ever since; and can now scarce support a miserable Commerce.

Note, that there are several other Particulars relating to a Commerce by Sea (not yet mentioned) which a Merchant must be perfectly acquainted with, as those relating to the *Freight* of a Ship, *Charter-party*, *Average*, *Insurances*, &c.

The FREIGHT, or *Fraight*, is the Hire of a Ship, or of a Part of it; for the Conveyance, or Carriage of Goods from one Port, or Place, to another: Or the Sum agreed on between the Owner and the Merchant, for the Hire and Use of the Vessel. The *Freight* of a Vessel is commonly agreed on either at the Rate of so much for the Voyage, by the Month or *per* Ton.

Freight, or letting out Vessels on *Freight*, or Hire, is one of the principal Articles in the Trade of the *Hollanders*: They are the Carriers of all the Nations of *Europe*, and their Purveyors; notwithstanding that their Country produces nothing at all, and that they are forced to have every Thing necessary for the building of a Vessel from other Countries.

The principal Laws and Rules relating to *Freighting* are: That if a whole Vessel be hired, and the Merchant, or Person who hires it, do not give it its full Load or Burthen, the Master of the Vessel cannot without his Consent take in any other Goods, without accounting for the Freight.

That though the Merchant do not load the full Quantity of Goods agreed on in the *Charter-Party*, yet he shall pay the whole *Freight*; and if he load more, he shall pay for the Excess.

That the Master may set ashore such Goods as he finds in his Vessel, which were not notified to him; or take them at a higher Rate than was agreed on for the rest.

That if a Ship be stopped or detained in its Course, either through the Master or the Merchant's Default, the Delinquent shall be accountable to the other.

That if the Master be obliged to refit the Vessel during the Voyage, the Merchant shall wait; or else pay the whole *Freight*: If the Vessel could not be refitted, the Master is obliged to hire another immediately; otherwise only to be paid his *Freight* in Proportion to the Part of the Voyage performed; though, in Case the Merchant prove that the Vessel at the Time it set sail, was not capable of the Voyage, the Master must lose his *Freight*, and account for Damages to the Merchant.

That *Freight* shall be paid for Merchandizes which the Master was obliged to sell for Victuals, or refitting, or other necessary Occasions; paying for the Goods at the Rate the rest were sold at, where they were landed.

That in case of a Prohibition of Commerce with the Country whither the Vessel is bound, so that it is obliged to be brought back again: The Master shall only be paid *Freight* for going. And if a Ship be stopped or detained in its Voyage, by an Embargo by order of the Prince, there shall neither be any *Freight* paid for the Time of Detention, in case it be hired *per* Month: Nor shall the *Freight* be increased, if hired for the Voyage; but the Pay and the Victuals of the Sailors, during the Detention, shall be deemed Average.

That the Master shall take no *Freight* for any Ship lost by Shipwreck, plundered by Pyrates, or taken by the Enemy, unless the Ship and Goods be redeemed; in which Case he shall be paid his *Freight* to the Place where he was taken; upon contributing to the Redemption.

That the Master shall be paid his *Freight* for Goods saved from Shipwreck; and in case he cannot get a Vessel to carry them to the Place where they were bound, that he shall be paid in Proportion to the Part of the Voyage already gone.

That the Master may not detain any Merchandize in his Vessel, in default of Payment of *Freight*; though he may order them to be seized any Time, or any where afterwards. That if Merchandizes in Casks, as Wines, Oil, &c. have so run out in Carriage, that the Vessels are left empty, or almost empty; the Merchant may relinquish them, and the Master be obliged to take them for their *Freight*. Though this does not hold of any other Goods damaged, or diminished of themselves, or through Accidents.

Note, That *Freight* is also used for the Burthen, or Lading of a Ship; or the Cargo of Goods, &c. she has on board.

Freight, is also a Duty of 50 Sols *per* Tun, paid to the Crown of *France* by the Captains and Masters of all Foreign Vessels at their Entrance and coming out of the Ports and Havens of that Kingdom; and all Vessels not built in *France*, however they may belong to the Subjects of *France*, are reputed Foreigners and Subjects to this Impost; unless it be made appear, that two Thirds of the Ship's Crew are *French*. By the 11th Article of the Treaty of Commerce concluded at *Utrecht* between *England* and *France*, this Duty of 50 Sols *per* Tun was to have been remitted the *English*; and at the same Time the Duty of 5 *s. Sterling* to have been suppressed in Favour of the *French*: But the Execution of that Article, as well as the Tariff settled between the two Nations, has been suspended. The *Dutch* however, and the Hanse Towns are exempted from the Duty of *Freight*.

The CHARTER-PARTY, is the Instrument of Freightage, or Articles of Agreement for the Hire of a Vessel. The *Charter-party* is to be in Writing; and to be signed both by the Proprietor or the Master of the Ship, and the Merchant who freights it: It is to contain the Name and Burthen of the Vessel; those of the Master and the Freighter, the Price or Rate of Freight, the Time of loading and unloading, and the other Conditions agreed on. It is properly a Deed,

or Policy, whereby the Proprietor, or Maſter of the Veſſel, engages to furniſh immediately a tight ſound Veſſel, well equipped, caulked and ſtopped, provided with Anchors, Sails, Cordage, and all other Furniture to make the Voyage required, as Equipage, Hands, Victuals, and other Munitions; in conſideration of a certain Sum to be paid by the Merchant for the Freight. Laſtly, the Ship, with all its Furniture, and the Cargo, are reſpectively ſubjected to the Conditions of the *Charter-party*.

The *Charter-Party* differs from a *Bill of Lading*, in that the firſt is for the entire *Freight* or Lading, and that both for going and returning; whereas the latter is only for a Part of the *Freight*, or at moſt only for the Voyage one Way. The Preſident *Boyer* ſays that the Word comes from hence, that *per medium Charta incidebatur, et ſic fiebat Charta partita*; becauſe in the Time when Notaries were leſs common, there was only one Inſtrument made for both Parties; this they cut in two, and gave each its Portion, and joined them together at their Return, to know if each had done his Part. This he obſerved to have ſeen practiſed in his Time; agreeable to the Method of the *Romans*, who in their Stipulations, uſed to break a Staff, each Party retaining a Moiety thereof as a Mark.

Average, or Averidge, is the Damage which a Veſſel, or the Goods and Loading thereof ſuſtains from the Time of its Departure to its Return: As alſo from the Charge or Contributions raiſed on the Proprietors towards defraying ſuch Damages.

An Author, who has wrote a Treatiſe expreſs upon *Average*, diſtinguiſhes two Kinds thereof; ſimple, or private, and groſs or common.

To the firſt, the particular Thing which ſuffers, alone contributes; to the ſecond, all both the Ship and Merchandizes contribute in common.

Of the firſt Kind are all extraordinary and unforeſeen Expences and Accidents, befalling either the Ship or the Goods, or both; the Loſs in which Caſes, is to be wholly defray'd by the Thing or Things which occaſioned it: Such as the Loſs of Cables, Anchors, Maſts and Sails, by reaſon of Storms, *&c.* as alſo Damages accruing to Goods through their own Defects, by waſting, rotting, wetting, Storms, Pirates, *&c.* the Sailors Wages while the Ship is extraordinarily detained by Embargoes, provided ſhe be hired for the whole Voyage, and not *per* Month. All theſe are ſimple or private *Averages*, and not to be charged to the common Account.

For groſſer common *Average* to have Place, the Author, juſt mentioned, ſhews, 1. That ſomething muſt have been caſt into the Sea, and this out of abſolute Neceſſity. 2. That the Commander have had the Conſent of the Owners for ſo doing. 3. That it has only been done for the Safety of the whole Ship, and that the Ship has been ſaved in Conſequence thereof: In which Caſe, all thoſe for whoſe Intereſt the Thing has been caſt into the Sea, are to contribute to indemnify the Perſon whoſe Property it was: And every Thing is to be taxed hereto, ſo much as Jewels, Gold, *&c.* notwithſtanding they do not any way burthen the Ship; and even the Veſſel itſelf, but not Paſſengers, nor Proviſions.

To the Occaſions of common *Average*, may be added Compoſition with Pirates for the Ranſom of the Ship; as alſo Cables, Maſts, Anchors, *&c.* loſt or abandon'd for the common Good; the Food and Phyſick of the Sailors wounded in Defence of the Ship; and the Pay and Proviſions of the Crew when the Ship is arreſted, or put under Embargo by Order of the Prince, provided it were hir'd for the Month, and not for the whole Voyage.

Note, That *Average* is more particularly us'd for the *Quota*, or Proportion which each Merchant or Proprietor in the Ship's Loading, is adjudg'd, upon a reaſonable Eſtimation, to contribute to a common *Average*. Such Sum ſhall be divided among the ſeveral Claimers, by way of *Average*, in Proportion to their reſpective Intereſts and Demands.

Average is alſo a ſmall Duty which thoſe Merchants who ſend Goods in another Man's Ship pay to the Maſters thereof, for his Care of them, and above the *Freight*. Hence, in *Bills of Lading* it is expreſs'd, paying ſo much *Freight* for the ſaid Goods, with Primage and *Average* accuſtom'd. Thoſe *Bills of Lading* being an Inſtrument ſign'd by the Maſter of a Ship, acknowledging the Receipt of a Merchant's Goods, and obliging himſelf to deliver them, at the Place to which they are conſign'd, in good Condition. Of ſuch Bills there are uſually three: The *firſt* the Merchant keeps; the *ſecond* is ſent to the Factor to whom the Goods are conſign'd; and the *third* is kept by the Maſter of the Ship.

Insurance, or *Policy of Inſurance*, is a *Contract*, or *Convention*, upon which a Merchant having loaded, and cauſing Merchandizes to be tranſported by Sea or Land, fearing to loſe them, finds one, or ſeveral other Merchants, who oblige themſelves to pay, and repair the Loſs and Damages which could happen during the Voyage, to the Ship and Cargo, on Condition of ſo much *per Cent.* for a certain Sum inſur'd; which ſo much *per Cent.* is previouſly paid to the Inſurer, and is call'd *Prime Inſurance*, becauſe it muſt be paid before-hand in receiving the Policy ſign'd by the Inſurer, or Inſurers.

It does not ſuffice to have the Ship, Merchandizes, *&c.* inſur'd; but the Inſurers muſt likewiſe be rich, that they may be able to execute all the Articles of the *Convention* they are enter'd into.

The Policies, or Acts of Inſurances, muſt contain the Name, and Place of Abode of the Perſon whoſe Effects are inſur'd, his Quality of Proprietor, Agent, *&c.* the Effects inſur'd, the Name of the Maſter, and of the Ship; the Name of the Place where the Merchandizes have been, or are to be loaded; that of the Harbour, or Port from whence the Veſſel is ſail'd, or is to ſail; of the Ports, Bays, *&c.* where it is to load or unload, and of all thoſe it is to enter during the Voyage, the Time when the Dangers begin and end; the Sums, and the Value which is underſtood to be inſur'd; the *Prime* of the *Inſurance*; and generally all the Conditions to be agreed upon.

If the Maſter of a Ship, during the Courſe intended, undertakes another Voyage, not mention'd in the *Policy of Inſurance*; the Inſurers are diſcharg'd of their Obligation.

Either the whole Cargo of a Ship may be inſur'd, or all the Merchandizes in general on Board the ſeveral Veſſels of a Fleet, or ſome Portion thereof, either $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{10}$, $\frac{1}{20}$, *&c.* *Inſurances* are made on all the Perils, Riſques, and unforeſeen Accidents which could happen during the Voyage. There are *Inſurances* whereby ſome Inſurers oblige themſelves for the Naufrages, and unforeſeen Accidents; others for Loſſes, and the Robberies committed by Pirates, *&c.* others for the Dangers of Fire. There are *Inſurances* made for all Voyages from one Place to another, even till the Return of the Ship, which happens often for Voyages to *America*, and the Coaſt of *Guinea*. There are ſome only for the Time ſpent in ſailing from one Place to another; and others for Part of the Voyage. Even the Lives of Perſons on Board have ſometimes been inſur'd, the Inſurers engaging themſelves to pay a certain Sum to the Heirs of thoſe Perſons, in Caſe they were to die.

As to the Prices at ſo much *per Cent.* on *Inſurances*, they are different, according to the Riſques; ſometimes they give for a Voyage, 2, 3, and 4 *per Cent.* and at other Times, according to the Dangers, as far as 12, and 30 *per Cent.* *&c.* for in this they conſider either the Quality of the Merchandize; for Example, if it be Salt, ſubject to be melted; Corn, ſubject to be wetted, and ſpoil'd; or the Soundneſs of the Ship, either old, or newly built; its Sails, Rigging, Artillery,

lery, Complement, &c. and, lastly, the apparent Dangers on the Sea; *viz.* if it be in Time of Peace, or War; if it be suspected that there is a great Number of Pirates; the Seasons of the Year, Dangers of the Coasts, Distance of Places, and the Government of those to which the Navigation is directed.

The unforeseen, and extraordinary Accidents meant in this Place, are, all those which can't be prevented, by human Wisdom, Vigilancy, or Care; such as Tempests, the Rapidity of the Currents, excessive rolling of the Sea, Lightning, &c. Pirates, Enemies, &c.

The *Naufrage* of a Ship, is one of the greatest Accidents that can happen to it; and is often occasion'd by the Ignorance, Presumption, &c. of the Mariners, or by the Ship being too much loaded, &c. tho' in the *Insurances* made for all unforeseen Accidents in general, *Naufrages* are understood; it is, nevertheless, one of the most considerable and important Articles, which ought to be very well specified in the *Policies* of *Insurances*.

The *Jet*, or throwing into the Sea Part of the Cargo, or other heavy Things, to lighten the Ship, and avoid a Naufrage, is also rank'd among the unforeseen Accidents.

The *Capture* of the Merchandizes, or Ship, by the Enemies, which are to be discuss'd in order to know if the Letters of Marque, or of Reprisals, be just, and legitimate; and if the Captures be just Seizures, should likewise be reckon'd as unforeseen Accidents.

Insurances made on unforeseen Accidents upon Corn, are not to be exacted, when they are taken by Friends, or Allies, who take the Corn, but because they want it, oblig'd to it by pure Necessity, tho' they pay but a low Price for it, because they are not to be accounted Pirates, or Enemies.

A Capture by Pirates, Thieves, &c. is an unforeseen, or unhappy Accident.

When a Ship has been taken by Pirates, or Enemies, and is ransom'd afterwards, in common; every one must contribute, in Proportion of the Merchandizes he has on Board, and the Master of the Ship, for the Ship and its Rigging; and if there be no Agreement enter'd into for the Ransom of the whole Ship, any Body may ransom the Merchandizes which belong to him in particular, and such Ransom in no wise affects the other Merchandizes. Likewise, if the Enemies, or Pirates, were only to carry off the Merchandizes of a single Person, he must alone, and not the Insurers, bear the Loss.

The Master can borrow Money to repair the Damages which the Ship has suffer'd during a Storm, and even in Case of an extreme Necessity (which he must be oblig'd to justify) he could sell ¼ of the Cargo; with this Difference, that he ought not to do it while there is something else on Board, which can serve the same Purpose.

Though I have already given the Form of several Writings commonly us'd by Merchants and Traders, it will not be improper (before I conclude this Treatise of *Commerce*) to give some others not yet mention'd; as that of a *Bill of Debt*, a *Bill of Lading*, a *Bill of Parcels*, a *Bill of Entry* at the *Custom-House*, a *Bill of Sale*, a *Charter-party of Affreightment*, a *General Release*, an *Invoice* or *Factory*, a *Letter of License*, a *Policy of Insurance*, the *Protest of a foreign Bill*, a *Broker's Bond*, to the Lord Mayor, and Court of Aldermen of *London*; and an *Umpirage*.

A *Bill of Debt* runs thus: Know all Men by these Presents, that I *Peter Presgrove*, of *London*, Draper, do owe, and am indebted to *Paul Bridly*, of *London*, Merchant, the Sum of eight hundred fifty-two Pounds of lawful *English* Coin; which said Sum I promise to pay unto the said *Paul Bridly*, his Executors, Administrators, or Assigns, on or before the 24th Day of *July* next ensuing the Date hereof. Witness my Hand and Seal, the 28th Day of *April* 1742.

Seal'd and deliver'd in the Presence of *Nicholas Freeman*, and *Benjamin Low*. *P. Presgrove.*

The Form of a *Bill of Lading* is this: Shipp'd, by the Grace of God, and in good Condition, by *Francis Evans*, of *London*, Merchant, and Company, in and upon the good Ship call'd the *Prince Frederick*, of *Dover*; whereof is Master, under God, for this present Voyage, *Samuel Sailtrue*, of *London*, Mariner, and now riding at Anchor in the Port of *London*, and by God's Grace bound for *Leghorn* in *Italy*; that is to say,

E4R

1 Bale of woollen Cloth, 1 Cask of Tin in Blocks, and 1 Cask of refin'd Sugar; Contents, &c. as *per* Invoice, being mark'd and number'd as in the Margin, and are to be deliver'd in the like good Order, and well condition'd, at the said Port of *Leghorn*, (the Danger of the Sea only excepted) unto Mr. *David Dealfair*, Merchant there, or to his Assigns, he or they paying Freight for the said Goods, 2 Dollars *per* hundred Weight, for the Tin and Copperas, and 1½ Dollar *per* Cloth, with Primage and Average accustom'd. In Witness whereof, the Master or Purser of the said Ship has affirm'd to three *Bills of Lading*, all of this Tenor and Date; one of which three Bills being accomplish'd, the other two to stand void. And so God send the good Ship to her desir'd Port in Safety. *Amen.*

Dated in *London*, the 28th of *June*, *Anno Domini* 1742, Insides and Contents unknown to *Samuel Sailtrue.*

The Form of a *Bill of Parcels*, bought at Time, is as follows:

Mr. *Joseph Grove*, *London, July* 4, 1742.

Bought of *Philip Olive*, 4 Bales of *French* Cloth, to pay at 6 Months, as follows:

			l.	*s.*	*d.*		*l.*	*s.*	*d.*
N°	4 qt.	3½ Pieces Doulas, at	3	06	0	each,	11	11	0
	7 —	4 Pieces Ditto, at	4	10	0	——	18	00	0
F	8 —	3 Pieces Ditto, at	4	15	0	——	14	05	0
	14 —	3 Ps. Lockrams, at	2	15	6	——	08	06	6
		13½ Pieces in all, at					52	02	6

Another *Bill of Parcels.*

M. *Pet. Paydown*, and Com. *Lond. July* 10, 1742.

Bought of *Titus Tradewell*, for present Money, 12 Bags of Cotton, *viz.*

		C.	*q.*	*lb.*			*C.*	*q.*	*lb.*
N°	1 qt.	3	1	17	N°	7 ——	2	3	16
	2 ——	2	2	10		12 ——	3	1	10
T	5 ——	2	3	05		20 ——	3	0	27
T	6 ——	3	0	23		21 ——	2	3	04
		11	3	27			12	1	01
		12	1	01					
		24	1	00	Total Gross				
		00	3	13	Tare				
		23	1	15	Suttle 2619 *lb.*				
					Tret 100½ *lb.*				
					Neat 2518½ *lb.* at 14*d.* *per lb.* (146*l.* 18*s.* 3*d.*				

More, *viz.*

N°	30 ——	2	3	12	Damag'd.
	31 ——	3	0	10	
	32 ——	3	1	26	
	42 ——	2	2	16	
		12	0	08	Gross
		0	1	20	Tare
		11	2	16	Suttle 1304 *lb.*
					Tret 50
					Neat 1254 *lb.* at 4*d.* *per lb.* (20*l.* 18*s.* 0*d.*
					167*l.* 16*s.* 3*d.*

A

A *Bill of Entry* at the *Custom-House*, runs thus:

June 29, 1742.
In the *Prince Frederick*, *Samuel Sailtrue* for *Leghorn*.
Francis Trueman.

Nine short Cloths.
Fourteen hundred, three quarters, of Tin.
Six hundred, one quarter, and twenty-four Pounds, double-refin'd Sugar.

The most usual *Bill of Sale* among Traders, is, when a Person, wanting a Sum of Money, deposites Goods as a Security to the Lender; which Goods, in Case the Sum borrow'd is not repaid, with Interest, at a Time prefix'd, are forfeited to the Creditors. It runs thus:

KNOW ALL PERSONS WHOM IT MAY CONCERN, that I *Lazarus Lackcash*, of *Norwich*, in the County of *Norfolk*, Goldsmith, for, and in Consideration of fifty Pounds, of lawful Money of *England*, to me in Hand, paid by *James Goldwell*, of *London*, Esq; the Receipt whereof I do hereby acknowledge, have bargain'd, sold, and deliver'd, and by these Presents, according to the due Form of Law, do bargain, sell, and deliver unto the said *James Goldwell*, 4 Caracts of Oriental Pearls, 9 Grains of Brilliant Diamonds, 1 Silver Tea-Pot, Weight 20 Ounces, 1 Silver Salver, Weight 10 Ounces, 2 Sets of Silver Castors, Weight 30 Ounces, and 10 Cornelian Rings; seal'd up, by Consent, with my Seal; *to have and to hold* the said bargain'd Premises unto the said *James Goldwell*, his Executors, Administrators, and Assigns, for ever. And I, the said *Lazarus Lackcash*, for myself, my Executors, and Administrators, the said bargain'd Premises unto the said *James Goldwell*, his Executors, Administrators, and Assigns, against all Persons, shall and will warrant, and for ever defend by these Presents; provided, nevertheless, that if I, the said *Lazarus Lackcash*, my Executors, Administrators, and Assigns, or any of us, do, and shall well and truly pay, or cause to be paid, unto the said *James Goldwell*, his Executors, Administrators, or Assigns, the Sum of fifty Pounds Principal, and thirty Shillings, Half a Year's Interest thereof, on the first Day of *December* next ensuing the Date hereof, for the Redemption of the said bargain'd Premises; then this present *Bill of Sale* shall be void, or else to remain in full Force. In Witness whereof, I have hereunto set my Hand and Seal, the first Day of *May*, *Ann. Dom.* 1742, and in the 15th Year of the Reign of our Sovereign Lord *George* II, King of *England*.

Seal'd and deliver'd, &c.

A. B. *Lazarus Lackcash.*
C. D.

The Form of a *Charter-party of Affreightment*, is as follows:

This *Charter-party of Affreightment*, indented, made, and agreed upon, the 21st Day of *June*, *An. Dom.* 1742, and in the 15th Year of the Reign of our Sovereign Lord, *George* II, King of *England*, &c. between *Herbert Haulaway*, of *Deptford*, Mariner, Master (under God) of the good Ship, or Vessel, called the *Fortunate*, of the Burthen of 300 Tuns, or thereabouts, now riding at Anchor in the Port of *Plymouth*, of the one Part; and *James Richmore*, of *Portsmouth*, in the County of *Hants*, Merchant, of the other Part; witnesses, that the said Master has granted, and let to Freight, the said Vessel, unto the said Merchant; and the said Merchant has hir'd the said Vessel for a Voyage with her, to be made in Manner and Form following; that is to say, the said *Herbert Haulaway*, for himself, his Executors, and Administrators, does covenant, promise, and grant to, and with the said *James Richmore*, his Executors, and Administrators, by these Presents, that the said Vessel, with the first fair Wind that God shall send after the 24th Day of *July* next ensuing the Date above, shall depart from the said Port of *Plymouth* with such lawful Goods and Merchandizes as it shall please the said *James Richmore*, or his Assigns, in the mean Time, to lade on Board her: And that it shall be lawful to and for the said *James Richmore*, his Factors, and Assigns, in the mean Time, to lade on Board her all such lawful Goods and Merchandizes as he or they shall think fit, which she may reasonably carry over and above her Victuals, Tackle, and Apparel. And that the said Vessel shall, by God's Grace, directly, as Wind and Weather will serve, sail unto the Port or Harbour of *Aleppo* in *Turkey*, and there deliver unto the said *James Richmore*, his Executors, Administrators, Factors, or Assigns, dry, and well condition'd, Dangers of the Sea, Fire, Enemies, and Embargo of Princes, only excepted. And after her clearing, and right Discharge of such Goods as she shall receive into her within the said Port of *Plymouth*, shall receive in the said Port of *Aleppo* her full Loading in such lawful Goods and Merchandizes as it shall please the said *James Richmore*, his Executors, Administrators, Factors, or Assigns, to lade, or cause to be laden a-board her; and after such her full Lading at the Port of *Aleppo* aforesaid, shall directly sail, as Wind and Weather will permit, to the said Port or Harbour of *Plymouth* aforesaid, and there deliver to the said *James Richmore*, his Executors, Administrators, Factors, or Assigns, within the Space of ten working Days hereafter mention'd, the said Goods and Merchandizes so receiv'd into her at *Aleppo* aforesaid, dry, and well condition'd, and make a right Discharge and End of the said Voyage, the Danger of the Sea, Fire, Enemies, and Embargo of Princes and Rulers, only excepted: And that the said Vessel, after her Arrival at *Aleppo* aforesaid, shall stay at Anchor there, for her unlading and relading, fifty working Days, and shall stay at Anchor at the said Port of *Plymouth*, after her Return again, and Arrival there from *Aleppo* aforesaid, ten working Days, for the Delivery of the said Goods so to be laden a-board her at *Aleppo* aforesaid. And the said *James Richmore*, for himself, his Executors, and Administrators, does further covenant, promise, and grant to, and with the said *Herbert Haulaway*, his Executors, and Administrators; and also warrant by these Presents, the said Vessel, at her Departure from the said Port of *Plymouth*, and during the said Voyage shall be strong and staunch, and sufficiently victualled, tackled, and apparelled, and furnished with Masts, Sails, Sail-yards, Anchors, Cables, Ropes, Cords, Tackle, Apparel, Boat, and all other Furniture whatsoever, requisite or needful for such a Vessel, or for such a Voyage. And the said *James Richmore*, for himself, his Executors, and Administrators, does covenant, and grant to, and with the said *Herbert Haulaway*, his Executors, and Administrators, not only to unlade and relade, and dispatch the said Vessel at and from *Aleppo* and *Plymouth* aforesaid, within the Time and Times before therefore limited and agreed upon; but also for the Freight or Hire of the said Ship or Vessel for all the said Voyage, viz from *Plymouth* to *Aleppo*, and from thence to *Plymouth*, well and truly pay, or cause to be paid, unto the said *Herbert Haulaway*, his Executors, Administrators or Assigns, the Sum of 350 *l.* of lawful *English* Coin in the Manner and Form following; that is to say, the Sum of 58 *l.* at the said Port of *Aleppo*, within twenty Days next after the Arrival of the said Ship or Vessel, and Delivery of the said Goods well conditioned at *Aleppo* aforesaid, and 292 *l.* more, Residue of the said 350 *l.* at *Plymouth* aforesaid, within ten working Days after the Return again and Arrival of the said Ship or Vessel from *Aleppo* to *Plymouth*, and the Delivery of the said Goods to be received into her at *Aleppo* aforesaid, unto the said *James Richmore*, his Executors, Administrators, Factors or Assigns at *Plymouth* aforesaid, well conditioned as aforesaid; together with Primage and Average, according to the Use and Custom of Merchants. And the said *James Richmore* for himself, his Heirs, Executors, and Administrators, does covenant and grant to and with the said *Herbert Haulaway*, his Executors, and Administrators, by

by these Presents, that in case the said Vessel shall, through the Default of the said *James Richmore*, his Factors, or Assigns, stay for her unlading or relading at *Aleppo* aforesaid, or for her lading at *Plymouth* aforesaid, before her Departure from thence; or for her unloading at *Plymouth* aforesaid, and after her Return and Arrival from *Aleppo* aforesaid to *Plymouth* aforesaid, after the several Days therefore abovementioned, that then the said *James Richmore*, his Executors or Administrators, shall and will pay, or cause to be paid unto the said *Herbert Haulaway*, his Executors or Administrators, the Sum of Thirty Shillings Sterling for every working Day that the said Vessel shall either stay at *Aleppo* for her unlading and relading, or at *Plymouth* aforesaid, for her lading or unlading, after the Days above limited and agreed upon; and to the Performance of all and singular the Covenants and Agreements abovementioned, which on the Part and Behalf of the said *Herbert Haulaway*, his Executors or Administrators are to be performed in all Things as above-said, the said *Herbert Haulaway* binds himself, his Executors and Administrators, and especially the Ship or Vessel aforesaid, with her Freight, unto the said *James Richmore*, his Executors and Administrators, in the Sum or Penalty of 400 *l.* of lawful Money of *England*, well and truly to be paid by these Presents; and likewise for the Performance of all and singular the Covenants and Agreements abovementioned, which on the Part and Behalf of the said *James Richmore*, his Executors, Administrators, are and ought to be performed in all Things as are above recited, the said *James Richmore* binds himself, his Executors, and Administrators, and Goods, unto the said *Herbert Haulaway*, his Executors and Administrators, in the Sum or Penalty of 400 *l.* of like Money of *England*, well and truly to be paid by these Presents. In witness whereof, the Parties first above-named to these Charter-Parties indented, interchangeably have set their Hands and Seals, the Day and Year first above-written.

Sealed and delivered, &c.

HERBERT HAULAWAY.

An *Envoyce* or *Factory* runs thus:——Envoyce (or Factory) of 6 Hogsheads of Tobacco, 5 Bags of Shomack, 12 Barrels of Orgal, 3 Chests of Sugar, and in Bales of Woolen-Cloth, ship'd on board the *Streight's Merchant*, *Peter Love* Master, for the proper Account and Risque of *Paulo Maridani*, Merchant in *Leghorn*, and consigned to himself, being marked and numbered as *per* Margent, Contents, Costs, and Charges as follows:

Best bright Tobacco, 6 Hogsheads, *viz.*

	C.	q.	lb.		C.	q.	lb.
No. 1. —	2	3	07	Tare	0	2	14
2. —	3	1	10	Tare	0	2	20
3. —	3	3	00	Tare	0	2	00
4. —	4	1	27	Tare	0	3	04
5. —	2	2	20	Tare	0	2	10
6. —	5	2	10	Tare	0	3	12
Total Gross	22	2	18	Tare	4	0	04
Tare	4	0	04				
	18	2	14	Suttle,	2046 lb.		
				Tret,	80 lb.		
				Nett,	2006 lb.		

	l.	s.	d.
2006 lb. at 7½ *per* Pound —	62	13	09

Shomack 5 Bags, *viz.*

	C.	q.	lb.
No. 7. Nett.	2	2	07
8. —	2	0	24
9. —	1	3	17
10. —	3	0	06
11. —	2	1	20
In all	12	0	08

at 12*s.* *per* Hundred } 7 05 11

Orgal, *viz.*

No. 12. to 23. qt. 12 Barrels, at 14*s.* *per* Barrel } 62 13 09

Sugar double-refined, 3 Chests, *viz.*

No. 24. — 381 lb.
25. — 505 lb.
26. — 326 lb.

1212 Nett, at 18*d.* *per* lb. 90 18 00

Cloth 3 Bales, *viz.*

No. 27, 28, 29. qt. each (with Wrappers) 10 short Cloths, at 12 *l.* *per* Cloth } 360 00 00

529 05 08

Charges, *viz.*

To Custom of all	53	19	09¼
To Cost of 3 Chests for the Sugar	0	18	00
Ditto of 3 Wrappers for the Cloth	0	07	00
Brokerage at ½ *per Cent.*	2	12	10¾
Storage	1	00	00
Cartage and Porterage	0	10	06
	588	13	10
To my Commission at 2½ *per Cent.*	14	14	04

Laus Deo, London, *May* 4, 1742. Errors excepted, *per Timothy Featly.*

The *Protest of a foreign Bill*, is as follows:

Know all Persons whom this present Writing may concern, that the 28th Day of *June* 1742, at the Request of Mr. *Richard Rich* of *London*, Merchant, I *Isaac Sharp* Publick Notary, sworn and admitted by Authority of his sacred Majesty *George* II. King of *England*, &c. did go to the dwelling House of Mr. *Paul Puttoff*, upon whom the abovenamed Bill of Exchange is drawn, and shewed the Original unto the said Mr. *Paul Puttoff*, demanding its Acceptance of the same, who answered me, he would not accept the said Bill for Reasons best known to himself, of which he would inform the Drawer Mr. *Frederick Farfetch*. Wherefore I the said Notary did protest, and by these Presents do protest as well against the said *Frederick Farfetch*, as against the said *Paul Puttoff*, as also against all other Persons, Endorsers, and others therein concerned, for all Changes, Rechanges, Charges, Damages, and Interest whatever. In Presence of *A. B.* and *C. D.* called for Witnesses to this present Act done in my Office in *London* the Day and Year abovesaid.

Isaac Sharp, Publick Notary.

An *Umpirage* runs thus:——To all People to whom this present Writing shall come, I *Ferdinando Dacosta* of *London*, Umpire indifferently chosen by *Benjamin Bidfare* and *William Wellmeant* of *London*, Merchants, having deliberately heard and understood the Griefs, Allegations, and Proofs of both the said Parties, and willingly, as much as in me lies, to set the said Parties at Unity and good Accord, do by these Presents arbitrate, award, order, deem, decree, and judge, that the said *Benjamin Bidfare*, his Executors and Assigns, shall well and truly pay or cause to be paid unto the said *William Wellmeant*, his Executors, Administrators or Assigns the full Sum of 35 *l.* of lawful Money of *England* on the 24th of *July* 1742, and that upon Payment thereof the said *Benjamin Bidfare* and *William Wellmeant* shall seal, subscribe, and as their several Acts and Deeds deliver each to the other a general Release in Writing of all Matters, Actions, Suits, Causes of Actions, Bonds, Bills, Covenants, Controversies, and Demands whatsoever, which either of them has, may, might, or in any wise ought to have of and against each the other of them by Reason aforesaid, or Means of any Matter, Cause or Thing whatsoever, from the Beginning of the World, to the First Day of *May* now last past, and in the Fifteenth Year of the Reign of our Sovereign Lord *George* II. of *England*,

England, &c. In Witness whereof, I have hereunto set my Hand and Seal the 14th Day of *July*, in the Year of our Lord 1742.

FERDINANDO DACOSTA.

Sealed and delivered in the Presence of Bryan Butler, Charles Cook.

I shall conclude this Treatise of *Commerce*, by the Rate of Post-Letters.

Foreign European *Letters and Packets.*

	Single s.	Single d.	Double s.	Double d.	Treble s.	Treble d.	Ounce s.	Ounce d.
From any Part of *France* to *London* —	0	10	1	8	2	6	3	4
From *London* through *France* to any part of *Spain* or *Portugal* (Post paid to *Bayonne*) and the contrary	1	6	3	0	4	6	6	0
From *London* through *France*, to any part of *Italy* or *Sicily*, by the way of *Lyons*: Or to any part of *Turky*, by the way of *Marseilles*, and on the contrary	1	3	2	6	3	9	5	0
From any part of the *Spanish Netherlands* to *London*	0	10	1	8	2	6	3	4
From *London* through the *Spanish Netherlands*, to any part of *Italy* or *Sicily*, (Post paid to *Antwerp*) and on the contrary	1	0	2	0	3	0	4	0
From *London* through the *Spanish Netherlands*, to any part of *Germany*, *Switzerland*, *Denmark*, *Sweden*, and all parts of the North, and the contrary	1	0	2	0	3	0	4	0
From *London* through the *Spanish Netherlands*, to any part of *Spain* or *Portugal*, and the contrary	1	6	3	0	4	6	6	0
From any part of the *United Provinces* to *London*	0	10	1	8	2	6	3	4
From *London* through the *United Provinces*, for any part of *Italy* or *Sicily*, and the contrary	1	0	2	0	3	0	4	0
From *London* through the *United Provinces*, to any part of *Germany*, *Switzerland*, *Denmark*, *Sweden*, and all parts of the North; and the contrary	1	0	2	0	3	0	4	0
From *London* through the *United Provinces*, unto any part of *Spain* or *Portugal*; and the contrary	1	6	3	0	4	6	6	0
From *London* through the *Spanish Netherlands*, or the *United Provinces*, to *Hamburgh*; (Post paid to *Antwerp* or *Amsterdam*) and the contrary	0	10	1	8	2	6	3	4

By Packet-Boats.

	Single s.	Single d.	Double s.	Double d.	Treble s.	Treble d.	Ounce s.	Ounce d.
Between *London*, *Spain*, or *Portugal* —	1	6	3	0	4	6	6	0

Ireland *Letters and Packets.*

	Single s.	Single d.	Double s.	Double d.	Treble s.	Treble d.	Ounce s.	Ounce d.
From *London* to *Dublin*, and the contrary; and not coming from, or directed on board a Ship	0	6	1	0	1	6	2	0
From *Dublin* to or from any Place, not exceeding 40 *English* Miles from the chief Office in *Dublin*, and not coming from or directed on Shipboard	0	2	0	4	0	6	0	8
If above 40 Miles from *Dublin*, and within the Kingdom	0	4	0	8	1	0	1	4

North-Britain *Letters and Packets.*

	Single s.	Single d.	Double s.	Double d.	Treble s.	Treble d.	Ounce s.	Ounce d.
From *London* to *Edinburgh*, and the contrary; and to and from *Dumfreys* or *Cockburnspel*, and between either of those Places and *Edinburgh*, not coming from or directed on Shipboard	0	6	1	0	1	6	2	0
From *Edinburgh*, not exceeding 50 Miles in *Scotland*, and not directed on nor from on Shipboard	0	2	0	4	0	6	0	8
From any Place above 50, and not exceeding 80 Miles in *Scotland* from *Edinburgh*, and not coming from nor directed on Shipboard	0	3	0	6	0	9	1	0
And if to or from Places above 80 Miles from *Edinburgh* in *Scotland*, &c.	0	4	0	8	1	0	1	4

Note, That *Writs*, &c. are liable to pay in Proportion to the Ounce, respectively in *Great Britain* and *Ireland*.

English *or* South-British, *or Inland Letters, are rated thus:*

	Single s.	Single d.	Double s.	Double d.	Treble s.	Treble d.	Ounce s.	Ounce d.
From *London* to or from any Place, not exceeding 80 Miles Distance from *London*	0	3	0	6	0	9	1	0
And to and from any Place above 80 Miles from *London*	0	4	0	8	1	0	1	4

American *Letters and Packets*, viz.

	Single s.	Single d.	Double s.	Double d.	Treble s.	Treble d.	Ounce s.	Ounce d.
All Letters and Packets from *London* to *Jamaica*, *Barbadoes*, *Antegoa*, *Montserrat*, *Nevis*, and *St. Christophers*; and the contrary	1	6	3	0	4	6	6	0
From *London* to *New-York*, and the contrary	1	0	2	0	3	0	4	0
From any part of the *West Indies* to *New York*	0	4	0	8	1	0	1	4
From *New-York* to any Place within 60 *English* Miles thereof; and the contrary	0	4	0	8	1	0	1	4
From *New York* to *Perth-Amboy* (the chief Town in East *New Jersey*; and to *Bridlington* in West *New Jersey*; and the contrary) and from *New York* to any Place, not exceeding 100 *English* Miles; and the contrary	0	6	1	0	1	6	2	0
From *Perth-Amboy* to *Bridlington*, to any Place not exceeding 60 *Eng.* Miles; and the contrary	0	4	0	8	1	0	1	4
From those Places, and the contrary, not exceeding 100 *English* Miles	0	6	1	0	1	6	2	0
From *New York* to *New London*, (the chief Town in *Connecticut* in *New England*) and to *Philadephia*, the chief Town in *Philadelphia*; and the contrary	0	9	1	6	2	3	3	0
From *New London* and *Philadelphia*, not exceeding 60 *English* Miles, and back again	0	4	0	8	1	0	1	4
From those Towns, not exceeding 100 Miles, and back again	0	6	1	0	1	6	2	0
From *New York* to *Newport*, the chief Town in *Rhode-Island*, and *Providence* Plantation in *New England*; and to *Boston*, the chief Town in *Massachuset's* Bay in *New England*; and to *Portsmouth*, the chief Town in *New Hampshire* in *New England*; and to *Annapolis*, the chief Town in *Maryland*; and from each of these Places to *New York*	1	0	2	0	3	0	4	0
From *Newport*, *Boston*, *Portsmouth*, and *Annapolis* aforesaid, to any Place not exceeding 60 Miles; and back	0	4	0	8	1	0	1	4
And from those Towns not exceeding 100 *English* Miles; and thence back	0	6	1	0	1	6	2	0
From *New York* to the chief Offices in *Salem*, and *Ipswich*, and in *Piscataway*, and to *Williamsburgh* in *Virginia*; and from those Places to *New York*	1	3	2	6	3	9	5	0
From the chief Offices in *Salem* and *Ipswich*, *Piscataway*, and *Williamsburgh* aforesaid, to any Place not exceeding 60 *English* Miles; and the contrary	0	4	0	8	1	0	1	4
And from those Towns, not exceeding 100 *English* Miles; and the contrary	0	6	1	0	1	6	2	0
From *New York* to *Charles-Town*, the chief Town in *Carolina*; and the contrary	1	6	3	0	4	6	6	0
From *Charles Town* aforesaid to any Place not exceeding 60 *English* Miles; and the contrary	0	4	0	8	1	0	1	4
And all Letters and Packets from *Charles Town*, to any Place not exceeding 100 *English* Miles; and thence back again.	0	6	1	0	1	6	2	0

And all Letters and Packets of Letters directed to, or from on board any Ship in any Port within his Majesty's Dominions, shall pay one Penny over and above the Rates chargeable, by the Act made the 9th of Queen *Anne*, concerning the Rates of *Post-Letters*.

By a Proviso in the abovesaid Act, all Merchants Accounts not exceeding one Sheet of Paper, and all Bills of Exchange and Invoices, and Bills of Lading are allowed without Rate; and also all Covers of Letters not exceeding a Quarter of a Sheet of Paper, sent by the Way of *Vienna*, *Marseilles*, *Venice* or *Leghorn*,

horn, to be sent to or from *Turky*, shall pass without Rate.

No Packet to be carried out of *Great Britain* in foreign Ships.

The Post to pay nothing for passing Ferries into *America*.

Inland Letters to pay where deliver'd.

All Letters on Board any Ships that touch in any Part, must, under the Penalty of five Pounds for every Offence, be deliver'd to the Deputy Post-Master of such Place, who pays to the Person delivering the same a Penny a Letter.

Carriers, Coaches, and Watermen, are not to carry Letters, unless they concern the Goods carried by their Cars, Waggons, or Pack-horses, at the same Time.

The Days of sending Letters to foreign Parts, are,

Monday, to *France*, *Italy*, *Spain*, *Flanders*, *Germany*, *Sweden*, and *Denmark*.

Tuesday, to *Holland*, *Flanders*, *Sweden*, *Denmark*, *Germany*, and all Parts of *England*, *Wales*, *Scotland*, and *Ireland*.

Thursday, to *France*, *Spain*, *Italy*, and all Parts of *England* and *Scotland*.

Friday, to the *Netherlands*, *Germany*, *Sweden*, and *Denmark*.

Saturday, to all Parts of *England*, *Scotland*, and *Ireland*.

To *Portugal*, once in a Fortnight; and to the *West-Indies*, the last *Thursday* in every Month.

The Days foreign Mails *are due at* London.
Tuesday and *Friday*, from *France* and *Holland*.
Monday and *Thursday*, from *Flanders*.
Monday, *Wednesday*, and *Friday*, from *Ireland*.
Once a Week, from *Portugal*, *Spain*, &c.

CONFECTIONER.

CONFECTIONER, is an Artist, who, following the beautiful Rules of his most excellent Art, finds the Secret to preserve, by means of Sugar, or Honey, all Sorts of Fruits, Flowers, Herbs, Roots, and Juices, to that Perfection, as to make them retain their natural Form, Colour, Taste, Smell, *&c.* in all Seasons, and during a very considerable Time.

The Antients only comfited with Honey; at present *Confectioners* seldom use any Thing else but Sugar, which they prepare different Ways, according to the different Sorts of *Confects* or *Confits* they design to make. Those different Preparations consist in the different Degrees of Consistence the Sugar acquires in boiling, before the Fruits, Herbs, Roots, Juices, *&c.* are mix'd with it; which Degrees of Consistence are reduced to four, under the four different Appellations, of *Icy Sugar*, *Pearl Sugar*, *Feather Sugar*, and *Breaking Sugar*.

Sugar is boil'd to the Consistence of *Ice*, if the middle Finger, being dipp'd into it, and applied afterwards to the Thumb, the *Sugar* remains immoveable, and round, like a small Pea, upon the Thumb. It is said to be boil'd to a *Pearl*, when, by opening the Finger and the Thumb, which had been before join'd, the *Sugar* forms a small Thread. It is boil'd to *Feathers*, when a Spatula, having been dipp'd into it, and shaken afterwards, the *Sugar* flies into the Air; for if it runs yet, it is not done. And, lastly, it is reduced to the Consistence of *Breaking*, if a small Stick, which has been before dipp'd into cold Water, being dipp'd afterwards into the boiling *Sugar*, and dipp'd again into cold Water, the *Sugar* breaks, and grows dry in the Water; for if it be yet sticky, it is not of a right Consistence. Of these four Preparations of *Sugar*, all Sorts of *Confects* are made.

Note, It is indispensibly necessary to mix some Water with the *Sugar*, in the four abovemention'd Preparations, *viz.* about a Quarter of a Pint of Water for every Pound of *Sugar*; for if there was more, it must be evaporated, before the *Sugar* can acquire its due Consistence.

Confects are reduced to eight Kinds, *viz. Liquid Confects*, *Marmalades*, *Jellies*, *Pastes*, *Dry Confects*, *Conserves*, *Candies*, and *Dragees*, or *Sugar-plumbs*.

LIQUID CONFECTS, are those whose Fruits, either whole, in Pieces, Seeds, or Clusters, are *confited* in a fluid transparent Syrup, which takes its Colour from that of the Fruit boil'd in it. There is a good deal of Art in preparing these well; if they be too little sugar'd, and too little boil'd, they turn; and if too much sugar'd, or too much boil'd, candy.

The most esteem'd of the *Liquid Confects*, are Plumbs, especially those call'd Mirabels, Barberries, Quinces, Apricocks, Cherries, Walnuts, Rasberries, Verjuice, Peaches, *&c.*

Note, That all Fruits for *Confects* must be a little green, and gather'd when they begin to ripen, except Gooseberries, Cherries, Pears, and Quinces; for these last must be ripe, and *confected* at a great Fire, except Quinces, which want but a slow Fire, as well as the Fruits, which are to be green; which Fruits must be boil'd in Water at a slow Fire, pouring upon them some Acid, as Vinegar, or Spirit of Vitriol, to render them of a still more beautiful green: But when they are in the Sugar, they must be dispatch'd at a great Fire.

Note, also, That there must be a Pound of Sugar to every Pound of Fruit, except Cherries, a Pound of which wants but Half a Pound, or three Quarters of a Pound of Sugar; but every Pound of Quinces wants a Pound and a Quarter of Sugar.

Note, further, That there are so many Books extant of this Art, that I'll content myself with giving here a few Preparations of *Confects*, especially those which are the most useful in a Family, and easiest done: As Plumbs, Cherries, Rasberries, Quinces, Apricocks, Peaches, *&c.*

All Sorts of *Plumbs*, for *Confects*, must be taken when they begin to ripen; they must be par'd, and put into cold Water, and afterwards into hot Water, ready to boil; where they must be left till they begin to grow green: Then they must be taken off the Fire, and left to grow cold, in the same Water. Being cold, they are to be taken out, and put into cold Water; from that Water, they must be thrown (after they have been well drain'd of their Water) into Sugar, which has been boil'd before to the Consistence of being blown or shaken to Feathers; where they must be boil'd at a great Fire, and skimm'd; which done, they are to be taken off the Fire, and left to grow cold, and put again on the Fire, and boil'd, till the Syrup has acquir'd the Consistence of Pearl; then they are to be taken off the Fire, and put into Pots, which Pots are to be cover'd, when the *Plumbs* are cold.

Cherries are preserv'd either with their Stones, or without: If with their Stones, the Stalk must be cut very short; if without, they must be pull'd out gently by the Stalk, without bruising the *Cherries*; which are to be gather'd very ripe, (the *Cherries* call'd *Morella's* here in *England* being the most proper for *Confects*, tho' in *France* they seldom preserve any other than those call'd here *Kentish Cherries*, among which, they chuse

chuſe the largeſt, and ripeſt.) Sugar having been boil'd to the Conſiſtence of being ſhaken into Feathers, the *Cherries* are put into it, boil'd at a great Fire, and ſkimm'd; which done, they are taken off the Fire, and left to grow cold; then put again on the Fire, and made to boil faſt, and ſkimm'd again, if it be neceſſary. They are taken off the Fire, for the laſt Time, and put into Pots, which muſt be cover'd, when the *Cherries* are cold.

Raſberries muſt be gather'd as whole as poſſible, and when they are not yet quite ripe; their Tails, or Stalks, muſt be pull'd off, and they put into a glaz'd earthen Pan, flat at the Bottom; then Sugar, which has been boil'd to the Conſiſtence of being ſhaken into Feathers, or Flakes, muſt be pour'd upon them, and having been left to grow cold, the whole Mixture is pour'd afterwards gently into a Copper Baſon, and made to boil, and ſkimm'd, till the Syrup be reduced to the Conſiſtence of Pearl; which done, they are taken off the Fire, and put into Pots.

Tho' *Walnuts* are ſeldom preſerved in Sugar, here, in *England*; as they are very wholeſome *Confects*, being a Sort of Reſtorative, which warms the Stomach, and helps Digeſtion; I do not believe it improper to inform my Pupil *Confectioner*, that it is made in the following Manner:

Take green *Walnuts*, while they are yet very tender; pare them to the white, that none of the green remains; as you pare them, throw them into cold Water; when they are all pared, you muſt make them boil very faſt, till when you prick them with a Larder, or a Pin, they fall down of themſelves, without ſticking to the Pin: Then you take them off the Fire, and put them into cold Water; you ſqueeze them afterwards by the Middle, one by one, to drain them of their Water, and range them upon a dry Cloth; which done, you lard every one of them with a Clove, a Bit of Cinnamon, or a Piece of Lemon-Peel: Thus larded, they are thrown into Sugar which has been boiled to the Conſiſtence of our firſt Preparation, and having been very well boiled, they are left to ſettle, for the Space of Half an Hour, and afterwards put again on a great Fire, till the Syrup be reduced to the Conſiſtence of our ſecond Preparation of Sugar; then taken off, and kept as the abovemention'd *Liquid Confects*.

For green liquid *Apricocks*, they muſt be gather'd green and tender, par'd, and as they are par'd, thrown into cold Water, and afterwards put into warm Water, where they are left till they begin to grow green; then they are taken off the Fire, and left to grow cold in the ſame Water: Being cold, they are put into freſh Water, out of which being taken afterwards, and drain'd, they are put into Sugar, reduced before to the Conſiſtence of our firſt Preparation, where they are left to boil for a very ſhort Space of Time; then they are taken off the Fire, and left to grow cold a little, and afterwards put again on the Fire, and left to boil till the Syrup be reduced to a Pearl Conſiſtence: Then they are put into Pots, as other *liquid Confects*.

For ripe liquid *Apricocks*, they muſt be par'd as well as poſſible, without bruiſing or diſfiguring them, and afterwards put into boiling Water, where they muſt boil gently for the Space of two Minutes; then they are taken off the Fire, and thrown into cold Water: While they are in the Water, Sugar is boil'd in Form of a Conſerve, in which the *Apricocks* muſt boil two or three Gallops; which done, they are carried to the Stove, where they are left till the next Morning, keeping all the while a ſmall Fire under it.

To preſerve *Peaches*, they muſt be par'd, and the Stones taken out; as they are par'd, they are thrown into cold Water, from whence they are taken to be put into boiling Water, where they are made to boil at a ſlow Fire, till they begin to grow green; then they are taken off the Fire, and left to cool, and put afterwards into cold Water: While they are in it, Sugar is boil'd to the Pearl Conſiſtence, into which the *Peaches*, after they have been drain'd of their Water, are put, made to boil, and ſkimm'd; then they are taken off the Fire, and left to cool; being cold, they are put again on the Fire, and left to boil till the Syrup be reduc'd to the Conſiſtence of our ſecond Preparation of the Sugar; which done, they are taken off the Fire, and put into Pots.

Quinces muſt be taken very ripe, cut into Halves, or Quarters, par'd, and cleans'd of their Cores; as they are par'd, they are thrown into cold Water, and from thence into boiling Water, where they are left till they are grown ſoft; which done, they are taken out, and put into cold Water: While they are in the freſh Water, Sugar muſt be boil'd according to our firſt Preparation, into which the *Quinces* are put, and made to boil at a ſlow Fire, covering them, if they be wanted very red; they muſt be taken off the Fire by Intervals, and put again upon it, till the Syrup has acquir'd the Conſiſtence of Jelly; then they are put into Pots, and cover'd when cold.

The *Verjuice* muſt be taken when it begins to ripen, par'd, the Kernels taken out, and put afterwards into Water ready to boil, where they are left till they begin to grow green; then they are taken off the Fire, and left to grow cold in the ſame Water; and being put afterwards into Sugar, of but an indifferent Conſiſtence, they are made to boil 7 or 8 Gallops, and then taken off the Fire.

Mulberries are taken a little greeniſh, their Stalks pull'd out, and preſerv'd, afterwards, in the ſame Manner we have done *Cherries*.

MARMALADES, are a Kind of Paſtes half liquid, made of the Pulp of Fruits or Flowers, that have ſome Conſiſtence; as Apricocks, Apples, Pears, Plumbs, Quinces, Oranges, *&c.*

JELLIES, are Juices of ſeveral Fruits, wherein Sugar has been diſſolv'd, and the whole, by boiling, reduced to a pretty thick Conſiſtence; ſo as, upon cooling, to reſemble a Kind of thin tranſparent Glue, or Size. *Jellies* are made of various Kinds of Fruits, eſpecially Gooſeberries, Apples, and Quinces. There are other *Jellies*, made of Fleſh, Fiſh, Hartſhorn, *&c.* but they are not to be kept long, being very ſubject to corrupt.

To make *Jellies*, you muſt take what Sort of Fruits you pleaſe, cut them into Pieces, and boil them in Water till they be very ſoft; they muſt be ſtrain'd, with a ſtrong Expreſſion, through a clean Piece of Cloth, to extract from it as much Decoction as poſſible. A Quart of that Decoction muſt be put into a Baſon, with a Pound of Sugar, and boil'd together, till the *Jelly* be form'd, which will be known, if by taking ſome of the Compoſition with a Spoon, it falls from the Spoon in large Lumps, and not in running or ſpinning. When it has acquir'd that Conſiſtence, it muſt be taken off the Fire, and put into Pots.

Note, That all Sorts of red or green *Jellies* muſt be done at a ſlow Fire, and cover'd; and all white *Jellies* at a great Fire, and uncover'd.

Note, alſo, That Quinces want more Sugar than any other Fruit.

The *Jelly* of *Gooſeberries* is made by ſtraining them through a Napkin, or other Cloth, adding three Quarters of a Pound of Sugar to a Quart of the Juice, and boiling them together till the Mixture has acquired the Conſiſtence abovemention'd.

PASTES, are a Kind of Marmalades, thicken'd to a Degree, by boiling, ſo as to aſſume any Form, when put into little Moulds, and dried in an Oven. The moſt in Uſe, are thoſe of Gooſeberries, Quinces, Apples, Apricocks, and Orange-flowers. Thoſe of Piſtacho's are much eſteem'd; thoſe of Ginger are brought from the *Indies*.

To make a *Paſte* of *Cherries*, you muſt take the largeſt, and ripeſt you can find; take off the Stalks, and Stones, and boil a little the Fruit in a very ſmall Quantity of Water; ſtrain it afterwards through a Cullender, very full of ſmall Holes, putting under it a Diſh, to receive what paſſes through the Cullender, while

while you ſtir and ſqueeze the *Cherries*: When all the Fruit is ſtrain'd through, it muſt be put into a very clean Copper Baſon, and dried on the Fire, ſtirring it without Intermiſſion, leſt it ſhould burn, and till your *Cherries* begin to dry, which you'll perceive by their ſticking no longer to the Baſon; and then you muſt mix with them Half, or three Quarters of a Pound of Sugar, in Powder; which done, you muſt ſpread your *Paſte* upon Slates, giving it what Form you pleaſe, and carrying it afterwards to the Stove to dry.

To make a *Paſte* of *Raſberries*, you muſt take them very ripe, pull off the Stalks, and ſtrain them through a Sieve; proceeding afterwards as in the *Paſte* of *Cherries*.

The *Paſte* of *Apricocks* is made by paring them, when very ripe, taking out the Stones, boiling them in Water, draining them, ſtraining them through a Sieve, and making a *Paſte* like that of *Cherries*.

To make a *Paſte* of *Quinces*, you muſt take them very ripe, pare them, take out the Cores and Stones, boil them in Water till they be very ſoft, ſtrain them through a coarſe Sieve, and afterwards make your *Paſte* as you did that of *Cherries*.

If you want to make a *Paſte* of *Flowers of Violets*, you muſt take a Pound of Marmalade of Apples, ſtrain'd through a Sieve, and two Ounces of *Flowers of Violets*, (only the Leaves;) pound the *Violets* in a Stone Mortar, and when pounded mix them with the Marmalade; the whole Mixture muſt be dried in a Copper Baſon, as you have done the other *Paſtes*, and when dry, you muſt add Sugar to it, and have the whole dried afterwards in the Stove, like the other *Paſtes*.

To make a *Paſte* of *Orange-flowers*, you muſt take, as you have done for that of *Violets*, a Pound of Marmalade of Apples, ſtrain'd through a Sieve, and Half a Pound of *Flowers of Oranges*, done and pounded like that of a *liquid Conſerve*; then mix the *Orange-flowers*, thus prepar'd, with the Marmalade of Apples, dry the whole Mixture over the Fire, add Sugar to it, and have it dried in the Stove, like other *Paſtes*.

There are likewiſe *Paſtes* of *Sugar*, call'd commonly *Biſkets*, and there is a great Variety of them; as common *Biſkets*, *Biſkets* of *Orange-flowers*, *Jeſſamine*, *Citron*, *Savoy Biſkets*, common, royal, and curl'd *Maſſepains*, &c.

The *common Biſkets* are made, by taking eight Eggs, or thereabouts, breaking them, and putting the Yolks and Whites together in a Copper Baſon, and beating them for Half an Hour with a wooden Spatula; which done, a Pound of Sugar, in Powder, muſt be added to it, and the whole very well mix'd, and beat together for another Half Hour: Then the *Paſte* muſt be left at Reſt for ſome Time, and afterwards put into Moulds of Tin, or Paper, mixing with it ſome Sugar, in Powder, to glaze it. The Moulds, thus fill'd, are put into an Oven, not ſo hot as one could not bear his Hand in it, or into a Copper Stove, which muſt have lighted Coals a-top and underneath, but a little more a-top than underneath; where they muſt be left till the *Biſkets* be very well riſen, and aſſum'd a golden Colour; for then they are taken out of the Moulds, with the Point of a Knife, and put into a hot Place, till they be thoroughly dry.

To make *Biſkets* of *Orange-flowers*, you muſt take new-laid Eggs, ſeparate the Whites from the Yolks, and put them into a Stone Mortar; then ſtir them gently, adding, by Intervals, Sugar, and ſome *Orange-flowers*, which muſt be continu'd till the whole Mixture has thicken'd ſo as to be handled; which done, the *Paſte* muſt be extended upon a Table with a Roller, putting always Sugar a-top and underneath, till it is brought to the Thickneſs the *Biſkets* are propos'd to be: Then you muſt cut them into what Form you pleaſe, and put them upon a Sheet of white Paper, a little diſtant from one another, placing them afterwards in your Copper Stove, with a moderate Fire a-top and underneath: When they are done, they muſt be left to cool, and taken off the Paper when cold. When theſe *Biſkets* are to be glaz'd, or ic'd, they muſt be dipp'd, after they are cut, one by one, into Whites of Eggs, and afterwards into Sugar in Powder, covering them all over with it, and then they are put upon the Paper.

The *common Maſſepain* is made in this Manner: Take a Pound of Sweet Almonds, blanch them in hot Water, and put them afterwards in cold; take them out, dry them upon a Napkin, and pound them in a Stone Mortar, with a wooden Peſtle, moiſtening them often with Whites of Eggs, and Roſe or Orange-flower Water, till they be reduced to a Paſte; which done, it muſt be thrown into Sugar, reduced to the Conſiſtence of being ſhaken into Flakes, mix'd together, put on the Fire, ſtirr'd continually with a Spatula, taking Care that nothing burn at the Bottom or Sides of the Baſon; and when you perceive that nothing ſticks to it, you muſt take out your *Paſte*, and ſpin it in what Form you pleaſe, and carry afterwards your *Maſſepains* to the Oven to be done.

To make *curled Maſſepains*, you muſt blanch and pound Sweet Almonds as you have done the others, adding to them, by Degrees, Sugar, in Powder, and mixing them together till you have made a *Paſte* fit to be handled, which you muſt diſpoſe on a Sheet of Paper, in what Form you pleaſe; this done, you muſt have them bak'd in your Stove, by one Side at firſt, and when they are cold you muſt have the other Side bak'd likewiſe, taking them off the Paper while yet hot.

The *Maſſepain* of *Oranges*, is made by blanching and pounding a Pound of Sweet Almonds, and throwing them afterwards into three Quarters of a Pound of Sugar, reduced to the Conſiſtence of being ſhaken into Flakes, and having mixed them well together, you muſt take about Half a Pound of Pulp of *Oranges*, confected liquid, which you muſt pound, (after it has been well drained of the Syrup) and mix with the Almonds: Then you muſt put the Mixture into a Baſon, on the Fire, ſtirring it all the while, till you perceive that the *Paſte* ſticks no longer to the Baſon; which done, you muſt take out the *Paſte*, diſpoſe it in what Form you pleaſe on a Paper, and put it to be baked on one Side, and when that Side is cold, you muſt have the other Side baked in the ſame Manner.

Dry Confects, are thoſe, whoſe Fruits, after having been boil'd in the Syrup, are taken out again, and put to dry in an Oven. Theſe are made of ſo many Kinds of Fruits, that it would be hard to explain them all. The moſt conſidarable are, *Citron* and *Orange-Peel*, *Plumbs*, *Pears*, *Cherries*, *Apricocks*, &c.

Oranges are alſo often preſerv'd whole, *i. e.* without being cut in Pieces; which is done in this Manner: You muſt pare Oranges as thin as poſſible, and after you have ſlit them at the Eye, put them in boiling Water, and make them boil for about Half a Quarter of an Hour; which done, take them out, and put them in cold Water; then, with a Spoon made for that Purpoſe, or any other Spoon which can be introduced into the *Orange* without diſfiguring it, take out all the Pulp, and throw them into other cold Water, and afterwards into boiling Water, making them boil as before, and again into boiling Water, repeating the ſame Operation three Times ſucceſſively; and, laſtly, putting them into the fineſt Sugar, reduced to the Conſiſtence of our firſt Preparation, where they muſt boil for Half a Quarter of an Hour, and afterwards be taken off the Fire, and left to cool: When cold, they are put again on the Fire, to boil till the Sugar be reduced to the Conſiſtence of being ſhaken into Flakes; which done, they muſt be taken off the Fire, and when cold, and well drain'd of the Sugar, diſpos'd upon clean Straw.

Note, That there is as much Sugar wanted to preſerve *Oranges* and *Citrons*, that the Fruit may ſwim in it; but what's left of it, may ſerve for other Things.

Rocks of *Oranges*, are made of *Oranges* par'd and cleans'd, and boil'd as above; with this Difference, that they are cut into ſmall narrow Pieces, and diſpos'd upon the Straw in Form of *Rocks*.

Chips of *Oranges*, are boiled in four different Waters, for a Quarter of an Hour each Time, and put as many Times into cold Water; then they are preserv'd as those abovemention'd.

Citrons are par'd, and put in cold Water, like *Oranges*, and after they have been cut in what Form we please, they are boil'd in Water till they grow soft; which done, they are taken out, put in cold Water, and afterwards preserv'd like *Oranges*.

Apricocks are confected, by taking small green *Apricocks*, very tender, paring them, and having them done in hot Water, without boiling, till they begin to grow green; for then they must be taken out, and put in cold Water, and after they have been very well drain'd, boil'd in Sugar of the Consistence of our first Preparation, till the Syrup be reduced to the Consistence of our second Preparation of Sugar; then they are put in an earthen Pan, where they are left for eight Days: That Time expir'd, they are put in a Copper Bason, and boil'd till the Syrup be once more reduced to a Pearl Consistence; which done, they are put again into the earthen Pan, and when cold they are dispos'd on Slates, and put to dry in the Stove, where they are often turn'd, till they be thoroughly dry. Then they are put in Boxes, upon Paper, so that they may not touch one another.

For *Cherries*, after the Stones have been taken out, they must be boil'd in a small Quantity of Water, that they may pour out their Juice; and when they have been well drain'd, they are boil'd in Sugar reduced to a Pearl Consistence, till the Syrup has acquir'd, likewise, a Pearl Consistence; which done, they are put in an earthen Pan; where they are left for eight Days; after which, they are once more boil'd till the Syrup has acquir'd the same Consistence as before: When they are done, they are left to grow cold, when cold they are dispos'd upon Slates, and put to dry in the Stove, where they must be turn'd twice every Day, if they want it, till they be quite dry: Being dry, they are put in Boxes upon Paper, making one Bed of Paper, and another of *Cherries*, and thus successively, till they are all pack'd up. The Paper must be chang'd at least every Fortnight, and if they be kept long, and the Paper under them is found wet, it must be chang'd likewise, as well as that under all Sorts of dry Confects, if we design to keep them long. They must even be put, from Time to Time, to the Stove, especially when they want it.

Plumbs must be neatly par'd, and as they are par'd thrown into cold Water, and afterwards into other Water ready to boil, where they must be left on the Fire, cover'd, and without boiling, till they grow green; which done, they are thrown again into cold Water, and afterwards preserved, and dried like *Cherries*. All Sorts of *Plumbs* are done in the same Manner, as also *Peaches*.

CANDIES are ordinarily entire Fruits, and Flowers, *candied* over with Sugar, after having been boil'd in the Syrup; which renders them like little Rocks crystalliz'd, of various Figures and Colours, according to the Fruits inclos'd within them. The best *Candies* are brought from *Italy*.

Oranges are *candied* whole, by taking whole *Oranges* newly confected, and not much loaded with Sugar, and putting them in Sugar reduced to the Consistence of being shaken into Flakes; but the Vessel which contains the Sugar must be flat, that the *Oranges* may not touch one another, nor the Bottom of the Pan: Then they are carried to the Stove, where they are left twice 24 Hours, which being expir'd, they are taken out, and put upon Straw to dry. *Apricocks*, *Peaches*, and all other Fruits, are *candied* in the same Manner.

Orange-flowers are *candied*, by taking the Buds of those Flowers, when they are not yet quite blown, putting them in a flat earthen Pan, that they may not be too much crowded, and pouring upon them Sugar reduced to the Consistence of being shaken into Flakes: This done, they are carried to the Stove, where they are left, like the *Oranges*, for two Days and two Nights, and afterwards taken out, and put on Straw to dry. Buds of *Flowers* of *Violets*, with their Stalks, are *candied* in the same Manner; as well as all other *Flowers*.

CONSERVES, are a Kind of *dry Confects*, made with Sugar, and Pastes of Flowers, Fruits, &c. The most usual are those of *Orange-flowers*, *Violets*, *Jessamine*, *Pistacio's*, *Citrons*, and *Roses*.

To make the *Conserve* of *Orange-flowers*, you must take a small Handful of those Flowers, separated from their Buds, and cut them to Pieces; plunge them afterwards, with a Spoon, or Spatula, into a Pound of Sugar, reduced before to the Consistence of being shaken into Flakes; when they begin to catch a-top, they must be dress'd upon Paper with the Spoon or Spatula.

The *Conserve* of *Pistacio's*, is made by pounding the *Pistacio's*, putting them afterwards in Sugar reduced to the Consistence of being shaken into Flakes, stirring them together, and dressing the *Conserve*, after 'tis done, upon Paper.

To make the *Conserve* of *Cherries*, you must take out the Stones, and make the Fruit boil in a small Quantity of Water; when boil'd, you must drain them, cut them to Pieces, and throw them afterwards in Sugar reduced to the Consistence of being shaken into Flakes; then dress your *Conserve* upon Paper. The Sugar must be off the Fire when you throw the Fruit into it.

To make a *Conserve of all Sorts of Fruits*, take *Cherries* and *Apricocks*, without their Stones; *Plumbs*, *Peaches*, and green *Almonds*, and cut them all into small Pieces, and throw them afterwards into Sugar reduced to the Consistence of being shaken into Flakes; then dress the *Conserve* as you have done the others.

Conserve of *Roses*, is made by taking *Red Roses*, in Powder, dissolving them in the Juice of Lemon, and mixing the Dissolution with Sugar reduced to the Consistence of being shaken into Flakes.

To make the *Conserve* of *Violets*, you must take the Leaves of Flowers of *Violets*, pound them in a Mortar, strain them through a Cloth, to extract the Juice, and mix that Juice with Sugar reduced to the same Consistence as above; when you dress the *Conserve*, you must mix with it some Juice of Lemon, to give it a livelier Colour.

SUGAR-PLUMBS, or *Dragees*, are a Kind of little *dry Confects*, made of small Fruits, or Seeds, little Pieces of Bark, or odoriferous and aromatick Roots, &c. incrustated, and cover'd over with a very hard Sugar, ordinarily very white. Of these, there are various Kinds, distinguish'd by various Names; some made of *Rasberries*, others of *Barberries*, *Melon-seeds*, *Pistacio's*, *Filberds*, *Almonds*, *Cinnamon*, *Orange-peel*, *Coriander*, *Aniseeds*, *Carraways*, &c.

There are two different Sorts of *Sugar-Plumbs*, viz. *pearled Sugar-Plumbs*, and *glazed*, or *iced Sugar-Plumbs*. The *pearled Sugar-Plumbs* are made with Sugar reduced to the Consistence of our second Preparation; and the *glazed*, or *iced Sugar-Plumbs*, with that reduced to the Consistence of our first Preparation.

To make all Sorts of *Sugar-Plumbs*, there must be had a large Copper Bason, with two Handles to it, suspended with two Cords, at the Height of the Waste-band; under which, there must be an earthen Pan, or Chafing-dish, with a moderate Fire, to make the *pearled Sugar-Plumbs*: There is wanted, besides, a Kind of Funnel, through which the Sugar must pass, to make *pearled Sugar-Plumbs*.

Pearled Almonds, are made of Sweet *Almonds*, very well dried over the Fire, pouring upon them, through the Funnel, the Sugar, reduced to the Consistence of our first Preparation, shaking the Bason all the while, and turning the *Sugar-Plumbs*, that they may all take, as near as possible, an equal Quantity of Sugar. They may also be stirr'd with the Hand, and parted, if they stick together. The Syrup can likewise be stopp'd running, to give Time to the *Sugar-Plumbs* to dry. The

The *glazed Almonds* are made, by pouring upon them in the Bason, with a Ladle, about a Quarter of a Pint at once of Sugar, reduced to the Consistence of our first Preparation, stirring often the *Almonds* with the Hands, and leaving them sometimes at Rest: *Carraways*, *Aniseeds*, &c. are prepar'd in the same Manner, after they have been very well clean's'd of all their Dust, Stalks, *&c.*

COOKERY.

COOKERY, is the Art of preparing Meats for Food, that they may be both wholesome, and agreeable to the Palate.

The *Art of Cookery* was at first very simple, and invented only to render certain Sorts of Meats, especially Flesh and Fish, otherwise very insipid, and even offensive to the Stomach, palatable, and of easy Digestion: Therefore that Art consisted, then, wholly in boiling and roasting. But, in Process of Time, our Taste having been deprav'd, as well as our other Senses; Incontinence, Extravagance, and Luxury, have refin'd *Cookery*, as they have done all the other Arts invented to gratify our Sensuality; and none but the poorest among Mankind, and but too often now, even those, can't eat Meat without Sauce; and that bad Custom, so prejudicial to our Health, and so expensive in Families, has so far prevail'd among us, for several Ages past, that it is become of an indispensible Necessity: And as almost every Body wants to know how to dress their Victuals in the best Manner, though every Body is not in a Condition to hire a *Cook* for that Purpose, I'll be theirs, for once, and inform them how all Sorts of Meats, *viz.* Butchers Meat, Fowls, Fishes, Pulse, *&c.* are to be dress'd, to flatter the Palate, and excite the Appetite. I'll begin with the Manner of making *Soups*, or Broths, since it is the first Dish which commonly comes upon the Table, of those who love those Sort of Dishes, and who pretend to live in an elegant Manner, here in *England*; for in other Countries, especially in *France*, *Soup* is one of the most common Dishes, but not always those delicious *Soups* I am going to make.

Before I can pretend to make *Soups* of any Kind, I must make a Broth, which will serve to fill all the Pots I may chance to have on my Fire, either for *Soups*, *Entrees*, or *Entremets*.

To make that Broth, I'll take that Piece of Beef call'd in *England* the Mouth-Buttock, some Mutton, and a few Fowls, regulating the Quantity of Meat, according to the Quantity of Broth I want: I'll put that Meat in a Pot, with a Bunch made of Parsley, young Onions, and Thyme, ty'd together, and a few Cloves; I'll fill the Pot with Water, keeping always warm Water ready to re-implace that of the Pot, which evaporates in boiling; and when the Meat is boil'd almost to Rags, I strain the Broth through a Napkin, to use it as Occasion serves; and for roast Meat, after I have extracted the Gravy, I put it to boil with such a Bunch of Herbs as that abovemention'd, have it well boil'd, strain it, and keep it, to colour all my other Broths.

Note, That these Sorts of *Broths* may be eaten without any other Addition, except Pulse, if one likes it, *viz.* Cabbages, Turnips, *&c.* which Pulse are to be boil'd in a Pot a-part, and after they are well drain'd of their Liquor, they are put in the *Broth*, to boil two or three Gallops more, and afterwards put in a Dish, and carried to Table.

The other delicious Broths, which none but the Rich can afford, are,

The Bisk of Pigeons; the Pottage of Health; Partridge *Broth* with Coleworts; Duck's Pottage with Turnips; Pottage of Fowls with Asparagus; Jiblet Pottage; Pease Pottage with a green Goose; Pottage of Fowls with green Pease; Pottage of Pigeons with green Pease; Pease Pottage; Pottage of Hares; Pottage of a Nuckle of Veal; Pottage of a Breast of Veal; Pig's Pottage; Pottage of hash'd Mutton; Pottage of a Capon with Rice; Pottage of Fowls with Rice; Pottage of a fried Calf's Head; Pottage of fried Mutton with Turnips; Pottage of roasted Woodcocks, *&c.*

To make a *Bisk of Pigeons*, after they have been well clean'd, and truss'd; we blanch them, *i. e.* we put them in a Pot, with warm Water, or Broth, and cover them well, to be blanch'd; afterwards we put them in another Pot, with the best of our Broth, and a small Bundle of fine Herbs, seasoning it with Pepper, Salt, and Cloves. They must boil slowly for Half, or three Quarters of an Hour, and then they are fit to be carried to Table.

The *Pottage of Health*, is made with Capons boil'd in a Pot with a sufficient Quantity of our Broth, well season'd with Salt, and fine Herbs. The Pot must be well cover'd, lest the Capons should turn black.

We make the *Pottage of Partridges with Coleworts*, by putting Partridges, well larded, to boil with Coleworts in a Pot; when they are almost done, we throw into the Pot some Fat of Bacon, melted in a Frying-pan, and season it, when ready to be carried to Table, with Pepper and Cloves beaten.

The *Pottage of Ducks with Turnips*, is made of Ducks larded, and half fried in Lard, or which have took three or four Turns on the Spit; then they are put in a Pot. The Turnips, after they have been cut in Pieces, and flour'd, are also fried in Lard, till they are very brown; then they are put in the same Pot with the Ducks, and left to boil slowly in Water, till the Ducks are done. Before the Pottage is carried to Table, it may be season'd with a few Drops of Verjuice.

To make the *Pottage of Jiblets*, after they have been well scalded, they must be fried like a Fricassy of Fowls, and afterwards put in a Pot with our best Broth, where they are left to stew at a slow Fire, for three Quarters of an Hour.

To make the *Pottage of Fowls with Colliflowers*, the Fowls must be boil'd in Broth, at a slow Fire, and well season'd with Cloves and Pepper, and a small Bundle of Parsley, Thyme, and young Onions. The Colliflowers must be boil'd in another Pot, and when the Fowls are very well done, the Pottage must be pour'd on toasted Bread, and the Dish garnish'd with the Colliflowers. Some Juice, or Gravy of Mutton, may be added to the Broth, to render it richer.

To make *Pease Pottage with a green Goose*, we put our green Goose to boil very well in a Pot, and our Pease in another; when the Pease are well mash'd, we put in it a Bundle of sweet Herbs, and fat Bacon melted in a Frying-pan: We have Bread stew'd in the Broth of the green Goose, and pour the Pease Pottage upon it.

The *Pottage of green Pease with green Geese*, is made with green Geese, well season'd, and boil'd in Broth; the green Pease are pass'd through the Frying-pan, and afterwards put in a Pot a-part, with Broth; and when they are well done, they are mix'd with a sufficient Quantity of the Broth of the green Goose, and carried to Table. You may garnish the Dish with the Jiblets of the Goose, and some boil'd Lettices.

To make the *Pottage of Fowls with green Pease*, we put the Fowls to boil with Broth, and skim them well; then pass the green Pease through a Frying-pan, with Butter, or melted Bacon; and afterwards have them

them ſtew'd a-part, with Lettices: And when the Fowls are done, we mix the Broth and Peaſe together, and ſend it to the Table.

The *Pottage of a Nuckle of Veal*, is made without any other Ceremony than that of having it boil'd in Broth, with ſome white Succory, taking great Care to ſkim it well.

Pig's Pottage, is made by cutting the Pig into five Pieces, putting it in a Pot with good Broth, a Bundle of ſweet Herbs, and a Piece of pickled Pork, and leaving it to boil at a ſlow Fire till it is well done.

To make the *Pottage of haſh'd Mutton*, we haſh a Leg of Mutton with Beef Marrow, and put it to ſtew in a Pot, with a ſufficient Quantity of Broth, till it is well done.

To make the *Pottage of a Capon with Rice*, we put our Capon to boil in Broth well ſeaſon'd; we pick the Rice, waſh it, and have it dried before the Fire; then put it to boil ſlowly in a very good Broth, with a Blade or two of Mace; and when the Capon and Rice are done, we mix them together, and ſend them to the Table.

Note, That all theſe Sorts of *Pottages*, or *Soups*, are ſeldom ſerv'd without ſome toaſted Bread, which has been ſtew'd in ſome Broth, before it is carried to the Table.

Note, alſo, that the Fowls employ'd to make theſe Sorts of *Soups*, are commonly ſerv'd whole a-top of the *Soup*, and the Diſh garniſh'd either with Chicory, Muſhrooms, Truffles, Capers, or Onions, according to the different Sorts of *Soups*.

There are, alſo, ſtuffed *Soups*, or *Pottages*, viz. Pottage of ſtuffed Capons; of ſtuffed Fowls; of ſtuffed Pigeons; of ſtuffed Ducks; of ſtuffed Breaſt of Veal; of ſtuffed Calf's Head; of ſtuffed Leg of Mutton; of ſtuffed green Geeſe; of ſtuffed Partridges; and of ſtuffed Turkey.

The *Pottage of ſtuffed Capon*, is made by taking out the Bones of the Capon through the Neck, filling it with Capon or other ſuch Fleſh, haſh'd with Beef Marrow, and well ſeaſon'd; then the Capon, thus prepar'd, is put to boil ſlowly in very good Broth, and when done, it is ſerv'd whole, like other Pottage.

We make the *Soup*, or *Pottage of ſtuffed Fowls*, in raiſing up the Skin with our Fingers, with a Stuffing made of Veal, or White of Capons, haſh'd with Beef Marrow, and Yolks of Eggs: Thus ſtuffed, we put it to boil ſlowly in Broth, with a Bundle of ſweet Herbs, till it is done; then we carry it to the Table whole, with the Broth, and the Diſh garniſh'd with the Bottoms of Artichokes and Aſparagus, or ſome other Furniture, according to the Seaſon of the Year.

To make the *Pottage of ſtuffed Pigeons*, the Pigeons are prepar'd as we have done the Fowls, and the Proceſs is the ſame in every Particular, except that we often cover the Pigeons, after they are ſtuffed, and before they are put in the Broth to boil, with a thin Slice of very good fat Bacon, without Lean.

To make a *Soup*, or *Pottage of ſtuffed Ducks*, we muſt take out the Bones by the Neck, and fill the Inſide with Muſhrooms, Truffles, Sweetbreads, and other ſuch Things; then we make our Stuffing of a Piece of lean freſh Pork, haſh'd with Yolks of Eggs raw, Parſley, young Onions, and Spices: We ſew up the Ducks, and put them to boil at a ſlow Fire, in very good Broth, till they are done.

To make the *Pottage of ſtuffed Breaſt of Veal*, we open it at the lower End, and ſtuff it with ſome fat Meat, Crumbs of Bread, and all Sorts of ſweet Herbs haſh'd together, and well ſeaſon'd: We put the Breaſt of Veal, thus ſtuffed, to boil ſlowly, in very good Broth, with Capers, Chicory, or other Herbs haſh'd, and when done, we ſend it to Table.

The *Pottage of ſtuffed Calf's Head*, is made by taking off the Skin of the Calf's Head, and boiling the Head afterwards; when done, the Bones muſt be ſeparated from the Fleſh, and the Eyes and Brains taken out; then the Fleſh is haſh'd with ſome Marrow, and mix'd with Yolks of Eggs raw, with which the Head is ſtuffed, ſew'd up afterwards, the Eyes and Brains put in their Places, and the whole boil'd in good Broth. While the Head is boiling, you muſt have Calf's Feet half boil'd in Water, after which, they are to be cut in Halves, and fried in Butter, or melted Bacon; this done, they muſt be put with Capers in the Pot where the Calf's Head is boiling; and when they have boil'd together for near Half an Hour, the *Soup* is fit to be carried to Table.

The *Soup*, or *Broth of ſtuffed Lamb's Head*, is made with a Lamb's Head prepar'd in the ſame Manner we have done the Calf's Head: The Fleſh, when done, is to be haſh'd with Bacon, and very well ſeaſon'd; the Stuffing is made with a Piece of Lamb's Liver, Marrow, Parſley, and ſweet Herbs, the whole mix'd well together, and well boil'd in good Broth.

We make the *Soup*, or *Broth of a ſtuffed Leg of Mutton*, by taking off the Skin, haſhing the Fleſh very fine, with Marrow and Bacon well ſeaſon'd, ſtuffing the Skin of the Leg of Mutton with it: When it is ſew'd up, we put it to boil with ſome Turnips, Capers, and a ſmall Bundle of ſweet Herbs, till it is done.

The *Pottage*, *Soup*, or *Broth of ſtuffed green Geeſe*, is made by taking off the Merrythought, ſtuffing it with what Stuffing we pleaſe, flouring it, and putting it to boil in good Broth.

To make the *Pottage*, or *Soup of ſtuffed Partridges*, we take off the Merrythoughts, and ſtuff them with Veal, and Capon's Fleſh, haſh'd together, and well ſeaſon'd with Salt, Spices, and ſweet Herbs: Then we put our Partridges in Broth, and have them well done.

To make the *Pottage of ſtuffed Turkies*, we take off the Merrythoughts, and ſtuff them with Veal and Marrow, very well haſh'd together, and ſeaſon'd: We mix our Stuffing with Yolks of Eggs raw, and put the Turkies to boil in Broth, with Muſhrooms, Truffles, and a ſmall Bundle of fine Herbs, made of Parſley, young Onions, and Thyme.

Having made our *Soups*, we'll paſs to the making of *Entrees*, *Ragouts*, or *Fricaſſees*, viz. marin'd Loin of Veal; Ragouts of Ducks, of Pigeons, of Fowls, of Neat's, Pork's, Mutton's, and Calf's Tongues; of Partridges, of a Neck of Veal, of a Fillet of Veal, of a Loin of Deer, and of a Calf's Liver. White *Boudin*, *Servelats*, *Civé* of Hares; Turkey, Gooſe, and Pig, *à la daube*; Fricaſſee of Fowls, of Pigeons, and of a Loin of Veal; Breaſt of Veal fried, Loin of Veal at the *Sauce Robert*, Capon with Oyſters, *à la mode* Beef, ſtew'd Fowls, Calf's Head fried, Pork Pye, Tart of Marrow, Pigeon Pye, Veal Pye, Capon Pye, *Engliſh* Pye, and Beef Steaks.

To make a *Ragout of Ducks*, they muſt be larded, fried, very well ſeaſon'd with Salt, Pepper, Spices, young Onions, and Parſley, and put in a Pot to ſtew, with a little of our beſt Broth.

To make a *Ragout of Pigeons*, they muſt be larded, fried in Lard, ſeaſon'd, and put to ſtew in a little of our beſt Broth, with a ſmall Bundle of fine Herbs.

To make a *Ragout of Fowls*, they muſt be larded, cut in Halves, ſeaſon'd, and put to ſtew in Broth, with a ſmall Bundle of fine Herbs, Truffles, Muſhrooms, and a few ſmall Pieces of roaſted Pork, to give them a Reliſh.

To make a *Ragout of a Neat's Tongue*, it muſt be larded with big Lardons, very well ſeaſon'd, and put in a Pot to ſtew; when almoſt done, it muſt be left to grow cold, then put upon a Spit at the Fire, and baſted with the Sauce wherein it has been ſtew'd, till it be quite roaſted; which done, it is taken off the Spit, and put to ſtew very ſlow, in the Dripping, with ſome pounded Onions, Bacon, and a little Vinegar.

To make a *Ragout of Pork's Tongues*, they muſt be fried in Lard, very well ſeaſoned, and put in a Pot with Broth, to ſtew; when almoſt done, there muſt be mixed with it a pounded Onion, Truffles, and a Glaſs or two of White Wine, leaving all this to ſtew together, till the Tongues are quite done.

A *Ragout of Mutton's Tongues*, is made by taking several Mutton's Tongues, very well pickled, frying them, and putting them to stew in Broth, with an Onion or two, Mushrooms, Truffles, and Parsley, the whole very well season'd with Salt and Pepper, and a little Verjuice, or Vinegar.

To make a *Ragout of a Turkey*, it must be larded, cut in Pieces, floured, fried, and put afterwards to stew in Broth at a slow Fire, till the Sauce grows short.

To make a *Ragout of a Pig*, it must be cut in four Quarters, well seasoned, and fried; when done, it is garnish'd with Capers, Truffles, and Mushrooms.

To make a *Ragout of Calves Feet*, when they are well done, they must be floured, and fried in Lard, and afterwards put to stew in Broth, with Verjuice, a small Bundle of fine Herbs, and a Piece of Lemon, the whole well season'd, and the Sauce short. They must be carried to Table with Capers.

A *Ragout of double Tripes*, is made by cutting the Tripes very small, frying them in Lard, with Parsley and *Onion*, and having been season'd with Capers and Vinegar, they are left to stew a little while in the Frying-pan.

To make a *Ragout of a Fillet of Veal*, it must be larded, and a little more than half roasted on a Spit, and afterwards put to stew with very good Broth, a small Bundle of fine Herbs, Pepper, and Cloves, in a Pot cover'd close. When done, the Sauce must be thicken'd with Yolks of Eggs well beaten, with a little Verjuice, or the Juice of a Lemon, or some Vinegar.

To make a *Ragout of a Loin of a Deer*, after it has been larded, and half roasted, it must be basted till it is quite done, with a Sauce made of Pepper, Vinegar, and Broth, and the Sauce thicken'd afterwards with Crumbs of Bread.

To make a *Ragout of a Hare*, after it has been half roasted, it is cut in Pieces, fried, and then put to stew slowly in a Dish, with the Juice of Oranges, Capers, and Crumbs of Bread.

To make *à la mode Beef*, you must take a Piece of the Buttock, beat it well, and lard it; then it must be put in a Pot, with good Broth, Pepper, beaten Cloves, and a small Bundle of fine Herbs; and the Pot being cover'd close, is put on a slow Fire, where it remains till the Beef is done.

To dress *Capons with Oyster Sauce*, the Capon must be *larded*, *i. e.* the Fore and Hind-part cover'd with a thin Slice of Bacon, and over it a butter'd Paper; then it is put to roast; the Oysters must be fried with the Dripping of the Capon, and season'd, while frying, with Mushrooms, an Onion, and a small Bundle of fine Herbs: When they are well fried, they are put in the Body of the Capon, the Bundle of Herbs excepted, before it is quite done.

To make a *Ragout of a Calf's Liver*, it must be larded with big *Lardons*, well season'd, with a small Bundle of sweet Herbs, Orange-peel, and Capers, and put in a Pot to stew with some good Broth.

To make a *Stew of Fowls*, they must be cut in small Pieces, and put to stew with very good Broth, White Wine, and fresh Butter, and well season'd with Onions and Parsley hash'd together; when they are done, the Sauce must be thicken'd with Yolks of Eggs well beaten with Verjuice, or Vinegar.

To *fry a Calf's Head*, after it has been well boil'd, the Bones must be taken off; then make a Batter, or liquid Paste, with Flour and Eggs, which must be season'd well with Pepper and Salt, and in which the Flesh of the Head must be dipped, and then fried in Lard: When well fried, it must be serv'd with Slices of Oranges, and fried Parsley, round the Dish.

To *fry Calves Feet*, after they are well boil'd, they are cut in small Pieces, and fried with Butter; after they have been turn'd three or four Times in the Frying-pan, we throw into it Onions and Parsley, well hash'd together, a little good Broth, and season well the whole: When they are ready to be carried to the Table, we beat some Yolks of Eggs with Verjuice or Vinegar, in Proportion to the Meat, *viz.* to four Calves Feet, three Yolks of Eggs, with which we thicken the Sauce.

To *hash roasted Mutton*, the Meat must be hash'd as fine as for minced Pies; which done, it must be put to stew slowly with some Gravy, an Onion, some fresh Butter, and Crumbs of Bread. *Hashed Partridges* are prepar'd in the same Manner.

To make a *Pigeon Pye*, we season well the Pigeons with Salt and Pepper, then put them in the Paste, with Beef Marrow, Asparagus, Mushrooms, Bottoms of Artichokes, Yolks of Eggs, Truffles, and Grains of Verjuice or Gooseberries.

To make a *Veal Pye*, it must be hash'd well with twice as much Marrow, or Beef Suet, well season'd, and afterwards put in Paste.

To make a *Capon Pye*, all the Bones of the Capon being taken out, it must be stuffed with Cocks Combs and Stones, Mushrooms, Truffles, Marrow, Capers, and Veal Sweetbreads; and being well seasoned, it is put in Paste.

Note, That all the different Ragouts, Fricassees, Pies, *&c.* above describ'd, can serve for *Entrees*, in great Entertainments, or Feasts; and that for the second Course in those Entertainments, can be serv'd some of the following Dishes, *viz. Pheasants*, *Hares*, *Quails*, *Partridges*, *Capons*, *young Pigeons*, *Chickens*, *Turkies*, *green Geese*, *Plovers*, *Woodcocks*, *Loins of Veal*, *Loins of Deers*, *Pigs*, *wild Geese*, *wild Ducks*, *Surloin of Beef*, &c. All these different Sorts of Meat are suppos'd to be roasted.

To *roast a Pheasant*, there must be left to it a Wing, the Neck, and the Tail; and after it is well larded, the Wing, Tail, Neck, and Head, where the Feathers are left, must be wrapped in buttered Paper, then spitted, and roasted; the Paper must be taken off before the Pheasant is carried to Table.

A *Hare*, before it is put to roast, must be rubbed over with its Blood, and larded; when done, it is served with a sweet Sauce, made of White Wine, Sugar, Mace, *&c.* or with a *Poivrade*.

A *Quail* is roasted *barded*, *i. e.* covered before and behind, with a thin Slice of Bacon, and wrapped in Vine-Leaves, in their Season.

Partridges are roasted larded.

A *Capon*, if it be very fat, is roasted covered only with a buttered Paper; and with an Onion, salted and peppered, in the Body.

Chickens are roasted either larded, or barded.

Ducks are roasted with four Roses of Lardons, one on each Wing, and one on each Leg: Some put another on the Stomach.

Lamb is roasted as it comes from the Butcher, without any other Preparation; but after it is roasted, you may throw upon it, if you please, some Crumbs of Bread, Salt, and Parsley.

Green Geese are roasted without being larded, but you must make under them a Stuffing, with the Liver, Thyme, Parsley, *&c.* hash'd well together, and well season'd; and fried afterwards in Butter, with a few Yolks of Eggs.

A *young Turkey* is roasted larded.

A *Plover* is roasted larded, and carried to Table with a Toast, and Sauce under it.

A *Haunch of Venison* is roasted larded, and a *Poivrade* made under it, when carried to Table, or a sweet Sauce.

An *Ortolan* is roasted *barded*, and wrapp'd in Vine Leaves, in their Season; in the Spring it must be drawn.

A *Woodcock* is roasted larded, and a Toast made under it, while roasting, with which, and some Slices of Seville Oranges, it is carried to Table.

A *Loin of Veal* is roasted larded, and a Ragout made under it with Verjuice, Water, Orange-peel, and Crumbs of Bread.

A *wild Goose*, as well as a tame one, is roasted larded on the four Quarters, in Form of Roses.

A *Fawn* is roasted, larded, and with its Head on, which must be wrapp'd in butter'd Paper, left the Hairs should be sing'd. It is carried to Table with a *Poivrade*, or sweet Sauce.

Note, That the Sauce call'd *Poivrade*, is made with Vinegar, Salt, Onion, and Lemon, or Orange-peel, boil'd together. The *green Sauce* is made with green Corn, a Toast burnt with Vinegar, some Pepper, and Salt; the whole pounded very well in a Mortar, and strain'd through a Cloth. *Pigs* and *Lamb* are serv'd with this Sauce. The *Rabbet* with the Juice of Oranges, and Pepper. The *Plover* with a Sauce made of Verjuice, Lemon-peel, Vinegar, Pepper, Salt, and Onion; without forgetting a Toast.

Note, also, That the *Entremets* for great Entertainments, are, *Pig's Ears*, and *Feet*; *Venison Pasty*; *fried Sweetbreads*; a *Ragout of Ham*; *Ham roasted*; *Colliflowers*; a *Ragout of Larks*; *Jellies of Hartshorn*; *green*, *yellow*, *blue*, &c. *Jelly*; *blanc Manger*; *Fritters of Marrow*, *Apples*, and of *Artichokes*; *Tarts of Franchi panni*; *fried* and *boiled Artichokes*; *stuffed*, and *fried Mushrooms*; *Tarts of Pistacio's*; *Spanish Cardoons*; *Asparagus*, &c.

To dress *Pig's Ears*, and *Feet*, after they have been well boil'd, they must be cut in Pieces, fried in Butter with Onions, and well season'd; when fried, two or three Spoonfuls of good Broth are put into the Pan, and when they have been left to stew for five or six Minutes, the Sauce is thicken'd with Yolks of Eggs beaten with Vinegar, and some Mustard.

To make a *Venison Pasty*, if the Flesh is hard, it must be well beaten, skinn'd, larded, well season'd with Pepper, Salt, beaten Cloves, and Vinegar; and afterwards put in Paste, and carried to the Oven, where it is left for the Space of three Hours. When done, the Hole, which had been left to give it Vent, must be stopp'd.

To make a *Ham Pye*, after it has been well soak'd, it must boil a Gallop or two, and afterwards be skinned; when skinned, it is put in Paste, like Venison, and season'd with Pepper, Cloves, and Parsley: If it be a big one, it must stay five Hours in the Oven, and thus in Proportion to its Bigness.

To make a *Ragout of Truffles*, they must be par'd very clean, cut very thin, and fried with Butter, some hash'd Parsley, and Broth, where they are left to stew for a little while; they must also be very well season'd.

To dress the *Truffles dry*, they must be wash'd with Wine, and afterwards boil'd in strong Wine, a little Vinegar, and a great deal of Salt and Pepper: When well done, they are left for some Time in their Liquor, and carried to Table dry, on a Napkin.

To dress Colliflowers, they must be boil'd with Salt, and a Piece of Butter; when done, they are pared, and carried to Table with a thick Sauce, made of fresh Butter, a Drop of Vinegar, and some Nutmeg.

Fowls are *pickled* with Vinegar, Salt, Pepper, and Lemon-peel, and are left in their Pickle till they be wanted; when wanted, they are taken out, put to drain, and after they have been fried in Butter, they are put to stew for a few Minutes, in some of the Pickle, and then carried to Table.

The *Jelly of Hartshorn* is made by boiling a sufficient Quantity of Hartshorn Shavings in White Wine for the Space of two Hours, more or less, at the *Cook*'s Discretion; when boil'd, it is strain'd through a Cloth, and afterwards put in a Bason with a sufficient Quantity of Sugar, (*i. e.* a Pound of Sugar for two Pounds of Hartshorn) and Lemon Juice; when it is ready to boil, Whites of new-laid Eggs must be mix'd with it, and immediately after the whole Mixture must be thrown in the Flannel, and kept in a cool Place. The *green*, *yellow*, *blue*, &c. *Jellies*, are the same *Jelly*; only colour'd with those different Colours.

The *Blanc Manger* is made of the same *Jelly*, warm'd with Almonds very well pounded, and the whole strain'd through a Cloth.

To make *Fritters of Marrow*, we take the biggest Pieces of Beef Marrow we can get, slice, and dip them in a Paste, or Batter, made of Flour, Eggs, and Milk, well season'd; and afterwards fry them in Butter. The *Fritters of Apples* are made in the same Manner.

Fritters of Artichokes, are made of Bottoms of Artichokes half boil'd, slic'd, and dipp'd in Batter, made as above.

To *fry Artichokes*, they must be cut in Pieces, the Choke, and all the Leaves, except one of the smallest, left on each Piece, taken off, and thrown into boiling Water, to blanch them; afterwards they are dried, floured, and fried in Lard, or burnt Butter. They are carried to Table hot, and garnish'd with fried Parsley.

To make a *Ragout of Mushrooms*, after they have been well clean'd, they are fried in fresh Butter, with Parsley and young Onions hash'd together, well season'd, and Lemon-juice added to it, with some *blanc Manger*, when they are ready to be carried to Table.

To *fry Mushrooms*, they must be blanched in cold Water, dried, and afterwards pickled in Vinegar, Salt, Pepper, and Onions; and when they are to be fried, a Batter must be made, with Flour and Yolks of Eggs, in which the Mushrooms are put, and then fried.

To make a *Westphalia Ham*, we put our Pork in a Wine or Beer Cellar for four Days; during which Time, a Sort of Water will come from it, which must be wip'd very often; if it be wet Weather, it must be left there but two Days, and two Nights: It is afterwards put to the Press between two Boards, and left there as long as the Hog has been dead; after which, it is salted, and season'd with Pepper, beaten Cloves, and Aniseed. The *Hams* must be left in Salt for the Space of nine Days, and afterwards taken out, and put in Lees of Wine, for nine Days more; which elaps'd, they are wrapp'd in Hay, and buried in the Cellar, in a Place not too damp: Being taken out, they are hung to smoke, and must be perfum'd twice a Day, with the Smoak of burnt Juniper; when dry, and little smoken, they are carried to a dry Place, where they are kept, and visited often, left they should rot, till they be wanted; when, after they have been clean'd, and soak'd, they are boil'd in a Pot full of Water, season'd with fine Herbs, and without Wine. When done, the Rind must be rais'd, and the Flesh larded with Cloves, and spread over with Pepper, and hash'd Parsley; then the Rind, or Skin, is put upon it, and the *Ham* kept in a cool Place, till wanted.

To make *Panatum*, take good Broth, and Crumbs of Bread, and have them boil'd well together; when almost done, add to it Yolks of Eggs, and Lemon-juice. Another Method of making *Panatum*, is, to take the Flesh of Capons, or Partridges, well hash'd, beat them well in a Mortar, and mix it afterwards with Broth, Crumbs of Bread, and Salt; adding, likewise, to it, when near done, Yolks of Eggs, and Lemon-juice.

The different Sorts of Meat-Pies, are as follow, *viz. Turky Pye*, *Partridge Pye*, *Ham Pye*, *Rabbet Pye*, *Chicken Pye*, *Woodcock Pye*, *Duck Pye*, *Lamb Pye*, *Goose Pye*, *Jiblet Pye*, *Sweetbread Pye*, &c.

To make a *Pye of Turkies*, the *Turky* must be larded with big Lardons, and very well season'd with Salt, Pepper, Vinegar, and beaten Cloves, and the Paste very well fed with Butter. Another Manner of making such a Pye, is, to skin the *Turky*, to take off the Merrythought, and stuff it with Mushrooms, Truffles, Bottoms of Artichokes, Cocks Combs, and Sweetbreads; this Stuffing is proper in Case you take only the Merrythought; but if you skin the *Turky*, you must hash its Flesh with Marrow, and season it well, adding Yolks of Eggs to it; then you fill the Skin

Skin with this Stuffing, and put it in Paste, with Mushrooms, Bottoms of Artichokes, Asparagus, &c.

To make a *Partridge Pye*, they must be larded, season'd, put in a Paste very well fed with Butter, carried to the Oven, and baked for the Space of three Hours.

To make a *Rabbet Pye*, they must be larded with big Lardons, and well season'd with Salt, Pepper, beaten Cloves, and Vinegar.

To make a *Chicken Pye*, they must be larded, well season'd, and put in a fine Paste.

To make a *Pye of Larks*, they must be bruised, and fried, without the Gizzards, with Mushrooms, Truffles, Cocks Combs and Stones, well seasoned, put in Paste, and baked for the Space of two Hours and a Half.

To make a *Veal Pye*, you must take a Fillet of Veal, lard it, season it well, and put it in Paste. Another Manner of making a *Veal Pye*, is, to hash the Veal with Marrow, or Beef Suet, to season it well, and to garnish it, while in Paste, with Mushrooms, Bottoms of Artichokes, Sweetbreads, and Yolks of Eggs hard.

To make a *Duck Pye*, the Ducks must be larded, well seasoned, and the Pye baked for the Space of three Hours.

To make a *Lamb Pye*, the Lamb must be larded with big Lardons, seasoned with hashed Parsley, Pepper, Salt, beaten Cloves, and garnished with Mushrooms, Morilles, and Capers. When baked, it must be carried to Table with a white Sauce, made of Yolks of Eggs, beaten with Verjuice.

To make a *Deer Pye*, the Deer must be well larded, season'd, and garnish'd with Jiblets, Mushrooms, Truffles, and Morilles.

Though we are in a *Protestant* Country, where a *meagre Cookery* smells a little of *Popery*; we, notwithstanding, must give some Directions towards making a meagre Entertainment, and how to dress all Sorts of Fishes. I'll begin, as I have done in my first Kitchen, by preparing *Soups*, *Pottages*, or *Broths*.

There are several Sorts of *meagre Pottages*, or *Soups*, viz. *Pottage* of *Herbs*, of *Crawfish*, of *Carps*, of *stuffed Tench*, of *Muscles*, of *Oysters*, of *Asparagus*, of *Colliflowers*, of *stuffed Lettices*, of *Turnips*, of *Profiteoles*, of *Cucumbers*, of *stuffed Mushrooms*, &c.

To make *Herb Soup*, you must hash very well together, Sorrel, Buglos, Burrage, and a good Quantity of Lettices; then fry them in fresh Butter, and put them afterwards in boiling Water, with other fresh Butter, and a Crust of Bread, making it boil slowly, for the Space of an Hour, at least. When the *Soup* is to be carried to Table, you may whiten it, if you please, with Yolks of Eggs beaten with some of the *Soup*.

To make a *Soup of Crawfish*, after the Crawfish have been clean'd well, they are boil'd in Wine, Vinegar, Salt, and Pepper; being done, the Claws and Tails are fried with fresh Butter, and some Parsley, and the Bodies beaten in a Mortar with an Onion, hard Eggs, and Crumbs of Bread: This done, the Mixture is put to stew with some of the *Herb Soup*, or other *Soup*; when stew'd, it is strain'd through a Cloth, and put afterwards before the Fire, to keep it hot; then you fry some Parsley in fresh Butter, which you put, when fried, together with the Butter, in your *Soup*, well season'd, which must stew a little longer. When the *Soup* is carried to Table, the Dish must be garnish'd with the Claws and Tails of the *Crawfish*.

To make a *Soup of Carps*, we take out all the Bones, and put them to boil in Pease Pottage, with some Onions, and Crumbs of Bread; being boil'd, they must be fried with some Parsley, and put again in the *Soup*: While they are boiling, we make a Hash of the Flesh of the *Carps*, which, when done, is put over the toasted Bread, and the Broth pour'd upon it, garnishing the Dish with Slices of Lemon and Mushrooms.

To make a *Soup of stuffed Mushrooms*, we pick and wash them well, then put them to boil in Water, with an Onion larded with Cloves, Thyme, Pepper, and Salt; when boil'd, we strain the Broth through a Cloth, and put it in a Pot; then fry the Mushrooms with Butter, Parsley, and Capers, and put them afterwards in the Broth; and when ready to be carried to Table, we fill the Bottom of the Dish with a Hash of Carps, and pour the Broth upon it, garnishing the Dish with Mushrooms stuffed with the same Hash.

To make a *Soup of Muscles*, after they have been well bearded and wash'd, they must be boil'd in Water, with Salt, and an Onion; being boil'd, they are taken off the Shells, and afterwards fried with hash'd Parsley; the Water in which they have boil'd being settled, it must be pour'd gently into another Pot, leaving the Bottom, for Fear it should have some Sand in it: Then that Broth is put to boil, with a good deal of fresh Butter, and fried Parsley; when carried to Table, the Dish must be garnish'd with the *Muscles*.

To make *Oyster Soup*, we boil the *Oysters*, and when boil'd fry them in fresh Butter, with Parsley; while they are frying, we put in the Water they have been boil'd, some fresh Butter, and continue to make it boil: When they are fried, we throw them, together with the Parsley and Butter, into that Liquor, where we leave them to simmer a little while.

To make *Onion Soup*, we slice the *Onions* very thin, and then fry them; we put them in a Pot with Water, and more Butter, making them boil till they are well done; then we put a Crust of Bread in it, with some Salt and Pepper, leaving it to boil for a little while longer. When fit to be carried to Table, we beat Yolks of Eggs with a Drop or two of Vinegar or Verjuice, with which we thicken and blanch the *Soup*. Some add to it, while it is boiling, a few Spoonfuls of Pease Soup, and then it wants no Eggs.

To make a *Soup of green Pease*, you must take them as young as possible, and having been fried in fresh Butter, they are put to stew, well season'd with Parsley and young Onions; when stew'd, they are mix'd with *Herb Soup*, and carried to Table.

To make a *Soup of stewed Cucumbers*, we pare them, and take out all the Inside; then we make a Stuffing with Sorrel and Yolks of Eggs, well season'd, with which we fill the *Cucumbers*; after which, we put them in Water, and a good deal of fresh Butter, with a Crust of Bread; which we make boil slowly together for the Space of an Hour and a Half.

The *Entrees* or *Ragouts* which accompany these Sorts of *Soups*, are, the *Ragout* of *Soles*, of *Pikes*, of *Tench*, of *stewed Tench*, of *stuffed*, *fried*, and *roasted Carps*; of *Salmon*, of *Oysters*, of *Eels*, of *fresh Cods*, and *stewed Carps*; *Fritters* of *Oysters*, *stuffed* and *stewed Soles*, *Flounders fried*, *Plaise roasted*, *Eels roasted* with a green Sauce, *stuffed* and *roasted Pike*, *roasted Mackerel*, *fresh Herrings roasted*, *Merluche fried*, and in the *Sauce Robert*; *fried Thornback*, *Jowl* of *Salmon* with *sweet Sauce*, and in *Sallad*; *Ham* of *Fish*, *Tripes* of *Cods fried*, *pickled* and *red Herrings*, *Eel Pies*, &c.

To make a *Ragout of Soles*, they must be floured, and half fried; then they are open'd all along the Bone, and the Bone taken out; which done, they are fill'd with a Stuffing made of Capers, Mushrooms, Truffles, Soft Rows, and Crumbs of Bread; and put afterwards to stew in a Pot, with fresh Butter, an Onion cut small, Verjuice, and some Broth. When carried to Table, the Dish must be garnish'd with Slices of Lemon.

To make a *Ragout of Pikes*, they must be cut in Slices, and put to stew with White Wine, a Bundle of sweet Herbs, fresh Butter, and well season'd with Salt, Pepper, Capers, and Mushrooms; when done, the Sauce is thicken'd with Yolks of Eggs, beaten with some Vinegar, or Verjuice.

To make a *Ragout of Tench*, they must be cut in Pieces, well wash'd, and boil'd in Water, with Salt, Pepper, and an Onion, adding to it, afterwards, Half a Pint of White Wine, and some hash'd Parsley. When done, the Sauce is thicken'd with Yolks of Eggs, as above.

To make a *Ragout of stuffed Tench*, the *Tench* must be

be ſtuffed with a Stuffing made of the Fleſh of *Tench* and haſh'd Yolks of Eggs, well ſeaſon'd; then they are ſtew'd in Broth and White Wine, with Crumbs of Bread, Muſhrooms, Aſparagus, and Truffles.

To make a *Stew of Carps*, they muſt be cut in Pieces, put to boil in a Pot with White or Red Wine, and well ſeaſoned with haſhed Onion, Salt, Cloves, Pepper, Capers, and ſome Cruſts of Bread; when they are well done, the Sauce is thickened with Yolks of Eggs.

To make a *Ragout of ſtuffed Carps*, the *Carps* muſt be opened all along the Back-bone, the Skin raiſed, the Fleſh haſhed, and ſeaſoned with Parſley, freſh Butter, Salt, Pepper, and Yolks of Eggs, with which we fill the Skin; then we make it boil in Broth, ſeaſoned with Verjuice, Muſhrooms, Aſparagus, young Onions, and freſh Butter: When almoſt done, the Sauce muſt be thickened with Crumbs of Bread, adding Capers to it.

To make a *Ragout of Salmon*, it muſt be larded with Cloves, and roaſted; when roaſted, it muſt be ſtewed ſlowly in Wine, with Salt, Pepper, and freſh Butter, till the Sauce grows very ſhort.

To *ſtew Salmon*, it muſt be cut in Slices, larded with Cloves, and put to ſtew in White or Red Wine, well ſeaſoned, with freſh Butter, Salt, Pepper, Capers, and an Onion haſhed, till the Sauce grows very ſhort.

To make a *Ragout of Oyſters*, they muſt be put to ſtew in their own Liquor, with freſh Butter, Onions, haſhed Parſley, Capers, and Crumbs of Bread, well ſeaſoned with Pepper and Salt.

To make *Fritters of Oyſters*, they are dipped in Batter made of Flour, Eggs, and Milk, and fried in Butter.

To make a *Ragout of Flounders*, they muſt be put in a Stew-pan, with Butter, young Onions, beaten Cloves, Salt, Pepper, Capers, ſome White Wine, or Vinegar, and Muſhrooms; when done, the Sauce is thickened with Yolks of Eggs. *Plaiſe* are done in the ſame Manner.

To *ſtew Eels*, we cut them in Pieces, and ſtew them in White Wine, or Water, with Parſley, Capers, and freſh Butter, the whole very well ſeaſoned, with Salt, Pepper, and beaten Cloves.

To *dreſs an Eel in Form of Cervelat*, or, as we call it here, *collared Eels*; we ſlit the *Eel* in Half, take out the Bone, beat the Fleſh well, and ſeaſon the two Pieces with Pepper, Salt, Butter, and haſhed Parſley; then we roll them, and tye them very tight with Packthread: Thus prepared, we put them to boil in White Wine, well ſeaſoned; and when done, we take them out, and ſend them to Table in Slices.

To *ſtuff a Pike*, it muſt be ſlit all along the Back-bone, the Skin left from the Head to the Tail, Half the Fleſh taken off with the ſmall Bones, and the Back-bone left, to keep up the *Pike* when ſtuffed; then we take Half the Fleſh of the *Pike*, and Half Fleſh of *Carps*, or *Eels*, and haſh them together with Yolks of Eggs raw, Parſley, Salt, Pepper, ſweet Herbs, Butter and Milk mixed together, and Muſhrooms; with which we ſtuff the *Pike*, ſew it up, and then put it to boil, making the Sauce with Fiſh Broth, a Drop or two of Vinegar, or Verjuice, Parſley, Capers, and Muſhrooms, well ſeaſoned.

To *roaſt Mackerel*, they muſt be wrapped in Fennel, and put upon the Gridiron, at a Charcoal Fire, turning them often; when roaſted, they muſt be opened, and a good Sauce made under them, with Butter, Parſley, and Gooſeberries, the whole very well ſeaſoned.

To *roaſt freſh Herrings*, they muſt be put on the Gridiron, and, when they begin to roaſt, rubbed over with Butter; when roaſted, a Sauce muſt be made with freſh Butter, a Drop or two of Vinegar, Salt, Pepper, Nutmeg, and ſome Muſtard.

To make a *Ragout of freſh Cod*, it muſt be rubbed over with Butter, put upon the Gridiron, ſeaſoned with Salt and Cloves, and, while roaſting, baſted with freſh Butter, in which we put Parſley haſhed, and Onions, mixing with it ſome Broth, Vinegar, and haſhed Capers; then we put the roaſted *freſh Cod* to ſtew a little, in that Sauce, and carry it to Table with ſome Muſtard.

To make a *Ham of Fiſh*, we haſh the Fleſh of Carps, Tench, and Eels together, and ſeaſon it with freſh Butter, Capers, and ſweet Herbs, wrapping the Haſh in the Skin of a Carp, and over it a buttered Paper, tying the whole in a Piece of Cloth, and then putting it to boil in White Wine, with Spices: When done, we take off the Cloth and Paper, and ſend the *Ham* to Table in Slices.

To make a *Eel Pye*, we cut the *Eels* in Pieces, and put them in Paſte, very well ſeaſoned, with Yolks of Eggs, Parſley, Muſhrooms, Aſparagus, Verjuice, or Gooſeberries, in the Seaſon, Butter, Salt, and Pepper.

Of all the different Ways of dreſſing *Eggs*, I will content myſelf with giving ſome of them here, *viz. ſtuffed Eggs*, *Eggs with Bread*, *Eggs with Milk*, *Eggs with Cream*, *Eggs with Anchovies*, &c.

To *ſtuff Eggs*, we haſh well together, Sorrel, Lettice, and Charvel, and fry them with freſh Butter; when fried, we put them to ſtew for five or ſix Minutes, and ſeaſon them with Salt and Pepper; the Stuffing done, we cut the *Eggs* in Halves, take off the Yolks, and haſh them with the Stuffing; the whole being well mixed, we put it to ſtew for three or four Minutes longer, and grate ſome Nutmeg over it; then we ſend it to Table, garniſhed with the Whites of the *Eggs*.

To prepare *Eggs with Bread*, we mix Crumbs of Bread, and Sugar, with freſh Butter, melted; then we take new-laid *Eggs*, as many as we want, and beat them well with the Bread, Sugar, Butter, Salt, and ſome Milk: Afterwards, we melt ſome Butter very hot, put the Mixture into it, and leave it on the Fire to be done: Then we make the Fire-ſhovel red-hot, and paſs it over the *Eggs*, to give them a Colour.

To prepare *Eggs with Milk*, we ſugar them, beat them well, and mix them with Milk; then we have ſome freſh Butter melted in a Diſh; being melted, we put the *Eggs* into it, that they may be done, and afterwards give them a Colour with the Fire-ſhovel red-hot.

To prepare *Eggs with Cream*, we break a Dozen of *Eggs*, take ſix Yolks, and beat them well with Sugar, and a little Salt; then we mix them with Cream, and have them done in a Sauce-pan; being done, we ſugar them, and ſend them to Table.

To prepare *Eggs with Anchovies*, we waſh ſeveral Times the Anchovies, in Water, or Wine, take out the Bones, and put them to melt, with freſh Butter, in a Diſh; being melted, we break ſo many *Eggs* in the Diſh as we have Sauce; being done, we grate ſome Nutmeg over them, and ſend them to Table.

Fiſhes that are ſerved for a ſecond Courſe, are, the *Turbet* at the *Court-bouillon*; *fried Soles*; *Salmon* at the *Court-bouillon*; *fried Thornback*; *freſh Cod*; *Pike*; *Trout* at the *Court-bouillon*; *Perch* at the *Court-bouillon*; *Salmon* with a *ſweet Sauce*; *Lampreys*, &c.

To *dreſs the Turbet*, it muſt be put to boil gently in White Wine, ſeaſoned with Salt, Pepper, Cloves, and ſweet Herbs, as Roſemary, Thyme, and Onions; being done, it muſt be ſent to Table garniſhed with Parſley.

Note, That almoſt all *Court-bouillons* are made with Half Wine, and Half Water, Cloves, whole Pepper, Salt, Orange-peel, a Bunch of ſweet Herbs, and two or three Bay-leaves; for want of Wine, you may put good Vinegar.

There are a great many other *Pies* of *Fiſh* than thoſe heretofore mentioned, *viz. Pies* of *Salmon*, of *Trouts*, of *Carps*, of *Sturgeon*, of *Turbet*, of *Soles*, of *Oyſters*, and of *Cracofiſhes*.

Note, That before we proceed farther, I muſt give you

you some Instructions relating to the making of Paste for your Pyes and Tarts. The puffed *Paste* is made in this Manner: Suppose, for Example, we take four Pounds of Flour, we mix that Flour with cold Water and a little Salt; when mixed, we leave it a little at Rest, and afterwards work it with two Pounds of Butter, extending it to cover it with that Butter, after which, we fold it up in three, extending it again to fold it in four; this done, we make again three or four such Turns, then carry it to a cool Place, to use it as we want it. The *fine Paste* is made with four Pounds of Flour, and a Pound and a Half of Butter, very well worked together with Salt. The *Paste* with *warm Water* is made in the same Manner, except that you heat the Water and Butter.

Note, also, That all *Fish Pies* are baked in two Hours.

To make a *Pye of Salmon*, it must be larded with Eels, or Carps, and seasoned with Pepper, Salt, and beaten Cloves; then it is put in Paste, and over it a Bay-leaf, with a good Quantity of fresh Butter, and a little Vinegar; which done, the *Pye* is closed, in Form of the Fish.

To make a *Tart of Oysters*, they must be blanched in warm Water, and afterwards fried in fresh Butter, with Parsley and Onions hashed, and Mushrooms, the whole well seasoned, and afterwards put in puffed Paste, and garnished with Yolks of Eggs hard, Bottoms of Artichokes, Morelles, and Asparagus. When the *Tart* is bak'd, a Sauce is made with two or three young Onions, whole Pepper, Salt, and a little Vinegar, tossed in the Frying-pan with Butter; when the Sauce is brown, the Onions must be taken out, and two Yolks of Eggs mix'd with it; then the Sauce is thrown, boiling hot, into the *Pye*.

To make a *Tart of Crawfish*, they must be boil'd with Salt, Pepper, and a very little Vinegar; then they are pick'd, and fried in fresh Butter, with Mushrooms and Parsley, hash'd; then the whole, being well season'd, is put into Paste: Being baked, you make to it a red Sauce of the Shells of the Crawfish pounded, strain'd thro' a Cloth, and mix'd with some Broth, Yolks of Eggs, a Drop or two of Verjuice, and some Nutmeg. This Sauce must be put in the *Tart* when it comes out of the Oven.

To make a *Tart of Spinnage*, we hash the *Spinnage* very fine, and mix it afterwards with melted Butter, Salt, Sugar, and some pounded Almonds; then we put the whole Mixture in Paste, and have it bak'd; being bak'd, we send it to Table with Sugar over it.

To make a *Jelly of Fish*, you must take the Scales of Carps, six Tench, and three Pints of White Wine, and make the whole boil well together, with a little Salt, Cinnamon, and four Cloves; then you strain the Liquor thro' a Cloth, with Expression, to force the Juice out; which done, you put a Pound of Sugar to it, then break a Dozen of Eggs, and fry the Whites; when fried, you heat the *Jelly*, and when it is ready to boil, throw into it the Juice of five Lemons, and the Whites of the Eggs; when it begins to boil, throw it into the Flannel, and strain it thro' it, as often as it is wanted, to make it clear.

I'll conclude this Treatise of *Cookery*, with a Catalogue of all the different Meats in Season, throughout the whole Year.

From Easter *to* Midsummer, *are in Season*,

Chickens, young Turkies, green Geese, Lamb, Pigeons, young Hares, Partridges, Pheasants, Ortolans, and Rabbets.

From Midsummer *to the Middle of* October, *are in Season*,

Young Partridges, young Pigeons, Turtles, young Pheasants, young Quails, young Hares, Turkies, young Capons, Pigeons, fat Geese, fat Fowls, Ortolans, young Ducks, Fawns, *&c.*

From the Middle of October, *to* Lent, *are in Season*,

Fat Capons, fat Fowls, Turkies, Lamb, Hares, Partridges, Woodcocks, Plovers, Teals, Wood-pheasants, fat Quails, fat Geese, Ducks, both wild and tame, Larks, Pigs, *&c.*

CORDWAINERS.

CORDWAINERS, or *Cordiner*, from the *French Cordonnier*, is the Term whereby the Statutes denominate *Shoemakers*, who are a Set of Mechanicks employed in making Accoutrements for our Feet, proper to shelter them from several Inconveniencies, and even Accidents, to which, without a *Cordwainer*'s Assistance, they would be exposed.

The *Art of Cordwaining*, tho' consider'd as a very vulgar one, and not much esteem'd, has, notwithstanding, its particular Rules, like all other Arts, and some of them so indispensibly necessary in the Practice, that they must be exactly follow'd, to be accounted a good *Cordwainer*.

Before we enter into an exact Detail of those Rules, and reduce them to Practice, we must fit up our *Cordwainer*'s Shop, with all the Utensils belonging to his Craft; as Lasts, of all Sizes, and Shapes; Sliding-Rules, or Lines of Inches; Knives, Awls, Wax, Thread, Blacking, Stools, Stirrups, Sticks, Bones, &c. but, above all, with a good Quantity of Leather, both for the Upper Leather, and the Soal.

Our *Cordwainer*'s Shop thus fitted, we'll set him to work; making him, first, take Measure for a Pair of Shoes. Therefore he must take his *Sliding-Rule*, or, what is still better, a *Line*, which may be very commodiously made of *Tape*, and divided into Inches, and Decimal Parts, or any other Ways, as shall best please. He must apply one End of this *Line* to the Middle of the Heel, and guide it from thence to the End of the Great Toe, which will be the Length of the Shoe, allowing something for the stretching of the Leather. The next Thing he must do, is, to take the Height of the Instep, by thrusting his *Line* under the Foot, and coming round to join both Ends over the Instep, taking Care to not allow too much there, nor too little for the stretching of the Leather; for if he allows too much, and the Instep be much higher than needs be, the Shoe will never wear well; but, on the contrary, will always make Grimaces, both before and behind: If, on the contrary, he allows too little for the Height of the Instep, besides that the Shoe must then be unshapeable, it must pinch the Foot, and prove very prejudicial to the Health of the Person who wears it, by obstructing the Circulation of the Blood in that Place, which in Length of Time would be attended with dangerous Consequences. When he has took the Height of the Instep, he afterwards takes the Breadth of the narrower Part of the Foot.

The next Care of our *Cordwainer*, is, to find in his Shop a *Last* which will answer that Measure in Length and Breadth, and what it wants in Bigness, is supplied with Instep Leathers, and a Cork. In cutting out his Upper Leather, he must allow something for the reaching, and reach well the Quarters in Length, that they may not reach in *Lasting*. If it be a long Quarter, the Straps ought to be very broad, and mount high on the Instep, that the Quarter may sit tight behind, making the Seam even, and firm; tho' at *Paris* they make often their Quarters all of a Piece, without any Seam behind: And to me, who have often wore such,

ſuch, they appear tighter, and ſit a great deal better. The Sides muſt be well clos'd, ſew'd, and lin'd round.

Before the *Cordwainer* can pretend to *laſt* his Leather, he muſt wet it, and lay it to dry, that it may be mellow; then reach and hammer it very cloſe; afterwards he tacks on the In-Soal, *laſts* his Toe-Lining, taking Care to leave it as ſtrong as poſſible, *i. e.* not pare it too thin; then *laſts* his Upper Leather, and ſlicks the Toes of it bright, rubbing it over with ſome Paſte, to keep it ſmooth, ſewing it afterwards with a Thread well wax'd, taking Care to wax it often in working; otherwiſe it would ſoon be worn out.

The *Heel*, if it be Wood, muſt be put in next, pulling up the Rand tight, ſlicking it, rubbing it over with Paſte, or Gum Adragante, to render it ſmooth, and bracing it afterwards; which done, the outer Soal is to be rounded, tack'd on, and rubb'd cloſe with the long Stick; then the Channel muſt be cut, and ſtitch'd, rubbing once more, afterwards, the outer Soal, to cover the Stitches: Next, the *Heel* is tack'd, well beaten down, cut round even with the Soal, and ſew'd down; this done, the remaining Lifts and Top-pieces are tack'd on, but they muſt not be all ſew'd down, unleſs it be a very low *Heel:* When they are all tack'd, and well beaten down, our *Cordwainer* ſhapes his Top-piece rough, pares his *Heel*, pegs it, and rough pares it again, plaining the Sides of it afterwards, to make it ſolid and cloſe; he alſo plains the Soal even to the Stitches, and then takes off the Edge even to the Stitches, pares it ſmooth, and raſps it, rubbing it over afterwards with a Sand Stone, blacking it with Copperas-water, doing it over with Paſte, and rubbing it well with the Rubbing Stone; then blackens his Shoe, for the laſt Time, with the Blacking Bruſh, clearing it afterwards with a Piece of black Crape; which done, he ſlicks the Upper Leather, rubs up the Seams, pulls out the *Laſt*, and the Shoe is fit to put on.

In *Double Channel Pumps*, the Heel-Part is made firſt, then the *Laſt* is pull'd out, and the Channels ſtitch'd.

As to the cutting of Boots, the Tongue, after trench'd out, muſt be braced very well with a Cord, then cut fit, and beaten afterwards into the Leg, (which Leg muſt be firſt ſhap'd to the Perſon's Leg;) the Tongue having been thus beaten into the Leg, muſt be cut a little leſſer, that it may ſit clean. Theſe Directions were ſent me by my honeſt Friend, and Subſcriber, *J. Martin*, of *Taunton*.

As to the Antiquity and Origin of *Cordwaining*, or *Shoe-making*, *Benedict Baudouin*, (a Native of *Amiens* in *Picardy*, the Son of a *Cordwainer*, and himſelf a Workman in his Father's Shop) maintains, in his learned Treatiſe of the antient *Shoe*, *De Solea veterum*, that God, in giving *Adam* Skins of Beaſts to cloathe him, did not leave him to go bare-footed, but gave him *Shoes* of the ſame Matter; that after raw Skins, Men came to make their *Shoes* of Ruſhes, Broom, Paper, Flax, Silk, Wood, Iron, Silver, and Gold; ſo different has their Matter been. Nor was their Form more ſtable, with Regard either to the Shape, Colour, or Ornaments; they have been ſquare, high, low, long, and quite even, cut, carved, *&c.*

Pliny, *l.* 7. *c.* 56. tells us, that one *Tychius*, of *Bœotia*, was the firſt that us'd *Shoes*. Mr. *Nilant*, in his Remarks on *Baudouin*, obſerves, that he quotes *Xenophon* in vain, to ſhew, that even in his Time they ſtill wore *Shoes* of raw Skins. *Xenophon* relates, that the 10000 *Greeks*, who had follow'd the young *Cyrus*, wanting *Shoes* in their Retreat, were forced to cover their Feet with raw Skins, which occaſioned them great Inconveniencies. *Nilant* will not even allow that the *Shoes* of the Country People, call'd *Carbatinæ*, and *Peroneæ*, were of crude Skin, without any Preparation.

The Patricians among the *Romans*, wore an Ivory Creſcent on their *Shoes: Heliogabalus* had his *Shoes* cover'd over with a very white Linnen, in Conformity to the Prieſts of the *Sun*, for whom he profeſſed a very high Veneration. This Kind of *Shoe* was called ὐδῶ, *udo*, or *odo*. *Caligula* wore *Shoes* enrich'd with precious Stones. The *Indians*, like the *Egyptians*, wore *Shoes* made of the Bark of the *Papyrus*. The *Turks* put off their *Shoes*, and leave them at the Doors of the Moſques.

In *Paris*, they have two pious Societies under the Title of *Freres Cordonniers*, *Brothers Shoemakers*, eſtabliſh'd by Authority towards the Middle of the ſeventeenth Century; the one under the Protection of St. *Criſpin*, the other of St. *Criſpianus*, two Saints who had formerly honour'd the Profeſſion. They live in Community, and under fix'd Statutes and Officers; by which they are directed, both in their ſpiritual and ſecular Concerns. The Produce of their *Shoes* goes into a common Stock, to furniſh Neceſſaries for their Support; the reſt to be diſtributed among the Poor.

John Baptiſta Gallo, a *Shoemaker* of *Florence*, has publiſh'd ſome fine Pieces, in the *Italian* Language; and, among others, Dialogues in Imitation of *Lucian*.

COSMOGRAPHY.

COSMOGRAPHY, from the *Greek* κοσμος, *mundus*, World, and γραφω, *ſcribo*, I deſcribe; is the Deſcription of the World, or the Art which teaches the Conſtruction, Figure, and Diſpoſition of all the Parts of the World, with the Manner of repreſenting them on a Plane.

Coſmography conſiſts chiefly of two Parts: *Aſtronomy*, which ſhews the Structure of the Heavens, and the Diſpoſition of the Stars; and *Geography*, which ſhews thoſe of the Earth. But as I have wrote already a whole Treatiſe of *Aſtronomy*, under the Letter *A*, and am to write one of *Geography*, under the Letter *G*; I refer the Reader to thoſe two Treatiſes, for all that can be ſaid on this Subject, *Coſmography*.

COUNCILS.

COUNCILS, in Church Hiſtory, or *Policy*, are Synods, or Aſſemblies of Prelates, Doctors, *&c.* canonically convok'd, and met, for the regulating of Matters relating to the Doctrine or Diſcipline of the Church.

The Church admits of three different Sorts of *Councils*, viz. *Œcumenical*, or *General Councils*, *National Councils*, and *Provincial Councils*.

Œcumenical, or *General* COUNCIL, is an Aſſembly of all the Prelates of *Chriſtendom*, convok'd (in the Sentiment of the Partiſans of the Court of *Rome*) by the Pope's Authority, and where he preſides, either in Perſon, or by his Legates. But this Opinion is not generally receiv'd, even in the *Roman Catholick* Church, as I deſign to ſhew by and by.

National COUNCIL, is an Aſſembly of the Prelates of a Nation, under their Primate, or Patriarch.

Pro-

Provincial COUNCIL, is an Assembly of the Prelates of a Province, under the Metropolitan.

The *Roman Catholick* Church reckon eighteen *General Councils*, viz. two of *Nice*, four of *Constantinople*, one of *Ephesus*, one of *Chalcedon*, five of *Lateran*, two of *Lyons*, one of *Vienne*, one of *Florence*, and the last of *Trent*. The Reformed admit but four of those *Councils* for *œcumenical*.

The first *Council*, was that of *Jerusalem*, held by the Apostles, in the Year of *Christ* 50, of the Emperor *Claudius* 8. The Occasion of this *Council*, was, the Disputes which had arose among the *Jews* and *Gentiles* newly converted, about the Observance of the Ceremonies of the Law of *Moses*, and, particularly, about the Circumcision; the *Jews* pretending that the *Gentiles*, who had embraced the *Christian* Faith, ought to be circumcised; which occasion'd a great Confusion in the Infant Church. St. *Peter* spoke first in that *Council*, and remonstrated, that *God had made no Difference between the Jews and Gentiles, purifying their Hearts by Faith; that therefore they should not tempt him to put a Yoke upon the Neck of the Disciples, which neither their Fathers, nor they, were able to bear*, Acts xv. 9, 10. St. *James* spoke last, and concluded, that *his Sentence was, that they should not trouble them, which from among the Gentiles were turned to God; but that they should abstain from Pollutions of Idols, and from Fornication, and from Things strangled, and from Blood.*

The first *General* COUNCIL, was that of *Nice*, in *Bithynia*, convok'd by the Emperor *Constantine the Great*, in the Year of *Christ* 325, and held the same Year; occasion'd by the Troubles and Confusion which the Heresy of *Arius* had caus'd in the Church of *Alexandria*; where the Emperor assisted in Person, (as we have already mention'd in our Treatise of *Arianism*) and where, besides the Condemnation of *Arius*, several Canons were made relating to the Discipline of the Church; especially that famous one about the Celebration of the Feast of *Easter*.

There is a great Dispute, among the ecclesiastical Authors, concerning the Number of Canons made at the Council of *Nice*; for several of them admit but of twenty, according to *Rufinus*; and others reckon more: This Controversy proceeds from those happen'd since in the *Christian* Church, in Matter of Faith, and of Discipline; every different Sect (I mean those who do not reject all the *Councils* as *human Inventions*) retrench from, or add to those Canons of the first *General Council*, as they judge it most proper to favour their particular Opinions, in Matter of Faith, and of Discipline. The *Council* of *Nice* was compos'd of 318 Bishops, among whom were *Vitus* and *Vincentius Priestres*, of the Church of *Rome*, representing their Bishop *Silvester*, to whom the Acts of the *Council* were sent afterwards, for his Approbation; which make the Asserters of the Pope's Supremacy suppose that *Silvester* presided at that *Council*, by his two Legates, as they have been call'd since: But all the Enemies of the *Roman* Church, and even a vast Number among the *Roman Catholicks*, are of a contrary Opinion, and pretend, (not without a very great Appearance of Reason) that none but the Emperor *Constantine* presided in that *Council*; which Controversy should be determin'd by the Authors of those Times.

The second *General* COUNCIL, is that of *Constantinople*, convok'd by the Emperor *Gratian*, in the Year of *Christ* 381, and compos'd of 150 Bishops, for the Ordination of *Nectarius*, Bishop of *Constantinople*, the Confirmation of the Doctrine of the *Council* of *Nice*, and the Condemnation of *Macedonius* and his Partisans. *Socrates*, *l.* 5. *c.* 8. says, that it was in this *Council*, and not before, that Patriarchs were created, and the Division of Provinces was made; it being decreed then, for the first Time, that a provincial *Council* could terminate all ecclesiastical Affairs. The same Historian says, further, that the Decrees, or Canons of this *Council*, were approv'd and confirm'd by the Emperor.

The third *General*, or *Œcumenical* COUNCIL, was the celebrated one of *Ephesus*, assembled against *Nestorius*, Bishop of *Constantinople*, in the Year of *Christ* 431, of the Emperor *Theodosius* 24, of *Valentinian* 7, of *Celestinus*, Bishop of *Rome*, 8. This *Council* was convok'd by the Emperor *Theodosius*, at the Instance of *Cyril*, Bishop of *Alexandria*; who, in *Evagrius*'s, and some other Authors' Opinions, presided in the *Council* for Pope *Celestinus*. The Truth is, that *Theodosius* was not present in the Assembly, which began the 21st of *June* of the same Year 431, in the Church dedicated to the blessed Virgin *Mary*; whose Honour, as *Mother of God*, was sacrilegiously attack'd by *Nestorius* and his Partisans, who denied publickly that the *Word*, or *Son of God, had been begotten of the Body of the Virgin* Mary; *and asserted, that it was ridiculous to call God a Child of two or three Months. Nestorius* was cited three Times to appear, and come to the Assembly; the first Day he promis'd (says *Evagrius*) that he would appear at any Time when it would be necessary; but having forfeited his Word, and refus'd obstinately to come to the *Council*, and his Doctrine having been examin'd, with all the Care and Formalities us'd on such Occasions, he was condemn'd, and depos'd, in the following Terms:

'The holy Synod assembled in the Metropolis of '*Ephesus*, by Order of the most religious and most '*Christian* Emperors, and by the Grace of *God*, to '*Nestorius* new *Judas*; know that for thy impious 'Predications, and thy Contumacy against the Ca'nons, thou hast been deposed from all ecclesiastical 'Degrees, the twenty-second of this present Month '*June*, according to the ecclesiastical Constitutions.' This Condemnation was sign'd by above 200 Bishops, sent to him, and render'd publick.

The fourth *General* COUNCIL, was that of *Chalcedon*, convok'd, at first, by the Emperor *Marcian*, at the Instances of Pope *Leo*, at *Nice*, in *Bithynia*, against *Eutyches* and *Dioscorus*, but afterwards transferr'd to *Chalcedon*, in the Year of *Christ* 451. It was compos'd of 630 Bishops, according to the Chronicle of *Marcellinus*, and in the Opinion of *Liberatus* and *Photius*; and of 636, according to *Nicephorus*, *l.* 15. *c.* 2. the Temple of St. *Euphemia*, built without the City, was chosen to hold that great Assembly; the Seats of the Bishops were placed round the Altar; on the left were seated the Legates of the Bishop of *Rome*, and after them the Bishops; *Dioscorus* of *Alexandria*, and *Juvenalis* of *Jerusalem*, were placed on the right; and in the Middle the Book of the Gospel, upon a high Throne erected for that Purpose. The Emperor *Marcian*, *Pulcheria*, the Senators, the Judges or Commissaries appointed to keep the Order, and maintain the Peace in the Assembly, were placed over-against the Rails which separate the Altar from the Choir.

In the first Session, which began the 8th of *October* of the same Year 451, the Legate of the Bishop of *Rome* told the Assembly, that he had positive Orders to insist that the Fathers should not permit *Dioscorus* of *Alexandria* to sit in the *Council* as Judge, but should be introduced to be heard as accus'd. The Commissaries ask'd what could be objected against *Dioscorus*? *Paschasinus* answer'd, that as soon as he should be introduced as accused, he would say what was objected against him; therefore, after some Contestations, the Judges commanded *Dioscorus* to descend from his Seat, and appear in the Middle of the Assembly; where he was accus'd by *Eusebius* of *Dorylea* of having wounded the Faith; that he had unjustly deposed him, and kill'd *Flavian*. *Dioscorus* answered, that a *Council* had been held for the Affair of *Flavian*, and requested, that the Acts of that *Council* should be read, which was granted; but when they came to the Epistle of *Theodosius* to *Dioscorus*, by which he forbid *Theodoret* from assisting at the *Council* of *Ephesus*; the Judges said, that he should be introduced in this, because he had been reabilitated into the Episcopacy by the Bishop of *Rome*, and had been commanded by the Emperor to be present. Upon which, the *Egyptian* Bishops,

Bishops, those of *Illyria*, and *Palestine*, cried, that *the Faith was lost, that the Canons rejected* Theodoret, *that he ought to be turned out as Master of* Nestorius; *that he could not be received, without condemning* Cyril, *against whom he had wrote; that he was a* Judas, *Enemy of God, and of* Jesus Christ. On the contrary, the Bishops of *Pontus*, *Asia*, and *Thracia*, maintain'd, that he had subscrib'd to the last *Council* of *Ephesus* upon white Sheets of Paper, upon which could have been wrote any Thing; and cried, that the Murderer *Dioscorus* ought to be expell'd. The Noise continuing, the Judges represented to the Bishops, that those Exclamations were beneath them, and availed nothing to the Affair in Question; and that tho' *Theodoret* should be receiv'd in the *Council*, the Accusation against him, if there was any, should remain in full Force. Therefore that Prelate took his Seat, as by Provision, and the Lecture of the Acts was continued. *Dioscorus*, to excuse himself, said, that they had been sign'd and confirm'd by *Juvenalis* of *Jerusalem*, *Thalassius* of *Cæsarea*, who presided with him, and by all the other Bishops of the *Council* of *Ephesus*. Those who had been present at that *Council*, said, that it was true that they had subscrib'd, but had done it thro' Fear of being maltreated by the Soldiers, which *Dioscorus* had brought into the *Council*; and that, properly speaking, those Soldiers, and not they, had depos'd *Flavian*. Those among the Prelates who favour'd *Dioscorus*, upbraided them for making Use of so scandalous an Excuse; and told them, that 'a *Christian* fears 'no Body; that a *Catholick* who suffers himself to be 'forced to do a Thing which he believes a Sin, is far 'from that *Christian* Constancy, which obliges to die 'in Defence of the Truth: And if a servile Fear was 'to be excus'd, there would be no Martyrs.' Which just Reproaches, obliged those pusillanimous Prelates to ask Forgiveness of the *Council*.

When they had done reading the Acts of the false *Council* of *Ephesus*, they began to read those of the *Council* of *Constantinople*; by which it appear'd, that *Flavian* had been entirely orthodox, and *Eutyches* justly condemn'd as a Heretick. *Dioscorus* could not help saying, that the *Council* of *Ephesus* had justly depos'd *Flavian*, because he confess'd two Natures in *Christ* after the Incarnation. The Bishops said, that nothing was truer; and *Dioscorus* maintaining obstinately the contrary, the Judges of the *Council*, and the Senate, said, that 'if the *Council* thought fit, and 'the most pious Emperor approv'd of it, it was their 'Sentiment, that *Dioscorus* of *Alexandria*, *Juvenalis* 'of *Jerusalem*, *Thalassius* of *Cæsarea*, *Eusebius* of '*Ancyra*, *Eustathius* of *Beryth*, and *Basil* of *Seleucia*, 'who had the most Credit in the *Council* of *Ephesus*, 'and had unjustly depos'd *Flavian*, should be depos'd 'in their Turn.' *Eusebius* of *Dorylea*, and several other orthodox Bishops, cried, that *the Judgment was just*; *long Years to the Senate*; *God holy, God strong, God immortal, have Mercy upon us*; *long Years to the Emperors*. Christ *has deposed* Dioscorus; Christ *has deposed the Murderer*. *The Sentence is just*; *the* Council *is holy*; *God has revenged his Martyr*.

The Fathers met again, the 10th of *October*; and at the Opening of this second Session, the Judges represented, that 'in the preceding one, they had ac-'knowledg'd the Injustice of the Deposition of *Fla-'vian*, and of the other orthodox Bishops; and that 'now they were to establish the true Doctrine of the 'Faith, for which the *Council* was assembled; that 'they should explain it clearly, without Constraint, 'Partiality, and in Amity to re-unite those who were 'separated by different Opinions; that they declar'd 'to them, that the divine Master of the World (mean-'ing the Emperor) as well as they, believe the *Catho-'lick* Faith which had been left him by the 318 Bi-'shops of the *Council* of *Nice*; by the 150 of the '*Council* of *Constantinople*, and by the others which 'had preceded, or follow'd.' The Fathers answer'd, that 'no Body had made any other Exposition of 'Faith, and they would not attempt, or think of 'making any other.' Afterwards, the Judges propos'd, that the Patriarchs should chuse one or two Bishops of their Province, to treat together of the Questions of Faith, which were agitated then, and what they would determine should be received and approved by the Assembly; that if they were all to agree together, the Dispute should be terminated; if not, the Sentiments of the Opponents would be known. But the Fathers rejected that Proposition, and said, that there was no Need of a new Exposition of Faith; that they were forbidden by the ecclesiastical Laws to treat a-new of the Articles already decided, and ask'd, that the Symbol of *Nice*, and that of *Constantinople*, should be read. After it had been recited, they all cried, that *it was the Catholick Faith, that they all believed it, that they had all been baptized, and they all baptized in it*; *that it was the true Faith, the holy Faith, and the eternal Faith*; *that the blessed* Cyril *had taught it, and the Pope* Leo *believed it*.

The third Session, held the 13th of *October*, was spent in the three Citations made to *Dioscorus* of *Alexandria*, to appear before the *Council*, to answer the fresh Accusations exhibited against him; but he, having, under several frivolous Excuses, always obstinately refus'd to appear, was at last solemnly depos'd from all ecclesiastical Dignities, either episcopal, or sacerdotal; and all the Bishops sign'd his Condemnation.

In the fourth Session, held the 17th of *October*, the Bishops who had adher'd to *Dioscorus*, having deserted him, ask'd Forgiveness of the *Council*, and subscribed to the Symbols of *Nice*, *Constantinople*, and to the Decrees of the first *Council* of *Ephesus*, were received to Repentance; in Consequence whereof, *Juvenalis* of *Jerusalem*, *Thalassius* of *Cæsarea*, *Eustathius* of *Beryte*, *Eusebius* of *Ancyra*, and *Basil* of *Seleucia*, took their Places in the *Council*.

In the fifth Session, they prolong'd the Time granted to the obstinate *Eutychian* Monks, to the 15th of *November*. In the same Session, (found in the *Greek* Copy, and not in the *Latin*) the Differences between *Photius*, Bishop of *Tyre*, Metropolis of the first *Phœnicia*, and *Eustathius* of *Beryte*, were terminated, and *Photius* restor'd to his Right of Metropolitan.

In the sixth Session, held the 22d of *October*, a Profession of Faith was made and publish'd, in the following Terms, related by *Evagrius*, *l. 2. c. 4.*

'When *Jesus Christ*, our Saviour, and Master, in-'structed his Apostles of what they were to believe, 'he said to them, I give you my Peace, I leave you 'my Peace, that they might all preach the Truth, 'without any Diversity of Sentiments among them 'concerning the Faith.' Then the Symbol of *Nice*, and that of the 150 Bishops, were read; which done, what follows was added: 'The wise and salutary 'Symbol of Grace was sufficient for the Intelligency 'and Confirmation of the Faith. It teaches all that 'is to be believ'd concerning the Father, the Son, and 'the Holy Ghost, and instructs in the Truth of the 'Incarnation those who receive it. But because the 'Enemies of the Truth have invented Heresies which 'destroy the Œconomy of that Mystery, and that 'some will not have *Mary* call'd the Mother of God, 'and others have mixed and confounded the two Na-'tures, and by that Mixture have subjected falsly the 'Divinity to Passions and Sufferances; this holy and 'œcumenical *Council* willing to deprive them of all 'Means to oppose the Truth, and to maintain it in 'all the Vigour and Strength it has been preach'd 'with from the Beginning, declare that the Faith of 'the 318 Fathers of the *Council* of *Nice* ought to re-'main entire, and unalterable. Further, it confirms 'the Doctrine which the 150 Fathers, assembled in 'the imperial City, have publish'd, touching the Sub-'stance of the Holy Ghost, with the Design rather 'to support that Doctrine by the Authority of the 'holy Scripture, against those who had undertook to 'destroy the Power of the Holy Ghost, than by the 'Desire of introducing any Novelties. It receives 'and approves the Synodal Letters written by the 'blessed *Cyril*, Bishop of *Alexandria*, to *Nestorius*, 'and to the Bishops of the *East*, because they are

'very proper to confound the Extravagance of *Nestorius*, and to explain the Symbol to all those who 'want to understand it. It has joined, with Reason, 'to those Letters of *Cyril*, that were written by *Leo*, 'most blessed and holy Archbishop of the great and 'antient *Rome*, to the holy Archbishop *Flavian*, 'against the sacrilegious Doctrine of *Nestorius*. That 'Letter agrees perfectly with the Confession of St. '*Peter*, and can serve all the Faithful as a Column to 'strengthen them in the orthodox Doctrine, because 'it is contrary to those who divide the Incarnation in 'acknowledging two Sons. It retrenches from the 'ecclesiastical Communion those who are not ashamed 'to subject to Passions and Suffrances the Divinity of 'the Son of God; it rejects, likewise, those who mix 'and confound the two Natures of the Son of God. 'It confounds those who imagine falsly that the Form 'of Slave he has taken among us, is a celestial Form, 'or of a Nature different from ours. Lastly, It pro-'nounces Anathema's against those who say, that be-'fore the hypostatical Union, there were two Natures, 'but that after that Union there is but one. Fol-'lowing the Steps of the Fathers, we all teach, with 'one Voice, and common Accord, that we must con-'fess that *Jesus Christ* our Lord is the only Son of 'God; that he is true God, and true Man; that he is 'perfect in one and the other Nature; that as a Man 'he has a Body, and a rational Soul; that as to his 'Divinity, he is of the same Substance with his Fa-'ther; and as to his Humanity, of the same Sub-'stance with us, and in all Things like us, Sin ex-'cepted; that he has been begotten by his Father 'from all Eternity, according to his Divinity; and is 'born, for us, in the last Times, and for our Salva-'tion, from the Virgin *Mary*, Mother of God; 'that the same *Jesus Christ*, God's only Son, is con-'fessed in two Natures, without Confusion, Division, 'Separation, nor Coactation; that the Union of the 'two Natures, far from destroying their Differences, 'preserve them, rather, with their Properties; that 'those two Natures subsist by the same Subsistence, as '*Jesus Christ* our Lord, God's only Son, and Word 'of God, who is one, and is not divided into two 'Persons, subsist; according to what we have learn'd 'from the Prophets, and from *Christ* himself, and as 'it is contain'd in the Symbol. After we have esta-'blish'd those Truths with all the Care possible, the 'holy and œcumenical *Council* has forbade every Body 'to write, compose, maintain, or teach a contrary 'Doctrine. That if any Body was presumptuous 'enough to compose, propose, or teach another Sym-'bol, to those who are converted from the *Paganism*, '*Judaism*, or other Superstition, or Heresy, to the 'Truth: If he be a Bishop, he must be depriv'd of 'his episcopal Dignity; if a Clerk, he must be ex-'pell'd from among the Clergy; if a Monk, or 'a Laick, let Anathema's be pronounced against 'him.'

This Deliberation pleased much the Emperor *Marcian*, who, to express his Satisfaction to the Fathers, came to the *Council* at the seventh Session, which was the 25th of *October*, on the Feast of St. *Euphemia*. By the Discourse he made, first in *Latin*, to keep up the Majesty of the Empire; and afterwards in *Greek*, to be understood of all the Fathers; he shew'd, that 'having been rais'd to the Throne by the Con-'duct of the Divine Providence, his first Care, and 'his most important Affair, had been that of the 'Faith; that finding the Church divided, by the he-'terodox Opinions which some, either by Avarice, or 'Vanity, had spread among the People, to corrupt 'the Minds, and alter the Doctrine of the holy Fa-'thers: He had assembled the Prelates from all the 'Parts of the World, persuaded that they would rea-'dily undergo the Fatigues of a long Journey, in 'Hopes that their Assembly would dissipate the 'Clouds which Heresy attempted to spread over the 'orthodox Doctrine; that he conjured them to banish 'from among them all Spirit of Faction and Partia-'lity, that they might thereby declare to the whole 'World, in a pacifick Manner, which was the Truth: 'That he had assisted at the *Council*, after the Example 'of the great *Constantine*, not to shew his Power, but 'to support by his Authority the Decisions they were 'to make in Matters of Faith; that there should be 'no longer any Divisions among the People for the 'Doctrine, but that they might all honour God with 'the same Heart, and the same Mouth.'

This Discourse of *Marcian* was immediately follow'd by the loud and repeated Acclamations of the whole Assembly; these Acclamations being ended, and Anathema pronounced a-new against *Nestorius*, *Eutyches*, and *Dioscorus*; *Marcian* gave them to understand, that the *Catholick* Faith having been declar'd by the holy and general *Council*, according to the Exposition of the blessed Fathers; he wanted to contribute all in his Power towards taking off, for the future, all Occasion of Dispute: That therefore he commanded, that whosoever, either Soldier, Clerk, or Laick, should be found disputing of the Faith, or making seditious Assemblies, if a private Person, should be banish'd from the imperial City; if a Soldier, broke; if a Clerk, depos'd. He added, further, that he had order'd some Regulations to be made, which, to preserve the Honour due to their Reverence, he had reserv'd to them, judging more proper, that they should be publish'd by the Authority of the Synod, than by his Edict; therefore he commanded *Beronician* to read them.

The first forbids the Monks, several of whom, under Pretence of a solitary Life, disturb'd the Peace of the Church, building for the future any Monastery against the Consent of the Bishop, and of the Master of the Place. He submits them all to the Diocesan, and orders them to remain in their Solitude, and to mind nothing but Fasting and Praying, without troubling themselves about secular or ecclesiastical Affairs, unless their Bishop would employ them on some Occasion.

The second Regulation is likewise against the Clerks and Monks, who, thirsting after Money, take upon them the Care of temporal Affairs, became Farmers, or Stewards of particular Houses; and forbids them to take for the future any such Employment, unless their own Bishop desires them to take Care of the Inheritances of the Church; under the Penalty of incurring, for the first Time, the ecclesiastical Censures; and in Case they continu'd, of being depriv'd of their Dignity.

By the third Regulation the Clerks immatriculated in one Church, are forbidden to go to serve another, unless it be those who have been oblig'd to fly from their Province for some Calamities happen'd to it. The Excommunication is order'd against those who receive a Clerk belonging to another Bishop, and against him who is thus receiv'd, till he returns to his own Church.

After these Regulations had been read, the Fathers ask'd Leave of the Emperor to return to their Churches; but *Marcian* desir'd them to stay three or four Days longer, to conclude all the Affairs which were left undecided.

The Fathers, according to the Emperor's Desire, met again, and held the eighth Session; in which they insisted, that *Theodoret* should anathematize *Nestorius*. That Prelate answer'd, that he had presented several Petitions to the Emperor, and to the Legates of the most reverend Archbishop *Leo*; in which he explain'd clearly his Faith, and ask'd they should be read. The Bishops answer'd, 'We will not have them read over 'again, but only that thou should immediately ana-'thematize *Nestorius*.' In vain *Theodoret* alledg'd that he had been educated among the Orthodox; that he had preach'd the orthodox Doctrine; that he had condemn'd *Nestorius* and *Eutyches*, and all those whose Faith was erroneous; that he did not care to return to his City; that he wanted no Honour; that it was not for that he was come to the *Council*, but to justify himself of the Accusation alledg'd against him. That he anathematiz'd *Nestorius*, *Eutyches*, and all those who

who made of the only Son of God two Sons. All that could not satisfy the *Council*, and he was oblig'd to pronounce these very Words; *Anathema to* Nestorius, *and to whomsoever do not call the Virgin* Mary *Mother of God, and who divide his only Son in two.* The Commissaries, on this Declaration, said, that there was no more Room to suspect *Theodoret*, who had anathematiz'd *Nestorius* in their Presence, and subscribed to their Definition of Faith, and to the Epistle of *Leo*, who had already receiv'd him into his Communion, and judg'd that he ought to be restor'd to his See. All the Bishops answer'd, that *Theodoret* was worthy of his See; that *Theodoret*, *Catholick* Doctor, might return to his Church.

In the ninth Session, held the 27th of *October*, *Ibas*, Bishop of *Edessa*, who had been depos'd by *Dioscorus*, was restor'd to his See.

In the tenth Session, the Differences between *Bassian*, Bishop of *Ephesus*, depos'd by *Leo*, and *Stephen*, elected in his Place, were debated; and the Fathers seem'd inclin'd, at first, to confirm the Election of *Stephen:* But the Commissaries said, that they were of Opinion, that neither *Stephen*, nor *Bassian*, were worthy of the See in Question; because, according to all Circumstances, and the Depositions of Witnesses, they had both usurp'd it; but that another should be elected, whose Faith could be found pure, and his Life innocent, to govern the Church of *Ephesus:* That, however, they ought to leave it to the *Council*, to order in that Affair what he should think proper. The Fathers approv'd their Proposition, and order'd that another Bishop should be elected for the Metropolis of the *Lesser Asia*; and that *Bassian* and *Stephen* should retain only the Dignity of the Episcopacy, without exercising their Functions; and allow'd them for their Subsistance, each two hundred golden Sols, which were to be rais'd upon the Revenues of the Church; which two hundred Sols would have amounted to two hundred Ducats.

The twelfth Session was also spent in terminating the Differences between *Sabinian*, Bishop of *Parraha*, depos'd by *Dioscorus* in the *Conciliabulum* of *Ephesus*, and *Athanasius*, elected in his Place. The *Council* restor'd *Sabinian* to his See, and as for *Athanasius*, who was really a very bad Man, tho' by his artificious Complaints he had impos'd upon *Cyril* of *Alexandria*, he was sent to *Maximus* of *Antioch*, and to his Synod, to examine, in the Term of eight Months, the old and new Accusations brought against him; that if they were found true, he should not only be depos'd of the Episcopacy, but subject, likewise, to the Punishment of the secular Laws: And that if he was neither accus'd, nor convicted, in the Term prescrib'd, he should be restor'd to his See, and *Sabinian* retain the Dignity of Bishop, and maintain'd out of the Revenues of the Church of *Parrha*, according to the Determination of *Maximus*.

This Affair being thus terminated, the Pope's Legates, and the Commissaries, quitted the Council, but the oriental Bishops stay'd, and made 27 Canons, or 30, according to the *Greek* Copy, for the Regulation of the ecclesiastical Discipline. The *sixth* forbids absolute Ordinations, *i. e.* those made without the Clerk being tied to the Service of some Church, and annulates all those made in that Manner. The *ninth* forbids the Clerk who has a Suit of Law against another, to leave the Tribunal of his own Bishop, or of his Synod, to claim the secular Judges, and subject the Delinquents to the ecclesiastical Censures. The *twelfth* deposes the Bishops, who by their Importunities will obtain imperial Pragmaticks to divide the Provinces, which is the Cause that, against the ecclesiastical Order, there appear two Metropolitans in one; and orders, that the Cities to which the Emperors give the Name of Metropolis, shall retain that Title, without Jurisdiction, leaving it wholly to the antient Metropolitan. The *fourteenth* forbids the Readers, Psalmists, or Chantors, to take their Wives from among Sectaries; and orders, that if their Children had been baptiz'd by Hereticks, they should be presented at Church; and if they are not baptiz'd, they shall not receive the Baptism in their Assemblies; forbidding, likewise, the Orthodox to take Wives among the Hereticks, unless they promise to embrace the *Catholick* Religion. The *sixteenth* excommunicates the Monks and Virgins who marry, and gives Leave to the Diocesan Bishop, if they acknowledge their Faults, to use them with Compassion.

The *nineteenth* orders, that the Bishops shall assemble two Synods every Year in each Province, to remedy the Disorders which might have crept into their Dioceses; and that the absent shall receive a fraternal Correction from their Brethren.

The *twenty-third* Canon orders, that the Defensor of the Church of *Constantinople* shall expel from the City all the Clerks and Monks who having been excommunicated by their Bishops, come to *Constantinople* to excite Trouble in the ecclesiastical State, and in private Houses.

The *twenty-sixth* Canon, to remedy the Abuses which had crept into the Church, where the Bishops handled the Revenues of the Church, as well as the Œconomists; orders, that every Church which has a Bishop, shall likewise have an Œconomist, who shall dispose of its Revenues by the Bishop's Order.

All these Canons, and the others which I have not mention'd, were calculated to restore Peace and Order in the Church; but the *twenty-eighth* did set the oriental Bishops, and the Pope's Legates, at Variance; because it was order'd, by it, that according to the Canon of the 150 Bishops who had compos'd the first *General Council* of *Constantinople*, the most holy Church of that City, which was the new *Rome*, should enjoy the Privileges granted to it, and be immediately next in Rank, to the See of the antient *Rome*; so that the Metropolitans of *Pontus*, *Asia*, and *Thracia*, and the Bishops of the Dioceses establish'd among the *Barbarians*, could not, henceforwards, be ordain'd, but by the Bishop of *Constantinople*. The Pope's Legates hearing of that Canon, caus'd the *Council* to be reassembled, where they complain'd to the Commissaries of the Emperor, that the preceding Day, after they had left the Assembly, the Bishops who had stay'd, had done something which they thought contrary to the Canons, and to the Discipline of the Church; therefore they requir'd, that the Acts should be read, to let the whole Fraternity know the Justice or Injustice of those Ordinances. The Archdeacon *Ætius* answer'd, that it was the Custom, after the principal Things relating to Faith had been terminated in the Synods, (for which they had been assembled) to treat of Affairs of less Importance, which should offer; that the Church of *Constantinople* having some particular ones, the Legates had been desir'd to be present at their Examen, which they had refus'd, excusing themselves on their not having Order to do it; that the Commissaries of the Emperor had judg'd proper that they should be terminated in the *Council*, and that the Bishops left had done it publickly, and juridically. The Commissaries order'd, that the Canon complain'd of should be read, which was found sign'd by all the Bishops. *Lucentius*, one of the Legates, having said that the Subscriptions had been extorted; all the Fathers cried, *No Body has forced us.* *Lucentius* added, that despising the 318 Bishops who had compos'd the *Council* of *Nice*, the Authors of that Canon had mention'd but the 150 of the *Council* of *Constantinople*; that if that Church had enjoy'd that Privilege 80 Years before, as they pretend, they had no Need to restore it; but if not, they had no Authority to establish it. *Ætius* asked him, if the Legates had any Order of Pope *Leo* on that Subject, and if they had, they should shew it. *Bonifacius* read then an Article of his Instructions, written in these Terms: 'Do not 'suffer the Constitutions made by the holy Fathers, 'to be violated, or shorten'd, by the Temerity of any 'whosoever; but be careful to preserve in your Per- 'son the Dignity of ours; and if any Body, confi- 'ding

'ding in the Splendor and Power of their Ci-
'ties, attempt to usurp something new for them-
'selves, oppose it, with all the necessary Resolu-
'tion.'

This Instruction having been read, the Commissaries order'd that the Legates and the Bishops should alledge the Canons on which they pretended their Right was founded. *Paschasinus* read the fifth Canon of the *Council* of *Nice*, in these Terms: 'The *Ro-*
'*man* Church has had always the Primacy; let it be
'decreed, then, that the Bishop of *Alexandria* shall
'have the Power in *Egypt*, because such is the Custom
'of the Bishop of *Rome*.' *Ætius* produced the same Canon, but without the first and last Words, which related to the Dignity of the *Roman* See, as the Legate had cited them. Afterwards, that of the *Council* of *Constantinople* was read, which order'd, that the Bishop of that See should have the Honour of the Primacy, after the *Roman* Bishop, because *Constantinople* was the new *Rome*. The Commissaries ask'd, then, the Prelates of the Dioceses of *Asia* and *Pontus*, if they had subscrib'd of their own free Wills, or by Compulsion. Seven *Asiatick* Metropolitans, *viz. Diogenes* of *Cisyck*, *Florentius* of *Sardes*, *Marinian* of *Sigenades*, *Pergamius* of *Antioch* in *Pisidia*, *Romanus* of *Myrra*, *Nunechius* of *Laodicea* in the first *Phrygia*, *Critonian* of *Afrodisiades* in *Caria*, and the Chiefs of the Provinces of the *Hellespont*, *Lydia*, the first and second *Lycia*, *Caria*, *Pisidia*, and *Phrygia*, and six Metropolitans of *Pontus*, *Thalassius* of *Cæsarea* in the first *Cappadocia*, *Calagerius* of *Claudiopolis*, *Peter* of *Gangres*, *Eleutherius* of *Chalcedon*, *Seleucus* of *Amasia*, *Eusebius* of *Ancyra*, and all the other Bishops, protested, that no Violence had been offer'd to them to sign the Canon in Dispute. *Eusebius* of *Dorylea* added, that he had read the Canon of the *Council* of *Constantinople* to *Leo*, and that he had receiv'd it. Then the Commissaries concluded, that by the Testimonies of the Bishops, and by the Ordinations made by the Bishop of *Constantinople*, all Primacy and principal Honour should be preserv'd to the Archbishop of the antient *Rome*, and that after him the Archbishop of *Constantinople*, which was the new *Rome*, should have the same Honour. This Opinion was approv'd by the Acclamations of the whole *Council*, *Lucentius*, the Pope's Legate, excepted, who was reduced to make a Protestation against all that had been done in that Affair, to the Prejudice of the ecclesiastical Discipline; he ask'd, that his Protestation should be inserted in the Acts, that they might make their Report to the principal Bishop of the whole Church, (as they call'd him) who would act as he thought fit, to defend his See against the Injury offer'd to it, and to oppose the Infraction of the Canons. *John* of *Sebast* addressing himself to the Commissaries, said, *We are all of the Advice of your Magnificence.* And the Commissaries answer'd, speaking to the Legates, *The whole Synod approve what we have proposed.*

Thus was ended the great and celebrated *Council* of *Chalcedon*, which has always been held in Veneration by the universal Church; so that the *Greeks* used every Year to make a solemn Commemoration of it in their Office, for the Month of *July*.

The Emperor *Marcian*, desiring to join the temporal to the ecclesiastical Authority, had an Edict publish'd (*l.* 4. *Cod. De Summa Trinit.*) to confirm the *Council*, forbidding all Persons to dispute any more of the Faith, or to bring in Question the Definitions made, under very severe Penalties. This Edict was addressed to *Sporiatus*; but as, notwithstanding his Edict, the Hereticks continued to make their seditious Assemblies, and to teach their Errors, *Marcian* was obliged to address another, in the Month of *March*, to *Vincomatus*, design'd Consul, by which he renew'd the Prohibitions made in the first, and order'd the Judges to punish severely the Delinquents.

The fifth *General* COUNCIL, is the second of *Constantinople*, assembled in the Year of *Christ* 553; of Pope *Vigilius* 14; and of the Emperor *Justinian* 27.

This fifth *General Council* is one of the most important Points of the ecclesiastical History, from which the Enemies of the *Roman* See pretend to draw very great Consequences against the Popes. It is what obliges me to make a sincere and exact Narration of what was transacted in that great Assembly, and I hope without being accus'd of quoting Romances; since I consult none but the best Authors on this Occasion, as I have done on all others.

Evagrius, *l.* 4. *c.* 38. says, that the Subject of the Convocation of this *Council*, was, that the Partisans of the Doctrine of *Origen*, having extraordinarily multiplied themselves in the Monasteries of *Palestina*, and particularly in that called the new *Laura*; *Eustochius* undertook to rout them out, and, in Fact, succeeded in his Enterprize. Having thus been expelled from their Monasteries, they spread themselves throughout several Places, where they gain'd a vast Number of Persons to their Party. *Theodorus Ascidas*, Bishop of *Cæsarea* in *Cappadocia*, who was always near the Emperor, took them under his Protection, made a great Noise at Court, and pretended that there was nothing but Injustice and Impiety in the Proceeding of *Eustochius*. This Bishop of *Jerusalem*, to clear himself of such Accusations, sent to *Constantinople*, *Rufus*, Abbot of the Monastery of *Theodosius*, and *Conon* Abbot of the Monastery of *Saba*, both very considerable, as well for their personal Merit, as for the vast Number of Solitaries they had under their Conduct. They were accompanied in their Journey by several others, very little inferior to them in Dignity. When they were arrived at *Constantinople*, they spoke but of *Origen*, *Evagrius*, and *Didymus*; but *Theodorus*, Bishop of *Cappadocia*, wanting to elude the Question, propos'd the Affair of *Theodorus*, Bishop of *Mopsueste*, of *Theodoret*, and of *Ibas*. The first Question propos'd, was, to know if it was permitted to pronounce Anathema against the Dead; *Eutychius*, who was there present, answered, that it was a Question which wanted not a long Discussion, since King *Josiah* had not only caused the Priests of the Devil to be put to Death, but had likewise destroy'd the Tombs of those dead long before. The whole Assembly approved this Advice, which engaged the Emperor to assemble the *fifth Council*, for the Condemnation of the three Chapters, or the Writings of *Theodorus* of *Mopsueste*, of *Theodoret*, and of *Ibas*; which met the 4th of *May* of the Year 553, and where *Eutychius*, lately made Patriarch of *Constantinople*, presided: There were, besides, two other Patriarchs, *viz. Apollinaris* of *Alexandria*, and *Domnus* of *Antioch*, and the Deputies of *Eustochius* of *Jerusalem*, with several Metropolitans and Bishops, amounting to 160.

When they were assembled, *John* the *Silentiarius* enter'd the Assembly, and presented them with a Writing from the Emperor; in which, after he had explain'd what his Predecessors had done to exterminate the Heresies, he spoke of the Care he had took for the same End, against the *Nestorians* and *Eutychians*; in which, however, he had not succeeded, because they defended their Errors by the Writings of *Theodorus* of *Mopsueste*, of *Ibas*, and of *Edessa*, and of *Theodoret* of *Cyr*; which, they said, had been approved by the *Council* of *Chalcedon*; that to be divested of that specious Cloak they disguised their Impieties with, he had caused the Writings of those three Authors to be condemned by the Bishops then at *Constantinople*, and that *Vigilius* himself, Bishop of *Rome*, had several Times anathematiz'd them; to whom he had sent lately a Writing on that Subject, and expected his Answer every Hour. To this the Emperor added his Profession of Faith, and towards the End desir'd the Fathers to pronounce on these three Chiefs what they thought the most agreeable to the Truth of the Gospel; and not make the least Difficulty to condemn *Theodorus*, whose Name had been for a considerable Time blotted out of the Dypticks of his Church.

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The *Council* had already invited Pope *Vigilius* to come to take his Place among them, and to terminate with them, as he had promised, the Controversy of the three Chapters, which divided the Christian World. He had answer'd, that the next Day he would let them know what he thought of their Assembly. This Answer having been brought to the *Council*, they sent to him the same Deputies a second Time, to desire him to join with them in order to give Peace to the Church; this Deputation was composed of three Patriarchs and sixteen Metropolitans. *Vigilius* gave, this second Time, a positive Answer, that he could not assist at the *Council*, because he had with him but few occidental Bishops, when as the Number of the Oriental was too great; but that he was putting his Opinion in Writing, which he would send to the Emperor. The Bishops were not satisfy'd with this Answer, against which they objected, that the small Number of the western Bishops could not hinder the holding of the *Council*, since in those which had preceded, there were few or none of the western Bishops: That *Vigilius* had some near him of *Illyria* and *Africa*; and that he had promised to *Eutychius* of *Constantinople*, with whom he was in Communion to convoke a *General Council*, to terminate that Dispute. But *Vigilius* could have answer'd them, says M. *Godeau*, *Tom.* IV. *Hist. Ecclesiast. Lib.* 2. That it had been agreed between the Emperor, and the *Italian* and *African* Prelates, that they should be called to the *Council* in equal Number with the eastern Bishops; and that against this Agreement he could not, nor would hold a Synod with them.

In the second Session, held the 8th of *May*, a Report was made of this Answer, and of the two Deputations the Emperor had sent to *Vigilius*, of the principal Persons of his Court, among whom was *Belissarius*, the *Patrice Liberius*, with the Prelates abovementioned; and the Judges desired the Fathers not to defer any longer the Examen of the three Chapters for which they were assembled, in order to give Peace to the Church; but before they begun that Examen they did judge proper to send a Citation in form to the Bishops, who were then at *Constantinople*, *viz.* to *Primasius* of *Adrumetta*, in *Africa*; to *Sabinian*, *Projectus*, and *Paul*, Bishops in *Illyria*. *Primasius* answer'd, that he would not come to the *Council*, unless the Pope was present; *Sabinian*, *Projectus*, and *Paul*, that they could not be there while their Archbishop was absent, to whom they were answerable for their Conduct.

The third Session was spent in hearing the Report of those Deputations, and in making a Profession of Faith, whereby the Bishops protested to follow the Decisions of the four *Councils*, of *Nice*, of *Constantinople*, of *Ephesus* the first, of *Chalcedon*; and the Doctrine of the antient Fathers and Doctors of the Church; *Athanasius*, *Hilarius*, *Basile*, *Gregory* the *Theologian*, *Gregory* of *Nyssen*, *Ambrosius*, *Augustin*, *Theophilus*, *John* of *Constantinople*, *Cyril*, *Leo*, and *Proclus*.

In the fourth Session, the Secretary of the *Council* read the Extracts of the Books of *Theodorus* of *Mopsueste*, which excited the Indignation of the Fathers against the Impieties they were filled with, and great Acclamations for the Prosperity of the Emperor, who had purged the Church of that Zizany. That Reading was sufficient, say the Acts of that *Council*; but however, not to appear to act with too much Precipitation, and to omit nothing in the Examen of that Cause, they deferr'd their Judgment till another Session, which was held the 13th of *May*.

In that Session was read what the antient Fathers had wrote against him, and particularly *Cyril* of *Alexandria*, the Laws of *Theodosius* and of *Valentinian*, the Requests presented by the Priests and Deacons of *Armenia*, and of *Persia*, to *Proclus* of *Constantinople*; the Answers of that Prelate to the *Armenians*, and the last Synod of *Mopsueste*. There were read likewise, some Epistles of *Theodoret* to *Nestorius*, and to *John* of *Antioch*, during, and after the first *Council* of *Ephesus*; but some of those Epistles were manifestly false and forged by Hereticks, in which *Theodoret* congratulated himself after the Death of *Cyril* of *Alexandria*, in Terms beneath not a Bishop only, but a Man of Honour. There wanted no other Proof of that Epistle being spurious, but its being directed to *John* of *Antioch* dead before *Cyril*. The Laws of *Theodosius* and of *Valentinian*, are also related in the *Council*, otherwise, than they are in the Code, where there is no mention made of *Theodorus* of *Mopsueste*, which makes me believe that the Acts of that *Council* have been corrupted in some Places by Hereticks.

Vigilius, as we have observed already, had promised to put his Opinion on the three Chapters in Writing, and to send it to the Emperor; which he did in an ample Manner, answering in his Constitution, Article for Article, to the sixty Errors extracted from the Books of *Theodorus*, which *Justinian* had marked in his Writing, condemning them by the Scripture, and the Authority of the antient Fathers of the Church; but when he comes to the Persons of *Theodore*, of *Ibas*, and of *Theodoret*, he says, that having not been subjected to the Anathema, neither by the first *Council* of *Ephesus*, nor by that of *Chalcedon*, he could not do it. He alledges, to support his Sentiments, the Authority of the Popes *Leo* and *Gelasius*, who shewed, that it was not the Custom of the *Roman* Church to anathematize any Body after their Death, much less Bishops, who had been judged by God. He relates, also, what *Denis* of *Alexandria* had done in the Affair of *Nepos* Bishop of *Egypt*, whose Writings he condemned, because they contained the Errors of the *Millenaries*, but without touching his Person, because he was dead. *Vigilius* adds, afterwards, five Anathema's, against those who should maintain the Errors marked in it; lastly he forbid every body to condemn either *Theodore* of *Mopsueste*, or *Theodoret* of *Cyre*, or *Ibas* of *Edessa*; the *Council* of *Chalcedon*, having pronounced nothing against *Theodore*, having received *Theodoret*, after he had anathematised *Nestorius*, and restored *Ibas* to his See, and approved his Epistle; or to teach or write against his Constitution: But does not add any Anathema against those who will not be of his Sentiment; to leave himself room to embrace another if it was necessary for the Peace of the Church. The Constitution is dated the 13th of *May*, the same Day the fifth Session of the *Council* was held.

The Cardinal *Baronius* says, that the Emperor to whom it was addressed, sent it to the Bishops. But M. *de Marca*, Archbishop of *Thoulouse*, in the little Book he caused to be printed while he was yet a Secular, and President of the Parliament of *Pau*, deviates from that Opinion, with all the Respect due to the Dignity and Doctrine of so great a Man as was Cardinal *Baronius*. His Reasons do not appear very considerable. The Emperor had very much at Heart the Condemnation of the three Chapters, and it is for that Reason, that in the Writing he had addressed to the Bishops at the Beginning of the *Council*, he had expresly mark'd, that the Pope had condemned them, as it appeared by his Letters to *Aurelian* of *Arles*, and to *Valentinian* of *Tanes*; and by his Sentence against the Deacons *Rusticus* and *Stephen*, which he had caused to be read. He knew very well that his Authority was necessary (says M. *Godeau*) for that Condemnation. In fact, in the Deputations of the *Council* to him, the Prelates alledged it as a Prejudice; therefore could it be supposed that *Justinian* would have been contrary to himself, and would have communicated to them a Constitution whereby the Persons of *Theodore*, *Ibas*, and *Theodoret*, were saved from the Anathema; since thereby he had given occasion to the Prelates for excusing themselves from doing what he wanted; therefore he concealed part of the Constitution, and shew'd only the first Part of it, which justified that the Pope had condemned the three Chapters. It is true that in the sixth Session he examined the Reasons alledged by *Vigilius* on the Epistle or Epistles of *Ibas*, but they were so well known and so common ever since the Dispute had begun, by the Writings of those who defended

fended it, and, among the reſt, by the Books of *Facundus*; that it was not neceſſary they ſhould have learn'd them from the Conſtitution.

In the *ſixth Seſſion*, the Epiſtle of *Ibas* was read, and that of *Proclus* againſt him; the Judgment of the Synod of *Berite*, and what had happen'd on his Subject in the *Council* of *Chalcedon*, the Profeſſion of Faith publiſh'd there, the Acts of the firſt *Council* of *Epheſus*, and the Epiſtle of *Leo* to *Flavian* of *Conſtantinople*. The Biſhops declar'd, that the Epiſtle of *Ibas* was contrary to it, and that whoſoever receiv'd it, offer'd an Injury to the *Council* of *Chalcedon*; therefore it was condemn'd as heretical, with an univerſal Applauſe, and an Anathema was once again pronounced againſt *Neſtorius*, and *Theodore* of *Mopſueſte*; tho' there is nothing clearer in the *Council* of *Chalcedon*, than the Abſolution of *Ibas*, who was judg'd catholick. In the Relation of the Definition of Faith, there are Words added which are not in the Original, *viz.* after our Lord *Jeſus Chriſt* has been mention'd, *one of the Trinity*; which was what the *Scythian* Monks wanted to be ſaid, and what Pope *Hormiſdas* had condemn'd.

In the *ſeventh Seſſion*, *Conſtantine*, Treaſurer of the Empire, caus'd the Letters of *Vigilius* to *Aurelian* of *Arles*, and to *Valentinian* of *Tomes*, his Sentence of Condemnation againſt his Deacons, *Ruſticus* and *Stephen*, who had forſook him becauſe he had condemn'd the three Chapters, to be read.

In the *eighth Seſſion*, they all, with one Voice, condemn'd the Hereſies of *Neſtorius*, of *Eutyches*, and of *Origen*; the Writings of *Theodore* of *Mopſueſte*, of *Theodoret* of *Cyr* againſt *Cyril* of *Alexandria*, and the Epiſtle of *Ibas* of *Edeſſa*, and pronounced Anathema, and order'd the Depoſition againſt the Clerks and Prieſts who ſhould have the Temerity to defend them. In this Sentence they inſerted twelve Articles, the Belief and Confeſſion whereof they defin'd to be orthodox; but, however, *Vigilius*, and the Biſhops who were with them, refuſing to ſubſcribe to the Determination of the Aſſembly, were ſent by the Emperor into Exile. *Narſes* had *Vigilius* recall'd from that Exile, which was not long; for ſix Months after the Separation of the Biſhops aſſembled at *Conſtantinople*, *Vigilius* wrote an Epiſtle to *Eutychius*, Biſhop of *Conſtantinople*, in Form of Conſtitution; in which he ſays, that being better enlighten'd, he had found in the Writings of *Theodore* of *Mopſueſte*, of *Theodoret* of *Cyr*, and of *Ibas* of *Edeſſa*, ſeveral Errors, contrary to the true Faith; that he condemns *Theodore* and his Books, and the Writings of the two others; and that if he has eſpous'd their Defence before, he retracts, and annihilates all he has done: That he conſiders as his Brothers, all thoſe who ſhall condemn them, it being certain, that the *Council* of *Chalcedon* has never authoriz'd their Blaſphemies. The Archbiſhop of *Tholouſe*, already mention'd, gave that Epiſtle to the Publick, with its Verſion, which he ſaid to have found in an authentick Manuſcript of the King of *France*'s Library, which the Copiſt had placed in that of the Emperor *Michael Paleologue*, in the Year 1276, having wrote it from the Original found in the Library of the *Roman* Church, wrote in the Year 753.

By this Epiſtle it appears, that *Vigilius* confirm'd the Judgment of the *fifth Council*; it is true, that he appears inconſtant in his Conduct, for after he had ſtood for the three Chapters, he condemn'd them; afterwards, he undertook again their Defence, and, laſtly, condemn'd them ſolemnly by his laſt Conſtitution. Several blame much this Variety of Sentiment, and accuſe him of having pronounced his laſt Judgment, to be deliver'd from the Miſeries of his Exile, rather than by any new Knowledge of the Truth. But if even that Suppoſition was true, ſay the *Roman Catholick* Authors, that would not be a Bar to *Vigilius*'s Authority. It is certain, ſay they, that *Vigilius*, ſeeing, after the Determination of the *Council*, where he would not be preſent, that the Church was more divided than before, could, and even ſhould have ſearch'd the Means to appeaſe the Schiſm; and thoſe Means could be no other than the Condemnation of the three Chapters. If it had been a Queſtion of the Faith, there was no Medium to be taken; but it was only a Queſtion of Fact, in which the *Council* could be miſtaken, as well as the Pope; for the Facts which are not reveal'd (continue they) nor tranſmitted to us by an eccleſiaſtical Tradition, can't be the Object of our Faith, which wants one of theſe two Things for its Foundation, which muſt be certain of a divine Certitude.

The Perſon of *Theodore* of *Mopſueſte*, and the Writings of *Theodoret* of *Cyr*, and of *Ibas* of *Edeſſa*, were not of ſuch Importance, to break, for their Sake, the Peace of the Church, and foment a Schiſm, which offer'd the Hereticks an Opportunity to eſtabliſh their erroneous Opinions; therefore *Vigilius* was not to blame to have condemn'd them after he had approv'd them. It may ſeem ſtrange to ſeveral Readers, that the Epiſtle or Conſtitution of the Pope is not found in the *Latin* Acts of the *fifth Council*; but that might have happen'd, becauſe ſoon after it had been celebrated, the Acts were tranſlated in *Latin* to be given to the Pope, that he might have ſeen if he would approve them, or not; and thoſe who were with him had not thought of adding his Epiſtle to it, which was in his Regiſters; but as they are loſt, his Epiſtle is loſt likewiſe. That *Latin* Interpretation is very antient, and without Alteration; for in the 14th Act of the *ſixth Council* it is ſaid, that it was kept in the Archives of the Patriarchate of *Conſtantinople*.

It is certain, that in this *Council* the Biſhops condemn'd again *Origen*, *Didymus*, and *Evagrius*, his Partiſans; for the Emperor ſent to them a Copy of an Edict he had made againſt him, where his Condemnation is approv'd by *Vigilius*. Cardinal *Baronius* is of Opinion, that they begun by that Examen; but if we conſider well the Seſſions, we ſhall find no Room but for the Affair of the three Chapters. What might have deceiv'd that great Man, is, that *Cedrenus* relating what had been done in that *Council*, mentions firſt the Condemnation of *Origen*. *Sophronius*, Patriarch of *Jeruſalem*, who liv'd a little before the *ſixth œcumenical Council*, in his Epiſtle to *Sergius* of *Conſtantinople*, profeſſes to receive the *fifth Council*, which confirms that of *Chalcedon*, and exterminates and aboliſhes the impious Dreams of *Origen*, of *Didymus*, and of *Evagrius* his Diſciples; and condemns, after them, *Theodore* of *Mopſueſte*, and the two other Chapters: But *Sophronius* has not follow'd the hiſtorical Order of the Time; and becauſe the Hereſy of *Origen* appears to him of greater Conſequence, as in Fact it was, than the three Chapters, he ſpeaks of that before he ſpeaks of theſe. The Emperor *Conſtantine Pogonatus*, in his Edict for the Confirmation of the *ſixth Council*, relates that Condemnation in the ſame Manner; and *Cedrenus*, and the other *Greek* Authors after him, have follow'd him. The learned Annaliſt believes that the *Origeniſts* have extracted from the Acts the Diſcuſſion and Condemnation, and all the other Pieces relating to their Maſter; but there is not the leaſt Appearance that they have ever been inſerted in the *Latin* Interpretation given to *Vigilius*; and the Biſhops had not thought it neceſſary, becauſe they had no other Affair with him but that of the three Chapters. The Popes *Pelagius* the firſt and ſecond, and *Gregory the Great*, make no mention of it; and they had not omitted it, ſince that Condemnation had been a very ſtrong Argument to defend the *fifth Council* againſt thoſe who rejected it: Therefore *Vigilius*, in his Conſtitution, makes no mention of it, tho' he muſt have known that it had been made. But as we have heretofore obſerv'd, he had already approv'd it at the Foot of the Edict of the Emperor *Juſtinian*; and it was not neceſſary to mention it.

Thus ended the *fifth Council*, which was remarkable for ſeveral extraordinary Events which happen'd during its Celebration, and afterwards; for it was held in Preſence of the Pope, tho' he would not aſſiſt to it, nor ſend his Legates. He would not agree to its

Definition, tho' agreeable to his first Sentiments. *Constantinople* saw, with Scandal, the first Bishop of the *Christian* World sent into Exile, by a *Catholick* Emperor, who had much respected the holy See. The Pope wanted the Assistance of *Narses* to be re-call'd from his Banishment, and acquiesced to the Condemnation of the three Chapters which he had improv'd. The Bishops who had forsook him, were reconcil'd to him; and those who had been united to him, left him. The Hereticks whom *Justinian* thought to have brought back to the Church, grew more insolent and obstinate, and the *Catholicks* were scandaliz'd, and form'd a dangerous Schism.

The *Sixth General* COUNCIL, was the third of *Constantinople*, held in the Year of *Christ* 680; of Pope *Agatho* 3; of the Emperor *Constantine Pogonatus* 13; against the *Monothelites*, *i. e.* against those who maintain'd that there was but one Will in *Christ*. This *Council* is call'd *in Trullo*, because assembled in a Hall built in Form of a *Cupola*, call'd, for that Reason, *Trullo*.

This *Council* began the 7th of *November* of the same Year 680. The Number of the Bishops it was composed of, is differently related; the *Greek* Annals reckon 289, *Photius* 170, *Paul the Deacon* 150, and *Balsamon* 171; but in the last Session the Bishops who subscribed, together with the Vicars, and Legates of those who were absent, were 166. The Legates of Pope *Agatho*, *Theodore*, and *George*, Priests, were seated on the left Side, which in the ecclesiastical Assemblies was the most honourable Place; the Patriarchs of *Constantinople* and *Antioch*, with the Legates of the See of *Alexandria*, and those of *Jerusalem*, on the right; the Emperor, Consuls, and Patrices, in the Middle, in the most eminent Places. In the Middle was erected a Throne richly adorn'd, on which was placed the Book of the Gospel, according to antient Custom.

The Legates of the Pope spoke first, and exposed the Cause of their Arrival; complaining, that the four Patriarchs of the See of *Constantinople*, *Sergius*, *Pyrrhus*, *Paul*, and *Peter*, and with them *Cyrus* of *Alexandria*, and *Theodore Pharan*, had introduced a new Heresy in the Church; teaching, that there was but *one single Will*, and *one single Operation in* Christ; and desir'd afterwards, that they should account for that Opinion, and deduce the Cause of that Novelty. The Emperor order'd those mention'd by the Legates to give the Reasons they had for the Introduction of the Novelty complain'd of. *Macarius* of *Antioch*, Chief of those Hereticks, answer'd, that he had introduced no Novelty in the Church, but only taught what he had learnt from the sacred Synods, and the antient Fathers; but, however, that he professed the Doctrine of the Bishops of *Constantinople*, of *Cyrus* of *Alexandria*, and of Pope *Honorius*. The Emperor, upon that Answer, said, that he would not suffer *Macarius* in the *Council*, unless he could prove what he had advanced. The Patriarch promised to do it, and ask'd for the Volumes of the five *Œcumenical Councils*, which were kept in the Archives of the Patriarchate of *Constantinople*. When they had been brought to him, the Monk *Stephen*, a Disciple of *Macarius*, read the third of those *Councils*, which was the first of *Ephesus*; and coming to that Place of St. *Cyril* where that Father says, *for his Will is omnipotent*; *Macarius* cried out, that *that* Passage was formal, to prove that in *Christ* there was but one Will: But the Pope's Legates, the Bishops, and even the Judges who accompanied the Emperor, shew'd clearly, that St. *Cyril* spoke in that Place of the Divine Nature which the Son has in common with the Father and the Holy Ghost, and has but an *omnipotent Will* with them; and that he does not speak in any Manner of *Christ*. They afterwards continu'd to read the *Council* of *Ephesus*; but as that took up a great deal of Time, the Emperor postpon'd the reading of the other *Councils*, to the following Session.

This *second Session* was held the 10th of *November* of the same Year, also in Presence of the Emperor, the Judges, and all the Bishops who had assisted at the first. They read, then, the *Council* of *Chalcedon*, and the Epistle of Pope *Leo* inserted therein; and when they came to that Place where *Leo* explains clearly the two Wills in *Christ*, the Pope's Legates pressed *Macarius* and his Partisans to declare what they had to say against that Passage. Then *Macarius*, addressing himself to the Emperor, replied, *I do not say, most potent Lord, that there are two Wills in* Christ; *neither does Pope* Leo *say it in that Passage*. The Emperor ask'd him if he understood that Pope *Leo* had said, *one single Operation?* *Macarius* answer'd, that he did not explain the Number, but spake only of one Operation *Dei virilis*, according to the Authority of *Dennis*. The Emperor ask'd him, again, how he understood that Operation *Dei virilis?* *Macarius* replied, that he added nothing to what *Dennis* had said. At last, the Session ended, by reading what remain'd of the *Council* of *Chalcedon*.

In the *third Session*, held the 13th of *November*, was read the fifth Synod, and, at the Beginning, the Epistle of *Mennas* of *Constantinople* to Pope *Vigilius*; where it is said expressly, that there *is but one single Will in Christ*. At which, the Legates of the Pope rose, and said, that *that* Book was falsified; that the *Monothelites* had supposed that Epistle, which was not found in the genuine Acts of the *Council*: And to prove what they said, they alledg'd, that *Mennas* died in the 21st Year of the Emperor *Justinian*, and the *Council* was assembled in the 26th Year of the same Prince. The Emperor, his Counsellors, and some Bishops, looking nearer in the Volume, found, in Fact, that three Chapters had been added to it, which had not those Marks usually put on the Sheets of Books; and that the Characters of the first Sheets were very different from those of the last; which *shew'd plainly* the Falsity. Upon which, the Emperor order'd, that what remain'd of that Epistle should be left unread, and the *Council* read. When they came to the seventh Session, they read Letters under the Name of Pope *Vigilius* to the Emperor *Justinian*, and to the Empress *Theodora*; in which was contain'd an Anathema pronounced by the Pope against *Theodore*, Bishop of *Mopsueste*, because he did not confess *one Person in* Jesus Christ; where the *Monothelites* had impudently added, *and one Operation*. Then the Legates exclaim'd, likewise, against that Falsity; and maintain'd, that those Writings attributed to *Vigilius* were supposed, and that there was not the least Appearance that if *Vigilius* had been of that Opinion, the fifth *Council* had not mention'd it in their Profession of Faith, and that they had receiv'd that Pope as orthodox. The Bishops and Judges having carefully examined all Things, pronounced, that there was nothing in those *Councils* favourable to the *Monothelites*; and that nothing remain'd to *Macarius*, but to prove his Opinion by Passages out of the antient Fathers, as he had promised to do. The Emperor order'd, that he should perform his Promise; and *Macarius* having ask'd Time to do it, it was granted him. Afterwards, *George* of *Constantinople*, and those of his Synod, desir'd, that what Pope *Agatho* and his Synod had wrote to the Emperor, should be read; their Request was granted, but that Reading postpon'd to another Session.

The *fourth Session* was wholly employ'd in reading the Letters of Pope *Agatho* and his Synod, which were very long.

In the *fifth Session*, held the 7th of *December*, *Macarius* presented three Cohairs, which, he pretended, contain'd Passages of the antient Fathers, to prove that there was but *a single Will*, and a *single Operation in* Christ. This Reading took up, likewise, all this Session. The Emperor said, that if he had some other Passages to alledge, he could do it in the following Session.

In the *sixth Session*, *Macarius* presented a small Book, which, he said, contain'd other Testimonies of the antient Fathers, in Favour of his Opinion. They were immediately read, and the Emperor order'd, that all the Writings produced by that Patriarch, and by the Legates

Legates of the Pope, ſhould be ſeal'd, and all kept with a great deal of Care. But the Legates maintain'd, that all the Teſtimonies alledg'd by *Macarius* were falſified and truncated; that the Fathers ſpeak then of the Will of the Trinity, which is but one; and that the *Monothelites* had conceal'd what theſe Fathers ſaid of the Incarnation of *Jeſus Chriſt*, to prove their Error. They afterwards deſir'd the Emperor to order that the original Writings of thoſe Fathers, which were kept in the Archives of the Patriarchate, ſhould be brought in the *Council*; but the Emperor referr'd that Collation to another Seſſion, which was poſtpon'd to the Month of *February* of the following Year.

In fact the *Council* which had been interrupted for two Months, met again the following Year; and the *ſeventh Seſſion*, held the thirteenth of *February* 1681, in the ſame Place, and in Preſence of the Emperor and of his Patrices. In it was read the Collection of Paſſages which the Pope's Legates preſented to maintain two Wills and two Operations in *Chriſt*, and thoſe preſented by the *Monothelites*, to ſupport their Error. *George* of *Conſtantinople* was deputed to compare the Paſſages quoted by the Legates, with the Originals brought from the Archives of the Patriarchate.

In the *eighth Seſſion*, held the 7th of *March* (according to the Order of the ſynodical Acts) the Patriarch *George*, ſaid that he had compared carefully the Paſſages of the Fathers, alledged by the Legates, with the Originals, and had found them entirely conform, that he likewiſe conformed his Belief to it, and profeſſed that there were *two Wills*, and two Operations in *Chriſt*. Several other Biſhops who had aſſiſted to the Collation followed his Example; and are all named in the Acts of the *Council*. The Fathers, afterwards, aſked the Emperor, that *Macarius* ſhould declare if he confeſſed *two Wills*, and two Operations in *Jeſus Chriſt*, if he believed what Pope *Agatho* had wrote to him, and if he received the Paſſages alledged by him? *Macarius* anſwered, that he did not ſay, that there were *two Wills* and two Operations in *Jeſus Chriſt*, but one Operation *Dei virilis*. Upon which the Council, ſpeaking to the Emperor, ſaid, that ſince *Macarius* refuſed to obey to what *Agatho* had wrote to him, he ought to riſe from his Seat to anſwer. Then *Macrobius* Biſhop of *Seleucia* in *Iſauria*, *Eulalius* of *Zenapolis*, *Conſtantine* of *Daliſandes*, *Theodore* of *Ell*, declared aloud that they did not believe what was contained in the Epiſtles of *Leo* and of *Agatho*; after which the Writings preſented by the Patriarch *Macarius*, were produced. He preſented likewiſe a Profeſſion of Faith which was heretical, confeſſing but *one Will* in *Chriſt*, and ſaid that he would never confeſs two, was he even to be cut to Pieces, and thrown into the Sea.

In the *ninth Seſſion*, held the 8th of *March*, *Macarius* and his Diſciple *Stephen*, were deprived of the Sacerdoce, *Macarius* having been diveſted of his Patriarchal Ornaments, and both expelled from the Aſſembly.

In the *tenth Seſſion*, the Confeſſion of *Peter* of *Nicomedia* was read, who had retracted his Errors.

In the *eleventh Seſſion*, held the 20th of *March*, they read the Epiſtle of *Sophronius*, which was very long, and contained a full and learned Explication of the Catholick Doctrine againſt the Errors of the *Monothelites*: The Writings of *Macarius* and his Diſciple were read afterwards, which were found full of Errors.

The Emperor was not at the *twelfth Seſſion*, which was held the 22d of *March*; but he deputed, in his Abſence, *Conſtantius* and *Anaſtaſius*, *Politeue* and *Peter*, who had been Conſuls. He ſent to the *Council* ſeveral Papers, among which were found a Letter of *Sergius* Patriarch of *Conſtantinople*, to *Cyrus* Patriarch of *Alexandria*, and a Letter of the ſame *Sergius* to Pope *Honorius*, and *Honorius*'s Anſwer. The *Council* ordered, that all the Letters written on that Subject, as well from *Sergius* to *Cyrus*, *Sophronius*, and to Pope *Honorius*, as from *Honorius*, ſhould be ſearched in the Archives, and compared with the Originals; which was done accordingly, and they were found Conforms:

They began the *thirteenth Seſſion*, held the 28th of *March*, by declaring that the Letters of *Sergius* to *Honorius* and to *Cyrus*, and the Anſwer of *Honorius* to *Sergius*, which were read over again, were contrary to the Doctrine of the Apoſtles, to the Definitions of the holy Councils, and to the Sentiments of the Fathers of the Church; and that as ſuch they rejected them, and had them in Execration. Toward the End of the Seſſion, more particular Mention was made of *Honorius*, who was anathematized and rejected from the Catholick Church, becauſe it had been diſcovered in his Letter to *Sergius* that he was of his Opinion, and had confirmed his impious Dogma's.

In the *fourteenth Seſſion*, held the 5th of *April*, the Epiſtle of *Mennas* to Pope *Vigilius*, and his Anſwer were read over again, and ſome Writings of the ſame *Vigilius* to the Emperor *Juſtinian*, which were all found ſpurious, and anathematized, with thoſe who had falſified the Acts of the ſeventh Seſſion of the fifth *Council*, the Original whereof was brought in the Aſſembly.

In the *fifteenth Seſſion*, held the 6th of *April*, they pronounced another *Anathema* againſt *Macarius* and his Diſciple.

In the *ſixteenth Seſſion*, held the 9th of *Auguſt*, an extravagant Monk having ſaid in the Aſſembly, that the human Will had abandoned *Jeſus Chriſt* with his Fleſh and Blood, at the Time of his Death upon the Croſs, which was the impious Opinion of the *Manicheans*; was excommunicated and expelled from the *Council*.

In the *ſeventeenth Seſſion*, held the 11th of *September*, was read the Definition of Faith, which had been made, by which the *Councils* of *Nice*, *Conſtantinople*, *Epheſus*, and *Chalcedon*, were confirmed; the Symbols made in thoſe *Councils* were recited, to which was added the Condemnation of the *Monothelites*.

The Emperor would be preſent at the laſt *Seſſion*, which was the eighteenth, and which was held the 16th of *September*. In it was publiſhed the Definition of Faith newly made, afterwards there were five Copies made of the Acts of the *Council*, which were ſubſcribed firſt by the Pope's Legates, and by thoſe of the *Roman* Synod, by the Patriarchs, by all the Biſhops who had aſſiſted at the *Council*, and laſtly by the Emperor, after he had been deſired to do it by the Biſhops. He gave thoſe five Copies to the five Patriarchal Sees, *viz.* *Rome*, *Conſtantinople*, *Alexandria*, *Antioch*, and *Jeruſalem*.

The *ſeventh general* COUNCIL (according to the *Roman* Catholicks) is the *ſecond of Nice*, held in the Year of Chriſt 786, of Pope *Adrian* 15, of *Conſtantine* and *Irene* 7, againſt the *Iconoclaſtes*. This *Council* had been firſt convoked at *Conſtantinople*, in the Baſilick of the holy Apoſtles; but the Biſhops being aſſembled, the Soldiers of the *Pretorian* Guard, who favoured the Opinions of *Conſtantine*, *Capronimus*, formed a Sedition, and expelled them by Force. The Emperor and *Irene* being not in a Condition to reſiſt that Violence, thought fit to defer the *Council* to a more favourable Opportunity; but however as they would not leave the Inſolence of the Pretorian Soldiers, unpuniſhed, they pretended to ſend an Army againſt the *Arabs*. The Pretorian Guard, were obliged, on that Pretence, to leave the City, and the Emperor, then uſing his Authority, diſarmed them, and ſent them to their Houſes. He afterwards eſtabliſhed new Captains, and made a new Guard. After which the Biſhops aſſembled again in the Month of *May* following, to hold a *Council* at *Nice* in *Bythinia*. *Photius* ſays that it was compoſed of 377 Biſhops, the *Menology* of *Baſil* reckons 367; and the common Opinion is, that they were to the Number of 350. The two Legates of Pope *Adrian*, who aſſiſted at that *Council*, were *Peter*, Archprieſt of the *Roman* Church, and another *Peter*, Abbot of St. *Sabas*. *Thareſius*, Patriarch of *Conſtantinople*, took his Place in the *Council*, and had

the best Part in all the Good that was transacted in it. From the Emperor, the Patrice *Petronius*, and *John Logothetas*, assisted at it, according to the antient Custom.

In the *first Session*, were read the Letters of the Emperor *Constantine*, and of *Irene* his Mother, to Pope *Adrian* for the Convocation of the *Council*, afterwards *Basile*, Bishop of *Ancyra*, accompanied with *Theodore* and *Theodosius*, offered to the *Council* his Confession of Faith, by which he acknowledged that the Images of *Christ*, of his blessed Mother, and of all the Saints, were to be honoured; he implored the Grace of God, and the Intercession of the Saints, and anathematized the *Council* assembled under *Constantine Copronimus*, which had been called the *seventh general Council*. *Theodore* and *Theodosius* made the same Profession of Faith, after which they were all three received to Repentance, and restored to their Dignities.

In the *second Session*, held the 6th of the Calends of *October*, was examined the Profession of Faith of *Gregory* Bishop of *Neocæsarea*, who had been one of those who had declared more openly against the Images; and his Reception was deferred till another Session. He was accused of having been the Author of the *Council* assembled under *Constantine Copronimus*, and of having mal-treated several Bishops, which rendered him unworthy of being restored. *Leo* Bishop of *Rhodes*, confessed that he was without Excuse. *Gregory* Bishop of *Pisinanthe*, *Hypatius* of *Nice*, and several other Bishops, confessed themselves guilty, and obtained their Restoration. *Leontius* Secretary of State, asked that the Letter of Pope *Adrian* to the Emperor, and to the Patriarch *Tharesias*, should be read, which was done accordingly, with the Acclamations of the whole *Council*. Afterwards the Books of the Fathers, and of the *Councils*, which were kept in the Library of the Patriarchate of *Constantinople* were brought in the Assembly. *Tharesias* caused them to be read, and they began by the Canons, which speak of the Reception of those who return from their Heresy to the true Church. Several Examples were even alledged of those, who in the preceding *Councils* had been maintained in their Dignity, though they had been Hereticks.

In the *third Session*, *Gregory* of *Neocæsarea*, was again examined, and having presented his Request by which he asked the *Council* Forgiveness for his Fault, and confessed, and abjured his Error, the Synod received his Prayers, and his Satisfactions, and he was restored like the others.

In the *fourth Session*, were read some Books of the *Old Testament*, viz. those of *Exodus*, of the *Numbers*, and the Prophet *Ezekiel*; likewise of the New, the Epistle to the *Hebrews*, by which it was proved that there were Images of Cherubims in the Temple of *Jerusalem*. They read also a Testimony extracted from the Writings of St. *John Chrysostom*; another Extract of a Sermon of St. *Gregory* of *Nissen*, preached at *Constantinople*; another of St. *Cyrill* of *Alexandria*; another of St. *Gregory* the *Theologian*; another of *Antipater* Bishop of *Bostres*; another of *Asterius*, on the Subject of St. *Euphemia*; another of the Martyr St. *Anastasius*; another Sermon of *Antipater* Bishop of *Bostres* on the *Hemorroisse*, who had erected a Statue of our Lord *Jesus Christ* in the City of *Edessa*, at the Foot whereof grew an Herb which cured all sorts of Maladies. Another of the Epistle of the Abbot *Nilus* to *Heliodorus* and to the Prefect *Olympiodorus*. The *Council* held under *Constantine Copronimus* had mutilated this Epistle, as if *Nilus* had approved but the Image of the Cross.

After they had read the other Authorities of the Fathers, and the Patriarch *Tharesias* had solemnly returned Thanks to God, and to *Jesus Christ* his Son, of the Peace he had given to his Church, all the Bishops, who had prevaricated, cried; 'Being informed of what is Orthodox, we bow to the venerable and holy Images; the Fathers teach that Practice, we are obedient Children, and submit ourselves to the Tradition of the Catholick Church, believing in One only God, who must be honoured in the most Holy Trinity. We bow to the venerable and holy Images; *Anathema* to those who are not in the same Disposition; for we follow the antient Law of the Catholick Church, to those who accuse the Christians, *i. e.* who brake the holy Images, *Anathema*; to those who turn against the venerable and holy Images, the Passages of the Scripture pronounced against Idols, *Anathema*; to those who do not bow to the holy and venerable Images, *Anathema*; to those who call the sacred Images Idols, *Anathema*; to those that say the Christians approach Idols, *Anathema*; to those who communicate with Persons who offer Injuries to the venerable and holy Images, *Anathema*; to those that say, that besides *Jesus Christ* our Lord, another has delivered us of Idols, *Anathema*; to those who say that the Catholick Church has, sometimes, received Idols, *Anathema*.'

After the Bishops had pronounced these *Anathema's*, *Euthymius* Bishop of *Sardis*, Metropolitan of *Lydia*, pronounced the Decree of the Union, which ended in these Words: 'We salute the Words of the Lord, the Apostolical, and Prophetical Words, by which we have learned to honour and magnify, first, that which is truly and properly the Mother of God, and who is above all the celestial Virtues, the holy and angelical Virtues, the blessed Apostles, the holy Prophets, the glorious Martyrs, the holy Masters, and holy Men. We desire the Intercession of them all, as those who can reconcile us with God, King of all Men, that we may be like his Servants, and make us live in Virtue. We salute, besides, the precious and vivificating Cross, and the Reliquaries of the Saints. We kiss the holy and venerable Images, according to the antient and holy Tradition of the Church, *viz.* the Images of *Jesus Christ* our Lord, of the Virgin Mother of God, of the blessed Angels, as they have appeared to the Just, of the holy Apostles, of the holy Prophets, Martyrs, and generally of all the Saints; because by their Pictures they can recal in our Memory the Remembrance of a great Number of very useful Things, and render us Partakers of some Sanctification.'

The Pope's Legates, and of the Patriarchs who were absent; *Tharesias*, all the Bishops, and all the Abbots present signed that Decree.

The *fifth Session* was held the 4th of the Nones of *October*, to shew, that the *Iconoclastes* were not only contrary to the Fathers of the Church, but that they maintain'd the Error of the antient *Hereticks*, *Jews*, *Samaritans*, and *Saracens*; therefore not only the Books of the Fathers, but likewise those of the Hereticks were brought in the *Council*: And first, *Cosmas*, Deacon and Notary of the Church of *Constantinople*, read the Invective of St. *Cyril*, Bishop of *Jerusalem*, against King *Nebuchadonosar*, who had demolish'd the Images of the Temple; afterwards was read the first Epistle of *Simeon Stylites* to the Emperor *Justinian* II, where he complains of the *Samaritans* who had pulled down the Image of the blessed Mother of God, near the City of *Porphyrea*.

Constantine, antient Deacon of the Church of *Constantinople*, and Keeper of the Charters, had left an excellent Testimony (says Mr. *Godeau*) for the Veneration of the holy Images, in a Sermon preach'd in Praise of the holy Martyrs; where he says, that the Christians represented the Form in which the Word of God, made Man, had conversed with Men, to remember the Salvation he had operated, and not according to the vain Figures of the Divinity, used by the *Pagans*. The Bishops of the false *Council* (as it is called by the *Roman* Catholicks) where the Worship of the Images had been abrogated, had cut, in that Book, the Leaves where that Authority was written, and produced it thus mutilated to their *Council*. The holy *Council* pronounced *Anathema* against those who had cut those Leaves, and the Secretary *Leontius* made them observe that the same Book produced then in the Assembly had Images on the Covering.

Afterwards the Monk *John*, Legate of the Patriarchs of the East, represented, that the *Iconoclasty* had been introduced in the *Christian* Church by *Ezid*, Prince of the *Saracens*, deceiv'd by the false Prophecies of a *Jew*, call'd *Sarantapichys*; by *Constantine*, Bishop of *Natolia*; and afterwards by *Leo Isauricus*, and *Constantine Copronimus*. That therefore the *Iconoclastes* were to be consider'd as *Jews* and *Saracens*, rather than as *Christians*.

In the *sixth Session*, the Images of our Lord, of the blessed Virgin, and of the other Saints, were brought in the Assembly, and saluted, with repeated Acclamations, by the whole Synod. Afterwards, *Gregory*, Bishop of *Neocesarea*, read the Acts of the *Council* held under *Constantine Copronimus*, which he had compiled; and *John*, Deacon of the Church of *Constantinople*, and Chancellor, read the Refutation he had made of them. It is printed at Length, in the Volume of the *Councils*, and worthy of being read; but its Prolixity hinders me from inserting it here.

The *seventh Session* was held the 3d of the Ides of *October*, and *Theodore*, Bishop in *Sicily*, read solemnly the Decree abovementioned, which was sign'd by the Pope's Legates, and the Patriarchs of the East; and the Synod added several Anathema's, and several Acclamations, in these Terms: To the *Council* raving against the holy Images, *Anathema*; to *Theodosius*, false Bishop of *Ephesus*, *Anathema*; to *Sisinnius*, call'd *Pastilla*, *Anathema*; to *Basile*, called *Tricacabes*, *Anathema*; to *Anastasius*, to *Constantine*, to *Nicetas*, who successively have occupied the Throne of *Constantinople*, *Anathema*; as to new *Arius*, new *Nestorius*, and new *Dioscores*; to *John* of *Nicomedia*, and to *Constantine* of *Natolia* Heresiarchs, *Anathema:* They have annihilated the Images of the Lord, and of his Saints, and the Lord has annihilated them; to him who will not confess that the Humanity of *Jesus Christ* was *circumscript*, *Anathema*; to him who refuses to admit of the Histories, and evangelical Truths represented by Pictures, *Anathema*; to him who will not kiss them, and honour them, as made in the Name of the Lord, and of his Saints, *Anathema*; to him who will reject the Tradition, either written, or not written, *Anathema*. Let the eternal Memory of *Germain* orthodox, of *John*, and of *Gregory*, for ever be blessed: The holy Trinity has glorified those three Men, whose Doctrine we wish to deserve to follow, by the Mercy and Grace of the first great Pontiff *Jesus Christ* our God, and by the Intercession of our Lady the holy Mother of God, and of all the Saints, *Amen*.

After these Acclamations, the *Council* approved the six first *General Councils*, and the Symbol of the *Catholick* Faith was recited, with these Words, WHO PROCEEDS FROM THE FATHER, AND FROM THE SON. Afterwards, was recited the Decision of the *Council* on the Veneration of the holy Images, which was subscrib'd by all the Bishops.

The *eighth Session* was held the 10th of the Calends of *November*, at *Constantinople*, in the Palace call'd *Magnaura*. The Emperors call'd thither all the Bishops of the *Council* to hear from their Mouths how Things had been transacted at *Nice*. High Chairs were erected for *Constantine*, and *Irene* his Mother. This eighth Session was not properly synodal, but a Convocation of Ceremony, in which nothing was defin'd relating to the Doctrine. The *Greeks* and the *Latins* acknowledge but seven Sessions in this *Council*, the Acts thereof having been approved by *Constantine* and *Irene*, the Bishops were sent, by them, to their Dioceses, loaded with Presents.

This *Council*, tho' consider'd as *œcumenical*, by the *Catholicks*, and confirm'd by the Pope; has, notwithstanding, been exposed to a great many critical Censures, and even rejected by several. Among the *Greeks*, *Theodore*, a Monk of the Monastery of *Stade*, reprimands it for having receiv'd and restor'd the *Iconoclaste* Bishops. But the most considerable Adversaries of that Synod were some *French* Bishops, who in the *Council* of *Frankfort* assembled some Time after, condemn'd it, because it had order'd that the holy Images should be ador'd. *Agobardus*, Archbishop of *Lions*, composed a Book on that Subject, in which he attempts to prove that it is not permitted to *Christians* to have Images, by which, says he, the Faith is violated, and Hope trusted in those visible Things; so that it seems as if the *Christians* were oblig'd to honour them, they had rather changed from *Simulachres*, than abandon'd the Idols. Lastly, He refutes the Answer of those who said, that in honouring the Images of the Saints, they did not address their Honours to those Images, but to the *Prototypes* represented by them; and concludes, affirmatively, that whosoever honours a Picture, or a Statue, does not worship God sincerely, honour neither the Angels, nor the Saints, but only their *Simulachres*. *Jonas*, Bishop of *Orleans*, was of the same Opinion, in his Answer to *Claudius*, Bishop of *Turin*, who accused the whole Church of Idolatry, because of the Worship of the Images.

In that *Council* were made 22 Canons, on various Points of the ecclesiastical Discipline.

The *second Canon* orders, that all Bishops should have the whole Psalter by Heart, read distinctly, as well the sacred Canons, as the holy Gospel, the Book of the divine Apostles, *i. e.* the Epistles of St. *Paul*, and all the holy Scripture; because the true Discipline of the divine Scriptures, and the Words of the Lord, are the Substance of Priesthood.

The *third Canon* declares null, the Election of Bishops, Priests, and Deacons, made by Princes; and this was according to the antient Rule; which says, 'If a Bishop using the secular Powers, obtains, by their 'Means, a Church, let him be deposed.'

The *fourth Canon* condemns the violent Exactions of several Sums of Money made by some Bishops on their Clerks.

The *seventh Canon* deposes the Bishop who has consecrated a Church, without putting in it some *Reliques* of the Martyrs, as transgressing, thereby, the ecclesiastical Tradition, which was very antient in the *Greek* Church.

The *tenth Canon* forbids private Chappels in the Palaces of the Great, where some Priests used to recite the Liturgy, and forsake their Parishes. It forbids, likewise, the Clerks call'd Majors, *i. e.* who have some Dignity in the Church, to take Care of the Affairs of the Great, under Penalty of Deposition; and chuses rather that they would keep Schools, to teach Children the divine Scriptures, since it is for that they have obtain'd the Sacerdoce.

The *thirteenth Canon* orders the Restitution of the episcopal Houses and Monasteries, which under *Constantine Copronimus* had been chang'd into Inns and Caserns for Soldiers.

The *fourteenth Canon* forbids the Clerks who have receiv'd the *Tonsure*, but not the Imposition of Hands by the Bishop, to do the Office of Reader in the Church; and orders, that the same should be observ'd among the Monks.

The *fifteenth Canon* forbids the Clerks to take two Services in two Churches, which we call, at present, Plurality of Benefices, because it is a Sort of Commerce, and a dishonourable Gain, contrary to the Custom of the Church.

The *sixteenth Canon* forbids to the Clerks, and to the Bishops, the Vanity and Pomp in their Clothes.

The *nineteenth Canon*, to remedy the Abuse which reign'd then, says, that the Crime of Avarice is become so common among the Prelates of the Church, that a great Number of Men and Women, who were esteem'd Persons of Piety, and call'd Religious, had been deceiv'd in forgetting the Command of God; and that Gold was given to make Profession of the religious and solitary Life. If, therefore, says this Canon, a Bishop, or an Abbot, or some other Ecclesiastick, is found convicted of that Disorder, he must either abstain from it, or be deposed, according to the second Canon of the *Council* of *Chalcedon*. That if an Abbess is found guilty, she must be expell'd from the Monastery, and confin'd in some other Place to do Penance. That the same must be observ'd with

Regard to an Abbot, who has not yet receiv'd the Priesthood. And as to the Things given by Parents to Children, in Form of a *Dot*, or what Children offer or consecrate to God as Possessions belonging to them; that whether they stay in the Monastery, or go out of it, those Possessions must remain, according to the Promise they have made.

The *twentieth Canon* condemns the double Monasteries, that is to say, those which contain'd Men and Women, as scandalous, and giving Occasion to Sin. They were very antient, and we learn from the History of *Lausiacus*, that there were such Monasteries of the Order of St. *Pachom*, which were only divided by the River *Nile*. The Emperor *Justinian* parted them, by a Law inserted in the Code; 'because, says he, they 'gave Means to the Monks to converse every Hour 'with the Nuns.' The Canon we mention excepts the Monasteries of St. *Basil*, and will have them subsist; but those Monasteries were so well regulated, that there was nothing to fear.

The *Eighth General* COUNCIL, is the fourth of *Constantinople*, convok'd in the Year of *Christ*, 869; of *Adrian* II, 2; of *Louis* II, Emperor of the West, 14; and of *Basil*, Emperor of the East, 3; for St. *Ignatius*, Patriarch of *Constantinople*, against *Photius*. It was assembled in the Church of St. *Sophy*, and was composed, at first, but of the Legates of Pope *Adrian*, viz. *Donatus*, Bishop of *Osty*; *Marin*, a Deacon; and *Stephen*, Bishop of *Kepi*: Of *Ignatius*, Bishop of *Constantinople*, twelve Bishops who had always stood by *Ignatius*, during all his Persecutions; of the Archdeacon *Joseph*, Legate of the Patriarch of *Alexandria*; of *Thomas*, Archbishop of *Tyre*, Legate of the Patriarch of *Antioch*; and of *Elias Priestre*, Legate of *Theodore*, Patriarch of *Jerusalem*. It began the 3d of the Nones of *October*, in the Presence of the Senate, and of several Patrices, sent thither by the Emperor, to keep the Peace, make Propositions, and collect the Votes. A Cross was exposed in the Middle of the Assembly, and the Book of the Gospel placed on a Throne, according to the antient Custom. As soon as they were all seated, the Patrice *Bahanes*, Vicar of *Bazile*, said, that the holy Emperor had addressed to the Synod a Writing (or Memoir) which he desir'd should be read publickly; to which the Pope's Legates, and those of the Patriarchs, consented. Therefore *Theodore*, Secretary of State, read the Letters of the Prince to the Synod, by which he protested, that 'ever since his Accession to the Empire, his most ardent Desire had been to pacify the Church of *Constantinople*, by the Convocation of a *general Council*; 'that therefore he intreated the Legates, and the other 'Bishops present, to contribute to his Design, and to 'renounce all Passion, either of Hatred, or Love, to 'terminate those Differences which had so long afflicted the Church of *Constantinople*.' *Bahanes* ask'd, afterwards, of the Pope's Legates, the Letters of their Legation. The Legates answer'd, that the Synod ask'd them a new Thing, which had never been practised before; that, notwithstanding, they had Letters of Pope *Adrian*, directed to the Synod, which contain'd their Legation; which, to shew the Sincerity of their Conduct, they desir'd might be read. The Deacon *Marin*, one of the Legates, read them in *Latin*, and *Damian*, Clerk, and Interpreter of the Prince, translated them into *Greek*; which done, the Pope's Legates, and the Synod, requir'd, that the Letters of the Vicars of the Patriarchs should be read, to know their Commission; which was done, and they were found in due Form. The Legates caused the Writing composed by Pope *Nicholas*, by which he condemn'd the Schism of *Photius*, and asserts the universal Supremacy of the *Roman* See, to be read. *Adrian* had order'd, that all the Bishops who had communicated with *Photius* should subscribe to it, before they could be reconcil'd. It was first read in *Latin*, by *Damian*, to do Honour to the *Roman* Church, and afterwards in *Greek*, by the Deacon and Notary, *Stephen*.

The Archbishops and Bishops who had communicated with *Photius*, by the Artifices and Torments he had employ'd to force them to it, came, and threw themselves at the Feet of this *Council*, and ask'd Forgiveness; and, by the Intercession of the Emperor, and the Advice of the Pope's Legates, they were forgiven, and took their Places with the others.

Thus the *Council*, which was, at the Beginning, but very small in Number, was found composed, at last, of 202 Bishops. Those who were thus receiv'd, offer'd a Memoir to the Synod, which contain'd, *first*, the Praises of Pope *Nicholas*. *Secondly*, They exaggerated much the false Synod of *Photius*, in which that pretended Patriarch had loaded so good a Pope with Calumnies. *Thirdly*, They condemn'd his Pride, as that of an Heretick and Schismatick; having call'd himself Patriarch, and Bishop of Bishops, and having forced all the Bishops of the East to subscribe to his Vanity. *Fourthly*, They condemned what had been attempted against the Patriarch *Ignatius*, and the incredible Torments he had made him suffer. It was ask'd, in whose Hands those Bishops should make their Abjuration, and put the Copy thereof? The Patriarch *Ignatius*'s Opinion was, that it should be put upon the Book of the Gospel, taken afterwards from thence, and put in his Hands; which was done accordingly, and the Patriarch *Ignatius* restor'd them the *Pallium*; and they all took their Places in the *Council*. The Priests who had been consecrated by *Ignatius* and *Methodius*, enter'd afterwards, as well as the Deacons, and Subdeacons; who, after they had acknowledg'd their Faults, ask'd Pardon, and sign'd the *Formula* presented to them, were all restor'd to their Degrees.

In the *third Session*, held the 5th of the Ides of *October*, all the penitent Bishops who had been received and reconciled, were present, with *Theodore*, Metropolitan of *Caria*; but it being discover'd afterwards that he had sign'd the Deposition and Excommunication of Pope *Nicholas* made by *Photius*, he was rejected by the whole Synod. In this Session the Pope's Legates said, that they had been inform'd, that some of those who had been consecrated by *Ignatius* and *Methodius*, refused to subscribe to the universal Supremacy of the *Roman* See; therefore they ask'd, that it would please the Synod, to send Deputies to call them to the *Council*, and invite them to subscribe. This Proposition pleased the Legates of the patriarchal Sees; and, accordingly, *Theodulus*, Bishop of *Ancyra*; *Nicephorus*, Metropolitan of *Nice*; *Nicetas*, of *Athens*; *Nicephorus*, of *Damas*; and *Metrophanes*, of *Smyrna*, were sent to those Bishops, who refused to sign the Pope's *Formula*, which was presented to them, saying, that their Signature was not a Thing necessary; but went to the Patriarch *Ignatius*, and to the Emperor, and remonstrated to them, that they ought not to have suffer'd that the Church of *Constantinople* should become, in some Measure, the Slave of that of *Rome*. The Emperor, mov'd at that Complaint, order'd, that some of those who were appointed to serve the Legates, should steal the Signature, which was done accordingly, while the Legates were abroad. They complain'd of it to the Emperor, and remonstrated to him, that 'he had not done well to command that Theft; that it was beneath the Imperial 'Majesty to command a Thing which he would destroy afterwards, or to destroy what ought not to 'have been destroy'd: That if he had been in the 'wrong to consent to the Signatures, he should have 'shew'd publickly that he repented, and destroy what 'he had done, not in secret, but in the Assembly; 'and that if he had *had* any Reason to procure those 'Signatures, he was not to have consented that they 'should be stollen, and hidden: That as for their 'Part, they could not return to *Rome* without them; 'and for his, he should have no Merit for what he 'had begun to do for the Good of the Church.' The Emperor, mov'd at their Discourse, return'd the Signatures, and order'd them to present them to the Pope, that all those who had sign'd might be kept in their Duty.

The *fourth Session* began the 1st of the Ides of *October*,

October, and lasted two Days. The Patrice *Bahanes* said, that there were two Bishops consecrated by the blessed *Methodius*, call'd *Theophilus*, and *Zacharias*; who communicated with *Photius*, and said, that the *Roman* Church had receiv'd him; that therefore he desir'd that the Synod would be pleased to give them Leave to enter the *Council*, in order to proceed a-new to their Judgment. The Pope's Legates opposed that Demand, and deputed to them *Pancratius*, their Clerk, and *Ananias* Clerk of the eastern Legates, to ask them by whom they had been ordain'd, and with whom they communicated? They answer'd, they had been consecrated by *Methodius*, and communicated with *Photius*; which being reported to the Synod, all the Bishops cried, *Let their Portion be with* Photius; and were of Opinion, that they ought not, nor should be heard. But *Bahanes* would not be of the same Sentiment; on the contrary, he insisted that they should be heard, and said plainly, that 'neither he, nor the 'other Senators, whom the Emperor had sent to be 'present in the *Council*, would sign the Acts, until 'the accused Bishops and *Photius* had been convicted 'in their Presence, and reduced to the Impossibility of 'answering to what could be objected to them on their 'Condemnation by the *Roman* Church, that the only 'Means to confound them and pacify the World was 'to hear them.' All the *Greek* Bishops approved his Proposition, and said that their Opinion was that *Theophilus* and *Zacharias* ought to be examined, that if they could justify themselves they might be received, and if condemned, the whole World might approve their Condemnation. The Contestation on that Subject was very long, but at last the Pope's Legates consented that they should enter the Assembly, not to proceed anew to their Judgment, but they may hear the Epistle of Pope *Nicholas*, to which the Patrice *Bahanes* acquiesced. Being introduced in the Synod, they were asked if they would subscribe to the Formula sent from *Rome?* they answer'd, 'That they would 'not so much as hear it read, and that they were come 'to the Synod, because commanded by the Emperor, 'and were there only to obey him.'

The *fifth Session*, was celebrated the 13th of the Calends of *November*. The Emperor sent *Photius* to the *Council*; and when *Paul*, Keeper of the Charters, had informed the Assembly that he was at the Door, they were of Opinion to send Laicks to call him in, not judging it proper to send Bishops, which had been treating him as a Bishop, when as they considered him but as a Laick, excommunicated by the *Roman* Church. Accordingly five Laicks came to him, to whom he said, that he was surprized they called him then to the Synod, when they had never mentioned it to him before. That he was not come there of his own Accord; and afterwards made use of these Words of the *Psalm*, xxxix. 1. *I will take heed to my Ways, that I sin not with my Tongue.* That was reported to the Pope's Legates, who said, 'We have not called him 'here to learn something from him, but to end in his 'Presence the Persecution he had excited against the 'Roman and Eastern Church.' When introduced in the Council, he was asked 'if he received the Con-'stitutions of the *Roman* Church? To which he made no Answer. He was told, That his Silence would not hinder his Condemnation. To this he replied, neither could *Jesus* by his Silence avoid being condemned. God will hear my Voice, tho' I be silent. After which he could never be persuaded to answer any Question whatever. The Patrice *Bahanes* pressed him to speak, and to say what he could in his own Justification. But *Photius*, having compared himself all this while to *Jesus Christ* when traduced before *Caiaphas* and *Pilate*, answered, 'My Justifications are 'not of this World; if they were of this World, you 'would see.' The Patrice *Bahanes*, interrupting him, told him, 'We see that Confusion and Fear have made 'thee mad, and that thou dost not know what thou 'say'st; therefore the holy Synod gives thee some 'Time to think what thou art to do for thy Salva-'tion, and command thee to return again.'

The Emperor assisted at the *sixth Session*, celebrated the eighth of the Calends of *November*, where those called the Bishops of *Photius* were introduced, and excited even by the Emperor himself, who made a long Discourse full of Sentiments of Generosity, Humanity and Compassion, to submit themselves to the Synod, in order to be absolved of the Excommunication they had incurred. But all that was said made no Impression on them, and they continued obstinate.

The ten Days granted to *Photius* being elapsed, the *Council* met again with the Emperor the 29th of *October*. *Photius* having been forced to come to the Assembly, entered it, with *Gregory* of *Syracuse*. After he had been once more exhorted to Repentance, and found obstinate, the Deacon *Stephen* ascended the Pulpit, and pronounced, by the *Council*'s Orders, several *Anathema's* against *Photius* a Courtier and an Usurper: *Anathema to Photius* Laick, and a Lawyer; *Anathema to Photius*, Tyrant and *Neophites*; *Anathema to Photius* schismatick and condemned; *Anathema to Photius* Parricide, Inventor of Lies, and of perverse and pernicious Dogma's: *Anathema to Photius*, new *Maximus Cinick*; *Anathema* to the new *Dioscorus*, new *Judas*; *Anathema* to all his Partisans and Adherents; *Anathema* to *Gregory* Bishop of *Syracuse*; *Anathema to Eulampius*, deposed and schismatical; *Anathema*, &c.

In the *eighth Session* they began to speak of the *Counciliabulum* of *Photius*, and of the Signatures he had extorted; which were all burnt in the *Council*, by the Emperor's Orders, together with all the Writings against Pope *Nicholas*, and all the Acts of the Synod, and all the Sentences against the Patriarch *Ignatius*. Afterwards the Deacon *Stephen*, pronounced in the *Council* the *Anathema's* which the Pope's Legates had given him against the *Iconoclastes*, and extended them to all Sorts of Hereticks. '*Anathema*, to all those 'who receive the bad Reasons of the Heresy; *Ana-'thema* to those who use against the Images what 'the Scripture says against the Idols; *Anathema* to 'those who call Idols the sacred Images; *Anathema* to 'those who say that the Christians adore Images as 'Gods; *Anathema* to those who communicate with 'them; *Anathema* to those who offer the least Injury 'to Images; *Anathema* to those who say that besides 'our Lord *Jesus Christ* another had delivered us from 'Idols; *Anathema* to those who say that the Catholick 'Church has formerly received Idols; *Anathema* to '*Anastasius*, *Constantine*, and *Nicetas*, Patriarchs un-'der the *Isaurian* Emperors; *Anathema* to *Theodore*, '*Anthony*, and *John* who have succeeded one another 'in Impiety; *Anathema* to *Paul* turned *Saul*, to *Theo-'dore* called *Gasta*, to *Stephen Molata*, and their Par-'tizans; *Anathema* to *Theodore Christian*; who has 'no Reason thinks he speaks rationally; to *Laludius*, 'and all those either Bishops, Priests, or Monks, who 'have the like Sentiments, *Anathema*.' The eighth 'Session was ended by these *Anathema's*.

In the *ninth Session*, celebrated the Year following, the Eve of the Ides of *February*, were examined those who under the late Emperors, had served as false Witnesses against the Patriarch *Ignatius*, and most of them were ordered to do Penance for seven Years successively, reserving however (according to the antient Custom of the Church) the Power to the Patriarch *Athanasius*, to abridge the Time of their Penance.

The *tenth Session* was held the last Day of *February*, where the Embassadors of *Louis* Emperor of the West, and those of the King of the *Bulgarians* assisted. First they read the twenty-seven Canons which the *Council* had made for the good Order of the Church of *Constantinople*, and in favour of *Ignatius* against *Photius*.

The *Canons* and the *Decree* made by the *Council*, having been read, the Emperor *Bazil* asked the Bishops if they were all agreed, they answered, that those were their Sentiments; that they all consented, and were ready to subscribe to them; that it was the Judgment of the Truth, the Decree of Justice, and the ecclesiastical Ordinance. When they came to the Subscriptions the Pope's Legates wanted the Emperor to sign first, but *Bazil* said, after the Example of *Constantine*

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the Great, of *Theodosius*, and of *Marcian*, that he would sign after the Vicars of the Patriarchs, since it was the Pleasure of the Synod. The Patriarch *Ignatius* signed before the Vicars of *Alexandria*, *Antioch*, and *Jerusalem*, and after them all the Bishops in their Rank. There were five Copies made of the Acts of the *Council*: One for each Vicar of the Patriarchs. After these Subscriptions, the Emperor asked the Senate, the Patrices, and the Magistrates, their Sentiment of the *Council*. *Theodore Proconsul*, and all, after his Example, answered that they receive it as legitimate, and that they anathematized those it had anathematized.

This *eighth Council*, is received as œcumenical by all the Catholicks, and is rejected by the *Greeks* who are not conformed to the *Roman* Catholick Church, who in lieu thereof place the false *Council* assembled by *Photius*, after *Ignatius*'s Death. *Marcus* of *Ephesus*, in the *Council* of *Florence*, mentions this last *Council* instead of the first; and Cardinal *Baronius* complains that Cardinal *Julian* who disputed against him, had not strenuously enough defended that *Council*, which is very favourable to the *Roman* See: We have it in *Greek* and in *Latin*, the Library-keeper *Anastasius*, is Author of the last, and in his Copy there are several Things found which are not in the *Greek*; but notwithstanding, it cannot be suspected, because *Anastasius* was present at the *Council*, and has wrote nothing but what he was an Eye-witness to. Antiently the Popes in the Profession of Faith they were obliged to make before their Consecration, protested to acknowledge and submit themselves to the Decisions of the general *Councils*, among which this was one.

Note, that the other general *Councils*, were all convoked by the Pope, where he presided either in Person or by his Legates, and all assembled in the *Latin* Church, and of Prelates of the *Latin* Church, which considered then the *Greek* Church as schismatical.

The first of these *general Councils*, is the *first of Lateran*, assembled in 1119, under Pope *Calixtus* II. and *Hen.* V. Emperor of the *West*.

The *second*, is the *second of Lateran*, assembled in the Year 1139, under Pope *Innocentius* II. and the Emperor *Conrad* III.

The *third*, is the *third of Lateran*, under Pope *Alexander* III. and the Emperor *Fredericus Œnobarbus*.

The *fourth*, is the *fourth of Lateran*, in the Year 1215, under *Innocentius* III. and the Emperor *Frederick* II.

The *fifth*, is the *first general Council of Lyons*, assembled in the Year 1245, under Pope *Innocentius* IV. where the Emperor *Frederick* was deposed, and the Expedition for the Recovery of the Holy Land resolved upon.

The *sixth*, is the *second general Council of Lyons*, under Pope *Gregory* X. for the Union of the *Greeks* with the *Latins*.

The *seventh*, is the *general Council of Vienna*, under Pope *Clement* V. and *Philip the Fair*, King of *France*, where the Order of the Knights Templars was abolished.

The *eighth*, is the *general Council of Constance*, occasioned by a Schism in the *Roman* Church, where *Gregory* XII. abdicated freely.

The *ninth*, is the *general Council of Florence*, under *Eugenius* IV. for the Union of the *Greeks* with the *Latins*.

The *tenth*, is the *fifth general Council of Lateran*, begun in the Year 1511, under Pope *Julius* II. and ended in 1518, under *Leo* X.

The *eleventh* is that *of Trent*, convoked by Pope *Paul* III. in 1542, (*Charles* V. of the House of *Austria*, being then Emperor, and *Francis* I. King of *France*) by a Bull dated the 22d of *May*, in which, after he had exposed all that had been done during 24 Years for its Convocation, in order to determine the Points of Doctrine disputed for a long Time, with so much Scandal, and to reform the Abuses which had been introduced into the Manners and the Discipline, he admonishes all the Christian Princes, especially the Emperor, and the King of *France*, whom he treated with equal Marks of a paternal Affection, to send all the Bishops of their Dominions, and all others who have any Right to assist at it, for the first Day of *November* of the same Year. But it must be confessed that after having waited so long to convoke and begin that *Council* so often called for, a less favourable Occasion could not have been chosen to celebrate it: For the War between the Emperor and the King of *France* was carried on, then, not by a Motive of Glory, of Interest, or of Ambition, as before, but by a Spirit of Hatred and Animosity against one another; so that as there was no Security to travel either by Sea or Land; and that, afterwards, the Bishops of *France*, *Spain* and *Germany*, and even those of *Italy*, a little distant from *Trente*, were afraid to undertake the Journey; the Pope, after his Legates, had waited in vain more than six Months, was obliged to put off the *Council* to a more proper Time.

That Time was the 13th of *December* 1545, the third *Sunday* of the *Advent*. This *Council* was opened with all the Solemnities and Ceremonies used on such Occasions. Therefore after a Fast-day, and a general Procession, from the Church of the Holy Trinity to the Cathedral dedicated to St. *Vigilius*, Bishop of *Trente*, where the Sessions of the *Council* were held, after the Mass sung by Cardinal *Monti*, the first of the three Legates (who were the Cardinals *John Mary Monti*, *Marcellus Cervini*, called the Cardinal of the Holy Cross, and *Reginald Pool*, a Prince of the Royal Blood of *England*) after the Harangue pronounced by the famous *Cornelio Musso*, Bishop of *Bitonte*, and the Exhortation made by the Legates to the Fathers of the Council, to engage them to a serious Reformation of Manners; the first Session was celebrated, where there were with the Legates but four Archbishops, and twenty-four Bishops. There were no Ambassadors present but those of *Ferdinand* King of the *Romans*, those of the Emperor having remained sick at *Venice*, and those of *Francis* I. King of *France* having been recalled. There were besides at the opening of the Council four Generals of Orders, and several celebrated Doctors of all Nations. All that was done in this first Session was, to declare that the *Council* was begun, and that because the *Christmas* Holidays were near, the next Session would not be held till the 7th of *January* of the following Year.

However, the Fathers regulated among them the Manner how to proceed in that *Council*; and it was determined, that the Opinions should not be given by Nations, as it had been done at the *Councils* of *Constance* and *Basil*, which had caused a great deal of Disorder, but that every one in particular should have a free Suffrage or Vote; and that the Decisions should be made at the Plurality of the Votes, according to the Method used in the last *Council* of *Lateran*, under *Leo* X; that the Points in Controversy should be examined and resolved by Prelates distributed into several particular Congregations, which should be proposed afterwards in a general Assembly to be either corrected, or confirm'd; to be solemnly published in the Session, which should be celebrated after those Congregations. For the Title which was to be put at the Head of the Decrees, two Things were resolved, contrary to the Intentions of the *Lutherans*, (against whom this *Council* was assembled) and they were conceived in these Terms: *The holy œcumenical* Council *legitimately assembled under the Conduct of the Holy Ghost*; *the apostolical Legates presiding*. The *Protestants* wanted a *Council* absolutely independent of the Pope; and to shew that so regular a Body as a *General Council* ought to have the Members perfectly united to his Chief, who is (say the *Roman Catholicks*) that of the universal Church; they added these Words, *the apostolical Legates presiding*. The *Protestants* were of Opinion, that the Laicks should have their Suffrages in the *Council*, and for that Reason the Fathers would not add these Words, *the* Council *representing the*

the universal Church; which are found but in the *Councils* of *Basil* and *Constance*: For then the *Protestants* could, and perhaps would have objected, that as the Laicks were Members of the Church, they ought, likewise, to be Members of the *Council*, which represents that Church. Which Reasoning the *Roman Catholicks* consider as a Sophism; which, they say, can be easily destroyed by saying that the *Council* represents the Church, as teaching and defining by its Pastors, to whom the others are united by their perfect Submission to what is defin'd by those Pastors.

Therefore the second Session was held, with the usual Ceremonies, the next Day after the Feast of the *Epiphany*. The officiating Bishop read the Decree, prescribing a very Christian and edifying Form of Living for those who assisted at the *Council*.

In the *third Session*, celebrated the 4th of *February*, and composed of six Cardinals, six Archbishops, thirty Bishops, and several Abbots; they read only the Symbol of *Constantinople*, and, to wait the Arrival of the Bishops who were upon the Road, the 8th of *April* was fix'd for the 4th; where assisted nine Archbishops, and forty-one Bishops. And as, during that long Interval, they had examin'd in the Congregations held twice a Week, what concern'd the true Word of God, which is the Rule, and the only Principle of the Faith, they establish'd, according to the antient *Councils*, *the Number of the canonical Books, both of the Old and New Testament, and the Traditions, brought by a continual Succession from the Apostles to those Times*; *and which the* Catholick *Church* (said they) *has carefully preserved, either for the Faith, or Manners*. It was declar'd, that *the vulgate Version should be believ'd authentick, and the Sense of its Words taken as understood by the Church, which in the Disputes which can be had on that Subject, is the only legitimate Judge of the true Sense of the Scripture*. This Definition was against *Luther*, who wanted no Tradition, nor some of those Books which the *Council* had declar'd canonical, which he rejected because they condemn'd his Doctrine; nor other Judge of the Scripture but the Scripture itself, or rather himself, who pretended, that the Sense he gave to the Scripture, should always be consider'd as its true Sense.

Afterwards, as the *Council* wanted to follow the Order of the Confession of *Augsbourg*, which was carefully examined, they defined in the fifth Session, held the 17th of *June*, what was to be believed with Regard to the original Sin. Upon which, the *Council* declares, among other Things, that *by the Grace of* Jesus Christ *conferred on us in the Baptism, that Sin is remitted to us, but that the Concupiscence remains, which is not a real Sin, though that Name is often given to it, which is no otherwise convenient to it, than because it is the Effect of the Sin, and inclines us to it*. This condemns *Luther*'s Opinion, who maintain'd, that the original Sin had not been blotted out in the Baptism, but only that it was no longer imputed to us; because he will have that Sin to be no other but the Concupiscence. After which, the *Council* adds, that *in that Decree which related to the original Sin, they do not pretend to include the blessed and immaculate Virgin* Mary, *Mother of God*; *and that they will have the Constitutions of* Sixtus IV. *religiously observ'd*.

The *sixth Session*, which was fix'd for the 19th of *July*, was deferred to the 13th of *January* of the Year following, because of the Troubles which begun, at that Time, in *Germany*; which was held accordingly, and in which was publish'd the famous Decree of the *Justification*, which the Fathers had been more than six Months examining, and which contain'd sixteen Chapters relating to that important Subject.

In the *seventh Session*, celebrated the 3d of *March*, 1547; was publish'd the Decree of the Sacraments in general, containing thirteen Canons. There were also fourteen Canons publish'd on the Baptism, and three on the Confirmation.

In the *eighth Session*, held the 11th of the same Month, was made the Decree of the Translation of the *Council* to *Bologna*, which Translation prov'd very favourable to the *Lutheranism*, and hinder'd its entire Ruin, as we shall see plainly by the Sequel.

The Pope's Legates, *Monti*, and *Marcellus Cervinus*, who presided for him in the *Council*, had been more than eight Months endeavouring to procure this Translation, for some Reasons which they thought very strong, and which, in Fact, made a great Impression on several of those who composed that Assembly. For, 1. As soon as they saw the War declar'd between the Emperor and the *Lutheran* Princes, and that these having took the Field first, had already render'd themselves Masters of the Fortress of the *Chusa*, which is the Key of the Vallies, thro' which one can enter on that Side into the *Tirol*, and hence descend easily as far as *Trent*; they thought they could be no longer secure in that Place, and that it was no ways for the Dignity of the *Council* to remain thus exposed to the Discretion of the *Lutherans*, who could surprize the Fathers unawares, and invest them, when least expected, in a City very little fortified, and where there were no Forces capable to resist them. These Considerations, join'd to a panick Fear had already persuaded several of them to seek their own Safety in a Retreat from *Trent*; therefore the Legates, fearing, that if the *Council* was not transferr'd to some other Place, it would soon break of itself, which would be losing the Fruit of what had been done till then, and of so much Pains taken from so long a Time, to find Means to assemble that *Council*, as it had been done; made them still the more urgent on that Subject.

There was another Reason for it, which was kept secret, still stronger than any other, and that was, the Pope's great Age; and the Legates were afraid, that if he was to die while the *Council* was assembled at *Trent*, that Assembly which would have then, without Contradiction, the supreme Authority in the Church, and be supported, besides, by the Emperor, and the other Princes, would have no Regard to that Article of the Bull of Convocation, which declares, that it does not belong to the *Council* to elect a new Pope, but to the Cardinals; and would elect a Pope to the Prejudice of the sacred College: Therefore they wanted to transfer the *Council* into some of the Territories of the Church, where they could be Masters, and not be divested of a Right they were possessed of for several Centuries past.

The Pope, however, notwithstanding all these Reasons, opposed, for some Time, that Translation, which he saw would disoblige the Emperor. In Fact, that Prince was so surpriz'd, and altogether so irritated, when he learned from his Ambassadors what was transacting at *Trent*, and at *Rome*, to have the *Council* transferred somewhere else, that he could not help saying, in his Anger, that if he was to hear any more so unreasonable a Thing mentioned, he would immediately grant to the *Protestants* what they desired of him. He went even so far, in that furious Transport, as to break into Menaces beneath a great Prince. But having soon recovered his former Calmness, he said, at last, that having been advised to treat with the *Protestants* who were come to attack him with an Army of more than 100000 Men, while his own was not 20000; he would, notwithstanding, pursue that War, which he had undertaken (said he) but for the Glory of God, and the Good of *Germany*; but, however, that he would oppose that Translation, which would ruin absolutely all he had done till then, and what he designed to do to bring back the *Protestants* to the *Catholick* Church, by making them, if possible, to submit to the Decisions of the *Council*, which he could not do if it was transferred somewhere else.

Afterwards, his Ambassadors acted with all the Vigour imaginable, at *Trent*, and at *Rome*, to oppose that Translation, which, he said, would break all the Measures concerted for the Reduction of the *Lutherans*. They refuted, without much Pain, all the Reasons alledged for the Translation of the *Council*, said so many Things against it, and could so well understand that the Emperor would never suffer it, that

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tho' the Pope, who, in the Opinion of a great many, desired as much that Translation as his Legates, had not only consented to it, but had even commanded to publish it, in Case the greatest Part of the *Council* had consented to it, to avoid a greater Evil; and the Sticklers for it did not dare to proceed any farther, especially when they saw that the Emperor, after he had dissipated that great Army of 100000 Confederates, had given Room to hope, more than ever, that the *Protestants* should be obliged at last to submit to the *Council*.

Thus the Legates, seeing no Hope of succeeding in that Affair of the Translation, which, however, they always desired, took, at last, the Resolution, in the Month of *December*, to have the *Council* concluded as soon as possible, by the quick Decision of the other Points which remained to be explained. This was certainly the best Party which could be taken on that Occasion; because, as it was not necessary that *Councils* should last too long, there had been thereby avoided those long Interruptions of that *Council*, and those great Revolutions which happened in the Affairs, and which hindered, at last, the Re-union of the *Lutherans*, as the Emperor, then victorious, could have done it. But by Misfortune it happened, a few Days afterwards, an Accident, which ruin'd entirely that fine Project formed by the Legates, and gave them a very specious Pretence to make their Project of the Translation of the *Council* succeed.

This Accident was, that towards the latter End of *February* of the Year following, the City of *Trent* began to be afflicted with a dangerous Malady, which was thought the Spotted Fever, with some Appearance that it would soon turn into a Plague. It even happened, that the General of the Order of the *Cordeliers*, or Grey Fryars, died of that Malady, and was soon followed by a Bishop, carried off in a very short Time, as he had been; and by some of the Retinue of the Prelates, who were so alarmed at it, that several of them were ready to leave the *Council*. Then the Legates, taking Advantage of so favourable an Occasion, brought again on the Tapis the Affair of the Translation of the *Council*, which they judg'd absolutely necessary for the Good of the Church; and without waiting for new Orders from the Pope, they proposed the Affair the 9th of *March*, in full Assembly; where, after they had spoke of the Danger the Fathers were exposed to, on the Attestation given by the celebrated *Jerome Fracastor*, Physician to the *Council*, that twelve Bishops had already left *Trent* on that Account, and that several others were ready to follow them, they protested that they would take, by the Plurality of Voices, what Party should be judged the most proper, provided there was no mention made of dissolving the *Council*. Then Cardinal *Pacheco*, Chief of the Imperialists, maintain'd, that nothing could be concluded on that Point, without knowing first the Pleasure of the Pope, and of the Emperor; fifteen of the Fathers were of his Sentiment, but almost all the others, without Hesitation, said, with one Voice, that the extream Danger of their Lives they were in, would not permit them to wait for that Consent, if otherwise it was necessary; and all the Cardinal could obtain, was, that they should defer making the Decree for two Days longer.

The next Day they met again, to deliberate on the same Affair; and the following, which was the 11th of the Month, was celebrated the *eighth Session*; where, after the Cardinal *Monti* had remonstrated that the Suspension of the *Council*, which had been proposed by some, was nothing else, in Fact, but a Dissolution of it, which could not subsist, but by its being transferr'd to a commodious Place, as was the City of *Bologna*. The Cardinal *Pacheo*, and the *Spaniards*, employ'd all their Rhetorick to oppose it, but in vain; for they were answer'd, that an indispensible Necessity, which has no Law, and the imminent Danger they were in, obliged the *Council* to transfer themselves somewhere else, lest it should be dissolved, by the pretended Suspension proposed. And tho' the Cardinal and the *Spaniards* protested that they were determin'd to not leave *Trent*, where, by themselves, they would compose a legitimate *Council*, the others proceeded farther, and of fifty-six Prelates who were then in the *Council*, thirty-eight having voted for the Translation to *Bologna*, against fourteen who rejected it, and four others, who appear'd neither for, nor against it; a Decree of that Translation was made, in which it was inserted, that the ninth Session, which was the next, should be celebrated at the Day fix'd, *i. e.* the 21st of *April*. In Consequence of that Decree, the Day following, which was the 12th of *March*, two Years after the *Council* had began at *Trent*, the two Legates, with all the Prelates of their Party, departed for *Bologna*; but the Imperialists, with the Cardinal *Pacheco*, remain'd at *Trent*.

This had certainly caused a Schism in the *Roman Catholick* Church, if the Emperor had not prevented it by his Prudence and Piety, which hinder'd him, on that Occasion, from being revenged, to the Prejudice of the Church, of the Injuries he thought he had received. It is true, that he order'd his Bishops to stay at *Trent*, according to their former Resolution; but he forbad them celebrating any Session, because he was not willing that a greater Scandal should be made in the Church, where there had been seen two *Councils* for one, and Altar against Altar: But, however, he did all he could near the Pope, to oblige him to restore Things to their former State. In Fact, he no sooner heard the News, than he dispatch'd a Courier to his Ambassador at *Rome*, with Orders to make, from him, the most pressing Instances near the Pope, to engage him to send his Legates back again to *Trent*; but as he saw that he receiv'd no other Answer but very polite Excuses, founded, most of them, on the pretended Malady raging at *Trent*; and that he had been well inform'd that *that* Malady was not attended with any dangerous Consequences; he thought they gamed him: And as nothing is more sensible to a great and victorious Prince, as he was then, than the least Shadow of Scorn; he enter'd, all of a sudden, in such Wrath, that he banish'd the Pope's *Nuncio* from his Presence; telling him, that *Rome* had been proposed to assemble a *Council*, *Non mauchera Concilio che sodisfaccia à tutti erimedi al tuto. Il Pape è un vecchio ostinato è vuol ruinar la Chiese*; *i. e.* that he knew how to go to *Rome* when he pleased, to have a *Council* celebrated there; that he would order every Thing; and that the Pope was an obstinate old Man, who wanted to ruin the Church.

The Death of the Pope terminated those Disputes between him and the Emperor, and nothing was done while they lasted, either at *Trent* or *Bologna*, than to prolong the Time for making a new Decree; and the *Council* was even suspended for some Time: So that the Translation produced nothing else but that the *Council*, which could have then acted so well for the Good of the Church, was interrupted for very near four Years, and afterwards re-assembled at *Trent* by Pope *Julius* III, with the Consent of the Emperor, and of the King of *France*, *Henry* II. The Bull of its Restauration was publish'd in the Month of *November*, of the Year 1549; the Cardinal *Crescentius*, with an Archbishop and a Bishop, were chosen Presidents; and the 1st Day of *May* of the Year following, in the first Session under *Julius* III, and the 11th of the *Council*, was read the Decree of that Restauration at *Trent*.

In the *twelfth Session*, held the 1st of *September*, as a greater Number of Prelates were expected, nothing else was done, but the Intimation of the twelfth Session for the 12th of *October*; in which, according to the Order of the Decrees already made on the Sacraments, before the Translation of the *Council*, would be publish'd that made on the Eucharist.

During the whole Month of *September* were carefully disputed the Points in Controversy on the Eucharist; after which, the 12th of *October* was celebrated the *thirteenth Session*; where, besides the Presidents and the Cardinal of *Trent*, were present the three

three ecclesiastick Electors of the Empire, six other Archbishops, and thirty-six Bishops; and there was read the Decree of the *Eucharist*, whereby it is defin'd against the Sacramentarians, (as they were call'd) *the real Presence of* Jesus Christ *in the holy Sacrament of the Altar.* Against the *Lutherans*, *the Transubstantiation, the Adoration of the Host, the Presence of* Jesus Christ *out of the Use of the Sacrament, which may be kept to be carried either in Procession, or to the Sick; and the necessary Preparation to receive it worthily by a sacramental Confession of the mortal Sins.* They would define nothing, either of the Communion under both Kinds for the Laicks, or of the Sacrifice of the Mass, till the fifteenth Session, which was appointed for the 25th of *January* of the Year following; that the *Protestant* Theologians, who were much concern'd in these two Points, and to whom a very ample *Safe-conduct* was given, might have Time to come to the *Council:* In the Interim, the fourteenth Session was held, the 25th of *November*; in which was exposed the *Catholick* Doctrine relating to the Sacraments of *Penitence*, and of the *extreme Unction*; that of Penitence in nine Chapters, which contain *the Necessity and Institution of that Sacrament*; *its Difference from the Baptism*; *its three Parts*, viz. *Contrition in general, under which Attrition, joined to the Sacrament, is comprized: Afterwards, the Confession of Sins*; *lastly, the Satisfaction.* It was also declared, *who is the Minister of that Sacrament*; *which must be the Form of the Absolution*; *and the Power of the Church to reserve certain Cases.* And as to what they wanted to be believed of the extreme Unction, it was proposed in three Articles, which contain *its Institution, its Effects, and its Minister.* All this against the Doctrine of *Luther.*

Moreover, as the Emperor insisted always that the *Protestants* should send their Theologians to the *Council* to propose their Reasons in Defence of their new Doctrine, there came Ambassadors from the most considerable among the *Lutheran* Princes, and from some imperial Cities. Those of the Elector of *Brandenbourg* arrived first, at the Beginning of *October*; they were follow'd towards the latter End of the same Month by those of the Duke of *Wittemberg*, and these by the Historian *Sleidan*, (the same who has wrote the History I have now before me, in Favour of his Friends the *Lutherans*, with much Politeness, and very little Sincerity) who came to the *Council* in the Month of *November* with some Ministers from the Cities of *Strasbourg*, *Estinghen*, *Ravensbourg*, *Biberack*, *Rutlinghen*, and *Lindau*; but the Ambassadors of the Duke *Mauricius*, new Elector of *Saxony*, who were chiefly expected, arriv'd but the 7th of *January* of the Year following: For those of the Elector of *Brandenbourg*, as they were sent by their Master, on no other Account than to shew his Obedience to the *Council*, they did not wait for the others, and they were heard the 12th of *October*, in the thirteenth Session, where *Flavius*, famous *Jurisconsultus*, Chief of that Embassy, speaking of Pope *Julius*, called him (says *Palavicini*, *l.* 12. *c.* 9.) *sovereign Pontiff of the holy and universal* Roman *Church*; and concluded his Harangue with these Words, *The holy* Council *must not doubt that the most illustrious Prince Elector will religiously and sincerely observe all that this holy Assembly will be pleased to order, as a* Christian *Prince, and an obedient Son of the* Catholick *Church is obliged to do. What the holy* Council *may know by this authentick Order, we have from our Master.* Thus spoke, by his Ambassador, *Joachim* II, Elector of *Brandenbourg*; acting in this either sincerely, as may be presumed of a Prince, who had a great deal of Honour and Probity; or, as *Sleidan* writes it, only to engage the Pope to approve the Election, which the Canons of *Albertstadt*, and of *Magdebourg*, had made of Prince *Frederick* his Son, for their Bishop. For to pretend, with the scandalous *Fra. Paolo*, that it was but a pure Civility of the Elector, (which the *Council*, who was glad to take Advantage of the least Things, took for an authentick Act) it would be a Sort of *Paolian Malice*, without Wit; since one would be exposed to be convinced of Falshood by the clear and formal Terms of the Harangue of the Ambassador.

As for the other Ambassadors, especially those of the Duke *Maurice*, they behav'd in a quite different Manner; for it seem'd as if they had enter'd the *Council* but to insult it, and to declare that they would never submit to it. However, they were treated with a great deal of Honour, and receiv'd all Sorts of Favours even by an express Command from the Pope, who said, that *a good Father ought to suffer something from his Children, to bring them gently to their Duty.* Therefore they were heard in the general Congregation of the 24th of *January*, Eve of the Day appointed for the fifteenth Session. There they made their Proposals, several of which shew'd clearly, that they did not want a *Council*, contrary to what they had promised in the last Diet of *Augsbourg*; for they insisted on Things which they knew perfectly well had been always refused to them, and which would never be granted, since they were contrary (say the *Catholick* Authors) to what had been observ'd in all the *œcumenical Councils*; for they wanted not only that it should be declar'd first, according to the Decrees of *Bazile* and *Constance*, that the *Council* was above the Pope, which was renewing a Quarrel which was not in Question then; but pretended, likewise, that *the Pope being their Party, against whom they had several Things to say, he could not be Judge in that Cause*; *that all that had been done in the* Council *till then, should be disregarded, and that the Points of Doctrine which had been defined, should be examined a-new*; *that the Bishops should be absolved of their Oath to the Pope, that they might give freely their Advice*; *and that the* Protestant *Theologians who would come to the* Council, *should have the Right of Suffrage, as well as the Fathers.*

As these Conditions were supposed to be manifestly contrary to the Practice and Custom of the Church, and against the Nature of *Councils*; they were given to understand, that they were contrary to what themselves had proposed when they had asked at *Augsbourg* the Continuation of the *Council* at *Trent*, which presupposed that it was then a legitimate and universal *Council*, in the State it had been in before. Afterwards they were granted two Things they had ask'd, *viz.* a *Safe-conduct* for their Theologians, still more ample than the first; and that the Publication of the Decrees already made for the next Session, should be deferr'd; that their Doctors, who had not yet the Safe-conduct they had ask'd, should have Time to come to propose what they had to say against those Articles. Therefore, in the fifteenth Session, celebrated the Day following, there were but those two new Decrees made of the Safe-conduct given to the *Protestants*, and of the Prorogation granted to them to the 19th of *March*, which was again since extended to the 1st of *May*, when the Decrees relating to the *Sacrifice of the Mass*, and to the Sacraments of *Order*, and *Marriage*, were made. In that Interval, the Catholick Doctors worked in several Congregations to the Explanation of the last, to form of it the Decrees which were to be proposed to the *Council* in the sixteenth Session.

This Conduct displeased the *Protestant* Ambassadors, who pretended that *that* Examen should be deferred till the Arrival of their Theologians. They complain'd of it to *Charles* V, who wish'd that they should be satisfied particularly on this Point, which he judged reasonable. He wrote about it to his Bishops, and ordered them to endeavour to have those Congregations suspended, and, in Case of Refusal, to protest against them for him. The Pope, on his Side, believing that it was against the Dignity of the *Council* to remain so long in Inaction, commanded, that after having interrupted, for some Days only, those Congregations in which nothing was done but examining the Points of Doctrine, without deciding any Thing, they should proceed as they had began; and as, besides the Presidents, and the Cardinal *Madrucius*, there were then at *Trent* sixty-two Bishops, most of them

them Subjects of the Emperor, and 42 *Theologians*, among whom were reckoned, 25 *Spaniards*, and 12 *Flemish*, there had perhaps happened a great Division in the *Council*, if that Contestation had not been all on a sudden terminated, by the Revolt of the new Elector of *Saxony* against the Emperor *Charles* V. his Benefactor; which obliged the Pope to suspend once more the *Council*, which could not be re-establish'd nor in his Time, nor in that of the two following Popes his Successors.

But 10 Years afterwards, at the pressing Instances of the Emperor and of the Kings of *France* and *Spain*, it was convoked anew by the Pope *Pius* IV. who after he had invited all the Princes of *Europe* both Catholicks and Protestants, to the *Council*, and named for his Legates the Cardinal *Hercules Gonzague*, Bishop of *Mantua*, a Prince of an extraordinary Piety, profound Doctrine, and consumate Prudence, and *Jerom Seripand*, Bishop of *Salerna*, commendable for his eminent Virtues and marvellous Eloquence; the *Council* was assembled in 1561, but as there were then but nine Bishops arrived at *Trent*, the *first Session*, under *Pius* IV. and the 17th ever since the Beginning of the *Council*, was celebrated but the 18th of *January* of the Year following 1562. In this Session nothing else was done but the reading and approving the Decree by which it was declared that the Prorogation of the *Council* was taken off, that that Day it was opened, and that henceforwards they would treat in it of what the *Council* should judge proper and necessary to appease the Differences in Points of Religion, to correct the Abuses and Depravation of Manners, and to restore Peace to the Church.

The 26th of *February*, was held the *eighteenth Session*, and the second under Pope *Pius* IV. where was read the Decree, in which it was order'd that there should be made by Deputies appointed for that Purpose, the *Index*, or Catalogue of the prohibited Books, which however was not published during the *Council*, for Fear of irritating the Protestants, who would have seen themselves condemned in their Works. They are also invited anew in that Decree to come to the *Council*, and they are offered a safe Conduct, as ample and as secure as could have been wished, not only for the *Germans*, but likewise for all the other Nations.

Before the Celebration of the nineteenth Session, fix'd at the 14th of *March*; there happened a very great Embarras, out of which the Fathers had a great deal of Pains to extricate themselves. The *Spanish* Ambassadors and all the *Spanish* Bishops, according to the Order they had received from King *Philip*, who was then angry with the Pope because he had give Audience to the Embassadors of the King and Queen of *Navarre*, asked that it should be declared formally in that Session, that this *Council* was but a Continuation of that begun under Pope *Paul* III. and continued under Pope *Julius* III. On the contrary the Embassadors of the Emperor protested, that if such Declaration was made, they would leave immediately the *Council*, because they could never suffer that such an Affront should be made to the Emperor their Master, that that Term *Continuation*, offensive to the Protestants, should be put in the Bull. During this Dispute, the Fathers received Letters from the Lord *de Lansac* Chief of the Embassy which the King of *France*, *Charles* IX. was sending to the *Council*, in which he desired them to defer the Session till his Arrival. This gave Time to find Means to terminate that troublesome Contestation. But however to do nothing contrary to the Honour and Dignity of the *Council*, the Session was not deferred; for it was held the Day appointed, but it was only declared in it, that for some just Causes nothing should be decided of what was to be defined but in the next Session, which was fixed for the 9th of *June*.

But all this long Delay proved to be to very little Purpose; for the Lord *de Lansac*, and his two Colleagues, the *President Ferrier*, and the *Sieur de Pibrac*, who arrived in *May*, rendered the Embarras still greater: For they not only asked, like the Imperialists, that it should not be declared that that *Council* was but a Continuation of the preceding one; but would likewise, that it should be positively declared that it was a new *Council* quite different from that celebrated under the two other Popes; for *otherwise* neither the Protestants of *Germany*, nor those of *France* would ever acknowledge it; which would be an Obstacle to Peace, which the *Council* pretended to restore to the Church. To this the Legates answered, that *the holy Council having been assembled by the Consent of all the Christian Princes, according to the Pope's Bull, which said only, that all Suspension having been taken off, it should be opened such a Day, they had no Power to change any thing, much less to make a new Indiction.* To which the Embassadors of *France*, after they had conferred about it, with those of the Emperor, acquiesced at last, for Fear that if they had contested any longer with the *Spaniards*, who desired the contrary of what they asked, they should never agree with the Legates, and thereby hinder the Celebration of the *Council*.

And because they had asked likewise, that the *Council* should defer deciding any Point of Faith, till the Protestants, who were to be heard, had proposed their Reasons, and, the Bishops of *France* were arrived; in the Decree made in the twentieth Session, held the 4th of *June*, the Decision which was to be made, was postponed to the 16th of *July*; and moreover, because the Embassadors of the Emperor, those of the Duke of *Bavaria*, those of *Hungary* and *Bohemia*, and those of the King of *France*, insisted that the Communion under both Kinds should be permitted, which could much contribute towards bringing back the Protestants, that Affair was seriously examined during six Weeks in the several Congregations which were held on that Subject.

They all easily agreed that the Use of the Cope was not necessary to Salvation; and that *Jesus Christ* had not at all ordered it to those who do not consecrate; that both Kinds were necessary for the Sacrifice, but not for the Sacrament, and that the Church, for some just Causes, could have forbidden the Cope to the Laicks, it being certain that *Jesus Christ* is entire under one Kind, as well as under both; which had been already defined in the *Council of Constance* against the *Hussites*; but they could not agree on the other Point, which was that chiefly in Controversy, *viz.* if in the present State of *Christendom*, it was not expedient that the Church, which had, in former Ages, permitted to all the Faithful, without Distinction, to communicate under both Kinds, and which had since forbid it to the Laicks, for good Reasons, should permit it anew, if not to all, at least to those People, who asked so earnestly for it. The *Spaniards*, whose Advice was followed by almost all the Bishops and Doctors, maintained strongly, *that the Cope ought by no Means to be granted, because the Reasons for which the Laicks had been deprived of it, subsisted still; that if the Protestants asked for it, it was only to have Room, after it had been granted to them, to accuse the Church of having erred in forbidding it; and to say that finding that she had failed in that, she had corrected herself; that that Point once obtained, they would not return sooner to the Church, but on the contrary, grow more insolent, and insist that she should change all her other Customs, and even all the Points of Doctrine, they had the Impudence to condemn: and lastly that it belonged to her, and to her only to judge what it was* apropos *to permit or forbid, and that it behoved all Christians to submit themselves to her Decisions.*

The others, on the contrary, said, that *the Cope ought to be permitted, not to Protestants only, but likewise to all the Catholicks of the septentrional Countries, who wished for it; that the Church, as a good Mother, should condescend in that to the Infirmity of some of her Children, that it should not be said that the Peace has been hindered because we have used a too great Severity towards our Brethren in refusing to them a Thing which was good in itself, which so many Princes ask for, and which had been heretofore granted, even after it had been forbidden, and that there was nothing to fear in that, provided it should not been granted but on the same Conditions, which had been required then, and that it should be confessed, that*

that it was not a Thing of divine Right, and that Jesus Christ being entire under a single Kind, the Use of the Cope was not necessary to Salvation, or to all Christians.

After all these Disputes, was published in the twenty-first Session, of the 16th of *July*, the Decree in which it is declared, *that the Laicks and Clercks, who do not consecrate, are not obliged of divine Right to communicate under both Kinds, and that it is of Faith, that one Kind alone, suffices to Salvation: That in the Dispensation of the Sacraments, the Church had always the Power, saving the Integrity of their Essence, to establish or change what she pleased, according as she judges it more proper for the Respect due to Sacraments, and for the Utility of those who receive them, with Regard to the Diversity of Times, Places, and Conjunctures: That therefore having approved the Use of communicating under one single Kind, established in Process of Time, in several Places, and having made a Law of it, it is not licit for any body to make any Alteration in it, without the Authority of the same Church.* Further, *that* Jesus Christ *being entire under one Kind, those who receive him under one Kind are not deprived of any Grace necessary to Salvation.* Lastly, *that Children who had not yet the Use of their Reason, are not obliged of any Necessity to the sacramental Communion, tho' it has been heretofore administred to them in several Places.* And as to the Leave asked for some People, to communicate under both Kinds on certain Conditions, the *Council* declares, *that they postponed to another Time, and to the first Opportunity which shall offer, to pronounce on that Subject after it has been carefully examined*; though the *Council* could never accomplish that Promise; for as the Pope and the Bishops wished that it should be ended soon, the Legates persuaded the Imperialists, who insisted strenuously on that Point, that it was their Interest that the *Council*, where the Majority was not favourable to them in that, should refer the Decision of that Affair to the Pope, with whom they could treat with some Hope of Success.

Therefore, without insisting any longer on that Matter, they examined that of the Sacrifice of the Mass; which Examen lasted three Weeks; at the End whereof, in the twenty-second Session celebrated the 17th of *September*, was read the Decree where these nine Articles are defined, *that* Jesus Christ, *Priest, established from all Eternity according to the Order of* Melchisedech, *instituted the unbloody Sacrifice of the Eucharist, at his last Supper, where he offered to God the Father his Body, and his Blood, under the Kinds of the Bread and Wine; that that Sacrifice which represents every Day, that of the Cross, is propitiatory for the Living and the Dead; that it is offered to God alone, sometimes in Honour and Memory of the Saints; that there is nothing in the Canon of the Mass, but what is pure, and smells of Piety; that the Ceremonies with which it is celebrated, are very holy; that the Masses where the Priest alone communicates sacramentally, are, notwithstanding common, because celebrated by a publick Minister of the Church, not only for himself, but likewise for all the Faithful, who are Members of Christ's Body; that the Mixture of Water and Wine made in the Chalice, is ordered by the Church to represent the Water and Blood, which flowed from the sacred Side of Jesus Christ; that it is not expedient that the Mass should be recited in the vulgar Tongue, but that the Pastors, and those who have Care of Souls, must explain, or cause to be explained by others, in the middle of the Celebration of the Mass, something of what is read in it; and some of the Mysteries of that most holy Sacrifice, especially on* Sundays *and holy Days.* Lastly, after the Decrees for the Reformation of Manners and the Discipline were made according to Custom, the Session was terminated by the Indiction of the twenty-third Session for the 12th of *November*: But they were obliged afterwards to postpone it further to the 12th of *July* of the Year following, because of two Contestations which happened at that Time, and which were these.

The Emperor *Ferdinand*, and *Charles* IX. King of *France*, seeing plainly that the Protestants of *Germany* and *France*, would always take for Pretence of their Refusal to submit themselves to the *Council*, the pretended Tyranny of the Pope, which hinder'd it from being a free *Council*; and the Corruption of the Court of *Rome*, which, they said, was very visible, and for which they wanted the Pope judg'd, and not to be Judge, thought it was absolutely necessary that the *Council* should procure a thorough Reformation, to take off that Pretence, that they could, at last, determine themselves to acknowledge the *Council*, and submit to its Decrees. In that Persuasion, the Emperor who was come as far as *Inspruck*, saying, that on that Account, he would go, not only to *Trent*, but even as far as *Rome*, caused to be presented to the *Council*, a long List of the chief Articles of the Reformation, and was preparing some others, among which there were some that were a little contrary to the pontifical Authority. The Cardinal of *Lorain*, who was expected, arriving at that Time, with a large Retinue of Bishops, Abbots, and *French* Theologians, to assist at the *Council*, exhorted, first, the Fathers, in full Assembly, to procure so necessary a Reformation; and some time afterwards, presented by the King of *France*'s Order, thirty-four Articles, on which it was ask'd, that the Abuses which had crept into the Church should be reform'd. After which he went to *Inspruck*, to confer with the Emperor about the Means to make an Enterprize so holy and so necessary succeed.

On the other side, the Pope, who was not willing to suffer that his Authority should be attacked, maintained, *That it belonged to him alone, to reform what was amiss in the Court of* Rome: *That there was no Reason to complain that he had not done it, since he had published lately several Constitutions, by which he had reformed all that could be found amiss in all the Tribunals of* Rome, *in all the Offices of the Chancery, of the Apostolical Chamber, of the Datary, of the* Rota, *and of the pontifical Palace; and in the Distribution of Favours, Privileges, and Indulgencies; and lastly, that he would always shew the same Zeal in all that could be reasonably expected from him.*

While they were employ'd on that Subject, there happen'd another Dispute much more dangerous, in consequence of an Enterprize, unwarrantable, and unheard, ever since so many Centuries till then, by which the Count of *Luna*, Embassador of the King of *Spain*, dared to dispute of Equality with the Embassadors of the King of *France*; who declared publickly, that they would leave the *Council* with all the *French*, and protested of Nullity of all that could be done in it, if that Count refused to take beneath them, in the Rank of the Embassadors, the Place which his Predecessors, in the same Employment, had always occupied in the other *Councils*; but they desisted at last from their former Resolution, in consenting that he should have a particular Place a-part from the Rank of the Ambassadors; a Conduct which was much blamed in *France*, and elsewhere. It is true, that the Pope, the Year following, after the Conclusion of the *Council*, pronounced in Favour of the King of *France*, in declaring solemnly, that his Embassadors ought to precede those of the King of *Spain*, who then disputed not only the Equality, as they had done in the *Council*, but even the Precedency. But however the *Spaniards* would never acquiesce to so just a Judgment, till *Louis* XIV. forced them to it, in obliging them not only to dispute no more the first Place to his Embassadors, but to confess likewise, as they have done by an authentick Act, that it was due to them, every where where they should meet together.

But as that Contestation was appeased during the *Council*, till it should be provided for otherwise; the Emperor and the King of *France* having at last listen'd to the Reasons of the Pope, spoke no more of Reformation, on which they had so strongly insisted, and the Cardinal of *Lorain* had appeased by his Dexterity several Differences happening between the Bishops on other Things, which could have retarded the Conclusion of the *Council* so much desired.

The *twenty-third Session* was celebrated the 15th of *July*,

July, in which, besides the Legates *Hosius* and *Simonetta*, presided the Cardinals *Moronea* and *Navagari*, after the Death of the Cardinals of *Mantua* and *Seripand*, who died at *Trent* three or four Months before. There was defined what was to be believed of the Sacrament of the Order in four Articles, where it was declared, *That* Jesus Christ *has given to his Apostles, and their Successors in the sacerdotal Office, the Power to consecrate, and to offer the Sacrifice of the Eucharist, and to remit and retain Sin; that there have been in all Times in the Church seven Orders, some greater than the others; that it being undubitable by the Scripture, and by apostolical Tradition, that the Order conferred gives Grace, it cannot be questioned afterwards that it is an Order; that as that Sacrament, as well as Baptism and Confirmation, imprints a Character which can never be blotted out, it cannot be maintained without an Error, that those who have been once legitimately ordained, can become Laicks again, if they cease exercising the Ministry of the Word of God. That all Christians are not Priests, but those only who are ordain'd by Bishops, as well as by the true Successors of the Apostles, who are Superiors to Priests who have not, as they have, the Power of conferring the Confirmation and the Order; that the Consent of the People, or of the secular Power, is not necessary for Ordination; and that on the contrary, those who presume to exercise the ecclesiastical Ministeries, by the single Will of Seculars, without having received the Grace of Ordination, are Thieves and Robbers.*

In the *twenty-fourth Session*, which was postponed from *September* the 16th, to *November* the 11th, the Cardinal of *Lorain* being returned from *Rome*, where he went to confer with the Pope, on the Means to terminate the *Council* as soon as possible, the Catholick Doctrine was exposed with regard to the Sacrament of Matrimony, in twelve Articles. The *Council* says, *Anathema to those who will say, that it is not a true Sacrament which confers Grace; that Christians are allowed to have several Wives, and that such Thing is not forbidden by any divine Law; that the Church cannot establish certain Impediments to Matrimony; that it can be broken for Cause of Heresy; of unhappy Cohabitation, or affected Absence of one of the Parties; that Matrimony contracted and not consummated, is not broken by the solemn Profession of Religion made by one of the Parties; that the Knot of the Sacrament can be broken for the Sin of Adultery; that there can be no Separation* a Toro *for a Time determined or not determined; that the Ecclesiasticks in holy Orders, or Regulars, who have made a solemn Vow of Chastity, can contract Matrimony under Pretence that they have not the Gift of Chastity, which they can ask of God, who does not permit we should be tempted above our Strength; that the State of Matrimony is preferable to that of Virginity or of Celibacy; that the Prohibition of the Solemnity of Nuptials, at certain Times of the Year is a tyrannical Superstition; and lastly, that the Causes which concern Matrimony, do not belong to the ecclesiastical Judges.* To which the Council added a Decree, by which to hinder clandestine Marriages, *it declares null, the Contracts of those who will presume to contract Matrimony, otherwise than in the Presence of their Curate and of two or three Witnesses, or of some other Priests, with Leave of the Curate or of the Ordinary.*

Lastly, in the *twenty-fifth and last Session* of the *Council*, the ninth under *Pius* IV. and which was celebrated the 3d and 4th of *December*, there were three Decrees published. In the first of them it is declared, *that there is a Purgatory, and that the Souls of those detained in it, are eased by the Suffrages of the Faithful, and particularly by the holy Sacrifice of the Altar, and the Bishops are ordered to take care that Preachers should not move, on that Subject, frivolous and vain Questions, which cannot serve to the Edification of the People; nor advance uncertain Things with regard to the Souls in Purgatory, and have even some Appearance of Falshood.* In the second, *is exposed the Doctrine relating to the Intercession and Invocation of Saints; and the Honour due to their Relicks, and to the holy Images, which have all a Relation to the holy Personages they represent; banishing all Sorts of Superstition, and all the Abuses which could be made of that Worship.* And in the third it is declar'd, that *the Use of Indulgencies is approved by the Authority of the holy* Councils; *that according to antient Custom they are to be distributed but seldom, and especially without making of them those criminal Abuses which have occasioned those Blasphemies vomited by the Hereticks against them.*

This is all that was done, with Regard to the Dogma's, in that famous *Council* of *Trent*, which having been assembled three Times, in the Space of eight Years, to reduce the *Protestants*, condemn'd the Doctrine of *Luther*, without being capable to re-unite the *Lutherans* to the Church. And if I have enlarged more on this, than on any other, it is because it has been celebrated very near our Times, and has made much Noise in the *Christian* World. I have related concisely, and without the least Partiality, all that was transacted in it, the most essential, and which I have extracted from the most authentick Acts and Manuscripts, without having Recourse to those partial, malicious, and scandalous Authors, as *Fra. Paolo*, &c. which consulted nothing else, in the History they have made of this *Council*, but private Piques, Party Quarrels, Animosity, and Revenge.

The other *Councils*, which are either *national*, or *provincial*, are the following ones, *viz.*

The COUNCIL of *Antioch*, assembled in the Year of *Christ*, 265; of Pope *Dennis*, 5; of the Emperor *Gallian*, 11; against *Paul* of *Samosate*, who denied, with *Sabellius*, the Distinction of the divine Persons; and pretended, with *Artemon*, that the Word was descended into *Christ*; that he had, alone, operated by him, and was return'd afterwards to his Father. He likewise establish'd in our blessed Lord two distinct Persons, the Son of God, the Word, and *Christ*, who, he maintain'd, had not been before *Mary*, but had receiv'd the Name of Son of God, as a Reward for his good Works. From these impious Principles he concluded, that in the Eucharist the Blood of the Lord was corruptible. These Propositions, after they had been examin'd by the Fathers of the *Council*, were abhorred and condemned. They likewise made a Confession of Faith, in order to have it signed by *Paul*, that in Case he had refused to do it, he might have been proceeded against according to the canonical Forms. The Fear of being deposed, rather than the Sentiments of Truth, made him abjure his Heresy, and subscribe to the Epistle of the Fathers of the *Council*, among whom were, *Gregory Thaumatargus*, *Firmilian*, Bishop of *Cæsarea* in *Cappadocia*, *Hymeneus* of *Jerusalem*, *Helenimus* of *Tharse*, and *Theoctenes* of *Cæsarea* in *Palestina*; all celebrated for their Doctrine and Piety.

Another of *Antioch*, assembled in the Year of *Christ*, 271; of Pope *Dennis*, 11; of the Emperor *Aurelian*, 1; against the same *Paul* of *Samosate*, who continuing to preach and teach his pernicious Doctrine, was condemn'd and depos'd by the Fathers of this *Council*; who wrote, likewise, a synodal Epistle, with this remarkable Title, *To* Dennis, (who was the Pope) *to* Maximus, (who was the Bishop of *Alexandria*) *and to all our Collegues, Bishops, Priests, and Deacons, dispersed throughout the whole Earth; and to the universal Church which is under the Heavens*, Helenus, Hymeneus, Theophilus, Theoctenes, *&c.*

The COUNCIL of *Tyre*, convoked by *Constantine the Great*, (to judge of the Accusations form'd against St. *Athanasius*) in the Year of *Christ*, 335; of his Empire, 30. This *Council* was composed of sixty Bishops, who, notwithstanding the Innocence of St. *Athanasius*, prov'd, by undeniable Evidences and Testimonies, to the Confusion of his Accusers, condemn'd and depos'd him.

The fourth *national* COUNCIL, is that of *Milan*, in *Italy*, assembled in the Year 358, under the Emperor *Constantius*, for the Justification of St. *Athanasius*. This *Council* was composed of above 300 Bishops of the *Latin* Church.

The

The COUNCIL of *Rimini*, assembled in the Year 359, under the same Emperor *Constantius*, where *Ursacius*, *Valens*, *Oruncius*, *Germinius*, *Caius*, and *Demophile*, were depos'd, for having refused to pronounce Anathema against the Heresy of *Arius*.

While the Bishops of the western Church were assembled at *Rimini*, those of the East were likewise assembled at *Seleucia*, upon the same Subject.

The *Provincial* COUNCIL of *Carthage*, in *Africa*, assembled by *Aurelius*, Bishop of that See, in the Year of *Christ*, 401; of Pope *Anastasius*, 4; of the Emperors *Arcadius* and *Honorius*, 7; against the Donatists. In this *Council* there were 32 Canons made to regulate the ecclesiastical Discipline; by one of them the Bishops gave Leave to read, in the Church, the History of the Martyrs, on the Days of their Feasts. *Aurelius* presided at that *Council*.

The Year following, *Aurelius* convoked another *Council* at *Milævium*, which was assembled the 27th of *August*, 402; and where the Decrees of the preceding *Councils* were confirm'd.

Another COUNCIL of *Carthage*, assembled again by *Aurelius* against the *Donatists*, in the Year 404; of Pope *Innocent*, 3; of the Emperors *Honorius* and *Arcadius*, 10. In this *Council* it was resolv'd, to send a Deputation to the Emperors, to let them know, that 'the *African* Bishops had employ'd all Sorts of Means 'to oblige the *Donatists* to return to the Church; 'that they had offer'd them a Conference of Bishops; 'and that instead of accepting so advantagious a 'Condition, they had exercised a great many Barbarities, not only against the Laicks, but likewise 'against the Clerks and the Bishops, and had usurp'd 'several orthodox Churches: That having done all 'that is prescrib'd by the ecclesiastical Laws to bring 'them to Reason, they were forced, at last, to ask 'their Imperial Majesties Protection for the *Catholicks*, 'that the Church, which had begat them in her Bosom, and nourish'd them with the Solidity of the 'Faith, might be defended by their Care; and to 'hinder presumptuous Men from prevailing by Violence on the People, to corrupt them, while Piety 'flourish'd; that they ask'd neither a new Thing, 'since the Emperors, their Predecessors, had stopt 'the Fury of the *Circumcellions* by their Ordinances; 'nor contrary to the ecclesiastical Order, since they 'read in the Acts of the Apostles that St. *Paul* had 'made Use of *Roman* Soldiers to defend his Life.' *Theutius* and *Evodius* were chosen for that Embassy, who arrived the Year following near the Emperor *Honorius*, who granted them all they ask'd. The Rigour of the several Ordinances he publish'd against the *Donatists*, prov'd to be of a greater Efficacy to bring them back to the Church, than all the *Councils* which had been assembled against them; which shews that the propereſt Means to exterminate Heresy, is, not to force the Hereticks in their Belief; in which the Authority of Princes, and the Torments, render them more obstinate, and which serve only to heighten their Credit among the People: But that the Privation of publick Honours, and the Incapacity of enjoying the Commodities of a civil Society, make a greater Impression on those who are more sensible of a temporal Felicity, than of Religion. St. *Augustine*, who had thought before that none but spiritual Arms ought to be employed against them; found, by the good Effects produced by the Laws abovementioned, that he had been mistaken in that Point. He wrote, on that Subject, an excellent Letter to *Vincent*, who was a *Donatist*, wherein he shews, that 'it would be returning 'Evil for Evil, if the *Catholicks* were to abstain from 'retaining, by Fear, those from whom they had received so many Outrages, and who cannot be hinder'd from continuing their Violences but by the 'Menaces of Princes: That Fear ought to be join'd 'with Instruction; because, if the Hereticks were only 'frighted, without being instructed, it would be a Tyranny, and not a salutary Conduct for their Salvation, that all those who forgive are not true Friends, 'nor all those that wound, real Enemies; and that it 'is better to love with Severity, than to deceive by 'Compassion; that God does not only teach us with 'Benignity, but fright us, likewise, with Menaces,' *&c.*

At the Return of the Deputies, *Aurelius* assembled another Synod at *Carthage*, *i. e.* in the Year 406; where was concluded what remain'd to be done for the Re-union of the *Donatists*.

There was another *Council*, assembled at *Carthage*, against the *Donatists*, the 13th of *October*, 408.

The *Council* of *Cirthe*, held in 411, against the *Donatists*; but nothing remains of that *Council*, but the Epistle of St. *Augustine*, written in the Name of the Fathers of that Assembly, in which he refutes the Calumnies of the *Donatists*.

Another *Council* of *Carthage*, assembled by *Aurelius*, in the Year 412, against *Celestius*, Disciple of *Pelagius*; where he was excommunicated, and oblig'd to quit *Carthage*.

Another *Council* of *Carthage*, held in 416, against *Pelagius* and his Disciple *Celestius*; where they were both anathematiz'd.

The second *Council* of *Milevium*, in *Numidia*, assembled the same Year 416, against the two same *Heresiarchs*. There is a great Dispute about the Canons of this *Council*, some pretending that they were eight in Number; but I am of Opinion, that there was none made, and that those attributed to it are of the third *Council* of *Carthage*, against the *Pelagians*: Because St. *Augustine*, in his Epistle to *Valentine*, and in that to *Paulin*, speaking of these two *Councils* of *Carthage*, and of *Milevium*, says nothing of those Canons.

The second *Council* of *Carthage*, against the *Pelagians*, held in the Year 417, where both *Pelagius* and his Disciple *Celestius* were condemn'd.

The first *Council* of *Rome*, convok'd by Pope *Celestinus*, in the Year of *Christ* 430, against *Nestorius*; where his Heresy was condemn'd, and anathematiz'd.

The first *Council* of *Alexandria*, assembled by *Cyril*, Patriarch of that See, in the same Year 430, against the same *Nestorius*; where the twelve following Anathema's were fulminated against his Errors.

I. If any Body denies the *Emanuel*, (i. e. *Jesus Christ*) who has dwelt among us, to be truly God, and does not confess that the blessed Virgin is the Mother of God, since she had begat in his Flesh the incarnate Word of God; let him be *Anathema*.

II. If any Body does not confess that the Word of God the Father is united to the Flesh according to the Hypostasis, (*i. e.* substantially, and not morally) and with its own Flesh makes but one with *Christ*, who is God and Man together; let him be *Anathema*.

III. If any Body, after the Union, distinguishes the Hypostasis, (*i. e.* the divine Nature, and the human Nature) and joins them together only of a Conjunction of Dignity, Authority, or of Power, and not of a natural Union, (*i. e.* a true Union) and from which results something which is one; let him be *Anathema*.

IV. If any Body attributes to two Persons what is said in the Gospel, and the apostolical Writings of *Christ*, or what he says of himself, attributing the one to Man, consider'd as separated from the Word of God; and the other to the Word alone, who is born of God, as belonging to the Divinity; let him be *Anathema*.

V. If any Body presumes to say, that *Christ* is not true God, but only a Man who carries God, he that is the natural and only Son of God; let him be *Anathema*.

VI. If any Body says, that the Word of God the Father is the God and the Lord of *Christ*, and does not confess that after the Incarnation of the Word, according to the sacred Scriptures, the same Person is one only God, and Man together; let him be *Anathema*.

VII. If any Body says that *Christ* is a Man only, and that the Word of God operates in him, as in a pure

pure Man, and that the Glory of the only Son is arrived to him as to a Man distinguish'd from him; let him be *Anathema.*

VIII. If any Body presumes to say that the Man, taken by the Word, must be adored and glorified with him, and called God, as one who exists in the other; that is to say, with Regard only of the Habitation of the Word in *Jesus Christ*, as in one Person distinct from him; and if he does not adore the *Emanuel*, with one single Adoration, and does not attribute to him one single Glorification, as to the Word made Flesh; let him be *Anathema.*

IX. If any Body says, that our Lord *Jesus Christ* has been glorified by the Holy Ghost, as by a foreign Virtue, by which he operated, and that he has receiv'd from him the Power to expel evil Spirits, and to operate Miracles, and does not confess that it is by his proper and natural Spirit, that he has perform'd those divine Works; let him be *Anathema.*

X. The divine Scripture teaches us, that *Jesus Christ* has been the Pontiff, and the Apostle of our Confession, *i. e.* of our Faith, and that he has offer'd himself for us in an Odor of Suavity, to his Father; therefore, if any Body says that our Pontiff, and our Apostle, is not the same Word of God, after he has made himself Flesh, and Man semblable to us; but that he is the Man born of the Woman, as if one was different from the other; or that *Jesus Christ* has offer'd his Sacrifice for himself, and not for us only, (for he who had committed no Sin, wanted no Oblation;) let him be *Anathema.*

XI. If any Body denies that the vivifying Flesh of the Lord is the proper Flesh of the Word, and attributes it to another Person join'd to the Word only, according to the Dignity, and who has but the divine Habitation; and if he does not confess, that *that* Flesh is truly vivifying, because it has been made of the proper Flesh of the Word, which vivifies all Things; let him be *Anathema.*

XII. If any Body denies that the Word of God has suffer'd, has been crucified, and died, in the Flesh, and that he has been the first of the Dead; let him be *Anathema.*

The *Anathema's* were sent to *Nestorius*, in an Epistle which contain'd his Condemnation, besides another Epistle addressed to the People of *Constantinople*, to inform them of the Condemnation of their Bishop, if he refused to retract his impious Doctrine, which he had defended with Obstinacy. But *Nestorius* took so little Notice of what had been done against him in this *Council* of *Alexandria*, that he continu'd to preach his Errors.

The *Council* of *Constantinople* assembled against the Pretension of the Patriarch of *Alexandria*, in the Year 439. In this *Council*, *Theodoret* maintain'd so well the Rights of the Church of *Antioch*, that *Dioscorus*, who managed the Affairs of the Church of *Alexandria*, incapable of resisting the Strength of his Reasoning, conceiv'd ever after an implacable Hatred against him.

The *Council* of *Rhiez*, in the *Gaules*, assembled towards the latter End of *November* of the Year 439, where *Hilary* of *Arles* presided, and where the Ordination of *Armentarius*, Bishop of *Ambrun*, (which was the Occasion of assembling this *Council*) was declared null, because he had been ordained by two Bishops only, without the Authority of the Metropolitan. In the third Canon of this *Council* it is order'd, that a Bishop returning from the Heresy, or Schism, shall not recover his See.

The first *Council* of *Orange*, assembled in the Year 441; of Pope *Leo*, 2; of the Emperor *Theodosius*, 34; of *Valentinian*, 17; to regulate the ecclesiastical Discipline; and where *Hilary*, Successor of St. *Honoratus*, of *Arles*, presided. In this *Council* were made thirty Canons.

The second *Council* of *Rome*, assembled by Pope *Leo*, against the *Manicheans*, in the Year 443; of his Pontificate, 4; of the Emperor *Theodosius*, 36; of *Valentinian*, 19; where their Abominations were juridically and solemnly condemn'd.

The second *Council* of *Arles*, in *Provence*, assembled in the Year 445, by *Hilary*, Bishop of that See; where he caused a Canon to be made, whereby he had the Power given him of assembling a *national Council.*

A *Council* in *Spain*, against the *Priscillianists*, assembled in the Year 447; of Pope *Leo*, 8; of *Theodosius*, 40; of *Valentinian*, 23. What was done the most considerable in this *Council*, was, the Addition to the Symbol of *Constantinople* of the Word *Son*, to the Article of the Procession of the Holy Ghost, in these Terms; *I believe in the Holy Ghost, who proceeds from the Father, and from the Son.* Some Authors have imagin'd, that this had been done in the *Council* of *Constantinople*; but it is certain, that they are mistaken: Tho' it be very true, that the antient *Greeks*, the two *Gregories*, *Basil*, *Epiphanius*, *Chrysostome*, and particularly *Cyril*, in several Places of their Works, teach, that the Holy Ghost proceeds from the Father and from the Son. The Father of the Synod I mention, took Occasion of adding the Word *Son*, from Pope *Leo*'s Words, which they found in his Answer to *Tiburius*, Bishop of *Asturias*. The *Wisigoths*, who were *Catholicks*, receiv'd the Symbol in this Manner; the *Jews* who were converted to the Church made Profession of it, and it was receiv'd in the fourth, eighth, eleventh, twelfth, and thirteenth *Councils* of *Toledo*. It passed, likewise, into *France*, as we learn it from the Synod of *Arles*, held under *Charlemagne*; however, it was not receiv'd in the *Roman* Church, but two Centuries after the others had receiv'd it. Some *Greeks* maintain, that this Addition was made at the second *Council* of *Nice*, and, at present, one of the principal Complaints against the *Roman* Church, is, that without the Authority of a *Council*, the Word *Son* has been inserted in the Symbol. *Photius*, Patriarch of *Constantinople*, accused Pope *Nicholas* I. of having done it, and excommunicated him for that Subject, according to the Decision of the *Council* of *Ephesus*: But *Andrew* of *Colloffes*, who disputed, in the *Council* of *Florence*, against the *Greeks*, says expresly, that *Photius* made no mention of that Addition in the *Council.* Cardinal *Baronius* refers it to *Benedict* VII, *Anno* 1012; who, at the Instances of the Emperor *Henry* II, caused to be sung in the Church of *Rome* the Symbol of *Constantinople* after the Gospel, as it was sung in the West. For in his Time, there was no Symbol sung, because the Purity of the Faith having been always preserved, there wanted no publick Profession of it, as in other Places where several Heresies had corrupted it.

The *Council* of *Constantinople*, assembled by *Flavian*, Bishop of that See, in the Year 448, to judge of the Differences that happened between *Florentius*, Metropolitan of *Sardes* in *Lydia*, and his two Suffragans, and where *Eutyches* was accus'd, for the first Time, of Error, by *Eusebius* of *Dorylea*, his Friend, and where he was excommunicated.

A second *Council* of *Constantinople*, assembled by the Emperor *Theodosius*'s Order, at the Instances of the *Eutychians*, in the Year 449; of Pope *Leo*, 10; of *Theodosius*, 42; of *Valentinian*, 25; for the Revision of the Condemnation of *Eutyches*, in the preceding *Council*, assembled by *Flavian*. This *Council* was composed of thirty-two Bishops, and *Theodosius*, of *Cæsarea* in *Cappadocia*, presided in it. The Patrice *Florentius*, by the Emperor's Orders, was present, and permitted *Eutyches* to plead his Cause by Procuration, refusing the same Favour to *Eusebius* of *Dorylea*, who was his Accuser. The Bishops complained of that Injustice, but could not obtain a Redress from the Prince, who had been prejudiced against *Eusebius* and *Flavian*: Therefore the Fathers were forced to permit that *Constantine*, *Eleusius*, and *Constantius*, Monks of *Eutyches*, should enter the Synod to defend his Cause. Being entered, *Macedonius*, Tribune, and Notary of the Emperor, taking the Book of the Gospel, said to the Fathers, that he had positive Orders from *Theodosius*,

dosius, to make the Bishops swear, if the Acts of the two Parties, which were to be read, were true. *Basil* of *Seleucia* answer'd, that till then it had never been heard that the Oaths had been administer'd to Bishops, and opposed so vigorously that which was desir'd from them, that *Macedonius* would not force them to it. Afterwards, the Request of *Eutyches*, addressed to *Theodosius*, was read; in which he expos'd, that the Acts of the Synod, which had condemn'd him, were falsified; and desired his Majesty to order that the Bishops who had been his Judges, the Notaries of *Flavian*, the Clerks who had cited him, and *Anastasius*, Deacon of the Bishop *Basil*, should come forth, to declare what they knew to have been inserted in the Registers. The Synod ordered that *Asterius*, *Ætius*, *Nonnus*, *Asclepiades*, and *Procopius*, Notaries of *Flavian*, who had collected the Acts of the preceding Synod, should enter to be examined on that Subject. *Constantine*, one of the Advocates of *Eutyches*, maintained that while the Sentence of Condemnation was reading, he had appealed to the *Councils* of the Bishops of *Rome*, of *Alexandria*, of *Jerusalem*, and of *Thessalonica*, but that the Appeal had not been registered. The Patrice *Florentius* said, that the Synod was separated, when *Eutyches* whispered to him, that he appealed to those mentioned by *Constantine*, and that he had informed *Flavian* of it. *Basil* of *Seleucia* affirmed, that while the Synod was assembled, having proposed to him to confess two distinct and inseparable Natures in *Jesus Christ*, he had answered, that if the Bishop of *Rome*, and of *Alexandria*, would confess it, he would likewise confess it with them; but that he had not spoke thus, in form of Appeal. To be more certain of the Truth, the Abbots who were present at his Condemnation were asked, if they had heard him appeal, and they all with one Voice denied it.

In the second Session was read another Request of *Eutyches* addressed likewise to *Theodosius*, in which he desires him to command the *Silentiarius*, to declare in the Synod what he had heared *Flavian* say before the Sentence was pronounced. That Man who wanted to oblige *Chrysaphius* to the Prejudice of his own Bishop, swore that he had heard him say, before the Session where *Eutyches* was judged, that he was condemned, and that he was carrying the Sentence ready to the Synod, to have it signed. The Priest *Asterius* supported that Falshood, and declared that the Acts of the preceding Synod had been changed. However, *Theodosius* asked *Flavian* his Profession of Faith, and he wrote one, wherein he anathematized so clearly the Doctrine of *Nestorius*, that he left no Room for the Suspicion which *Eutyches* wanted to give to the Empror of the Purity of his Doctrine. At last, notwithstanding what the Advocates and Partisans of the Heresiarch could say, the Bishops pronounced, that the Acts of the Synod in Question, were true. *Eutyches* minded as little that Sentence as he had done the first, and asked the Emperor, that *Dioscorus* of *Alexandria* should be appointed to revise his Affair. That Prelate who was infected with the Errors of *Eutyches*, wrote to the Emperor, that it was necessary to assemble a *Council*. *Chrysaphius* had gained him, and as he had a great Influence over his Master, he easily persuaded him to convoke the Assembly asked by the Bishop of *Alexandria*, without considering that it was giving a Reputation to the new Heresy, and a greater Strength, by the Remedy employed to smother it.

This pretended *Council* granted by *Theodosius* to the *Eutychians*, is sometimes called the *Second of Ephesus*, sometimes *Conciliabulum*, and more properly a *factious Assembly*. The *Gallican* Church calls it *Le Brigandage D'Ephese*; and as it was attended with a great Number of notorious, not to say infamous Incidents, the Reader will give me Leave to entertain him with some of them.

This *pretended Council* was convoked, by *Theodosius* for the 1st of *August*, of the Year 449, in the City of *Ephesus*. The Emperor wrote a Letter to *Dioscorus* of *Alexandria*, by which he ordered him to chuse ten *Metropolitans* of his Province, and ten Bishops the most considerable for their Piety and Doctrine, to examine with the other Prelates, who should assemble by his Orders, the controverted Questions, and establish the Orthodox Doctrine. Towards the latter End speaking of *Theodoret*, he orders that he shall not be admitted in the Synod but with the Consent of all the Bishops, and that if any Dispute arises on that Subject, they may meet without him. *Eutyches* feared the Doctrine of that Prelate, therefore had given him the Exclusion, as he had done sometimes before to *Ibas* of *Edessa*, under Pretence that he was a *Nestorian*.

The *Council* began the 10th of *August*, and was composed of 128 Bishops, with the Deputies of some who could not come. *Dioscorus* presided by the Emperor's Orders: The first Session was opened by reading the Letters of the Emperor to *Dioscorus*; and afterwards the Legates of Pope *Leo*, presented the Letters which he had wrote to the *Council*, and to *Flavian*, which *Dioscorus* would not suffer to be read. Those the Emperor had wrote to several Persons for the Celebration of this unfortunate *Council* having been read, some Bishops proposed that they should treat of the Faith: But *Dioscorus* opposed it, alledging the Decree of the Emperor, who commanded that they should treat of the Differences happened between *Flavian* and *Eutyches*. The Notaries who collected the Acts of the Synod were guilty of Falshood in this Place; for they wrote that the Bishops had acquiesced to what *Dioscorus* had said, crying that they ought not to treat of the Faith, or make any Innovations, which in the *Council* of *Chalcedon* was proved a Falshood.

The Count *Elpidius*, sent by the Emperor to assist at the *Council*, ordered, with the Bishops Consent, that *Eutyches* should be admitted to defend his own Cause, and declare publickly his Faith. He presented a Confession of it in Writing, which was worthy, not of the Malice and Deceit of an old Heresiarch as he was, but of the Piety and Sincerity of the most Orthodox Bishops: For, in it, he submitted himself in all Things to the Decisions of the *Councils* of *Nice*, and of the first of *Ephesus*; and anathematized particularly the Errors of *Manes*, of *Valentine*, of *Apollinaris*, and of *Nestorius*. Afterwards he accused *Eusebius* of *Dorylea* of having calumniated him as his Enemy; *Flavian* of having condemned him without the least Form of Judgment, and notwithstanding his Appeal. *Flavian*, after this Confession of Faith had been read, requested that *Eusebius*, *Eutyches*'s Accuser, should be heard, which was refused by *Dioscorus*, who was both the President and the Tyrant of the *Council*; and when, afterwards, *Eusebius* complained of this Injustice at the *Council* of *Chalcedon*, *Dioscorus* threw that Fault on Count *Elpidius*, who had ordered him to act in that Manner; as this threw that Injustice on *Theodosius*'s Will, who had ordered him, said he, that he should suffer neither *Flavian*, nor *Eusebius*, to propose any Thing in the *Council*, for they were to be there, not as Judges, but to be judged.

Dioscorus having thus rejected *Eusebius*, asked that the Acts of the Synod of *Constantinople* against *Eutyches* should be read. *Julian* and *Hilary*, the Pope's Legates, protested that they would not suffer that Reading, 'till after that of the Epistle of Pope *Leo* to the Bishop *Flavian*. Then *Eutyches* said, that those Legates were oblig'd to him because they had lodged in *Flavian*'s House, and eat with him. *Dioscorus* received that Recusation, and caused the Acts he had proposed to be read. In the Course of the Reading, when they came to the Writings of St. *Cyril*, *Eustatius* of *Beryte* interrupting it, said, that according to the Sentiment of that Father, it ought not to be said that there were two Natures in *Jesus Christ* after the Union, but only one, and that such was likewise the Opinion of *Athanasius*. Upon which *Eutyches* Partisans cried the same Thing; and when towards the End, they read, that *Eusebius* had pressed that *Heresiarch*, to confess two Natures in *Christ*, after the Incarnation, they cried still louder; 'Let *Eusebius* be burnt alive, and be 'divided in two as he has divided *Jesus Christ*.' After these

these furious Exclamations, *Dioscorus* asked the *Council*, if it was a tolerable Proposition to say, that there were two Natures in *Jesus Christ*, after the Union? All the Bishops who approved his Sentiment, through a pusillanimous and servile Complaisance, cried again, 'Let him who speaks thus, be *Anathema*:' The other Prelates attempted to oppose those Furies; but *Dioscorus* having introduced in the *Council* a great Number of Soldiers, threatening Deposition, Imprisonment, and Exile, to all those who should refuse to approve the Impiety which had been pronounced; *Domnus* of *Antioch*, *Juvenalis* of *Jerusalem*, *Stephen* of *Ephesus*, *Thalassius* of *Cæsarea*, and the others by their Example, were so intimidated, that, forgetting their Duty, they subscribed to a Doctrine which they abhorred in their Heart.

Flavian opposed that abominable Decision, alledging that he had not been heard, but that Opposition was rejected, and served only to accelerate his Deposition; as well as of *Eusebius* of *Dorylea*. Then *Flavian* said aloud, *I appeal from thee*, according to the Version of the old *Latin* Interpreter; or *I recuse thee*, according to the *Greek*. *Onesiphorus* of *Iconium*, embraced the Knees of *Dioscorus*, and intreated him to revoke the Sentence he had pronounced against *Flavian* who was innocent; but that furious Prelate descending from his Throne, and standing up, cried, *That if even his Tongue was to be cut, he would never speak otherwise*. And as *Onesiphorus* and the other Bishops continued to press him, he asked, Where are the Counts? Then they entered with a Band of Soldiers who brought Chains to load those who resisted the Will of *Dioscorus*; so that all being seiz'd with Fear subscribed to the Condemnation of *Flavian* and of *Eusebius*. *Hilary* one of the Pope's Legates fearing of being arrested Prisoner, found Means to escape from *Ephesus*, and came to *Rome*, to inform *Leo* of all that had passed in the false *Council*, against the Orthodox Faith, and agasnst *Flavian*. *Dioscorus* not believing himself revenged enough yet of that holy Bishop, whom he had deprived of his See, caused him to be beaten so outrageously by *Barsumas*, and, if we believe *Evagrius* *l.* 2. *c.* 2. himself kicked him so much in the Stomach that he died in three Days afterwards. *Dioscorus* deposed likewise, *Ibas* of *Edessa*, and *Theodoret* of *Cyr*.

The *third Council of Rome*, assembled by Pope *Leo*, in the Year 449, where all that had been done in the *Conciliabulum of Ephesus*, was condemned.

The *third Council of Constantinople*, assembled by *Anatolius* Patriarch of that See, in the Year 450, the first of the Emperor *Marcian*: For the Reunion of the Eastern Church, and the Re-establishment of the Bishops fallen in the Heresy. In this Synod *Nestorius* and *Eutyches* were anathematized.

The *third Council of Arles*, assembled by *Ravennus*, Bishop of that See in the Year 458, to compose the Differences between the Abbot of the Island of *Lerins*, and the neighbouring Bishops.

The *fourth Council of Constantinople*, assembled by *Gennadius*, Patriarch of that See, in the Year 450, of Pope *Leo*, 20. of the Emperor *Leo* and of *Majorian*, 3. This Synod was composed of 73 Bishops of the neighbouring Provinces, with *Domitianus*, and *Germinianus* the Pope's Legates. The Acts of this *Council* are lost, and we have but one Canon left, made against those, who give Money for their Ordination.

The *fourth Council of Rome*, assembled by Pope *Hilary* in the Year 465, for the Re-establishment of the ecclesiastical Discipline in *Spain*.

The *fifth Council of Rome*, convoked by Pope *Felix*, in the Year 483, the first of his Pontificate; of the Emperor *Zeno*, 10. The Resolution of this Assembly was, that a Deputation should be sent to the Emperor *Zeno*, to complain of the Injury offered to the Church, and to the Orthodox Faith, by those who had betrayed it, by adhering to *Peter*, charges that they should write to *Acacius* to reproach him of his Connivance with the Heretics, that the Request presented against him by *John Talaide*, should be annexed to that Letter, and a Citation before the Pope, to come to answer on the Chiefs of the Accusation contained in it, and that the Emperor *Zeno* should be requested to force him to appear.

The sixth *Council* of *Rome*, assembled by the same Pope *Felix*, in the Year 484, against the Prevarication of his Legates, or Deputies, to the Emperor *Zeno*, who, instead of following their Instructions, by insisting on the Condemnation of the Hereticks, and the Expulsion of *Mongus*, communicated with them, and suffer'd, without making the least Protestation, that the Name of *Mongus* should be read, in their Presence, in the sacred Tables. In this *Council* they were deposed of the Episcopacy, the Honour whereof they had betrayed in a Legation ordered for its Defence.

In another Session they treated the Affair of *Acacius*, Author of their Fall; and having examined his past Conduct, declared him a Heretick, and Protector of the Heresy: And some Time afterwards (as they found him incorrigible) excommunicated him.

The *seventh Council of Rome*, convok'd by Pope *Felix*, in the Year 487; of his Pontificate, 5; of the Emperor *Zeno*, 14; for the Reconciliation of those who had been re-baptized in *Africa*.

The *eighth Council of Rome*, convoked by Pope *Gelasius*, in the Year 494; this *Council* was composed of 70 Bishops, who, after they had declared which were the canonical Books received in the Church, ranked among the Apocryphal, several Writings of Authors who had lived in the preceding Centuries, either Catholicks or Hereticks. Towards the End of the Acts of this Synod, is inserted the Condemnation of several Heresiarchs, and Schismaticks, among whom are expressed more particularly, *Eutyches*, *Dioscorus*, *Peter* of *Alexandria*, *Peter* of *Antioch*, and *Acacius* of *Constantinople*, as excommunicated.

The *ninth Council of Rome*, convoked by Pope *Gelasius*, in the Year 495, for the Absolution of *Misenus*, one of the Legates of Pope *Felix*, who had been excommunicated for their Prevarication when sent to the Emperor *Zeno*, with Regard to *Acacius* of *Constantinople*. Cardinal *Baronius* has given that Absolution, which is very long, together with the Acts of this *Council*, which he had found in the Library of the Vatican.

The *tenth Council of Rome*, assembled by Pope *Symmachus*, in the Year 498, for the Confirmation of his Election.

The *eleventh Council of Rome*, assembled by the Authority of *Theodorick* King of *Italy*, in the Year 502, on the same Subject of the Election of *Symmachus*. This *Council* is called the *Synod of the Palm*, either from a Place of *Theodorick*'s Palace, thus called, where the Bishops met, because the Schismaticks would not assemble in the Church, or rather from a Portico of the Basilick of St. *Peter*, which did bear that Name. In this Synod *Symmachus* was absolved of all the Accusations exhibited against him, declared innocent, and acknowledged once more Bishop of *Rome*.

Symmachus, in an Action of this Synod held in the Basilick of St. *Peter*, excommunicated the Emperor *Anastasius*, for favouring the Heresy, and persecuting the Orthodox of *Constantinople*.

The *first Council of Agde*, in *Languedoc*, assembled in the Year 505, for the Re-establishment of the ecclesiastical Discipline.

The *first Council of Orleans*, in *France*, assembled by the Authority of King *Clovis*, in the Year 511, of Pope *Symmachus*, 13. of the Emperor *Anastasius*, 21; of *Clovis*, 30. This *Council* was composed of 32 Bishops, and 31 Canons were made in it to regulate the ecclesiastical Discipline.

The first Canon orders, that if any body guilty of Homicide, Adultery, or Theft, takes Sanctuary in a Church, or its Porch, it should not be permitte to take him from thence, till after it has been promised by Oath, upon the Gospel, that the Criminal shall not be put to Death, nor mutilated in his Members, nor otherwise

otherwise punished. That if any body violates that Oath, he must be separated from the Communion of the Church.

The *twenty-fourth Canon* orders, the Fast of *Lent* before *Easter*.

The *twenty-seventh Canon* orders, the Celebration of the *Rogations*, *i. e.* of the Litanies before the Ascension of our Lord, by a Fast of three Days.

The *third Council of Arles in Provence*, assembled in the Year 524. There were but four Canons made in this *Council*: 1. For the Age of the Ordination of Deacons, and Priests, of those at 25 Years, and of these at 30. 2, 3. For the Irregularity of the new Converts, and of Penitents, Bigamies, *&c.* they forbid being promoted to the Orders; 4. For the Reception of Clerks excommunicated in one Diocese, that they should not be received in another, under the Penalty of Excommunication.

The *second Council of Orange*, assembled in 592, under the Consulate of *Decius*. The Fathers of this *Council* made 25 Canons, where all the Doctrine controverted between the Disciples of St. *Augustin*, and those of *Faustus*, concerning *Predestination*, *Grace*, and *Free-Will*, was clearly explained. Pope *Boniface* approved this *Council* by a Letter he wrote to *Cesarius* of *Arles*.

The *Council of Carpentras*, held, according to Father *Sirmon*, in the Year 527, where it was ordered, that a Bishop that has a Revenue sufficient for his Maintenance, should raise nothing on the Parishes of his Diocese.

The *second Council of Toledo*, in *Spain*, celebrated in the Year 531, for the Reformation of the ecclesiastical Discipline.

The *fourth Council of Constantinople*, celebrated in the Year 536, where *Anthimius*, Patriarch of *Constantinople*, who had been deposed, and *Mennas* elected in his Place, were condemned, together with *Severus* of *Antioch*, *Peter* of *Apamea*, and *Zoara*.

The *second Council of Orleans*, assembled in the Year 536.

The *fifth Council of Constantinople*, convoked by *Mennas*, Patriarch of that See, in the Year 538, where *Origen* was condemned after his Death.

The *third Council of Orleans*, celebrated in the Year 540. This *Council*, where *Lupus* of *Lyons* presided, was composed of 25 Bishops, who made 33 Canons, for the Regulation of the divine Office, of the Lives of the Clerks, of the Marriages, and of the Penitence of the Laicks.

The *fourth Council of Orleans*, celebrated in the Year 541. It was composed of 38 Bishops and of 12 Priests, who were Proxies for the absent Bishops. They made 38 Canons, to regulate several Things in the Discipline.

The *twelfth Council of Rome*, assembled by Pope *Vigilius*, in the Year 548, where he condemned the *three Chapters*, which made the *African* Bishops renounce his Communion.

The *third Council of Toledo*, (which was a national one) assembled by King *Recarede*, in the Year 590, of Pope *Gregory* 2; of the Emperor *Mauricius*, 8, by the second Canon of this *Council*, it is ordered, that the Symbol of *Constantinople*, shall be recited before the Lord's Prayer.

The *seventh Canon*, orders, the Bishops and Priests to cause the Scripture to be read while they are at Table. The *Council* of *Trent* has renewed this Ordinance, which is once more become obsolete.

The *Council of Rheims*, assembled in the Year 625, composed of 41 Bishops, who made several very useful Regulations for the Preservation of the ecclesiastical Discipline, whereof the following ones are the principal.

The *sixth Canon* excommunicates the Judge who has punished a Clerk without his Bishop's Leave; but it enjoins the Bishop to punish his Clerk for the Crimes he is accused.

The *tenth* orders, to expel from the Church as Murderers of the Poor, those who have stole Things given to Churches by Testament.

The *eleventh* forbids to sell Christian Slaves to the *Jews*, and excommunicates those who make such Commerce, which it calls illicit, and of no Effect. It adjudges to the *Fisk*, the Slaves whom the *Jews* endeavour to force by their ill Usage to embrace Judaism, and interdict to them all publick Actions.

The *eighteenth*, forbids strictly the Clerks, to have Recourse to the Laick Judges, either for secular or ecclesiastical Affairs, till after they have obtain'd Leave of their Bishop.

The *twenty-eighth*, orders, that when a Bishop dies, another should not be put in his Place, unless he be an Inhabitant of the same Town or City; and that with the Consent and Election of the People, and of the Comprovincials. And if any Body causes himself to to be elected in another Manner, it deposes and puts under Interdiction, for three Years, those who have ordain'd him.

The *sixth national Council of Toledo*, assembled in the Year 638; of Pope *Honorius*, 13; of the Emperor *Heraclius*, 29; it was compos'd of 52 Bishops, or their Deputies, who made 19 Canons, for the Establishment of the orthodox Faith, and of the ecclesiastical Discipline. But the most considerable, is that, by which it is order'd, that for the future, none shall be elected King of *Spain*, nor take Possession of that Kingdom, before he has took a particular Oath, to suffer no Body in the Kingdom but Orthodox; and that if a King violated that Oath, he should be *Anathema*, *Maranatha*, and thrown into everlasting Fire; and the Priests or Christians, Partakers of his Guilt, would be compris'd in the same Condemnation. The Bishops assembled pronounc'd that Sentence, with the Consent of the King, and of the Grandees of the Kingdom. To which were added, the other Decrees made against the *Jews* in the preceding *Councils*.

The *Council of Lateran*, assembled by Pope *Martin*, in the Year 649; of his Pontificate, 1; of the Emperor *Constantius*, 8; against the *Type*, which was a Formula, which, under Pretence of uniting all the Church into one and the same Faith, as well those who said that there were two Wills in *Jesus Christ*, as those who admitted but one. This *Council* was compos'd of 105 Bishops, who held five Sessions, the two first were employ'd in reading, what had been written relating to the *Type*.

In the *third Session*, were read the Writings of *Theodorus*, Bishop of *Pharanes*, in the Defence of the *Monothelism*; the nine Chapters or Articles of *Cyrus*, Bishop of *Alexandria*, which were all learnedly refuted by the Bishops, who observed, that the Authority of St. *Denis*, in his Epistle to *Cajus*, (in which he calls the Operation of *Jesus Christ*, *Dei virilis*) had been corrupted by him; for St. *Denis* had said an Operation, *Dei virilis*, i. e. *Theandrical*; and *Pyrrhus* made him say a single Operation, changing the Word *new* into that of *single*, which was very different. After this Passage alledg'd by the Hereticks had been read, the third Session ended by the Reading of the *Ecthesis*, publish'd under the Name of the Emperor *Heraclius*, and of the Letters of *Sergius* to *Cyrus*, and of the Answer of *Cyrus* to *Sergius*, who confirm'd it.

In the *fourth Session*, held the fourteenth of the Calends of *November*, was read the Edict call'd *Type*, publish'd under the Name of the Emperor *Constantius*, which was condemn'd as impious, and full of Impostures. Afterwards were recited the Symbol of *Nice*, that of *Constantinople*, the twelve Anathema's of St. *Cyril*, publish'd in the *Council* of *Ephesus*, the Definition of Faith made in that of *Chalcedon*, and the Canons of the same *Council*.

The *fifth Session*, was employ'd in extracting from the Books of the Fathers, which were brought in the *Council*, the most proper Passages to confound the new Hereticks. This done, the Bishops made twenty Canons to explain the Doctrine of the Catholick Church, on the Incarnation of the Son of God; and to condemn anew, *Sergius*, *Pyrrhus*, *Paul* of *Constantinople*, *Cyrus* of *Alexandria*, and *Theodorus*; which Canons were sign'd by all the Bishops.

The *eighth Council of Toledo*, assembl d in the Month of

of *December*, 653; of Pope *Martin*, 5; of the Emperor *Constantius*, 12; compos'd of 52 Bishops, besides the Deputies of those Absent, the Abbots, and several *Palatine* Counts. In this *Council* were made 17 Canons, the ninth whereof, orders strictly the Abstinence from Flesh during *Lent*.

The *tenth Canon*, wills, that immediately after the Death of a King, the Bishops should assemble with the great Men of the Kingdom to elect another, to be the Defender of the Catholick Faith; who should be modest, moderate in his Actions, in his Judgments, and in his Life; who should exact nothing from his Subjects by Violence, nor under any false Pretence. But the chief Care of the Bishops, in this *Council*, was to correct the Priests, who liv'd scandalously with Women. Therefore, they depriv'd those who should be convicted thereof, of their Rank, and of the Exercise of their Functions.

The *ninth Council of Toledo*, celebrated in the Year 655; and compos'd of 16 Bishops, who made 17 Canons, for the Consecration of the Goods and Estates of the Church, which the Bishops were forbidden to usurp.

The *tenth* of these *Canons*, orders, that the Children born of Bishops, Priests, Deacons, and Sub-Deacons, should not be Heirs of their Fathers, but remain Slaves of the Church, whereof their Fathers were Ministers.

The *tenth Council of Toledo*, celebrated in the Year 656; and compos'd of 20 Bishops, and 5 Deputies of the Absent. In this *Council*, it was order'd, that the Feast of the Annunciation of the blessed Virgin, should be celebrated eight Days before that of the Nativity of our Lord.

The *eleventh Council of Toledo*, celebrated in the Year 675; and compos'd of 19 Bishops, 2 Deacons, as Deputies of their Prelates, and 7 Abbots.

In the *fourth Canon*, of this *Council*, on the Complaints made of the Animosity which some Priests kept one against another, and so scandalous, that, not only the Sun went down every Day on their Hatred, which, the Apostle says, should not happen among *Christians*, but that whole Years pass'd without a Reconciliation; orders strictly, that *before that Reconciliation be made, none should presume to approach the Altar of the Lord, or to receive the holy Communion: But, that the Guilty should remain separated by a holy Compensation of Penance, as long as they have been at Variance.* That if one of them offers to be reconciled, he must immediately be received in the Church, reserving to the Superior, to judge if he must spend in Penance, double the Time he has pass'd in Animosity against his Brother.

The *sixth Canon*, forbids all those employ'd in the Administration of the Sacraments, to exercise any criminal Judgments which take the Life, or condemn to the Mutilation of some Members, *either by themselves, or their Order*; and condemns those who violate that Prohibition, to lose their ecclesiastical Degrees, depriving them, likewise, of the holy Communion for the Remainder of their Life.

The *eighth Canon*, orders, that *if a Minister takes something for the Administration of Baptism*, &c. *if the Bishop of the Place be an Accomplice, he must remain excommunicate for two Months; but if it is done without his Knowledge, he who has committed the Fault*, i. e. *who has took* MONEY OR PRESENTS, *shall remain excommunicate during three Months, if he be a Priest, if a Deacon, for four Months*, &c.

The *ninth Canon*, to suppress the Simony, which reign'd then in *Spain*, orders, that a Bishop, before he is consecrated, shall swear before the Altar, that *he has given nothing, or promised nothing, or will give nothing for the Ceremony of his Consecration; and that all those who shall be convicted of having been ordain'd for Money, be expelled and separated from the Church, as true Simoniacks*, i. e. That they be condemned to a Banishment of two Years, and punish'd with Excommunication. That if they sincerely repent, afterwards, they may be restor'd, not only to the Communion, but, likewise, to their Degree.

The *twelfth Council of Toledo*, celebrated in 681; and compos'd of 35 Bishops, 3 Deputies, 4 Abbots, and several Governors of Provinces, and Grandees of the Kingdom. This *Council* made 13 Canons.

The *ninth Canon*, renews all the Decrees which had been made against the *Jews*. 1. It forbids them to renounce their Baptism, after they have receiv'd it, or to make their Children, or Servants renounce it. 2. To celebrate their Passover, to practise Circumcision, and to induce a Christian to renounce his Religion. 3. To solemnize their Sabbath, nor their other Feasts. 4. To work on *Sunday*. 5. To observe the Distinction of Flesh. 6. To marry in the Degrees prohibited by the Church, and without the Priest's Benediction. 7. To make a Jest of the Christian Religion, to defend their Sect, to give Means to those who forsake the Christian Religion, to retire to other Places, or to receive them in their Houses. 8. It forbids, likewise, the Christians, to receive any Thing which is against the Faith of *Jesus Christ*. 9. To read Books condemn'd by the Church. 10. To detain Christians for Slaves. 11. To beat, or maltreat a Christian, unless it be only by the King's Order: 12. It commands them, besides, coming from other Provinces, to present themselves to the Bishop, or to the Priest of the City, to learn from them what they are to do. 13. To assemble at the Days appointed by the Bishop.

The *fifteenth Council of Rome*, celebrated in the Year 731; by *Gregory* III. the second Year of his Pontificate; of the Emperor *Constantine Copronymus*, 1. This *Council* forbids the Women forsaken by those who had been promoted to sacred Orders, to marry other Men: The Clerks were forbidden, also, to wear long Hair.

The *Council of Leptines*, assembled in the Year 743; wherein two Impostors, the one call'd *Adalbert*, and the other *Clement*, one of them *French*, and the other *Scotch*, were condemn'd. The *Frenchman* falling into all Sorts of Impurities, and forsaking the publick Churches, he us'd to build Oratories in the Fields; where he seduced the People, by Impostures and false Miracles. He pretended to know Futurity, and publish'd an Epistle, which he said, had been written by *Christ* in Heaven, and had fell from thence into *Jerusalem*. The *Scotchman* rejected the sacred Canons, and the Expositions of the Fathers, and preached several Blasphemies against Predestination, and endeavoured to introduce Judaism.

The *Council of Paris*, assembled by the Emperor *Louis the Gentle*, in the Year 829; where there were made 67 Canons, to reform several Abuses which had been introduc'd in the *Gallican* Church. The fifty-fifth, fifty-sixth, and fifty-seventh, treat of the Obligation and Duties of Kings; and say, that the secular Powers are Necessaries in the Church, that what the Priest cannot do, by Instruction and Doctrine, Power may command it, through Fear of the Punishment: That those who act against the Faith, and the Discipline of the Church, be corrected by the Severity of Princes; and that the Discipline which the Conduct of the Church cannot exercise, be established upon the Head of the Provost, by the Power of the Sovereign; and that Power may oblige them to observe and respect the ecclesiastical Laws.

The *Council of Valence*, celebrated in the Year 855; of Pope *Benedict* III. 1; of the Emperor *Lotharius*, 15; of *Michael*, 14; there were present in this *Council* 14 Bishops of three Metropolis. In it the Bishops profess to follow the Doctrine of the Fathers, St. *Cyprian*, St. *Hilary*, St. *Jerom*, and St. *Augustin*, and the Tradition of the Church. In the second Chapter, they explain the Doctrine of the Presence of God, 'which, say they, necessitates no Body, so that a Man 'could not be, otherwise, than it has been foreseen, 'but only such as he should be, by his own proper 'Will; that no Body is condemn'd because God has 'foreseen it, but by his own proper Iniquity; and 'that the Bad do not perish because they could not be Good

'Good, but because they would not; and that by 'their Vices they remain in the Mass of Damnation, by 'the original, or actual Sin.

In the second Chapter, they expose their Sentiments of Predestination, and confess, 'that there is a Predestination of the Impious, to eternal Death; but 'that in the Election of those who are saved, God's 'Mercy precedes the Merits and the good Works; 'and that in the Damnation of the Wicked, the bad 'Deeds and Demerits, precede God's Judgment: 'Lastly, that no Body is predestinated to Evil by 'God's Power, so that he could not be other than 'Bad. An Error against which they pronounce *Anathema*.'

In the fourth Chapter, they treat of the *Redemption*, and call '*a great Error*, the Opinion of those, who 'say, that the Blood of *Christ* has been spilt for the 'Impious, who are dead in their Impiety, from the 'Beginning of the World to his Passion, and consequently are damn'd; but teach, according to the 'evangelical and apostolical Truth, that the Price of 'the Blood of *Jesus Christ*, has been given for those 'he spoke of, when he said; *as* Moses *has exalted the Serpent in the Desart, thus the Son of Man must be exalted, that whoever believe in him, may not perish, but have Life everlasting*. Towards the End, they condemn'd four Chapters or Articles, which had been receiv'd imprecedently, in the *Council* of *Mayence*, because of the Damages they could produce, and of the Error contrary to the Truth they contain'd, and the Conclusions compris'd in nineteen Syllogisms, which they reject by the Authority of the Holy Ghost, and which they are not willing should come to the Ears of the Faithful.

These four Chapters, and these Syllogisms, must be those which *Hincmarus*, had caused to be made, in the *Council of Mayence*, against *Gothescack*, and shews plainly, that the *Council of Mayence*, we speak of at present, had been assembled against his Doctrine.

In the eleventh Chapter, they abolish the Custom, which had been introduc'd, to make the two contending Parties swear, and excommunicate that Person, who opposes his Oath to that of his Party, it being impossible, that the one or the other, should not be guilty of Perjury.

In the sixteenth Chapter, the Bishops are order'd to preach themselves, or to appoint Ministers, capable to do it, as well in the Villages, as in the great Towns.

In the seventeenth Chapter, mention is made of the Visitation of Parishes, and order'd, that it should be with Parcimony, and according to the canonical Instruction, that it may appear, that Bishops, either by themselves, or their Ministers, seek only after the Salvation of Souls, and no Body should have any Reason to complain of the too great Expence.

There have been several other *Councils*, either national, or provincial, besides those heretofore mentioned, and likewise in the following Centuries, which it would be too tedious to mention here, and which all tend towards the same End, *viz.* to abolish the Heresies condemn'd in the œcumenical *Councils*, of which I have given a very particular Description, or to reform the ecclesiastical Discipline.

CURRYING.

CURRYING is a Method of preparing Leather with Oil, or Tallow; which raises on the Hair, or Wool-Side, a Kind of Grain, not unlike that of *Morocco*; though there is also a Kind of *curried* Leather without Grain. *Currying* is the last Preparation, and puts the Leather in a Condition, to be us'd for Shoes, Saddles, Harness, *&c.* The Colours given in *Currying*, are, black, white, red, yellow, and green: The other Colours are given by the Skinners; who differ from the *Curriers* in this, that they apply their Colours on the Flesh-Side; the *Curriers* on the Hair-Side.

Our *Currier*'s Shop, must be provided with long two-handed Knives, to pare the Leather with; a Steel, made somewhat in Form of a Bodkin, to turn in the Edge of the Knife; a flat Iron Instrument, to beat down the Grain; a Pummel, or Call; a Table to stretch the Leather upon; a Horse, or Leg, to pare, and pummel his Leather upon; Pumice Stones, Oil, Tallow, Colours, *&c.*

There are four Manners of *currying* Leather, in black, with the Grain; for the Skins are either put in Tallow on both Sides; or Oil is us'd in lieu of Tallow, on the Flesh-Side; or Tallow is us'd alone, on the Hair-Side, and nothing on the other; or Tallow is us'd on both Sides, and no Grain rais'd.

The two first, are us'd for Cows and Calves Leather; the second, is the only Way us'd for Sheep; and the two last, are us'd occasionally, for Cow and Bullock: For Calf and Sheep, they use Sumach on the Flesh-Side, which gives an Orange-Cast.

For *Neat's-Skin*, in black; the Skin coming from the Tanner, is wet several Times with a Broom, roll'd and trod under Foot to make it tractable, drain'd, and as much of the remaining Flesh as possible, taken off with the Knife; hung in the Air till half dry, then wet and trampled again and again. This done it is rubb'd over with a Pummel, having Niches in Manner of Teeth, to render it still more pliant, and sing'd with Straw to prepare it to receive the Tallow; which is applied boiling hot on both Sides. The Skin is then sing'd a second Time, laid four Hours in a Vessel of fresh Water, trampled, and work'd a second Time with the Pummel, on each Side, and stoutly drain'd; smear'd over with its first black, made of Galls and Ferailles, boil'd in Beer-Agre, or Sour-Beer; half dried, stretch'd on a Table, and the Grain beat down with the flat Iron Instrument drawn over it from Place to Place.

It now receives its second black, made of Galls, Copperas, and Gum-arabick; when dry, and stretched on the Table, it is smear'd over with Beer-Agre; then folded from Corner to Corner, upon the Bench, and the Pummel drawn over it to cut the Grain, first on the Hair-Side, then on the Flesh-Side; the last with a Pummel of Cork: The Beer hanging in it, is taken out with a Hair Rubber, boiled in Hatter's Lye; and the Skin fasten'd to the Table, and clean'd with the Iron Instrument above-mentioned, and again wiped with a Piece of worsted Stocking. The Skin is now brightened, on the Hair-Side, with a Lustre made of Barberries, to prepare it to receive its last Grain. The Grain, we already observ'd, is begun by folding the Skin, the Hair-Side inwards, several Ways: To finish it, it is again folded, after its first Lustre, two Ways; first from Corner to Corner, a little slanting, then across, *i. e.* first directly, or from Eye to Eye; then from Head to Tail. The Grain thus form'd, the last Lustre, which makes the last Preparation is given; composed of Gum-arabick, Garlick, Beer, Vinegar, and *Flanders* Size, boiled together, and applied cold.

Calf-skin in Black is prepared much after the same Manner; though begun differently. After wetting, taking off as much of the Flesh remaining as possible, and drying, they pounce the Flesh with a hard, rough, Pumice-stone, which makes it more smooth and gentle; then give the Grain with the Pummel, put on the Tallow; the rest as before.

What *Sheep-skins* in Black have peculiar in their Preparations, is, that they are first stretched on a Table to get off the Bourre, or Tan, wherewith they are laden;

laden; then wet, trod under foot, and Tallow added on the Hair-ſide: They are again wet, again trod, ſtretched on the Table, and the Water ſqueezed out with the Pummel; then blacked, repaſſed under the Pummel on each Side; dyed, and all the Roughneſs and Inequality pared off with a flat, round, cutting Inſtrument: The reſt as before.

Sleek-Leather, or that without any Grain, made of Cows or Bullocks Skins, differs a little in its Preparation from the former. The Skins being wet, trod, and paſſed under the Pummel, the Fleſh is taken off; the reſt as in the firſt Article: Obſerving that the Tallow be applied on both Sides as thick as poſſible: Being now ſteeped in Water, trod, frized, and blacked the firſt Time; the ſecond Black is next laid on, till the Hair-ſide be quite ſmooth; laſtly, after receiving the two Luſtres, they are preſſed between two Tables; without plating or folding them in any Manner during the whole Preparation.

The Method of preparing the Leather, called in *England*, *Morocco*, in *France*, *Marroquin*, is alſo, a Branch of the Art of *Currying*.

The *Morocco*, or *Marroquin*, is the Skin of a Goat, or ſome other Animal reſembling it, called *Menon*, frequent in the *Levant*, dreſſed in Sumack, or Galls, and coloured of any Colour at Pleaſure, much uſed in Tapiſtry, Book-binding, Pumps, *&c.* We have *Morocco* brought from the *Levant*, *Barbary*, *Spain*, *Flenders*, and *France*; red, black, yellow, blue, *&c.* we muſt teach the Manner of preparing it in all thoſe Colours, beginning by *black Morocco*.

To prepare *black Morocco*, the Skins having been dried, are ſteeped in clear Water three Days and Nights, ſtretched on a wooden Horſe or Leg, beaten with a large Knife for that Purpoſe, and ſteeped afreſh in Water, changed daily till they be well come again. In this State they are thrown into a large Vault in the Ground, full of Water, wherein quick Lime has been ſlaked, where they lie 15 Days; whence however they are taken and again returned Night and Morning: They are then thrown into a freſh Vault of Lime and Water, and ſhifted Night and Morning as before, for 15 Days longer; then rinſed in clear Water, and the Hair taken off, on the Leg with the Knife, returned into a third Vault, and ſhifted as before, for about 18 Days; ſteeped 12 Hours in a River, taken out, rinſed, put in Pails, where they are pounded with wooden Peſtles, changing the Water twice, then laid on the Horſe, and the Fleſh taken off, returned into Pails of new Water, taken out, and the Hair-ſide ſcraped; returned into freſh Pails, taken out, and thrown into a Pail of a particular Form, having Holes at Bottom: Here they are beaten the Space of an Hour, and freſh Water poured on from Time to Time; ſtretched on the Leg, and ſcraped on either Side; returned into Pails of freſh Water; taken out, ſtretched, and ſewed up all around in manner of Bags, leaving out the hind Legs, which ſerve to make an Aperture for the Conveyance of a Mixture mentioned hereafter.

The Skins thus ſewed, are put in luke-warm Water, where Dogs Excrement has been diſſolved. Here are ſtirred with long Poles half an Hour, left at reſt a dozen, taken out, rinſed in fair Water, and filled by a Tunnel with a Preparation of Water and Sumack, and kept ſtirring four Hours ſucceſſively, taken out, and heaped on one another; after a little Time their Sides are changed; and thus they continue an Hour and an half, till drained: This done, they are looſened and filled a ſecond Time with the ſame Preparation, ſewed up again, and kept ſtirring two Hours, piled up, and drained as before. This is again repeated a third Time, with this Difference, that they are now only ſtirred a quarter of an Hour; after which they are left till the next Morning, when they are taken out, drained on a Rack, unſewed, the Sumack taken out, folded in two from Head to Tail, the Hair-ſide outwards, laid over each other on the Leg, to perfect their draining, ſtretched out, and dried; then trampled under foot by two and two, ſtretched on a wooden Table, what Fleſh and Sumack remains ſcraped off, and the Hair-ſide rubbed over with Oil, and that again with Water.

Having thus received their Oil and Water, they are wrung in the Hands, then ſtretched and preſſed tight on the Table, with the Iron Inſtrument uſed for common Leather, the Fleſh-ſide uppermoſt; then turned, and the Hair-ſide rubbed ſtrongly over with a Handfull of Ruſhes, to ſqueeze out as much of the Oil remaining within as poſſible. The firſt Courſe of Black is now laid on the Hair-ſide by means of a Lock of Hair twiſted, and ſteeped in a kind of black Dye, prepared of ſour Beer, wherein Pieces of ruſty Iron have been thrown. When half dry, by hanging in the Air, they are ſtretched on a Table, and rubbed over every Way with the Pumice, to raiſe the Grain, over which is paſſed a light Couch of Water, then ſleeked, by rubbing them with Ruſhes prepared for the Purpoſe. Thus ſleeked, they have a ſecond Couch of Black, then dried, laid on the Table, rubbed over with a Pumell of Cork, to raiſe the Grain again; and after a light Couch of Water, ſleeked over anew, and to raiſe the Grain a third Time, a Pumell of Wood uſed.

After the Hair-ſide has thus received all its Preparations, the Fleſh-ſide is pared with the Knife; the Hair-ſide rubbed ſtrongly over with a Woollen Cap, having firſt given it a Luſtre with Barberries, Citron, or Orange. The whole is finiſhed by raiſing the Grain lightly, for the laſt Time, with the Pumell of Cork, which leaves them in a Condition for Sale and Uſe.

They prepare the *red Morocco*, by ſteeping the Skins 24 Hours in a River, taking them out, ſtretching them on the Leg, beating them with the Knife, returning them into the Water for 24 Hours, rebeating them on the Leg, reſteeping, throwing them into a Vault, and for three Weeks, taking them out, and turning them every Morning, to diſpoſe them to peel. Being taken out for the laſt Time, they are ſcraped with the Knife, and when the Hair is quite off, thrown into Pails of freſh Water, where they are rinſed; then the Fleſh-ſide ſcraped, thrown into the Pails, and thus alternately from the Leg to the Pails, till they leave the Water quite clean: Then they are put in luke-warm Water, with the Sumack as before, and after 12 Hours rinſed in clear Water, and ſcraped on the Leg on both Sides, pounded in Pails, and the Water changed three Times; then wrung and ſtretched on the Leg, and paſſed after each other into Water, with Allum diſſolved in it. Thus allumed, they are left to drain till the Morning, then wrung out, pulled on the Leg, and folded from Head to Tail, the Fleſh inwards.

In this State they receive their firſt Dye, by paſſing them after one another into a red Liquor, prepared with Lacca, and ſome other Ingredients, kept ſecret among the *Maroquineers*. This they repeat again and again, till the Skins have got their firſt Colour: They are then rinſed in clear Water, ſtretched on the Leg, and left to drain 12 Hours; thrown into Water, into which white Galls pulverized have been paſſed thro' a Sieve, and ſtirred inceſſantly for a Day with long Poles, taken out, hung on a Bar a-croſs the Water all Night, white againſt red, and red againſt white, and in the Morning the Water ſtirred up, and the Skin returned into it for 24 Hours.

CUTLERY.

CUTLERY, is the Art of making Knives, Razors, Scissars, Lancets, and all other edged Tools or Instruments.

The Art of *Cutlery*, consists of several Branches; for there are *Cutlers*, who make only Knives, and understand little, or nothing of the other Branches; others Razors, others Lancets, others Instruments of Surgery; others Tools for Joiners, Carpenters, Sculptors, *&c.* with this Difference, that those who can make Lancets, and other Instruments, can likewise make Razors, Knives, Scissars, Penknives, *&c.* whereas few of those who make Knives, or Scissars only, understand how to make a good Razor, a Lancet, or any other Instruments.

The Shop of a *Cutler*, practising any of the abovementioned Branches of *Cutlery*, must be fitted with a Forge, Anvils, Hammers, round Whet-stones of different Sizes and Grain, some coarser some finer; a large Wheel, in the Form of a spinning one, to turn round the Stones, and the polishing Tools, a Sink, to keep the Water, with which the Whet-stones are wetted, and on which they are fixed; besides the Whet-stones, and the polishing Wheels, made of Walnut-tree an Inch thick, and of a Diametre at Pleasure. The *Cutlers* for Razors, Lancets, and other such Instruments, must have besides Hones, to set those Instruments upon.

The next Thing which a *Cutler*, in either of the Branches of *Cutlery*, is to furnish himself with, is a sufficient Quantity of Iron and Steel; and as all sorts of Iron or Steel, indifferently, are not proper for his Purposes, he must understand very well how to chuse them.

Generally speaking, the best *Iron* is that which is softest and toughest, and which, when it breaks, is of an even greyish Colour, without any of those glittering Specks, or any Flaws or Divisions, like those seen in broken Antimony. But as different Countries produce different Kinds of Iron, which have Properties very different from one another; we must take Notice here, that the *Swedish Iron*, which is a fine tough Sort, will best endure the Hammer, is softest to the File, and in all Respects the best to work upon, is the propereſt for *Cutlery-Wares*. The *Spanish* would be as good were it not subject to red-scar, that is, to crack betwixt hot and cold. The *English Iron*, which is coarse, hard, and brittle, ought not to be found in a *Cutler*'s Shop.

Though *Steel* be but a kind of *Iron* refined, and purified by the Fire, with other Ingredients, it nevertheless is much preferable to *Iron*, in a *Cutler*'s Shop, as being susceptible of the greatest Degree of Hardness, when well tempered. The best *Steel*, is that which is well condensed, and in no Part looks like *Iron*. The best Razors, Lancets, *&c.* should be all of *Steel*.

Note, That as the true Method of making *Steel* has been greatly concealed, and the Publick long abused by Counterfeits; I'll give the following one to my Readers, which we have from *Agricola*, and is affirmed by *Kircher* to be that practised in the Island of *Ilva*; a Place famous in all Ages for the Manufacture of good *Steel*, from the Time of the *Romans* to ours. Heat a Quantity of *Iron* red hot, cut it into small Pieces, mix it with a sort of Stone that easily melts. Put this Mixture, by little and little, into a Crucible, first filled with Charcoal-dust, and heated red-hot; when melted off, three, four, or more Pieces of *Iron* are to be put into the Middle of it, there boil them, five or six Hours, with a strong Fire. The Workman is to stir the melted Matter often, that the Pieces of *Iron* may soak in the smaller Particles of the melted Matter; which Particles consume, the grosser ones of the Iron Pieces, and are, as it were, a Ferment to them, and make them tender. One of the Pieces is now taken out of the Fire, and put under the great Hammer, to be drawn out into Bars and wrought; and hot as it is, plunged into cold Water. Thus tempered, it is again worked upon the Anvil; then breaking it, it is considered, whether in any Part it looks like *Iron*; or whether it be wholly condensed and turned into *Steel*.

The chief Art of *Cutlery* consists in forging, tempering, and polishing well the Work.

A *Cutler* cannot use too much Precaution, in forging his Work, not only in giving it a proper Shape, and suitable to the Instrument he designs to make, that it may both be useful, and strike agreeably to the Eye (for there are sometimes Instruments, which though very good, are so aukwardly made and ill shaped, that very few Persons are ready to buy them) but likewise that Heat necessary to render it fit for tempering: Which Heat must neither be too cold nor too hot. For if too cold the igneous Particles do not penetrate intimately enough, those of the Work, to dispose them to that closer Coadunation, which they must acquire in the tempering; and if too hot, it would red-scar, and crackle, and thereby cause a very great Deformity in the Piece of Work.

The *Tempering* of the Work (which is done to render it more compact, hard, and firm; or even more soft, or pliant, according to the respective Occasions) is to plunge it, while Red-hot, in some Liquor, prepar'd for the Purpose: Sometimes into pure Water, and in effect, Locksmiths, *&c.* scarce use any other; sometimes into a Composition of divers Juices, Liquors, *&c.* which is varied according to the Manner, and Experience of the Workman; as Vinegar, Mouse-Ear-Water, Nettles, or *Spanish* Raddish-Water, the Water oozing from broken Glasses, Soot, Salt, Oil, distill'd Wine, Sal-Armoniack, *&c.* A *French* Cutler, told me once, that there could be no better *Tempering* than Tallow.

To *harden*, and *temper*, *English*, *Flemish*, and *Swedish* Steel, we must give them a pretty high Heat, then suddenly quench them in our Liquor, to make them hard; but *Spanish* and *Venice* Steel, will need but a Blood-Red-Heat, before it be quenched.

After the *Instrument* has been *temper'd*, it is grinded upon a Grind-Stone, or Whet-Stone, as well to take off the Roughness left on it, after the forging and filing, as to form the Edge; which done, it is polished on the Polisher above-mention'd, (turn'd by the great Wheel) with Emery and Putty. And lastly, set (if it be a Razor, Lancet, *&c.*) on the *Hone*; and rubb'd, afterwards, on a Strap of Leather, prepar'd for that Purpose. There cannot be too great a Nicety, in setting and polishing a Lancet, for the least Roughness, even the most unperceptible, either on the Edge, or on the Surface, proves very prejudicial to the Part, when used.

The *English Cutlery*, is noted for the Goodness of their Knives, and Pen-Knives; and *France*, for the other Branches of the Art; and even some Parts of that Kingdom, excel the other, in some particular Branches; for *Paris* is famous for Razors, Lancets, and other Instruments of Surgery; *Moulins* for Scissars; *Barsuraube* and *Condè* for Knives.

The making of *Sword-Blades*, and *Foils*, is also another Branch of *Cutlery*, different from all others. *Sword-Blades*, are commonly forged, with the Help of a Mill, which works heavy Hammers for that Purpose.

We know nothing of the Origin of the Art of *Cutlery*, but by mere Conjectures: For my Part, I am of Opinion, that it begun with the Use of the Sacrifices of Animals, or Beasts; that the Knives, with which the Victims were slaughter'd, were only made, at first,

of

of Stones, and that the Invention is owing to the *Egyptians*, in which Opinion I am the more confirm'd, becauſe of the Stone Knives us'd by the *Hebrews*, in the Circumciſion. The Uſe of Iron having been found afterwards, Knives were made of that Metal, as well as, in Proceſs of Time, Swords, Poniards, and other ſharp Weapons, invented for the Deſtruction of Men and Beaſts. This Art is ſo far dignified, as to have invented the Inſtrument, with which, the greateſt Titles, and Marks of Honour, are adminiſtred, *viz.* the Sword, which is, likewiſe, carried in Ceremony, before Emperors, Kings, and other Sovereigns, for a Mark of their Authority, or Power.

DAMASKEENING.

DAMASKEENING, is the Art of adorning Iron, and Steel, by making Inciſions therein, and filling them up with Gold or Silver-Wire; chiefly uſed in enriching Sword-Blades, Guards, and Gripes, Locks of Piſtols, *&c.*

Damaſkeening, is partly Moſaick Work, partly Engraving, and partly Carving. As Moſaick Work, it conſiſts of Pieces inlaid; as Engraving, the Metal is indented, or cut in *Creux*; and, as Carving, Gold and Silver are wrought therein in *Relievo*.

There are two Manners of *Damaſkeening*; in the firſt, which is the moſt beautiful, the Artiſt cuts into the Metal with a Graver, and other Tools, proper for Engraving on Steel; and afterwards fills up the Inciſions, or Notches, with a pretty thick Silver, or Gold-Wire. In the other, which is only Superficial, they content themſelves to make Hatches, or Strokes acroſs the Iron, *&c.*

For the firſt Manner of *Damaſkeening*, it is neceſſary, the Gravings and Inciſions, be made in the Dove-Tail Form, that the Gold or Silver-Wire, which is thruſt forcibly into them, may adhere the more ſtrongly.

The ſecond Method is the moſt uſual, and practis'd, by heating the Steel till it changes to a Violet, or blue Colour, hatching it over and acroſs with a Knife; then drawing the Deſign, or Ornament intended, on this Hatching, with a fine Braſs Point, or Bodkin. This done, a fine Gold or Silver-Wire is taken, and conducting, or chaſing it according to the Figures already deſign'd, it muſt be ſunk carefully into the Hatches of the Metal, with a Copper Tool.

This Art of *Damaſkeening*, was much in Vogue in the two laſt Centuries, but is ſo much diſregarded in ours, that we find no Artificers capable to imitate the curious Pieces of Workmanſhip we have left in that Taſte. *Chaſing*, or *Enchaſing*, is uſed in lieu thereof; for thoſe Pieces, which in paſt Ages were *damaſkeen'd*, as Guards, and Gripes of Swords, *&c.* and which is the Art of enriching and beautifying Gold, Silver, and other Metal Works, by ſome Deſign, or Figures repreſented thereon, in low *Relievo*.

Chaſing, is only practis'd on hollow, thin Works; as Watches, Cane-Heads, Tweezer-Caſes, or the like. It is perform'd by punching, or driving out the Metal, to form the Figures from within-ſide, ſo as to ſtand out prominent from the Plain, or Surface of the Metal. In order to this, they have a Number of fine Steel Blocks or Puncheons, of divers Sizes; and the Deſign being drawn on the Surface of the Metal, they apply the Inſide upon the Heads or Tips of theſe Blocks, directly under the Lines or Parts of theſe Figures. Then with a fine Hammer, ſtriking on the Metal ſuſtain'd by the Block, the Metal yields, and the Block makes an Indenture, or Cavity on the Inſide; correſpondent to which, there is a Prominence on the Outſide, which is to ſtand for Part of the Figure. Thus, the Workman proceeds to *chaſe*, and finiſhes all the Parts by ſucceſſive Applications of the Block and Hammer, to the ſeveral Parts of the Deſign. And it is ſurpriſing, with what Beauty, and Exactneſs, by this ſimple Piece of Mechaniſm, the Artiſts, in this Kind, will repreſent Foliages, Groteſques, Animals, Hiſtories, *&c.* One of the beſt Artiſts in *England*, in this Kind of Work, in the Opinion of the *Connoiſſeurs*, is Mr. *Gliziere*.

The Art of *Damaſkeening*, (though perhaps practis'd at firſt, at *Damaſcus* in *Syria*, whence it borrows its Denomination) was brought to its greateſt Perfection, by Mr. *Curſinet*, a *Frenchman*, who wrought under the Reign of *Henry* IV. King of *France*, though *Chambers* endeavours to rob him of this Honour.

DANCING.

DANCING, (from the *French Danſer*; and *Danſer*, according to *Salmaſius*, from the *Latin Denſare*, to thicken, as holding it a Practice among the antient Fullers, to leap and dance as they full their Cloaths) is an agreeable Motion of the Body, adjuſted by Art, to the Meaſures or Tune of a Violin, or Voice.

Dancing, is diſtinguiſh'd into *high Dance*, conſiſting of Capers, Gambols, *&c.* As the *Paſſe pied*, the *Louvre*, the *Folies d'Eſpagne*, the *Rigadoon*, the *Bretaine*, the *Allemande*, or *German*, &c. And *low Dance*, which is *Terra à Terrâ*, or cloſe to the Ground.

The Perfection of the Art of *Dancing*, conſiſts chiefly, in the Goodneſs of the Ear of the Perſon who *dances*, that minding well the Meaſure of the Inſtrument, or Voice he *dances* by, he may adjuſt his Steps to it, otherwiſe, it is impoſſible he ſhould ever learn to *dance* well; neither can he mind thoſe Meaſures, as perfectly as he ſhould do, if he has not a tolerable good Taſte for Muſick.

The chief End of the Art of *Dancing*, is, that a Perſon ſhould learn to preſent himſelf in Company, with an eaſy and unaffected Air, and to ſtep gracefully; as for the other Advantages reaped from it, they are trifling, and in my Opinion, ſo much beneath the becoming Gravity of a rational Man, that I conſider them as nothing at all; though every Body is not of my Opinion, for the Generality of Mankind, conſider *Dancing*, as a noble Exerciſe, or Diverſion, practiſed with Pleaſure by Perſons of all Ranks and Conditions; even by Princes, and Heroes.

Dancing, is not like ſeveral other Arts, for it can't be learn'd perfectly, without the aſſiduous Attendance of a Maſter, and a continual Practice. A Beginner, or Pupil, beſides the Voice of his Maſter, ſinging to his Ears, one two, one two three, *&c.* muſt be led by him, by the Hand, as an Infant who learns to walk, that he may ſtep forward, ſtop, *cadance*, and bow his Knees, when wanted. The Grace, or Beauty of *Dancing*, does not conſiſt in thoſe Extenſions and Contorſions of the Arms, which I have ſeen practiſed by ſome Maſters here in *England*, which appeared to me, as if they were in ſtrong Convulſions, unleſs, the *Dance*, being a *Comick-Dance*, requires it; but in Minuets, Rigadoons, and all other ſuch Dances moſt in Uſe, in Balls and publick Aſſemblies, thoſe Contorſions

ſions are frightful. The Man, in a Minuet, Rigadoon, &c. muſt have a gentle Motion of his Hands, but only as if it was natural, and without the leaſt Affectation; and the Woman muſt let fall her Hands as gently, cloſe to her Sides, the Head modeſtly erected, alſo without Affectation; both enlivening, and cadencing their Steps, according to the Meaſures of the Inſtruments, provided they play true, which a good *Dancer* will ſoon find, by the Goodneſs of his Ear.

The *Engliſh* have invented a new Sort of *Dances*, which they call *Country-Dances*, which are ſo entertaining, that they are in Vogue, at preſent, throughout all *Europe*, each Nation having modelized them, on the different Taſte they have for *Dancing*.

A *Country-Dance*, is nothing but a Couplet, or Part of a *Dance*, always repeated, firſt by two, by four, ſix, eight, ten, &c. and at laſt, by as many Couple, as the Number of People amounts to. I call *Couple*, the Man and the Woman that figure together. A *Couplet*, in *Country-Dances*, is a certain Quantity of Figures that fill up the Tune: The ſame *Country-Dance*, may have ſeveral Couplets or Parts, which are like ſeveral Verſes of Songs, upon the ſame Tune.

Each Couplet of a *Country-Dance*, is divided by Figures, *viz.* 1 fig. 2 fig. 3 fig. 4 fig. 5 fig. &c. The firſt Figure, is always that by which one begins, and goes on till you arrive at the laſt, which will be the End of the Part, and is to be repeated, not only by them who have begun, but alſo by all the other Couples, who muſt follow the ſame Way as the firſt, and ſhall likewiſe continue in the ſame Order, till every Body be arriv'd at the ſame Place, from whence they begun; and then the whole Part will be entirely finiſhed, and every Couple make their Honour as they finiſh. But if there be a ſecond Part, you muſt inſtead of making your Honour, go on in the ſame Order, as you have done in the firſt, and put off making your Honour, till you come to the End of the laſt Part.

Country-Dances, are *danced* with as many Perſons as you pleaſe, provided it be an even Number, I mean as many Men as Women, placed upon two Lines, the Men on one Side, and the Women on the other, of which all the Couples ought to be diſtinguiſhed, *viz.* firſt Couple, ſecond, third, fourth, fifth, ſixth Couple, &c.

There are two chief Deſigns of *Country-Dances*, upon which all the different Figures, that may be invented, are founded. The firſt Deſign, is, that every Perſon, whatever Figure he makes, ends all the Repetitions to the ſame Side; that is to ſay, that the Man muſt not change his Place, but with another Man, and the Woman, but with another Woman. The ſecond Deſign, is, when the Men end all their Repetitions in the Women's Places, and the Women in the Men's Places.

In the firſt Deſign, four Things are to be obſerv'd. 1. When a Couple have begun to *dance*, they muſt not give off till they are come down to the laſt Couple. 2. Every Repetition, muſt begin always at the firſt Couple, at the upper End of the Room, and end at the ſecond Couple, then to the third Couple, to the fourth, &c. and ſo to come down from Couple to Couple, till you arrive to the laſt Couple; where then all the Repetitions of the laſt Couple are at an End; and that Couple *dances* no more, till another Couple coming down, in their Turn they move up. 3. That a Couple ought not to begin to *dance*, till they are come into the firſt Couple's Place. 4. That a Couple that is come to the firſt Couple's Place, muſt not begin to *dance*, till the preceding Couple have made two Repetitions before.

It muſt be obſerved, likewiſe, that every Time that a Couple end their Repetitions, under another Couple, the Couple that is above, muſt move up and take the Place of them that go down.

In the ſecond Deſign, there are alſo four Things to be obſerved. 1. When a Couple begins to *dance*, from whatever Place they begin, they muſt not diſcontinue, till they are arriv'd, not only to the laſt Couple's Place, but alſo, to the very Place where they have begun. 2. Every Time that a Repetition begins again, the ſame increaſes always by Couples, ſo that the *Dance* which before was but of two, comes to be of four, then of ſix, of eight, ten, &c. till every Body be in Motion. 3. When a Couple comes into the firſt Couple's Place, they muſt follow the ſame Way which the preceding Couples have gone. 4. When a Couple is come down to the laſt Couple, and finds there no Body more to *dance* with, then that ſame Couple *dances* again together, and afterwards moves up, always *Dancing*, till they come to the ſame Place where they have begun, and then all the Repetitions of that Couple are at an End.

Dancing, has always been in uſe among all Nations, both civiliz'd, and barbarous; though held in Eſteem among ſome, and in Contempt among others. Almoſt every Body is of Opinion, that of itſelf, *Dancing*, is harmleſs. There is a Time, ſays the Preacher, to *dance*, and ſometimes it is even made an Act of Religion. Thus *David danced* before the Ark, to honour God, and expreſs his Exceſs of Joy, for his Return into the City of *Sion*. *Socrates* learned to *dance* of *Aſpaſia*; and the People of *Crete* and *Sparta*, went to the Attack *Dancing*. On the other Hand, *Cicero* reproaches *Gabinius*, a conſular Man, with having *danced*. *Caſtor* and *Pollux*, are ſaid to be the firſt who taught the Art of *Dancing*; and that to the *Lacedemonians:* Though others attribute the Invention to *Minerva*, who *danced* for Joy after the Defeat of the Giants.

The Antients had three Kinds of *Dances*, the firſt grave, called *Emmelia*, anſwering to our low *Dances* and Pavanes; the ſecond gay, called *Cordax*, anſwering to our Courants, Galliards, Gavots, and Vaults; the third called *Siccinnis*, was a Mixture of Gravity and Gaiety. *Neoptolemus*, Son of *Achilles*, taught the *Cretans*, a new Sort of *Dance*, called *Pirricha*, or the *armed Dance*, to be us'd in going to War; although, according to the Mithologiſts, the *Curetes* firſt invented this *Dance*, to amuſe and divert the Infant *Jupiter*, with the Noiſe, and Claſh of their Swords, beating againſt their Bucklers.

Diodorus Siculus, in the 4th of his *Bibliotheca*, aſſures us, that *Cybele*, Daughter of *Menoes*, King of *Phrygia*, and *Dindymenis*, his Wife, invented divers Things, and among others, the Flageolet of ſeveral Pipes, *Dancing*, the Tabor, and the Cymbal. It is certain, that *Numa* inſtituted a Sort of *Dance*, for the *Salii*, Prieſts of *Mars*, who made uſe of Weapons therein. From theſe *Dances* were compoſed another, call'd *Saltatio Mimicorum*, or the *Buffoon's-Dance*; wherein the Dancers were dreſs'd in little Corſlets, with gilt Morions, Bells on their Legs, and Swords and Bucklers in their Hands. *Lucian* has an expreſs Treatiſe, and *Julius Pollux* a Chapter on this Head; *Athenæus*, *Cœlius Rhadiginus*, and *Scaliger*, alſo make mention of this *Dance*.

The *French* are accounted the beſt Dancers in *Europe*; and the Enemies of the *French* Name, who are always glad of an Opportunity of reflecting on that Nation, right or wrong, reproach them with it as an Imperfection.

The moſt celebrated *Dancing-Maſters*, we have in *England*, are M. *L'Abbè*, *Dancing-Maſter* to the Royal Family, *La Guarde*, *Lanion*, *Lalley*, *Nivelon*, and ſeveral others. But we have ſome ſo ſcandalouſly ignorant, that they want *Dancing-Maſters* themſelves; though they find Scholars, becauſe they teach cheap, and well they may ſince they teach nothing.

There is a Manner of *Dancing*, which of late Years, has much entertain'd the Admirers of thoſe Sorts of Paſtimes, called *Rope-Dancing*, and which was perform'd with a wonderful Agility, by the famous Madame *Violante*, and others.

Groddeck, Profeſſor of Philoſophy, at *Dantzick*, in his Diſſertation, *De funambulis*, defines a *Rope-Dancer*, a Perſon who walks on a thick Rope, faſtened to two oppoſite Poſts; which is preciſely what is expreſſed by the *Latin* Word *funambulus*. But our *Rope-Dancers*

do more, for they not only walk, but *dance*, and leap upon the Rope.

The Antients, 'tis certain, had their *Rope-Dancers*, as well as we; witness, the *Greek* Words *Neurobates*, and *Schomobates*, as well as the *Latin*, *Funambulus*, which every where occur. They had, likewise, the *Cremnobates*, and *Oribates*, that is, People who walked on the Brinks of Precipices; nay more, *Suetonius*, in *Galba*, *c.* 6. *Seneca* in his 85th Epistle, and *Pliny lib.* 8. *c.* 2. make mention of Elephants, that were taught to walk on the Rope. *Acron*, an antient Grammarian, and Commentator on *Horace*, takes Occasion to observe, on the 10th Satyr of the first Book, that *Messala Corvinus*, was the first who used the Word, *Funambulus*, and that *Terence* had it from him. But M. *Groddeck* shews that he is mistaken, and that *Messala* lived after *Terence*. The Business is, *Acron* confounds *Valerius Messala*, who got the Sirname *Corvinus*, in the War against the *Gauls*, about 200 Years before *Terence*, with one of his Descendants, who was a famous Orator in the Time of *Horace*. M. *Groddeck*, coming from the historical to the moral Consideration, maintains, that the Profession of a *Rope-Dancer*, is not lawful; that the Professors are infamous, and their Art of no Use to Society; that they expose their Bodies to very great Dangers; and that they ought not to be tolerated in a well regulated State. But coming afterwards to temperate the Severity of his Morals, he allows that there are sometimes Reasons for admitting them; that the People must have Shews; and that one of the Secrets of Government, is to furnish them therewith, &c.

The antient *Rope-Dancers*, had four several Ways of exercising their Art; the first vaulted, or turned round the Rope, like a Wheel round its Axis, and there hung by the Heels, or the Neck. The second flew, or slid from above, downwards, resting on their Stomachs, with the Arms and Legs extended. The third run along a Rope stretched in a right Line, or up and down. Lastly, the fourth not only walk'd on a Rope, but made surprizing Leaps and Turns thereon.

DIALLING.

DIALLING, (by the *Greeks* and *Latins* called *Gnomonica*, and *Sciatherica*, because it distinguishes the Hours by the Shadow of a Gnomon: By others, *Photo-Sciatherica*, because the Hours are sometimes shewn by the Light of the Sun; and by others, *Horologiography*) is the Art of Drawing Sun, Moon, and Star *Dials*, on any given Plane, or the Surface of any given Body.

As I design to give a Description of those different Sorts of *Dials*, and instruct my Pupil how to draw them, I'll begin by the most common, and most necessary of all of them, which is a *Sun-Dial*, and which is a Draught or Description of certain Lines, on a Plane, or Surface of a Body given, so contrived, as that the Shadow of a Style, or Ray of the Sun, passing through a Hole therein, shall touch certain Points at certain Hours.

There are different Sorts of *Sun-Dials*, which Diversity arises from the different Situation of the Plane, and the different Figure of the Surfaces, whereon they are describ'd; whence they become denominated, *equinoctial*, *horizontal*, *vertical*, *polar*, *direct*, *erect*, *declining*, *inclining*, *reclining*, *cylindrical*, &c.

Note, That it is impossible we can draw a *Sun-Dial* of any Kind, before we are thoroughly acquainted with the Circle of the Sphere, which is an Instrument (as we have already observ'd in our Treatise of *Astronomy*) whereby we explain the daily Motion of the celestial Bodies, according as they appear to us to move always from East to West, and also the proper Motion of the Sun, which moves from West to East, and makes its Revolution thro' the twelve celestial Signs, in the Space of one Year. We'll only describe here, those Circles of which the *Sphere* is composed, that belong to our present Subject: Those Circles, whose Planes pass through the Center of the Earth, are called great Circles of the Sphere, and all the others are less; but before we speak of those Circles, we ought to consider the *Axis* of the Sphere, which we have already conceiv'd to be a straight Line, about which the Instrument is turned. The Earth is placed in the Middle of this Instrument, and consequently the *Axis* passes through the Center thereof. The Plane of the *equinoctial Circle*, or *Equator*, is at right Angles to the *Axis*, and we have been inform'd in our Treatise of *Astronomy*, that this Circle divides the Sphere into two equal Parts, whereof one is called *Septentrional*, and the other *Meridional*. The *Ecliptick*, is another great Circle, whose Plane makes an Angle with the *Equinoctial*, of 23 Degrees 30 Minutes; the Sun moves under this Circle, going from the West towards the East, and makes one entire Revolution, in 365 Days and near 6 Hours. The Inclination of this Circle towards the *Equinoctial*, causes the different Declinations of the Sun, in Regard to the *Equinoctial*: It is divided into twelve equal Parts, called Signs; and we begin from the Intersection thereof with the *Equinoctial*, proceeding towards the North. The *Tropicks* are two Circles parallel to the *Equinoctial*, which touch the *Ecliptick* in the Points of its greatest Distance from the *Equinoctial*; therefore these Circles are distant from the *Equinoctial*, 23 Degrees 30 Minutes, on one Side towards the North, and on the other Side towards the South; so that it is manifest, that when the Sun is in the common Intersection of the *Ecliptick* and *Equator*, the Motion of the Sphere about its *Axis*, which goes from East to West, and is called the Motion of the *Primum Mobile*, makes him appear to us in the *Equinoctial*; and also when he is in his greatest Distance of the *Equinoctial*, the same Motion of the *Primum Mobile*, makes him appear to us to move in the *Tropicks*. The *Zenith* is an imaginary Point in the Sphere, mark'd by a straight Line coming from the Center of the Earth, and passing by some Place of the Superficies thereof. This Line is called the vertical Line of that Place. The *Horizon* is a great Circle, whose Plane cuts the vertical Line, at right Angles. The *Horizon* of a Place distinguishes the visible Part of the Heaven of that Place, from that Part of the Heaven which is not there seen. The *Meridian* is a great Circle which passes through the *Poles* and *Zenith*, the Plane whereof, at right Angles with the Planes of the *Equinoctial*, and *Horizon*; because this Circle passes through the *Zenith* and *Poles*.

If we suppose the *Equinoctial* to be divided into 24 equal Parts, beginning from the *Meridian*, the 6th and 8th Part shall fall on the Intersections of the *Horizon* and *Equinoctial*, because the *Meridian* and *Horizon*, are at right Angles to one another; and if we imagine other Circles, like the *Meridian*, that is to say, that pass through the Poles of the World, and Point of Division of the *Equinoctial*; those Circles, which we call *Meridians*, shall be the *Hour-Circles*, among which, is the *Meridian* of the Place, whereof all the Planes intersect one with another in the *Axis*. We may also conceive others, which divide each Parts into two, or four, to mark the Half-Hours, and Quarter-Hours; for if we suppose these Circles to be fix'd, then when the *Primum Mobile*, turns the Sun with his Ecliptick about the *Axis*,

Dialing.

Fig.1.
North Pole
Fig.2.
Fig.3.
Fig.4.
Fig.5.
Fig.6.
Fig.7.
Fig.10.
Fig.12.
Fig.15.
Fig.8.
Fig.14.
Fig.16.
Ring Dial.
Equinoctial Dial.
Fig.20.
Sun Dial.
Fig.19.
Fig.32.
Fig.22.
Fig.23.
Fig.30.
Fig.21.
Fig.29.
Fig.24.
Fig.26.
Fig.31.
Fig.33.
Fig.34.
Fig.25.

Axis, the Time of his apparent Course shall be divided into Hours, Halves, and Quarters, by these *Meridians*. Also we number the Declination of the Sun, upon the like *Meridians*, which do all intersect the *Equinoctial* at right Angles, which we make to pass through the Center of the Sun in the Ecliptick: We number this Declination from the *Equinoctial* towards the Poles; therefore, if it is either *South* or *North*, the Angles of Declination are measur'd by Arches or Circles.

Those Circles that pass through the vertical Lines, are called vertical Circles, or *Azimuth*, and their Planes are perpendicular to the Plane of the *Horizon*; they serve to measure the Heighth of the Sun above the *Horizon*, which is number'd from the *Horizon* towards the *Zenith*.

It is manifest from that which has been said before, that there are infinite *Horizons*, and *Meridians*, and that there are only these two great Circles, which may change according to the different Places on the Earth, for they are established by the vertical Line. The Amplitude of Rising or Setting, is counted on the *Horizon*, beginning from the Points where the *Equinoctial* cuts the *Horizon*, and is number'd towards the South or North. If we conceive that in the Revolution of one Day the *Horizon* moves, as being fastened to the *Axis*, so as it cannot change its Inclination, then when it shall pass by the 24 equal Divisions of the *Equinoctial*, it shall represent the 24 Circles of the *Italian* or *Babylonian Hours*.

Our Pupil having acquir'd this particular Knowledge of the Sphere thus adapted to *Dialling*, must be inform'd next of the principal Parts requisite for the Construction of *Sun-Dials*. Those Parts are the Center of the *Dial*, and the different Lines it is divided into. The Center of the *Dial*, is any Point taken on the Superficies of the Earth, and considered as its Centre in Relation to the Motion of the Sun; therefore, if we place a Style (which is a pointed Rod) upon any plain Surface, and then consider the Point of that Style, as the Center of the Earth, the Intersection of that Surface, with the Planes of the Hour-Circles, of the *Equinoctial* or *Equator*, of the *Horizon*, and of the other great Circles, shall be straight Lines, which retain the Names of the Planes of the Circles from whence they are produced. All these Lines on that plain Surface with the Style, make the *Sun-Dial*. The Shadow of the Point of the Style, which is one of the Points of the *Axis*, shews the Hours: And if the *Axis* which passes by the Points of that Style, meets with the Plane of the *Dial* in any Point, that Point is called the *Center* of the *Dial*; for it is evident that all the Hour-Lines shall meet in that Point. It is also evident that the Shadow of the Point of the Style gives the Hours, and shews when the Sun meets with any one of the Circles of the Sphere; for when the Sun comes to a great Circle, the Shadow of the *Axis* is extended in the Plane of that Circle, if that Circle passes by the *Axis*; and if it passes not by the *Axis*, the Shadow of the Point of the Style, shall be in the Plane of that Circle; for the Planes of great Circles pass by the Point of the Style.

If we conceive a conical Superficies, which has for its Base a less Circle of the Sphere, and for its *Vertex* the Point of the Style, that conical Superficies shall meet the Surface of the *Dial* in a curve Line; so as when the Center of the Sun shall touch that less Circle, which is the Base of the conical Superficies, the Shadow of the Point of the Style shall touch the curve Line, which is the Meeting of that curve Superficies with the Plane of the *Dial*; for the Point of the Style is on that Superficies whereof it is the *Vertex*. The Foot of the Style, is that Point on the Plane of the *Dial*, which is the Meeting of a straight Line drawn perpendicularly to that Plane, and which passes by the Point of the Style.

If the Plane of the *Dial* be consider'd as the Plane of the *Horizon* of any Place, the straight Line that passes by the Point of the Style, and by its Foot, shall be the vertical Line of that Place; and the Plane that passes by the Vertical and by the *Axis*, shall be the proper *Meridian* of that Place, consider'd as the *Horizontal* of a Place.

The Meeting of the *Meridian* and Surface of the *Dial*, is called the *substylar Line*, or the *Meridian* of the Plane or Surface of the *Dial*, which we ought to distinguish from the *Meridian* of the Place, which is the Meeting of the *Meridian* proper to that Place, and of the Surface of the *Dial*, at least if they be not coincident, which happens when the *Dial* does not decline from the East or West. We see by the Position of these Lines, that the *substylar Line* is always at right Angles with the *equinoctial Line*.

We ought to make the *Dial* so as the Foot of the Style be not incumber'd, for that Point serves for many Operations; therefore, the Style must be planted a little obliquely upon the Surface. By the Height and Length of the Style, is understood the straight Line drawn from the Point to the Foot thereof. The Arches of the *Signs* on the Surface of the *Dial*, are the Descriptions of the Parallels to the *Equinoctial*, which pass through the 12 equal Divisions of the *ecliptick Line*, which shews the Beginning of the Signs.

It does not suffice to be inform'd of the principal Parts, and Lines which compose our *Sun-Dial*; we must know, likewise, how to find those principal Parts, and how to mark or draw those Lines; or rather, how to reduce the *Art of Dialling* into Practice.

This Practice has for its chief Foundation, the Marking exactly the *Points of Shadow*, which the *Penumbra* renders very difficult; but which, however, can be effected two Ways.

The first is to fit a small round Plate to the Point of the Style, which may be parallel to the Plane of the *Dial*, whereof the Center may be join'd to the Point of the Style; then having drawn the Shadow of the said Plate on the Plane of the *Dial*, take the Middle of that Shadow, which shall be the Shadow of the End of the Style, at the same Time when we observed the Shadow of the Plate.

The second Way is to make a small round Hole in a little Piece of Paste-Board, or thin Plate, or other like Body, and having apply'd it to the End of the Style, so as the Center of the Hole may be joined to the Point of the Style, and that the small Plate may regard the Sun perpendicularly; the Light of the Sun shining through the Hole, shall make a clear Circle, or Oval. D E, Fig. 2. in the Shadow of the Plate on the Plane of the *Dial*, which we draw on the said Plane; and if it be an Oval, having drawn a straight Line, D P E from the Point P, which is the Foot of the Style, whereof F is the Point, which may pass through the Centre of that Oval, and cut it in D and E, or draw D G and E F, parallel to one another, and making any Angle with D E, D G being made equal to D S, and E F, equal to E S, the Line G F, shall cut D E, in the Point A, which shall be the Shadow of the Point of the Style S, at that Time when the Oval was drawn. But we may take the Center of the Oval for the Point A, without falling into any sensible Error, as we may see by the Operation in the Plate. But if the Shadow be a Circle, the Center of that Circle shall be the Shadow of the Point of the Style.

After we have mark'd the Points of Shadow, we must draw the *horizontal Line*, by applying a Rule, Fig. 3. A S so as one of the Edges thereof may be level, and touch the Point S, of the Style, which is planted upon the Plane of the *Dial*, and that End of the Edge of the Ruler, may touch the Plane of the *Dial* at the Point A, which shall be one of the Points of the *horizontal Line*. By the Point A, we draw a level Line on the Plane of the *Dial*, which shall be the *horizontal Line*.

From this we pass to the *substylar Line*, which is easily found by the Amplitude of the Sun's Rising and

and Setting upon the Plane of the *Dial*, in this Manner: When the Sun begins to rise on the Plane of the *Dial*, we must mark the Shadow of a small Thread extended from the Foot of the Style to its Point; and do the same when the Sun sets on the Plane of the *Dial*, the Angle comprehended between these two Lines of Shadow, whose *Vertex* is at the Foot of the Style, being divided into equal Parts, shall give the *substylar Line*.

The *substylar Line* being made, we find the *Center of the Dial*, by placing a Style on the Plane of the *Dial*, whose Foot we suppose to be P, and Point S, Fig. 4. and the Point of Shadow A, and *substylary Line* C P. we make the Angle *d* S *a*, equal to the Sum or Difference of a right Angle, and of the Sun's Declination; S *a* being made equal to S A, we take any Point, as *d*, upon the Line S *d*, and draw the straight Line *a d*. From the Point A, we draw the straight Line A R, perpendicular to the *substylar Line* C P, and from the same Point A, as a Center, and at the Distance *a d*, we describe the Arch N, cutting the *substylar Line* in N. From the Point R as a Center, and at the Distance R N, we describe the Arch N D; then we erect the Perpendicular P Z at right Angles to the *substylar Line*, and equal to P S the Heighth of the Style, then from the Point Z, as a Center at the Distance S *d*, describe the Arch G D cutting the Arch N D in D: The Line Z D determines the Situation of the *Axis*, in Respect of the *substylar Line*, and if it meets at the *substylar Line*, as at the Point C, that Point C shall be the Center of the *Dial*.

The Center of the *Dial* being found, we'll draw the *equinoctial Line*, by drawing the straight Line Z E, perpendicular to Z D, meeting the *substylar Line* in E: The Line V E perpendicular to the *substylar Line* drawn through the Point E, shall be the *equinoctial Line*.

Our next Operation is to place the *substylar* and *equinoctial Lines*, and the Center of the *Dial*, and to determine the Position of the *Axis* (any two Points of Shadow being given, with the Declination of the Sun at the Time of Observation of the Points of Shadow) which cannot be done without having placed, first, a Style on the Plane of the *Dial*, whereof the Point may be S and P, Fig. 5. the Foot, and any two Points of Shadow, A and B taken at Pleasure; making, besides, upon a certain Plane, the Angle *d* S *a*, equal to the Sum or Difference of a right Angle, and that of the Declination of the Sun, on that Day on which the Points of the Shadow were marked, according as the Declination is North or South; for we will have a Point of the *substylar Line* as Q, which may answer to a Point of the *Axis*, which may be more North than the Point of the Style; we must make the Angle *d* S *a*, equal to the Sum of a right Angle, and Angle of the Declination of the Sun, if the Declination be North; but equal to the Difference of a right Angle, and Angle of the Declination, if it be South.

This done, we'll take two small Rods of any firm Matter, as of Wood of a sufficient Thickness, or of Iron; and make them pointed at the Ends, and equal in Length to the straight Lines *a d*, *b d*; it is not material whether they be straight or crooked, if the Distances between their Points be equal to *a d* and *b d*. We'll put one of the Points of that Rod which is equal to *a d*, on the Point of Shadow A, and one of the Points of the other Rod to the Point of Shadow B, and join them together by the other Points, but so as the Points that are joined together, may approach or fall back from the Point of the Style, without altering the other Points of the Rods, which are set on the Points of Shadow A and B; then we take with the Compasses, or otherwise, the Distance between the Points *a* and *d*, and set that Distance between the Points of the Style and the Points of the Rods that are joined together: By this Means the common Points of the Rods being fix'd, shall be one of the Points of the *Axis*, which ought to pass by the Point of the Style, therefore the Situation of the *Axis* shall be determined.

By the common Point of the Rods so fixt, which I call D, having drawn a Line perpendicular to the Plane of the *Dial* which shall meet it in the Point Q, the Line P Q shall be the *Substylar* Line. The Point C, on the Plane of the Dial, where it is met by the Line D S, drawn by the Point of the *Style*, S, and by the End of the Rod D, shall be the Center of the Dial; from whence we may draw the Equinoctial Line in the Manner abovementioned.

But suppose we had but one single Point of Shadow given, with the Declination of the Sun, and the Height of the Pole above the Horizon; we must place the *Substylar* Line, the Center of the Dial, and the Equinoctial Line in the following Manner:

Having placed a *Style* upon the Plane of the Dial, whose *Point* may be S P, Fig 6. the *Foot*, and A one *Point of the Shadow*, we draw a horizontal Line, in the Manner above-demonstrated, and by the Point P draw the Lines B P H, perpendicular to the horizontal Line *h* H, and P Z parallel to H *h*, and equal to the Height of the *Style* P S; then from the Point H, where P H meets with the horizontal Line, we draw H Z and Z B perpendicular to Z H, which shall meet with H P at the Point B: if the horizontal Line passes not through the Point P, First we let it meet at the Point B.

Then we make the Angle *d* S *a*, upon some Plane, equal to the Sum or Difference of a right Angle, and of the Declination of the Sun at the Time when the Point of Shadow was observed; and make the Angle *d* S *b* equal to the Sum of a right Angle, and the Height of the Pole above the Horizon. Taking afterwards at Pleasure, the Point *d* on the Line S *d*, we make S *b* equal to Z B, and S *a* equal to the Length of the Shadow from the Point of the *Style* S to the Point of Shadow A, and draw the strait Lines *a d*, *b d*. By the Points A and B we draw the strait Line A B, and from the Point B, as a Center, at the Distance *b d*, we describe the Arch *f b*, either above or below the Line A B; and likewise from the Point A as a Center, and at the Distance *a d*, describe the Arch *g d*, cutting the Arch L F at the Point L, and from the Point L draw the strait Line O L perpendicular to A B.

From the Point O as a Center, at the Distance O L we describe the Arch D L; and from the Point P draw the straight Line P G K, perpendicular to O L; and from the same Point P, at the Distance *d* S, describe the Arch I, either on the one or the other Side of G, cutting the Line L O at the Point I. Then we make G K equal to P S, the Heighth of the Style, and from the Point K, at the Distance G I describe the Arch R D, cutting the Arch D L in D, and from the Point D draw the straight Line D Q perpendicular to L *b*, and the Line P Q, which passes through the Points P and Q, is the *substylar Line*. If the Point Q be too near to P, we may find another, by taking another Point *d* on the Line *f d*; consequently we place the *equinoctial Line*, and the Center of the *Dial*, as we have done it in the preceding Practices; having this Advantage, besides, that the Line which passes through the Point B, and through the Center of the *Dial*, shall be the *meridian Line*.

If the *horizontal Line*, passes through the Point P, or if the Point B be too far distant from the Point P, we must fasten another Style upon the Plane of the *Dial*, whereof the Point may pass by the Line of the Plummet hang'd from the Point S of the Style, the Point of that second Style being called B, we perform the Operation as before to find the Lines *d a*, *d b*; but we may use the small Rods above-mentioned, otherwise the Operation would be too long.

Next we must endeavour to find the Points of the Hours of 6 and 12 on the *equinoctial Line*, Fig. 14. and to draw the *meridian Line*, which must be done by supposing P S to be the Height of the Style, whereof P is the Foot, and S the Point; and supposing, likewise, N S to be the *horizontal Line*, and M N

M N the *equinoctial Line*; the Point N where the *equinoctial Line* meets with the *horizontal Line*, is the Point where the Hour of 6 intersects the *equinoctial Line*.

From the Center N, and at the Distance N S, equal to the Height of the Style, we describe the Arch K H, and taking any Point as O, in the *equinoctial Line*, for a Center, at the Distance O S we describe the Arch I H intersecting the Arch K H in H, then draw the straight Line N H, and H M perpendicular to N H; the Point M where H M meets the *equinoctial Line*, is the Point where the *meridian Line* ought to intersect the *equinoctial Line*.

Then having hang'd up a Line with a Plummet *f*, so as the Line may pass by S the Point of the Style, we mark any Point as C on the Plane of the *Dial*, so as we may see with one Eye, the Points M and C both hid together by the Line of the Plummet, this is called burning, and the Line M C shall be the *meridian Line*. But if the Centre of the *Dial* was given and that it was the Point C, we must mark some Point, as M, on the Plane of the *Dial*, which we may see to pass by the Line of the Plummet, with the Point C, and the Line C M shall be the *Meridian*. We may also draw this *meridian Line* in the Night with a Candle, in holding it at a Distance from the Line of the Plummet, so as the Shadow thereof may pass by M, or by the Point C, which of them is given; for the Shadow of that Line shall be the *meridian Line*.

When only one Point of Shadow is given with the Height of the Pole, and the Declination of the Sun, we draw the *meridian Line*, and find the Point of the Hour-Line of 6, on the *horizontal Line*, by placing a Style on the Plane of the *Dial*, whose Point be S, and the Foot P, Fig. 15. drawing the *horizontal Line* H *h*; and from the Point P drawing likewise P H perpendicular to H *h*; drawing afterwards P Z parallel to H *h*, and equal to P S the Height of the Style, and making H E equal to H Z.

Then having mark'd the Point of Shadow A, as far from Noon as it is possible, we hang a Plummet T, so as the Line thereof may pass by S the Point of the Style, and burn it (as we did in the foregoing Practice for the *Meridian*) marking the Point *h* on the *horizontal Line*, by which we see the Line pass, then when it also passes by the Point of Shadow A, we draw the straight Line *h* E; drawing afterwards an Arch of a Circle Z *o f* on the Center C at any Distance, and making Z *o* equal to the Height of the Pole above the *Horizon*, and drawing the Lines *o c*, *z c*, to *c* the Center of the Circle.

We then make the Arch *o m* equal to the Declination of the Sun, at the Time when the Point of Shadow was made towards Z, if the Sun be in the North Signs, and towards *f* if it be in the South Signs, for those that have their *Zenith* in the North Part of the Sphere; but on the contrary, for those that have it in the South Part; and draw *a m* parallel to *o c*. We afterwards draw *c f* perpendicular to *c z*, from the Center *c*, and make the Angle *d c f*, equal to the Angle *h* S A, and draw the Line *d e* parallel to *f c*, meeting *c z* in *o*, and *a m* in *a*.

On the Point E, as a Center, at the Distance *d e*, we describe the Circle B D, meeting E *h* (prolonged if it be necessary) at the Point B; we make B M equal to *d a*, and from M raise D M, perpendicular to E B, intersecting the Circle B D in D, then drawing E D (prolonged if it be necessary) and the Point *f* where it intersects the *horizontal Line*, shall be the Point of the *Meridian* upon the *Horizon*; and E G being drawn perpendicular to E D, gives the Point G, where the Hour-Line of 6 meets with the *horizontal Line*.

Note, That the Line M D, which is drawn perpendicular to B E, may meet with the Circle B D on either Side of the Point B; but we must take Care that if the Point of Shadow A, is mark'd before Noon, to make Use of the Point D, which is on the Right-Hand of the Point B, as in the Example; and if the Point A was marked after Noon, we must take the Point D where M D meets the Circle on the Left-Hand of B, to have the Position of the *meridian Line*; if D E meets not with the *horizontal Line*, but is prolonged towards E; the Point F shall appertain to the Line of Midnight: All this must be understood of those that have their *Zenith* on the North-Side of the *Equinoctial*, for it is contrary with those which have their *Zenith* in the southern Hemisphere. If the Line E D meets not the *horizontal Line*, being likewise prolonged towards E, then the *Dial* shall have no Line of Mid-Day, nor of Mid-Night, and the Plane of the *Dial* shall be either oriental, or occidental.

Note, Also, that the Angle H E F, made by the Line E D, with the *horizontal Line* E H, is the Angle of the Declination of the Plane. By the foregoing Practice, the *meridian Line*, or the Line of Midnight, may be drawn by the Point *f*.

Some of the foregoing Operations may be abridged in the following Manners:

1. Having found the *substylar Line p e*, Fig. 18. and the *equinoctial Line e v* for the Style S *p*, if we would remove the *substylar* and *equinoctial Lines* to another Place of the Plane of the *Dial*; the Line P E parallel to *p e* shall be another *substylar Line*, and V E parallel to *e v*, or perpendicular to P E, shall be the *equinoctial Line*, and we determine by the following Method, the Position of a Style for the two Lines P E, E V, whereof the Height shall be given of any Length; or we will determine the Height of a Style, whereof the Position shall be given upon the *substylar Line* P E. First, we'll let the Line A R be given for the Height of the Style, which ought to be set for the *substylar* and *equinoctial Lines* P E, E V. We'll make E P equal to *e p*, and set it the same Way, (that is, we'll set the Point P above the Point E, if the Point *p* be above the Point *e*, and below it, if it be below it) and make E Z equal to *p f*, and E Z equal to R A given; and we'll draw *z* P and Z R parallel to Z P, meeting E P in R; and the Point R shall be the Foot of the Style, the Height whereof, R A, is given: Therefore if we fix a Style, whereof the Foot may be R, and the Distance between the Point thereof A, and Foot R may be the Height equal to the Line Z E, the Proposition is satisfied: But if the Point R were given for the Foot of the Style, and the Height were requir'd, we'll draw P Z as before, and by the Point R, draw R Z parallel to P *z*, and E Z shall be the Height of the Style, whose Foot is the given Point R.

2. The *substylar Line* C E, the *equinoctial Line* E V, and the *meridian Line* C M, answerable to the Style S P, being given, we may take what Point we will in the *substylar Line*, ask for the Center of the *Dial*, without altering the *substylar Line*, or *equinoctial*; and the Line K *m* drawn parallel to C M, shall be the *meridian Line*; but if the Height and Position of the Style must be chang'd, by making E *z* equal to P S, and drawing M P and P Z, and *m* R and R Z parallels to M P and P Z, and the Point R shall be on the *substylar Line*, which is the Foot of the Style, whereof the Height R Z is perpendicular to the Point R on the Plane of the *Dial*.

3. If the *substylar Line* C E, was given with the *meridian Line* C M, answering to the Style P S, we may take any Point, as *p*, to be the Foot of a Style, whereof the Height is to be determined; or the Style being given of any Height, to determine the Position of the Foot *p*, without changing either the *Meridian*, or the Center of the *Dial*. If the Foot of the Style be given, and we are to determine its Height by the Foot of the Style P, for the finding of the *meridian* and *substylar Line*, we'll draw P S, perpendicular to the *substylar Line*, and equal to the Height of the same Style, drawing C S by the Center of the *Dial*, and from the given Point *p*, drawing likewise *p s*, parallel to P S, till it meets C S in the Point S, and *p* S shall be the Length of the Height of the Style, which ought to be placed at the Point *p*, and the *Meridian* C M, and the Center of the *Dial* C, are not changed. But if

if *p* S were given for the Height of the Style, it must be put upon P S prolonged, if it be necessary, then P *z*, and *z* S must be drawn parallel to C P, to meet with the Line C S in *m* S, and S *p* being drawn parallel to S P, shall give the Point *p*, on the *substylar Line*, for the Foot of the Style requir'd, whereof the Height is given.

4. The *Meridian* C M, Fig. 19. being given, with the *equinoctial Line* E M, we may find another *Equinoctial* as *e* M, without changing the *Meridian*, the which *Equinoctial e* M, shall make the Angle E M C, but we must find another Style by the following Method: If the Center of the *Dial* be given at the Point C, having drawn (by the Foot of the Style *p*, which has served to find the *Meridian* and the Center C) *p* S perpendicular to the *substylar Line* C*p*, and equal in Length to the same Style, we'll draw *e* S parallel to E S, and from the Point S, S *p* parallel to S *p*, meeting the *substylar Line* in the Point *p*, which shall be the Foot of the Style requir'd, whereof *p* S shall be the Height. But if we have not the Center of the *Dial*, we must draw the Line S *s* by the Point S, which determines the Inclination of the *Axis* with the *substylar Line*, and we shall find as before, the Point *p* for the Foot of the Style requir'd, whereof the Height shall be *p* S.

5. If after we have drawn the *meridian Line* C M, Fig. 20. and the *substylar Line* B *p*, we cannot have the *Equinoctial*, because the *Style* has been put too long, we may diminish it as much as we please, without changing the Foot thereof, or the *substylar Line*; but we must find another *meridian* and another *horizontal Line*, which may answer to that *Style*, and these *meridian* and *horizontal Lines*, shall be parallel to the first *meridian* and *horizontal Lines*. Therefore we draw the Line *e m* M, by any Point of the *substylar Line* at *e*, which may be perpendicular to it; that Line may be the *equinoctial Line*: But the Height of the *Style* must be changed in drawing *e* S perpendicular to the Line S *s*, which determines the Inclination of the *Axis* with the *Substyle*, and that Line *e* S meeting S *p*, which is perpendicular to the *substylar Line* by the Foot of the *Style*, and which is its Height, so that for the *equinoctial Line e m*, *p z* shall be the Height of the *Style* requir'd; but there must be another *Meridian* found, whether the Center of the *Dial* be found or not.

6. A *Dial* being drawn on a Plane, we may transfer it into what other Place we will on the same Plane, by drawing of parallel Lines to those that are drawn, so that we keep the same Order and the same Proportion between them in their Meetings, but the *Style* ought to be put at the Point which answers to the Point of the first, which is for its Foot.

Tho' all the foregoing Practices seem to be clearly enough demonstrated, as well in the Plate, as by the Reasoning, they nevertheless, cannot be well executed without some farther Instructions, *viz.* 1. With Regard to the different Expositions of the Planes propos'd, on which the *Sun-Dials* are to be drawn. 2. How to mark the Points of the *astronomical* Hours on the *equinoctial Line*, and how to draw by those Points, the Hour Lines. 3. How to mark the Points of the *astronomical* Hours on the *horizontal Line*, and how to draw the Hour Line by those Points. 4. Six Intervals of Hours following one another being given, how to draw all the other Hours. 5. How to draw the Parallels of the twelve Signs. 6. The *equinoctial Line* being given, if we may draw a Parallel to it by a Point given on an Hour Line. 7. How to draw the *Italian* and *Babylonian* Hours upon an *horizontal* Plane. 8. How to draw the *Italian* and *Babylonian* Hours on a Plane which is not *horizontal*. 9. How to continue the Description of the *Italian* and *Babylonian* Hours, when the Parallel of the *Equator* is wanting on the Plane of the *Dial*. 10. Four *astronomical* Hours being given, following one another in Order, with the *equinoctial Line*, how to find the other Hours. 11. A *Dial* being given, which is already drawn, how to find the Foot of the Style, which serv'd to draw it, and to determine the Height thereof. 12. How to place the *Axis*. 13. How to draw *Dials* by Reflexion.

1. We may know the Disposition of the Plane in regard of North or South (which must be necessarily known before we begin any Thing) by a small Declinatory, which presently shews on what Side is the North, South, East, or West; which those that are used to observe the Sun, may know by seeing in what Manner it shines upon the Plane, according to the Hour and Season of the Year. Then we may well conceive after what Manner the *Axis* shall meet with the Surface, and consequently may judge of the Position of the *substylar Line*, of the *Equinoctial*, and also of the whole *Dial*. But considering a *Dial* wholly made, it is not difficult to know, among divers Manners, which we may use, that may be most fit, and most easy for the Construction of the *Dial*; therefore we may easily see that it would be useless to find the Center of a *Dial*, or the *Meridian* of a Plane which comes near either to the East or West, and that the *equinoctial Line* being set on such a Plane, we need not find the Point of Mid-Day, and that we must use the Point of the sixth Hour, to begin the Divisions of the horary Intervals on that Line, or on the *horizontal Line*. That on these Sorts of Planes we cannot use the Practices where we ought to have the Points of Shadows after Mid-Day, which may be answerable to others taken in the Morning; for if the first Point has been marked a little too far from the *Meridian*, we can never have its correspondent Point: That we must not use the Practice of correspondent Points of Shadows, or the Tract of the Shadow, if the Circle that is described from the Foot of the *Style* as a Center, meets that Tract in Angles too acute; for we cannot determine exactly that Meeting, and this Inconveniency may happen to all Practices on all Sorts of Planes in any Season of the Year: That if the *Dial* be large, and the Declination of the Sun has chang'd considerably between the Observations of the Points of Shadow, we have not exactly the Lines which we seek by those Practices, where we suppose that it has not been changed between the Observations.

In the following Practices, we suppose always that the *equinoctial* or *horizontal Line* is drawn, and that we have mark'd on that Line, the Point where the Hour 12 or 6 meets with it; at which Points we begin the Division of the Hours on those Lines; but to draw them we must have the Center of the *Dial*, or at least the Inclination of the *Axis* to the *substylar Line*; as taught at the Beginning of this Treatise.

2. We mark the Points of the astronomical Hours on the *equinoctial Line*, and by those Points draw the Hour Lines in this Manner; we suppose P S, Fig. 21. to be a *Style*, whereof S is the Point, and P the Foot, and E 7 is the *equinoctial Line*, on which the Point 7 is the Meeting of the *Equinoctial* with the *Meridian*, and the Point 8 is the Meeting thereof with the Hour of 6 and with the *Horizon*; P E A is the *substylar Line*, which meets with the *Equinoctial* in E.

This presupposed, we make E A on the *Substyle* equal to E S, which is the Distance between the Point E of the *Equinoctial*, and S the Point of the *Style*; we draw A 7 or A 8, or both of them, if we have these two Points on the *equinoctial Line*; which two Lines A 7 A 8 ought to make a right Angle, at the Point A. Then on the Point A as a Center, at any Distance, we describe an Arch of a Circle *b c*, which cut the Lines A 7 and A 8, at the Points *b* and *c*, and divide the Circle from 15, to 15 Degrees, beginning at the Point *b*, or at the Point C; then we draw straight Lines from the Center A, and by the Points of the Division of the Circle, which must be prolonged, if it be necessary, to the *equinoctial Line*, on which it gives the Division of the Hours, which are to be mark'd according to the apparent Motion of the Sun from East or West: Then by the Center of the *Dial*, and by the Points of the Hours which are mark'd upon the *equinoctial Line*, we draw straight Lines, which are the Hour Lines.

But if we have not the Center of the *Dial*, and have only the Inclination of the *Axis* I *z*, to the *substylar Line*

Line e E, we must take any Point as *e*, on the *sub-stylar Line e* 12, parallel to the *equinoctial Line* E *x* 11, and drawing *e z* perpendicular to Z *z*, make *e a* equal to *e z*, and by the Point *a* draw the straight Lines *a* 11, *a* 12, *a* 1, *&c.* parallel to the Lines A 11, A 12, A 1, *&c.* and by these Points, where these Lines meet with the Line *e* 12, and by those which are correspondent to them on the *equinoctial Line*, draw the Hour Lines 11 XI, 12 XII, 1 I, 2 II, *&c.*

3. We mark the Points of the *astronomical Hours* on the *horizontal Line*, and draw the Hour Line by those Points, in the following Manner:

We make the Line M H D, Fig. 22. the *horizontal Line*, and S the Point of the *Style* given, whereof P is the Foot; by that Point P, we draw the Line P H perpendicular to the *horizontal Line*; making M the Point, where the *meridian Line* intersects the *horizontal Line*; upon the Line H P, we set H S equal to H S, and draw the straight Line S M *a*, and make the Angle M S A equal to the Angle of the Elevation of the Pole above the *Horizon*; then from any Point as A, taken on the Line S A, we raise a Perpendicular from 12 to S A, *till it* meets with S M in 12, and draw the Lines 9, 12, 4, perpendicular to S *a*, and make 12 *a* equal to 12 A; and from the Point A as a Center, we describe a Circle at any Distance, and divide it into equal Parts from 15 Degrees to 15 Degrees, beginning the Division where the Line *a* 12 intersects the Circle, and draw Lines from the Point *a* to the Divisions of the Circle, to meet with the Line 9, 4, at the Points 9, 10, 11, 12, 1, 2, 3, 4, *&c.* and by the same Points and the Point S, we draw straight Lines, which we make to meet the *horizontal Line* in the Points of the Hours requir'd, which we mark according to the diurnal Motion of the Sun, of which the Point M is Noon, and D the Point of the Hour 6. If the Line S D drawn perpendicular to S M, meet with the *horizontal Line* at the Point D, that Point shall be the Hour 6 on the *horizontal Line*, which is the same Point where the *horizontal Line* ought to meet with the *horizontal Line*.

If we have not the Point of Mid-Day on the *horizontal Line*, and we have but D the Point of the Hour 6; we then draw S D and S M perpendicular to S D; then we do the same as we did before to find the Points of the Hours on the *horizontal Line*. The Hour Lines are to be drawn from C the Center of the *Dial*, and by the Points of the Hours which have been found on the *horizontal Line*.

4. We suppose the 6 Intervals of Hours from Fig. 23. C A to C *f* to *o* be given, we draw all the other Hours, by making E *e* parallel to *c* 5, cutting *c* A in the Point A C B, in the Point B C D, in the Point D, *&c.* and we make A *b* equal to A B, A *d* equal to A D, *&c.* and from the Center C, and through the Points *b d c*, *&c.* we draw the Lines of the Hours that follow the precedent Hours. When we will also have other Hours following the first or last found, we must repeat the Operation in drawing another Line as E *e*, parallel to that which is the last of the six Intervals of Hours. If the *Dial* has no Center, we must draw another Line as S *t* parallel to E *e*, on which we are to find the Points of the Hours as we have found them on the Line E *e*, and in joining the horary Points of the two parallel Lines E *e* and S *t*, we'll have the Hour Lines requir'd.

5. We draw the Parallels of the twelve Signs, Fig. 24. by drawing first the Lines S C and S *a* at right Angles to it at the Point S; we make the Angles *a* S *d*, *a* S *k*, each 20 Degrees 30 Minutes; and the Angles *a* S *f*, *a* S *i*, each of 20 Degrees 11 Minutes, and the Angles *a* S *g*, *a* S *k*, each of 11 Degrees 30 Minutes: The Line S *a* denotes the *Equinoctial*, which is the Beginning of *Aries* and of *Libra*; the Line S K, denotes the Beginning of *Taurus* and *Virgo*; S *i* the Beginning of *Gemini* and *Leo*; S *k* the Beginning of *Cancer*, which is the Tropick of the same Sign; S *g* the Beginning of *Scorpio* and *Pisces*; S *f* the Beginning of *Sagittarius* and *Aquarius*; S *d* the Beginning of *Capricorn*, which is the Tropick of the same Sign. If the Center of the *Dial* be towards the North in Regard to the Point of the *Style*, we make S *c* equal to S C of the *Dial*, which is the Distance between the Point of the *Style* and the Center; but if the Center be towards the South, in Respect of the Point of the *Style*, we make S *c* upon *c* S prolonged on the other Side of the Point S.

Next we must find the Points of the Parallels of the Signs upon the Hour Lines; as for Example, on the Line of Mid-Day, we must take the Distance S XII, from the Point of the *Style* S to the Point XII, which is the Intersection of the Line of Mid-Day with the *Equinoctial*, and set it from S to 12 upon the Line S *a*, and having drawn the Line *c* 12, which cuts the Lines of the Signs in the Points *d*, *f*, *g*, *h*, *i*, *k*, then we transport the Intervals 12 *h*, 12 *i*, 12 *k*, 12 *g*, 12 *f*, 12 *d*, in XII H, XII I, XII K, XII G, XII *f*, XII D, on the one and other Side of the *equinoctial Line*, as they are on both Sides of the Line S *a*. And in the same Manner having found the other Points upon each Hour Line, and likewise on the Halves and Quarters, or other Lines coming from the Center, we draw by all the Points which belong to the same Sign, the Line of the Parallel of the Sign, and thus for each of them in particular. But if we have not the Intersection of the *equinoctial Line* upon the Hour Line, on which we would have the Points of the Signs, in that Case we may have always the Center of the *Dial*; but if we have not the Center of the *Dial*, we may have always the *equinoctial Line*; therefore having taken (for Example) the third Hour, on which we would have the Points of the Parallels of the Signs, and the Point R at Pleasure; and having marked S 3 on the Line S *a* equal to S III, which is the Distance between the Point of the *Style* S, and the Point where the third Hour propos'd, intersects the *equinoctial Line*; on that Line S 3 for the Base, we must make the Triangle S 3 *r* equal to the Triangle S III R, which has S III for its Base; and draw *r* 3 prolong'd, which shall intersect the Lines of the Signs in Points, which are to be transfered to the Line of the third Hour.

6. The *astronomical Hours* being drawn on the *Dial*, Fig. 26. whose Center is C, and the *Meridian* C A; and V A the *equinoctial Line*; *c* E being divided into two equal Parts; to draw the *Italian* and *Babylonian* Hours upon an *horizontal* Plane, we must find on the Hour Lines the Points *b*, *c*, *d*, *e*, *f*, *g*, *h*, *&c.* of a Parallel to the *Equator*; which done, the Line A 12 parallel to the *Equinoctial*, shall be the Line of the 12th *Italian* Hour. The straight Line *b* VII, which passes by the Point of the seventh Hour in the Morning of the *Equinoctial*, and by the Point of the first Hour Afternoon of the Parallel, shall be the Line of the 13th *Italian* Hour. The straight Line *c* VIII, which passes by the Point of the eighth Hour in the Morning on the *equinoctial Line*, and by the Point of the second Hour Afternoon of the Parallel, shall be the 14th *Italian* Hour. The straight Line *d* IX, which passes by the Point of nine in the Forenoon, on the *Equinoctial*, and by the Point of three in the Afternoon, on the Parallel, shall be the 15th *Italian* Hour, and thus of the rest; there being always six Hours Distance between the Hour of the *Equinoctial* and that of the Parallel.

The *Babylonian Hours* are mark'd after the same Manner, but only that which is done on one Side of the *Meridian* for the *Italian* Hours, is made on the other Side of the *Meridian* for the *Babylonian* Hours, and they are counted after another Manner; as for Example, the straight Line that passes by the Point of Mid-Day of the *Equator*, and by the Point of the sixth Hour in the Morning of the Parallel, is the sixth *Babylonian* Hour; that which passes by the first Hour Afternoon on the *Equinoctial*, and by the Point of the seventh Hour in the Morning on the Parallel, shall be the seventh *Babylonian* Hour, and thus following; so as A 12 Parallel to the *Equator*, shall be the 12th *Babylonian* Hour for the *horizontal Dial*.

7. If we want to draw the *Italian* and *Babylonian Hours*, on a Plane which is not *horizontal*, Fig. 28. the *astro-*

astronomical Hours being describ'd, and the *Horizon* R H, which is one of the Hours requir'd, being drawn on the Plane of the *Dial* with the *equinoctial Line*, we must draw a Parallel to the *Equator*, *d b* R *e f g*, which passes by R the Intersection of the *Horizon* with any Hour Line. And seeing that the *Horizon*, which is the Line of the 24th *Italian* Hour intersects the Parallel in R, at the Point of the second Hour Afternoon, on the *equinoctial Line* at the Point of the sixth Hour Afternoon, the Line of the first *Italian* Hour shall pass by the Point *e* of the Parallel, which is the third Hour Afternoon, and by the Point of the *Equinoctial*; the Line of the second *Italian* Hour shall pass by the Point *f* of the Parallel, which is the fourth Hour, and by the Point of the eighth Hour on the *equinoctial Line*, and thus of the rest; for we must find all the Points by which the *Italian* Hours are to pass, so as the 18th *Italian* Hours may pass always by the Point of Mid-Day of the *equinoctial Line*, and by a Point of the Hour of a Parallel, which shall be so far from the Point of Mid-Day, as the Point R of the same Parallel, which is the Intersection of it with the *equinoctial Line*.

But if the Point R, by which the Parallel to the *Equator* is describ'd, was the Intersection of an Hour before Noon, we must consider, that *that* Parallel ought to meet also the *Horizon* in a Point of an Hour, which is so far from Noon, as is that by which we have describ'd it; for Example, if the Point R was the Intersection of nine in the Morning with the *horizontal Line*, the Parallel to the *Equator*, describ'd by the Point R, ought to meet the *horizontal Line* in the Point H, which is upon an Hour Line, so far distant from Noon as is the Point R; that is to say, that the Point H shall be the Meeting of the third Hour Afternoon with the *horizontal Line*, and the Line of the 24th *Italian* Hour, which is an occidental Portion of the *Horizon*, ought to be taken from the Point of the third Hour of the Parallel, with the Point of the sixth Hour Afternoon of the *Equator*, and in reckoning as we have done before, we shall find that the first *Italian* Hour, shall pass by the Point of the fourth Hour on the Parallel, and by the Point of the seventh Hour Afternoon on the *Equinoctial*; and that the Line of the second *Italian* Hour, shall pass by the Point of the fifth Hour of the Parallel, and by the Point of the eighth Hour of the *Equinoctial*, and so on; and we draw only those that are visible, for the others are of no Use, and serve only to count and to place those which are of no Use.

These Rules are for the *Italian* Hours, but for the *Babylonian* Hours, which have for the twenty-fourth Hour the oriental Part of the *Horizon*, if the Parallel which is describ'd by the Point R of the *Horizon*, was the Meeting of the *Horizon*, with the Line of the ninth Hour before Noon, the first *Babylonian* Hour shall pass by the Point of the tenth Hour in the Morning of the Parallel, and by the Point of the seventh Hour in the Morning on the *Equinoctial*; the Line of the second *Babylonian* Hour shall pass by the Point of eleven before Noon on the Parallel, and by the Point of eight on the *Equinoctial*, and so of the rest; and if the Point R of the Parallel, was the Point of any Afternoon Hour, we must take its Correspondent before Noon, to begin to count the *Babylonian* Hours, which is the contrary of that, which we have done for the *Italian Hours*.

8. It happens, sometimes, that the Parallel, or the *Equator*, is wanting on the Plane of the *Dial*, notwithstanding which, we may continue the Description of the *Italian* and *Babylonian* Hours; if the Point *b* be the last which is found on the Parallel, by Means of the *equinoctial Line*, and the Line *b* III be the last *Italian* Hour, which we can mark by the Help of that Parallel; that Line *b* III, shall meet with some astronomical Hour in some Point, as *m*, if we find the Points *l n o* of the Parallel which passes by *m*, and if they be on the Hour before, or after that, on which is the Point *m*; for then we continue to draw the Lines of the *Italian* or *Babylonian* Hours, by the Points of the Hours of the Parallel *m n o*, and by the Points of the Hours of the *Equator*, in following the same Order as before, and if the *Equator* be wanting, we shall find the Points of another Parallel, by the Parallel that is given, and then we may join the Points of the Hours on the two Parallels, in following the former Order.

9. These four Hour Lines following one another, Fig. 31. *viz.* A *a*, B *b*, C *c*, D *d*, with the *equinoctial Line* E *f* being given, we find the other Hours, by drawing from a Point *a* taken at Pleasure, in one of the last Lines A *a*, the Line *a* D which cuts B *b* in B, and C *c* in *g*; also by the same Point *a*, having drawn *a* C which cuts B *b* in *h*, and A *h* which meets C *c* in *c*, and B *g* which meets D *d* in *d*; we prolong *c b*, *c d*, to the Points E *f* in the *equinoctial Line*; and the Hour Lines E *e*, *f f*, drawn by the Points E *f*, shall be the Hour Lines required, whereof E *e* shall be distant from A *a* one Hour, and *f f* shall be two Hours from D *d*; therefore B D being prolonged to *f* in the Line *f f*, and *f d* to *b* in the Line B *b*, having drawn C *f* which cuts D *d* in *i*, *l i* prolonged shall meet the *Equinoctial* in M, by which the Hour Line M *m*, shall be between the two Hour Lines D *d*, and *f f*, and these seven Hour Lines being found, we may have all the rest by the Practice of the third Article.

Note, That there are many Cases where three Hour Lines are sufficient with the *Equinoctial* and *Horizon*; for Example, if we have three Hour Lines, Fig. 31. *a* 2, *b* 3, *c* 4, and the *equinoctial Line* 24, and *horizontal Line a c*, having drawn *a* 4 which cuts *b* 3 in *d*, and having drawn *d* 2 which cuts *c* 4 in *f*, drawn *c* 2 which cuts *b* 3 in *e*, and *e* 4 which cuts *a* 2 in *h*; a straight Line must pass by the three Points *f b h*, which shall meet the *Equinoctial* in the Point *g*, which is one Point of the Hour as far from *b* 3, as is the Hour Line of six: Therefore, if the Hour Line *b e*, be the fourth Hour, *a h* shall be the third, and *g i* the second; but in this Example, *b e* being the third Hour, *g i* shall be the twelfth Hour. The first Hour between 12 and 2, is found by drawing *g c* which cuts *a* 2 in *k*, and *k* 4 which cuts the Hour Line *g i*, which was drawn by the Point *g* to the Point *i*, and in drawing *i* 2 which cuts *g h* in *n*, the Hour Line by the Point *n* shall be the first Hour.

I. We find the Foot of the *Style*, Fig. 32. which has served to draw a *Dial*, and determine the Height thereof, by supposing, first, the Line A B to be the *equinoctial Line*; and the Distance A B on the Line, to be the Interval of any six Hours; then having divided A B into two equal Parts in the Point G, from the Point G as a Center, we describe on the Diameter A B, the Circle A S B *d f*, and mark the Points L and *f*, which divide the Semicircle into two equal Parts: A *f*, *f* D and D B, are each the Interval of two Hours on the *equinoctial Line*; the Lines *d* D, *f f*, ought to meet the Circumference of the Circle at the Point S, and the like S E P drawn perpendicular to the *equinoctial Line* shall be the *Substyle*. If we have C the Center of the *Dial*, having describ'd on the Diameter C E, the Semicircle C Z E, and having drawn in it the Line E Z equal to E S; Z P being drawn perpendicular to the *substylar Line* E P, and meeting it at the Point P, that Point shall be the Foot of the Style, whereof P Z shall be the Height. But if we have not the Center of the *Dial*, having drawn *a e* parallel to the *Equinoctial*, and from the Point *a* draw *a* S parallel to A S, which meets the *substylar Line* in S, from the Point *e* as a Center, and Semidiameter S, we'll describe the Arch *x*, and draw the straight Line *x z*, which shall touch the two Arches *x* and *z*, and that Line *x z* shall determine the Inclination of the *Axis* to the *substylar Line*, and having drawn E *z* perpendicular to *x z* from the Point E, and from the Point *z*, the straight Line *z* P perpendicular to the *substylar Line* E P, the Point P shall be the Foot of the Style, whereof P Z shall be the Height.

II. If

II. If we would have the Hours shewn only by the Shadow of the Point of the Style, we must make, and place it after such a Manner, as may serve without changing it; and though we can give it various Forms, the best is to make it waved to the End, that the Shadow thereof may not unite with the Hour Lines in any Place, and that we may always know, that it is only the Shadow of the Point that serves to shew the Hours. But if we would have a Portion of the *Axis* to shew the Hours, and that the *Axis* be represented by an Iron Rod, the Style we have placed ought to have the Point very small, that it may enter into a little Hole made in the Rod, so as the Point of the Style, may exactly answer to the Middle of the Thickness of the Rod; the Style may remain if we would have it to support the *Axis*; but if the *Axis* be not very long, and if it be strong enough to sustain itself alone, being fastened at one End, we may take away the Style when the *Axis* is fix'd on the Surface of the *Dial*. We may do the same, if we fasten to the End of the Style a Point of an Iron Wire, which there may be very small, and take but half the Thickness of the Rod, so as the *Dial* being drawn to that Point, there remains nothing to be done, but to take it away to place the *Axis*, the Middle of the Thickness whereof ought to answer to that Point; therefore, whether the Style remains to uphold the *Axis*, or whether we take it away when the *Axis* is fix'd in its Place, we must fasten it to the End of the Style to stay it, which ought to answer to the Center of the *Dial*, if it has any.

The Rod which serves for the *Axis*, may be made as mark'd in the Figure, so as the Hole signified by A, Fig. 33. can be made to lodge the Point of the Style; and that it may be let in as far as the Middle of the Thickness of the Rod, the Point B, which answers also to the Middle of the Rod, ought to be applied exactly to the Center of the *Dial:* This Rod being thus stay'd at the Point B, and at the Point A, we must fasten the Foot on the Plane of the *Dial*. But if we would not have a Foot to the *Axis*, as G, and that we would only fix the Rod to the Center of the *Dial*, we must draw various Lines, which may pass by the Center of the *Dial*, and stay the Rod on the Point of the Style A, so that the End may enter in a Hole made in the Plane of the *Dial*, at the Place of the Center, and be divided by the Middle of its Thickness, by each Line that passes by the Center.

If we make use of a thin Plate, cut according to the Inclination of the *Axis* with the *substylar Line*; it must be set perpendicularly on the Plane of the *Dial*, in applying one of its Sides to the *substylar Line*, and the other Line passing by the Point of the Style shall serve for the *Axis*.

Thus far we have instructed our Pupils who design to make some Progress in the *Art of Dialling*, in all the general and particular Rules belonging to that Art; and thereby rendered them capable to draw all the different Lines which compose a *Sun-Dial*. I propose no particular Construction on the horizontal and vertical Planes, which only gives particular Rules for each Case; and which, in the ordinary Way happens very seldom; therefore these Methods are for all Sorts of Planes indifferently considered. I know very well that there are various Cases where we might find Abridgments, but these Abridgments consist only in certain Lines and Points, which come to be united in the general Practices which I have given here.

Dials are also drawn by *Reflexion*, in making Use of a small Piece of polish'd Metal, very even and flat; of a round Form, and of about an eighth Part of an Inch in Diameter, and having placed and fastened it in a stable Place, we mark the Points of Light on the Plane where we design to draw the *Dial*, which serve instead of the Points of Shadow; the Middle of the Mirror or Glass, ought to be considered as the Point of a Style, whereof we find the Foot in drawing from the Middle of the Glass, a Line perpendicular to the Plane of the *Dial*; the Point where this Line meets with the Plane of the *Dial*, shall be the Foot of the Style. We may find the *substylar Line*, the *equinoctial Line*, the Center of the *Dial* and *Meridian*, by the Practices where we make no Use of the *horizontal Line*, nor of the Height of the Pole.

Having found the *equinoctial Line*, and the Point where the *meridian Line* intersects it, we draw the Hours, following the Methods heretofore describ'd.

Note, That if the Inclination of the Glass be never so little chang'd, it will cause a considerable Alteration in the *Dial*; therefore this Sort of *Dials*, seldom lasts many Years in good Condition; but there always happens some Alteration to the Wall on which they are fix'd. But if in the Place of the Glass, we fill some small Vessel, either of Glass or Potter's Earth, of about an Inch in Diameter, with Water or Quick-Silver, that Vessel being put upon a Place mark'd on some *Transum* of a Window, or the like, shall give the Hours on the *Dial*.

Besides *Sun-Dials*, there is a *Nocturnal*, or *Night-Dial*, which shews the Hours of the Night; of this there are two Kinds, *Lunar* and *Siderial*.

The Moon-Dial, or Lunar-Dial, is that which shews the Hours of the Night, by Means of the Light or Shadow of the Moon, projected thereon from an Index.

To describe a Moon-Dial, suppose, *e. g.* a *horizontal Moon-Dial*; there must be drawn first a *horizontal Sun-Dial*, then two Perpendiculars erected to the Line of 12 o'Clock, and dividing the Interval into 12 equal Parts, through the several Points of Division, there must be drawn Lines parallel thereto. Now appropriating the first Line to the Day of the New-Moon, and the second, to the Day when the Moon comes an Hour later to the *Meridian* than the Sun; their Intersections with the Hour-Lines will give Points, through which draw a curve Line 12 12, for the *meridian Line* of the Moon. After the like Manner are determined the Hour-Lines 1 1, 2 2, 3 3, *&c.* which the the Shadow of the Moon, projected from the Style of the *Dial*, intersects at the respective Hours. We must blot out the Hour Lines of the *Sun-Dial*, together with the Perpendiculars, whereby the *Lunar-Hours* were drawn, and divide the Interval by other parallel Lines into 15 equal Parts, answering to the 15 Days between New and Full-Moon. Lastly, to these Lines we must write the several Days of the Moon's Age. Now the Moon's Age being learned from our *Calendar*; the Intersection of the Line of the Moon's Age, with the *Lunar* Hour-Lines, will give the Hour of the Night.

We draw a *portable Moon-Dial*, by describing a Circle on a Plane that may be rais'd according to the Elevation of the *Equator*, and dividing its Circumference into 29 equal Parts. From the same Center we describe another moveable Circle, which we divide into 24 equal Parts, or Hours. In the Center we erect an Index, as for an *equinoctial Dial*. This *Dial* being daily placed after the Manner of an *equinoctial Dial*, and the 12 o'Clock Line brought to the Line of the Moon's Age: The Shadow of the Index will give the Hour.

To find the Hour of the Night by a *Sun-Dial*, we observe the Hour which the Shadow of the Index points at by Moon-Light; find the Moon's Age in the *Calendar*, and multiply the Number of the Days by three-fourths, the Product is the Number of Hours, to be added by the Hours shewn by the Shadow, to give the Hour requir'd.

There are also *Ring-Dials*, and *quadrantal-Dials*.

A Ring-Dial, is a Kind of *Dial* usually small and portable, consisting of a Brass-Ring, or Rim, seldom exceeding two Inches in Diameter, and one Third of an Inch in Breadth. In a Point of this Rim is a Hole, through which the Sun-Beams being received, make a lucid Speck on the Concavity of the opposite Semicircle, which gives the Hour of the Day in the Divisions marked therein; but it only holds Good about the Time of the *Equinox*. To have the *Dial* perform throughout the whole Year, the Hole is made moveable; and the Signs of the *Zodiack*, or the Days of the

the Month are mark'd on the convex Side of the Ring, by Means whereof, the *Dial* is rectified for the Time. To use it, put the moveable Hole to the Day of the Month, or the Degree of the *Zodiack* the Sun is in; then suspending it by the little Ring, turn it towards the Sun, till his Rays, as before, point out the Hour among the Divisions on the Inside.

An *universal* or *astronomical Ring-Dial*, is a *Ring-Dial* which serves to find the Hour of the Day in any Part of the Earth; whereas the former is confin'd to a certain Latitude. It consists of two Rings, or flat Circles, from two to six Inches in Diameter; and their Breadth, *&c.* proportionable. The outward Ring represents the *Meridian* of any Place you are at; and contains two Divisions of 90 Degrees each, diametrically opposite to one another; serving, the one from the *Equator* to the North, the other to the South Pole. The inner Ring represents the *Equator*, and turns exactly within the outer, by Means of two Pivots in each Ring at the Hour of 12. Across the two Circles, goes a thin Riglet or Bridge, with a Cursor, that slides along the Middle of the Bridge. In the Cursor is a little Hole for the Sun to shine through. The Middle of this Bridge is conceived as the *Axis* of the World, and the Extremities as the Poles; and on the one Side are drawn the Signs of the *Zodiack*, and on the other, the Days of the Month. In the Edge of the *Meridian* slides a Piece, to which is fitted a Ring to suspend the Instrument by.

To use this *universal Ring-Dial*, we must place the Line which is on the Middle of the sliding Piece, over the Degree of Latitude of the Place (for Example 51 Degrees for *London*) and put the Line which crosses the Hole of the Cursor to the Degree of the Sign, or Day of the Month. Then we open the Instrument, so as the two Rings be at right Angles to each other, and suspend it by the Rings, that the *Axis* of the *Dial*, represented by the Middle of the Bridge, may be parallel to the *Axis* of the World. Afterwards we turn the flat Side of the Bridge towards the Sun, so as his Rays striking through the little Hole in the Middle of the Cursor, fall exactly on a Line drawn round the Middle of the concave Surface of the inner Ring; in which Case, the bright Spot shews the Hour of the Day in the said concave Surface of the Ring.

Note, That the Hour of 12 is not shewn by this *Dial*, by Reason the outer Circle being then in the Plane of the *Meridian*, hinders the Sun's Rays from falling on the inner Circle; nor will this *Dial* shew the Hour when the Sun is in the *Equinoctial*, by Reason his Rays, then, fall parallel to the Plane of the inner Circle.

Quadrantal-Dial, or *horodictical Quadrant*, is a pretty commodious Instrument, thus called from its Use in telling the Hour of the Day. Its Construction is so simple and easy, and its Application so ready, that we shall describe it both for the Use of some who may want other Conveniencies, especially Authors, who are seldom rich enough to purchase a Watch.

We first make a *Quadrant*, and from the Center of that *Quadrant*, whose Limb is divided into 90 Degrees, we describe seven concentrick Circles at Intervals at Pleasure, and to these add the Signs of the *Zodiack*, in the Order they are represented in the Scheme. Secondly, applying a Ruler to the Centre and the Limb, we mark upon the several Parallels, the Degrees corresponding to the Altitude of the Sun when therein, for the given Hours; we connect the Points belonging to the same Hour with a curve Line, to which we add the Number of the Hour. We fit a Couple of Sights to the *Radius* and tie a Thread with a Plummet to the Center of the *Quadrant*, and upon the Thread a Bead to slide.

If now the Bead be brought to the Parallel wherein the Sun is, and the *Quadrant* directed to the Sun till a visual Ray passes through the Sight, the Bead will shew the Hour; for the Plummet in this Situation cuts all the Parallels in the Degrees corresponding to the Sun's Altitude: Since, then, the Bead is in the Parallel which the Sun then describes, and thro' the Degrees of Altitude to which the Sun is elevated every Hour, there pass Hour-Lines; the Bead must shew the present Hour.—Some Persons, who are not mighty nice, represent the Hour-Lines by Arches of a Circle, or even by streight Lines; and that without any sensible Error.

There is also a Method of making a *Dial* upon the Fingers and the Hand, which is done thus: Take a Straw, or such like Thing, of the Length of the *Index*, or second Finger; hold this Straw very right between the Thumb and the Forefinger, then stretch forth the Hand, and turn your Back and the Palm of the Hand towards the Sun, so that the Shadow of the Muscle, which is under the Thumb, touch the Line of Life, which is between the Middle of the two other great Lines, which is seen in the Palm of the Hand; this done, the End of the Shadow will shew what a Clock it is; for at the End of the first Finger it is Seven in the Morning or Five in the Evening; at the End of the Ring-Finger it is Eight in the Morning, or Four in the Evening; at the End of the little Finger or first Joint, it is Nine in the Morning, or Three in the Afternoon; Ten and Two at the second Joint; Eleven and One at the third Joint, and Mid-day in the End following, which comes from the End of the *Index*.

The Antiquity of *Dials* is beyond Doubt: Some attribute their Invention to *Anaximenes Milesius*; and others to *Thales*. *Vitruvius* mentions one made by the antient *Chaldee* Historian *Berosus*, on a reclining Plane, almost parallel to the Equinoctial. *Aristarchus Samius* invented the hemispherial *Dial*. And there were some spherical ones with a Needle for a Gnomon. The Discus of *Aristarchus* was an horizontal *Dial*, with its Limb rais'd up all around, to prevent the Shadow stretching too far: But it was late ere the *Romans* became acquainted with *Dials*. The first Sun *Dial* at *Rome* was set up by *Papyrius Cursor*, about the Year of the City 460, before which Time, says *Pliny*, there is no Mention of any Account of Time, but by the Sun's rising and setting; it was set up at or near the Temple of *Quirinus*, but went ill: About 30 Years after, *M. Valerius Messala* being Consul, brought out of *Sicily* another *Dial*, which he set up on a Pillar near the *Rostrum*; but for Want of its being made for that Latitude, it could not go true. They made use of it 99 Years, till *Martius Philippus* set up another more exact.

But there seem to have been *Dials* among the *Jews* much earlier than any of these. Witness the *Dial* of *Ahaz*, who began to reign 400 Years before *Alexander*, and within 12 Years of the Building of *Rome*.

The first professed Writer on *Dialling*, is *Clavius*, who demonstrates all, both the Theory and the Operations, after the rigid Manner of the antient Mathematicians; but so intricately, that no Body, we dare say, ever read them all. *Dechales* and *Ozanam*, give much easier in their *Courses*, and *Wolfius* in his *Elements*. *M. Picard* has given a new Method of making large *Dials*, by calculating the Hour-lines; and M. *de la Hire*, in his *Dialing*, printed in 1683, a Geometrical Method of drawing Hour-lines, from certain Points determined by Observation. *Eberhardus Welperus*, in 1625, published his *Dialling*, wherein he lays down a Method of drawing the primary *Dials* on a very easy Foundation: The same Foundation is described at length by *Sebastian Munster*, in his *Rudimenta Mathematica*, published in 1551. *Sturmius* in 1672, published a new Edition of *Welperus*'s *Dialling*, with the Addition of a whole second Part, about inclining and declining *Dials*, &c. In 1708, the same Work with *Sturmius's* Additions, was republish'd with the Addition of a fourth Part, containing *Picard*'s and *de la Hire*'s Methods of drawing large *Dials*, which makes much the best and fullest Book on the Subject. *Peterson*, *Michael*, and *Muller*, have each wrote on *Dialling*, in the *German* Tongue; *Caetsius* in his *Horologiographia Plana*, printed in 1689; *Gaueppenius*, in his *Gnomonica Mechanica*, and *Bion*, in his Use of *Mathematical Instruments*.

Note,

Note, That as *Distillation*, is a Branch of *Chymistry*, of which I have given an ample Method, and very well circumstanced, in that Treatise; I think it needless to take any farther Notice of it under this Letter D, since it contains nothing else but a Repetition of what I have said already, which I design to avoid as much as possible.

DIVING.

DIVING, is the Art, or Act of descending softly under Water, to a considerable Depth, and abiding there some considerable Time.

This Art owes its first Invention to Avarice and Greediness of Gain, since it is chiefly practised upon Wrecks, to recover the Riches which the Sea has swallowed, which could never have been done, without some Contrivances had been found, to furnish the *Diver* with fresh Air, without which, he must either make a very short Stay under Water, or perish. Several Machines have been contrived for that Purpose, *viz. double flexible Pipes*, to circulate the Air down into a Cavity inclosing the *Diver*; *Diving-Bells* of different Forms, *&c.*

The *double flexible Pipes*, were made, one to receive the Air, which was forced into it with Bellows, and the other, to expel the Air, so that the first did the Office of *Inspiration*, and the last that of *Expiration*. Those two Pipes were adapted to a Cavity which encompass'd the *Diver*, like an Armour, and whose Office, was, not only to circulate the Air, but likewise, to protect him against the two violent Pressures of the Water, which otherwise, would infallibly obstruct the Dilatation of the Thorax, and consequently intercept the Respiration.

But as this Machine was not made to cover all the Limbs, but on the contrary, left some of them bare; and it being made tight with Leather, at the Junctures, it was subject to several Inconveniencies, and expos'd the *Diver* to some very imminent Dangers, especially if he was let down deeper than three Fathoms of Water; for then the Water embracing too closely the naked Limbs, and pressing too strongly upon the Junctures, hinder'd the Dilatation of the Vessels, and thereby obstructed the Circulation of the Blood; add to this, that if the several Pieces which compos'd that Machine, were not joined very close together, so as to leave the least Vacancy, the Water would have rushed in, and instantly fill'd the whole Machine, to the great Danger of the *Diver*'s Life.

To remedy those great Inconveniencies, another Machine was invented, called a *Diving-Bell*, made in Form of a truncated Cone, the smaller Base whereof is clos'd, and the larger open. This *Bell* must be poiz'd with Lead, and so suspended, that it may sink full of Air with its open Basis downwards, and as near as may be, in a Situation parallel to the Horizon, so as to close with the Surface of the Water all at once. In this the *Diver* is conveyed to any reasonable Depth, and sinks down, setting, with the Air included; and if the Cavity of the Vessel can contain a Tun of Air, a single Man may remain a full Hour, at five or six Fathoms deep, without much Inconvenience. But the lower he goes, still the included Air contracts itself, according to the Weight of the Water that compresses it; so as at thirty three Feet deep, the *Bell* becomes half full of Water; the Pressure of the incumbent Air being then equal to that of the Atmosphere, and at all other Depths the Space occupied by the compressed Air in the upper Part of the *Bell*, will be to the under Space of its Capacity fill'd with Water; as thirty three Feet to the Depth of the Surface of the Water in the *Bell* below the common Surface thereof. And this condensed Air being taken in with the Breath, soon insinuates itself into all the Cavities of the Body, and has no ill Effect, provided the *Bell* be permitted to descend so slowly, as to allow Time for that Purpose.

This Machine is not, however, without its Inconvenience, which is found in the Ears, within which there are Cavities which open only outwards, and that by Pores so small, as not to give Admission even to the Air itself, unless they be dilated and distended by a considerable Force. Hence on the first Descent of the *Bell*, a Pressure begins to be felt on each Ear, which by Degrees grows painful, till the Force overcoming the Obstacle, what constringes these Pores, yields to the Pressure, and by letting some condensed Air slip in, gives immediate Ease, though the Pain is renewed when the *Bell* descends lower, which Pain is again eas'd in the same Manner as before.

The celebrated Dr. *Halley*, to obviate these Inconveniencies, contrived some further Apparatus, whereby not only to recruit and refresh the Air, from Time to Time, but also to keep the Water wholly out of it at any Depth, which he effected in this Manner: His *Diving-Bell* was of Wood, about sixty cubick Feet in its Concavity, coated externally with Lead so heavy that it would sink empty; a particular Weight being distributed about its Bottom, to make it descend perpendicularly, and no otherwise. In the Top was fixed a Glass like a Window, to let in Light from above, with a Cock to let out the hot Air: And below, about a Yard under the *Bell*, was a Stage suspended from it by three Ropes, each charg'd with an hundred Weight to keep it steady. To supply Air to this *Bell* when under Water, he had a Couple of Barrels holding thirty-six Gallons a-piece, cased with Lead so as to sink empty, each having a Bung-Hole at Bottom to let in the Air as they descended, and let it out again as they were drawn up. In the Top of the Barrel was another Hole, to which was fix'd a leathern Pipe, or Nose long enough to hang below the Bung-Hole; being kept down by a Weight appended. So that the Air driven to the upper Part of the Barrel by the Encroachment of the Water, in the Descent, could not escape up this Pipe, unless the lower End was lifted up.

These Air-Barrels were fitted with Tackle, to make them rise and fall alternately, like two Buckets; being directed in their Descent by Lines fastened to the under Edge of the *Bell*; so that they come readily to the Hand of a Man, placed on the Stage to receive them; and who taking up the Ends of the Pipes, as soon as they come above the Surface of the Air in the Barrels, all the Air inclosed in the Surface thereof, was blown forcibly into the *Bell*, the Water taking its Place. One Barrel thus receiv'd and emptied, upon a Signal given it was drawn up, and at the same Time the other let down; by which alternate Succession, fresh Air was furnish'd so plentifully, that the learned Doctor himself was one of five, who were altogether in 9 or 10 Fathoms deep of Water, for about an Hour and a half, without the least Inconvenience; the whole Cavity of the *Bell* being perfectly dry. All the Precaution he observed, was to be let down gradually, about twelve Foot at a Time, and then to stop, and drive out the Water that had enter'd by taking in four or five Barrels of fresh Air before he descended farther. And being arriv'd at the Depth intended, he let out as much of the hot Air that had been breathed, as each Barrel would replace with cold, by Means of the Cock at the Top of the *Bell*; through whose Aperture, though very small, the Air would rush with so much Impetuosity, as to make the Surface of the Sea boil.

Thus he found any Thing could be done, that was requir'd to be done underneath; and by taking off the Stage, he could for a Space as wide as the Circuit of the

the *Bell*, lay the Bottom of the Sea so far dry, as not to be over Shoes therein. Besides, that by the Glass Window so much Light was transmitted, that, when the Sea was clear, and especially when the Sun shone, he could see perfectly well to write or read, much more to fasten or lay hold of any Thing under him, that was to be taken up. And by the Return of the Air Barrels, he often sent up Orders written with an Iron Pen on a Plate of Lead, directing how he would be moved from Place to Place. At other Times, when the Water was troubled and thick, it would be as dark as Night below; but in such Cases he was able to keep a Candle burning in the *Bell*. The same Author intimates, that, by an additional Contrivance, he has found it practicable for a *Diver* to go out of the *Bell*, to a good Distance from it, the Air being conveyed to him in a continued Stream of small flexible Pipes, which serve him as a Clue to direct him back again to the *Bell*: So that there seems little farther wanting to the Perfection of *Diving*: Though the famous *Corn. Drebell* had an Expedient, in some Measure, superior to this. He contrived not only a Vessel to be rowed under Water, but also a Liquor to be carried in the Vessel, which supplied the Place of fresh Air. The Vessel was made for King *James* I. carrying twelve Rowers, besides the Passengers. It was tried in the River *Thames*; and one of the Persons in that submarine Navigation, then living, told it one from whom Mr. *Boyle* had the Relation; who assures us, that he discovered by a Physician, who married *Drebell*'s Daughter, that the Liquor was used from Time to Time, when the Air in the submarine Boat was clogged by the Breath of the Company, and unfit for Respiration; at which Time, by unstopping the Vessel full of this Liquor, he could speedily restore to the troubled Air such a Proportion of vital Parts, as would make it serve again a good while. The Secret of this Liquor *Drebell* would never disclose to above one Person, who himself assured Mr. *Boyle* what it was.

That there can be such a Liquor found, is without Contradiction; but that it operates, as abovementioned by Mr. *Boyle*, is what appears to me ridiculous; for in my Opinion, it is absolutely impossible to invent a Composition, which could be carried to that Degree of Perfection, as to supply the Want of the Air we breathe, and to be applied to the same Uses in an organical Body, *viz.* in temperating the too great Impetuosity of the Spirits, hindering or moderating the too great Effervescency of the Humours, which enter into the Composition of the Mass of the Blood, and hinders it from becoming a Dust, *&c.* much less to supply it with vital Spirits, as Mr. *Chambers* ignorantly supposes; which vital Spirits are not carried by the Air into the Body, but are formed in the Body by the Concomitancy of the Air; which serves, only, in that Operation, as a Refrigeratory does to an Alembick; *i. e.* to hinder that the Exaltation of those Spirits from the Mass of the Blood, should be made with too much Precipitation: Therefore must have been invented by *Drebell*, for no other Purpose than to rarify, in his submarine Boat, the Air which had been condensed, and clogged by the Breath of the Company; which Rarefaction unfolding the ætherial Particles from the fuliginous Envelopes they had wrapt themselves in, in passing and repassing through the Lungs, hindering the Inspiration and Expiration, restored them to their native Activity, and rendered them fit for the same Uses as before: Which Rarefaction could not be done but by Fire, either natural or artificial; and which makes me suppose, that *Drebell*'s Liquor was nothing else but a spirituous Preparation full of igneous Particles, which rushing with Impetuosity out of the Vessel, when opened, into the thick and clogged Atmosphere, where by their excessive Rapidity, and continual Rotation, shaking, disuniting, and even breaking the heaviest Corpuscles it was composed of, and which clogged the ætherial ones, rarified that Atmosphere so as to be as easily breathed as before; which Operation (which is the same as that of the Sun on our natural Atmosphere) could be repeated, as long as the Liquor in the Vessel could supply the Boat with igneous Particles: Therefore I would be apt to imagine, that *Drebell*'s Liquor was nothing more than Spirit of Nitre rectified in an extraordinary Manner; whose igneous Vapours could not be offensive to the Company in the Boat, since seized at their first sallying out by that thick ambient Atmosphere.

Before the Invention of these useful and curious Machines, which serve to keep the *Diver* a considerable Time under Water, and carry him to a very great Depth, *Diving* was more dangerous, and not near so beneficial, as it has proved since; but as the *Diver* could not be kept long under Water, and did not dare to venture so far, none but Trifles could be *dived* for; but at present, the heaviest Things are brought up from the Bottom of the Sea, such as Cannon, Chests of Gold and Silver, which by Means of those Machines a *Diver* has Time to rummage a Wreck for; though a Ship has been wrecked, perhaps, since a whole Century, or more: Which, to accomplish, the Undertaker for *Diving* must know perfectly well the Place, where the Ship he designs to *dive* upon was wrecked, otherwise he must expect to lose his Time, and to spend his Money in vain: Though with all the Precautions imaginable, *Divers* have often been disappointed; which is the Reason, perhaps, why the Art of *Diving* is so neglected at present, that we hear of none who apply themselves to it. I knew ten or twelve Years ago one Mr. *Row*, who was very expert in that Art, and who had *dived* on several Wrecks on the Coasts of *England* and *Scotland*, with very great Success.

Those who *dive* for Spunges in the *Mediterranean*, do not use so much Precaution, and help themselves by carrying down Spunges dipt in Oil in their Mouths. But considering the small Quantity of Air that can be contained in the Pores of a Spunge, and how much that little will be contracted by the Pressure of the incumbent Air, such a Supply cannot long subsist the *Diver*. For it is found by Experiment that a Gallon of Air included in a Bladder, and by a Pipe reciprocally inspired and expired by the Lungs, becomes unfit for Respiration in little more than one Minute of Time; for tho' its Elasticity be but little altered in passing the Lungs, yet it loses so much of it as to be rendred effœte: For Dr. *Halley* assures us this, that a naked *Diver* without a Spunge, cannot remain above a couple of Minutes inclosed in Water; nor much longer with one, without suffocating; nor without long Practice, near so long: Ordinary Persons beginning to stifle in about half a Minute. Besides that, if the Depth be considerable, the Pressure of the Water on the Vessels make the Eyes Blood-shotten, and frequently occasions a Spitting of Blood.

DONATISTS.

DONATISTS, thus denominated from their Leader *Donatus*, Bishop of *Casæ Nigræ*, begun in 311 by a Schism, occasioned by *Donatus* having ordained *Majorinus* in the room of *Cæcilian*, who had been elected Bishop of *Carthage*. But as Schism leads naturally into Heresy; *Donatus* had so found Means to unite those two unseparable Companions in his Person, by publishing and maintaining obstinately several Errors, *viz.* 1. That Baptism conferred out of the Church, that is, out of the Sect, was null. 2. That there

there was no Church but in *Africa*, considering all the other Churches as prostitute and fallen. *Donatus* is accused besides to have given into the Doctrine of the *Arians*, with whom he was closely allied; and accordingly St. *Epiphanius*, *Theodoret* and some others accuse the *Donatists* of Arianism. But St. *Augustin* Epist. 85, to Count *Boniface*, affirms that the *Donatists* in this Point, kept clear of the Errors of their Leader. They were condemned in a Council held at *Rome* two Years after their Separation, and afterwards in another at *Arles* the Year following.

In 344, under the Empire of *Theodosius the Great*, there arose a Schism among the *Donatists* themselves, by which they were broke into two Parties, for *Parmenian* their Bishop being dead, some elected *Primian*, and were called *Primianists*; and others *Maximian*, called *Maximianists*.

Aurelius, Bishop of *Carthage*, assembled several Councils in the Beginning of the fifth Century, to procure a Re-union between them and the Orthodox, but when he found that instead of being persuaded by his charitable Sollicitations, they, on the contrary, grew more insolent and more furious, the Emperor *Honorius*, at the Instances of the *African* Bishops, published several very severe Ordinances against them, which contributed more to their Return to the Church, than all the Councils which had been assembled for the same Purpose; though those Ordinances inflicted no corporal Punishments against the *Donatists*, but only deprived them of all the Honours they were possessed of, and rendered them incapable of being promoted to any others; which shews that the propereſt Means to exterminate Heresy and Schism, is not to force the Hereticks in their Belief; in which the Authority of Princes, and Torments render them more obstinate, and even serve to give them more Credit among the People: But that the Privation of publick Honours, and the Incapacity of enjoying the Benefits of a Civil Society, conquer sooner those who are more sensible to the Advantages of this transitory Life than to Religion. Since *Augustin* who had, till then, been of Opinion, that no other Arms ought to have been employed against them but those of the divine Word, found, by the good Effects of those Laws we mention, that he had been mistaken on that Article. He wrote on that Subject an excellent Letter to *Vincent* who was a *Donatist*; where he shews, 'that it would be returning Evil for Evil, if the Catholicks were not to endeavour to keep in Awe through Fear, those by whom they have been so barbarously used, and who cannot be hindered from continuing their Violences, but by the Menaces of Princes. That Fear must be joined to Instruction; because if the Hereticks were only frighted without being instructed, it would be a Tyranny, and not a salutary Conduct for their Salvation; that all those who forgive, are not true Friends; as those that wound are not always Enemies; and that it is better to love with Severity than to deceive with Meekness; that God not only instructs us with Benignity, but frightens us likewise, with Menaces: Lastly, that several are only kept in *Donatus*'s Schism, either through Shame, or by Custom, or by the Violence of their Brethren; and that the imperial Laws remedy all those Excuses, by the Terror of the Pains which awake those who are asleep, and hasten those who are loth to desert a Party.'

Among the *Donatists*, whom those Laws could not persuade to abandon their Schism, several carrying Things to Extremity, took Arms against the Orthodox, and exercis'd on those they could seize, all the Cruelties their Rage could devise. The most modest among them contented themselves with complaining, that the Orthodox had claimed the Authority of the Emperor, in an Affair purely of Religion; to which St. *Augustin* answered as above related.

In 408, the Emperor *Honorius*, was obliged to renew those Laws he had made against the *Donatists*, by Rescripts dated the 15th of *November*; because after the Death of *Stylicon*, those Hereticks having given out that he had been the Author of the Laws made against them under the Name of *Honorius*, they had lost their Force as soon as *Stylicon* had lost his Life, and in hope of Impunity, they attacked the Catholicks, and even killed several Bishops.

In 410, was held by the Emperor's Orders, that famous Conference, between the Orthodox and the *Donatists*, where the Tribune *Marcellinus*, who was also imperial Notary or Secretary of State presided for the Emperor. *Marcellinus* was a very prudent and very learned Man, who desired sincerely to see Peace restored in the *African* Churches. This Magistrate shewed in the Conference we mention, as much Sufficiency to answer to the Evasions of the *Donatists*, as Sincerity and Mansuetude to bring them to Reason; for as they had entered the Conference, entirely against their Inclination, they used all the Chicanaries they could devise to avoid the Dispute; so that any body but this Tribune could have been deceived by their Subtilties, or at least disconcerted by their Obstinacy to find always some Back-door, or Means to escape. The reading of those impertinent Cavillations is too tedious in the Acts; therefore as I imagine they would be but very little entertaining for the Reader, I will not relate them. It was necessary to write all that was laid on their Part, to shew their Want of Sincerity; and St. *Augustin* judging that few Persons would take the Trouble to read Things so long and so tedious, has made an Abridgment of them, which is found among his Works.

This famous *Conference* was opened the first of *June* 411, the Year which followed the taking of *Rome* by the *Goths*. Under the Consulship of *Varanes* or *Varro*, or *Varanus*, for that Name is read these three Ways in the Manuscripts of the Acts of the Conference, which was held in the Baths of *Gargilius*, one of the most magnificent Edifices of *Carthage*. There were come to *Carthage* on the Side of the Orthodox 286 Bishops, and on that of the *Donatists* 279, according to the Subscription, but in fact there were not so many, and those present signed for the absent: For if that great Number had been admitted in the Conference, and had voted, a Disorder had been unavoidable; and 'the Disputes of important Questions, which wants Silence, ought not to be disturbed, said the Tribune *Marcellinus*, by a confus'd Multitude of Laicks, or Bishops:' Therefore according to the Emperor's Will, it was determined, after a long and tedious Opposition from the Schismaticks, that seven Bishops should be elected of each Side, to enter the Place of the Conference, and to dispute; besides whom, there would be the like Number of them, to consult together about the Difficulties, which the Disputants would not resolve alone. The Orthodox Bishops were *Aurelius* of *Carthage*, *Alipius* of *Tagestes*. *Augustin* of *Hippone*, *Vincent* of *Colusia*, *Fortunatus* of *Cirthe*, *Fortunatian* of *Sicca*, and *Possidius* of *Calamis*. The *Donatists* were *Primianian*, *Petilian*, *Emeritus*, *Potasius*, *Montanus*, *Gaudencius*, and *Deodatus*. St. *Augustin* was the principal, not to say the only Actor in that Dispute; and *Petilian*, false Bishop of *Cirthe* was opposed to him. Eight Bishops, four of each Church, were elected to write and keep the Acts of the Conference. All these Persons made together 36 in Number. Before they begun, *Marcellinus* obliged all the Prelates to sign a Promise, by which they engaged themselves to rectify all that would be granted by those of their Party. The *Maximianists* wanted to enter the Conference, and thereby render themselves considerable to the other *Donatists* who despised them, because of their small Number; but both Parties agreed that they should be excluded; because it appeared clearly that they desired it rather to acquire some Reputation, by their having been admitted in so celebrated a Conference, than they were afraid of being conquered; that they had sought less the Honour of the Victory than that of the Fight; and less the Triumph of the Truth, than the Consolation of having hid their Weakness. *Marcellinus* invited the schismatick Bishops to set down, but they refused it in a scorn-

a ſcornful Manner, ſaying, that it was written by *David*, *I'll not ſet with the Impious*. But they did not conſider, that in wanting to ſtand, they were in the Poſture of Criminals before their Judges. They alſo found Fault with the Orthodox calling them Brothers, which was ſhewing too much the implacable Rage wherewith they were animated againſt them; and little deſerving that handſome and tender Uſage they received from them; for the Deſire of the Re-union was ſo great and ſo ſincere among the Orthodox, that they offered to quit their Biſhopricks, if they were convicted of ſome Errors; and if not, and they were Conquerors, to divide their Sees with thoſe who had loſt their Cauſe, and to ſuffer two Biſhops in one Dioceſe. They even carried their Chriſtian Complaiſance further; for in their Letter to *Marcellinus* they propoſed even to quit their Dioceſes, if the People would not ſuffer two Biſhops. To which Propoſal St. *Auguſtin* relates, that all the Orthodox Biſhops, except two, at firſt, who afterwards agreed with the reſt, conſented.

To come ſooner at the true Subject of the Diſpute, the orthodox Biſhops would have ſeparated from the common Cauſe of the Church, which was the Point in Queſtion, the Affair of *Cecilianus*, who had given Birth to the Schiſm. The *Donatiſt* Biſhops, on the contrary, endeavoured to avoid the Queſtion of the true Church; if ſhe was on their Side, or on that of the Catholicks; but amuſed themſelves a conſiderable Time, on the particular Fact of that Prelate. As the Orthodox had aſked this Conference of the Emperor, the Schiſmaticks wanted that at the Beginning of the Diſpute, the Names of the Deputies ſhould be given to them, and their Requeſt ſhewn. The Tribune anſwered, that it was not the Cuſtom to inſert Requeſts in the Reſcripts of the Prince, of the Nature of that in Queſtion; that when a Council was alledged, with the Date of the Day, and of the Conſulſhip under which it had been aſſembled, they accuſed it, thereby, of Suppoſition; and that when an Ordinance of the Emperor, without Date of the Day, or of the Conſulſhip, was oppoſed to them, they ſaid, that ſuch Ordinance was falſe. *Marcellinus* added, that *that* Formality was not neceſſary in the imperial Conſtitutions, as it was in other Reſcripts. At laſt, after all theſe Subterfuges, they were oblig'd to come to the principal Queſtion, *viz.* on which Side was the true Church? *Petilianus* ſhewed, that he was a very bad Advocate of a very bad Cauſe; and St. *Auguſtin*, on the contrary, ſhew'd ſo ſolid a Doctrine, and ſuch marvellous Strength of Genius, though often interrupted, that he left no Room to doubt which Side gained the Victory. He could have reproached his Adverſary with ſmelling a little of *Arianiſm*, and attacked him, beſides, on the Reiteration of the Baptiſm. But contented himſelf with inſiſting on the Point more clearly controverted, and to defend the Unity of the Body of *Jeſus Chriſt*, which the *Donatiſts* had broken by their Schiſm. The ſacred Scripture was choſen by both Parties, for Judge of that Diſpute, and St. *Auguſtin* made ſo good Uſe of thoſe Arms, that his Adverſaries could not reſiſt them.

The Queſtion was more of Fact, than of Right, and for that Reaſon there was wanted a great deal of Light to diſtinguiſh the Truth. For the *Donatiſts* conſented to all the Dogma's of the Church, and even had the ſame Sacraments, except that they reiterated the Baptiſm, which St. *Cyprian* had done before them. As their Biſhops could not ſhew that their Church was univerſal, *i. e.* diffuſed throughout the whole World; one of them, called *Gaudencius*, ſaid, that *that* Party was Catholick, which had the Sacraments, and was immaculate. St. *Auguſtin* ſhewed him the Impertinence of that Explanation, and preſſed him ſo home, that to extricate himſelf, he cried that the Catholick Church was an human Invention. The others approving what he had ſaid of the Church, anſwered, that ſhe was periſh'd by the Crime of thoſe who boaſted to compoſe it, and was preſerv'd no where elſe but in the Party of *Donatus*. But they were as weak to prove that pretended Apoſtacy, as they had been preſumptuous to advance it. It was ſhewed them by the Succeſſion of Biſhops, and by the Tradition of the ſame Doctrine, that the Catholick Church was *Chriſt's* Spouſe, without Spots or Wrinkles. It was thus that St. *Irenæus*, *Origen*, and *Tertullian*, had fought the Hereticks of their Time. It is true, *that the* Donatiſts *ſaid that they had communicated with the antient* Roman *Church, and that they had ſeparated themſelves from the new, which they pretended was corrupted: But they could not ſhew that antient Communication, for it was not long ſince they had begun to have Biſhops of that Sect, reſiding at* Rome, *and communicating in Appearance with the Biſhop of that See; they replied, that the antient Popes had been good and religious, but accuſed ſeveral of them of great Crimes.* St. *Auguſtin*, anſwered, that the Church, with Regard to the Holineſs of its Manners, will never be perfectly holy but in Heaven; whence they inferred, that contrary to the firſt Principles, St. *Auguſtin* made two Churches, one in Heaven and the other on Earth; which ridiculous and ignorant Inference, proceeded from their not underſtanding very well the Communion which ſubſiſts between them, and makes them but one under the ſame Chief; and the Difference between the Condition of the preſent Life ſubject to Corruption, for its particular Members, and that of the Life to come, where no Impurity will be found.

Marcellinus, who was both a very learned, judicious, and juſt Man, after he had heard, with a great deal of Attention, all that had been ſaid on both Sides, and cauſed the Acts of the Conference to be ſign'd by the Biſhops of both Parties, pronounced his Sentence, whereby he declared, that the *Donatiſts* could not defend their Schiſm; and that the Orthodox had clearly proved the Truth. That therefore to hinder that the Corruption of an old Sore (theſe are his Terms) and which would not be cured by ſo clear a Declaration of the Truth, ſhould prove hurtful to others. and to reduce it to be only prejudicial to itſelf, ſince it was their Deſire: He ordered all Sorts of Perſons of what Condition ſoever, to oppoſe the Aſſemblies of the *Donatiſts*, in the Places where they lived. Beſides, he took from them all the Churches, the Uſe whereof he had granted them, to engage them to come to the Diſpute. He declared afterwards, that thoſe who would remain obſtinately in their Schiſm, ſhould be ſubject to the Penalties inflicted by the imperial Ordinances, which he had ſuſpended in Hopes of their Reformation. He granted, however, to the *Donatiſt* Biſhops, the Liberty of returning to their Houſes, according to the publick Faith he had given them; being willing to be a religious Obſerver of his Word, even to thoſe who would not keep their Word either to God or to the Church. He added, to ſuppreſs the Ravages committed by the *Circumcellions* (a Kind of *Donatiſts*) that the Places where the Maſters would not keep them in their Duty, ſhould be acquired to the *Fiſc*.

This celebrated Conference prov'd advantageous, in that ſome ſchiſmatick Biſhops and ſeveral Laicks, returned to the Communion of the Church, and St. *Auguſtin*, to whom the Honour of the Diſpute was deferred, with the unanimous Conſent of all the orthodox Biſhops, ſays, that ever ſince that illuſtrious Triumph of the Truth, the Catholick Paſtors were pleas'd to ſee almoſt all Chriſtians re-united in the ſame Body; and that a great Number of thoſe called *Circumcellions*, abjured their Error. But that Re-union was not made all at once; and the Biſhops who remained in the Schiſm, having added the Spite of having been confounded to their former Rage, became more furious than before, and greater Enemies to the Reconciliation offered to them. They publiſhed that the Acts of the Conference had been falſified, though all imaginable Precautions had been uſed, to deprive them of the Means of advancing that Calumny; for, as I have ſaid, there were four Biſhops of each Side, appointed to keep the Minutes of the Acts; and the like Number to write Word for Word, what the one and

and the other said; besides the Secretaries of the Tribune. Each signed his Propositions, and *Marcellinus* sealed the Registers. It was particularly against that Judge that the Schismaticks conceived an incredible Hatred, though he had behaved towards them with all the Clemency which could be expected from one who loved Peace. Not contented to say that he had been corrupted by the Orthodox, they resolved to procure his Ruin. In fact, *Marinus* coming into *Africa* to command the Armies of the Emperor against *Heraclian*, who had revolted: They made him believe that *Marcellinus* was of the Party of the Rebels, and knew so well how to disguise their Calumny, that *that* General had him put to Death; depriving, thereby, the Emperor *Heraclius* of a faithful Servant, and the Church of a very zealous Defender. He informed the Emperor of his Judgment, by whom it was confirm'd; and far from listening to the Appeal of the Schismaticks, he made at *Ravenna*, the Year following, a Law by which the Laicks of their Party were punished by large and heavy Fines, and the Clerks sent into Exile; besides the Restitution of the Basilicks, which had been left to them by Toleration, as we have said, and the Confiscation of all the Goods or Estates possessed by their Churches, to the Catholick Churches. St. *Augustin* speaking of that Law, says, 'that the Emperor had decreed against them, 'Penalties, less severe than they deserved, agreeable 'to a Christian Mansuetude, and had contented himself with the Banishment, instead of the last Supplice.'

The *Circumcellions* continued always in their Brutality, and killed a Priest of *Hippone*, called *Restitutus*. *Marcellinus*, who had the Government of the ecclesiastical Affairs, caused the Guilty to be severely whipped, and had infallibly condemned them to die, if St. *Augustin*, who was extremely Meek, had not wrote to *Marcellinus*, to *Donatus*, Proconsul of *Africa*, and to a Judge called *Apingius*, very urging Letters, to intreat them that they should not be put to Death, 'that the 'Suffrances of God's Servants, which ought to be 'glorious in the Church, should not be disgraced by 'the Blood of their Enemies; and that the Law of 'the Talion, should not have Place among the 'Deeds, or in Persecutions, which must serve for an 'Example of Patience to the Pagans. That if the 'Proconsul should make any Difficulty to grant that 'Favour, he desired him to keep the Criminals Prisoners, till he could write to the Emperor, to obtain 'from his Clemency the Favour he desired. Hoping 'that he would grant it as easily, as he had done that 'to the *Gentiles*, who having some Years before, put 'to Death several Christians, were notwithstanding, 'on a Request made to his Majesty, reprieved from 'Death.'

Dulcitius, whom the Emperor had sent in 411, to replace *Marcellinus*, succeeded to his Zeal for the Peace of the Church, as well as to his Dignity; for the Catholicks could not have a more courageous Protector, nor the *Donatists*, a more severe Executor of the imperial Laws against them. *Gaudencius*, one of their Bishops in *Numidia*, who had assisted at the Dispute, was an Incendiary among those, who were already but too much irritated against the Church. *Dulcitius* wrote to him a very civil Letter, to endeavour to bring him back to his right Senses, and hinder him from burning himself with all his People, as he pretended, rather than return to the Communion of the Orthodox. *Gaudencius* answered him by two Letters, which the Tribune sent to St. *Augustin*, who, though very busy at that Time, answered him by a Book which he composed on Purpose. The Schismatick answered, and the Bishop of *Hippone* replied, likewise, by another Book.

Emeritus, another *Donatist* Bishop, but more learned than *Gaudencius*, succeeded not better against St. *Augustin*. Pope *Zozimus* had sent him into *Mauritania*, with some other Prelates, to terminate the Differences of several Churches of that Province. Being at *Cæsarea*, he saw that false Bishop who governed the Church of the Schismaticks. He challenged him to a Dispute before all the People, that being among his own, and very secure, he could propose those fine Things, which, he said, he could not propose in the Conference, where he had been one of the principal Actors, and where he had boasted, he had neither been convicted, nor persuaded. The Occasion offered very fair to be satisfied, and to renew the Fight; but he declined it, though pressed to it by his Fellow-Citizens; who promised him to return to his Communion, even to the Risque of losing their Fortune, if he could refute the Catholick Doctrine. His Adversary spoke as he used to do, *i. e.* divinely well; and the poor Man, as if he had been struck with Thunder, remained mute, and said nothing, 'but that he could 'not oppose the Will of so many; but could likewise 'obey his own Will.' St. *Augustin*, in his Sermon on that Subject, examines ingeniously these Words, and draws from them the Subject of a powerful Exhortation, to the revolted against the Church, to return quickly to it. *Emeritus*, was notwithstanding, very learned and very eloquent, for in that great Conciliabule of *Bagaia*, which those of his Communion had assembled against the *Maximianists*, he dictated the Sentence pronounced against them, which was so eloquent, that St. *Augustin* being blamed by *Cresconius*, to deceive Mankind by the Beauty of his Discourses, and to be too nice on his Elocution, which he called seditious, and Enemy of the Truth; he quotes that Piece as much elaborated, to shew them, that if it was ever so true that he was as eloquent as represented by them, they could not condemn him for studying his Speech, when he disputed against their Errors; since they had done the same in the Condemnation of those of their Brethren who had deviated from their Principles.

St. *Augustin* wrote, at that Time, a Book, intitled, *Of the Corruption of the Donatists*; where he shews the Difference between them and the *Arians*; and treats in an excellent Manner of the Use of the Imperial Laws against the Hereticks, to bring them back to the Unity of the Church. For 'though, says he, 'they seem to be made against them, because of the 'Penalties they are subjected to, they are, notwithstanding for their Advantage, because the Fear of 'incurring the Chastisements discerned in them, procure the Conversion of several. When the Emperors make bad Ordinances in favour of Error 'against the Truth, the Faith of the Faithful is 'try'd; and those who persevere are crown'd: But 'when they make good Ordinances, in favour of the 'Truth, against Falshood, Fear seizes those who are 'furious; and those who have Sense mend themselves.'

Notwithstanding the Severity of the Laws, made from Time to Time by the orthodox Emperors against the *Donatists*, they continued powerful in *Africa* for a very considerable Time; so that, in the Year 591, they had still Bishops to govern their Churches; who, not contented to continue in the Schism, presumed to equal themselves to the Catholick Bishops, and even pretended to the Rank of Primacy; when, according to the Custom of the Province of *Numidia*, they were the most Antients, to the Exclusion of the orthodox Bishops. Pope *Gregory*, inform'd of that Presumption, wrote to the Bishops of *Numidia*, and assured them that he would not touch on the antient Customs kept among them, provided they were not against the Catholick Faith; but that as to the Establishment of Primates, he could not suffer that the *Donatists* should pretend to it, by Antiquity; and, that they ought to be satisfied that they are permitted to govern their People, without pretending to an Equality with the orthodox Prelates. But it was not enough for *Gregory* to have wrote on that Subject to the *African* Bishops, he wanted a stronger Authority than theirs, to shake the Insolence of the Schismaticks: Therefore he wrote likewise to *Gennadius*, who commanded in *Africa*, and desired him to employ his Power, to hinder the Attempts they made daily against the Church; and to

cause

cause that the Primates, henceforwards, should be elected rather for their Merit, than in Consideration of their See.

The *Donatists*, having afterwards united themselves with the *Arians*, in the frequent Revolutions that happened in *Africa*, were so confounded with those Heretics, that the Ecclesiastical Historians take no Notice of them after the Sixth Century.

DYING.

DYING, is the Art of Tinging any Matter with a permanent Colour, which penetrates the Substance thereof.

The Art of *Dying* is most commonly applied to Wool, Linnen, Cotton, Silk, Hair, Feathers, Horn, Leather; and the Threads and Webs thereof.

A *Dyer* is a Sort of Chymist, and like him must have a Laboratory stocked, not with Alembicks, Retorts, Recipients, *&c.* but with Coppers of different Sizes for his Operations; and with Drugs, he is furnished with from the three different Kingdoms I have run through, in my Chymical Peregrinations, *viz.* the *Vegetable*, *Mineral*, and *Animal* Kingdoms.

The *Vegetable Kingdom* furnishes him with *Gums*, *Barks*, *Rinds*, *Roots*, *Seeds*, &c.—The *Gums* are, Gums *Tragacanth*, *Arabick*, *Mastich*, and *Sanguis Draconis*. —The *Barks* are, *Alder*, *Saplin*, and *Crab-Tree Barks*. —The *Seeds* are *Fenugreek-Seed*, *Cumin-Seed*, &c. the *Peels* and *Rinds* are, *Pomegranate-Peel*, *Walnut-Rinds*; besides *Walnut Roots*, *Galls*, *Sumach*, *Wheat-Flower*, *Broom*, *Agaric*, *Senna*, *Lemon-Juice*, *Vinegar*, *Aqua Vitæ*, *Linseed-Oil*, *Indigo*, *Woad*, *Weld*, *Wood-Wax*, *Logwood*, *Fustich*, *Madder*, *Brazil*, *Cochineal*, *Kermes*, *Safflower*, and *Sanders*.

The *Mineral Kingdom* supply him with *Steel-Filings*, *Slippe*, *Pewter*, *Copperas*, *Verdegrease*, *Antimony*, *Litharge*, *Arsenick*, *Allum*, *Argol*, *Salt-petre*, *Sal Armoniac*, *Lime*, &c.

The Drugs he finds in the *Animal Kingdom* fit for his Use, are *Honey*, *Ox-gall*, *Yolks of Eggs*, *Urine*, &c.

Of these Ingredients some are *Colouring*, and some *Non-colouring*.

The *colouring Drugs* are of three Sorts, *blue*, *yellow*, and *red*. The *blue* are *Indigo*, *Woad*, *Weld*, *Wood-wax*, and *Logwood*. The *yellow* is the Fustick. The *red* are *Madder*, *Brazil*, *Cochineal*, *Kermes*, *Safflower*, *Sander*, *Annoto* and *young Fustick*, for Orange Colours, and *Wood-soot*.

Note, That *Indigo* is a Drug of a deep blue Colour, brought hither from the *West-Indies*: It is drawn from the Leaves of a Plant, which the *Spaniards* call *Avil*, and we *Omele*, *Nil*, *Indian Woad*, *Glastum-indicum*, *Blue-weed*, and *Indigo*; and is prepared thus: When the Plant is arrived at a certain Height, and its Leaves are in a good Condition, they cut them down, and throw them into a kind of Vault, covering them with Water. These they boil together for the Space of 24 Hours; at the Top swims a Scum, with all the different Colours of the Rainbow. Then the Water is let off into another Vessel, where they agitate and skim it, as it were, with five or six long Poles, fitted together for that Purpose. This they continue to do, till the Water becomes of a deep green, and till the *Grain*, as they call it, forms itself, which they discover by taking a little of it out into another Vessel, and spitting in it; for if they perceive then a blueish Dreg subsiding, they cease to beat. The Matter then precipitates of itself to the Bottom of the Vessel, and when it is well settled, they pour off the Water. After this they take out the *Indigo*, and put it into little Linen Bags, and let it drain; which done, they put it into shallow wooden Boxes, and when it begins to dry, they cut it into Slices, and let them harden in the Sun. There are several Kinds of *Indigo*; the best is that called *Serquisse*, from the Name of a Village where it is prepared. That is best which is in flat Pieces, of a moderate Thickness, pretty hard, clean, light enough to swim in the Water, inflammable, of a fine blue Colour, marked a little on the Inside with Silver Streaks, and appearing reddish when rubbed on the Nail.

Woad gives also a blue Colour; it arises from a Seed, sown annually in the Spring; which puts forth a Plant called *Glastum Sativum*, whose Leaves resemble those of Ribwort-plantain. They have usually three, four, or five Crops of Leaves every Year; but only the two or three first are of any Value; whereof the first is best, and the rest in their Order. When the Leaves are ripe they crop or gather them; after which they carry them to a Woad-mill, to grind them small: Which done, they are laid eight or ten Days in Piles or Heaps; and at last made into a kind of Balls, which are laid in the Shade, on Hurdles to dry: Afterwards they break or grind them to Powder; and when ground spread it on a Floor, and water it, which they call *Couching*. Here they let it smoak and heat, till, by torrifying it every Day, it becomes quite dry, which they call *Silvering*; a Week after which it is in a Condition to be used in *Dying*. A *Woad-blue* is a very deep Blue, almost black; and is the Basis of so many Sorts of Colours, that the *Dyers* have a Scale, whereby they compose the divers Sorts or Degrees of *Woad* from the brightest to the deepest.

Weld, is a Plant used to give a yellow Colour, and for this Reason called in *Latin Luteola*, of *Luteus*, yellow. This Plant is sown in a light Ground, in the Months of *March* or *September*; and is ripe in *June* or *July*. In hot Countries it is frequently dry enough when gathered; but in colder, Care must be taken to dry it. Great Circumspection is to be used that it be not gathered before thorough ripe; as also to prevent its getting Wet when gathered. This Plant is much cultivated in *Kent*, for the Use of the *London* Dyers. With the Help of Pot-ashes, it yields a deep Lemon Colour; but either by the Smallness of the Proportion put into the Liquor, or by taking from it a slighter Tincture, it serves to *dye* all Colours between white and a deep yellow. Its *Dye* will hold well, except against Urine and tartarous Liquors.

Madder, is a red, bitter, astringent Root of a Plant, called by Botanists *Rubia Tinctorum*, which gives a strong and rich red Colour.

Brazil, is an *American* Wood, commonly supposed to have been thus denominated because first brought from *Brazil*; though *Huet* shews it had been known by that Name many Years before the Discovery of the Country. It is denominated variously according to the Places whence it is brought. Thus we have *Brazil* from *Farnambuck*, *Brazil* of *Japone* of Lemon, of St. *Martha*; and lastly, *Braziletto*, or *Jamaica* Wood brought from the *Antilles*. The *Brazil* Tree ordinarily grows in dry barren Places, and in the Middle of Rocks; it is very thick and large, usually crooked and knotty: Its Flowers, which are of a beautiful Red, exhale a very agreeable Smell, which strengthens the Brain. Though the Tree be very thick, it is covered with so gross a Bark, that when the Savages have taken it off the Wood, a Trunk, which before was the Thickness of a Man, is scarce left equal to that of his Leg. The *Brazil* Wood of *Farnambuck* is esteemed the best. It must be chosen in thick Pieces, close, sound, without any Bark on it; and such as, upon splitting, of pale becomes reddish; and

and when chewed has a saccharine Taste. In dying it gives but a spurious Colour, and easily evaporates and fades; nor is it to be used without Allum and Tartar.

Kermes, or *Kermes-berry*, called also *Scarlet-grain*, by the *Greeks Coccos Paphica*, by the *Latins Vermiculus*, by the *French*, *Grain de Gall*, or *Vermeil*, is a kind of Nest of an Insect, about the Size of a Juniper-berry, round, smooth, and glossy, of a beautiful red Colour, and full of a mucillaginous Juice, of the same Dye; found adhering to the Bark, on the Stern and Branches of a sort of Scarlet Oak, called by *Botanists Ilex Acuicata*, *Cocci-glandifera*; growing in *Spain*, *Languedoc*, and other hot Countries. The *Kermes-berry*, is of great Use in dying Scarlet, and is prepared thus: The Grain being taken when ripe, is spread on Linen; and at first, while it abounds most with Moisture, is turned twice or thrice a-day, to prevent its heating, till such Time as there appears a red Powder among it; this is separated, by passing it through a Searce; and then the Grain is again spread abroad on the Linen, till the same Redness of Powder is perceived when the sifting is repeated. This Process is continued while any red Powder is discovered on the Surface of the Grain, which is still passed through the Searce, till it yield no more. In the Beginning, when the small red Grains are found to move, as they will do, they are sprinkled over with strong Vinegar, and rubbed between the Hands. Was not this Precaution taken, out of every Grain would be formed a little Fly, which would skip and fly about for a Day or two; and at last changing its Colour fall down dead. The Grain being quite emptied of its Pulp or red Powder, by the Process above-mentioned, is washed in Wine, and then exposed to the Sun; after this, it is put up into small Bags; and along with it, the Proportion of red Dust which it has afforded. According to Mr. *Marsiglis*'s Experiments made at *Montpelier*, the *Kermes-Berry* has the Effect of Galls, when mixed with Vitriol, and makes a good Ink; mixed with Oil of Tartar, or Lime-Water, its Colour turns from a Vermilion to a Crimson Colour. In a Decoction of turnsole Flowers, it retains its proper Colour.

Fustick, is a yellow Wood which yields a fine golden Colour, but there should be some other Ingredients mixed with it to make it lasting. The *Dyers* use it chiefly for Black, but some of the ablest and honestest among them, who would dye none but the best, and most lasting Colours, are of Opinion it should be absolutely excluded out of all dying. Besides this there is another kind of *Fustick*, or *Fustel*, growing in *Italy*, *Provence*, &c. used to dye a Coffee-Colour.

The *non-colouring Ingredients*, are all the others abovementioned under the three different Classes of Vegetable, Mineral, and Animal Kingdoms; which non-colouring Ingredients borrow different Denominations from their different Qualities; for some are restringent, or binding, as Galls, Sumach, Alder-Bark, Pomegranate-Peel, Walnut-Rinds and Roots, Sapling-Bark, and Crab-Tree Bark: And others Smecticks, or Abstersives, as Soap, Fullers-Earth, Linseed-Oil, Ox-Gall, &c. To the Class of *non-colouring* Ingredients, may also be added Water, by *Dyers* called *White Liquor*; which is of two Sorts, viz. *Well-Water*, and *River-Water*. *Well-Water* is used in Reds, and in other Colours wanting Restringency, as well as in *dying* Stuffs of a loose Contexture, as Callico, Fustian, and the several Species of Cottons; but nought for Blues, and making Yellows and Greens look rusty. *River-Water*, which is softer and sweeter than the former, and dissolves Soap better, is used in most Cases for Washing, Rinsing, &c. the Cloths after *Dying*. Besides this there is a *Liquor*, absolutely so called, which is made of one Part of Bran and fine River-Water, boiled an Hour, and put in a Cistern to settle. This *Liquor*, if kept four or five Days in Summer, turns too sour, and becomes unfit for the Use it is prepar'd, which is to contribute to the holding of the Colour; for as Starch, which is only the Flower of Bran, makes a clinging Paste which will conglutinate Paper, though not Wood or Metals; likewise, Bran-Liquors are us'd to mealy *dying* Stuffs, as to Madder, which is render'd clammy and glutinous by being boil'd in Bran-Water; and thus made to stick better to the *Villi* of the Stuff *dy'd*.

Having thus provided our *Dyer*'s Laboratory, with all Things necessary for his Profession, we must, before he can apply them to Use, give him some theorical Instructions, relating to the Art of *Dying*, in general, *viz.* 1. That out of all the Materials which of themselves give Colour, as red, yellow, and blue, with the primitive fundamental Colour, white; arises that great Variety of Colours, we see in *dy'd* Stuffs. 2. That few of the colouring Materials (as Cocheneal, Soot, Wood-Wax, or Woad) are in their outward, and first Appearance of the same Colour, which by the slightest Distempers and Solutions in the weakest Menstrua, they *dye* upon Cloth, Silk, &c. 3. That many of the colouring Materials will not yield their Colours, without much grinding, steeping, boiling, fermenting, or Corrosion, by powerful Menstrua, as Red-Wood, Weld, Woad, Annoto, &c. 4. That many of the colouring Materials, will of themselves give no colouring at all, or give it with much Disadvantage, unless the Cloth, or other Stuff to be *dy'd*, be first cover'd, with some other Matter, though colour-less; as Madder, Weld, and Brazil, with Allum. 5. That some of the colouring Materials, by the Help of other colour-less Ones, do strike different Colours from what they would alone, and of themselves, and that according to the different Salts the colour-less Materials abound with, and the different Species of colouring Ones, *v. g.* urinous Salts and Alkalies, alter the Colour of the Infusions of *Balouestia* or Pomegranate-Flowers, Red-Roses, Clove-July-Flowers, *Mezerion*, Pease-Bloom, Violets, and Cyanus-Flowers; and the Juices of the Berries of *Ligustrum*, of Black-Cherries, and Blackthorn-Berries from red to green. *Cocheneal*, which of itself is Red, by the Affusion of Spirit of Vitriol (which is an acid Salt) strikes the most vivid Crimson that can be imagined; and with urinous Salts and Alkalies, will be again changed into an obscure Colour betwixt a Violet and a Purple. Urinous Spirits and Alkalies, make the yellow Infusions of Madder, Roots, Red, of Brazil-Wood, purplish; of *Lignum nephreticum*, blue; the red Infusion of Logwood, purple; and of the Leaves of Sena, red. Acid Salts quite alter the said Infusions from Red to Yellow. All red, blue, and white Flowers are immediately upon the Affusion of an Alkali, changed to a green Colour, and thence in no long Process of Time, turn Yellow; and all the Parts of Vegetables which are green, will in like Manner strike a Yellow with an Alkali. The blue Seed-Husks of *Glastrum Silvestre*, old gather'd and dry, diluted with Water, stain a Blue, which upon the Affusion of Lye strikes a Green; which said Green or Blue being touched with Oil of Vitriol, *dyes* a Purple, and all these three Colours stand. 6. That some Colours, as Madder, Indigo, and Woad, by reiterated Tinctures will at last become Black. 7. That though Green be the most frequent and common of natural Colours, yet there is no simple Ingredient, which is now used alone, to *dye* Green with upon any Material; Sap-Green, the condensed Juice of the Rhamnus-Berry, being the nearest, and this only us'd by Country People. 8. There is no black Thing in Use which *dyes* black, though both the Coals and Soot of most Things burnt or scorched, be of that Colour; and the blacker by how much, the Matter, before it was burnt, was whiter, as in the famous Instance of Ivory Black. 9. The Tincture of some *dying* Stuffs will fade even with laying, or with the Air, or will stain even with Water, but very much with Wine, Vinegar, Urine, &c. so that what we have said of the different Changes which happen in Colours, by the Mixture of different Salts there is not one

one Colour truely fix'd, since what seems to stand, and be Lye-Proof, is either wholly destroy'd by a different Salt, or chang'd into a much different Colour. 10. Some of the *Dyer*'s Materials are us'd to bind and strengthen a Colour, some to brighten it, some to give Lustre to the Stuff, some to discharge and take off the Colour, either in whole or in Part, and some out of Fraud, to make the Material *dy'd*, if costly, to be heavier. 11. Some *dying* Ingredients, or Drugs, by the Coarseness of their Bodies, makes the Thread of the *dy'd* Stuff seem coarser; and some by striking them smaller; and some by levigating their Asperity finer. 12. Many of the same Colours are *dy'd* upon different Stuffs with different Materials, as Red-Wood used in Cloth, not in Silks; Annoto in Silks, not in Cloth; so that they may be *dy'd* at several Prices. 13. Scouring and Washing of Stuff to be *dy'd*, is to be done with appropriate Materials; as sometimes with Ox-Galls, sometimes with Fullers Earth, sometimes with Soap: This latter being pernicious in some Cases, where Pot-Ashes will stain or alter the Colour. 14. Where great Quantities of Stuffs are to be *dy'd* together, or where they are to be done with great Speed, and where the Pieces are very long, broad, thick, *&c.* they are to be differently handled, both in Respect to the Vessels and Ingredients. 15. In some Colours and Stuffs, the tingent Liquor must be boiling, in other Cases blood-warm, in some it may be cold. 16. Some tingent Liquors are fitted for Use by long keeping, and in some the Virtue wears away by the same. 17. Some Colours or Stuffs, are best *dy'd* by reiterated Dippings into the same Liquor at several Intervals of Time, and some by continuing longer, and other lesser while therein. 18. In some Cases, the Matter of the Vessel wherein the Liquors are heated, and the Tinctures prepar'd, must be regarded; as that the Kettles be Pewter for *Bow-dye*. 19. Little Regard is had how much Liquor is us'd in proportion to the *dying* Drugs, the Liquor being rather adjusted to the Bulk of the Stuff, as the Vessels are to the Breadth of the same; the Quantity of the *dying* Drugs being proportioned to the Colour, higher or lower, and to the Stuffs both, as likewise the Salts are to the *dying* Drugs.

From these general Observations on the Art of *Dying* with Regard to the Theory, we'll descend on more particular Ones of the same Kind, relating to our *Colouring*, and *Non-colouring* Ingredients, before we go to work.

For our *colouring Drugs* it must be observed. 1. That though Iron and Steel, or what is made from them, are used in *dying* Black, it cannot be demonstrated but by mere Suppositions drawn from its Ustulation and Attriction, that it contributes thereto, *v. g.* we see that green oaken Boards become black by the Affriction of a Saw; that a green Apple cut with a Knife turns of the same Colour; that the white Grease wherewith the Wheels of Coaches are anointed, becomes likewise black by means of the Iron Boxes wherewith the Nave is lined, and the Friction between the Nave and the Axle-tree; that an oaken Stick becomes black by a violent Friction against other Wood in a turning Lath; and that the black Colour on earthen Ware is given with Scalings of Iron vitrified; but no Philosopher has attempted yet to assign the Manner how such a Thing is effected; neither is it a Thing essential to the Art of *Dying*; it suffices to know, that Copperas the most usual Ingredient for *dying* Black, is the Salt of Pyrites, wherewith old Iron is incorporated, and wherever this is used, some of the Astringents are to accompany it.

2. That Red-Wood chopp'd and ground in a Mill, is us'd for *dying* Cloth, Rugs, *&c.* of the coarser Sort. Its Tincture which is a Sort of Brick-Colour, is got out by long boiling it with Galls, and the Cloth along with it, it stands better than Brazil.

3. That Brazil, chopp'd also and ground, *dyes* a Pink-Colour or Carnation, nearest approaching Cocheneal: It is used with Allum, and serves also for Purples with Pot-Ashes; it easily stains.

4. That Madder gives a Colour near approaching the Bow-Dye, or New-Scarlet: Those called Bastard-Scarlets are *dy'd* with it. It endures much Boiling, and is used both with Allum and Argol; and holds well. The brightest *Dyes* with Madder are made by over-dying the Stuff, and then discharging Part of it by back boiling in Argol. It is used with Bran-Water instead of white Liquor.

5. Cocheneal used with Bran-Liquor in a Pewter Furnace, with Aqua-fortis, gives the *Dye* called among us, though improperly, *Scarlet in Grain*. Any Acid takes off the intense Redness of this Colour, and turns it towards an Orange or Flame Colour; with this Colour the *Spanish* Leather and Wool, us'd by Ladies, are *dy'd*.

6. Annoto gives an Orange-Colour, especially to Silks, Linens, and Cottons, for it does not penetrate Cloth: It is used with Pot-Ashes.

7. Weld, by the Help of Pot-Ashes, yields a deep brown Colour; though it is used to give all Sorts of Yellows.

8. Wood-Wax or Green-Wood, called also *Genista Tinctoria*, and the *Dyer's Weed*, has the like Effect as Weld, though its Use is chiefly confin'd to coarse Cloths. It is set with Pot-Ashes or Urine.

9. Fustick is of two Sorts, young and old. The former chopp'd and ground yields a Sort of reddish Colour: The latter a Hair-Colour distant several Degrees of Yellow from the former. It spends with or without Salts, works either hot or cold, and holds firm.

10. Wood-Soot, containing not only a Colour, but a Salt, needs nothing to extract its *Dye*, or make it strike on the Stuff. The natural Colour it yields is that of Honey, but it is the Foundation of many other Colours on Wool and Cloth only.

11. Woad, ground or chopp'd with a Mill for the Purpose, is made up into Balls, which being broken and strew'd on Lime or Urine, is us'd with Pot-Ashes or Sea-Weed, and gives a lasting Blue. Lime or Chalk, accelerates the Fermentation of the Woad, which in three or four Days will work like a Guile of Beer, and be covered with a greenish Froth or Flower. An intense Woad-Colour is almost Black, that is, is of a Damson Colour: It is the Foundation of so many Colours, in its different Degrees of Shades, that the *Dyers* have a Scale whereby to compute the Lightness and Depth of this Colour.

12. Indigo is of the like Nature, and us'd for the same Purposes as Woad, only that it is stronger.

13. Logwood, chopp'd and ground, yields a purplish Blue: It may be us'd with Allum. Formerly it was of ill Repute, as a most false and fading Colour; but since it has been us'd with Galls, it is less complain'd of.

For the *non-colouring* Ingredients, it must be observ'd, likewise, 1. That for true or *Spanish* Blacks, are used Copperas, Steel-Filings, and Slipp (the Stuff found in the Troughs of old Grind-Stones, whereon Edge Tools have been ground) but not for the *Flanders* Blacks.

2. That Pewter dissolved in Aqua-fortis, is used for the new Scarlet or Bow-Dye.

3. That Litharge, though not own'd or allow'd, is used to add Weight to *dy'd* Silks.

4. That Antimony is us'd chiefly for the same Purpose, though it also contains a tingent Sulphur, which by Precipitation, *&c.* affords a great Variety of Colours.

5. That Arsenick is us'd in *dying* Crimson, which I know very well, gives it a Lustre.

6. That Verdigrease is used by Linen *Dyers*, in their yellow and green Colours.

7. That Allum is much used, though with what Intent is not agreed on; whether to render Water a proper *Menstruum* to extract the tingent Particles of certain hard Drugs? Or to scour the Sordes which may interpose between the Stuff and the *Dye*, and hinder their due Adhesion? Or to intenerate the Hairs of Wool and Hair Stuffs, that they may better imbibe their

their Colour? Or to contribute to the Colour itself, as Copperas does to Galls in making Black, or Juice of Lemons to Cocheneal, in Carnations, or Aqua-fortis impregnated with Pewter in the Bow-Dye? Or, which seems more probable, to serve as a Vinculum between the Cloth and Colour, as clammy Oils, and Gum-Waters, do in Painting; Allum being a Substance whose accelerated Particles dissolved with hot Liquors, will enter the Pores of Stuffs, and on which the Particles of *dying* Drugs will catch. Though it may also serve another Use, *viz.* to dry up certain Particles which disagreed with the Colour, to be super-induced: To which add, that it may also serve to brighten a Colour, by incrustating the Stuff to be *dy'd* with its Crystals, on which the *Dye* coming to be applied, has a finer Effect, than if it was applied on a scabrous Matter, such as an un-allumed Cloth is.

8. That Bran and Bran-Water, whose Flowers enter the Pores of the Stuff, levigates its Surface, and thus renders the Colour laid on it more beautiful; much as Woods to be gilded, are first smoothen'd over with white Colours.

9. That Salt-petre is used chiefly with Aqua-fortis, in the Bow-Dye, to brighten Colours by back-boiling; for which Purpose, Argol is most commonly us'd.

10. That Lime or Calx, is used in the Working of blue Fats.

11. That Yolks of Eggs and Ox-Gall, are only us'd by a few particular *Dyers* to scour, promote Fermentation, and increase Weight.

12. That Stale Urine is us'd as a Lixivium to scour, also to help the Fermentation and heating of Woad; though is is also us'd in the blue Fats instead of Lime: In reality, as it discharges, the Yellow, wherewith Black and most Greens are compounded, it is used to spend Weld withal; yet it is known, that the Urine or old Mud of pissing Places, will *dye* a well scour'd Piece of Silver of a golden Colour; it being with this (not *Bath* Water as imagined) that the *Bath* Six-pences, *&c.* are prepar'd.

13. That Gums, Tragacanth, Arabick, Mastick, and Sanguis Draconis, are us'd in *dying* Silk, chiefly to give it a Gloss, which may make it seem finer as well as stiffer, and to increase its Weight.

Note, That concerning Weight which Colours give to Silks, one Pound of raw Silk loses four Ounces by washing out the Gums and natural Sordes. That the same scour'd Silk may be rais'd to above thirty Ounces by the remaining twelve, if it be *dy'd* Black, with certain Materials; that the Reason why black Colour may be *dy'd* the heaviest is, that all ponderous Drugs may be *dy'd* Black, whereas, perhaps, there seem to be few or no Materials wherewith to increase the Weight of Silk, which will consist with fair light Colours. That of Things useful in *Dying*, especially Black, nothing increases Weight so much as Galls; by Means whereof black Silks recover the Weight which they lost by washing out their Gum: Nor is it counted extraordinary, that Black should gain about four or six Ounces in the *Dying* upon each Pound. Next to Galls, old Fustick increases the Weight, about one and a half in twelve. Madder about an Ounce. Weld half an Ounce. Blue Fat in deep Blues about the fifth Stall, adds no considerable Weight: Neither do Logwood, Cochineal, or Annoto; nor even Copperas of itself where Galls are not. Slipp adds much to the Weight, and gives a deeper Black than Copperas, which affords a good Excuse for the *Dyers* that use it.

Note, Also, that the *dying* Materials are generally applied in Decoctions made in Water, more or less strong, according to the Occasion; sometimes by only dipping the Stuff in the Vault or *Dye*, sometimes by boiling it therein; and sometimes by leaving it a Day or two more to steep. For the Allum in *dying* Silks is always applied cold, in which State alone, it contributes to the Brightness of the *Dye*.

From all these Observations, we may justly infer, that four Things are requisite for a good *Dye*, *viz.* 1. The opening or rarifying of the Body to be *dy'd*, to dispose it to imbibe the Colour. 2. The Tincture or *Dye* itself. 3. The binding or fixing the Colour, to prevent its fading, or being discharg'd. And, 4. The Lustre or Brightness.

There are two Manners of *Dying*, one *hot*, the other *cold*. *Dying-hot*, is when the Liquors and Ingredients are boil'd before the Cloth be dipp'd therein, or even when the Cloths themselves are boil'd in the *Dye*. *Dying-cold*, is when the Ingredients are dissolv'd cold; or at least suffer'd to grow cold, ere the Stuffs be put in them.

With these useful and indispensibly necessary Instructions, we may venture to step into our Laboratory, in order to put them in Practice; where we may apply ourselves to *dye* all Sorts of different Stuffs, of all Sorts of Colours, *viz.* all Sorts of woollen Manufactures, as Cloths, Serges, Druggets, *&c.* Wools for Tapestry, and black Wools for Cloths, Serges, *&c.* All Sorts of Silks; all Sorts of Threads; and Hats; of all Sorts of Colours, *viz.* Black, Scarlet, properly speaking, Violet-Scarlet, Purple, Amaranth, and Pansy-Scarlet; Crimson-Reds, Carnations, Flame and Peach-Colours; Orange-Aurora, or golden-yellow, Brick-Colour, Onion-Peel-Colour; all Sorts of Blues; dark Browns, Minims and Tan-Colours; Pearl-Colours; all Sorts of Greens; Pale-Yellows, Lemon-Colours; Sulphur-Colours; Olive-Colours; Feulemort; Hair-Colours; Musk and Cinnamon-Colour, and Nacarat or bright Orange-Red.

We'll begin to *dye* black superfine Cloth, of the best Sort, which we'll do by first giving it a deep Blue, in a strong Decoction made of Woad and Indigo; which done, the Cloth or Stuffs are to be boil'd with Allum and Tartar, or Pot-Ashes, then maddered with common Madder, and afterwards *dy'd* Black, with Aleppo, Galls, Copperas, and Sumach; and lastly finished by back-boiling in Weld.

Scarlet is *dy'd* with Kermes and Cocheneal, to which may be added Agarick and Arsenick, to make the Colour brighter. Crimson-Scarlet is given with Cocheneal, Mastich, Aqua-fortis, Sal-Armoniack, Sublimate and Spirit of Wine. Violet-Scarlet, Purple, Amaranth, and Pansy-Scarlets, are given with Woad, Cocheneal, Indigo, Braziletto, Brazil and Orchal. For common Reds, pure Madder is used without other Ingredients. Crimson-Reds, Carnations, Flame and Peach-Colour, are *dy'd* according to their several Hues, with Cocheneal, Mastich, without Madder and the like. Orange-Aurora, or golden Yellow, Brick-Colour, and Onion-Peel-Colour, are given with Woad and Madder, temper'd according to their respective Shades.

There are but two Sorts of Blues, one dark, and the other brighter: The dark Blue is given with a strong Tincture of Woad, and the brighter with the same Colour, as it weakens in working.

Dark-Browns, Minims, and Tan-Colours, are given with Woad, weaker in Decoction than for Black, with Allum, and Pot-Ashes; after which they are maddered higher than Black: For Tan-colouring a little Cocheneal is added.

Pearl-Colours are given with Galls and Copperas; some are begun with Walnut-tree-Roots, and finish'd with the former; though to make them more serviceable, they dip them in a weak Tincture of Cochenea.

Greens are begun with Woad, and finish'd with Weld.

Pale-Yellow, Lemon-Colour, and Sulphur-Colour, are given with Weld only.

Olive-Colours, of all Degrees, are first put in Green, and taken down again with Soot, more or less, according to the Shade requir'd.

Feulemort,

Feulemort, Hair-colour, Musk, and Cinnamon-colour, are given with Weld and Madder.

Nacarat, or bright Orange-red, is given with Weld and Goat's-Hair, boiled with Pot-Ashes; Fustick here, is forbid as a false Colour.

Wools for Tapestry, are *dyed* in the same Manner as Cloth, excepting Blacks, which are only to be woaded, and then put in black as above. Black Wools for Cloths and Serges, may be begun with Walnut-tree Roots, and Walnut Rinds, and finished by dipping it in a Vault of Black.

Silks are *dyed* in a Manner quite different from Cloths or Stuffs; for they are first boiled with Soap, *&c.* then scowered and washed out in the River, and afterwards steeped in Allum-Water cold. If they are to be *dyed* Crimson they must be scowered a second Time, before they be put in the Cocheneal Vault.

Three different Sorts of *Crimson-Colours*, are given to Silks, *viz. red Crimson*, *violet Crimson*, and *Cinnamon Crimson*.

To dye Silk *Red-Crimson*, it must be boiled an Hour and a half, in a Decoction of Cocheneal, Mastich, Galls, Turmerick, Arsenick and Tartar, all put together in a Copper of fair Water almost boiling; when the Silk has boiled for that Space of Time, it is left to stand in the Liquor till the next Day. The *Violet-Crimson*, is also given with Cocheneal, Arsenick, Tartar, and Galls; but the Galls in less Proportion than in the former. When the Silk is taken out, it is to be well washed, and put in a Vault of Indigo. The *Cinnamon-Crimson* is begun like the Violet, but finished by Back-boiling; if too bright, with Copperas; if dark with a Dip in Indigo.

Silks dyed of two Sorts of *Blues*, viz. *Light-blue*, and *Sky-blue*. *Light-blue* are given in a Back of Indigo. *Sky-blues*, are begun with Orchal, and finished with Indigo.

To give a *Citron-Colour*, the Silk is first allumed, then welded with a little Indigo. *Pale-Yellows*, after alluming, are dyed in Weld alone. *Pale* and *brown Aurora's*, after alluming, are welded strongly, then taken down with Rocou dissolved with Pot-Ashes. *Flame-Colour* is begun with Rocou, then allumed, and dipped in a Vault or two of Brazil. *Carnation* and *Rose-Colours*, are first allumed, then dipped in Brazil, and Braziletto. *Lead-Colour*, is given with Fustick, or with Weld, Braziletto, Galls, and Copperas. But the Galls on these and other Occasions, are not to be over-dosed, which increases the Weight to the Damage of the Purchaser; for which Reason it is punished in *France* as a Fraud: In Reality few but black Silks need Galls.

Black Silks, of the coarser Sort, are begun by scouring them with Soap, as for other Colours; which done, they are washed out, wrung, and boiled an Hour in old Galls, where they are left to stand a Day or two; after which they are washed again with fair Water, wrung and put in another Vault with new and fine Galls; then washed and wrung again, and finished in a Vault of Black. *Fine black* Silks are only put once into Galls, *viz.* the new and fine Sort, which has only boiled an Hour; then they are washed and wrung out, and dipped thrice in Black, to be afterwards brought down by Back-boiling with Soap.

Thread is dyed likewise, of all Sorts of Colours, and begun by scowring it in a Lye of good Ashes; after which it is wrung, rinsed out in River Water, and wrung again. Thus prepared, the *Dyer* gives it what Colour he pleases, with the following Drugs, *viz. Red Colour*, both *bright* and *dark*, *Flame-Colour*, &c. with Brazil, either alone, or with a Mixture of Rolac. *Violet*, *dry Rose*, and *Amaranth*, with Brazil, taken down with Indigo. *Bright blue*, with Braziletto and Indigo. *Bright green*, is first dyed blue, then Back-boiled with Braziletto, and Verdet, and lastly woaded. *Dark green*, is given like the former, only darkening more before woading. *Lemon* or *pale Yellow*, with Weld mixed with Rolac. *Feulemort* and *Olive-Colour*, with Galls and Copperas, taken down with Weld, Rolac, or Fustick. And *black* with Galls and Copperas taken down and finished with braziletto Wood.

Hats are dyed with Braziletto, Galls, Copperas, and Verdegrease, dissolved and boiled in a Copper capable of receiving, besides the Liquor, twelve Dozens of *Hats* on their Blocks or Moulds. Here the *Hats* are left to boil some Time; after which they are taken out, and left to stand and cool; then dipped again, and thus alternately, oftner or seldomer, as the Stuff is of a Nature to take the Dye with more or less Difficulty; as we design to explain it in a more ample Manner in our Treatise of *Hatters*, under the Letter H.

As there are Fraud and Knavery, among Dyers, as in all other Professions, some Artists have discovered the Secret of making Proof of the Truth of *Dyes*, and of examining the Justice and Legitimacy of their Composition, in the following Manner, for Cloth or Woollen Stuffs.

To discover whether a Cloth has been duly treated by the *Dyer*, and the proper Foundations laid, a white Spot, by the *French* called *Rosette*; of the Bigness of a Shilling, ought to be left, besides a white Stripe between the Cloth and the List. Further Proof is had by boiling the dyed Stuff in Water with other Ingredients different according to the Quality of the *Dye* to be proved. If the Colour sustain the *Test*, *i. e.* do not discharge at all or very little, so that the Water is not tinctured by it, the *Dye* is pronounced good: Otherwise false.

There are also Proofs of the *Dyes* of Silks: *viz.* For red Crimson, the Proof is made by boiling the Silk with an equal Weight of Allum. For Scarlet Crimson, it is boiled with Soap, almost of the Weight of the Silk. For Violet-Crimson, with Allum of equal Weight with the Silk, or with Citron Juice about a Pint to a Pound of Silk. These Ingredients are to be mixed, and put in fair Water, when it begins to boil; after which, the Silks are also to be put in; and after boiling the whole for half a quarter of an Hour, if the *Dye* be false, the Liquor of the red Crimson will be Violet, in case it have been dyed with Orchal, or very red, if with Brazil. That of Crimson-Scarlet, if Rolac have been used, will become of an Aurora Colour, or if Brazil has been used, red. And that of *Violet-Crimson*, if Brazil or Orchal have been used, will be of a Colour bordering on red. On the contrary, if the three Sorts of Crimson be truly dyed, their Liquor will discover very little Alteration. A still surer Way to discover whether Crimson Silks have been rightly dyed, is by boiling a Piece of standard dyed Crimson Silk, kept for that Purpose at *Dyer's-hall*, after the same Manner, and then comparing the Tincture of the two Liquors.

To discover whether other Colours have been dyed with Galls, the Silk is put in fair boiling Water, with Pot-Ashes, or Soap, nearly of the Weight of the Silk, after some Time, it is taken out; upon which if it has been dyed with Galls, the Colour will be all vanished, and nothing but that of the Galls left, which is a Sort of *Feulemort*, or Wood-colour. The *dying* Silk with Galls may also be detected by putting it in boiling Water, with a Gallon of Citron Juice; being taken out and washed in cold Water, and then dipped in a black *Dye*, if Galls have been used it will turn black, if not it will be of a brown Bread Colour.

To discover whether black Silks have been overdyed with Galls, Steel-filings, or Slipp, it is boil'd in fair Water, with twice its Weight of Soap: If it be laden with Galls it will turn reddish, otherwise it will keep its Colour.

To discover whether black Cloths have been first woaded and maddered, a Sample of it, and at the same Time a Sample of standard Black, kept for that Purpose by the *Dyer's* Company, is to be taken; and then as much *Roman* Allum as is equal in Weight to both, together with a like Weight of Pot-Ashes, is to be put over the Fire in a Pan of Bran-Water; when it begins to boil the two Samples are to be put in; and after half an Hour to be taken out and compar'd; the Piece which has only been woaded will be found blueish, with somewhat of a dull Green; if it have been both woaded and maddered, it will be of a Tan or

or minim Colour; and if it have been neither woaded nor maddered, its Colour will be dunnish between Yellow and Fallow. For Cloths *dy'd* of a minim Colour, the Proof is to be made after the same Manner as that of Blacks.

To know whether Scarlet, or Crimson Clóth have been *dy'd* with pure Cocheneal, they are to be boil'd with an Ounce of Allum to a Pound of Cloth. For Cloths of other Colours, the Proof is to be made in the same Manner as that of Blacks and Minims.

Leather, *Skins*, &c. are also *dy'd red*, *blue*, *Sky-Colour*, *purple*, *green*, *yellow*, *Orange-Colour*, &c.

The *red Colour* is given by washing the Skins, and laying them two Hours in Galls, then wringing them out, dipping them in a Liquor made with *Ligustrum*, Allum and Verdegrease, in Water; and lastly, in a *Dye* made of Brazil-Wood made with Lye. *Blue* by steeping the *Leather* or *Skins* a Day in Urine and Indigo, then boiling it with Allum; otherwise by tempering the Indigo with Red-Wine, and washing the *Skins* therewith. *Sky-Colour* is given with Indigo steeped in boiling Water, and the next Morning warm'd and smeer'd over the *Skin*. *Purple* by wetting the *Skin* with a Solution of Roche-Allum in warm Water, and when dry again, rubbing them with the Hand with a Decoction of Logwood in cold Water. *Green* by smeering the *Skin* with Sap-green and Allum-Water boil'd; and a little more Indigo may be added to darken the Colour. *Dark-Green* is given with Steel-filings and Sal-Armoniack steep'd in Urine till soft, then smeer'd over the *Skin*; which is to be dried in the Shade. *Yellow* by smeering the *Skin* over with Aloes and Linseed Oil dissolv'd and strain'd; or by infusing it in Weld. And *Orange-Colour* is given by smeering with fustick Berries boil'd in Allum-Water; or for a deep Orange with Turmerick.

Bones, *Horn* and *Ivory*, are also *dy'd* of different Colours, *viz.* Black by steeping Brass in Aqua-fortis till it be turn'd Green, washing the *Bone*, *Horn* or *Ivory*, once or twice with this Liquor, and then putting it in a Decoction of Logwood and warm Water. Red by boiling it first in Allum-Water, and afterwards in a Decoction of Quick-Lime steeped in Rain-Water, strain it, adding to every Pint an Ounce of Brazil-Wood, in which the Ivory, *&c.* must boil till it be sufficiently Red. Green by boiling the Bone, *&c.* first in Allum-Water, then with Verdegrease, Sal-Armoniack, and white Wine Vinegar; keeping it hot therein till sufficiently Green.

Note, That the Refuse of the Bow-Dye given Hogs to feed on, is said to tinge their very Bowels Red. This is a spontaneous Kind of *Dying*, not unlike that in *Virgil*, who speaking of *dying* Wool on the Sheep's Backs, by their feeding on properly coloured Vegetables, says:

Nec varios discet mentiri lana Colores:
Ipse sed in pratis Aries jam suave rubenti
Murice, jam croceo mutabit vellera luto,
Sponte sua Sandyx pascentes vestiet Agnos.
Ecl. 4. *v.* 42. *Seq.*

The Difficulty is to conceive how Lambs should feed on the *Sandyx*, which is a mineral Substance; the same with what is otherwise called *Sandaracha?* It is certain the Poet takes it for a Plant, as was long ago observ'd by *Pliny*: *Animadverto* Virgilium *existimasse herbam id esse. Hist. nat. lib.* 36. *c.* 6. This Inference is chiefly drawn from the Word *pascentes*, which can mean nothing else, but that the Lambs browsing on the *Sandyx*, should receive the *Dye* in their Fleeces from the Aliment. Dr. *B* —— gives us here a Correction which sets all to Rights: For *pascentes* he reads *nascentes*; on which Footing the Tenor of the Passage is this: From that Time there will be no Need of *dying* Wool with beautiful Colours; but the Sheep shall have their Fleeces *dy'd* naturally, and spontaneously; some with the *Murex*, or purple Colour; others with the *Luteus*, or yellow; others with *Sandyx*, or red. Those that were already in Being, and had white Fleeces, shall change them *in Pratis* in the Meadows; but all the Lambs shall be *dy'd* beautifully, *nascentes*, at their Birth. *Si credere fas est.*

The *Art of Dying* is of great Antiquity, as it appears from the Traces of it in the oldest sacred, as well as profane Writers. The Honour of the Invention is attributed to the *Tyrians*, though what lessens the Merit of it, is, that it is said to have ow'd its Rise to Chance. The Juices of certain Fruits, Leaves, *&c.* accidentally crushed, are supposed to have furnished the first Hint. *Pliny* assures us, that even in his Time, the *Gauls* made use of no other *Dyes*: It is added, that colour'd Earths and Minerals, washed and soaked with Rain, gave the next *dying* Materials. But *Purple*, an animal Juice, found in a Shell-Fish called *Murex*, *Conchyliam* and *Purpura*, seems, from History, to have been before any of them. This indeed was reserved for the Use of Kings and Princes; since private Persons were forbidden by Law to wear the least Scrap of it. The Discovering of its tinging Quality, is said to have been taken from a Dog, which having caught one of the Purple-Fishes among the Rocks, and eating it up, stained its Mouth and Beard with the precious Liquor; which struck the Fancy of a *Tyrian* Nymph so strongly, that she refused her Lover *Hercules* any Favours, till he had brought her a Mantle of the same Colour.

Till the Time of *Alexander*, we find no other *Dye* in Use but Purple and Scarlet. It was under the Successors of that Monarch, that the *Greeks* applied themselves to the other Colours; and invented, or at least perfected Blue, Yellow, Green, *&c.* For the antient Purple it has been long lost, but the Perfection to which the Moderns have carried the other Colours, abundantly indemnifies them of the Loss. In this the *French*, under the Auspices of that excellent Minister M. *Colbert*, seem to have surpassed all their Neighbours, at their celebrated Manufactory of the *Gobelins*, on the little River *Bievere* (at present call'd the River of the *Gobelins*) in the *Fauxbourg* St. *Marcel*, at *Paris*.

Among the *Romans*, *Dye-Houses*, *Baphia*, were all under the Direction of the *Comes sacrarum Largitionum*, though they had each their particular *Præpositus*, as at *Alexandria*, *Tyre*, &c. The *Dyers* of *London* make the thirteenth Company of the City, incorporated under *Henry* VI. consisting of a Master, Wardens, and Livery. At *Paris*, and in most of the great Cities in *France*, the *Dyers* are divided into three Companies, *viz.* those of the *great Dye*, *Du grand et bon Teint*, who are only to use the best Ingredients, and such as strike the surest and most lasting Colours. *Dyers of the lesser Dye*, *Du petit Teint*, who are allow'd to use the inferior Sorts of Drugs, which only yield false and fading Colours. And Silk, Wool and Thread *Dyers*. All the high priz'd Cloths and Stuffs are reserv'd to the *Dyers* of the first Sort; those of less Value, particularly such as are not rated at above 40 Sols the Ell in white, are committed to the Masters of the *Petit Teint*. Blue, Red and Yellow are reserv'd more particularly to those of the *grand Teint*; Browns, Fallows and Blacks, are common to both Sorts. As to Black it is begun by the *Dyers* of the *grand Teint*, and finished by those of the *lesser*.

It seems there is a Tradition among *Dyers*, that *Jesus Christ*, was of their Profession; which we also found deliver'd in the *Gospel of the Infancy of* Jesus, though on what grounded we know not. But it is hence the *Persian Dyers*, notwithstanding all their *Mahometanism*, have chosen *Jesus* for the Patron of their Art; insomuch, that among them a *Dye-House* is called *Christ's-Shop*.

EDUCATION.

EDUCATION, is the Art of bringing up, forming, and instructing of Children.

This Art (which I should rather have called a Science, since it is founded on the most solid Trust, and best established Principles, *viz.* those of Morality, Prudence, and Wisdom) is the most necessary, and advantageous to a civil Society; since on the *Education* of Children, depends entirely, the flourishing State, Welfare, and just Œconomy of a Republick; and the charming Harmony which should subsist between the different Members that great political Body is compos'd of: And as a Prince, who is the Head of that Body, most commonly influences all the other Members, who all endeavour to modelize their Conduct on his, which if irregular, cause but too often all the Disorders which happen in the whole Frame; it is but just, I should begin this Treatise with the necessary Instructions for the Education of a Prince, which is sometimes committed to Persons, who have no other Qualifications for that great Trust, of which depends the temporal Felicity of Millions of Men, but what they borrow, either from their Birth, or from the Credit of potent Friends, or from Court-Intrigues.

There are three Things to be chiefly minded in the *Education* of a Prince, and what he should learn previously to all other Sciences, *viz.* 1. What he owes to that eternal and omnipotent Being from whom he derives all his Power and Authority, and whose Vicegerent he is here upon Earth. 2. What he owes to himself. And, 3. What he owes to his Subjects.

The Duties of a Prince to God, are rather greater than those of his Subjects, since having received a greater Share of Favours, he is oblig'd to greater Acknowledgments, and to more Gratitude; and it is what a Tutor should endeavour to inculcate in his Mind as soon as he takes him under his Conduct. Sensible of his Grandeur, as soon as he is sensible of his Existence; inebriated with the Glory and Majesty of a Throne, and dazzled with the Radiancy of a Diadem, a Prince could easily imagine himself something far above the rest of the created Beings, or at least form'd of a finer Clay; if his wise and discreet Tutor was to neglect to inform him, that all the Pomp and Magnificence he is environed with, is but a deceitful Shadow, which has no other Existence but in our deprav'd Imagination, and which when vanish'd, leaves often nothing behind him, but the eternal Sorrow of having believ'd it other than it was in Reality; and nothing when compar'd to that immense Glory, which environs the Throne of the King of Kings; who is pleas'd to place that radiant Cloud between him and his Subjects, not to inspire him with the extravagant Sentiment of a vain Glory, but to mark the Distance between them and the Throne, and to claim that Respect, which otherwise, they would not be so ready to shew to their Sovereign. That it is always in the Power of the Almighty to dissipate that Cloud whenever he pleases, or to draw a Curtain over that enchanting Scene, and make a Prince thus divested of what was lent him from Heaven, appear such as he is, a Man, like other Men, and perhaps inferior to others, in Merit and Perfection. That therefore, to engage God to continue such signal Favours to him, he should refer all the Glory arising from it, to the Source whence it flows; and make no other Use of the Respect and Submissions shewn to him by the rest of Mankind, than to humble himself the more before him he is indebted to for it, and thereby advance his Worship.

In fact, there is nothing more capable to inspire Subjects with true Sentiments of Piety and Religion, than the Example of a Prince; for when they see him prostrated at the Foot of the Altar of the living God, they easily conceive that there is still something greater, or above him, and still worthier of Respect, since he thinks himself obliged to appear before him in such an humble and submissive Posture, far beneath that he claims from them as their Sovereign; penetrated with those just Sentiments, they endeavour to imitate, if not surpass him in his Adorations; and follow him to the Temple with the same Alacrity, and in as great Number, as they would do to some publick Entertainment or Parties of Pleasure, not by a Motive of Curiosity to see him, but by one of Piety and Religion. Therefore a Tutor should train up his Royal Pupil, in all the Exercises of Piety and Religion, to render them as familiar and easy to him, as all his other Occupations, even those which are the most capable to flatter his Inclination; he should accompany him every Day to the Temple, and inform him, that when a Prince enters the Sanctuary, he must divest himself, for that Time, of that Majesty, which in other Places claims the Respect of his Subjects, that there should be no other Difference then between him and them, than in the Excess of his Zeal; that there ought to be no other Pre-eminency in the House of God here upon Earth, than that which subsists among the Blessed in the celestial Mansions, and which is founded only on the different Degrees of Perfection; that as a Sovereign is there in a more partiuclar Manner in the Presence of God, he should wish to be seen by no Body but by him alone, and if he cannot help attracting the Eyes of his Subjects, it should be rather by his Piety and Devotion, than by the Majesty of his Purple, the Brilliance of the Jewels he is adorn'd with, or his numerous Retinue.

A young Prince should be inform'd likewise, that though his Example can thus very much contribute towards the Advancement of Religion in his Dominions, it does not suffice alone; for as his Subjects cannot all have the Happiness to see him, there must be some other Means found to procure that salutary End; and these Means are to fill the Sanctuary with Persons of a singular Piety and Merit, who should have nothing in View but the Glory of God, and the Salvation of the People committed to their Care, excluding from it all those who have no other Claim to their Initiation among the Ministers of the Altar, than their noble Descent, or the past Services of their Ancestors, or the Recommendation of a Favourite, who presents them to his Prince, because he knows them capable, when raised to that Station, to enter into all his Measures, even those concerted against the Honour of the Prince, and the Interest of his Subjects; who thirst after Episcopacy, not to serve God, but to serve themselves, by spending the whole Revenue of their Bishoprick in Luxury, Pomp and Extravagance; contenting themselves with that Revenue, and the honourable Title of a Bishop, and leaving to others to discharge their Duties both to God and Men. And those, who, like *Simon Magus*, make an infamous Commerce of the Gifts of the Holy Ghost, and find the Secret to open with a golden Key that sacred Gate, which their Ignorance, Imperfections, or Demerit, should have always kept shut against them. It is true, that it is not very easy for a Prince to discover those Wolves, since they generally appear in Sheeps Clothing, to break the easier into the Sheep-fold of the good Shepherd, to make a Prey of the whole Flock; but however, there are some Expedients to be found, against his being so frequently imposed upon and deceiv'd in his Choice; for he should be learned from his very Infancy, that as he is to answer for all the Disorders which may be committed in the Sanctuary, through his Indiscretion, in the Choice of the Ministers, who are at his Nomination, he ought never to prefer those who are recommended to him by Persons whom he knows can be biassed by some human Consideration, without any Regard to personal Merit; but those, and those only who either by himself, or from some competent Judges of an experienced Integrity, and ap-

appointed for that Purpose, he should know truly qualified for the Ministry; which is not so very difficult to know. For a Person, who is a constant Attendant at a Favourite's *Levee*, or is always seen at Court, fawning and cringing to every Body whom he imagines can recommend him to the Prince; or has his Emissaries every where to inform him when a Benefice is vacant, that he may have Time to sound the Alarm, where he thinks he can assemble a Posse to accompany him to the Prince, and countenance his unjust Claim; or promise that when once on the episcopal Chair, he'll favour such and such Party, even against his Honour and Conscience; or is suspected to have made such Promise; such Person is not worthy of a Benefice, no more than him who loves Pleasure, Luxury and Indolence, or is suspected of Avarice, or has a beggarly Family to advance in the World, which must be done out of the Revenue of a Bishoprick.

A young Prince can very well form his Judgment on these Hints; and if he be pleased to take the Trouble to enquire into the Conduct of those Sycophants, whom he has seen besieging the Throne of his Predecessor, after they have been made Bishops, he'll find that it is as irregular and blameable (not to use a worse Expression) as the Means they used to be promoted, and consequently can avoid, after he has ascended the Throne, being imposed upon by such unworthy Subjects; which is seldom the Case of Princes, instructed in their Infancy in the true Principles of Religion, and of the indispensible Necessity of a religious Worship; not only to render to God the Honour which is due to him, but likewise to keep the Subjects in a due Respect and Obedience to their Sovereign; for those who are sincerely and truly religious are always the best Subjects, and consider all that has the least Appearance of Sedition or Revolt, as one of the greatest Crimes they could be guilty of. But when a Prince has learned for first Rudiments of his Education, to disguise his Sentiments in religious Matters, as well as in all others, and that he is not obliged to profess any other Religion, but that which suits best his own Interest, or, to speak in plainer Terms, to have no Religion at all; how can he expect to have faithful Subjects? or that they will not imagine themselves as much authorized to disguise with him, as he pretends to be, to trifle with Heaven. Hence that scandalous Proverb, which has been more or less in Vogue, for some Centuries past, when Mention is made of a Person who has no Religion, *He has the Religion of a Prince*; and of latter Years, several have had the Presumption to affirm, that Princes have no Religion at all; why? because their Tutors have contented themselves with giving them a very slight and imperfect Idea of Religion, and have only taught them of it, what they judged absolutely necessary to save the Appearances; and even made those religious Lessons when they had nothing else to do; the Pupil could easily persuade himself, that Religion was to be ranked among those Things which deserved least his Attention; or that it was only invented as a Mask, to be used on certain Occasions, when he should want to deceive his Subjects, by appearing to them otherwise than he is in Reality. Could it be possible he could entertain a more advantageous Idea of Religion, or be persuaded that he is obliged to profess one, not outwardly only, but with all the Faculties of his Soul; if he has heard nothing else of it? He knows that at certain Times, and at certain Days, his Subjects expect to see him coming in Ceremony to the Temple: He has been used to it from his Infancy; but he does it rather because it is a Custom, which his People would be surprized to see neglected, than by a Motive of Religion.

I would not be understood, as if I pretended, that a Tutor is obliged to mind nothing else, but how to render his Royal Pupil truly religious, and neglect all other Instructions; for I know perfectly well, and we have had few Instances of it, that a Prince can have as well too much Religion, as too little; and I would not have him brought up a Bigot, no more than a Libertine, since both Excesses are equally prejudicial to the State. A Bigot Prince is insupportable to himself, and to all others; for as he entertains a very advantageous Opinion of himself, he often considers all others as a Texture of Imperfections; the least Neglect in Matter of Religion, appears to him a very great Crime; he is oftner directed, even in the most intricate Affairs, by the Ministers of his Religion, than by those of State; and seldom any Measures are concerted without their Advice. He is often seen at the Temple when he should be at the Council-Board, and environ'd with Ecclesiasticks when he should be at the Head of his Armies; therefore all those Acts of Piety and Religion, practised by a Prince, when the Exigency of his Affairs calls him elsewhere, are approved neither of God, nor of Men; and are as blameable at that Time, as they could be worthy of Admiration at another.

A young Prince (though it be not absolutely necessary, neither is it expected, that he should be a profound Theologian) ought nevertheless to be so well instructed in the Principles of the Religion of his Ancestors, (if it be the true Religion) as to be capable to distinguish Truth from Falshood; and to be upon his Guard, lest he should be surprized by the Novelty of Opinions broached by ambitious Men; who, the easier to impose on the too great Credulity of the Ignorant, and under the specious Pretences of discovering the Truth, hide it under a monstrous Heap of Falshoods and erroneous Sentiments. His Tutor should represent to him those perfidious Zealots, as so many Monsters, whose poisonous Breath infects all those they approach; who carry every where Trouble, Devastation and Horror, and as such ought to be banished from a well civilized Commonwealth. He should also be cautioned against suffering his Subjects to be divided in Matter of Religion, for it most commonly alienates the Hearts of Part of them from their Sovereign; for as he can't profess all those different Religions at once, but must countenance one of them preferably to the others; those who profess the other Opinions which he favours less, conceive a certain Jealousy of him, and often spurred on, besides, by their spiritual Directors, become disaffected to his Person and Government. Hence that Spirit of Party which rages amongst them; and hence those Riots, Tumults, and Seditions, which break forth sometimes into an open Rebellion, and cause the Subversion of the best established Government. Not that I would have a young Prince instructed in the Principles of Tyranny and Cruelty, or persuaded to use violent Means to prevent those Accidents, unless he be forced to it for his own Security, and that of his Dominions; but I would have him learn very well, from his very Infancy (if the Subjects he is to govern be thus unhappily divided) the best Means, temperated with Clemency, and Severity, to bring the wandering Sheep to the Sheepfold; that when he has ascended the Throne he may use them with Prudence and Discretion. The Way of Instruction is the best that can be followed on such Occasions; and that Instruction does not consist wholly in the Preaching or Writing in Defence of the Religion of the Prince, but likewise in the good Example and regular Conduct of the Ministers of that Religion: Therefore it behoves a Prince, who desires to take off all Pretences of Disputes or Differences in religious Matters among his Subjects, to take a particular Care that none should be chosen for Ministers of the Religion he professes, but Persons of an unspotted Character, of an exemplary Life, and consummate Knowledge, since Sectaries have always took for Pretext of their Separation, the Disorders and Corruptions of the Sanctuary. If those religious Divisions have raged in a Prince's Dominions long before he ascended the Throne, and that to attempt the Reformation of such Abuses, which are rooted in, would be exposing his sacred Person and Government to some very imminent Danger (for Fanaticism, Enthusiasm, *&c.* have never been founded on the same Christian Charity and Meekness on which the Apostles had established the Church of

of Christ) he must not tyrannize over the Consciences of his Subjects, but suffer them to profess the Religion they have been *educated* in, provided it be not a Bar to their Loyalty; and that though they be divided from the rest in their Principles, they might be supposed, by their Conduct, all united in their Affections to their Prince. Letting them know at the same Time, that they should be contented with that Indulgence, without their endeavouring to encroach farther; by Means not at all consistent with the Honour of the Prince and the publick Security, and quite contrary to the true Doctrine of the Gospel; forbidding likewise their Pastors to meddle with any Thing else but with the Instruction of their Flock, under the Penalty of being silenced, and deprived of some of the Privileges they have in common with the rest of the Subjects. Their Punishment should extend no farther, unless animated by a fanatical Zeal, they should attempt to disturb the publick Tranquility by riotous Assemblies, for then a Prince is authorised, by all Laws divine and human, to employ the Power God has intrusted him with to repel Force by Force, and to chastise severely such Subjects when they revolt against him, even by a Principle of Religion, *as they are pleased to call it*; for I'll never persuade myself, that any sort of Religions will ever prompt Subjects to Rebellion, since Religions must be all founded, at least, on Morality; and those which dictate Maxims contrary to it, are but a Shadow of Religion, or a Farce. It is scandalous to pretend that Religion can justify a Revolt; or that what has been calculated to bridle our Passions, should give a Sanction to it: And it is equally scandalous to accuse a Prince of Tyranny, when he refuses to receive Laws, or be directed in his Belief by his Subjects; since he has as much Right, if not greater, to claim Liberty of Conscience as they have; and can as justly punish them for assaulting the Sanctuary he has took under his Protection, as he has if they were to attack the Throne.

But if a Prince, at his Accession, finds all his Subjects united in the same Belief, he must use all Means to prevent their being perverted by new Doctrines, and erroneous Opinions; which to effect, he should recommend Vigilancy and Care to all Pastors; and order them to haunt those Wolves in Sheep's Cloathing at the very first Attempt they make to surprize the Flock, and even to employ the secular Power, if wanted, on such Occasions.

Our Royal Pupil having been thus instructed in his Duties to God, must learn next his Duty to himself; or to speak in clearer Terms, what he must know to be esteemed a perfect and accomplish'd Prince, by the whole World. The chief Articles of his *Education*, on this Respect, consist first, in being taught how to refrain his Passions; 2d, the Maxims of a just and wise Government: and 3d, the first Rudiments of all Arts and Sciences.

To pretend that a Prince is born without Passions, would smell too much of that Adulation which has always been abhorred even by the wisest Princes themselves; since all Men, without Distinction, come into the World subject to the same Infirmities, being all sprung from the same vitiated Source. And there is, but too often, no other Difference, in this respect, between an illustrious Blood, and a spurious one, than that the one is more loaded with Passions than the other. And if not, and it happen, that a Prince should be born but with few Passions, it is, notwithstanding, the Duty of a Tutor, to shake those Passions, in his Royal Pupil, lest by disregarding, or over indulging them, they should acquire daily new Strength, and gaining in Process of Time an Ascendency over his Reason, become so predominant as to be impossible ever after for him to conquer them.

The Passions a Prince is most commonly subject to, are, Ambition, Vain-glory, Pride, Luxury, and sometimes Avarice, or Love of Money, and Ingratitude. The Ambition, I mention here as a criminal Passion to be shaken in a Prince, from his very Infancy, is considered by an infinite Number of Persons, as a very noble one, and the surest Foundation of the Glory of a Nation. I know as well as they, that the Ambition of a Prince, confined within just Limits, contributes much towards the Advancement of its Glory, the Security and Felicity of his People, and the keeping all his Neighbours in Awe: That without it, he is but very little respected by his Subjects, and is despised by his Enemies; since the Want of a just and reasonable Ambition in a Sovereign, is always accompanied with Pusillanimity and Indolency; but that Ambtion which I condemn as criminal, is one, which through the too great Indolency of a Tutor for his Royal Pupil, or on any other Consideration whatever, has been suffered to shoot forth the strongest Roots within his Mind, and thereby gaining a greater Ascendency over him as he advances in Age, becomes at last so predominant, especially when he knows himself to be entire Master of his own Will, and that no Body dares, or cares to controul it, that he leaves it in a full Career, and to be the sole Director of all his Enterprizes, even against the Dictates of his own Reason, and all Sorts of Justice or Equity. Hence that immoderate Desire of extending the Limits *of his Dominions* by unjust Conquests, and the Usurpation and Devastation of those of the other Princes his Neighbours, to the Oppression of his Subjects, and the entire Ruin of Millions of Families; who curse the fatal Moment they were born Neighbours of such a publick Oppressor: Hence the Maledictions he is loaded with both by Friends and Foes, except the few Sycophants his Throne is environ'd with, who to gain his Favour, applaud publickly his criminal and destructive Projects, which they must condemn in their Hearts.

A wise and discreet Tutor, who has nothing in View but the Perfection of his Royal Pupil, tells him, that Ambition is necessary to a Prince, when directed by Equity, Discretion, or Prudence; that the chief Ambition of a Prince should be to render his People happy, by making his Government easy and supportable to them; that all other which has not that Object, though called by that Name Ambition, is in Reality a mere Tyranny: That Ambition understood in a Sense different from that, which is founded on nothing else but new Acquisitions and Conquests, (though countenanced by a barbarous Custom which has prevailed among Princes) has invented the pompous Title of Conqueror, to cover publick Theft: That the Ambition of recovering what has been unjustly dismembred from his Dominions, by such publick Robbers called Conquerors; or of defending them against their Invasions; or of maintaining the Rights of his Subjects when invaded; or of obtaining an adequate Satisfaction, for the Injuries they have received from other Nations, is a just and noble Passion, since acting otherwise, would be to him Pusillanimity, if not Cowardice; and that his Ambition should never go beyond those just Limits.

In fact, a Prince who is thus ambitious, is adored by his Subjects, and beloved, respected, and dreaded by his Neighbours. He is adored by his Subjects because they enjoy under his happy Government, all the Felicity they can wish for in this World, without being afraid of its being disturbed by the frequent Alarms which the extravagant Ambition of a Conqueror exposes his Dominions to from his Neighbours; for as those Neighbours can never depend even on his most solemn Protestations, and are convinced by an awful Experience, of his being always ready to attack them whenever Occasion offers; they also, on their Side, make use of all the Opportunities of attacking him to Advantage, and of even surprizing him unawares; so that his Subjects seldom enjoy a profound Peace, but on the contrary are almost always on the *qui vive*. He is beloved by his Neighbours, because we are naturally inclined to love those who will not do us any bad Offices, especially when we know they can do it, and it is their Interest to do it. Respected, because every body, sometimes even the greatest Ruffians, admire Virtue and Equity wherever it is to be found; and dreaded because they knew he could not be provoked with

with Impunity; and that he cannot want Means to be revenged of an Affront, ſince beſides his Valour, and the Juſtice of his Cauſe, his Subjects, who are ſenſible of his undertaking nothing, but when obliged to it, either to aſſert their Rights, or to protect their Life, Liberty and Fortune, contribute freely, and without the leaſt Compulſion, all in their Power, towards making ſo juſt an Enterprize ſucceed.

Pride is alſo a Paſſion, almoſt inſeparable from the Throne; and all that it is environed with, as Pomp, Grandeur, Splendor, and Magnificence, help to feed that Paſſion; but above all, that perfidious, and conſtant Attendant of Princes, *Flattery*. In fact, what can better perſuade a Prince that he is ſomething far above the reſt of Mankind, than to hear himſelf call'd every Day, *Le plus grand Roy du monde*, the greateſt Monarch in the World? For this monſtrous Piece of Flattery is not peculiar to one Nation alone, but is common to all; what Notions muſt he entertain of himſelf, when he ſees there is no other Difference between the Reſpects ſhewn to God and that ſhewn to him, than thoſe ſhewn to him are rather greater? But he would entertain other Notions if he was taught from his Infancy, that *that* monſtrous Coloſſus of Grandeur, which may chance in Proceſs of Time to ſwell him up with Sentiments of Pride and Vanity, and which he begins to be invironed with, has no other Foundation, than the Caprices of Fortune, which is a Jilt, and the Will of his Subjects, which is not always to be entirely depended upon; that therefore it would be dangerous to be inebriated by thoſe Fumes of Vain-Glory, which at laſt, may darken his Reaſon ſo as to make him be buried under the Ruins of that ſumptuous Edifice, through the Inconſtancy of Fortune and that of his Subjects. That ſeveral Revolutions of that Kind which have happened in the beſt eſtabliſhed Monarchies, have in all Ages, confirmed that undeniable Truth; ſome Examples of that Kind having happened, perhaps in the Dominions the Prince, to whom thoſe Leſſons are given, is to govern.

There is another Sort of Pride Princes are often ſubject to, called *Haughtineſs*, which our Royal Pupil muſt learn to avoid: It is not neceſſary that a Prince ſhould be too familiar, leſt his Subjects ſhould abuſe his too great Familiarity; but he muſt not keep himſelf at ſo great a Diſtance, as to render his Throne inacceſſible, like thoſe of the Eaſtern Princes, nor make his Subjects afraid to ſee him; though they muſt be kept at a due Diſtance from the Throne, with a certain majeſtick Air in the Prince, mix'd with a becoming Popularity, the one claiming their Reſpect, and the other inſpiring them with Love. He muſt even uſe a Kind of Reſervedneſs with his Favourites, who often, too much elevated with the Honour of their Prince's Confidence, forget themſelves ſo far as to abuſe it, aſſuming a certain Authority over him, diſguis'd under a Shadow of Reſpect to blind him, that he may not perceive, that they leave him but the bare Title of a King, while they uſurp the whole regal Power.

A third Kind of Pride, far more dangerous than the two others, is when a Prince thinks it beneath him to mind the Government of his Dominions, or to enter into the Detail of his Affairs. Our Royal Pupil ſhould be very well precautioned againſt ſuch Infatuation capable to cauſe the Ruin of the moſt flouriſhing Empire; and taught that it is never beneath a Prince, let him be ever ſo great, to be inform'd by himſelf, without depending entirely on the Probity, Dexterity, Prudence, *&c.* of Miniſters or Favourites, of all that concerns his own Security, and the Intereſt of his Subjects.

Luxury has always been the favourite Paſſion of Princes, few excepted, though very criminal in itſelf, and always attended with a vaſt Number of Inconveniencies; and ought to be repreſented as ſuch to a young Prince, by his Tutor, who cannot uſe too much Circumſpection in that Caſe; for as Luxury flatters the ſenſual Appetite, which is as ſharp, or rather ſharper in a Prince, than in any others; ſince he is continually environed, and can have, according to his Wiſhes, all that is the moſt proper to excite it; the Tutor muſt blunt that Appetite, by his ſalutary Leſſons, on Temperance, Moderation, and a noble Frugality; keeping from him all the Objects capable to corrupt his Innocence, and debauch thoſe Principles of Virtue he is *educated* in; repreſenting to him often, that Debauchery of any Kind, is rather more criminal in a Prince than in his Subjects, ſince his Example, which is ordinarily followed, eſpecially by thoſe who approach his ſacred Perſon, is the Occaſion of all the Debaucheries they commit; for which he is to anſwer at the Tribunal of a King greater than himſelf, who judging otherwiſe than we dare to do, will make no other Difference between the Crimes of a King and thoſe of his Subjects, than in puniſhing the Crimes of the Prince with more Severity than thoſe of the Subjects. That a vicious Prince, though all his Subjects ſeem to be ſilent on his Vices, is nevertheleſs applauded by none but thoſe who are as vicious as himſelf; which is rather a Condemnation than an Applauſe; ſince the Irregularity of their Conduct, ſo much like his, is continually reproved by thoſe whoſe Office is to inveigh againſt the Corruption of Manners, and by the Regularity of that of the Virtuous.

The Sort of Luxury Princes are more ready to indulge themſelves in, and which they make the leſs Scruple of, becauſe paſſed into Cuſtom among them, Time out of Mind, is that of Women; far from making the leaſt Difficulty of keeping two or three Miſtreſſes, more or leſs, they imagine it a Kind of Duty incumbent on them, and would, as I ſuppoſe, believe it an Imperfection in them to keep none. And what is the more unaccountable, is, that the Miſtreſſes of Princes, even Perſons of the firſt Rank, far from being aſham'd of their Proſtitution, imagine it an Honour; and that Perſons of the ſtricteſt Virtue, have the ſcandalous Complaiſance to encourage them in it, by in ſome Manner worſhipping their Proſtitution. For my Part, I ſee no other Difference between the Strumpet of a Prince, and that of the meaneſt of his Subjects, than in the Impudence, which is far greater in the Strumpet of a Prince, than in that of his Subjects. For is it poſſible that the Dignity of the Throne may colour or juſtify a Guilt in Perſons who approach ſo near it, when it cannot do it in the Prince who ſits upon it!

Therefore the Scandal of ſuch Conduct, ſhould be painted to a young Prince by his Tutor, in the darkeſt Colours, to deter him from imitating it; keeping from him all Perſons, who by their Allurements or vicious Inclinations, could debauch his Principles. He ſhould alſo be given to underſtand, that thoſe who plunge themſelves into thoſe Exceſſes of Voluptuouſneſs, impair their Health, exhauſt their Strength, and render themſelves uncapable to give Heirs to the Throne, indued with that Strength and Vigour neceſſary to undergo all the Fatigues inſeparable from the Quality of a Sovereign: Beſides the other Inconveniencies that Sort of Debauchery is attended with, it happens but too often, that while Princes are in the Arms of thoſe Proſtitutes, Generals of Armies are made, who have neither Courage nor Experience; Prieſts introduced into the Sanctuary of the living God, with no other Recommendation than their Aſſiduity in worſhipping *Baal*, or criminal and ſhameful Indulgency in palliating the Diſorders of a Court; Miniſters ſet at the Helm, who, ignorant of the Dangers, expoſe daily the Veſſels of the Republick to the moſt imminent Ones; and Magiſtrates placed on *Aſtrea*'s Tribunal, becauſe they are known to be always ready to preſer the Dictates of thoſe by whom they have been promoted, to thoſe of their Conſcience. The Wealth of a Kingdom is laviſh'd away to furniſh with Profuſion the monſtrous Extravagancies of thoſe *Jezebels*, or to enrich them and their beggarly Relations, who are often promoted to the moſt eminent Poſts both in the Church and State, on no other Conſideration, than that of their being related to a Perſon who is a Scandal to her Sex; ſo that it may be reaſonably

bly ſaid, that their Honour ſprings up from Filth and Corruption.

We may very well ſuppoſe, that theſe ſalutary Inſtructions were given to the preſent King of *France*, by his learned, wiſe and virtuous Tutor, ſince none of his Predeceſſors, ſince St. *Louis*, has ever ſhewn a greater Averſion for Luxury of that Kind, than that great Prince, whoſe unblemiſh'd Virtue, and conjugal Chaſtity, make one of the principal Ornaments of his Throne. But though ſo great an Example is worthy of our Admiration and Applauſes, it is very little followed; for we ſee but too often, young Princes, while yet under the Conduct of a Tutor, abandon themſelves to the Gratification of their Senſuality, and ſpend in the Arms of a Miſtreſs, a Time which ſhould be ſpent in learning how to govern well their Subjects.

There is another Kind of Luxury which is very oppreſſive to the State; I mean that which conſiſts in the Profuſion of a Prince's Table, while perhaps, a vaſt Number of his Subjects want even Bread: I know very well that it cannot be expected that the Table of all Princes ſhould be as frugal as was that of *Charles* XII. King of *Sweden*, neither is it proper it ſhould; but I know likewiſe that ſome Œconomy or Moderation might be uſed in that to render it leſs expenſive, and what is ſpared from it applied to the Relief of the moſt diſtreſſed among the Subjects; eſpecially thoſe who are reduced to Poverty for having ſerved their King, or their Country.

To inſpire a young Prince with Sentiments of Frugality and Œconomy, he ſhould be ſometimes conducted to thoſe Places, where Indigency appears without Diſguiſe, and attended with thoſe Circumſtances capable to excite both his Compaſſion and Generoſity; for it happens often that a Prince, otherwiſe inclined to Compaſſion, and ready enough to relieve his oppreſſed Subjects, is encouraged in his monſtrous Expences and Profuſions, by thoſe he is environed with, who repreſent his Dominions to him, as an inexhauſtible Source of Wealth and Treaſure, and that it is impoſſible he ſhould ſpend ſo much as his Subjects are in a Condition to ſupply him with, without diſtreſſing themſelves; though perhaps, at the ſame Time, the Stones of his ſumptuous Palaces, are cemented with their Blood, the vaſt Number of different Diſhes his Table is covered with, ſeaſoned with their Tears, and the Sound of the Inſtruments his Palaces eccho with, accompanied with their Sighs.

I take no Notice here of Drunkenneſs, which is a ſort of Debauchery, which very few Princes are addicted to, and which our Royal Pupil will ſoon be perſuaded to hate, when he hears that it reduces Mankind to a Condition worſe than that of Brutes, ſince it deprives them of the Uſe of all their Faculties, both rational and ſenſitive.

A young Prince ſhould always be a perfect Stranger to Avarice, and if it was perceived by his Tutor that he has the leaſt Inclination to it, he ſhould repreſent it to him, as a Vice which renders the meaneſt Perſon odious to the whole Creation, much more a Prince, who ſhould conſider Money but as a Piece of Clay, which Nature has diſguiſed to deceive our depraved Senſes, and which Corruption has rendered neceſſary among us. Why ſhould a Prince love Money, or oppreſs his Subjects to heap up Treaſures, when he can never be poor while his Subjects are rich; but on the contrary, if by his too frequent, and too heavy Impoſitions and Taxes, he endeavours to reduce them to Beggary, with the Deſign, either to ſhut up in his Coffers the Wealth he has thus unjuſtly raviſhed from them, or to laviſh it away among his Minions or Favourites, he expoſes himſelf to be as poor in Proceſs of Time as they are, without any hope of Relief; ſince he has reduced them to the Impoſſibility of ſuccouring him; having deprived them of the Means of even aſſiſting themſelves, in the Diſtreſs he has reduced them to. Why ſhould not a Prince give with one Hand what he receives with the other; or why ſhould he be anxious after Treaſures, ſince the Treaſures of his Subjects will be his own as long as Liberality ſhall be one of his favourite Virtues; for they are always more ready to give to a liberal Prince, who ſeems to value Money no otherwiſe than it is neceſſary to ſupply the Wants of the State; and would even exhauſt their whole Subſtance for ſuch a Prince, with greater Pleaſure, than they would pay the leaſt of the Taxes impoſed by an avaricious one. Beſides, the more a Prince is addicted to Avarice, the greater is Miſery and Poverty in his Dominions, for the Great and Rich, ſhutting up their Purſes after his Example, and never opening their Hands for a generous or charitable Action, thoſe deprived of Fortune'sFavours, muſt languiſh in the moſt deplorable State, and periſh at laſt.

It ſeldom happens that an avaricious Prince has any good Quality; for Avarice is always attended, in a Prince, with Puſillanimity, Ignorance, Tyranny, and Oppreſſion. He, whoſe whole Felicity conſiſts in his Treaſures, will hardly expoſe a Life in the Field which is buried in thoſe Treaſures, and would not run the Riſque of loſing it twice, that is to ſay, by the Arms of the Enemy, and by Robbers, he is always afraid of carrying off his Treaſure in his Abſence. There is no Glory in his Opinion, comparable to that of being accounted rich, no Science ſo profound as that of telling Money, or of raiſing it. Hence thoſe publick Spunges and Leaches employed by him, for Inſtruments of his Tyranny and Oppreſſion, and whoſe Want of Humanity and Compaſſion is the only Qualification requiſite to be employed by him, in thoſe Deeds of Iniquity.

To avoid thoſe great Inconveniencies, none ſhould be preferred to be the Tutors of a Prince, but thoſe who are very well known capable to inſpire him with Sentiments of Liberality, as well by their Example, as by their Leſſons; for it is almoſt impoſſible that a Tutor ſhould infuſe into his Pupil, Principles quite different from his own: For if even he was to give him the beſt Leſſons on that Subject, he would ſoon contradict them by his Conduct; and if he was to perſuade his Pupil to give with a profuſe Hand, it would be either to him, or to thoſe who he has recommended for Objects of his Liberality, which would give the Prince ſome Notions, that there is ſtill a greater Pleaſure to receive than to give; ſince his Tutor himſelf is always readier to receive, either by himſelf or his Friends, than to give.

But however, notwithſtanding all I have ſaid in Commendation of Liberality in a Prince, that Liberality can ſometimes degenerate into Prodigality, which at firſt appears a ſort of Paradox, ſince what is Prodigality in others, whoſe Fortune is limited and may be exhauſted, can never exceed further than Liberality in a Prince, whoſe Fortune has no Limits. But this ſuppoſed Paradox will be ſoon enucleated; if we conſider, that all that a Prince gives, on no other Conſideration than to gratify the voracious Appetite of Courtiers and Favourites, let the Gifts be ever ſo ſmall, is Prodigality; ſince it is ſquandring away publick Money which could have been applied to ſome Purpoſes advantageous to the State. That Money, for Example, had ſerved for a Gratification to ſome brave Soldier, who has been maimed, or ſpent the beſt Part of his Life in the Service of his Prince, and the Defence of his Country; or to relieve a Family left deſtitute by their Chief having been carried off in the Field; or to ſuccour whole Countries, which have been expoſed to the Ravages, Plunder, and Devaſtations of the Enemy. What other Name but Prodigality can be called what a Prince gives to thoſe who oppreſs and plunder his Subjects?

Ingratitude is a Vice abhorred both by God and Men, for which Heaven has not Puniſhments ſevere enough, and againſt which Nature itſelf revolts; and if that Vice is unpardonable in a Subject, how much more in a Prince, who cannot forget the Services done to him, without renouncing his own Intereſts, and rendring himſelf odious to the whole World: For though a Prince can claim as a Duty, ſeveral Kinds of Services from his Subjects, there are ſome other Ser-

vices, which we may very well call of Supererogation, which a Subject can abstain from, or even refuse, without a Breach of Duties, or rendring himself guilty of Disloyalty; such as refusing to expose his Life, or spending his Fortune in the Service of his Sovereign, and when he has the Generosity to do one or both those Services, what Marks of Gratitude is he not entitled to from his Prince? and what Monster must that Prince be, who scandalously refuses, or even neglects giving those Marks of his Gratitude? For our Royal Pupil must be informed, that it is a very erroneous Opinion to imagine, that his Subjects owe every Thing to him, and he owes nothing to his Subjects; on the contrary, those Services abovementioned, are a greater Mark of Liberality in his Subjects towards him, than the greatest Reward for those Services, could be in him of his Liberality, since on those Occasions, his Subjects sacrifice for him all they have dearest and the most precious in this World; when as in rewarding them, even according to their Desire, he loses nothing of his Power of doing the same Thing to an infinite Number of other Persons, and still remains as powerful as opulent, and better beloved and respected, than if he had never done it: For where are the Subjects who would serve, without being compelled to it, a Prince, who takes but little or no Notice of their Services? A Sovereign who engages his Subjects to his Service, by Rewards and Gratitude, acts as a good Prince, and he who exacts those Services as due to him, ought to be considered as a Tyrant; the one treats them like his Children, and the other like his Slaves.

The sole Motive which often induces the Tutor of a Prince to indulge him in the Gratification of his Passions, is to oblige a Minister, who, to engross to himself the whole Government of the Kingdom, and to leave but the bare Title of King to his Royal Master, persuades a Tutor to keep him in Ignorance, by suffering him to run a full Career throughout all the Pleasures, Pastimes, or Diversions a Court can afford. Thus a Prince ascends the Throne, utterly unacquainted with the Affairs of his Kingdom, and in Process of Time, is forced to do by Necessity, what he did at first through Inadvertency, and want of Judgment, Discretion and Prudence: His Intentions are very good perhaps, and he would sometimes set himself at the Helm, but being unacquainted with it, he is soon obliged to desert it, and to continue to trust to his Ministers, who govern as it suits best their own private Interest, and not the Honour of the Prince, and the publick Good. Tutors, who have that criminal Complaisance for Ministers, cannot be too severely punished; for when the *Education* of a young Prince is committed to their Care, it is with the Design they should make him fit to govern, and not to be governed; that they should learn him all he must know to sit easy on his Throne, and make his People happy; and not to render him a King of Tapestry, or the Shadow of a King; who has no other Motion but what he receives from others.

Besides the Art of governing well his Subjects, a Prince should also learn the first Rudiments of all other Arts and Sciences, that he may have a Taste of them sufficient to inspire him with the Desire of making them flourish in his Dominions; for there is no greater Mark of Ignorance and Stupidity in a Prince, than to see the Arts and Sciences in a languishing State, or buried in the Dust in his Dominions; whereby his Reign may reasonably be stiled the Reign of Ignorance. The greatest Princes, in all Ages, have always considered as one of the greatest Ornaments of their Crown, the Encouragement they gave to Learning and to the Learned. The Emperor *Augustus*, and *Lewis* XIV. King of *France*, both equally brave, and equally great, have surpassed all other Princes, in that Kind of Magnificence and Liberality; both have called near their Persons from all Parts of the World, the most learned in every Art or Science of the Age they lived in, and both have encouraged and rewarded them with a profusely liberal Hand, according to their Knowledge and Skill. *Lewis* XIV. was indebted for his great Taste of Learning to his natural Genius, rather than to the Advantages of his *Education*; not that he wanted the best Masters in every Art or Science, but they were afraid to impair his Health, by captivating too much his Mind; but however, his great Genius supplied in him the Want of a liberal *Education*; for he could judge pertinently of the best Compositions, and of the most finished Pieces of Workmanship, of all Kinds, as if he had studied, for a considerable Time, under the best Masters. He was a good Theologian, Philosopher, Physician, Musician, Painter, *&c.* by the pure Strength of his Imagination, without any other Succours. Several other Princes in that Kingdom, as well as in others, have had a far better *Education*; but have not made the same Advantage *Lewis* XIV. did of his natural Talents. Even at present, Learning is entirely disregarded by most Princes, and seems to be hidden, together with Bravery and Courage, in some Places where they are not to be found by the Great. For I have just Reason to believe, it retains yet, especially here in *England*, a kind Correspondence with Persons of an inferior Rank, who prefer the Ornaments of the Soul to the Pomp and Magnificence of a Court; and would rather be found poring on a Treatise of Theology, Astronomy, Geometry, *&c.* as becoming better their Rationality, than to be seen disguising it under some ridiculous Mask or other. Scandalous Pastimes, which are but too much encouraged by the Princes of this Age, and against which a young Prince should be inspired with an inveterate Hatred, since they are infinitely beneath the Majesty of his Throne; and change the Purple, otherwise so respectable, into the ridiculous Vestment of a Farcer. The *Eastern* Princes are commendable in this, and would be ashamed to appear under such Disguises.

A young Prince who will be instructed in his Duty to his Subjects, must learn every Thing that is necessary to render them happy; and first, never to make Choice of Ministers, who are not ready, at all Times, to prefer the publick Good to their own private Interest; never of those publick Oppressors, who make no other Use of the Confidence of their Prince, than to render his most faithful Subjects suspect to him, nor of the Power they are invested with, than to oppress the Nation: Who deprive their Royal Master of his best Servants, to have them reimplaced by their own Creatures: Who introduce Simony into the Sanctuary, Venality at Court, Bribery and Corruption in the Legislature: And who make for themselves and Family a monstrous Fortune of the Spoils of the Subjects: But those honest and disinterested Ministers, who accept that eminent Post, on the single and honest Consideration of having a better Opportunity to serve their Country: Who never accept it, but when their Prince, sensible of their extraordinary Merit and Capacity, obliges them to it: Who never receive any signal Favours or Gratifications from their Royal Master, but to have Occasion to distribute them among those of his Subjects who deserve them best: Who procure the Advancement of none but Persons of Merit: Who are deaf to all Intreaties and Solicitations of Relations or Friends, if the Person recommended has not a Capacity answerable to the Post he wants to be promoted to: Who are as good Œconomists of the publick Funds, as of their own; and never disburse any of that Money, but as the Exigency of the Affairs requires it; or to maintain the Honour and Credit of the Nation; or to defend its Rights and Properties; or to make Commerce flourish, by encouraging Artificers and the Manufactures; or to release the Distressed during publick Calamities, *&c.* Such are the Ministers which a young Prince must be advised to chuse whenever he is to ascend the Throne; for then he may depend on having his Affairs managed to the general Satisfaction of his People; and of not being exposed to the Reproaches and injurious Reflections a wicked Ministry is aspersed with.

It is almost impossible a Nation should be truly happy, which is divided into Parties: Therefore a young Prince should be very well instructed of all the Means

Means to prevent those Party Divisions in his Dominions, if there are yet none when he ascends the Throne; or to re-unite all Parties, if he finds his Subjects thus divided. As those Parties proceed from a Kind of Disaffection in the Subjects, either for the Person of a Sovereign, or for his Government, and sometimes for both; and as it is almost impossible a Prince should please every individual Member of the Republick, it is therefore almost equally impossible for him to prevent Parties being formed among his Subjects; since those who approve of his Government, and love his Person, will never agree with those who condemn the one, and hate the other. There are Nations more subject to those Party Divisions than others; and some, which a Prince, let him be ever so good, ever so just, and ever so great, will never please long; nor his Government, was it even newly modelized every Day, ever be approved. What must a Prince do who has the Unhappiness to govern such Subjects? have Recourse to violent Means to render them sensible of their Duty to their Sovereign? No; abandon himself to a servile Complaisance, and be entirely under the Direction of their ridiculous Caprices, or follow blindly the extravagant Inconstancy of their Mind? No; but he must be equally divided between a just Severity, and a becoming Complaisance and Meekness; punishing with Severity the greatest Sticklers in those domestick Divisions, to deter others from following their Example; and pardoning those who have been engaged in those Party Divisions (either through Ignorance, or by a pure Complaisance of a Friend, or by the Impetuosity of their Genius, without any premeditated Malice, or Disaffection to their Prince or his Government) to gain their Hearts, and dissuade them, by such an Act of Clemency, from engaging another Time into such Dilemma's, which, perhaps, would prove at last fatal to them. But as the Rabble is never better pleased but when they find an Opportunity of declaring in Favour of some Party or other, and that such Declaration is always attended with Tumult, Confusion, and Disorders, and but too often with fatal Consequences; the Rabble, besides, being always made the Tools of Party, when the Chiefs of those Parties want to throw the Republick into a Ferment; that Rabble should never be encouraged, but always severely punished, when found committing Disorders, under Pretence of espousing a Party, let the Party be what it will; for as the Rabble has no Fund of Bravery or Courage, but like Brutes follow the first Impulsions of their Brutality, that first Impetuosity is soon daunted, when it meets with a severe Opposition. A Prince should, also, forbid making any Party under his Name, since it is encouraging or strengthening those formed against him; and should always declare that he will have no other Party formed in his Favour, but that strict Union which should subsist between him and his Subjects, to oppose the common Enemy.

A young Prince must also be forewarned against giving the least Occasion for his Subjects forming Parties against him; such as vexing and oppressing them with burthensome, though necessary Taxes; invading their Privileges and Liberties; suffering his Ministers, or Favourites, to plunder them of their Properties; advancing to the most eminent Posts in the State worthless Wretches, who thro' their Want of Experience and Knowledge in the Management of publick Affairs, make shameful Blunders, which eclipse the Glory of the Nation, and render her despicable to her Neighbours. Such irregular Conduct in a Prince, is certainly capable to excite the just Complaints and Murmurs of his Subjects, to alienate their Hearts from him, and make them wish for a Change, in hope of being better treated; especially when after humble and repeated Remonstrances, the Prince refuses obstinately to redress their Grievances. For, in fact, Subjects are not to be led, like Slaves, with the Whip, but guided or governed like free Men; who willingly, and without the least Compulsion (though sometimes not through an Excess of Prudence) have parted with Part of that Liberty they had received from Heaven, in favour of another Man like themselves, which join'd to his own Liberty, compose that great Freedom he enjoys, so different from the rest of Mankind, and invests him with that Authority he exercises; which however is not of so vast an Extent, as to be not controulable, by the Laws which the Subjects have caused to be made, to secure that Part of that Liberty they have reserved to themselves; that there might be yet a wide Difference between them and Slaves, who have lost theirs entirely. Neither is the Prince to be tied with golden Chains on his Throne, or directed in all his Actions by his Subjects, for then he would be nothing else but an honourable Slave himself; but as his Subjects have thought fit to place him above them, to be their Prince and Governor, they are obliged to let him act as such, in all Things which are not contrary to the fundamental Laws of the Kingdom, without sacrilegiously intruding on his Authority as their Prince, or pretending to direct his Councils, or controul all his Measures, even the best concerted for the Advancement of his Glory, and the Security of his Dominions; *for then it is no* Obstinacy in a Prince to appear deaf to the unjust Clamours of his Subjects, and firm in his Resolutions; nor Tyranny to punish severely the most clamorous.

The Tutor of a Prince should take a great Care to cultivate the pacifick Dispositions of his Pupil, especially when he finds that those pacifick Dispositions do not proceed from a natural Pusillanimity or Cowardice, but from an Inclination of making his People happy; since, in fact, nothing contributes more towards the publick Felicity, than a pacifick Prince; Peace being always attended with Liberty, innocent Mirth and Pleasure, Opulence and Plenty; whereas War, on the contrary, draws always after her, Ruin, Oppression, Horror, Devastation, Sacrilege, Murder, Famine, and Sterility; even the most prosperous War, is always attended with some of those Calamities more or less. Therefore it is a very great Imprudence in a Prince to listen to the pressing Sollicitations of his Subjects for a War, when he can *avoid it with* Honour; for it is not reasonable to *suppose, that they* would be at the vast Expence of a War, *if they had not* some Design against their Sovereign, *if it was but that* of clogging the Wheels of his Government. But if they ask for it, actuated by any other Motives, as by a national Antipathy or Hatred, to shew themselves invincible, *&c.* those Reasons are so ridiculous and childish, that a Prince who has the Weakness to mind them, must be answerable for the ill Success of a War undertaken under such scandalous Pretences; for it is the greatest Folly a Nation can be guilty of to imagine herself invincible, because perhaps, by a Superiority of Number, and in Confederacy with the whole World, she has gain'd a few Advantages over a single Nation who was oblig'd to stand by herself, when that Nation alone by her Intrepidity and Bravery, has gain'd twenty Advantages for one of theirs, against such formidable Confederacy, and has an hundred Times baffled their best concerted Enterprizes. A Prince should let the ignorant Part of his Subjects understand (I say the ignorant Part, for the most sensible Part of a Nation would scorn to entertain such ridiculous and extravagant Notions) that Bravery and Courage are of no Nation in particular, but is to be found every where; and that Fortune, on which depends in Part the Success of a War, is as inconstant in the Fields as any where else.

Notwithstanding these pacifick Maxims our Royal Pupil is to be instructed in, his Tutors must take a particular Care to inspire him with Courage, and have him well vers'd in the military Art, that he may be capable to command his Armies in Person, which all Princes should consider as a Duty incumbent on them, since nothing is more capable to excite the Courage of the Soldiers and make them behave like gallant Men, than the Presence of their Prince. Formerly, Princes were more jealous of that Glory of commanding their Armies in Person, than they have been since, discharging

charging themselves of that great Trust on their Generals, and waiting for the Event of a Campaign amidst the Pleasures of their Court; and if the Campaign proves glorious, it is the Prince that has conquer'd; but if it is attended with ill Success, the Disgrace is thrown on the General. These are Abuses which should be reform'd, for as the Honour of the Prince, or his Ambition, is but too often the Occasion of a War, it is but just he should share the Fate, fortunate or unhappy, it is attended with.

From these Maxims for the *Education* of a Prince, we'll pass to the *Education of the Nobility*, which ought to be as carefully minded as that of Princes; since the Nobility of a Nation should make one of the greatest Ornaments of a Throne, which can't be without the Advantages of a polite *Education*; for it must not be imagin'd that *that* great Lustre which should reflect on the Throne, consists intirely in the illustrious Blood which runs through the Veins of a Nobleman, in his vast Estate, in his pompous Equipage, in the Number of his Servants, the Plenty of his Table, the Delicacy of his Dishes, the Variety and Rarity of his Wines, *&c.* For the illustrious Blood excepted, a rich Scoundrel rais'd from a Dunghil, can make as fine, if not finer Appearance, and the Difference between both must be taken from a noble Blood illustrated with an advantageous *Education*.

I say a noble Blood illustrated with the Advantages of *Education*; for what Honour can arise to a Person from his noble Blood, without those Advantages? How can he boast of having sprang from an illustrious Source, and number among his Ancestors a great Number of Heroes, of holy Sacrificators, of impartial Judges, of true Patriots, of disinterested Ministers, if he does not endeavour to render himself capable to support the Reputation they have acquired, by signalizing himself as they have done, in that Profession he proposes to embrace? These are the first Sentiments which a Tutor should take care to inspire his noble Pupil with. He has no Need to repeat often to him the Nobility of his Extraction, to convince him that he is in Fact born a Nobleman; the Sumptuosity of his Palaces, the great Number of his Servants, the vast Respect they approach him with, and his Title being at almost every two Words sounded to his Ears, has soon learn'd him that Truth; but he should pass in Review before him, those of his Ancestors who by their extraordinary Merit and Virtues, have most contributed towards acquiring him that Title, and give him to understand at the same Time, that unless he enters the same Career, and appears in it with the same Glory and Reputation, that Title which he bears, and was in them a Mark of Distinction, is to be one in him of Scandal and Shame, and a continual tacit Reproach of his Unworthiness. That a Nobleman without Merit or Virtue, is like a Mausoleum, which under a pompous Appearance, hides nothing else but Corruption or despicable Ashes. That if the Publick respects his Title as a Reward of Virtue, they despise the Person who undeservedly is dignified with it; that therefore it would be more to his Advantage and Honour, unless he be determined to support it with the same Reputation his glorious Ancestors have acquired and supported it, he should renounce it. That what was given once to Merit, was not designed to serve afterwards, as a Cloak to Pusillanimity, Ignorance, Luxury, Extravagance, Brutality, and Haughtiness; and that his Ancestors had never desired such a Mark of Distinction, if they had imagined that they had left it to such a worthless Posterity. That his Great Grandfather such a one, was originally but a private Gentleman; who, to signalize himself in the Service of his Country, entered into the Army, where having behaved gallantly, during several Campaigns, sometimes in the quality of a Voluntier, and sometimes at the Head of a Company, was preferred afterwards to the Command of a Regiment; in which Post having given new Proofs of his Intrepidity and Courage, he was placed at last at the Head of a greater Body of Forces; with which having often repulsed, beaten, or routed the Enemy, his Prince, as a Reward for his great Services, had been pleas'd to honour him with the Title, himself his Great Grandson had inherited. That his Grandfather having not the same Inclination for the Army, had qualified himself to serve his Country in another Capacity; and his Prince, being inform'd of his Qualifications, had preferr'd him to be a Secretary of State; in which Post he supported the Reputation of his Father, by his great Dexterity in the Management of the publick Affairs, and his Disinterestedness. That his Father, having very well studied the Law of his Country, had been placed on *Astrea*'s Tribunal; where he had behaved with so much Candour, Integrity, and Impartiality, that his Memory will be in Veneration throughout all future Ages. That his Uncle such a one, having embraced the ecclesiastical State, and been afterwards preferr'd to a Bishoprick, had given in that eminent Post so many repeated Marks of the Sincerity of his Religion, of his great Piety without Affectation or Hypocrisy, and of his extensive Charity, that he was then the greatest Ornament of the Sanctuary, and had heightened the Glory of his illustrious House by the Radiancy of his Virtue; and as that Glory had not yet suffered the least Eclipse, he was obliged to maintain it in his Person with the same Advantage, lest by being the first to degenerate from his Ancestors, he should render himself still more odious both to the Publick, and to his Posterity.

With those salutary Instructions often repeated, and supported with so many good Examples, it is almost impossible that a young Nobleman (unless he was born with very vicious Inclinations) should not be prompted to imitate the Virtues of his Ancestors, and to support the Honour of his Title by a polite *Education*.

On this solid Foundation, a Tutor may easily build the rest of his Edifice, and begin by teaching his Pupil the Principles of a noble and becoming Humility; contrary to that insupportable Haughtiness affected by the Great, and countenanced by the Superiority of their Rank. Such Humility does not consist in entirely forgetting what a Person of Quality owes to himself, when in Compromise with his Inferior, but in that noble Affability, which renders him accessible to all those who are obliged to approach him, without overawing those of a mean Condition with Supineness, which but too often strikes them dumb, or makes their trembling Tongue falter, and pronounce but ill articulated Words, which neither the Person they are speaking to, nor themselves understand; but rather encourage them to expose freely their Sentiments. For it is not with the common People (who must be very well persuaded of the Superiority of the Great) they are to stand on the Ceremonial, but with their Equals; for they must think themselves so far above the Vulgar, not by a Principle of Pride to despise them, but by one of Generosity, that it is impossible their Behaviour could offend the Great.

But the same cannot be said of Persons of an equal Condition; for it is necessary to preserve a good Order among the Nobility, that every Nobleman should know his Rank, and be jealous of it; for by a too great Condescension and Complaisance, there might happen a Confusion among them, which could be attended, afterwards, with fatal Consequences. For there are some Members of that illustrious Body so very ambitious, that what has been granted to them once, by pure Complaisance, they claim it afterwards as a Right.

A young Nobleman should not be inspired with a Spirit of Revenge, nor persuaded to be always on the *Puntilio* with his Equals; for the one is very dangerous, and the other entirely ridiculous; but however he must be made sensible of the gross Affronts which might be offered to him, which it would be Pusillanimity in him to let escape unpunished. It is true, that this Maxim is not very agreeable to Christianity, which commands us to forgive all our Enemies, without the least Restriction; but the World judges otherwise, and as the Honour attacked in those Cases, is a world-

ly Honour, it must be either supported by the Maxims which the World has established for it, or renounced; for a Nobleman who would be thought too Christian-like inclined, would be exposed to an Infinity of Affronts. And I know no other Remedies for a Nobleman to these Inconveniencies, than to be always so circumspect, and so much upon his Guard, as to give no Occasion for Insults; and if notwithstanding his great Circumspection, he is insulted in the most sensible Manner, he must ask the Satisfaction expected in such Cases, though perhaps condemn'd by Heaven; or derogate from his Quality. Princes, conscious that Honour is a very tender Point, have found the most efficacious Remedies to prevent its being grosly attacked, by making very severe Laws to punish the Guilty, and thereby stop the Impetuosity, or rather Insolence, of those who are never better pleas'd but when they find the least Opportunity to insult others, which is an infamous Conduct, beneath, not only a Person of Quality, but even one who has the least Notion of true Honour.

A young Nobleman should also be entertain'd in the true Sentiments of a generous Hospitality, which was once the true Characteristick of the *English* Nobility and Gentry; but at present greatly neglected. For of what Advantage is it to the Commonwealth, that the Nobility live in Opulence and Splendor, if none but themselves receive the least Benefit from it? And if none are admitted to their Table but those who want it less? I would not have them keep open Table for all Comers without Distinction, but only for those who are the worthy Objects of a generous Hospitality; for those Gentlemen who have no other Fortune but an illustrious Birth, or a personal Merit, or a polite and liberal Education, which every Body knows is at present a very barren Estate. The Company of such Persons is always worthy a Place at a Nobleman's Table, and what he learns in such Company, indemnifies him sufficiently for the Expences he is at in keeping them; for the Money he lavishes in a Day's Pleasure, would maintain five or six such worthy Objects for a whole Year. But those Maxims of Hospitality are a Kind of Paradox in this Age, and a Blockhead who has all his Merit buried in a vast Tract of Land, or shut up in his strong Box, let him make what Appearance he pleases, will be well entertained by the Great, and received into their Palaces, with all the Demonstrations of a Respect which he has not the least Title to; while Persons of a real Merit who have nothing else to recommend themselves, do not so much as dare to approach those Palaces, for fear of being expos'd to the Insults of Servants, who after the Example of their Master, hate or despise every Thing that bears the least Mark of Indigency.

Those Errors proceed from Want of a polite *Education* in the Great, who are often put under the Conduct of Tutors, who, having been *educated* themselves in bad Principles, and with mean Notions, cannot teach their Pupils what they do not know themselves; and who have been preferred to that profitable Post, rather on the Recommendation of potent Friends, than in Consideration of their Capacity; for I have seen that Merit without a powerful Recommendation, will never prefer a Person to be the Tutor of a young Nobleman, while Recommendation without Merit is always sure to do it; therefore, we are not to be surprised if the young Nobility learn scarce any Thing else in their Infancy but how to indulge their Passions; they have Tutors it is true, but it is only for a Sort of Parade, and those Tutors are so much afraid of losing their Place, were they to disoblige their Pupil, that it is very difficult to distinguish if the Pupil is under the Conduct of the Tutor, or the Tutor under that of his Pupil; so that, properly speaking, there is no other Difference between a Tutor and a menial Servant, but in the bare Name; and who but Scoundrels, without Knowledge or Capacity, would submit themselves to the Drudgery, which at present is expected from a Tutor, who must wait on his Pupil, as a Lacquey is obliged to do on his Master?

Too happy if I could flatter myself with the Hope of reforming those scandalous Abuses, which are the Occasion of the Degeneracy of the Nobility in all Countries from its antient Lustre. For there are yet Persons of a very great Merit and Capacity, who would be glad to be the Tutors of young Noblemen, were they to meet with a due Encouragement; but they would never submit themselves to act the Part of a Servant, when some of them are perhaps as well born as their Pupils.

Liberality is also a Quality essential in a Nobleman, and Avarice a shameful Vice which eclipses all his good Qualities or Perfections. I would not advise a young Nobleman, was I to be his Tutor, to impair his Estate, or to ruin his House, by giving to all those without Distinction who apply to him for Relief, under Pretence of a noble Liberality, for that would be rather Prodigality than Liberality; but I would have him chuse among them, those who are really worthy of a Relief, and not make Use of that frivolous Excuse so common among the Nobility of this Age, to cover their Parcimony, or rather Avarice, that if he had once the Reputation of giving to some, he would be continually besieged by an infinite Number of others; since it is always in his Power to give to whom he pleases, and refuse whom he pleases, without any of them being capable to make him give against his Inclination. But however to leave no Room for any Excuse of that Kind, let him even refuse all those without Distinction, who have Assurance enough to make Application to him, and by whom he is afraid of being too often importuned: For in fact, it is not always those who are most troublesome, that want most; but if he be really liberal, he can be easily informed, if he pleases, where to exert his Liberality some where else, and where to find those worthy Objects whom the Shame of their penurious Condition hide from the rest of the World, and who will rather die in Misery, than expose themselves to be refus'd with Scorn; for in fact, a true Liberality never waits to be asked, but always meets Want and Distress half-way at least.

To render my Pupil capable to distinguish the deserving Objects of a noble Liberality, from among those who are not so, I must inform him that those are really deserving, who have been reduced to a State of Indigency by some unforeseen Accident, to which they have by no Means been accessary, either by their Prodigality, Luxury, Debauchery, or Extravagance; all those who have always been in that State of Indigency, notwithstanding their honest Industry, and the indefatigable Pains they have taken to raise themselves above it; all Persons of Birth, Education, and Merit; and not be of the *Turks* Opinion, that it is impossible that a Man of Merit should be poor, since we may see if we will, that, ordinarily, Fortune is more favourable to Stupidity and Ignorance, than to Virtue, Wisdom and Knowledge.

A Nobleman can also exercise his Liberality in another Manner, which is, never to sell his Favours, or the Posts which are at his Disposal; for such an infamous Commerce is beneath a Man of Honour, much more a Person of Quality; neither is he to suffer his Domesticks to exact any Gratification on that Consideration, or to receive any, without it be with a free Will; a Maxim which our noble Pupil, should be thoroughly acquainted with, in Case he was ever preferr'd to some considerable Post in the State, or in the Army; for nothing is more contrary to the Principles of true Nobility, than to encourage the Venality of Posts or Employments, which should always be given to Merit, preferably to all other Considerations. How scandalous is it, for Example, for a Nobleman who has been honoured by his Prince with the Command of a Regiment, to set the principal Posts of that Regiment to Auction, and give those Posts to the best Bidders, to the Exclusion of those, who by their long Services and Bravery, have a Right to it? Hence the Miscarriages in the Fields, committed by those who are Commanders, but not Soldiers; hence those shameful Routs or Defeats, caused by them who had more

more Money than Courage; and hence those scandalous and criminal Plunders of the Soldiers Subsistence, committed by those Mercenaries, who, to reimburse themselves of what they have given for their Post, starve the poor Soldiers, and rob their Prince or Country. Venality is equally dangerous, and scandalous in the State. For thereby are intrusted with the Management of publick Affairs, Asses, Scoundrels, and Sycophants, who buy the Confidence of the Prince, or of his Ministers, to have a favourable Opportunity of selling their Country; and by their Ignorance and Blunders, render it despicable to other Nations.

There is another Sort of Venality, still more dangerous and criminal than abovementioned, which Noblemen often make no Scruple to be guilty of, and against which our young Pupil must be cautioned; and that is, when the Nobility buy the Favour of a Minister at the dear Price of their Honour and Conscience, and silence both, to support his Tyranny, disguise his Incapacity, and hide his Imperfections, and excuse his Blunders. A Nobleman who is guilty of those atrocious Crimes (for such they are in Reality) should be abhorred and detested by the wholsomest Members of that illustrious Body, and spurned from among them, as a spurious corrupted one, nay he should even be banished from all the Orders of a Civil Society, as a Shame to Mankind; since born in a more perfect State, he renders himself guilty of Crimes abhorred even in the Cottage of a Peasant, or a Cobler's Stall; and sells at so vile a Price his Honour, which ought not to be purchased at any Rate, since it should be dearer to him than all the most precious Gifts Fortune could flatter him with, nay, even than Millions of Lives, if he had as many; Favours, Hope, Fear, Sollicitations, Friendship, Gratitude, and all other Considerations should prove ineffectual, when employed to tempt a Nobleman's Honour; that Honour which has perhaps cost him so much in the Acquisition, and which is the best Inheritance he can leave to his Posterity. Our Pupil ought to be made to understand, that nothing is more scandalous than to see a Person of an antient and illustrious House, cringing at a Minister's Levee (who is often a Man of Fortune, and no Birth) with no other Design than to advance himself and Family; whereas if besides his Birth, he has Capacity, and Merit, what he asks so servilely of the Minister, is due to him; and if not, it is a Crime in him, and an Injury offered to his Prince and Country, to pretend to what he is not capable to administer; a tacit Confession of his Want of Capacity, in asking nothing, or pretending to nothing, is more to his Honour, than if he was advanced to a Post wherein he would be obliged to shew publickly, that he is not capable of it.

When I mention Nobility in this Place, I do not understand a modern one, nor those Mushrooms sprung up in an Instant, or from a Dunghil; whose Nobility is but a Reward for some iniquitous Services done; or a Qualification indispensably necessary to render them capable to countenance some ill concerted, or pernicious Measures; for a Title thus acquired, is rather a Scandal than an Honour to the Person who is supposed dignified with it; to which the Condition of an honest Artisan or Peasant, is far preferable; therefore such a Title will never flatter the Ambition of those *educated* in Principles of Honour, and Probity.

Ignorance has been thought for a very considerable Time the true Characteristick of the Nobility, and in fact Noblemen themselves have falsly imagined that it was beneath them to study Arts and Sciences, and that a polite Education consisted wholly in being instructed in those bodily Exercises, of Fencing, Riding, *&c.* and in those Diversions of Dancing, Hunting, Gaming, *&c.* which, as they are always attended with vast Expences, seem designed more particularly for Persons of the first Rank supported with a considerable Fortune; so that take them from a *Salle*, from a *Manage*, or from among their Huntsmen, and Packs of Hounds, they scarcely know how to behave, and appear as disconcerted, as if they were in another World: But they are grosly mistaken; for those Exercises, though included in a polite *Education*, make but the least Part of it; so that we have seen very polite Gentlemen, who had never handled a Foil, nor rode a great Horse, nor danced a Rigadoon, nor hunted a Hare or a Fox. Though certainly, a Person who is born to wear a Sword must know how to use it; but I mean that those Exercises are but Accessaries, and that the essential Part of a polite *Education*, consists in rendring one's self capable to be useful to the Republick, by the Study of the Arts and Sciences; for a Person who rides very well, and has not learned the true Interest of his Prince, and of his Country, and the Difference between them and those of the other Nations, the true Maxims of the best Politicks, founded on the Glory, Honour, and Security of his Nation, and the fundamental Laws of the State, which must direct all Measures taken with regard to domestick Affairs, would make but an aukward Figure in the Cabinet of his Prince; likewise he who has Courage enough to answer a Challenge or Appeal, and knows how to follow exactly in those Encounters, all the Rules of the Art of Fencing, but is entirely ignorant of the Military Art, is not fit to command an Army. If a Nobleman knows neither the History of other Countries, nor that of his own; he must appear stupid in the Company of them who are perfectly acquainted with both; and cannot take Part in the most entertaining Conversation, which is that on History, since it offers to our Mind, all that has been acted in the different Ages of the World, as present as if they were then acting. For my Part, I am of Opinion, that one of the principal Cares of a Tutor should be to render his noble Pupil a very good Historian, since thereby his Memory furnishes him with rare Examples of Piety, Virtue, Magnanimity, Constancy, Probity, Liberality, Generosity, Compassion, *&c.* which might engage him to follow them; when as he that has not that Advantage, must be entirely indebted for his good Qualities to his natural Inclinations, supported with the very few Examples of that Kind, which by Chance we meet with in this corrupted Age.

A Nobleman should also know as much of Theology or Divinity, as is necessary to strengthen him in his Religion, hinder him from following blindly every new and extravagant Opinion, broached by Visionaries, or Enthusiasts, to lacerate the seamless Gown of *Christ*, ruin the true Religion, and disturb the publick Tranquility. It is also very scandalous for a Nobleman who had been born and *educated* in the Principles of the true Religion, to apostatise from it, under what Pretence soever, but more particularly, in view of advancing his own private Interest, or of saving his Estate; for in acting thus, he is abhorred by the Party he has deserted, and laugh'd at, and despised by that he has embraced. Nothing should engage him to change his Religion, but the Doubts which his Knowledge of religious Matters, makes him entertain of the Religion he has been *educated* in, and the Desire of being instructed better, and put in the right Road to Salvation.

These are chiefly the Arts and Sciences which our noble Pupil should learn, for his *Education* may be a very polite one, though he understand neither *Greek* nor *Latin*; since there are very few good Authors who have wrote in those Languages, on any Art or Science which have not been translated into the modern ones; though it be an Addition of Perfection in a Nobleman, to be Master of several Languages, antient and modern. He should also be persuaded to encourage as much as it is in his Power, all those who are professed Masters, in any Science or Art, since he acquires thereby, a new Increase of Honour, and renders his Memory respectable to the Posterity, which cannot fail being grateful to those who have contributed towards rendring her more perfect in any kind of Literature or Learning. This is more to the Honour of a Nobleman, than to give with a prodigal Hand to those Monsters, who have disgraced Nature to make her appear with a greater Affectation in their Throat; for

of

of what Service can it be to the Commonwealth, a Song from those Wretches, for to be paid at so dear a Rate, when we can hear every Day better, and more natural Voices, and which flatter more agreeably our Ears, for little or nothing? Is Musick carried to a greater Perfection, by the affected and unnatural Voice of those Eunuchs? or rather, are not its most beautiful Rules trespassed and disfigured by that Affectation? but a Nobleman in a *Sally*, or some other ridiculous Motive, has made such considerable Presents to *Farinelli*, because he squeeked better than *Nicolini*, or *Senesino*, therefore he must be followed by all the rest; a very good Reason truly for countenancing such ridiculous Prodigality. But will that Nobleman treat in the same Manner a Man of Letters, who by an assiduous Labour and Study, has made some new Discoveries advantageous to the Republick, or has published some considerable Work for the Service of the learned World, or to promote Learning in a Country? no; why? because having not the Opportunity of doing it in so publick a Manner, his Liberality would not be so well known; besides, was he to do it, he would be every Day importuned by those learned Beggars; it is what I can scarcely believe; for had, what has been lavished among the *Italian* Singers, for these 12 Years past only, been distributed among the truly learned of the Kingdom, it would have put them so much above that State of Indigency, several of them are reduced to, that they would have wanted afterwards no further Encouragement of that Kind; and I am persuaded, that Men of a liberal Education must have so great a Reluctancy against applying to the Great, for Assistance, that they would be glad to be put in a Condition of abstaining from it; particularly when they must be conscious, that Indigency though ever so well accompanied by Arts and Sciences to the Palaces of the Great, meets almost always with a very cold Reception, who plead for Excuse, that though they admire the Ladies, they are utter Strangers to the Person they would be willing to introduce. Therefore our Pupil must be cautioned against making so ridiculous a Distinction, which is nothing but a Cloak to Parcimony or Avarice. For if the Person has a real Merit, let him be a Stranger or not, it is not the Person he encourages, but his Merit, neither is the Service done to him alone, but to a whole Nation in general, by making her Partaker of the great Knowledge and profound Learning of that Person.

Probity, Justice, and Impartiality, are also Qualities essential to a Nobleman, and a Tutor must endeavour to instruct his Pupil in all those Virtues, in convincing him that he is more obliged to practise them than Persons of an inferior Rank; for as Nobility is a State more conspicuous to the World than any other, all others endeavour to modelize their Conduct on that, and they are all more or less just, honest, impartial, *&c.* as the Nobility is more or less just, honest, impartial, *&c.*

The Probity of the Nobility consists, chiefly, in dealing fairly with their Inferiors, without taking Advantage of the Superiority of Rank to oppress them, or to invade their Property; for our young Pupil must not imagine, that because he is a Nobleman, he is allowed to act as arbitrarily as he pleases, without being subject either to the Direction or Coaction of the Laws of his Country; his Pre-eminency over all his other Fellow-Subjects and Countrymen gives him no other Privilege than that of being a more religious Observer of them; that his Example may remind others of their respective Obligations on that Subject; and he must know, that to imagine that the Nobility is not obliged to follow the exact Rules of a distributive Justice, is a scandalous Maxim, which Oppression and Injustice have introduced in the Civil Society. For if some Privileges granted to them from Time to Time by Princes, in Consideration of some signal Services he has rendered, and can render to the State, has exempted him from some vexatious Formalities of the Law, to which the Commonality is subject, it was not done with a Design to screen Injustice and Oppression, nor to exempt Noblemen from paying, for Example, a just Debt; on the contrary, it was done under this judicious Supposition, That the Nobility having greater Principles of Honour and Equity, would without Compulsion, observe all the Rules established to maintain that just Œconomy which should subsist in a well civilized Republick; for there is nothing more scandalous, than to see the Nobility lord it over their Vassals, as so many petty Tyrants; or the Gates of their Palaces continually besieged by poor Handicraftsmen, asking for the Price of their Labour, which they seldom received, but after a long and assiduous Attendance; and not then, before a Steward, or other Servant who has procured the Payment, has extorted Part of it. An infamous Practice, and very injurious to the Master, which our Pupil must never suffer to be introduced in his Family, but discharge from his Service any Servant who could be suspected to have the least Inclination to do it; and excluding it from the Agreement he makes with them, when they first enter into his Service.

He must likewise avoid appearing partial, in the Posts he may chance to be promoted to; and never grant to Favour, Inclination, Friendship, or Intreaties, what is due to Justice: This Impartiality must even extend as far as to Party Divisions; never espousing any if possibly he can avoid it; and when forced to it, never but that which has for its Object the publick Good; and never by a Motive of Ambition, Antipathy, or Revenge, or to gain the Affection of the Rabble, which is a very great Disgrace to a Nobleman; avoiding above all Things being accounted the Chief of a Party, since it is the infamous Characteristick of a declared Enemy of his Country; much more infamous still, if the Chief of a Party is so by a Motive of disappointed Ambition, or of Interest, or of some private Pique; which is but too often the Case of Chiefs of Party; and those Motives ceasing, the Partisan soon deserts his Party, and espouses the opposite one.

Those Party Divisions are entirely contrary to the Love for one's Country, which a Tutor must take a very particular Care to inspire his noble Pupil with; and to inform him, that *that* Love does not consist in that ridiculous and vulgar Infatuation, That nothing is good, and nothing is great, out of one's Country; that Courage, Bravery, Wisdom, Prudence, Plenty, Opulence, and Wealth, are to be found no where else; since it is an ignorant and scandalous Prevention, which is nauseous to all judicious Minds. Those Rhodomontades, far from asserting the pretended signal Advantages a Nation boasts of to the Exclusion of all others, renders her the Object of an universal Scorn, and shews the Narrowness of her Conceptions. As a noble, great, and generous Soul, renders always Justice to Merit, wherever he finds it, even in his most mortal Enemies; far from advancing Falshood and Impertinences to support his own, it must be a mortal Pain to him, to hear his Fellow-Subjects and Countrymen villify infamously another Nation, and accuse its People of Cowardice and Pusillanimity, who for the Rapidity of their Conquests, which they have carried to the Extremities of the Earth, and for an infinite Number of signal Victories they have gained over all *Europe* united against them, have been recorded in all Ages for brave and warlike People, respected by their Allies, and dreaded by their Enemies, even to these Days; for the scurrilous Invectives, and low Satyrs, of some other Nations against them, proceed not from a Consciousness of what they say is true, but from a natural Antipathy, and Jealousy of those People's Grandeur; which appears clearly from the malicious Care they take to eclipse the Glory of their greatest Actions, and represent them otherwise than they are in Reality. Far be from our Pupil's noble Mind that mean and pitiful Manner of expressing one's Spite, which must be left to the most despicable Rabble; let him never accuse his Enemies of Cowardice, for no other Reason than because they are his Enemies; especially when the most impartial Historians of all Ages can

can give him the Lye. If he will shew his Bravery, and Greatness of Soul, let him imitate the greatest Heroes, who have always extolled and admired the Courage of their Enemies; and never imagined themselves wholly possessed of that noble Quality. Let him be contented with the signal Advantages he has in common with his Countrymen, without robbing the other Nations of theirs; which Injustice proceeds from Want of a polite *Education*. If we are so just, so wise, so generous, and so brave, as we would be accounted, let us shew it by our generous Conduct, rather than by our Words; since, thereby, we'll oblige other Nations to do us that Justice, which from us to ourselves smells too much of Self-Conceit, Presumption, and Vain-Glory; for we must be conscious that our Actions lose a great deal of their Value, as we are the first to extol them. For Example, I love to hear a *Frenchman* prize the Merit of the *English* Nation to its full Value, and I must do that Justice to my Nation that I have never heard otherwise; but I hate as much to hear my own Nation insulted by another; which however happens often. Sometime ago I was visited by a Person, who, to compliment me in a Manner I was utter Stranger to, did break forth into a great Number of Scurrilities against the *French*: Another Time I was, by Chance, at a Bookseller's in *Covent-Garden*, which I have been told since is the Rendezvous of the Wits, where another Person was robbing some of the best *French* Generals under the late King *Lewis* XIV. viz. *Condé*, *Turenne*, *Luxembourg*, *Vendosme*, *Catinat*, &c. of all the Glory they had acquired in the Field, pretending that all their Successes were owing to a Caprice of Fortune, and not to their Bravery, nor to that of their Armies, the *Frenchmen* being generally all Poltroons; and all their pretended Bravery a mere Gasconade. This gross Insult had affected me more, if it had been offered by a Person of some Merit; as for Birth and *Education* it is easy to guess that he had neither; but as I found that he was quite ignorant even of the History of his own Time, I took no Notice of him; and left him, sending back the King of *Naples* to *Madrid*, restoring *Lorain* to Prince *Charles*, conducting an Army of 100,000 *English*, *Austrians*, and *Dutch* to the Gates of *Paris*, and himself in the Road to *Bedlam*.

This is not the Character of the *English* Nobility and Gentry, nor even of the most sensible among the Commonalty, whom I have always heard speak (few excepted) without those mean Prejudices, and with a great deal of Impartiality and Justice, of other Nations. Such a noble Behaviour pleads better in favour of the *English* Nation, which is equal, in Merit, to any other upon Earth, than the ridiculous Rhodomontades of the Rabble.

If it is scandalous for a Person of Birth, and contrary to the Rules of a polite *Education*, to reflect injuriously on other Nations, it is much more so to do it on the sacred Person of Princes; who being here on Earth the Vicegerents of God, should never be mentioned but with the most profound Respect, especially by Gentlemen, since the Throne is the Source of all Honours; and a Prince the Head of that illustrious Body, whereof the Nobility and Gentry are Members; since the Reflections cast on the Head, reflect on the whole Body: Therefore the Nobility and Gentry should be as jealous of the Honour of their Prince, as they are of their own.

Our noble Pupil must never be permitted to read Romances, nor any other Books capable to debauch his Morals, and deprave his Heart; for as we have all a natural Propensity to indulge our Passions, we are soon susceptible of the least Thing which can encourage that Indulgency, or prompt us to it. If he be designed for the Sanctuary, Books of Theology, and of Piety, must be his chief Study; if for the Army, he must read the Annals of his own Country, and those of other Nations which have been most fertile in Heroes; if for the Cabinet, the Memoirs and Transactions of the best Ministers of all Countries, and also the Miscarriages, Blunders, &c. of bad Ministers, that knowing them, he may be more capable to avoid them; and if for the Judicature, he must often entertain himself with the Lives of those great Magistrates, whose Integrity has rendered their Memory precious to Posterity. In these noble Occupations, interrupted by some other noble Exercises and Diversions agreeable to them, he'll have no Time to listen to the Dictates of criminal Passions; nor to spend among the fair Sex, whose Charms are still more dangerous, when our Mind has not acquired yet that Prudence, necessary to resist them in a Manner as to be not entirely conquered by them. For though the Company of the Fair Sex claims a certain becoming Circumspection, and a Complaisance, which correct a certain Savage Air, which the Pupil contracts under the Conduct of his Tutor, they must not be too often frequented by Youth.

Neither is our Pupil to contract an Intimacy, or Familiarity, with all sorts of Men indifferently, not even with all those of a Birth equal to his, if their *Education* and Morals are not agreeable to their Rank; for as Quality is not always accompanied with Virtue; but on the contrary, is but too often, especially in the corrupted Age we live in, a Pretence to a greater Immorality, Extravagancy, Luxury, Licentiousness, Irreligion, &c. he can't be too cautious in the Choice he makes of his Friends, lest by frequenting them he should accustom himself to imitate their Vices; or modelize his Conduct to the Irregularity of theirs. It is the Duty of his Tutors to direct him in that Choice; and to let none approach him but those who are capable to inspire him with noble and virtuous Sentiments.

A young Nobleman should also be informed, as much as possible, of the different Manners and Genius of other Nations; since thereby he is render'd capable to make a just Difference between the Good and Bad found among them, in order to imitate the one, and avoid the other.

There ought to be but little or no Difference between the *Education* of the Gentry, and that of the Nobility, and in my Opinion they should be both founded on the same Maxims; the whole Difference consists, if there is any, in that the Gentry being exposed to a greater Familiarity with the Vulgar, should also be more upon their Guard; lest they should be susceptible of some of those low Principles and scandalous Notions, which render the Rabble insupportable, and make it considered as the Excrement of a Civil Society. As the Gentry is next to the Nobility, or rather, as there is no other Difference between both but in the Title; they must also endeavour to imitate the Nobility, not in Pomp, Luxury, or Extravagance, but in the Maxims of a polite *Education*; for a private Gentleman, though perhaps born of a very antient Family, having no Title to claim that Respect commonly shewn to one, he must endeavour to gain it by his gentle Behaviour and personal Merit, founded on the Advantages of a polite *Education*; which are greater than all the other Advantages we can possess in this World; for all the others are subject to Vicissitude, and Fortune can rob us of them all at once; but never of those of our *Education*, but with our Life.

If it be objected, that the World, at present, takes little or no Notice of a polite *Education*, when not supported with some other Advantages, especially those of Fortune; and that Stupidity and Ignorance, in a pompous Equipage, will always be preferred by it, to Merit in Rags; I'll answer, that the Depravation of the World's Taste is not an Excuse for abstaining from a polite *Education*; no more than its countenancing or approving all Sorts of Vices and Disorders, renders us less guilty if we plunge ourselves in them. Besides, among the Generality of Mankind, there can be found yet some Persons who admire and encourage a real Merit. Who knows, besides, but our having neglected so long those Advantages of a polite *Education*, is the Cause of the World's taking so little Notice of it, and that it would change its Taste if we were to change our Conduct? However, what's the World to us,

when we are conſcious to ourſelves, that though we have not its Approbation, we deſerve it, and that its deſpiſing or neglecting a real Merit, is an evident Proof that it has none itſelf.

Commerce, and other Employments of that Kind, in a trading Nation, where almoſt all Profeſſions are honourable, cannot be a Bar to a polite *Education*; on the contrary, the Advantages of that *Education*, inſpire a young Gentleman with a Docility neceſſary to learn the Rules of his Art or Profeſſion; and with a Politeneſs capable to engage the Publick to deal with him, preferably to thoſe who for Want of *Education*, are guilty of Brutalities and ill Manners, which are of no Body's Taſte; and which will never engage a Perſon to deal with them, while he can find ſome Body elſe to uſe him with more Civility and good Manners.

The Tutor of a young Gentleman, ſhould above all Things inſpire him with Sentiments of Hoſpitality, as well for Foreigners as for his Fellow Countrymen; for there is nothing more contrary to the true Principles of Humanity, and nothing more reſembling the Ferocity of the moſt ſavage and barbarous Nations, than Want of Hoſpitality. That Hoſpitality does not conſiſt wholly in granting to Foreigners the ſame Protection we enjoy in their Countries, and which both we and they can claim a Right to, founded on the Laws of Nations, but in granting it with Pleaſure and Humanity, without ſuffering them to be expos'd to thoſe opprobrious Reproaches and Inſults, which can but give them a very diſadvantageous Opinion of our Genius and Manners, and make them conſider us as amphibious Creatures, rather more Brutes than Men.

The *Education* of the Fair Sex, is alſo one of the chief Articles to be minded in a well civilized Commonwealth, for though they be not deſign'd themſelves for any publick Employment, moſt of them are to have the Conduct of thoſe in their Infancy, who are deſigned for thoſe Employments; and as the Prejudices of Infancy are always the ſtrongeſt, Care muſt be taken to qualify the Fair Sex for ſuch Conduct, leſt Mothers by their bad Examples, ſhould ſow and cultivate in the young Minds of their Children, the Seeds of Imperfection and Vice; which afterwards it is very difficult to root out.

Vanity, Pride, and Luxury, being the three Paſſions moſt natural to the Fair Sex, and which ſeem to be born with them; and thoſe Paſſions growing ſtill ſtronger and ſtronger, either becauſe they are authorized by the Charms natural to them, or by the great Indulgency, Complaiſance, and Deference, which almoſt the whole Creation pay them; thoſe Paſſions muſt be checked at firſt, for when once they have gain'd a certain Aſcendant over their Mind, they render the Fair Sex as inſupportable, as otherwiſe they would be charming and amiable.

A beautiful young Lady, muſt learn from her Infancy, that thoſe natural Charms ſhe has received from the munificent Hand of her divine Creator (and which make her appear as one of the moſt perfect Pieces of Workmanſhip of the whole Creation) were not beſtow'd on her with no other Deſign than to render her the Admiration of Mankind; ſince a fine Statue has the ſame Advantages, or rather greater, becauſe the Beauty of a Statue is a laſting one, whereas that of a Woman fades in an Inſtant like a Flower, or vaniſhes like a Vapour; that therefore the Charms of her Body, ſhould be ſupported and heightened by thoſe of her Mind, ſince when thoſe are vaniſhed, theſe remain, and cauſe then rather a greater Admiration, and claim a ſtill greater Reſpect, than when united together; for our Eyes being no longer dimm'd by the too great Radiancy of thoſe external Charms, our then unprejudiced Mind conceives the eaſier the real Value of thoſe ſolid Ones of the Soul, which are ſeldom ſubject to any Viciſſitude.

Thoſe Charms which ſhould adorn a Woman's Mind, are in ſome Meaſure, different from thoſe which embelliſh a Man; for it is not expected that a Woman ſhould be a profound Theologian, or a Philoſopher, or a Poet, an Hiſtorian, a Politician, *&c.* but that ſhe ſhould be modeſt without Affectation, religious without Hypocriſy, diſcreet without Diſſimulation: That while yet under the Conduct of her Parents, ſhe ſhould behave towards them with all the Deference and Reſpect, which both Laws, divine and human, claim from her for them; ſince acting otherwiſe, is a Crime puniſhable with the greateſt Severity, both in this World and the World to come. And that in the State of Matrimony, her principal Care muſt be to pleaſe her Huſband, and the *Education* of her Children; not to ſpend his Fortune in Extravagancy and Luxury, and leave the *Education* of her Children, to whom will be pleas'd to take Care of it; which Diſorders proceed often from a bad *Education*: for a young Lady, having been brought up from her Cradle to mind nothing but her Pleaſure, and having been indulged by her Parents in all that could flatter her favourite Paſſions, imagines eaſily that ſhe is born for nothing elſe; and that all that Œconomy, and other Family Cares, which make the chief Occupations of Women of an inferior Rank, is infinitely beneath her's; which in her erroneous Opinion, cannot be otherwiſe maintain'd but by the Splendor of her Equipage, the Magnificency of her Cloaths, which ſhe muſt alter according to her Fancy, *i. e.* as often as ſhe can, in the Sumptuoſity of her Apartments, in Viſiting, Gaming, Rioting, and ſometimes in very criminal Intrigues. Hence thoſe Diſorders in an illuſtrious Houſe, which till then, had been remarkable for a noble Œconomy; hence an immenſe Wealth exhauſted in a very ſhort Time, and a large Eſtate incumber'd with Debts, which a Huſband is forced to contract, to ſupply the Profuſions of his extravagant Wife, and to purchaſe at that dear Rate a Shadow of a domeſtick Peace; hence thoſe Children as debauch'd and as vicious as their Mother; and hence at laſt, the entire Ruin of a whole Family; which could have been avoided, if the Parents of ſuch a Woman, had brought her up from her Infancy in a noble Simplicity in her Cloaths, telling her at the ſame Time, that it is by her Birth and her *Education* ſhe muſt be diſtinguiſhed from the Vulgar, and not by the Magnificence of her Cloaths, ſince ſhe can be rivalled in the one by the Daughter of a rich Scoundrel, but not in the other: That it is a ſcandalous Infatuation to think that a Woman of Quality is not obliged to mind her Family, nor to enter into thoſe Details, indiſpenſibly neceſſary to ſave it from Ruin; ſince by neglecting it, there is more Money ſpent in one Year, than ſhe could have ſaved in five or ſix by her Œconomy.

A young Lady of Quality, who is under the Conduct of her Parents, inſtead of being ſuffered to ſpend her whole Time in Idleneſs, in receiving and returning Viſits, in Gaming, frequenting Opera's, Comedies, Maſquerades, and Aſſemblies, ſhould ſpend the beſt Part of that Time in ſome genteel Occupations ſuitable to her Sex and Rank, and then what remains of it, in thoſe Diverſions, which are no otherwiſe criminal but in the Exceſs. For it is not a Crime for young Ladies to be ſeen once a Month at a Play-Houſe, as often at the Opera, and once or twice a Week at thoſe publick Aſſemblies, whence they are very ſure that Virtue and Modeſty are not baniſhed; but even there they ſhould not be ſeen but in the Company of their Mother, or ſome other Relation or Acquaintance of an approved Virtue; for their being left on thoſe Occaſions to their own Conduct and Diſcretion, is often the Cauſe of thoſe falſe Steps taken by young Ladies, to their own Diſadvantage, and the Diſgrace of an illuſtrious Houſe. Neither are they to be allowed to keep any Company ſuſpected of Coquetry, nor to read any other Books, but thoſe which can inſpire them with Sentiments of Piety, Modeſty, and Virtue.

If theſe Rules were obſerved in the *Education* of Women, we ſhould not ſee ſo much Extravagance and Debauchery among them, nor find ſo many Coquets, Jilts, *&c.* It ſeems that their *Education* conſiſts wholly at preſent, in learning how to diſguiſe well their Paſſions, and hide their vicious Inclinations, in which Art they are ſoon very perfect, and which they practiſe

practise no longer than it has answer'd the End it was designed for, *i. e.* to deceive Men; for that End once obtained, they pull off the Mask, and abandon themselves without Shame or Honour, to all Kinds of Irregularities and Extravagancies, and but too often to the most criminal Debaucheries, to the Oppression of their Family, and the Scandal of their Sex; therefore a Man has often the Unhappiness to marry a *Messilina*, whom he had imagined, when he courted her, a *Lucretia*, and a Devil instead of an Angel he took her for. I don't speak by meer Supposition, for I have seen Women, for whose Meekness, Evenness of Temper, Modesty and Virtue, I thought I could have answered before they were married, who after they were married, became as so many Furies vomited from Hell; so well they knew how to disguise their Passions, that they could have deceived the clearest sighted; but I must confess at the same Time, that they were not Women of Quality, and had no other *Education* but what they had learn'd from their Parents, who having gain'd themselves some Advantages by Deceit and Dissimulation, had presented their Daughters with all the Mysteries of that pernicious Art, supported with a great deal of Vanity, no Fortune, and no other *Education* than that of a Coquet, or a Jilt: What's the more surprising, is, that those Sorts of beggarly Women, are more difficult to please than Ladies of Birth and Fortune; for a Lady of Birth, *Education*, and Fortune, let her be ever so extravagant, may be brought to Reason by a becoming Complaisance, which sooner or later, makes always some Impression on a generous and noble Mind, but these Apes of the Quality are inflexible, and are not to be conquered otherwise than by indulging their Passions; why? because those Passions meeting with no Opposition, either from the Blood or from the Mind (the one being as spurious, as the other is depraved) they have ranged so long uncontrolled, that at last, they are by no Means to be conquer'd.

Whence all these Disorders? From an unwarrantable Pride or Vanity, a Woman of mean Birth hath been *educated* in from her Infancy; had she been *educated* otherwise, and in a Manner suitable to her Condition; had she learned to supply the Want of Fortune, by her Virtues and an honest Industry, had she been made to understand that an extravagant Pride becomes no Body, and much less a Woman who has neither Birth nor Fortune to support it with; that the most sensible Part of Mankind laugh at a Person of her Condition, who attempts to soar above her Sphere; that gay Apparel with which she endeavours to cover her Indigency, serves on the contrary to render it more conspicuous, since it attracts the Eyes of the Publick, and makes them more curious to inquire into her Circumstances, which once discovered, renders her despicable; that what is spent to please her Vanity, would be better applied to procure her some honest Means to supply her Wants: That it would be deceiving herself, to imagine that a Man of Rank and Fortune, can be deceived by so vain an Appearance, unless it be to make her subservient to his Pleasures; and that one of an equal Condition with her, who could have more honourable Designs, would be afraid, was he to take her, to bring Famine into his House; since his whole Industry could hardly supply her Extravagancy in Cloaths, without mentioning her Tea-Table, and all other Superfluities of that Kind.

These serious Considerations, would soon make a young Woman renounce those Thoughts of Pride and Extravagancy, she seemed inclinable to entertain; and inspiring her with Sentiments more agreeable to her Condition, render her worthy for her personal Merit, of what her Birth and Fortune had not intitled her to. In fact, how charming an honest Handicraftman's Daughter would appear in Cloaths made of the Growth of her own Country, and spun with her own Hands; how inviting, if, while her honest and industrious Father is working to maintain her and the rest of his Family, she was seen easing him of Part of his Burden, by taking upon her those domestick Cares, which otherwise, he would be obliged to commit to Servants or Strangers, and perhaps not without putting himself to very great Inconveniencies. How worthy of Admiration and Esteem it would be, to know that she is never seen out of the House of her Parents, but to acquit herself of her religious Duties, or when the Necessity of her Affairs require it, or to visit some Friends as virtuous and innocent as herself; that she is an utter Stranger to all that could corrupt her Heart and debauch her Manners; and that her Modesty suffers by every Thing which has the least Appearance to offend it.

A Woman thus *educated*, is preferable to the most immense Fortune, or rather, she is herself an inestimable Treasure, which exceeds in Worth all that can be found the most precious under the Heavens; and a Man blessed with it, can flatter himself of being in Possession of an anticipated eternal Felicity.

ELEMENTS.

ELEMENT, is defined by *Aristotle (Lib. 3. de Cœlo, c. 1.)* a certain Body, into which the other Bodies are divisible, or resolvable; in which it is contain'd potentially or actually; and which is indivisible of itself: Thus *Water*, *v. g.* is called an *Element*, because, into it, exclusively of the other *Elements*, the mix'd Bodies in which Water is contain'd actually and potentially, are resolved; *actually*, according to the *Entity* or Substance; and *potentially*, according to the Species or visible Appearance; for *Water* cannot be resolved or divided into several Species; for tho' it be extenuated into Vapours, they nevertheless, when the Particles meet again together, are resolved into *Water*.

However it is not very easy to define the Number of those vulgar *Elements*, whereof all Bodies are compounded; for some admit but of an *Element* in the mix'd Bodies, as *Heraclitus*, who reckons but the *Fire*; *Anaximenes*, the *Air*; *Thales Milesius*, the *Water*; and *Pherecides*, the *Earth*; others with *Empedocles*, viz. *Aristotle*, *Hippocrates*, the *Peripateticians*, &c. reckon four, *viz.* the *Fire*, the *Air*, the *Water*, and the *Earth*. This Opinion is refuted in the Person of *Empedocles*, by *Lucretius*, *Lib. de rerum natura*, founded on this Reason, that *Elements* and Principles signify but one and the same Thing, when as *Elements*, as they are taken here, are certainly composed of Principles.

The Chymists, on the contrary, (as we have observed in our Treatise of *Chymistry)* besides the *Earth*, which they call *Caput Mortuum*, and *Water*, called *Phlegma*, introduce Salt, Sulphur, and Mercury, among these *Elements* which enter in the Composition of *Mixts*.

Among this Variety of Sentiments, mine is, that of the four *Elements* of the *Peripateticians*, but three deserve that Name, *viz.* the *Air*, the *Water*, and the *Earth*, which I prove in the following Manner.

An *Element*, as understood here, is a certain sensible Body, whereof are composed, and into which are resolved, all Sorts of *Mixts*, viz. Animals, Vegetables, and Fossils; itself remaining simple in its Species, and without being divisible, into sensible heterogeneous Particles. But there are but three of the four *Elements* of the *Peripateticians*, viz. the *Air*, the *Water*, and the *Earth*, which can be called simple Bodies, in their own Species, whereof are compounded, and into which are resolved, all Sorts of *Mixts*; since, neither pure *Air*, nor

nor pure Water, no more than the Earth separated from all heterogeneous Particles, are divisible into Particles of a different Species; since we have not seen yet that it was either in the Power of Nature, or of Art, to make such a Separation of the *Air*, of the *Water*, or of the *Earth*, as to resolve either of them into other sensible Species: Therefore of the four *Elements* of the *Peripateticians*, there are but three which deserve the Name of *Elements*.

But the *Salt*, *Sulphur*, and *Mercury* of the Chymists is to be ranked among *Elements*, because they are discovered in the first Analysis, or Resolution of the *Mixts*; for though it be but with the greatest Difficulty they are discovered in Minerals, they are easily found in Vegetables and Animals; as Experience confirms it in the burning of green Wood; whence first comes out a Smoak, in which are found a volatile Salt, or saline Spirit, which pricks the Eyes; then some aqueous and ætherial Particles, which are dissipated in the Air. After the Departure of these, the sulphureous or oleous Substance flames; the most subtile Particles thereof, with the saline Spirits, are likewise carried upwards, as is seen in the Vapour, while the *Salt* remains in the Ashes, which is afterwards extracted by Lixiviation; and what remains after the Extraction of the Salt, is called *Earth*, or *Caput Mortuum*. But however, these are not so properly *Elements*, as are the *Air*, the *Water*, and the *Earth*; because they are less simple of their Nature, and some of them can be exchanged into different Species; since there are different Forms of Salts, and different Species of Spirit; and that the Oil changes into a Spirit, and a Spirit into Water.

If it be objected, against my Sentiments, of the Number of *Elements*, that they see no Reason why *Fire* should not be number'd among them; nor why, consequently, there should not be four *Elements*. I'll answer, that *Fire*, at least that we make use of, cannot be call'd an *Element*, whereof the Mixts are compounded; because a Body like our Fire, which consists of Particles of different Species, like the sulphureous and nitrous Particles it is composed of, cannot be called an *Element*; for though there be nitrous Particles mix'd in the *Air*, and saline ones in the *Sea*, neither of them pertain to the Nature of the *Air*, or of the Sea; which cannot be said of the sulphureous and nitrous Particles of the *Fire*, which are absolutely necessary for its Composition.

It may be objected farther, that there must be as many *Elements*, as there are Bodies into which the Mixts can be resolved; and as there are four Sorts of Bodies into which the Mixts can be resolved; for as when, *v. g.* Wood is burnt, its oleaginous and inflammable Particles are changed into *Fire*; the Smoak into *Air* and *Water*; and the Ashes into *Earth*; there must be, consequently, four *Elements*. To which I answer, also, that there must be as many *Elements*, as there are simple Bodies into which the *Mixt* can be resolved; but not as many as there are compounded Bodies into which it can be changed; since *Elements* are simple Bodies in their Species, which compound the *Mixt*, and into which it is resolved; but there are many more Bodies into which, either through the Transposition of the Parts, or the Mutation of the Figure, the *Mixt* can be transformed, or changed; as we see in the Bread, which is changed into Chyle, Blood, and Flesh, which are mix'd Bodies, and not *Elements*. For the Fire into which Wood is converted, is not a Body simple in its Species, but consists of several Parts of different Sorts; and therefore is not considered as the *Element* of the Wood, but as a mix'd Body generated from another mix'd Body.

If it be urged, that there are as many *Elements* as there are Manners to join the four first Qualities together, *viz.* *Heat*, *Cold*, *Humidity* and *Siccity*; and as there are four Manners to join them; for as *Heat* can be compounded with Siccity in *Fire*, and with the Humidity in the Air; likewise *Cold* can be united with Siccity in the *Earth*, and with Humidity in *Water*; and therefore there are four *Elements*.—This Argument is false for several Reasons; first, because *Heat*, *Cold*, *Humidity*, and *Siccity*, are not to be demonstrated the four first Qualities; since they can be deduced from others more simple, *viz.* from the Motion, Figure, Rest and Situation of the Parts: Secondly, it can't be affirmed for certain, that the Qualities attributed to each *Element* are properly its own Qualities; for the *Air*, *v. g.* cannot be call'd humid, but rather *liquid* or fluid; otherwise the Flame could also be called humid: Thirdly, what can hinder Heat from being joined with Cold in a lukewarm Body, and Siccity with Humidity in a soft one; so as there would be then six, instead of four, of those Qualities, there should be likewise six *Elements*. Whence it may be inferr'd, that nothing can be defined with regard to the Number of *Elements*, by their Qualities, or the Conjunction of those Qualities.

Another Objection against my Sentiment, is, that there is a mutual Transmutation between the *Elements* of the *Peripateticians*, viz. that the Water is changed into Air, and Air into Water; which Transmutation, the more those *Elements* are like one another, is the sooner effected; whence the *Elements* which agree in the first Quality, as the *Air* and the *Water* in Humidity, the *Fire* and the *Earth* in Siccity, are easier changed into one another, than those which have none of the first Qualities in common; as the *Fire* and the *Water*, or the *Air* and the *Earth*; for the *Fire* is hot and dry, the *Water* cold and humid, as the *Air* is humid and hot, and the *Water* is dry and cold; but as those Transmutations could not happen, without those *Elements* being compounded of heterogeneous Particles, they must certainly be so; and therefore are properly *Elements*.

To answer this, I'll say that it may be possible for the *Elements* of the *Peripateticians* to be changed into one another; by this last Analysis, *i. e.* by their being resolved into the first Matter, or first Principles, or the insensible Particles whereof they are compounded, but not by their first Analysis; therefore Water can be chang'd into Air, and Earth into Fire, if either the Earth or Fire be resolved into their first Principles, or into the first Matter; for as that first Matter, whether it be the three *Elements* of *Des Cartes*, or the Atoms of *Democritus*, is always of the same Kind, and the sensible Bodies differ only in the Disposition of their Parts; it may be easily inferred hence, that the same Matter existing in either of the *Elements*, may be changed into another *Element*, if the Form of that *Element* can be given to it.—But if we go no further than the first, or most obvious Analysis, it is impossible the *Elements* should be changed into one another, tho' they may appear so to our Senses. Water, for Example, let it ever be so exalted into Vapours, still remains Water; and its Particles retain always the same Nature of Water, tho' they appear to have changed it into an ætherial one: So that if they be united again, they'll soon exhibit a sensible Species of Water; as we experiment in the Rain, which proceeds from a Recoalition of the Vapours which had been exhaled from the Earth: Likewise it is false to say, that the Air is changed into Water in the subterraneous Cavities; for the Air is not really changed into Water, but the Particles of the Humour which run through the hidden Meatus of the Earth; and when several meet together, they are soon conglomerated into Drops, and offer again to our Senses the sensible and natural Species of Water.

This Reasoning is prov'd by Demonstration; for tho' the Air be pressed in the *Pneumatick Gun*, or the *Artificial Fountain*, so as to be condensated, it however always retains the Nature of Air, and is not changed into Water: Which is also confirmed by an Experiment of the celebrated M. *Rohault*; who having left for the Space of three Years a Matrass full of Air, and well sealed, in a Hogshead full of Water, and the Hogshead in a very deep Vault, he never found that the Air had been condensed into Water; whence it is reasonably concluded, that the *Elements* are never changed into one another by the first Analysis, but

but only when they are reduced to their first Principles.

Note, That we must not mistake here the *Elements* for the first Principle of Things, as several Authors have done, since there is a great deal of Difference between them; for as we find by Experience, that all Things cannot indifferently be made of all; that Stone for Instance, and Marble, are not convertible into Flesh, nor are fit to nourish or augment an animal Body; it seems to follow, that all the Variety of Bodies could never arise from the simple Combination of the two Principles, Matter and Form; but only from some infinitely simple Things or Corpuscles, which being variously intermix'd, might constitute all other Bodies. Now those most simple of all Beings, thus formed of the first Determination and Concretion of Principles, are what we properly call *Elements:* So that *Elements* and Principles have this Difference between them, that a Principle, as Matter, is a Kind of incompleat Nature, but an *Element* a perfect and compleat One.

From these general Observations on the corruptible *Elements*, I'll descend into a more exact and particular Detail of every one of them; and though I have not reckoned *Fire* among them, because compos'd of Particles of different Kinds; I'll notwithstanding speak of it first, as well because it is commonly esteemed an *Element*, as also because it is the chief Instrument us'd by Nature and Art, either for the Composition of the *Mixts*, or for their *Analysis*, or Separation. Therefore we must examine what the *Peripateticians*, *Epicureans*, and *Cartesians*, have wrote of its Nature, that we may be the more capable to draw from thence our own Conclusions.

The first who is to inform us of the Sentiment of the *Peripateticians* on this Subject, will be their Author and Prince, *Aristotle*, who, *Lib. 2. de generat. & corrupt. c. 3.* who defines *Fire, a hot and dry Element*, which Definition cannot however help us towards discovering the Nature of *Fire*; for who among the most ignorant and illiterate People, does not know that *Fire* is hot and dry; or excite a Heat within us, and dry the humid Bodies? This wide and insignificant Definition, has left room for Philosophers to exert their Wit to discover in what consisted those two Qualities of *Heat* and *Siccity*, attributed by *Aristotle* to *Fire*.

Therefore, *Gassendi, Sect. 1. Physic. Lib. 6. de qualitat. rer. c. 6.* which is, *de calore & frigore*, and all the *Epicureans*, place the Nature of the *Fire*, in certain small and round Atoms, which being *Mobiles*, are carried away with a very great Celerity, and strike all the Parts, and disperse and incise all Sorts of Bodies. Therefore the *Epicureans* imagine, that the Fire is generated when the igneous Atoms, which were at first dispersed, come together; or the *Fire* is then made *actually*, which before was but *potentially*, *v. g.* when the Atoms of the *Fire*, which were hidden in the Wood, and very distant from one another, are conglomerated together, and sally out in Bands, then they are said to take the Nature and Species of the *Fire*.

The *Epicureans* pretend, that *that* rapid Motion, is natural to the igneous Atoms, so that if they were left at Liberty, and not incarcerated in the Parts of the other Bodies, they would instantly sally out through the easiest Way. Which Idea is contrary to the natural one we have of a Body; since no Author grants to it a natural Propensity to Motion, when once it is at Rest; but it must be mov'd by another Body.

Boerhaave, in a new Course of Experiments and Lectures, expresly on *Fire*, *de igne*, distinguishes *Fire* into two Kinds; as it is in itself called *elementary Fire*, and as it is joined with other Bodies, called *culinary Fire*.

The *pure* and *elementary Fire*, says he, is such as exists in itself; which alone he properly calls *Fire*.

The *common* or *culinary Fire*, is that existing in ignited Bodies, or excited by the former in combustible Matter, the minute Particles whereof, joining with those of the pure *Fire*, constitute pure Flame. This latter, in his Opinion, is improperly called *Fire*, in Regard only a small Part of it is real or pure *Fire*.

The same Author considers the Effects, Nature, Properties, *&c.* of these two different *Fires* in the following Manner; beginning by the *elementary Fire*, which he pretends of itself is imperceptible, and only discovers itself by certain Effects, which it produces in Bodies; which Effects are only learn'd by observing the Changes which arise in those Bodies.

The first Effect, attributed by him to the *elementary Fire*, is *Heat*, which, says he, arises wholly from *Fire*; and in such Manner as that the Measure of Heat is always the Measure of *Fire*; and that of *Fire*, of Heat; so that Heat is inseparable from *Fire*. The second is, *Dilatation* in all solid Bodies, and *Rarefaction* in all Fluids.

He demonstrates both these Effects to be inseparable from Heat, by the following Experiments: An Iron Rod or Bar being heated, increases in all its Dimensions; and the more so, says he, as it is farther and farther heated: Upon exposing it to the Cold again, it contracts and returns successively through all the Degrees of its Dilatation, till it arrives at its first Bulk; being never two Minutes successively of the same Magnitude:

He observes the like in the heaviest of all Bodies, Gold, which when fused, takes up more Space than before; so Mercury, the heaviest of all Fluids, he has known to ascend in a narrow Tube over the Fire, to above thirty Times its Height.

He knows the Laws of this Expansion to be, 1. That the same Degree of Fire rarifies Fluids sooner, and in a greater Degree than it does Solids; that without this the Thermometer would be of no Use; since the Cavity of the Tube would then be dilated in the same Proportion as the Fluid is rarified. 2. That the lighter the Fluid, the more it is dilated by Fire. Thus Air, the lightest of all Fluids, expands the most, and after Air, Spirit of Wine.

Thus, says he, all the Motion in Nature, arises from *Fire* alone, and taking this away, all Things become immoveable. Upon the Absence of only a certain Degree of Fire, all Oils, Fats, Waters, Wines, Ales, Spirits of Wine, Vegetables, Animals, *&c.* become hard, rigid, and inert: And the less the Degree of Fire, the sooner and more violent is this Induration made. Hence if there were the greatest Degree of Cold, and all Fire were absolutely taken away, all Nature would grow into one concrete Body, solid as Gold, and hard as Diamond. But upon the Application of Fire, it would recover its former Mobility. Therefore, concludes he, every Diminution of Fire, is attended with a proportionable Diminution of Motion; and *vice versâ*.

His Sentiment is, that this *Fire* he has here related, needs no Air or Pabulum to sustain or preserve it, for putting some Calx of Tin or Lead, in the exhausted Receiver of an Air-Pump, and applying a Burning-Glass so as the Fæces shall fall on the Calx, the Consequence will be a vehement Dilatation of the Calx, from the Center towards the Circumference, whereby the Receiver will be broke into a thousand Pieces. And if a Quantity of any essential aromatick Oil be poured in *Vacuo*, upon Spirit of Nitre, there will immediately arise a huge Fire, to the great Danger of the By-Standers.

He says, farther, that all the above-mentioned Effects of *elementary Fire*, may be increased divers Ways, *viz.* 1. By Attrition, or a swift Agitation of rubbing of one Body against another, that this is apparent in Solids, that every Body knows that a vehement Attrition of a Flint and Steel, will produce Sparks; so in Fluids, Cream by long churning to separate the Butter, will grow sensibly warm, and a Barometer renders the Effect still more discernable.

The more agitated, says he again, are solid, hard, and elastick Bodies, the more Points of Contract they have: The more intense the Force whereby

 they

they are ſtruck againſt each other, the greater is their Motion; and the quicker the Returns of the Strokes, and the longer continued, the greater is the Heat produced.

Thus a Piece of Spunge rubb'd lightly and for a while againſt another, acquires no ſenſible Heat; but a large heavy Piece of Iron briſkly rubbed againſt another in a cold Seaſon (when Bodies are denſeſt) will preſently acquire an intenſe Heat, ſufficient to fire Sulphur, Gun-powder, or the like; ſo a Knife whetted briſkly on a dry rough Stone, ſhall yield Sparks of Fire; but if Oil or any fat Matter be interpoſed, no ſenſible Heat ſhall ariſe; and the Points of two Needles rubb'd againſt each other ever ſo ſtrongly, or ever ſo long, will never grow warm; as only touching in a few Points.

From thence he infers, 1. That the Globules of the Cruor or red Blood, drove by the Force of the Heart againſt each other, or againſt the Sides of the Arteries, excite more Heat than the Globules of the Serum, or any other Humour in the Animal. 2. That thoſe Parts abounding moſt in theſe Globules thus agitated, as the Heart, Liver, and Head, will be the hotteſt of all others: And the denſer the Blood *cæteris paribus*, the greater the Heat, *&c.* 3. That the quicker the Contractions of the Heart are repeated, the greater will the Heat be.

The ſecond Manner, in his Opinion, of increaſing the Effect of *elementary Fire*, is by throwing a Quantity of moiſt or green Vegetables, cut down while full of Sap into a large Heap, and preſſing them cloſe down; the Reſult of which is, that they grow warm, ſmoke, and break into Flame.

The third Manner is, by the Mixture of certain cold Bodies; thus, Water and Spirit of Wine, firſt warmed, grow much hotter by the Mixture; ſo any of the heavy aromatick Oils, as of Cloves, Cinnamon, Saſſafras, Guaiacum, *&c.* mix'd with Spirit of Nitre, grow exceedingly hot, and burſt forth like Vulcano's, and the ſame may be ſaid of Spirit of Nitre, and Steel-filings.

He ſays, that the like Effect may be had from dry Bodies; thus, pure Sulphur and Steel-filings, well ground and mix'd in equal Quantities, with Water enough to make them into a dry Paſte, and laid an Hour or two any where, even under Ground, will ſmoke and emit Flame; and that with the greater Vehemence as it is more ſtrongly preſs'd down.

The fourth is by Phoſphorus, which is a Kind of Magnet, prepar'd from the Parts of Animals, that imbibes and retains Fire for many Ages.

But in all theſe Manners, ſays he again, it does not appear that any Fire is excited, or generated of what was not Fire before; for if in a ſevere Winter's Day, we rub a Plate of Gold briſkly againſt another, they will both grow hotter and hotter by Degrees, till at length they become Red-hot, and at the Point of melting; and yet all this Time the Plates loſe nothing of their Weight, but ſwell and grow bigger in all their Dimenſions. Hence it follows that the Particles of the Gold are not converted by the Friction into Fire, but the Fire exiſted before; and all the Effect of the Friction, *&c.* is to collect and bring together a Quantity thereof, before diſperſed throughout the Atmoſphere.

In Effect, continues he, there is no making or producing of *Fire de novo*. All we can do, is, of inſenſible, to render it ſenſible, *i. e.* to collect it out of a greater Space into a leſſer, and to direct and determine it to certain Places. The Sun alſo contributes much to the bringing of Fire to light, by Means of his rapid Motion round his Axis; whereby the fiery Particles every where diffuſed, are directed and determined in parallel Lines towards certain Places, where their Effect becomes apparent. Whence it is that we perceive the Fire, when the Sun is above the Horizon; but that when he diſappears, his Impulſe or Preſſion being then taken away, the Fire continues diſperſed at large through the æthereal Space. In Effect, there is no leſs Fire in our Hemiſphere, in the Night-time than by Day, only it wants the proper Determination to make it perceiv'd.

He pretends that this *elementary Fire*, is preſent every where, in all Bodies, all Space, and at all Times, and that in equal Quantities; that go where you will, in the Top of the higheſt Mountain, or deſcend into the loweſt Cavern, whether the Sun ſhines or not; in the coldeſt Winter or moſt ſcorching Summer, by one an other, or all the Means above-mention'd, may *Fire* be collected; and that there is no aſſignable phyſical Point without *Fire*; no Place in Nature, where the Attrition of two Sticks will not render it ſenſible. That ſo long as Fire remains equably, and undetermined in any Place, it does not diſcover itſelf by any Effect. That in the ſevereſt Weather we perceive no Influence or Effect of Fire, when at the ſame Time, being collected by Attrition, it becomes manifeſt. That by changing Fire from its indeterminate State, and impelling it in converging Lines, its Movement is increaſed with the Phænomena of Burning-Glaſſes. But, that how Attrition, crude Vegetables, *&c.* contribute towards altering the Direction, *&c.* as *Fire* does, is not eaſily demonſtrated.

He concludes, that on this *elementary Fire*, and the Effects thereof above-mentioned, depends all Fluidity of Humours, Juices, *&c.* all Vegetation, Putrefaction, Fermentation, animal Heat, *&c.* But that in what Manner ſoever, *Fire* is collected in Bodies, upon a Ceſſation of the collecting Cauſe, it ſoon diſappears again, unleſs it be ſupplied with *Pabulum* or Fuel; and then he calls it a *culinary Fire*.

He means by *Pabulum*, or *Fuel of Fire*, whatever receives and retains *Fire*; and is conſumed, or at leaſt rendered ſenſible thereby; and ſays, with all other Philoſophers, that the only *Pabulum* of *Fire*, in all Nature, is the Oil, Sulphur, or fat Bodies; and that Bodies are only Fuel, on Account of the Oil they contain. That hence, 1. All Vegetables, not too moiſt, nor too dry, afford ſuch a *Pabulum*; particularly thoſe which contain the greateſt Quantity of Oil; as balſamick and reſinous Woods, *&c.* 2. All vegetable and animal Coals, are a proper *Pabulum* for maintaining *Fire*; as being only the Parts of Animals and Vegetables, which have exhaled their Water and Salt, and retained the Oil alone inhering in a black Form in their Earth. 3. All Foſſils, and bituminous Earths, Turfs, *&c.* 4. All Minerals, Sulphur, whether pure or joined with Earth, Stone, or Metals, as Pit-coal, *&c.* 5. The Fat and Dung of Animals. And, 6. Several Productions of Chymiſtry.

This *Fire*, ſays he, which burns combuſtible Bodies, requires *Air* to ſuſtain it, which taken away, the *Fire* is immediately diſſipated, as appears from the Experiments in *Vacuo*; and yet the *Fire* does not immediately bear or endure the *Air*, but always repels it; and by that Means forms a Kind of Vault, or aerial Furnace all round; which by its Weight and the Preſſure of the incumbent Air, acts on all the Particles or Corpuſcles that would make their Way through it; and thus retains the *Fire*, and applies it to the combuſtible Matter.

He pretends that the heavier the *Air*, the more vehement the *Fire*; and that accordingly, in ſull cold Weather, we obſerve the *Fire* to act with more Violence than in warm Weather: But he queſtions whether the *Air* retains *Fire* by its Weight alone (which *Water* itſelf would do) and whether its Elaſticity does not contribute ſomething thereto; as alſo whether there be not ſome farther Property in the *Air*, that has a Share in it.

He informs us, that this *Fire* in burning a combuſtible Matter affords a ſhining *Fire*, or a Flame, or both, according to the Diverſity of Fuel; and frequently Smoak, Soot, and Aſhes. That the *ſhining* or *luminous Fire*, ſeems to be elementary *Fire*, attracted towards the Parts of the Sulphur, or Oil, with ſuch Force and Velocity as to move, and ſhake them very violently, whirl them about, divide and attenuate them, and thus render them volatile and ready to be expelled; while, in the mean Time, the Air making its

its Vault all round, restrains and keeps them in, directs them to the Sulphur, and keeps them still collected in their Place or *Pabulum*, till the combustible Matter is diffused all round. That the *Flame* seems to be nothing but a thick Sulphur agitated as before, by elementary *Fire*; so as the *Fire* is driven with a great Motion around the revolving Particles of the Sulphur. That *Soot* seems to be produced when *Fire* and Sulphur cannot break into a Flame; being a Sort of Coal consisting of a thick Sulphur; and an attenuated Oil with Earth and Salt. That *Smoak* seems to be the combustible Matter, when it begins to be relinquished by the elementary *Fire*: For if this *Smoak* be afterwards passed through a Flame, it will itself become a Flame as before. Lastly, that Ashes are the Earth and Salt; which the *Fire* leaves untouched.

He believes that *Fire* may be distinguished into *shining* and *not shining*; because there is *Fire* which does not emit Light, which, says he, is evident from a Piece of Iron taken out of the *Fire* before it be red-hot, which gives yet Fire to Sulphur.

He subdivides *shining Fire* into two Kinds: That which *warms*, as red-hot Iron; and that which does not *warm*, as that observed in putrid Fishes, rotten Wood, *&c.* the Oil whereof beginning to be agitated, and attenuated, produces Light, without any Heat, so far as the Thermometer may be a Judge.

Of *shining*, and at the same Time *warming Fires*, the principal, in his Sentiments, is that of the Sun, as it is called; though whether the *Fire* be really emitted from the Body of the Sun; or whether it be only the common, vague, universal *Fire*, determined by the Sun, he will not pretend to say. He pretends that this solar *Fire*, in calcining certain Bodies, makes some Addition to the Weight thereof. That thus Antimony exposed in the Focus of a burning Glass, will smoak a considerable Time; and the greatest Part of it seems to evaporate in Fumes; but that if tried by the Ballance, it will be found to have gained in Weight. And that if it be again applied in the Focus of a large Glass, it will again emit Fumes; and yet still be increased in Weight.

Besides the solar he admits likewise, of a subterraneous *Fire*, which, he imagines, appears in digging under Ground: For the first Glebe, says he, next to the Surface, is warmed by the Heat of the Sun; and as you go deeper you will find it colder; whence in hot Countries, they have Conservatories of Ice at some Depth under Ground; till arriving at a certain Depth, *viz.* forty or fifty Foot, it begins to grow warmer, so as no Ice can there subsist: And yet at a greater Depth, it is so hot, as to take away Respiration, extinguish Candles, *&c.* And if the Miner will venture further, and carry a Candle along with him, he frequently sets the whole Place in a Flame; the sulphurous Fumes, rendered volatile by the subterraneous *Fire*, catching Flame from the Candle. Whence it appears, concludes he, that there is another Source of *Fire*, or another Sun, in the Bosom of the Earth, which giving Motion and Life to every Thing growing in, or upon the Globe; and even that the Centre of the Earth is meer *Fire*; which *Fire* is likewise argued to be perpetual, from Vulcano's or burning Mountains, which have been known to cast up *Fire* from the earliest Account of Time.

This pompous *Galimatias* of *Boerhaave*, which, the Effects of the *Fire* excepted, leave our Mind, as uncertain as it was on the Existence of a real elementary *Fire*, since it wants Demonstrations as well as satisfactory Proofs to ascertain it, is clearly refuted by the following System.

Des Cartes, *4 part. princip. num.* 80. has determined, from the Beginning of the World, its *subtile Matter*, or first *Element*, to a perpetual and uninterrupted Motion, which Hypothesis appears to me the more commodious, and more agreeable to Reason.

Therefore where the Matter of the first *Element* glides through the *Meatus* of the Earth in a Quantity sufficient to exert its Strength, and to usher along with it Particles of the third *Element*, then it is said to excite *Fire*, which forcing every where, the second *Element*, produces Light, and consume or destroys all it meets with in its Passage. For as the same *Des Cartes* observes, in the same Place above-quoted, as the Matter of the third *Element* floating in the second *Element*, forms the *Air*; likewise the same Matter, being carried away by the first *Element*, produces *Fire*.

This Sentiment of *Des Cartes*, borrows a very great Appearance of Truth from the Motions which happen in Cannons, and other such Instruments; for neither the *Air*, nor any other sensible Matter, can cause so much Devastation, or throw down so strongly built Edifices, as *Fire* does: Whence we must imagine certain insensible Matter agitated by an extraordinary and very rapid Motion, to which are to be attributed all those Effects as to their primary Cause. But as that Matter is of an incredible Thinness and Rapidity, and runs easily through the smallest Pores of all Bodies, if we conceive it to move alone, it produces no sensible Effect; but where it ushers along with it, and puts in Motion the harder Parts of the third *Element*, then running with an extraordinary Impetuosity against the Bodies it encounters, it shakes them so violently, that it destroys the Symmetry of their Parts, and separates them from one another.

This Reasoning is well enough confirmed by the Example of running Water; for if the Water alone falls within the Arches of a Bridge, its being very liquid, and consisting of very small Particles, it does no Prejudice to the Bridge; but if it carries along with a rapid Course, a Beam, or a Vessel, or some very large Flakes of Ice, then it shakes so violently the Bridge, that it utterly destroys it.

Therefore the Nature of *Fire* consists in two Things, according to *Des Cartes*, first, in the *subtile Matter*, which from the Beginning has always been agitated with a very violent Motion; secondly, in the Matter of the third *Element*, which floats in the first *Element*, and is carried away by it with an extraordinary Rapidity. Which Sentiment of *Des Cartes* I'll follow, provided he grants that the Particles of the third *Element* are sulphurous and nitrous; therefore:

The Sentiments of *Des Cartes* on *Fire*, are credible; provided he understands by the coarser Particles of the third *Element*, the nitrous and sulphurous Particles; or, which is the same, that *Fire* consists of sulphurous and nitrous Particles, agitated by the subtile Matter; since *Fire* seems to consist of those Particles which are the most proper, to explain its Nature, Properties and Effects; and that the sulphurous and nitrous Particles, agitated by the subtile Matter, are the most proper for those Purposes, is evident from the following Inductions.

First, It is absolutely necessary that the sulphurous and nitrous Particles should borrow the Rapidity of their Motion, from the incredible ones of the subtile Matter, to produce those surprizing Effects, admired in Cannons, and other such Instruments; for it is impossible that Motions so quick, and so vehement, should proceed from any where else, but from the extraordinary Rapidity of the subtile Matter; since neither the *Air*, nor any other ambient Body, can produce those Effects.

Secondly, The sulphurous Particles entertain and feed the *Fire*, either because they are very small, and inflammable, or easily agitated by the Matter of the first *Element*; or also, because they contain a great Quantity of volatile Salts, by which they are exploded and exhaled; whence all Bodies entirely destitute of Sulphur and Oil, as Water, Salts, Ashes, *&c.* are never conceived inflammable.

Thirdly, As those sulphurous Particles are too soft, and too flexible, to be capable to resist and break the harder Bodies they encounter with, they must be strengthen'd by the Accession of the solid Particles of the Nitre, which penetrate and destroy the most compact Bodies; hence it happens that the Air is felt and heard to enter, with some Noise, through the Clefts of a Room, where a *Fire* is lighted, to supply that

Fire

Fire with the nitrous Particles it abounds with. It is from thence, also, that lighted Coals in the Pneumatick Machine are extinguished, as soon as the Air has been pumped out.

Therefore *Fire* seems to consist of those Particles of the third *Element*, which are nitrous and sulphureous, and which are agitated by the violent Motion of the first *Element*.

This Proposition is confirmed by several, and very noted Experiments: First, by the Example of Gunpowder, which a Friar of the Order of St. *Francis*, and a great Chymist, called *Bertholdus Shwartus*, a *German*, born at *Fribourg*, is said to have invented, in the fourteenth Century, for the Destruction of the human Race. This Powder is composed of ten Parts of Nitre or Salt-petre, of three of Sulphur, and of five of Coals, pounded and mixed together; where the Particles of that Powder are agitated by the violent Motion of the subtile Matter, it presently takes Fire, and explodes itself with a very great Violence into a larger Volume; and in that Explosion forces out with Impetuosity, either from Guns or Cannon Balls, which, with a great Noise, destroy the greatest Edifices; which could not be done without the violent Motion of the subtile Matter, and the Hardness and Rigidity of the nitrous Particles.

We must observe, that this Powder makes no Noise, but while confin'd within Paper, Guns, Cannons, *&c.* but there is another Sort of Powder, which though fired in open Air, and without being confined, excites likewise a very great Report; and which for that Reason is called *Pulvis fulminans*: This Powder is compos'd of three Parts of Nitre, two of Salt of Tartar, and one of Sulphur: If you put the least Quantity of it in a Spoon, and set it on a Fire, it will have the Report of a Gun.

Secondly, The same Sentiment is also supported by the Example of Wood, which having floated for several Days in Water, where it has reposed its Salts; that Wood being afterwards put in the *Fire*, gives a lesser Heat, than it had done, had it never been put in Water, nor lost its Salts.

Thirdly, There are not only wanted to make *Fire* saline and nitrous Particles, but likewise oleaginous or sulphurous ones: For Nitre alone put in a Crucible, and the Crucible placed on the *Fire*, or exposed to a burning Glass, does not take fire; but if Coals, which are sulphurous, be thrown into the same Crucible, presently the Nitre appears in Flames: From all which, and several other Experiments, we may easily conclude, that the Nature of *Fire* consists in sulphurous and nitrous Particles, agitated by the subtile Matter.

If I be asked why *Des Cartes*'s Sentiment on *Fire* appears to me more probable than that of *Gassendi*? I'll answer, for two Reasons: 1. Because it seems more probable, that there is extant a Matter very subtile, agitated from the Beginning by God himself, and which gives Motion to all the other Bodies, than to imagine a certain natural Propensity to Motion, in the igneous Atoms. 2. If *Fire* is procreated when the Atoms, heretofore dispersed, assemble together, we could not give a very proper Reason why *Fire* could not be drawn from all sorts of Bodies indifferently; for those Atoms would be found in Water or the Earth heated; though it is not to be supposed that *Fire* can be extracted either from Water, or from the Earth, till after these Bodies have been resolved into the first Matter. Besides, it would be very difficult to conceive, how those Atoms could meet in one and the same Place, from the furthermost Parts of an immeasurable Body, to produce *Fire*; for there is not so great a Quantity of them in every Part, as to be in no Need to bring them from the remotest Parts.

It may be objected, that when Lead is calcined, *i. e.* when it is so well dried by the Violence of the *Fire*, as to be reduced into a Powder very much like Chalk, a great Quantity of the sulphurous of its volatile Parts are dissipated; notwithstanding which, the Lead increases in Weight; and that as that Increase cannot proceed from any Thing else but from the igneous Particles intangled in the ramous ones of the Metal, there must be igneous Particles.

To this I'll answer; that the Increase of Weight in calcin'd Lead proceeds from the igneous Particles intangled in the ramous ones of the Lead, *i. e.* from certain substantial *Effluvia*, sallying out from the Fire; but not from those Atoms of the *Epicureans*, which being collected together form the *Fire*.

The Air, Aer, which I place the first of my three *Elements*, is defin'd by *Aristotle*, *Lib.* 2. *De gener. & corrup. c.* 3. a *hot and humid Element*; though he had defin'd it better if he had said, that it was a *liquid Element*; for, in fact, the *Air* is liquid or fluid, and compressible, not hard. It may also be called *dry*, not *humid*; since it dries the moist Bodies, and not moistens the dry ones.

But as this Distinction of *Aristotle* does not render us wiser with regard to the Nature of the *Air*, we could wish that some Body else had been so kind to give us some clearer Explanation of the Nature of the *Air*; for as it does not fall under our Senses, and its Particles are not to be separated or analysed by Chymistry, it follows hence, that we scarcely know any thing of its Nature, but by mere Suppositions.

Des Cartes, 4 *part. Princip. Num.* 45. refers the Particles of the *Air* to the third *Element*; but says, that they are so infinitely small, and so disunited, that they follow easily the Motion of the second *Element* in which they swim; and are by it exploded and dilated: Therefore as *Fire*, according to the same *Des Cartes*, is nothing else but some Particles of the third *Element*, swimming in the first, by which they are violently agitated: Likewise the *Air* and the other Liquors, are nothing but the Particles of the third *Element* floating in the second.

Note, That the modern Philosophers called the *Air* by two different Names; or that they understand it in two different Manners; *viz.* for the *Æther*, or ætherial and celestial Substance, which is not different from the third *Element* of *Des Cartes*; or for the *Elementary Air itself*; which is either pure, or more subtile, as that breathed on the highest Mountains; or impure and coarser, the nearer it approaches the Earth, and the Waters; because then, mixed with the Exhalations of the one, and the Vapours of the other: It is of this *Elementary Air* we design to speak in this Place.

Dr. *Hook*, and some others, will have this *Elementary Air*, to be no other than the Æther itself; or that fine, fluid, active Matter, diffused through the whole Expanse of the celestial Regions: Which coincides with Sir *Isaac Newton*'s *Subtile Medium*, or Spirit. In this View it is supposed a Body *sui generis*, ingenerable, incorruptible, immutable, present in all Places, in all Bodies, *&c.*

Others, considering only its Property of Elasticity, which they account its essential and constituent Character; suppose it mechanically producible; and to be no other than the Matter of other Bodies altered, so as to become permanently elastick. Mr. *Boyle* gives us several Experiments which he made for the Production of Air; taking Production for the obtaining a sensible Quantity thereof, from Bodies wherein it either did not appear at all, or in so great a Plenty. Among the several Ways of doing this, he observes, that the fittest for Practice, are Fermentation, Corrosion, Dissolution, Decomposition; the boiling of Waters and other Fluids, and the mutual Action of Bodies, especially saline ones upon each other. He adds, that various solid and mineral Bodies, unsuspected of Elasticity, being plunged in corrosive unelastick Menstrua, will, by a Communication of their Parts in the Conflict, afford a considerable Quantity of permanently elastick *Air*.

Sir *Isaac Newton* is of the same Sentiment, and says that the Particles of dense, compact, and fixed Substances, cohering by a strong attractive Force, are not separable without a vehement Heat, or perhaps not

not without Fermentation; and ſuch Bodies being at length rarified by ſuch Heat or Fermentation, become true permanent *Air*. Thus, the ſame Author adds, Gun-powder generates *Air* by Exploſion.

We have here, therefore, not only the Materials whereof *Air* ſhould be made, but the Means of doing it; with Regard to which the *Air* is divided into real or permanent, and apparent or tranſient. For all that appears to be *Air*, does not continue ſuch, is evident from the Inſtance of an *Æolipide*; the Water of which being ſufficiently rarified by the Fire, ruſhes out into a ſharp whiſtling Blaſt, perfectly reſembling *Air* while the Motion laſts; but ſoon loſes that Reſemblance, eſpecially in the Cold, and returns by Condenſation into its Original Water: And the ſame may be obſerved of Alcohol of Wine, and other ſubtile and fugitive Spirits raiſed by Diſtillation: Whereas real *Air* is not reducible by any Compreſſion, Condenſation, or the like, into any other Subſtance beſides *Air*.

Water, then, though it may put on an aerial Nature for a while, yet is not capable of perſiſting therein, and the ſame may be ſaid of other Fluids. The farthest they can go is to become a Vapour, which is the Matter of the Fluid rendered much rarer, and put in a briſk Motion. For a Subſtance to become permanent *Air*, it muſt be of a fix'd Kind; otherwiſe it is not capable of undergoing the Alteration neceſſary to be induced in it; but gives way and flies off too ſoon. So that the Difference between permanent and tranſient *Air*, amounts to the ſame as that between Vapour and Exhalation, the one being dry, the other moiſt.

Theſe Authors go a little farther yet, and ſuppoſe this elaſtick Property of *Air*, to depend on the Figure of its Corpuſcles, which they ſuppoſe to be ramous: Some will have them ſo many minute *Flacculi*, reſembling Fleeces of Wool; others conceived them rolled up like Hoops, and curl'd like Wires, or Shavings of Wood, or coiled like the Springs of Watches, and endeavouring to reſtore themſelves by Virtue of their Texture; ſo that to produce *Air*, muſt be to produce ſuch a Figure or Diſpoſition of Parts; and thoſe Bodies only are proper Subjects, which are ſuſceptible of ſuch Diſpoſition; of which Fluids from their Smoothneſs, Roundneſs, and Slipperineſs of their Parts are not.

But Sir *Iſaac Newton* puts the Thing another Way; ſuch a Texture he thinks by no Means ſufficient to account for that vaſt Power of Elaſticity obſerv'd in *Air*, which is capable of diffuſing above a Million of Times more Space than it before poſſeſſed. But as all Bodies are ſhewn to have an attractive and a repelling Power; and as both theſe are ſtronger in Bodies, the denſer, more ſolid, and compact they are; hence it follows, that when by Heat, or any other powerful Agent, the attractive Force is ſurmounted, and the Particles of the Body ſeparated ſo far as to be out of the Sphere of Attraction; the repelling Power commencing thence, makes them recede from each other with a ſtrong Force, proportionable to that wherewith they were before coherent; and thus they become permanent *Air*. Hence, ſays the ſame Author, it is that the Particles of permanent *Air*, are groſſer, and ariſe from denſer Bodies, than thoſe of tranſient *Air*, or Vapour: True *Air* is more ponderous than Vapour, and a moiſt Atmoſphere lighter than a dry one.

But after all, there may be ſtill Reaſon to doubt, whether the Matter thus produced from ſolid Bodies have all the Properties of *Air*; and whether ſuch *Air* be not tranſient, as well as that from humid Ones, though not to that Degree.

Mr. *Boyle* argues, from an Experiment made in the Air-Pump with lighted Match, that thoſe light and ſubtile Fumes into which the Fire itſelf ſhatters dry Bodies, have no ſuch Springs as *Air*; ſince they were unable to hinder the Expanſion of a little *Air* included in a Bladder they ſurrounded. Yet in ſome ſubſequent Experiments by diſſolving Iron, either in Oil of Vitriol and Water, or in Aqua-fortis, a large aerial Bubble was produced, which had a real Spring, ſo as to hinder the ſurrounding Liquor from regaining its Place; and which, by the Application of a warm Hand, readily dilated itſelf like other *Air*, and broke into the Liquor in ſeveral ſucceeding Bubbles; and even through the Liquor into the open *Air*. He farther aſſures us, that he procured a real elaſtick Subſtance from divers other Matters; as Bread, Grapes, Muſt, Ale, Apples, Peas, Beef, *&c.* and ſome Bodies by only burning them in *Vacuo*, particularly Paper, Harts-horn, *&c.* which yet, upon farther Examination, was ſo far from being pure *Air*, that Animals incloſed in it, not only could not reſpire it without Harm; but even died ſooner than in *Vacuo*, where there was nothing like *Air*.

The Members of the Royal Academy of Sciences at *Paris*, have obſerved, that the Property of Elaſticity is ſo far from conſtituting *Air*, that it is rendered more elaſtick by the Admixture of ſome other Matters along with it, than it is in its Purity. Thus from ſome Experiments of M. *de la Hire* at *Paris*, and of M. *Stancari* at *Bologne*, M. *Fontenelle* aſſures us, that *Air* moiſtened with Water, is conſiderably more elaſtick than the dry. But it muſt not be omitted that Dr. *Jurin* explains the Experiments another Way; and endeavours to ſhew that the Concluſion does not neceſſarily follow from them.

My own Sentiment of the *elementary Air*, is, that it is compos'd not of the Vapours of the Sun, or of Fumes, as the *Stoicians* have imagined, but of infinitely ſmaller Particles, or Filaments, which in *Des Cartes*'s Opinion, float in the æthereal Subſtance; that thoſe Particles are of their Nature, and in the Symetry of their Mechaniſm, ſo perfect, and ſo juſtly adapted to the Uſe they were deſigned for from their firſt Configuration, *viz.* the Conſervation of every Individual, that they are no otherwiſe ſubject to Changes or Alterations but by their intimate or ſtrict Union with the groſs Corpuſcles of the ambient Atmoſphere, which retard more or leſs their natural Elaſticity, according as they are nearer the Earth, or farther from it. That the great Number of Experiments which have been made on the *elementary Air*, cannot prove that there are two different Kinds of *Air*, *viz.* the one *permanent*, and the other *tranſient*; but only that it has different Effects, according to the different Kinds of Vapours or Exhalations it is mix'd with; and that the more thoſe Vapours are exalted and rarified by the natural Heat of the Sun, which at the ſame Time ſpur on the Elaſticity of the *Air*, and thereby help it to ſhake off the heavy Burden it is loaded with, the purer is the *Air* we breathe; which is clearly evidenced by the great Difference which is found between the *Air* on Mountains, and other high Places, from that in Valleys, Caves, marſhy Grounds, *&c.* which Mixture of Vapours and Exhalations, with the aerial Particles, makes *Boerhaave* confound the *elementary Air* with them, and miſtakes it for an univerſal Chaos, or Colluvies of all the Kinds of created Bodies.

From this Mixture of Exhalations and Vapours with the aerial Particles (which Mixture is indiſpenſably neceſſary, for the *elementary Air* could never be breathed pure as it is naturally) it is concluded that the three Kingdoms, *viz.* the *Foſſil*, *Animal*, and *Vegetable*, are found in it.

In fact, the whole *foſſil Kingdom* muſt neceſſarily be found in the *Air*, ſince all Kinds of Salts, Sulphurs, Metals, *&c.* are convertible into Fume, and thus capable of being mix'd with the *Air*. Gold itſelf, the moſt fix'd of all natural Bodies, is found to adhere cloſe to the Sulphur in Mines; and thus to be raiſed along with it.

All the Parts of the *animal Kingdom*, muſt alſo be in the *Air*; for beſides the copious Effluvia continually emitted from their Bodies by the vital Heat, in the ordinary Courſe of Perſpiration; by Means whereof an Animal in the Courſe of its Duration, impregnates the *Air* with many Times the Quantity of its own Body; we find that any Animal when dead, being expoſed to the *Air*, is in a little Time carried wholly off, Bones and all. Whence we may alſo very well ſuppoſe, thar aerial Particles muſt neceſſarily ſwim in a vaſt

vast Ocean of excrementitious Matters of Animals.

As to *Vegetables*, nothing of that Class can be supposed wanting; since we know that all Vegetables, by Putrifaction, become volatile; even the earthly or vascular Part, in Time follows the rest.

Of all the *Effluvia* composing this vast Ocean, the Atmosphere; the principal are the Saline, which Authors suppose to be of the nitrous Kind; though there be no Doubt of all Sorts of *Effluvia*, Vitriolick, Aluminous, Sea-Salt, *&c.* Mr. *Boyle* even observes, that there be many compounded Kinds of Salts in the Air which we have not on Earth, arising from different saline Spirits, fortuitously miting and mixing together. Thus the Glass-windows of antient Buildings, are sometimes observed to be corroded, as if they had been Worm-eaten, though none of the Salts above-mentioned have the Faculty of corroding Glass.

The Sulphurs too must make a considerable Article in the *Air*; on account of those many Vulcano's, Grotto's, Caverns, and other Spiracles, chiefly affording that Mineral dispersed through the Globe. And the Associations, Separations, Attrisions, Dissolutions, and other Operations of one Sort of Matter upon another, may be considered as a Source of numerous other neutral or anonimous Bodies unknown to us.

Air, in this general Sense, is one of the most considerable and universal Agents in all Nature; being concerned in the Preservation of Life, and Production of most of the Phænomena relating to our World.

WATER, which is my second *Element*, is defined by Aristotle, *Lib.* 2. *de generat. & corrupt. lib.* 3. a *cold and humid Element*: But this Definition does not explain the Nature of Water, nor can satisfy our Curiosity so as to hinder us from searching it somewhere else.

GASSENDI, *Sect.* 3. *physic. lib.* 6. *de quilitat. rerum. c.* 7. after *Lucretius* and the other *Epicureans*, has established the Nature of Water, and other Liquids, in light and round Particles, which being separated by several Interstices or small Vacuities, obey easily the *Tact*; and as they are lubrick, they flow easily, unless they be retained within Bounds. Thus *Lucretius* explains it, *lib.* 2. *de rer. natura*, *v.* 451. *& sequent.*

Illa quidem debent ex levibus atque rotundis
Esse magis, fluido quæ corpore liquida constant;
Nec retinentur enim inter se glomeramina quæque,
Et procursus item in proclive volubiles extat.

Though the *Epicureans* imagine the Particles of the Fire to be round likewise; they, notwithstanding suppose them a great deal more subtle, and swifter in Fire than in *Water*, because Fire can penetrate all Sorts of Bodies which *Water* cannot do, especially hard Bodies.

The same *Gassendi*, to explain the Nature of *Water* and of other Liquids in a clearer Manner, makes use of the Example of Wheat and of Powder; for as Grains of Wheat, when put in a Heap together, being in no Manner hooked in, can easily be separated, and unless kept back, are soon dispersed; the same can be said of Powder, and the same of *Water*; but with this Difference that the Particles of *Water*, being a great deal smaller, they are not so easily heaped up, as the Grains of Wheat, Powder, *&c.* though the same Author does not suppose them entirely destitute of Extentension, as *Galileus*, who resolves *Water*, not only into Atoms, but likewise into mathematical Points, indivisible and inextended.

Lastly, DES CARTES, 4. *part. princip. num.* 48. is of Opinion, that the Particles of *Water*, are oblong, smooth, light, and flexible; which is also my Sentiment, and which I prove thus:—The minute and insensible Particles of *Water*, are to be supposed to have that Figure, which is the most proper to explain the Phænomena of *Water*; but there is no other Figure than that above-mentioned, *viz.* if it be oblong, smooth, and flexible, to explain the Phænomena of Water; for if they be of that Figure, and lying on one another like Eels, it will follow hence:

1. That they must be fluid, because the minuter they are, the easier they will be continually agitated by the ætherial Substance, or the second *Element*. Whence the Spirit of Wine the Particles thereof are very small, and easily moved by the ætherial Substance, is never hardened into Ice, or frozen: Therefore Fluidity does not consist in the globulous Figure of the Particles, which Figure would not answer, besides, the other Phænomena of *Water*, *viz.* its Virtue of moistening certain Bodies, and of washing Cloaths, *&c.*

2. As the Particles of the *Water* are conceived to lye upon one another, and to touch one another mutually, it follows that *Water* cannot be much pressed; and therefore it is not necessary to give them, for that Purpose, a cubic Figure, as some Authors have done; since that Figure is not at all proper for a liquid and moveable Body, but rather for a solid and hard one. We must however observe here, that *Water* can be a little pressed; for if it be inclosed in a concave leaden Ball, to which a Pipe is adapted, with a Cock; and that Ball be striken with a Hammer, the Cock being opened, the Water will run out; which is a Proof that by striking the Ball, the Water has been pressed.

3. From that Figure of the Particles it appears, why Water is easier resolved into Water than Oil; because the smooth and lubrick Particles of *Water*, fly and quit easier one another, than the ramous ones of *Oil*, which are tied faster together. Whence it is that *Water* is more proper to wash, because it runs easily, and runs through the Pores of the Cloth; whereas Oil, whose Parts are ramous, is more adherent either to itself, or to the other Bodies.

But as the flexible Particles of *Water* are not capable to incise the Sordes, most of them oleaginous and fat, Ashes are mix'd with it in the Lixiviums, which contain much Salt, and from which by the Affusion of *Water*, are drawn the saline Particles, which being rigid and penetrating, divide and incise all the Grease, separate and carries it off of the Cloth. Whence it is found, that Wood-Ashes which have been long in *Water*, whereby they have been divested of all their Salts, are of very little Use in Lixiviums.

We know also by Experience, it is very proper for washing Cloth; for it being composed of a viscous Matter, and a great deal of Salt, it happens, first, that the ramous Particles of the greasy Dirt, are intangled in that viscous Matter, and afterwards, being incised by the Salts, they are carried away by the *Water*.

4. From the same Figure of those aqueous Particles it is easily understood common Salt, put in a Frying-pan, with Oil or melted Butter, and afterwards placed over the Flame, is not dissolved; because the ramous and thin Particles of the Oil or Butter cannot penetrate the Pores of the Salt; but if some *Water* be poured upon it, then its oblong, smooth, and light Particles will penetrate the Salt, and dissolve its Particles.

Therefore it is more likely, that the Particles of the *Water* are oblong, smooth, light, and flexible, than of any other Figure.

Boerhaave denies the Fluidity of the *Water*, and maintains it to be of the chrystaline Kind; since wherever a certain Degree of Fire is wanting to keep it in Fusion (says he) it readily grows into a hard Glebe, under the Denomination of Ice. Mr. *Boyle* is much of the same Sentiment. Ice, he observes, is commonly reputed to be *Water* brought into a preternatural State by Cold: But with regard to the Nature of Things, and setting aside our arbitary Ideas, it might as justly be said, that *Water* is Ice preternaturally thawed by Heat.

Several Authors have imagined that there is no pure *Water* in Nature; and *Boerhaave* argues, that there has been no Expedient found yet, to make it such. That *Rain-Water*, which seems the purest of all those we know of, is replete with infinite Exhalations of all Kinds, which it imbibes from the Air, so that filtrated and distilled a thousand Times there still remain Faeces. Such a Water gathered from the Roofs of Houses, is a Lixivium of Tyles, Slate, or the like; impregnated with

with the Dungs and Fæces of the Animals, Birds, &c. depoſited thereon; and the Exhalations of numerous other Things. That all the *Rain-Water* gathered in Cities, muſt at leaſt be ſaturated with the Smoak of a thouſand Chimneys, and the various Effluvia's of Numbers of Perſons, &c.

Theſe Authors ſupport their Sentiment by pretending, that if we percolate Water through Sand, or ſqueeze it through Pumice, or paſs it through any other Body of the like Kind, you will always have Salt remaining; nor can Diſtillation render it pure; ſince it leaves Air therein, which abounds in Corpuſcles of all Sorts. That the pureſt of all *Waters* we can any way arrive at, is that diſtilled from Snow, gathered in a clear, ſtill pinching Night, in ſome very high Place; taking not but juſt the outer or ſuperficial Part thereof. That by a Number of repeated Diſtillations, the greateſt Part of the Earth and other Fæces may be ſeparated herefrom; and that this is what we muſt be contented to call pure *Water*.

Mr. *Boyle* relates that a Friend of his, by diſtilling a Quantity of *Water* an hundred Times, found at length, that he had got ſix Tenths of the firſt Quantity in Earth: Whence he concludes, that the whole *Water*, by further proſecuting the Operation, may be converted into Earth.

Boerhaave is of a contrary Sentiment, and rather concludes, that (it being impoſſible to remove or pour that *Water* into a Veſſel, without mixing ſome Duſt therewith) the *Water* thus often diſtilled, might acquire ſtill new Earth from the Duſt floating in the Air, and the Inſtruments employed in the Operation. He aſſures us, that after diſtilling ſome very *pure Water* by a gentle Fire, the Space of four Months, it appeared perfectly pure; and yet leaving it to reſt in Veſſels exactly cloſed, it would conceive a ſlender Kind of weedy Matter, ſomewhat like the Stamina of Plants, or the little Tufts of a Mucilage: Yet *Schottus* ſaw *Water* in *Kircher*'s Muſæum, that had been kept in a Veſſel, hermetically ſealed, upwards of fifty Years, yet ſtill remained clear and pure, and ſtood to the ſame Height in the Veſſel as at firſt, without the leaſt Sign of Sediment. *Boerhaave* cannot believe *Schottus*; for he ſays that he is convinced no body ever ſaw a Drop of *pure Water*; that the utmoſt of its Purity known, only amounts to its being free from this or that Sort of Matter; and that it can never, for Inſtance, be quite deprived of Salt; ſince Air will always accompany it, and Air has always Salt.

But all theſe Objections avail nothing againſt *Water*, being one of the vulgar *Elements*; ſince if it was eſſential to the Exiſtence of thoſe *Elements*, that they ſhould be pure, and free of all heterogeneous Bodies, there would be no *Elements*; ſince they all receive more or leſs into their Compoſition, thoſe heterogeneous Particles; and what is the more capable to convince us, that *Water* is really one of the vulgar *Elements*, is, that moſt Authors who have treated of this Subject, imagine that *Water* is diffuſed every where, and preſent in all Places where there is Matter. That not a Body in all Nature but will yield *Water*: That Fire itſelf is not without *Water*. That a ſingle Grain of the moſt fiery Salt, which in a Moment's Time will penetrate through a Man's Hand, readily imbibes half its Weight of *Water*, and melts even in the drieſt Air imaginable. Thus Salt of Tartar placed near the hotteſt Fire, will attract or imbibe *Water*, and, by that Means increaſe conſiderably its Weight, in a ſmall Time: So, in the drieſt Summer's Day a Pewter Veſſel with Ice in it, brought up from ſome cold ſubterraneous Place, into the hotteſt Room, will immediately be covered over with little Drops of *Water*, gathered from the contiguous Air, and condenſed by the Coldneſs of the Ice.

Even dry Bodies afford a plenteous Stock of *Water*. For Oil of Vitriol being expoſed a long Time to a violent Fire to ſeparate all the *Water* from it, as much as poſſible; will afterwards, by only ſtanding a few Minutes in the Air, contract freſh *Water* ſo faſt, as ſoon to afford it as plenteouſly as at firſt. Hartſhorn kept forty Years, and turn'd as hard and dry as any Metal, ſo that if ſtruck againſt a Flint, it will yield Sparks of Fire; yet being put into a Glaſs Veſſel, and diſtilled, will afford one eighth Part of its Quantity of *Water*. Bones, dead and dried twenty-five Years, and thus become almoſt as hard as Iron; yet by Diſtillation, have afforded half their Weight of Water: And the hardeſt Stones, ground and diſtill'd, do always diſcover a Portion thereof.

Though Vipers are eſteemed very hot in Operation, and will in a convenient Air, ſurvive for ſome Days, with the Loſs of their Heads and Hearts, they notwithſtanding abound ſtrongly in Water. Human Blood itſelf, as ſpirituous and elaborate a Liquor as it is reputed, ſo abounds in *Water*, that out of ſeven Ounces and a half, have been drawn, by Diſtillation, near ſix of Phlegm; before ever any of the other Principles began to riſe.

Thales, *Mileſius*, and ſome other Philoſophers, have imagined that all Things were made of *Water*; which Opinion, probably, had its Riſe from the Writings of *Moſes*, where he ſpeaks of the Spirit of God moving upon the Face of the Waters. But Mr. *Boyle* does not conceive the *Water* here mentioned by *Moſes*, as the univerſal Matter, to be our *elementary Water*: We need only ſuppoſe it an agitated Congeries of a great Variety of ſeminal Principles, and of other Corpuſcles fit to be ſubdued, and faſhioned by them; and it may yet be a Body fluid like Water, in Caſe the Corpuſcles it was made up of, were, by the Creator, made ſmall enough, and put into ſuch an actual Motion, as might roll and glide eaſily over one another.

However, *Baſil*, *Valentine*, *Paracelſus*, *Van Helmont*, *Sendivogius*, and others, have maintained the ſame Principle, *viz.* that *Water* is the *elemental* Matter, or *Stamen* of all Things, and ſuffices alone for the Production of all the viſible Creation.

Helmont endeavours to prove this Doctrine from an Experiment, wherein burning a Quantity of Earth till all the Oil was conſumed, and then mixing it up with *Water* to draw out all the Salt, and putting this Earth thus prepared into an earthen Pot, which nothing but Rain-Water could enter; yet a Willow planted therein, grew up to a conſiderable Heighth and Bulk, without any ſenſible Diminution of the Earth; whence he concluded that the *Water* was the only Nutriment of the vegetable Kind, as Vegetables are of the Animal. The ſame Thing is inferr'd by Mr. *Boyle* from a parallel Experiment; and the whole is countenanced by Sir *Iſaac Newton*, who obſerves that *Water* ſtanding a few Days in the open Air, yields a Tincture; which like that of Malt, by ſtanding longer, yields a Sediment and a Spirit, but before Putrefaction is fit Nouriſhment for Animals and Vegetables.

But Dr. *Woodward* ſhews the whole a Miſtake: *Water* containing extraneous Corpuſcles, ſome of theſe, he ſhews, are the proper Matter of Nutrition; the *Water* being ſtill found to afford ſo much the leſs Nouriſhment, the more it is purified by Diſtillation. Thus a Plant in diſtill'd *Water*, will not grow ſo faſt as in *Water* not diſtilled; and if the *Water* be diſtilled three or four Times over, the Plant will ſcarce grow at all, or receive any Nouriſhment from it. So that *Water*, as ſuch, does not ſeem the proper Nutriment of Vegetables, but only the Vehicle thereof, which contains the nutritious Particles, and carries them along with it, through all the Parts of the Plant. Hence, ſays he, a Water-Plant, *v. g.* a *Naſturtium* brought up in a Veſſel of Water, will be found to contain the more Salt and Oil, the muddier the Water is: Whence he concludes, that *Water* nouriſhes the leſs, the more it is purged of its ſaponaceous Salts; that in its pure State, it may ſuffice to extend or ſwell the Parts, but affords no new vegetable Matter.

Helmont, however, carries his Syſtem ſtill farther, and imagines, that all Bodies may be reconverted into *Water*. His *Alkaheſt*, he affirms, adequately reſolves Plants, Animals, and Minerals, into one Liquor; or more, according to their ſeveral internal Differences of Parts; and the *Alkaheſt* being abſtracted from theſe

Liquors in the ſame Weight, and with the ſame Virtues as when it diſſolved them; the Liquors may, by frequent Cohobations from Chalk, or ſome other proper Matter, be totally deprived of their ſeminal Endowments, and return at laſt to their firſt Matter, inſipid *Water*.

Thus much is pretended, that mix'd Bodies do all reſolve by Fire, into Phlegm or *Water*, Oil, Spirit, Salt, and Earth; each of which is found to contain *Water*.

It is ſuppoſed that Spirits, for inſtance, cannot be better repreſented than by Spirit of Wine, which of all others ſeems freeſt from Water; yet *Helmont* affirms, it may be ſo united with *Water*, as to become *Water* itſelf. He adds, that it is materially *Water*, only under a ſulphurous Diſguiſe. According to him, in making *Paracelſus*'s Balſam-Samech, which is nothing but *Sal Tartari* dulcified, by diſtilling Spirit of Wine from it, till the Salt be ſufficiently ſaturated with its Sulphur, and till it ſuffers the Liquor to be drawn off, as ſtrong as it was poured on; when the Salt of Tartar from which it is diſtilled, has retained or deprived it of the ſulphurous Parts of the Spirits of Wine, the reſt, which is incomparably the greateſt Part of the Liquor, will turn to Phlegm. Corroſive Spirits, according to Mr. *Boyle*'s Obſervation, abound in *Water*; which may be obſerved by entangling and ſo fixing their ſaline Parts, as to make them corrode ſome proper Bodies; or elſe by mortifying them with ſome contrary Salt, which will turn them into Phlegm.

And as to Salts, Salt of Tartar well calcined, being laid to liquify in the Air, will depoſite on Earth; and if it be then committed to Diſtillation, will yield a conſiderable Quantity of inſipid *Water*; inſomuch, that if it be urged with a vehement Fire, the Salt will, almoſt, all vaniſh, and nothing ſaline remain, either in *Water* or the Earth. Whence *Helmont* concludes, that all Salts may be converted into *Water*; add that Sea-Salt, recovered from its own acid Spirit, and Oil of Tartar, reſolves into *Water*, as much as into Oil of Tartar.

Laſtly, Oils run in great Meaſure into *Water*; and it is probable, as they pretend, that it may be converted wholly into the ſame.

My own Sentiment on this Subject, is entirely different from either of theſe Authors; for I neither believe with *Baſil*, *Valentine*, *Van Helmont*, *Newton*, &c. that *Water* is the common Matter of all Bodies; nor with Mr. *Boyle*, that all Bodies, indifferently, can be reſolved into *Water*; nor with Dr. *Woodward*, that *Water* ſerves as a Vehicle for the nutritious Juices in Vegetables; which laſt Opinion I have refuted in my Treatiſe of *Botany*. But I imagine, that the ambient Atmoſphere, being compoſed of an infinitely greater Quantity of aqueous Particles than of any other Matter, and the Air we breathe, and which is likewiſe neceſſary for the Support of Vegetables, floating continually in thoſe aqueous Particles, uſhering them along with it, either in Animals, Vegetables, &c. by its perpetual Circulation through the Pores of thoſe different Subſtances, in a greater Quantity than any other Matter; *Water* muſt conſequently be predominant in them, but not ſo as to abſorb all other Subſtances, or metamorphiſe them into its own, otherwiſe none of thoſe Bodies would ever be brought to Perfection, or ſubſiſt long; ſince we ſee by a daily Experience, that thoſe Bodies where *Water* is predominant, either in Animals, Vegetables, &c. are always in a cacochimous State, and inclining toward their Diſſolution.

The EARTH, which is my third *Element*, is defined by *Ariſtotle*, *Lib.* 2, *de generat. & corrupt. c.* 3. *an Element cold and dry:* Which Definition contains the two Qualities of the *Earth*, for in fact it is *cold* and *dry*.

DES CARTES, 4 *part. princip. num.* 1, and 2. compoſes the *Earth* of Particles of the third *Element* wrapp'd in together. *Gaſſendi*, *Sect.* 1, *Phyſic. Lib.* 6, *de qualit. rerum. c.* 7. teaches, with the *Epicureans*, that it conſiſts of hooked Atoms adhering mutually to one another. The one and the other's Opinion, anſwers very well the Idea which we ſhould form to ourſelves, that the *Earth* is compos'd of fix'd and ſolid Particles; but if thoſe Particles be compos'd of hooked Atoms, as the *Epicureans* pretend, or rather of ſmaller Particles, diviſible *in indefinitum*, as *Des Cartes* imagines, is what cannot be eaſily determined.

Rohault is of *Des Cartes*'s Sentiment, that the *Earth* is compoſed of Particles of the third *Element*, which are no otherwiſe different, ſays he, from thoſe which compoſe the Spots obſerved in the Sun, but in that thoſe which compoſe the *Earth*, are narrower, united and tied together, and therefore compoſe a Body thicker and more compact. And that as thoſe Parts of the third *Element* are of irregular Figures, and therefore capable but of a very irrgular Connection and Compoſition; hence proceed all the Inequalities which we ſee in the *Earth*.

EMBASSADOR.

EMBASSADOR, or AMBASSADOR (from the corrupt *Latin Ambaſciator*, form'd of *Ambactus*, an old Word borrow'd from the *Gauls*, ſignifying Client, Servant, Domeſtick, or Officer) is a publick Miniſter, ſent from one ſovereign Prince, as a Repreſentative of his Perſon, to another, or to ſome great Republick.

EMBASSADORS, are either *Ordinary*, or *Extraordinary*.

EMBASSADOR *in Ordinary*, is he who reſides ſtatedly in the Court of another Prince, to maintain a mutual good Underſtanding, look to the Intereſt of his Maſter, and tranſact ſuch Affairs as may occur. Theſe *Embaſſadors* are but of modern Invention: It is not above 200 Years ago, ſince they were firſt heard of; till then, all *Embaſſadors* were Extraordinary, and retired as ſoon as they had diſpatch'd the Affair they were ſent upon.

EMBASSADOR *Extraordinary*, is he who is ſent to a Prince's Court on ſome particular and emergent Occaſion; as to conclude a Peace, or Marriage; make a Compliment, or the like.

Indeed there is no eſſential Difference between *Ordinary* and *Extraordinary Embaſſadors*, their Errand is all; and they equally enjoy all the Privileges and Prerogatives, which the Laws of Nations decree.

The Wiſdom and Prudence of a Prince, appears in the Choice he is pleas'd to make of his *Embaſſadors* for foreign Courts, for on that Choice depends often the whole Succeſs of his Enterprizes, Negotiations, &c. and from it his Crown receives either an Addition of Luſtre, or its Radiancy ſuffers an Eclipſe.

No other human View or Conſideration, ſhould engage a Prince to prefer his Subject to that eminent Poſt, but the perfect Knowledge he has of his great Capacity, approv'd Fidelity, and Zeal for the Intereſt of his Nation, and the Glory of his Prince; Birth, Fortune, Favour, &c. ought to be ſet aſide, when not ſupported with perſonal Merit, profound Knowledge, and a great Dexterity in the Management of foreign Affairs. It is true, that Birth and Fortune can much contribute towards ſupporting the Honour of the Prince the *Embaſſador* repreſents; but thoſe two Qualities, without Capacity, will never make his Negotiations ſucceed; the Perſon of an *Embaſſador*, the great Figure he makes may be admired, and his illuſtrious Birth reſpected; but his Want of Capacity, though diſguiſed under that pompous Appearance, will

will be despis'd. The Court, such an *Embassador* is sent to, will confess that the Prince could not make Choice of a more illustrious Person, to give a grand Idea to a foreign Nation of his Grandeur and Glory, but will conclude, perhaps, from the Want of Capacity in the Minister, that the Master himself *is not a Solomon.*

Princes often repose themselves in the Choice of their *Embassadors* to foreign Courts, on a *Prime Minister* or Favourite; so that it happens sometimes, that no other Qualities are required in the *Embassador*, but a servile Complaisance, to execute without the least Reluctancy, the Orders of the Minister, and follow blindly his Dictates; so that an *Embassador* is rather too often (at least in this present Age) the Tool of a Minister, or a meer Machine, whereof a Prime Minister, or Favourite, is a Master Spring, than the Representative of a Crown Head. I could even go farther, and say, that sometimes *Embassadors* are but the Bankers, or rather Agents of Ministers, or Favourites, employ'd only to remit to them, the infamous Price they have set at the Honour of the King their Master, and the Interest and Security of his Subjects. And as no Person of Merit and Distinction, would accept of such Employment, it is not surprizing if *Embassies* are so often filled up with Wretches, who are not only a Scandal to their Character, but even to the Country where they are born. It is true, that as they have not a true Notion of the Eminency of their Post, which cannot be supported without vast Expences; a Minister, by sending them, saves and put in his Pocket, half of what he should be obliged to give to another, who would do Honour both to his Prince and to himself.

But is it so necessary then, that an *Embassador* should be a Person of so much Merit? Has he any Thing else to do, but to live splendidly, keep a magnificent Equipage, (*i. e.* a vast Number of Servants in Livery, to crowd behind his Coach when he goes out, and several Sets of beautiful Horses) to appear often at Court, to treat often the Secretaries of States, and other Officers of the Crown; to affect a certain Gravity, and speak in Monosyllables, and with Circumspection, to make People believe that he is afraid to betray his Secret, though, perhaps, at the same Time, he is Master of none; and to be always upon the *qui vive*, lest some other Minister, should in publick Assemblies or Ceremonies, take the Precedency of him?

I must confess, that if these were all the Duties of an *Embassador*, a Person of Merit would scorn the Character; but they are of a quite different Kind, and every one of such Consequence, that he who neglects even the least of them, forfeits his Character and Honour; and if the most essential, his Fidelity to his Prince, and consequently his Life.

I reduce all the Duties of an *Embassador*, to three Chiefs or Articles, *viz.* his Duties to himself as an *Embassador*; his Duties to the Prince, whose Person he has the Honour to represent at a foreign Court; and his Duties to his own Nation.

The Duties of an *Embassador* to himself, and in which his Honour, Credit, and Reputation are chiefly interested, consist in rendring himself worthy of the great Trust reposed in him, by studying with an indefatigable Assiduity, all the most intricate Rules of his Art; that he may be capable to conduct a Negotiation with Prudence and Dexterity, and to avoid being surpriz'd by the captious Evasions, Subterfuges, Ambiguities, and other Crafts of the foreign Ministers he treats with; knowing perfectly well the Genius of those Ministers, their Character, the Motives they are actuated by, what can most influence them, and the real Signification of all the Terms us'd in Negotiations or Treaties; lest through Want of Knowledge, Experience, and Dexterity, he should be led to transact any Thing contrary to his Instructions, against the Glory of his Prince, and the true Interest of his Nation. Which makes me believe, that he should have very well studied all the Negotiations, Treaties, &c. which at different Times, and in different Ages, have been carried on, or concluded between both Nations; make his Remarks upon them, in order to imitate as much as possible, those of his Predecessors, who have carried on a Negotiation with most Dexterity, and to the greatest Advantage; and to avoid the Miscarriages and Blunders of others. He should also perfectly well understand the true Interest of the several Courts of *Europe*; but more particularly of his own, and of those he treats with; that when in Competition, he may not suffer any Incroachments on those of his Prince, in the Treaties he negotiates for him with foreign Princes; nor condescend to any new Pretences, which have not the Sanction of former Treaties; nor suffer that any old and obsolete ones should be started up, which have been decided either in the Field, or in the Cabinet, or at a Congress; though he must do it himself with Resolution and Courage, if he has Orders to do it.

His principal Occupation, is to study the Genius of the Prince he is sent to, and especially that of his Ministers or Favourites; if they be well vers'd or not in Politicks, that he may take all the Advantage he can of their Ignorance, or Want of Capacity; if haughty, that he may behave with a certain becoming and noble Pride, as not to be daunted by their Insolence; if they be perfidious enough to sacrifice the Honour and Glory of their Prince, and the Welfare of their Nation, to their private Interest, that he may not let slip so favourable an Opportunity of procuring some signal Advantages to his Country, by distributing, *a propos*, certain Sums among those voracious Ministers, or avoid, perhaps, a destructive War.

If any very great Difficulty arise, between him and the Ministers he treats with, the Determination thereof may be attended with some great Consequences, he ought never to trust to his own Judgment, but must have the Opinion of his Court, before he can be persuaded to agree that it should be decided.

He must have his Emissaries every where, and spare neither Care nor Money to be informed of all that passes, even in the Cabinet of the Prince if possible; that no Negotiations should be carried on with any other *Embassador* without his knowing it, not only as soon as it begins, but even as soon as such a Thing is propos'd, in order to apprise his Court of it, that they may send him Instructions how to behave in such a Conjuncture.

Affability should be the Characteristick of an *Embassador*; for when People are convinced that every Body has a free Access to him, and that he receives all Sorts of Persons, according to their Rank and Condition, with a great deal of Complaisance, they are more ready to resort to his House, and he thereby receives, often, very useful Informations, which he must take Care to reward, in Proportion to the Advantage he thinks he can make of it, to encourage the Informer to continue in the same Disposition; for the Avarice or Parcimony of *Embassadors*, or other Ministers, is but too often the Cause, that they are as great Strangers to all that passes of any Consequence at the Court where they are *Embassadors* or Ministers, as if they were a thousand Leagues distant from it. For fear of Expences they keep themselves shut up in their Houses, and will even see no Body, unless he understands both to decline his Name, and trace his Genealogy; where as he should be accessible to every Body, since often in the most common Conversation, a publick Minister discovers or learns several Things which may prove beneficial to him; neither can he learn the Genius of a Nation by conversing only with Noblemen or Persons of Distinction, who knowing how to behave with a publick Minister, seldom use that Freedom with him, which is necessary to discover the real Genius of a Person; they even affect often to be as taciturn and circumspect as he is himself, and are always afraid of speaking too much, let them speak ever so little; unless it be in publick Feasts and Entertainments, which an *Embassador* should give often to the Nobility and Gentry, and that in a splendid Manner;

ner; for it is then, when elevated with Wine and Mirth, that we appear such as we are, and set aside all Circumspection and Constraint, to speak freely what we think. Servants should also be entertain'd at the same Time, by those of the *Embassadors*, for as their Masters are not so circumspect in their own Houses, as they are Abroad; and that there are but few Servants, who have not that bad Quality of divulging Abroad, what they hear in their own House; those of an *Embassador* may learn several Things from them, which may be of Service to their Master.

It is a great Disadvantage for a publick Minister, not to understand the Language of the Country he is sent to, for unless he has always his Interpreter by him, which is almost impossible, and which even, is not always expedient (since a Minister is more upon his Guard, when he speaks before a third Person) he loses several very favourable Opportunities, which he would not was he to speak the Language of the Country; besides a Conversation carried on by an Interpreter is not so subject to Mistakes and Blunders, as one without it, for while the Interpreter is interpreting to one what the other said, the other has Time to reflect on what he must say next. Another Inconveniency is, that the Discourse of an *Embassador*, loses often a great deal of its Strength and Energy in the Mouth of an Interpreter, either because the Interpreter does not know how to explain certain Terms, or is afraid to do it. This must be said to the Honour of several *English* Noblemen, who have been sent in *Embassy* to foreign Courts, as the Earls of *Chesterfield*, *Harrington*, *Stair*, &c. that besides their great Capacity, and Dexterity in the Management of publick Affairs, they speak very politely several Languages; and therefore are capable, without an Interpreter, to treat at all the Courts of *Europe*; when as a *French* Minister, for Example, seldom understands any other Language but his own, and is forced to borrow another Tongue to express his Sentiments; especially here in *England*, for although they speak *French* at all the Courts of *Europe*, there are sometimes Ministers, or Secretaries of State, who, like the *French Embassadors*, understand but their own Mother Tongue; therefore if the *Embassador* does not speak that Tongue, he must have Recourse to an Interpreter; and who can answer for the Fidelity and Secrecy of that Interpreter, who is seldom actuated by any other Motives but those of Interest, and often born Subject of a Prince whose Interest is diametrically opposite to those the *Embassador* his Master is obliged to espouse and maintain? Besides it is a Sort of Honour done to a Nation, and a sure Mark of the Esteem a Foreigner has for her, to learn her Language.

Two other Qualities very essential to an *Embassador*, are Liberality and Magnificence; not that I would advise a publick Minister to ruin himself, and his Posterity, to serve a Prince, who sometimes forgets the most signal Services (as did the brave Marquiss *de Trevi*, *Embassador* in *England*, from the late King of *Sardinia*, under the Reign of Queen ANNE of glorious Memory, who after he had impair'd his Fortune, to do Honour to his Prince, during his Embassy, was forced at last to go serve the late King of *Poland*, to avoid being reduced to Beggary in his own Country) but he should spend all he receives from his Court, and not pocket half the Money, as is the Custom of several modern *Embassadors*; who live often with more Parcimony than a private Gentleman, or otherwise contract monstrous Debts, which they never pay, sometimes to the entire Ruin of Tradesmen, and to the Disgrace of their Character, and the Dishonour of the Prince they represent; who should punish with Severity those publick Oppressors, and oblige them besides, to pay those Debts they have contracted in foreign Parts; or pay them himself, if his Minister is not in a Condition to do it.

The Duties of an *Embassador* to his Prince, are very great, and consist chiefly in his Fidelity and Secrecy. In his Fidelity, not only in executing punctually, and with Diligence, his Instructions, and the Orders he receives from his Court, but likewise, in being above any Temptation whatever, either of Advancement, Honour, or Interest; for it is the most infamous Perfidy, and a Crime abhorred and detested by all Nations, even by those who attempt to bribe an *Embassador*, for him to betray, not only the Prince his Master, but likewise a whole Nation (since the Interest, Glory, and Honour of both are inseparable) on any of those Considerations. His Fidelity must be even so scrupulous, as to refuse, or reject with Scorn, the least Gratification or Present from a foreign Prince, which are not authorised by the Custom of Nations, lest thereby, he should contract some Obligations contrary to his Honour; since a publick Minister, who behaves with that Circumspection and Integrity, is admir'd, respected, and even gains the Confidence of those who would have an Inclination to bribe him. As soon as he takes on him the Character of an *Embassador*, he makes the Interest of the Prince he represents, his own; and who but an ignorant and stupid Scoundrel, would be persuaded to betray his own Interests? And who would attempt to persuade him to it, but those who are conscious of his Ignorance, Stupidity, or Knavery? There have been, however, but too often such Ministers, who have carried on that infamous Commerce, of selling the Glory of their Prince, and the Welfare of a whole Nation, for ready Money, with such Craft, that all the while they were treating with the Purchasers, they lulled their Prince asleep in so dangerous a Security, that he could not be awaken'd; till when it had not been much Matter if he had slept for ever. For it is as great a Fault in a Prince, to repose himself entirely on the Fidelity and Integrity of his *Embassador* (unless he knows by a long Experience that he is not to be bribed) as it is to mistrust it too much; though he seldom runs any Risque on that Account, when he employs in his *Embassies*, Persons, who have their Capacity and Experience, illustrated with a noble Birth, and a polite and liberal Education; but what can he expect when he has the Weakness, or despicable Complaisance, to promote to that eminent Post, Scoundrels, who by a Caprice of Fortune, are sprang from a Dunghil, and have neither Merit, Birth, nor Education? Can he reasonably expect, that those who have no Principles of Honour or Honesty, can be actuated by any other Motives, but those of a sordid Interest; or that those who have never been true to any Body, will begin by being true to him, in a Post where there are so many Temptations to make them false?

The Fidelity of an *Embassador*, or other publick Minister, depends in a great Part on his Courage or Resolution; for there are Persons not to be gain'd by the most considerable Presents or greatest Promises, who for Want of Courage or Resolution, could be intimidated by Menaces and ill Usage, especially in *Turkey*; and there is as much Bravery and Greatness of Soul, in an *Embassador*'s remaining faithful to his Prince amidst those Attacks, as there is in a General to behave gallantly in the Field.

A becoming and noble Complaisance, is a Quality essential to an *Embassador*, but too much Meekness is very dangerous, since an easy Temper is almost always imposed upon; the one gives a new Lustre to his Character, and the other eclipses often the Lustre it has already; for it is indispensably necessary to maintain, with a noble and polite Behaviour, the Majesty of the Prince represented by the *Embassador*. Not that I would have an *Embassador*, insolent and haughty, and claim greater Respect, or more Deference than is due to him; or make every Day new Attempts to extend the Grandeur of his Prince, farther than its just Limits; but I would have him so jealous of that Grandeur (which is one of the essential Duties of a publick Minister) as not to suffer by his too great Complaisance, the least Incroachments to be made on it; nor his Prince reviled, or mentioned in Terms unbecoming

becoming his Majesty, even by another Prince, without resenting it. He must even be sensible of the least Affront offered to himself as an *Embassador*, since they reflect on the Prince he represents; avoiding as much as possible putting himself in Compromise with other *Embassadors*, where he thinks he may be exposed to such Affronts; and when he meets with Affronts, he must insist on a Satisfaction, adequate to it, both from the Prince at whose Court he is, and from the Principals of the *Embassador* who has given the Affront; but he must not give Occasion by his bad Conduct to those Affronts, lest thereby he should expose his Court to some very great Inconveniencies; for the Imprudence of *Embassadors* has often caused very great Differences among Princes, and sometimes a bloody War. If the Affront be offered by the Prince, to whom he is sent *Embassador*, or by his Ministers, he must immediately apprise his own Court with it, and abstain from appearing in Publick, till he has received Orders on that Subject, either to ask for Satisfaction, or to quit that Court, which he must never do of his own Head.

An *Embassador* must never reduce his Prince to the Necessity of disapproving his Conduct; and if he does it without Cause (which sometimes happens) he may chance, thereby, to lose his Fortune, but not his Honour; for if he has followed religiously his Instructions, the Disgrace is to those who gave such Instructions, and not to the Person who was charged with them, and whose Duty it was to execute them punctually, tho' perhaps he knew at the same Time, that they were not very agreeable to Honour and Equity: For in not doing it, he had been guilty of a Crime; and in doing it, he cannot be reflected upon as having acted dishonourably, since he is but the Interpreter of his Prince, or of his Ministers.

An *Embassador* must also be very jealous of all the Privileges, Franchises, Immunities, *&c.* granted to him by the Law of Nations, which render all that belong to him sacred and respectable, and his House a Sanctuary, which cannot be violated with Impunity; he is obliged to shew himself sensible to the Insults offered to his Domesticks (when they are not the Aggressors) as if they were offered to himself; and no Prince is to suffer, under any Consideration whatever, that his Subjects should mal-treat an *Embassador*, or his Servants, or assault his House; otherwise he may very justly expect, that his will be used in the same Manner in another Country; and as none but the Rabble are guilty of such Disorders, they should never be suffered to escape unpunished. Neither are those Scurrilities vomited in certain Countries against publick Ministers, to be tolerated; for if the Person of the *Embassador* is despicable, his Character is honourable and claims our Respects. But an *Embassador* ought not to abuse his Privileges, Franchises, *&c.* nor make his House a Den of Thieves, Robbers, or Bankrupts, nor suffer his Servants, under that Pretence, to grow insolent, and contract Debts with a premeditated Design never to pay them.

The Negotiations of an *Embassador* and his Correspondences with his Court cannot be carried on with too much Secrecy; on which depends often the whole Success of a Negotiation; which when it takes Vent, is either thwarted or interrupted, or entirely disappointed by the Ministers of other Princes. Therefore an *Embassador* should always be very cautious whom he intrusts with his Affairs; or rather should never intrust any Body else with them (if possible) but himself and the Ministers he treats with. Not even his own Secretary, if he be not of an approved Fidelity; as for his Dispatches, he should always write those of any Consequence himself, and send them by a Courier of his own; without trusting them to the publick Post, or in the Packet of a Secretary of State. And as Sobriety can much contribute to that Secrecy, an *Embassador* cannot be too much upon his Guard, especially in those publick Feasts he is often invited to, least his Secret should evaporate with the Fumes of the Wine.

It is a gross Error to imagine, that the Secrecy of an *Embassador*, is founded chiefly on Dissimulation and Falshood; two Vices which are contrary even to the Notion we have of an honest Man, much more to the noble Character of an *Embassador*; for as no Body can oblige him to disclose his Secret, he has no Occasion to have Recourse to so scandalous Means to disguise it; and if he cannot speak as he thinks, he ought not to speak at all, nor advance a Falshood, because he is not permitted to say the Truth. Though several *Embassadors* and other publick Ministers, are of a contrary Opinion, and by often repeated Acts have contracted so ill an Habit of Dissembling, that they cannot help doing it, even in the most indifferent Things, which have not the least Relation to their Affairs as publick Ministers; so that it is a common Opinion, that we ought to understand the Words of an *Embassador*, in a Sense quite contrary to his real Meaning, *i. e.* that when he promises something, it is with the Design of never accomplishing his Promise; which in any Body else but a Statesman, would be a very scandalous Character. I don't speak here by Supposition; for, during the several political Transactions I have been engaged in, before I was reduced to the unhappy Condition of an Author, I have met with publick Ministers of that Stamp; and at the same Time pitied the Fate of the Princes who had the Imprudence to employ them; for as they are not to be depended upon, few (but those to whom they are not perfectly known) care to apply to them, and thereby several Opportunities are lost, which Ministers of a fairer Character, had rendered advantageous to the Prince their Master. If a publick Minister has not Prudence and Circumspection enough to keep his Secret without using of Dissimulation or Falshood, it is a Sign of the Weakness of his Understanding; and consequently he is not fit for an Employment of so great a Trust.

The Dissimulation I mean, here, though I seem to distinguish it from Falshood, is nothing else in Reality but Falshood, and Imposture; for there is another Kind of Dissimulation, which, far from being a Vice in an *Embassador*, is, on the contrary, a Quality essential to his Character; such as affecting to rely entirely on the Probity, Sincerity, and Candour of a Minister of State (whom he knows, at the same Time, to want all those Qualities) when he is conscious, that by acting otherwise, and discovering his just Suspicions, it would prove an Obstacle to the Precautions he designs to take, against the bad Consequences the Conduct of such a Minister towards him may be attended with; observing a profound Silence, on some Intrigues carried on to the Prejudice of the Prince his Master, till he has taken the necessary Measures to make them miscarry; when, was he to appear to be acquainted with them, he would lose some signal Advantages; pretending to repose the greatest Confidence, in Persons whom he knows perfectly well to be Emissaries appointed to entrap him; till he finds a favourable Opportunity to convince them effectually, that they have been mistaken in their Man, as well as in their Calculation; and never suspecting apparently those he has the most Reason to suspect. This Sort of Dissimulation is laudable in an *Embassador* or publick Minister, and it is almost impossible to carry on a Negotiation without it; and to it may be adapted this Proverb so common among Politicians, *Nescit regnare; qui nescit dissimulare.*

The Duties of an *Embassador* to his Country, consist in letting slip no Opportunities which can prove advantageous to it; asserting its Rights and Properties, insisting on a Satisfaction adequate to the Injury which may chance to be offered to it by other Nations; and protecting as much as it is in his Power the Subjects of his Prince, whom the Necessity of their Affairs, or Misfortunes oblige to take Sanctuary, or travel in the Country where he is an *Embassador*.

An *Embassador*, or other publick Minister, ought not to neglect any Thing, while in foreign Parts, which can be beneficial to his own Country, either by improving their Customs, or Manners, perfecting their Manufactures, or promoting their Commerce. Which to accomplish, as it is impossible he could be

every where himself, he should always have in his Retinue, Persons of Knowledge, Understanding, and Experience, to frequent the different Places of publick Resort, where there is any Thing to be learned, every one according to his Capacity and Genius, some at Court or in the polite Assemblies, who should make their Remarks, on the Conduct of those who are the most esteemed for their good Manners, Politeness, genteel and noble Behaviour, *&c.* Some among the Learned, where they can make new Discoveries in the Arts and Sciences; *viz.* in Astronomy, Navigation, Geometry, Geography, *&c.* others in the Academies of Painting, Sculpture, Architecture, either Civil, Military or Naval, or in the Houses of the most famous Masters, in any of those liberal Arts. Others among Merchants, to discover, if possible, the new Improvements they have made in Commerce, Navigation, *&c.* others in Docks where Ships are constructed; and others in the Work-shops of the most famous Artificers, in all the Branches of the mechanical Arts. Thus an *Embassador* returns to his own Country like a diligent Bee to its Hive, loaded with all that he could gain in a foreign Climate the most proper to enrich his own; not like those indolent and useless ones, who falsly imagine that they have discharged their Duties, or acquitted themselves of their Employments, when they have been introduced to two or three Audiences of Ceremony, appeared every Day at Court to fill up a Vacancy, like a Cypher; treated, and been treated by the Ministers of State, with whom, perhaps, they have had two or three private Conferences during three or four Years of an *Embassy*, which has been of no other Service to one's Country, than to spend in show a considerable Sum, which had been better applied otherwise.

An *Embassador* ought also to use his best Endeavours to entertain a good Understanding and friendly Correspondence between his Nation and that he is sent to, and take off, if possible, all the national Prejudices which subsist between them, and are ordinarily very ill founded. If they are two trading People, to establish a Commerce, which could prove advantageous to both, deserves likewise the Attention of an *Embassador*; which cannot be done without promoting the Importation of foreign Commodities into his own Country, on Terms as easy and as advantageous to Foreigners, as he will have the Product of his own Country exported into foreign Parts, without affecting any Partiality on either Side.

But the Regard of an *Embassador* for the Welfare of his Country, must not be confined to its Inhabitants, but extend to all his Countrymen found among those People to whom he is sent in *Embassy*, by procuring to them all the Protection granted by the Law of Nations, and not suffering that they should be injured, or prejudiced, either in their Lives, Liberties, or Fortunes; since he is there, in Part, to appear in their Defence, and to have their Grievances redressed, as far as it is consistent with the Laws of the Country: For they are not to protect those who offend against those Laws; though they are authorized to implore the Clemency of the Prince for them, when they are condemned to some Punishment. Let it be said without Flattery, and to the immortal Honour of the *English Embassadors* in foreign Courts; that they will never suffer their Countrymen or Fellow-Subjects, in foreign Parts, to be either distressed, injured, or even punished for any Crime, which is not very heinous, if by any Means they can prevent it; but very few of the publick Ministers of other Nations, follow their laudable Example in this Particular; and among all others the *French* Ministers, signalize themselves by their Inhumanity for their Countrymen in foreign Parts; for they not only refuse them their Assistance, in any Perplexities, where there is nothing wanted but their Credit and Protection, but even that common Relief given to Beggars in the Streets, when reduced to an extreme Poverty. They perpetrate the one out of Barbarity, through Fear of disobliging a Ministry; and the other, through Parcimony or Avarice; though there is always a considerable Sum, allowed by Princes to their *Embassadors*, and by the King of *France* in particular, to relieve their Subjects in foreign Parts. But this Barbarity of the *French* Ministers, so contrary to the natural Genius of the Nation; and to the true Principles of the antient *French* Nobility, is but of a modern Invention: For in former Reigns, as none but illustrious Persons were sent in an *Embassy*, their Palaces was a Place of Refuge for all their Countrymen when in Distress, where they were received with that Humanity, Compassion, and Tenderness, so well becoming a true Nobility, and where they used to find Protection, and Succours of all Kinds; whereas, at present, the barbarous Usage they often meet with from the Servants, by their Master's Orders, make them afraid of approaching the House, the Doors whereof are always shut to Distress and Indigency. It is true, that the Extraction and Education of those Ministers, is often as modern as their Manners; and their Principles as mean as their Figure. They even will not receive several of the Letters sent to them, lest they should be what they call, in their *Cant*, mendicant Letters, but those sent in a publick Manner; for then, if the Letter chance to be a mendicant one, they can refuse to see the Person who comes for an Answer; which they could not do so easily, if the Letter had been presented to them by any Body; or say, with a better Air, when Complaints are made to them of their Unkindness, that they have not received such a Letter. By such scandalous, and unpolitical Conduct, they have miss'd, to my certain Knowledge, receiving several Letters, which had been of some Service to them.

Father *Daniel* observes, that under the antient Kings of *France*, their *Embassies* consisted of a Body or Number of Persons, joined together in Commission, and who composed a kind of Council: Something like which is still retained at Treaties of Peace. Thus the *French Embassy* at *Nimeguen*, for the Peace, consisted of three Plenipotentiaries, that of *Utrecht* of two, *&c.*

At *Athens* the *Embassadors* from foreign Princes and States, mounted the Tribune, or Pulpit, of the publick Orators, and there opened their Commission, and acquainted the People with their Business and Errand: At *Rome*, they were introduced to the Senate, and delivered their Commission to them: Among us, they make their Address immediately and solely to the King.

Athens and *Sparta*, says M. *Tourreil*, when in all their Glory, were never so delighted, as to see and hear a Number of *Embassadors* in their Assemblies, suing for Protection, or Alliance of the one or the other State; it seemed to them the noblest Homage that could be paid them; and that State which received the most *Embassies*, was judged to have the Advantage over the other.

Cicero observes, that the Name of *Embassador* is sacred and inviolable, *non modo inter sociorum jura, sed etiam inter hostium tela incolume versatur.* We read that *David* made War against the *Ammonites* to revenge the Injuries done his *Embassadors*. *Alexander* put the Inhabitants of *Tyre* to the Sword, for having insulted his *Embassadors*; and the Youth of *Rome*, for affronting the *Embassadors* of *Vallona*, were delivered up into their Hands, to be punished at Discretion. The Princes of our Times are not so jealous of the Honour of their *Embassadors*, or rather of their own in the Person of their *Embassadors*. For they seldom take any Notice even of the greatest Affronts offered to them; which is the Cause why an *Embassador* is not so much respected at present, nor his Person so sacred, as it was in past Ages.

We read likewise of *Embassadresses*. *Madame* the Marechale *de Guebriant*, my Grandmother of my Mother's Side, was the first, and perhaps the only Woman sent by any Court in *Europe*, in quality of *Embassadress*. Though the *Countess Coningsmark* was sent by that glorious Prince *Augustus* II. the late King of *Poland*, to *Charles* XII. the late King of *Sweden*; almost in the same Quality, but could not so much as gain an Audience from his *Swedish* Majesty.

Note,

Note, That the *Embassadors* of Kings should never attend at any publick Assemblies, Marriages, Interments, or other Solemnities, unless their Masters have some Interest therein; nor must they go in Mourning, or the like, on any Occasions of their own, by Reason they represent the Person of their Princes, and must conform and keep Pace with them.

Ministers of Princes at foreign Courts, are also often called *Envoys*, and *Residents*.

An ENVOY, is a Person sent purposely to negotiate some particular Affair with a foreign Prince, or Republick.

Envoys, are either *Ordinary*, or *Extraordinary*; both Kinds are under the Protection of the Laws of Nations, and enjoy all the Privileges of *Embassadors*; only differing from them in this, that the same Ceremonies are not perform'd to them at their Audience.

The Ministers sent from the Court of *France*, *England*, &c. to *Genoa*, the Princes of *Germany*, and other petty Princes and States, do not go in Quality of *Embassadors*, but of *Envoys*. And those sent from one great Prince or State to another, as from the Kings of *France*, *England*, &c. to the Emperor, *&c.* when the Affair they go upon is not very solemn and important, have frequently no other Character but of *Envoys*.

Wicfort observes, that the Quality of *Envoy Extraordinary* is very modern, more modern than that of *Resident*; the Ministers invested therewith at first, took on them most of the Airs of *Embassadors*; but they have since been thought otherwise. For in the Year 1639, the Court of *France* made a Declaration, that the Ceremonies of conducting *Envoys Extraordinary* to their Audience, in the King and Queen's Coaches, with divers others, should no longer be practised to *Envoys*. S. *Justiniani* the first *Envoy Extraordinary* from *Venice* after this Regulation, offered to cover in speaking to the King, but it was refused him; and the King of *France* himself declared, that he did not expect his *Envoy Extraordinary* at the Court of *Vienna*, should be regarded any otherwise than an ordinary *Resident*. Since which Time, these two Kinds of Ministers have been treated alike.

RESIDENTS, are a Class of publick Ministers, inferior to *Embassadors* and *Envoys*; who manage the Affairs of a King in the Court of a Prince, or petty State; or the Affairs of a Prince, or petty State, in the Court of a King, or Prince. Thus the King of *England* has *Residents* in the Courts of Electors, and other Princes of *Germany* and *Italy*; at the Republicks of *Genoa* and *Lucca*; and they reciprocally have *Residents* at the Court of *Great Britain*. *Residents*, like all other publick Ministers, are under the Protection of the Law of Nations.

Note, That the Ceremonies practised at the Admission of *Embassadors*, or publick Ministers, to a Hearing, is called Audience; to which they are conducted by a Person of the Court they are sent to, called the Introductor of *Embassadors*, which is a very eminent Post, commonly discharged by a Person of an extraordinary Merit. There are publick Audiences, and private Audiences; first Audiences, and Audiences of Leave. The publick Audiences are always attended with a great deal of Ceremony, and the private ones with very little, or none at all. An *Embassador* is always conducted to his publick Audience, in the King or State's Coaches he is sent to. The last publick Audience *Lewis* XIV. the late King of *France* gave, was to *Mehemet Ri Sabec*, *Embassador* from the unfortunate Sophy of *Persia*, deposed, and sacrilegiously murder'd, by the Usurper *Mereweis*. The King receiv'd him in the great Hall at *Versailles*, setting on a Throne of Silver, rais'd from the Ground by several Steps of the same Metal; having at his Knees, the present King *Lewis* XV. then Dauphin of *France*, and environed with all his Court, each of both Sexes having endeavoured, that Day, to rival one another in Splendor and Magnificence; for one would have imagin'd that both *Mexico* and *Peru*, for Gold and Silver, and all the *Indies*, for Diamonds and other Jewels, had been exhausted, to adorn at that Time the Court of *France*. The King was dressed then in a Suit of plain Crimson Velvet; but the Buttons of the Coat and Waistcoat, were all brilliant Diamonds, valued at 700,000 Pounds Sterling; and the Dauphin, then an Infant, was all covered with Jewels.

In *England*, Audience is given to *Embassadors* in the Presence Chamber, to *Envoys* and *Residents* in a Gallery, Closet, or any Place where the King happens to be. At their Admission, the Way in all Courts, is to make three Bows, after which they cover and sit down; the King first covering and sitting down, and giving them the Sign to put on their Hats. When the King cares not to have them be covered and sit, he continues uncovered himself, and standing all the while, which is taken as a Slight, and an Affront. After the first Audience, it does not look well to be too hasty in demanding another. At *Constantinople*, Ministers usually have Audience of the Grand Vizir; in his Absence the Caimacan admits them to Audience; though they are sometimes introduced to that of the Grand Seignor.

There is also another Kind of Ministers, improperly speaking, called *Consuls*, which are Officers established by Virtue of a Commission from Kings and other Princes, in the Ports and Factories of the *Levant*, on the Coasts of *Africa*, *Barbary*, *Spain*, and other Countries of any considerable Trade; to facilitate and dispatch Business, and protect the Merchants of the Nation. These Commissions are never granted to Persons under the Age of thirty Years. When the *Consulate* is vacant, the most antient of the Deputies of the Nation, are to discharge the Functions thereof, till the Vacancy be filled up by the King, Prince, or State.

The *Consuls* are to keep up a Correspondence with the Ministers of *England*, residing in the Courts whereon their *Consulates* depend. Their Business is to support the Commerce, and the Interest of the Nation; to dispose of the Sums given, and the Presents made to the Lords and Principals of Places, to obtain their Protection, and prevent the Insults of the Natives on the Merchants of the Nation.

EMBROIDERY.

EMBROIDERY, (from the *French Broderie*, of *broder* to *embroider*) is the Art of enriching of a Cloth or Stuff, by working divers Figures thereon, with Needle, and Thread of Gold and Silver; for that done with Silk, Flax, or the like, is not now called *Embroidery*; though antiently and properly, the Word denoted all Kinds of figuring and flourishing.

In fact, there is very little to be admired in an *Embroidery* done only with Thread of Gold, or Silver, but the Richness of the Work; the Beauty whereof consists, in my Sentiment, in its being diversified with Flowers, *&c.* of various Colours, which are the more beautiful, and strike more agreeably the Eye, the better they are shaded, and the more they approach the natural. For an *Embroidery* of this Kind, does not only consist in the different Sorts of Stitches, either

either Single, Crofs, Chain-Stitches, employed therein, but likewife, in the Mixture of the different Colours, ufed to give the different Shades neceffary to perfect the Work, and render it beautiful; in which there is as much Skill as in Painting, and is more difficult in the Execution; for it is a great deal eafier to place the Colours with a Pencil, for Draperies, Carnations, Coloris, *&c.* than with a Needle, though we fee Pieces of *Embroidery* in this Kind, which rival, if not excel the fineft Pieces of Painting. I have feen at the Abby of the *Benedictine* Monks of St. *Vincent*, at *Le Mans*, in *France*, as beautiful for the Hair of the Head, the Coloris, Carnations, Draperies, *&c.* as any of the fineft Pieces of Painting done by the *Titian*, though all done with Silk and a Needle.

Thefe Pieces of *Embroidery*, are done on Silk, each Piece whereof is put in a Frame, as tight as poffible, and the Defign drawn upon it afterwards; though fome draw it before the Silk is framed. After which the Artift fets himfelf to work, with the Piece of Painting, or Print he is to copy, before him; whereby he is to be directed in the Coloris, Carnations, Draperies, Shades, *&c.* beginning always, as in Painting, by the Heads, if there be any Figures, which muft be done as well as all other Carnations, with the flatteft Silk, and in very fmall Stitches.

The Gold or Silver Thread, ufed in thefe Sorts of Works, muft be chofen the beft, and tighteft fpun, otherwife it is fubject to fray, which is a very great Difgrace to the Work.

Though *Tapeftry* is feldom brought under the Article *Embroidery*, nevertheleefs, as I confider it as a Branch of that excellent Art (either practifed with the Needle or on the Loom) and even one of the moft beautiful, I'll place it here, fince it cannot be brought under a more proper Head.

Tapeftry with the Needle, is done upon Canvas, finer or coarfer, according to the Fineneefs or Coarfneefs whereof the Work is intended to be; on which is drawn the Defign of the Work with a *Crayon*; after which, the Artift traces flightly with a worfted Thread, if the Work is to be of Wool, all the Contours, then frames it and fets himfelf to work; which Work confifts in fingle, double, and crofs Stitches.

Tapeftry on the Loom, being more curious, and done with more Expedition, I'll enter into a more particular Detail of its Manufacture; informing firft, the Reader, that there are two Kinds of *Tapeftry*, viz. *Tapeftry* of the *high*, and the *low-warp*; though the Difference is rather in the Manner of working, than in the Work itfelf, which is in Effect the fame in both; only the Loom, and confequently the *Warps*, are differently fituated; thofe of the *low-warp* being placed flat, and parallel to the Horizon; and thofe on the contrary of the *high-warp*, erected perpendicularly.

We muft endeavour to inform ourfelves how both Kinds are work'd, and as *Tapeftry* of the *high-warp* is the moft efteem'd, we'll begin by examining the Loom it is made upon, which is placed perpendicularly, and confifts of four principal Pieces; two long Planks or Cheeks of Wood, and two thick Rollers or Beams. The Planks are fet upright, and the Beams acrofs them, one a-top, and the other at Bottom, a Foot diftance from the Ground. They have each their Trunnions, by which they are fufpended on the Planks, and are turned with Bars. In each Roller is a Groove, from one End to the other, capable of containing a long round Piece of Wood, faftened therein with Hooks; its Ufe is to tie the Ends of the *Warp* to the *Warp*, which is a Kind of Worfted; a twifted woollen Thread is wound on the upper Roller; and the Work as faft as wove, is wound on the lower.

Within Side the Planks, which are feven or eight Foot high, fourteen or fifteen Inches broad, and three or four thick, are Holes pierced from Top to Bottom, in which are put thick Pieces of Iron, with Hooks at one End, ferving to fuftain the Coat-Stave: Thefe Pieces of Iron have alfo Holes pierced, by putting a Pin in which, the Stave is drawn nearer or fet farther off; and thus the Coats, or Threads, are ftretched or loofen'd at Pleafure. The Coat-Stave is about three Inches Diameter, and runs all the Length of the Loom: On this are fixed the Coats or Threads, which make the Threads of the *Warp* crofs each other. It has much the fame Effect here, as the Spring-Stave and Treddles have in the common Looms. The Coats are little Threads faften'd to each Thread of the *Warp*, with a Kind of fliding Knot, which forms a Sort of March or Ring. They ferve to keep the *Warp* open, for the Paffage of Broaches wound with Silks, Woollen, or other Matters ufed in the Piece of *Tapeftry*. Laftly, there are a Number of little Sticks, of different Lengths, but all about an Inch Diameter, which the Workman keeps by him in Bafkets, to ferve to make the Threads of the *Warp* crofs each other, by paffing them a-crofs; and that the Threads thus crofed, may retain their proper Situation, a Pack-Thread is run along the Threads above the Stick.

The Loom thus form'd and mounted with its *Warp*, the firft Thing the Workman does, is to draw on the Threads of this *Warp*, the principal Lines or Strokes of the Defign, to be repefented on the Piece of *Tapeftry*, which is done by applying Cartoons, made from the Painting he intends to copy, to the Side that is to be the wrong Side of the Piece, and then with a Black-Lead Pencil, following and tracing out the Contours thereof, on the Threads of the Right Side; fo that the Strokes appear equally both before and behind. As to the original Defign the Work is to be finifhed by, it is hung up behind the Workman, and wound on a long Staff, from which a Piece is unrolled from Time to Time, as the Work proceeds.

Befides the Loom here defcrib'd, are requir'd a Broach, a Reed, and an Iron Needle, for working the Silk, or Wool of the Hoof within the Threads of the *Warp*. The Broach is of hard Wood, 7 or 8 Inches long, and two-thirds of an Inch thick, ending in a Point, with a little Handle, and ferves as a Shuttle, the Silk, Woollen, Gold or Silver to be us'd in the Work, being wound on it. The Reed or Comb, is alfo of Wood, eight or nine Inches long, and an Inch thick at the Back; whence it ufually grows lefs and lefs, to the Extremity of the Teeth, which are more or lefs apart, according to the great or lefs Degree of Fineneefs of the intended Work. Laftly, the Needle is in Form of a common Needle, only bigger and longer. Its Ufe is to prefs clofe the Wool and Silks, when there is any Line or Colour that does not fit well.

All Things being prepar'd for the Work, and the Workman ready to begin, he places himfelf on the wrong Side the Piece, with his Back towards the Defign; fo that he works as it were blind-fold, feeing nothing of what he does, and being obliged to quit his Poft, and go to the other Side the Loom, whenever he will view and examine the Piece, to correct it with his preffing Needle. To put any Silk, Woollen, *&c.* in the *Warp*, he firft turns and looks at his Defign; then taking a Broach full of the proper Colour, he places it among the Threads of the *Warp*, which he brings acrofs each other with his Fingers, by Means of the Coats or Threads faftened to the Staff, which he repeats every Time he changes his Colours. The Silk or Wool being placed, he beats it with his Reed or Comb, and when he has thus wrought in feveral Rows over each other, he goes to fee the Effect they have; in order to reform the Contours with his Needle, if there be Occafion. As the Work advances, they roll it up on the lower Beam, and unroll as much *Warp* from the upper Beam, as fuffices them to continue the Piece; the like they do of the Defign behind them. When the Pieces are wide, feveral Workmen may be employ'd at once.

Note, That the *high-warp Tapeftry*, goes on much flower than the *low-warp*, and takes almoft double the Time and Trouble. And that all the Difference the Eye can obferve between the two Kinds, confifts in this, that in the *low-warp* there is a red Fillet, about one twelfth of an Inch broad, running

ning on each Side from Top to Bottom, which is wanting in the *high-warp*.

The Loom, or Frame, on which the *low-warp Tapestry* is worked, is much like that of the Weavers: The principal Parts thereof are two strong Pieces of Wood, forming the Sides of the Loom, and bearing a Beam or Roller at each End: They are sustained at Bottom with other strong Pieces of Wood, in manner of Tressels; and to keep them the firmer, are likewise fastened to the Floor with a Kind of Buttresses, which prevent any shaking, tho' there are sometimes four or five Workmen leaning on the Fore-Beam at once. The Rollers have each their Trunnions, by which they are sustained: They are turned by large Iron Pins, three Foot long. Along each Beam runs a Groove, wherein is placed the Wich, a Piece of Wood of about two Inches Diameter, and almost the Length of the Roller: This Piece fills the Groove entirely, and is fastened therein from Space to Space by wooden Pins; to the two Wiches are fastened the two Extremities of the *Warp*, which is wound on the further Roller; and the Work, as it advances, on the nearer. Across the two Sides, almost in the middle of the Loom, passes a wooden Bar, which sustains little Pieces of Wood, not unlike the Beam of a Ballance: To these Pieces are fastened Strings, which bear certain Spring-Staves, wherewith the Workman, by Means of two Treddles under the Loom whereon he sets his Feet, gives a Motion to the Coats, and makes the Threads of the *Warp* rise and fall alternately. Each Loom has more or fewer of these Spring-Staves, and each Staff more or fewer Coats, as the *Tapestry* consists of more or fewer Threads.

The Design or Painting the Workman is to follow, is placed underneath the *Warp*; where it is sustained, from Space to Space, with Strings, by which the Design is brought nearer the *Warp*.

The Loom being mounted, there are two Instruments us'd in working it, *viz.* the Reed and the Flute. The Flute does the Office of a Weaver's Shuttle: It is made of a hard polished Wood, three or four Lines thick at the Ends, and somewhat more in the middle, and three or four Inches long. On it are wound the Silks, and other Matters to be used as the Woof of the *Tapestry*. The Comb, or Reed, is of Wood or Ivory; it has usually Teeth on both Sides; it is about an Inch thick in the middle, but diminishes each Way to the Extremity of the Teeth: It serves to beat the Threads of the Woof close to each other, as fast as the Workman has passed and placed them with his Flute among the Threads of the *Warp*.

The Workman is seated on a Bench before the Loom, with his Breast against the Beam, only a Cushion or Pillow between them; and in this Posture separating with his Fingers the Threads of the *Warp*, that he may see the Design underneath; and taking a Flute, mounted with the proper Colour, he passes it among the Threads, after he has raised or lower'd them, by Means of the Needles moving the Spring-Staves and Coats. Lastly, to press and close the Threads of the Silk or Yarn, *&c.* thus placed, he strikes each Course (*i. e.* what the Flute leaves in its passing and coming back again) with the Reed.

Note, That the *low-warp* has this in common with the *high-warp*, that all is wrought on the wrong Side; so that the Workman cannot see the right Side of his *Tapestry* till the Piece be finished and taken off his Loom.

Note, also, That the usual Widths of *Tapestries*, are from two Ells to three Ells and a half, *Paris* Measure.

The Invention of *Tapestry* seems to have come from the *Levant*; and what makes this the more probable is, that formerly the Workmen concerned herein were called, at least in *France*, *Sarazins*, or *Sarazinois*. It is supposed that the *English* and *Flemish*, who were the first that excelled therein, might bring the Art with them from some of the Croisades, or Expeditions against the *Sarazens*. Be this as it will, it is certain those two Nations, particularly the *English*, were the first who set on foot this noble and rich Manufacture in *Europe*; now one of the finest Ornaments of Palaces, Basilisks, Churches, *&c.* Hence if they be not allow'd the Inventors, they have, at least, the Glory of being the Restorers of so curious and admirable an Art, as gives a Kind of Life to Wools and Silks, in no Respect inferior to the Painting of the best Masters.

It was late before the *French* applied themselves to *Tapestry*: The first Establishment of that Kind was under *Henry* IV. in the Year 1607, in the *Fauxbourg St. Marcel*; but this fell at the Death of that Prince. Under *Lewis* XIV. the Manufacture was retrieved by the Care and Address of the great M. *Colbert*, at the *Goblins*, (at present called the *Hotel Royal of the Goblins*, in Consequence of an Edict of *Lewis* XIV.) where during his Superintendency, and that of his Successor M. *de Louvois*, the making of *Tapestry* has been practised to a Degree of Perfection, which surpasses what was antiently done by the *Flemish*. The Battles of *Alexander*, the four Seasons, the four Elements, the King's Palaces, and a Series of the principal Actions of the Life of *Lewis* XIV. from the Time of his Marriage to the first Conquest of *Franche Comté*, done from the Designs of M. *le Brun*, Director of the Manufactory of the *Goblins*, are Master Pieces in their Kind. The Manufacture of the *Tapestry* of the *Goblins* subsists yet, with the same Glory, and produces by Intervals some very extraordinary Pieces, not at all inferior to what was done under the Direction of *le Brun*. The late Czar of *Muscovy*, *Peter the Great*, was presented while at *Paris*, in 1718, by the present King, *Lewis* XV. with a Set of Hangings, made at the *Goblins*, esteem'd at 20 or 25000*l.* Sterling; for which, in an Excess of Liberality natural to him, he order'd six *Louis d'Ors* to the Workmen; who, not being used to those Northern Liberalities, had refused the Present, if his Royal Highness the Duke of *Orleans*, then Regent of *France*, had not commanded them to accept it; promising them, at the same Time, to reward them himself; which accordingly he did to their Satisfaction.

Note, That there are diverse Kinds of *Embroidery* in Gold or Silver; as *Embroidery on both Sides*, that which appears on both Sides; only practicable on thin slight Stuffs, as Taffetas, Gawse, Muslins, *&c.* *Embrodery* on the Stamp, where the Figures are very high and prominent, being supported on Wool, Cotton, Hair, *&c.* *Low Embroidery*, where the Figures are low, and without any Enrichment between them.

Note, also, That the Invention of *Embroidery* is attributed to the *Phrygians*, whence the *Latins* call *Embroiderers*, *Phrygiones*.

ENAMELLING.

ENAMELLING, is the Art, or Act of applying *Enamels* of various Colours, on Metals, *&c.*

Enamelling is practised two different Ways, either in *Painting* or *by the Lamp*.

Painting in Enamel, is a Method of painting with metalline

metalline Colours, ground, reduced to Powder, and uſed like other Colours with a Pencil; then fuſed, baked again, and vitrified by Force of Fire.

Enamelling by the Lamp, is laying *Enamel* on Metal, moſt commonly Gold, by the Flame of a *Lamp*; wherein, in lieu of Oil, is put Horſes Greaſe, by ſome called *Caballin Oil.*

Before we can pretend to practiſe theſe two Manners of *Enamelling* we muſt inform ourſelves what *Enamel* is; how it is compoſed, how many different Sorts of *Enamels*; which is that for Painting, and which for *Enamelling by the Lamp.*

Enamel, is a kind of metalline Colour, by the *Latins* called *Encauſtum*; the Baſis thereof is the fineſt Chryſtal Glaſs, made of the beſt Kaly from *Alicant*, and Sand vitrified together: To which are added Tin and Lead in equal Quantities calcined, by a reverbaratory Fire. The different Colours of the *Enamel* are given with metallick or mineral Matters; as with *Æs Uſtum*, for green, *Crocus Martis*, for yellow, *&c.*

There are three Kinds of *Enamels.* The firſt intended for counterfeiting and imitating of precious Stones; and which is either brought from *Venice* and *Holland*, or prepared by the Artiſts themſelves, and which only differs from the other *Enamels* (ſince the Compoſition is the ſame) in the Colour and Tranſparency. The ſecond is for Painting, of which there is of all Sorts of Colours, *viz.* White, Ruddy-Brown, Black, Yellow, Vermillion-Red, Lake-Red, Blue and Amber-Colour: Which ſeven or eight Colours ſerve for the Compoſition of all the reſt; by a diſcreet Mixture or Combination thereof. Thus blue and yellow make green; blue and red, violet, *&c.*

Theſe different Sorts of *Enamels* for Painting are prepared in the following Manner: The White is no otherwiſe different from the common Sort uſed by *Enamellers*, then that it muſt be prepared by grinding and cleanſing it with *Aqua Fortis*: After which it muſt be well waſhed in fair Water, and then pounded afreſh in a Flint Mortar. The Ruddy-Brown is made with Fæces of Vitriol and Salt-petre, or with Iron Ruſt, well ground on an Agat, with Oil of Aſpic. The Black is made of Perigueux well calcined, and ground with Oil of Aſpic; to which is added an equal Quantity of the Goldſmiths, or *Enamellers* Black. The Yellow is the ſame with the Goldſmith's Yellow. The Vermillion-Red is made with Vitriol calcined (at a moderate Fire, for the Space of half an Hour) between two Crucibles luted together. The Lake-Red, is compoſed of fine Gold diſſolved in Aqua Regia. The Diſſolution being compleated, it is put in a Cucurbit with Spring Water and Mercury, at a Sand Heat, for 24 Hours, the Powder remaining at the Bottom of the Cucurbit, when the Water is poured off, is ground up with double its Weight of Flour of Sulphur, and put in a Crucible over a gentle Fire. And when the Sulphur, which takes Fire, is exhaled, the red Powder remaining is ground up with *Rocaille.* The Blue is made of *Lapis Lazuli*, well purified and prepared with Spirit of Wine, and expoſed in a Bottle five or ſix Days to the Rays of the Sun, but it is made much better with *Ultramarine.* The Amber-Colour is made of Copperas calcined.

The third kind of *Enamels* is that uſed by the *Enamellers*, Jewellers and Goldſmiths, on Gold, Silver, and other Metals; chiefly brought (as we have obſerved already) from *Venice*, and *Holland*, in little thin Cakes of different Sizes, uſually four Inches in Diameter and half an Inch thick. Every Cake has the Maker's Mark ſtruck on it with a Puncheon. The moſt uſual Marks are the Name Jeſus, a Syren, Monkey, Sun, *&c.* Thoſe brought from *Venice* are chiefly white, Slate-Colour, Sky-Blue, Carnation, Yellow, Green, and a deep Blue, called falſe Lapis. Theſe ſeven are the Principles of all the others, which ariſe out of the Mixture of theſe: And the White, in particular, is, as it were, the Baſis of all the other ſix principal Colours; for by adding Azure to it, it becomes a Slate-Colour; by adding Copper, and Cyprus Vitriol, it makes a Sky-Blue; by *Perigueux*, a Fleſh-Colour; by Iron-Duſt a Yellow, by Copper-Filings a Green, *&c.*

Having thus found, and prepared all our different Kinds of *Enamels*, we'll ſet ourſelves to work; beginning by the moſt curious Operation, which is *painting in Enamel*: Which though a Branch of the Art of *Painting* in general, is nevertheleſs ſo different from all the other Branches of that divine Art, that I judge it more proper to bring it under this Title of *Enamelling.*

There are two Ways of *painting in Enamel*; the one with clear and tranſparent, and the other with thick and opake Colours. Of the *tranſparent Enamels*, the hardeſt are the beſt; though there is a Difference even among theſe; ſome loſing their Colour in the Fire, and the others retaining it. As to the Reds they are only red by Accident, being only yellow when made and applied on the Gold; and becoming red in the Furnace. The beſt *tranſparent Reds* are thoſe made of calcined Copper Iron-Ruſt, Orpiment and calcined Gold, melted with due Proportion of Sand and Salt of Glaſs. Theſe *tranſparent Enamels*, before they are uſed, muſt be ground up only with Water.

Though *painting in Enamel* be done on Plates of *Metals*, it muſt be obſerved however, that all Metals will not equally admit of both Kinds of *Enamels*, *viz.* the tranſparent and opake. Copper, for Inſtance, which bears all the opake Colours, will not bear the tranſparent Ones; but to employ theſe latter (*viz.* the tranſparent) we muſt firſt cover the Copper-plate with a Lay, or Couch of black *Enamel*, over which we lay a Silver Leaf, and on this apply the other ſuitable Colours, that is, the Colours or *Enamels*, proper for Silver, which are Purple, Azure, and Aqua Marina; ſince it does not allow of all Kinds of Colours. Neither are Copper, and Silver, very proper Metals to paint in *Enamel*, in Perfection; for Copper, beſides that it emits a Fume which tarniſhes the Colours, is apt to ſcale and crackle; and Silver turns the Whites yellow. Therefore Gold, which receives all the Kinds of *Enamels* and Colours, both opake and tranſparent, perfectly well, is the beſt Metal for this Operation. Even of this none but the fineſt muſt be uſed; for the tranſparent Colours be laid on a baſe Gold, grow dim and livid; there being a Kind of Smoak that ſettles on it, not unlike black Lead.

To prepare a Gold Plate or any other Metals, for *painting in Enamel*, it muſt be made a little hollow on one Side, and raiſed on the other, either in a circular or oval Manner, to prevent the Gold's fretting by the Fire, and making the Colours crack and fly; nor muſt it be made too thick. Some border or edge the Plate with a Rim to keep the Colours aſunder, though we have ſeen Pieces laid on contiguous, and without any Partition; which is very difficult to practiſe, by reaſon the tranſparent Colours, in melting, are apt to run into each other; eſpecially in the ſmaller Works.

The Plate being hammer'd very evenly throughout, a white *Enamel* muſt be apply'd on both Sides, tho' the Deſign be only to paint on one; which is done to prevent any ſwelling and warping by the Fire; for otherwiſe in large Pieces, and eſpecially if the Colours be laid on any thing unequally, they are apt to riſe up in Puffs and Bliſters: Now this firſt Lay, which is white, remaining ſmooth and uniform, ſerves as a Ground for all the other Colours.

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The Method of Painting with opake and thick *Enamels*, is far preferable to that of Painting with transparent ones; since it is in opake Colours, we have all our fine modern Pieces of *Enamels*; particularly those curious ones in Gold, representing Portraits to as much Perfection, as the best Painting in Oil, and even some History Pieces; with this great Advantage, that their Beauty and Lustre never decays, being equally secure from Injuries of Time and Weather. We are indebted for it to the *French*, nothing of the Kind having been attempted, before the Year 1630; when *Jean Toutin*, a Goldsmith of *Chateaudan*, and a great Master in the common Way of Painting with transparent *Enamel*, first apply'd himself to find a Way to use thick Colours of different *Teints*, which should melt with Fire, yet retain their Lustre, Purity, *&c.* He succeeded in his Attempt, and having got the Secret, communicated it to his Fellow Artists, who in their Turn contributed to the bringing it to Perfection: The first who distinguished himself, was *Dubiè*, a Goldsmith, who wrought in the Galleries of the *Louvre*. After him came *Morliere*, a Native of *Orleans*, who applied himself chiefly to the Painting on Rings and Watch Cases. His Disciple *Robert Vauquer* of *Blois*, exceeded them all, both in his Designs and Colours. After him *Pierre Chartier* of *Blois*, took himself to the Painting of Flowers, wherein he succeeded to Admiration.

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The Art of Painting with transparent *Enamel*, tho' not so perfect nor so beautiful, is much more antient, and appears to have been first practised on earthen, or Potters-Ware. As early as the Age of *Porsenna* King of *Tuscany*, we hear of beautiful Vases made in his Territories, *enamelled* with various Figures; though far short of those afterwards made at *Firenza*, and *Castel Durante*, in the Dutchy of *Urbino*, in the Time of *Raphael*, and *Michael Angelo*. There are still some of those Vases extant in the Cabinets of Antiquaries; in all which, the Design or Drawing of the Figures, is much better than the Colouring. For they were at that Time only acquainted with two Colours, *viz.* black and white, either for earthen or metal Work. In the Time of *Francis* I. King of *France*, the Art was retrieved in our Country, particularly at *Limoges*, where there were produced Abundance of very valuable Pieces, in the Manner of the Antients, that are well perform'd as to the Draughts, and the clear obscure, chiefly in two Colours.

The other Manner of *Enamelling*, is that *by the Lamp*; which to perform, we must provide a Lamp of Copper or Tin, consisting of two Parts, *viz.* the Box and the Lamp; in the Lamp, which is a Kind of flat Oval, out of which rises the Wick, is put the Oil; and the Box serves to receive it, when by the Ebullition occasioned by the intense Heat, it is scattered abroad. The Oil us'd in this Lamp is Horse's Grease, otherwise called *Caballin Oil*.

This Lamp, or several more, when there are several Artists at Work (for each Artist must have his Lamp) are placed on a Table of a proper Height, under which, about the Middle of its Height, is a double Bellows, like those of an Organ, which one of the Workmen raises and falls with his Foot, to increase and quicken the Flame of the Lamp, which is by such Means excited to a Degree of Vehemence almost incredible. The Wind of the Bellows is conveyed to the Lamps, through a Tube of Glass placed before each Lamp, and adapted to Grooves cut along the Thickness of the Table, and covered with Parchment. And that the *Enamellers* may not be incommoded by the Heat of the Lamp, each Tube is covered, at about six Inches distance, with a Piece of Tin, called a Fan, fix'd in a Hole of the Table. But in Works that do not take up much Time, *Enamellers* content themselves with a Glass Blow-Pipe, to heighten the Flame of the Lamp.

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The Cake of *Enamel*, by its being applied to the Flame of the Lamp, may be drawn out into Threads so inconceivably fine, as to make artificial Plumes of Feathers. In this Operation two Workmen are employed, the first holds one End of the Cake of *Enamel* over the Flame of the Lamp, and when the Heat has soften'd it, a second Operator applies a Glass Hook to the Metal thus in Fusion, and withdrawing the Hook again, it brings with it a Thread of *Enamel* which still adheres to the Mass. Then fitting his Hook on the Circumference of a Wheel, about two Feet and a half in Diameter, he turns the Wheel as fast as he pleases; when drawing out the Threads, winds it on its Rim, till after a certain Number of Revolutions, it is covered with a Skane of *enamel Thread*.

The Mass in Fusion over the Lamp diminishes insensibly, being wound out, as it were, like a Pelatoon or Clue upon the Wheel; and the Parts, as they recede from the Flame, cooling, become more coherent with those next to them, and this by Degrees: The Parts nearest the Fire are always the least coherent, and of Consequence must give Way to the Effort the rest make to draw them towards the Wheel. The Circumference of these Threads is usually a flat Oval, being three or four Times as broad as thick. Some of them scarce seem bigger than the Thread of a Silk-Worm, and are flexible to a Miracle. If the two Ends of such Threads be knotted together, they may be drawn and bent, till the Aperture or Space, in the

metalline Colours, ground, reduced to Powder, and used like other Colours with a Pencil; then fused, baked again, and vitrified by Force of Fire.

Enamelling by the Lamp, is laying *Enamel* on Metal, most commonly Gold, by the Flame of a *Lamp*; wherein, in lieu of Oil, is put Horses Grease, by some called *Caballin Oil.*

Before we can pretend to practise these two Manners of *Enamelling* we must inform ourselves what *Enamel* is; how it is composed, how many different Sorts of *Enamels*; which is that for Painting, and which for *Enamelling by the Lamp.*

Enamel, is a kind of metalline Colour, by the *Latins* called *Encaustum*; the Basis thereof is the finest Chrystal Glass, made of the best Kaly from *Alicant*, and Sand vitrified together: To which are added Tin and Lead in equal Quantities calcined, by a reverbaratory Fire. The different Colours of the *Enamel* are given with metallick or mineral Matters; as with *Æs Ustum*, for green, *Crocus Martis*, for yellow, *&c.*

There are three Kinds of *Enamels.* The first intended for counterfeiting and imitating of precious Stones; and which is either brought from *Venice* and *Holland*, or prepared by the Artists themselves, and which only differs from the other *Enamels* (since the Composition is the same) in the Colour and Transparency. The second is for Painting, of which there is of all Sorts of Colours, *viz.* White, Ruddy-Brown, Black, Yellow, Vermillion-Red, Lake-Red, Blue and Amber-Colour: Which seven or eight Colours serve for the Composition of all the rest; by a discreet Mixture or Combination thereof. Thus blue and yellow make green; blue and red, violet, *&c.*

These different Sorts of *Enamels* for Painting are prepared in the following Manner: The White is no otherwise different from the common Sort used by *Enamellers*, then that it must be prepared by grinding and cleansing it with *Aqua Fortis*: After which it must be well washed in fair Water, and then pounded afresh in a Flint Mortar. The Ruddy-Brown is made with Fæces of Vitriol and Salt-petre, or with Iron Rust, well ground on an Agat, with Oil of Aspic. The Black is made of Perigueux well calcined, and ground with Oil of Aspic; to which is added an equal Quantity of the Goldsmiths, or *Enamellers* Black. The Yellow is the same with the Goldsmith's Yellow. The Vermillion-Red is made with Vitriol calcined (at a moderate Fire, for the Space of half an Hour) between two Crucibles luted together. The Lake-Red, is composed of fine Gold dissolved in Aqua Regia. The Dissolution being compleated, it is put in a Cucurbit with Spring Water and Mercury, at a Sand Heat, for 24 Hours, the Powder remaining at the Bottom of the Cucurbit, when the Water is poured off, is ground up with double its Weight of Flour of Sulphur, and put in a Crucible over a gentle Fire. And when the Sulphur, which takes Fire, is exhaled, the red Powder remaining is ground up with *Rocaille.* The Blue is made of *Lapis Lazuli*, well purified and prepared with Spirit of Wine, and exposed in a Bottle five or six Days to the Rays of the Sun, but it is made much better with *Ultramarine.* The Amber-Colour is made of Copperas calcined.

The third kind of *Enamels* is that used by the *Enamellers*, Jewellers and Goldsmiths, on Gold, Silver, and other Metals; chiefly brought (as we have observed already) from *Venice*, and *Holland*, in little thin Cakes of different Sizes, usually four Inches in Diameter and half an Inch thick. Every Cake has the Maker's Mark struck on it with a Puncheon. The most usual Marks are the Name Jesus, a Syren, Monkey, Sun, *&c.* Those brought from *Venice* are chiefly white, Slate-Colour, Sky-Blue, Carnation, Yellow, Green, and a deep Blue, called false Lapis. These seven are the Principles of all the others, which arise out of the Mixture of these: And the White, in particular, is, as it were, the Basis of all the other six principal Colours; for by adding Azure to it, it becomes a Slate-Colour; by adding Copper, and Cyprus Vitriol, it makes a Sky-Blue; by *Perigueux*, a Flesh-Colour; by Iron-Dust a Yellow, by Copper-Filings a Green, *&c.*

Having thus found, and prepared all our different Kinds of *Enamels*, we'll set ourselves to work; beginning by the most curious Operation, which is *painting in Enamel*: Which though a Branch of the Art of *Painting* in general, is nevertheless so different from all the other Branches of that divine Art, that I judge it more proper to bring it under this Title of *Enamelling.*

There are two Ways of *painting in Enamel*; the one with clear and transparent, and the other with thick and opake Colours. Of the *transparent Enamels*, the hardest are the best; though there is a Difference even among these; some losing their Colour in the Fire, and the others retaining it. As to the Reds they are only red by Accident, being only yellow when made and applied on the Gold; and becoming red in the Furnace. The best *transparent Reds* are those made of calcined Copper Iron-Rust, Orpiment and calcined Gold, melted with due Proportion of Sand and Salt of Glass. These *transparent Enamels*, before they are used, must be ground up only with Water.

Though *painting in Enamel* be done on Plates of *Metals*, it must be observed however, that all Metals will not equally admit of both Kinds of *Enamels*, *viz.* the transparent and opake. Copper, for Instance, which bears all the opake Colours, will not bear the transparent Ones; but to employ these latter (*viz.* the transparent) we must first cover the Copper-plate with a Lay, or Couch of black *Enamel*, over which we lay a Silver Leaf, and on this apply the other suitable Colours, that is, the Colours or *Enamels*, proper for Silver, which are Purple, Azure, and Aqua Marina; since it does not allow of all Kinds of Colours. Neither are Copper, and Silver, very proper Metals to paint in *Enamel*, in Perfection; for Copper, besides that it emits a Fume which tarnishes the Colours, is apt to scale and crackle; and Silver turns the Whites yellow. Therefore Gold, which receives all the Kinds of *Enamels* and Colours, both opake and transparent, perfectly well, is the best Metal for this Operation. Even of this none but the finest must be used; for the transparent Colours be laid on a base Gold, grow dim and livid; there being a Kind of Smoak that settles on it, not unlike black Lead.

To prepare a Gold Plate or any other Metals, for *painting in Enamel*, it must be made a little hollow on one Side, and raised on the other, either in a circular or oval Manner, to prevent the Gold's fretting by the Fire, and making the Colours crack and fly; nor must it be made too thick. Some border or edge the Plate with a Rim to keep the Colours asunder, though we have seen Pieces laid on contiguous, and without any Partition; which is very difficult to practise, by reason the transparent Colours, in melting, are apt to run into each other; especially in the smaller Works.

The Plate being hammer'd very evenly throughout, a white *Enamel* must be apply'd on both Sides, tho' the Design be only to paint on one; which is done to prevent any swelling and warping by the Fire; for otherwise in large Pieces, and especially if the Colours be laid on any thing unequally, they are apt to rise up in Puffs and Blisters: Now this first Lay, which is white, remaining smooth and uniform, serves as a Ground for all the other Colours.

On this Gold Plate, thus *enamelled* in white, must be chalked the Draught or Design to be painted; and afterwards the whole, accurately drawn out in a ruddy brown. The Draught, or Out-Lines, thus finished, we'll set the Piece to the Fire; and paint it afterwards with the other Colours proper for our Design: The white Ground, on which we paint, serving all the Colours for white; and taking Care to spare the Ground from first to last, in the Places where the Lights are to be, after the same Manner as in Miniature: Tho' we must have another White to lay over the other Colours, when there is Occasion to raise them: We must lay the Colours on with the Tip or Point of the Pencil as in Miniature; with this only Difference, that we

we use Oil of Aspick to dilute them, instead of Gum Water.

We have the same Liberty in this Sort of Painting, as the Painters in Oil, to touch the Piece as often as we please; to set it each Time to a reverberatory Fire, as they do theirs to any other Place to dry, and to take it away again as soon as we perceive the *Enamel* has got its full Polish. This reverberatory Fire, is made in a little Furnace, wherein there is Fire both a-top and all round; only a void Place in the Middle, where the Piece is to be put for the *Enamels* to neal.

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The Cake of *Enamel*, by its being applied to the Flame of the Lamp, may be drawn out into Threads so inconceivably fine, as to make artificial Plumes of Feathers. In this Operation two Workmen are employed, the first holds one End of the Cake of *Enamel* over the Flame of the Lamp, and when the Heat has soften'd it, a second Operator applies a Glass Hook to the Metal thus in Fusion, and withdrawing the Hook again, it brings with it a Thread of *Enamel* which still adheres to the Mass. Then fitting his Hook on the Circumference of a Wheel, about two Feet and a half in Diameter, he turns the Wheel as fast as he pleases; when drawing out the Threads, winds it on its Rim, till after a certain Number of Revolutions, it is covered with a Skane of *enamel Thread*.

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the Middle of the Knot do not exceed one-fourth of a Line, or one fourty-eighth of an Inch in Diameter. Hence M. *Reaumur* advances, that as the Flexibility of Glaſs, increaſes in Proportion to the Fineneſs of the Thread; had we but the Art of drawing Threads as fine as thoſe of a Spider's Web, we might weave Stuffs and Cloaths hereof for Wear. And we have already found the Secret of making of *Enamel*, the factitious Jets of divers Colours, ſometimes uſed in Embroideries; and that with ſo much Art, that each Piece has its Hole to paſs the Silk through, wherewith it is ſewed: Theſe Holes are made by blowing them in long Pieces, which are afterwards cut off with a proper Tool.

ENGRAVING.

ENGRAVING, or GRAVING (from the *Latin cavare* to hollow) is the Art or Act of cutting Metals, and precious Stones, and repreſenting Figures, Letters, and other Matters thereon.

There are at preſent but two principal Branches of the Art of *Engraving* (properly ſo called) *viz. Engraving in Creux* and *Relievo*; and *Engraving* in what the *French* call *Taile Douce*.

The Art of *Engraving in Creux* and *Relievo*, is performed with the Graver, either on precious Stones, Cryſtals, *&c.* or on Metals, as Copper, Braſs, Steel, Silver, *&c.*

Engraving en Taile Douce, is either perform'd on Wood, and is called by the *Engliſh*, *Cutting in Wood*; or on Copper, either with the Graver, or with Aquafortis; this laſt Manner is alſo called by the *Engliſh*, *Etching*; and by the *French*, *Graver a leau forte*; or by the Knife, Burniſher, and Scraper, called *Metzotinto*.

As the *Engraving in Creux*, is the moſt antient Manner of *Engraving*, eſpecially that on precious Stones, Cryſtals, *&c.* we muſt inform ourſelves how to do it, before we proceed to the other Manners of *Engraving*.

The Tools for this Operation, are either of Iron or Braſs, but moſt commonly of Iron; as to their Form it is various, but generally bears ſome Reſemblance to Chiſſels, Gouges, *&c.* ſome having ſmall round Heads like Buttons, others like Ferrels to take the Pieces out, others flat, *&c.*

Before we can pretend to *engrave* a Stone of any Kind, either Rubies, Saphires, Emeralds, Hyacinths, Amethyſts, Berills, Garnets, Agats, *&c.* they muſt be cut in the Shape or Form we want to have them, either for Rings or Seals, and very well poliſhed. Which done, we take a little Iron Wheel made for the Purpoſe, the two Ends of whoſe Axis, are received within two Pieces of Iron placed upright, as in the Turners Lath; to be brought cloſer, or ſet farther apart, at Pleaſure. At one End of the Axis, are fitted the proper Tools, being kept tight by a Screw. Then the Wheel is turned by the Foot, and the Stone applied by the Hand to the Tool, not directly, but as it were ſideways; thus wearing, and as it were, grinding off the Subſtance. And ſtill, whether it be Figures, Letters, or Characters, the Manner of Application is the ſame; taking Care to ſhift and conduct the Stone, as Occaſion requires; and likewiſe to moiſten frequently the Tools with Diamond-Duſt, and Oil of Olives.

When the Stone is *engraven*, it muſt be poliſhed on a Wheel of Bruſhes, made of Hogs Briſtles, with Tripoli; the Ground, or plain Parts of the larger and leſs delicate Works, are poliſhed with Copper, or Pewter Tools, with Tripoli, *&c.* which Tools are applied after the ſame Manner, as thoſe wherewith the *Graving* is perform'd.

The Antients excelled in the Art of *Engraving* on precious Stones, there being divers antique Agats, Berills, Cornelians, and Onix's, which ſurpaſs any Thing of that Kind the Moderns have produced. *Pyrgoteles* among the *Greeks*, and *Dioſcorides* under the firſt Emperors of *Rome*, are the moſt eminent *Engravers* we read of. The former was ſo eſteemed by *Alexander*, that he forbad any Body elſe to *engrave* his Head; and *Auguſtus*'s Head, *engraven* by the latter, was found ſo beautiful, that the ſucceeding Emperors choſe it for their Seal. All the polite Arts having been buried under the Ruins of the *Roman* Empire, the Art of *Engraving on Stones* met the ſame Fate.

That Art was retrieved in *Italy* at the Beginning of the fifteenth Century, when one *John* of *Florence*, and after him *Dominic* of *Milan*, perform'd Work of this Kind no way to be deſpis'd. From that Time, Pieces of that Kind became common enough in *Europe*, and particularly in *Germany*, whence great Numbers were ſent into other Countries; but they came ſhort of the Beauty of thoſe of the Antients, eſpecially thoſe on precious Stones; as for thoſe on Cryſtal, the *Germans*, and after their Example, the *French*, have very well ſucceeded.

Engraving on Steel, is chiefly employ'd in cutting Punches, Matrices, and Dies, proper for ſtriking Coins, Medals and Counters, which are all *engraved* with no other Difference than in their great or leſs Relievo; that of Coins being much leſs conſiderable than that of Medals; and that of Counters ſtill leſs than that of Coins.

The principal Inſtruments uſed in this Kind of *Engraving*, are Gravers of diverſe Kinds, Chiſſels, Flatters, *&c.* and the firſt Thing which the Artiſt does, is to deſign his Figures; then he moulds them in white Wax, of the Size and Depth required, and from this Wax he graves his Punch, which is a Piece of Steel, or at leaſt of Iron and Steel mix'd; on which, before he tempers or hardens it, he cuts the intended Figure, whether a Head or a Reverſe, in Relievo. When the Punch is finiſhed, he gives it a very high Temper; that it may the better bear the Blows of the Hammer, wherewith it is ſtruck, to give Impreſſion to the *Matrice* or *Matrix*, which is a Piece of good Steel, of a cubick Form, called alſo a *Dye*; whereon the Relievo of a Punch is ſtruck in Creux; called *Matrix*, becauſe in the Cavities or Indentures thereof, the Coins or Medals ſeem formed or generated, as Animals are in the Matrix of their Mother. To ſoften this Steel, that it may more eaſily take the Impreſſion of the Punch, the Artiſt makes it red hot; and after ſtriking the Punch thereon in this State, they proceed to touch up, or finiſh the Strokes and Lines, where, by reaſon of their Fineneſs, or the too great Relievo, they are any thing defective, with ſome of the Tools above-mentioned.

The Figure thus finiſhed, they proceed to *engrave* the reſt of the Medal, as the Moulding of the Border, the engrailed Ring, Letters, *&c.* all which, particularly the Letters, and Graining or Engrailment, are performed with little Steel Punches, well tempered and very ſharp. Add, that as they ſometimes make uſe of Puncheons to *engrave* the Creux of the Matrice; ſo on ſome Occaſions they make uſe of the Creux of the Matrice, to *engrave* the Relievo of the Punch. When the Matrice is quite finiſhed, they temper it, rub it well with Pumice-ſtone, and clean out the Stone again with a Hair-bruſh; and laſtly poliſh it well with Emery. In this Condition it is fit for the Mill, to be uſed to ſtrike Coins, Medals, *&c.*

Note, That to ſee and judge of *Engraving* in *Creux* and *Relievo*; divers Means have been deviſed, to take the Impreſſion therefrom as the Work proceeds. Sometimes they make uſe of a Compoſition of common Wax, Turpentine, and Lamp-black; which always retaining

retaining its Softness, easily takes the Impression of the Part of the *Graving* it is apply'd to. But this only serving to shew the Work Piece-meal, they have had Recourse to other Ways, to shew the whole Figure; the first by pouring melted Lead on a Piece of Paper, and clapping the Matrice thereon: The second with melted Sulphur, managed the same Way: And the third, proper only where the *Graving* is shallow, by laying a Piece of soft Paper on the *Graving*, and over the Paper a Leaf of Lead; when giving two or three Blows with a Hammer on the Lead, the Paper takes the Impression off the Work.

Note also, That *engraving* of Seals, Stamps, Puncheons, Marking-Irons, Gilding-Irons, and other Matters, for Goldsmiths, Pewterers, Book-binders, *&c.* either in Relievo or Indenture, is performed after the Manner above-described.

From this Manner of *engraving*, I'll pass to that of *engraving* in what the *French* call *Taile douce*; and tho' *engraving*, or cutting in Wood, is not the most beautiful Operation of that Kind, nevertheless as it was the first invented, I'll begin by it.

The *Cutters in Wood* need no other Instruments than little sharp Knives, little Chissels, and Gravers of different Sizes, according to the Bigness or Delicacy of their Work. The first Thing they do is to take a Plank or Block of Pear-tree, or Box; though Box is the best, as being the closest, and least liable to be Worm-eaten: They prepare that Plank or Block, of the Size and Thickness intended, and make it very even and smooth on the Side to be cut. On this Plank or Block, thus prepared, they draw their Design with a Pen or Pencil, just as it ought to be printed. Those who cannot draw their own Design, as many there are that cannot, make use of a Design furnished them by another, which they fasten upon the Block with Paste made of Flour and Water, with a little Vinegar; the Strokes or Lines turned towards the Wood. When the Paper is dry, they wash it gently over with a Spunge dipped in Water; which done, they take off the Paper by little and little, still rubbing it a little first with the Tip of the Finger, till at length there be nothing left on the Block but the Strokes of Ink that form the Design, which mark out so much of the Block as is to be spared, or left standing: The rest they cut off, and take away as curiously as they can, with the Points of their sharp Tools.

This Sort of *Engraving* is used for various Purposes; as for initial or figur'd Letters, Head and Tail-Pieces of Books; and even for Schemes and other Figures, to save the Expence of *Engraving* on Copper; and for Prints and Stamps for Paper, Callicoes, Linnens, *&c.*

We are indebted for the Invention of *Cutting in Wood*, as well as that in Copper, to *Maso Finiguerra*, a Goldsmith of *Florence*, who found it out in the Year 1460; and for its Perfection to *Albert Durer*, *Martin* of *Antwerp*, and *Mark Antony*. At the same Time, *Hugo* of *Carpi*, an *Italian* Printer, invented a Manner of cutting in Wood; by Means whereof, the Prints appeared as if printed in clear-obscure: In order to this he made three Kinds of Stamps for the same Design, which were drawn after one another, through the Press, for the same Print; they were so conducted, that one served for the grand Lights, the second for the Demi-Teints, and the third for the Out-Lines and the deep Shadows.

The Art of Cutting in Wood, was certainly carried to a very great Pitch about 150 Years ago; and might even vye, for Beauty and Justness, with that of *Engraving* on Copper: At present it is in a very low Condition, as having been long neglected; and the Application of Artists wholly employ'd on Copper, as the most easy and promising Province: Not that but wooden Cuts have the Advantage of Copper on many Accounts; chiefly for Figures and Devices in Books, as being printed at the same Time, and on the same Press as the Letters; whereas for the other, there is required a particular Impression. What I say here in Commendation of wooden Cuts, must be understood of those done by good Artists, who are scarce to be found at present, at least if we can judge of their Capacity by their Performances, which are so frightful, especially here in *England*, as not to bear being exposed to publick View.

Our next Manner of *Engraving* will be on *Copper* with the *Graver*; which to perform, we'll take Care to provide ourselves with *Gravers*, a *Cushion*, or *Sand-Bag*, to lay the Plate on, to give it the necessary Turns and Motions; a *Burnisher* round at one End, and usually flattish at the other, to rub out Slips and Failures, fasten the Strokes, *&c.* a *Scraper*, to pare off the Surface, on Occasion; and a *Rubber*, of black Cloth or Hat, to fill up the Strokes, that it may appear how the Work proceeds.

Thus provided with the necessary Tools or Instruments, we'll set ourselves to work; taking a Plate of Copper, well polished, which we'll cover over with a thin Skin of Virgin's Wax, and lay over it the Draught or Design, done in black Lead, red Chalk, or other ungummed Matter. Having thus transferred the Design upon the Wax, we'll trace it through on the Copper with a Point or Needle; then heating the Plate, and taking off the Wax, the Strokes remain; which we'll follow, heighten, *&c.* according to the Tenor of the Design, with the Graver, which is to be very sharp and well tempered.

Note, That in the Conduct of the Graver consists all the Art; for which there are no Rules to be given, all depending on the Habitude, Disposition, and Genius of the Artist.

Our second Operation on Copper will be with Aqua-fortis, in *English* called *Etching*, which is a Method of *engraving* on Copper; wherein the Lines, or Strokes, instead of being cut with a Tool, or Graver, are eat with Aqua-fortis.

The Operation of *Etching* is conducted thus.—The Plate being well polished, is heated over the Fire; and when hot covered over with a peculiar Ground or Varnish: When cold again, the Ground is blackened with the Smoak of a Candle; and on this Ground thus blackened, the Back of the Design or Draught is laid. This done, the Designs remains to be chalk'd or transferred upon the Plate; which is more easily effected than in the common *Graving*; for the Back of the Design having been before rubbed over with red Chalk, nothing remains but to trace over all the Lines and Strokes of the Draught with a Needle or Point; which pressing the Paper close down to the Ground, occasions the Wax therein to lay hold of the Chalk, and so bring off the Marks of the several Lines; so as at length to shew a Copy of the whole Design in all its Correctness. The Draught thus calqued, the Artist proceeds to draw the several Lines and Contours, with a Point, through the Ground upon the Copper. To finish his Work, he makes use of Points, of diverse Sizes, or Bigness; and presses on them sometimes more strongly, and other Times more lightly, according as the several Parts of the Figures require more or less Strength or Boldness; some of the Points being as fine as Needles, for the tender Hair-Strokes, and the remoter, fainter Objects; and others again as big as Bodkins, made oval-wise, for the deeper Shadows, and the Figures in the Front of the Work.

Things thus prepared, a Rim, or Border of Wax, is raised round the Circumference of the Plate, and Aqua-fortis poured on; which by the said Border is kept from running off at the Edges. The Ground being impenetrable to that corrosive Water. The Plate is defended from it every where but in the Lines or Hatches, cut through it with the Points; which, lying open, the Water passes through them to the Copper, and eats into the same, to the Depth requir'd; which done, it is poured off again. The Aqua-fortis having done its Part, the Ground is taken off, and the Plate washed and dried; after which nothing

thing remains but for the Artist to examine the Work with the Graver in his Hand, to touch it up and heighten it, where the Aqua-fortis, *&c.* has miss'd.

Note, That of *Etching* Grounds there are two Kinds; the one soft, and the other hard: There are also two Kinds of Aqua-fortis; the one white, which is only used with the soft Ground, and is applied as above directed; the other green, made of Vinegar, common Salt, Sal-Ammoniac, and Verdegrease: This is used indifferently with either Kind of Ground: Its Application is somewhat different from that of the white. Without making any Border, they pour it on the Plate, which is placed for that Purpose a little inclined; and as the Water runs off, it is received in a Vessel placed underneath. This they repeat, pouring it again and again, till it has eaten deep enough. Add, the Aqua-fortis, of which Kind soever it be, must not continue equally long, or be poured equally often, on all the Parts of the Design: The remote Parts must be eaten more slightly, than those nearer to the View. To manage this, they have a Composition of Oil and Grease, wherewith they cover the Parts that are to be bitten no farther: Or else they lay the Composition on as a Defensitive at first, and take it off again when they think proper. In Effect, they are every now and then covering and uncovering this or that Part of the Design, as Occasion requires; the Management of the Aqua-fortis being one of the principal Concerns in the whole Art, and that on which the Effect of the whole very much depends. The Operator is also to be very attentive to the Ground, that it do not fail or give Way, in any Part to the Water; and where it does, to stop up the Place with the Composition aforesaid. Lastly, it is to be remember'd, that a fresh Dip of Aqua-fortis be never given, without first washing out the Plate in fair Water, and drying it at the Fire.

METZOTINTO, which is another Manner of *Engraving* on Copper, different from the common Way, is perform'd by raking, hatching, or punching the Surface of the Plate all over with a Knife or Instrument for the Purpose, first one Way, then across, *&c.* till the Face of the Plate be thus entirely furrowed with Lines or Furrows close, and as it were, contiguous to each other; so that if an Impression were then taken from it, it would be one uniform Blot or Smut. This done, the Design is drawn or marked on the same Face: After which they proceed with Burnishers, Scrapers, *&c.* to expunge or take out the Dents or Furrows in all the Parts where the Lights of the Piece are to be; and that more or less as the Lights are to stronger or fainter; leaving those Parts black, which are to represent the Shadows or Deepnings of the Draught.

The Discovery of the Art of *Engraving*, *in Taile douce*, or on Wood, and Copper, is ascribed, as we have already observed, to *Maso Finiguerra*, a Goldsmith of *Florence*, who used to *engrave* on his Works, and who in moulding them in melted Sulphur, perceived that what came out of the Mould marked in its Impressions the same Things which were *engraved* on the Piece of Work, by the Black which the Sulphur had extracted from the Lines; he attempted the same Thing on Plates of Silver with wet Paper, in running over it a very smooth Roller, in which he succeeded. This new Discovery prompted another Goldsmith of the same City, called *Baccio Baldini*, to try the same Thing; and the Success encouraged him to *engrave* several Plates of the Invention and Design of *Sandro Botticallo*; and on these Proofs *Andrew Manteigne*, who was then at *Rome*, *engraved* several of his own Works.

The Knowledge of this Invention having passed into *Flanders*, *Martin* of *Antwerp*, who was then a famous Painter, *engraved* several Plates of his own Invention, and sent several Prints of them into *Italy*, which were marked thus; *M. C. Vasari*, in the Life of *Mark Antony* the *Engraver*, mentions several of the Subjects of those Prints, and among the rest one called the Vision of St. *Antony*, which *Michel Angelo*, yet very young, found so extraordinary, that he put it in Colours.

After *Martin* of *Antwerp*, *Albert Durer* appeared, and gave us a vast Number of very fine Prints, either in Wood or Copper, which he sent to *Venice* to be sold. *Mark Antony*, then at *Venice*, was so surprized at the Beauty of those Pieces, that he copied thirty-six of them, which represented the Passion of *Christ*; and those Copies were received at *Rome*, with so much more Admiration, that they were finer than the Originals. At the same Time *Hugo Carpi*, an *Italian* Painter, of an indifferent Capacity, but of an inventing Genius, discover'd the Art of *Etching*, or *Engraving* with Aqua-fortis.

These first Prints drew by their Novelty the Admitation of all those who saw them; and the most famous Painters, who work'd then for Glory, made use of them, to disperse their Works through the World. *Raphael*, among the rest, employ'd the Graver of the famous *Mark Antony*, to *engrave* several of his Pictures and Draughts; and those excellent Prints have been as so many Fames, which have carried the Name of *Raphael* throughout the whole Earth. Since *Mark Antony*, a great Number of *Engravers* have render'd themselves famous in *Germany*, *Italy*, *France*, and the *Low-Countries*; and have publish'd, either with the Graver or Aqua-fortis, an infinite Number of Subjects of all Kinds, Histories, Fables, Emblems, Devices, Medals, Animals, Landscapes, Flowers, Fruits, and generally all the visible Productions of Art and Nature.

These Sorts of Work can prove beneficial to Persons of all Ranks and Condition; to Theologians, devout People, Philosophers, Monks, Soldiers, Travellers, Geographers, Painters, Sculptors, Architects, *Engravers*, Lovers of Arts, the Curious in History and Antiquity; and, lastly, to all those who, having no other Profession but of honest Men, want to adorn their Mind with Perfections which can render them still more valuable.

I will not pretend to insinuate, that every Body is obliged to have all the Prints which have been publish'd, in hope of drawing some Advantage from them; on the contrary, the vast Number of them, and which would offer at once so many different Ideas, would be more capable to darken, than enlighten our Mind: Since none but those who have a vast natural Genius, and have exercised it in the Consideration of so many different Things, can see them without Confusion: But every one, in particular, can chuse the Subjects which are most proper to him, capable to refresh his Memory, or strengthen his Knowledge; in which Choice he ought to consult his Inclination, Taste, and Profession.

For Instance: Nothing is more proper for a *Theologian*, than the Prints which relate to Religion and its Mysteries, the sacred History, and all that discover the first Exercises of the Christians, their Persecution; the low Relievo's, which instruct us, in several Places, of the Ceremonies of the Pagan Religion; and lastly, all that has any Relation to Ours, either sacred or profane. For *Devout People*, all the Subjects which raise our Mind to God, and can entertain us in his divine Love. For *Monks*; the sacred Histories in general, and that of their Order in particular. For *Philosophers*; not only all the demonstrative Figures, which relate to physical Experiments, but likewise those which can increase the Knowledge they have of natural Things. For *Soldiers*; the Plans and Elevations of fortify'd Places; the Order of Battles, *&c.* For *Travellers*; the particular Views of Palaces, Cities, and other considerable Places, to prepare them for Things they are to see, and to preserve the Ideas thereof, after they have seen them. For *Geographers*; the Charts, or Maps of their Profession. For *Painters*; all that can strengthen them in the different Parts of their Art, as Antiques, the Works of *Raphael*,

phael, of *Michel Angelo*, for the good Taste, the Correction of the Design, the Greatness of the Manner, the Choice of the Hair of the Head, of the Passions of the Soul, and of the Attitudes. Those of the *Corregio* for the Grace and Fineness of the Expressions: Those of the *Titian*, of *Bassan*, and of the *Lombards*, for the Character of Truth, and the true Expressions of Nature, especially for the good Taste of the Landskip: Those of *Rubens*, for a Character of Greatness and Magnificence in his Inventions, and for the Artifice of the clear-obscure: Lastly, those which though defectuous in some Parts, contain, notwithstanding, something particular and extraordinary. For *Sculptors*; the Statues, low Relievo's, Medals, and other Antiques; the Works of *Raphael*, of *Polydore*, and of the whole *Roman* School. For Architects, the Books which concern their Profession, and which are full of demonstrative Figures of the Inventions of their Authors, or copied from Antiques. For *Engravers*; a Collection of Pieces of different Manners, either with the Graver or Aqua-fortis. That Collection must also serve them to see the Progress of *Engraving*, from *Albert Dure* to the best Artists of our Time; in passing through the Works of *Mark Antony*, *Corneil*, *Cort*, of the *Carraches*, *Sadelers*, of *Goltius*, *Muler*, *Wosterman*, *Pontius*, *Bolswert*, *Wischer*, *Le Clerc*; and lastly, thro' a great Number of others, whom I do not mention, who have had a particular Character, and who in a different Manner, have all endeavoured to imitate Nature. In comparing thus the Works of all those Masters, they can judge which of them has understood best to guide the Strokes, to manage the Light, and the Value of the Tuns, with Regard to the clear-obscure; which of them have known best to join in their Graver, Delicacy with Strength, and the Spirit of every Thing with an extream Exactness; that by those Lights they may have the laudable Ambition, to equal, if not surpass those famous Masters. For the *Curious* in History and Antiquity; all that has been *engraven* of the sacred and profane History, and of the Fable; the antique low Relievo's, the *Antonine* and *Trajan* Columns, the Books of Medals, and of *engraven* Stones, and several Prints which have Relation to the Knowledge they want to acquire or to preserve.

Lastly, nothing is more necessary than good Prints, for those who, in order to be more happy, and honest Men, want to form their Taste for good Things, and have a reasonable Tincture of the *Beaux Arts*. The Sight of those Prints with a little Reflexion, will soon and agreeably instruct them in all that can exercise their Reason, and strengthen their Judgment. They will fill up their Memory with curious Things of all Times, and of all Countries, and teach them at one and the same Time, the different Histories, and the different Manners of Painting; of which they'll soon be competent Judges, through the Facility they'll find in turning over a few Leaves; and comparing the Productions of one Master with those of another, and thus in sparing their Time, they'll also spare their Expences. For it is almost impossible to collect in the same Place, Pictures of the best Painters, in a Quantity sufficient to form to one's self a compleat Idea of the Work of each Master; and when at a vast Expence, one could fill up a spacious Cabinet with Pictures of different Manners, he could never have at last but two or three of each, which is not sufficient to form a very precise Judgment of the Character of the Painter, nor of the Extent of his Capacity; whence, through Means of the Prints, one can see on a Table, without the least Trouble or Difficulty, the Works of different Masters; form an Idea of them, judge of them by Comparison, chuse them, and gain by that Practice, an Habit of good Taste and of good Manners; especially when that is done in the Presence of some Body who has a just Discernment in those Things, and knows how to distinguish the good from the indifferent.

But nothing can be prescribed to *Connoisseurs*, and the Lovers of Arts; every Thing is as it were, under the Empire of their Knowledge, which they cultivate by the Sight, sometimes of one Thing and sometimes of another; because of the Utility which accrues from it, and the Pleasure they take in it. They have, particularly, that of seeing what has been *engraven* from the most famous Painters, the Origin, Progress, and Perfection of the Works, they follow them from the *Giotto*, and *Andrew Monteigne*, to *Raphael*, to the *Titian*, and to the *Caraches*. They examine the different Schools of those Times, they see into how many Branches they have been divided, by the Multiplicity of their Disciples, and in how many different Manners, the human Genius is capable to conceive the same Thing, which is the Imitation; whence have proceeded some various Manners, which, Time, the Genius, and Nature, have produced.

Among all the good Effects which the Use of Prints can produce, I'll content myself with mentioning here only six of them, whereby it is easy to judge of all the others.

The first is to divert us, by the Imitation, and in representing to us the Things visible.

The second is to instruct us, in a quicker, and more pathetick Manner, than it can be done by Words.

The third is to abridge the Time, which we would employ in Reading over the Things which we have forgotten, and to refresh the Memory at one Sight.

The fourth is to represent the Things absent, as if we had them before our Eyes; and which we could not see, but by undertaking tedious and expensive Journeys.

The fifth is to procure us an easy Means of comparing several Things together, by the small Space which Prints take, in their great Number and Variety. And,

The sixth to form the Taste for good Things, and to give us at least a Tincture of the Arts and Sciences, which no polite Man ought to be ignorant of.

These Effects are but general, but each Person can be sensible of some particular ones, according to his Knowledge and Inclination; and it is by Means of those particular Effects only, that every one can regulate or order his Collection of Prints.

The Admirers or Lovers of History, for Instance, chuse only those Subjects which have Relation to it, and let nothing escape their Curiosity; they observe this Order which cannot be too much admir'd. They follow that of the Countries, and of Times; and all that has any Relation to each Country in particular, is contained in one or two Book-Cases, in which are found:

First, the Pictures of all the Sovereigns who have reign'd in a Country, the Princes and Princesses descended from them, those who have distinguished themselves in a particular Manner either in the State, Church, Army, or the Judicature. Those who have rendered themselves famous in their different Professions; and those who have some Part in the historical Events. They accompany those Pictures with some Lines, which mark the Character of the Person, his Birth, his most remarkable Actions, and the Time of his Death.

Secondly, the general and particular Charts of that Country, the Plans and Elevations of its Cities or Towns, what they contain the most considerable; the Castles, Royal Palaces, and all other particular Places which have deserved being rendered publick.

Thirdly, all that has some Relation to History, as publick Entries, Carouzals, Funerals, Catafalcas; what concerns the Ceremonies, Manners and Customs; and lastly, all the particular Prints which are historical.

This Research made for one Country, is continued for all the others with the same Œconomy.

Those who have a Passion for the Arts, follow another Method; they make Collections with Regard to Painters and their Pupils. They place for Example, in the *Roman* School, *Raphael*, *Michel Angelo*, their Disciples and Cotemporaries. In that of *Venice*, the *Giorgion*, *Titian*, the *Bassans*, *Paul Veronese*, *Tintoret*,

and the other *Venetians*. In that of *Parma*, the *Corregio*, the *Parmesan*, and those who have followed their Taste. In that of *Bologna*, the *Caraches*, the *Guide*, the *Dominican*, *L'Albane*, *Lanfranc*, and the *Guarchin*. In that of *Germany*, *Albert Dure*, *Holbens*, *William Baure*, and others. In that of *Flanders*, *Otho-Venius*, *Rubens*, *Vandeik*, and those who have practised their Maxims; thus of the *French* School, and those of other Countries.

Some collect their Prints, with Regard to the *Engravers*, without any to the Painters; others with Regard to the Subjects they represent, and others in another Manner. It is but just to leave to every one the Liberty to act in those Occasions, as it suits best his Genius and Inclinations.

Though we can at all Times draw some Utility of the Sight of Prints, Youth, notwithstanding, is the propereſt Age for it; the Faculty of the Soul which manifests itself more in Children, is Memory, and that Faculty ought to be made use of as a Magazine, to instruct them in Things, which can contribute most towards forming their Judgment.

But if the Use of Prints is advantageous to Children, it is likewise a very agreeable Entertainment for old Age, which is a proper Time for Repose and Reflections; and in which, being no longer distracted by the Amusements of our younger Days, we can with more Leisure, taste the Pleasure which Prints are capable to give us; either by teaching us new Things, or by calling back the Ideas of those we know; or because having a Taste for the Arts, we are capable to judge of the different Productions, Painters and *Engravers* have left us; or because not having that Knowledge we are flattered with the Hope of acquiring it; or lastly, because we search in that Pleasure, that of exciting agreeably our Attention, by the Beauty and Singularity of the Objects which Prints offer to us. For we find in them the Countries, Cities, and considerable Places we have read in History, or have seen ourselves in our Travels; so that the great Variety, and great Number of curious Things we meet with in them, can even serve in lieu of a Journey, and of a very commodious and very entertaining one, for those who have never made any, or are not in a Condition to make any.

If the Antients had *had* the same Advantage in that we have, and could, by Means of Prints, have transmitted to Posterity all that was beautiful and curious among them; we should see an infinite Number of fine Things, of which Historians have left us but a confused Idea. We should see those superb Monuments of *Memphis* and of *Babylon*, of the Temple of *Jerusalem*, which *Solomon* had built with so much Magnificence; we could judge of the Edifices of *Athens*, *Corinth*, and of the antient *Rome*, with a better Foundation still, and more Certainty, than by the single Fragments we have left of them. *Pausanias*, who gives us so exact a Description of *Greece*, and has led us as by the Hand, through all the different Places of that enchanting Country, could have accompanied his Discourses with demonstrative Figures, which had been transmitted to us; and we had seen with Pleasure, not only the Temples and Palaces, such as they were in their Perfection, but had likewise inherited from the antient Workmen, the Art of Building them well. *Vitruvius*, whose Demonstrations are lost, had not left us in the Ignorance of all the Tools and Machines he has described, we should not find in his Books so many dark Places, if Prints had preserved to us the Figures he had made, and mentions himself. It is likewise for Want of these Means, that we have lost the Machines of *Archimedes*, and of *Hero* the Antient, and the Knowledge of several Plants of *Dioscorides*, of a great Number of Animals, and of curious Productions of Nature discover'd by the Antients. But without amusing ourselves to regret what we have lost, let's make a good Use of those which has been sav'd by Means of Prints.

ETHICKS.

ETHICKS, or *moral Discipline*, is a practical Science, or Prudence for the Direction of human Acts, according to the Rules of Honesty, in View of an eternal Felicity.

1. It is called a Science, because it draws true Conclusions from true Principles, *v. g.* from this, *do not to others, what you would not have done to yourself*; whence it is inferred, that we are not to rob, calumniate, kill, *&c.* for this Principle is so clear, that it can be very well understood with the least Attention, and only pertains to *Intelligence*, as they call it. But the *Intelligence* of those first Principles in Morals, is called *Synderesis*, or much better, *Synteresis*, i. e. Conservation; whereby the Mind desires always to keep herself immaculate, or free from Sins; which *Spark of Conscience*, says St. *Jerome*, *in cap.* 1. Ezekiel, *is not extinguished even in* Cain's *Breath, after the Perpretation of his Sin.* Whence it is called the *Virgin Portion* of the Soul; because it has not been vitiated by the Original Sin, it remains uncorrupted, and though *conquer'd by the Rage and Fury of our Voluptuousness, makes us nevertheless sensible of our Guilt*, says again the same Father.

2. *Ethick* is called a practical Science, because it does not content itself with the simple Contemplation of the Object, but proceeds to Practice. For it is not the sole End of the *Ethick*, that we should know only the Rules of Manners, but that we should also conform our Actions to those Rules.

3. It is called Prudence, *i. e.* the Knowledge of Things we ought to do; for the Name of Prudence signifies properly the Science of Things, which can be justly acted or done. Whence the Science of the Law, is called *Jurisprudentia*.

4. It regards the human Acts, *i. e.* those human Acts done with Reflection.

5. It regards those Acts *as they are to be conformed to the Rules of Honesty, in View of an eternal Felicity.* For the *Ethicks*, or *Science of Manners*, has been invented for to find out Rules for the Direction of our good Actions, in View of an eternal Felicity.

Those Rules of Manners, or of a *moral Honesty*, are the *divine Laws* and our *Reason*, and all the other Laws and Regulations which flow from them. And by the Observance of those Laws, Mankind are conducted to the Fruition of the sovereign Good, as to their last End; for it is an Act of a consummate Prudence in us, never to deviate from that Road, but to follow it carefully, whatever Condition or State of Life we may have chosen.

As there are three principal Kinds of Life, *viz.* either in a Solitude, or in a Family, or in a City, the Scholasticks have distinguished three Sorts of *Ethicks*, or Morals, *viz.* the monastick, which directs a Person who leads a solitary Life; the œconomical, which takes the Conduct of a Family, and the political, that of a Republick. But as there can be but the same Rules, (which are the Rules of Honesty, in View of an eternal Felicity) for the Conduct of a Person, let him live either in a Solitude, or in a Family, or in a City, that Distinction must be needless. For it is very well known, that every Science is specified by a formal Object; therefore there cannot be different Sorts of Discipline, unless there be different Sorts of formal Objects. Besides it is a generally receiv'd Maxim, that every Man in his Condition, is obliged to conform his Actions to the same Rules of Honesty; to love God above all Things, and all Things for him; to

not do to others, which he would not have done to himself, &c.

From these general Observations, I'll pass to the Division of this my Treatise of *Ethicks* into four Parts.

In the first, I'll treat of the sovereign Good, or last End of all human Acts. In the second, of the human Acts, and their Rules. In the third, of Virtues and Vices. And in the fourth, of the various Offices of Life, either with Regard to God, to ourselves, or our Neighbours.

Aristotle and St. *Thomas*, have both been of Opinion, that *Ethicks* should begin by the Consideration of the sovereign Good; that the Instruction of Manners, should be measured by the End proposed therefrom, and that no Body can pretend to undertake an honest Course of Life, without his being previously well acquainted with the Road that leads to it. Hence this common Proverb, that *the End is first in the Intention, and last in the Execution*, or *Affection*, *finem esse primum in intentione, & ultimum in executione, seu affectione.*

Therefore I must treat in the first Part of Man's sovereign Good, or last End. But I must search first, which is that sovereign Good, which that End; that we may easier discover the last End of all human Acts.

The *Good* I design to mention and consider in this Place, is the *metaphisical*, or *physical Good*, which is either God himself, or a created Thing (reserving to treat of the moral Good, when I come to treat of the Probity of Manners, and of the Honesty of our Actions) which metaphysical, or physical Good, is either entirely perfect, or at least perfect in its Manner. For such is the Notion we must have of a metaphysical or physical Good. On the contrary, the metaphysical, or physical Evil, of which Kind are Ignorance, Blindness, &c. is that which is imperfect and lame.

Good and *Evil*, either *metaphysical*, or *physical*, can be considered either absolutely, as good or bad in itself, or perfect or imperfect in its Manner; or comparatively, *i. e.* as it is good to some and bad to others. In this last Manner, *Good* is consider'd by *Aristotle*, at the Beginning of his first Book of *Ethicks*, where he prizes the antient Philosophers for their having defined Good, that which all Things desire; *id quod omnia appetunt*; not that every Thing desires all that's Good; but because each Thing inclines towards that which is the most agreeable to him; according to what the Poet says:

Torva lænа lupum sequitur, lupus ipse capellam,
Florentem Cythisum sequitur lasciva capella,
Te, Corydon, ô Alexis, trahit sua quemque voluptas.

We distinguish in the Schools three Sorts of Appetites, whereby each inclines towards that which is good to him; *viz.* the *natural*, *sensitive*, and *rational* Appetite.

We call *natural* Appetite, the natural Propensity of all Things, even those which are destitute of Sense, towards their Good: Thus it is said improperly, that the heavy Bodies have a natural Appetite to tend downwards; and light Bodies, to depart or avoid the Centre. But I am afraid, that this Manner of Speaking attributes a spiritual Affection to a corporeal Thing, contrary to what is prescribed by the Logick in the Categories. For what can be the Cause that a Stone, for Instance, should rather tend towards the Centre, than towards a high Place? Can it be any Thing else but the Impulsion of the fluid Matter, as we'll shew in our Treatise of *Mechanicks*. Therefore when it is said, that certain Plants are placed in humid Places, and others in dry Places, &c. the Speech is metaphorical, and neither proper nor natural: For, properly speaking, we are to attribute no Kind of Appetite to Things corporeal; but their whole Motion is to be referr'd to an impulsive Cause, which often escapes our Sagacity.

The sensitive Appetite, is that which follows the Perception of our Senses; and the *natural Appetite*, which is joined with the Perception of the Mind, is called Will. This rational Appetite, so far as it is directed in general by the Author of Nature, towards *Good*, is very well called *natural Appetite*: For we have all an innate Inclination or Appetite, which cannot be conquered, for our Good or Happiness. From this Appetite proceeds that Love for all the Good we are deprived of: For when we love ourselves, that Love has not always for Object the proper Gifts of Nature, which we imagine ourselves to be enriched with, but we desire something else which we imagine could still render us happier and more perfect; or rather we are the *Subject* to whom we wish something. For if our natural Love was never by the Force of our Liberty to forsake the sovereign Good, and fix itself on Things created, it would always be good, and never bad; but we too often covet what is prohibited, and criminal; and embrace as a real *Good*, what only deceives us by an outward Appearance of Good.

Therefore the relative Good, or the Good which seems agreeable to us, and as such is the Object of our Desires, as supposed capable to help, and please us; is either the sovereign Good, or good by its Essence; or a *Good* by Participation, which very often has but the single outward Appearance of *Good*.

There is but one *essential Good*, which is God himself, who alone is properly, and of himself, Good. As *Christ* witnesses it, *Luc.* v. 19. *Nemo bonus nisi solus Deus.*

Good by Participation is a created Good, and this is either a Thing or Substance, which is good to us; as are the Aliments, Cloaths, &c. or the Modification or Affection of a Thing, which helps us likewise, whether it has a Report to the Body or to the Mind. Hence *Good* is commonly distributed into the *Good of the Body*, such as Health, Strength, Beauty, &c. *Good of the Mind*, as Science, Virtue, &c. and *Goods* of Fortune, such as Houses, Lands, Money, &c.

We desire all these Things because they are useful, or agreeable only, or honest; whence that famous Division of *Good*, into honest, agreeable, and useful. We call *honest*, that which is agreeable to Order, or rather to the Rules of our Reason, as Probity, or Virtue: *Agreeable*, that which pleases or delights us; *v. g.* some are pleased with Plays and Spectacles, some in Company, others with studying the liberal Arts, and the Practice of Virtue, others with telling their Money, &c. Lastly, the *Utile*, which is that which procures us some other Good, as a bitter Potion, which can procure the Recovery of Health.

The preceding Definition, or Division of *Good*, have given Occasion to several *Queries*, which, at present, are very common in the Schools; for it is asked, 1. Is *Good* of itself so desirable, as to never become an Object of Hatred? To which I answer, that Good is to be considered, either absolutely or comparatively. If we consider it absolutely, *i. e.* as in as much as it is good in itself, and perfect in its Manner, without any Relation of *Convenience* towards us, it excites our Esteem, or Admiration, but not our Love; for it cannot excite our Love unless it be appropriated to our Nature; nor even without that can it be esteemed as good by us. Whence *Cicero*, *lib.* 5. *de fine bon. & mal. bonum appello quidquid secundum naturam: quod contra malum.* But if Good be considered with regard to us, or as far as it actually is agreeable to us; it is then so much the Object of our Desires, as it cannot become that of our Hatred. For it is impossible our Will should hate that which flatters it agreeably; since the Nature of our Will is such, that it is always inclinable to love what pleases her. Whence it is, that our Will is necessarily determinated to love the sovereign Good, because the sovereign Good is always agreeable, and can never be disagreeable. But as particular Goods are subject to Mutability, and are sometimes agreeable, and sometimes disagreeable, *v. g.* Victuals and Drink, which please those who are hungry and dry, and are offensive to those who have took their

their Refection; whence it follows, that we love or hate the one and the same Thing, according as it appears good or bad to us: And if they appear neither good nor bad, we see it with Indifference; and therefore there is but one single incommutable Good, *viz.* the Almighty himself, whose Fruition will inebriate us with a Torrent of the purest Pleasures, beyond all Kinds of Satiety.

They ask, 2. If our Will hates Evil in such a Manner, as to never be capable to love it, as an Evil. I answer, that Evil, like Good, can be considered, either absolutely, or as an Evil in itself; or comparatively, as an Evil with respect to us. If we consider it in the first Manner, it is not impossible that Evil might be beloved by a created Will; because we often love bad and imperfect Things, provided they do not appear so to us. But if Evil be considered in the second Manner, *i. e.* as it is such with respect to us, or as it actually offends us, it cannot be the Object of our Love: Because the human Will cannot love a Thing which has no attractive Charms; which is the Case of Evil, as Evil with respect to us. Whence St. *August. lib.* 2. *confess. num.* 20. teaches, that no Body sins without his being engaged to it by some Appearance of Good. *Nec ipse igitur Catilina amavit facinora sua, sed utique aliud, cujus causa illa fallebat, ut scilicet illa exercitatione celerum capta urbe honores, imperia, divitias assequeretur.*

If it be objected that there are some Sins which proceed from pure Malice, and consequently that we can desire Evil, purely as it is an Evil, and in no other View: I'll answer, that though some Sins are called of *pure Malice*, because they are not committed either through Ignorance or Infirmity; and consequently are not excusable; the Guilty are notwithstanding prompted to commit them by some specious Appearance of Good; as when a Person in hope of Impunity, or without the least Provocation wounds another, or fires a House, he is excited to it, by some brutal Pleasure, otherwise he would not do it.

Likewise, when those reduced to Despair, wish to be no more, they do not wish that as an Evil to them, but as the End of all their Evils, and consequently consider it as a *Good*. On the contrary, the damned Souls in Hell, fly God, though he be the sovereign Good; because they look upon him as an Evil, if not absolutely, at least with respect to them, *i. e.* an implacable, and severe Punisher of their Crimes.

Therefore we are not to imagine that St. *Paul* has wished with an express Will, to be separated from God, which is the greatest of all Evils, when he said, *Rom.* ix. 3. *For I could wish that myself were separated from Christ for my Brethren:* Which must not be understood of a formal, and perfect Will, but only of a *Velleity*; since the Apostle knew very well that it was impossible to desire, as he did, to be united to *Christ*, and desire at the same Time, to be separated from *Christ*: For we never properly and expressly desire, what we know to be impossible; though, sometimes, through an Excess of Love, we abandon ourselves to Exaggerations.

The same Thing must be believed of the Desire of St. *Paul*, and of *Moses*'s Prayer, *Exod.* xxxii. 31. who addressing himself to God, says, *Oh, this People has sinned a great Sin, and have made them Gods of Gold. Yet now if thou wilt forgive their Sin: And if not, blot me I pray thee, out of thy Book which thou hast written.* On which Passage, St. *Augustin* writes, *quæst.* 147. *in Exod. Securus quidem hoc dixit, ut a consequentibus ratiocinatio concludatur; id est ut quia Deus Moysen non deleret de libro suo, populo peccatum dimitteret*; he spoke thus safely, says St. *Augustin*; that the Discourse should be concluded by what follows, that is to say, that as God was not willing to blot out *Moses* from his Book, he should forgive the People their Sins. For it was impossible that he who had always been united to him, by a sincere and pure Love, should be eternally separated from him. Which both *Moses* and St. *Paul* knew perfectly well: Whence neither of them consented of a formal Will, to their eternal Separation from God.

The same Answer must be given to all the other Objections taken either from the Scripture or the Fathers. For Instance, when it is said *Genes.* viii. 21. *For the Imagination of Man's Heart is evil from his Youth*; this Evil must not be understood of that which is not agreeable, but of the Volupties which excite our Senses, and consequently are received under the Appearance of Good.

They ask, 3. If the agreeable and profitable Good, are truly *Good*; or rather if none but the honest Good, or *Virtue*, deserve that Name? I answer, first, that the utile and agreeable Goods are neither good of themselves, nor *morally* evil, or comparatively to human Manners. For the utile and agreeable Good are either Goods of the Mind, or of the Body, or of Fortune. But those Goods are neither properly good nor morally evil; but only the Use we make of them is either good or bad; therefore they are Good, to those who make a good Use of them; and Evil to those who make a bad one, and consequently are neither good of themselves, nor morally evil. Virtue alone, or virtuous Acts, are to be esteemed morally good; provided we do not understand by Virtue, the Pride of the Stoicks, which make them say that a wise Man is sufficient to himself, and wants nothing else but his Wisdom. For such Vain-glory is so far from deserving to be called good, that it is rather the Cause and Source of all Evil.

I answer, secondly, that the agreeable and utile Goods, can be called physical, or metaphysical Goods. For every Thing that can help Mankind, can be called at least physical or metaphysical Good. For the Essence of a physical or metaphysical Good consists, in that it is perfect in its Manner, and can be of some Succours; which is the Case of utile and agreeable *Goods*, let them be *Good* of the Mind, or of the Body, or of Fortune, which all can help a Man to acquire others with a greater Facility; for he who possesses Science, or Strength, or Riches, which are all agreeable and utile Good, perform a great many very fine Things, which others who are destitute of those Advantages, can't. Therefore the honest Good, is not only physical or metaphysical Good; but all that is agreeable and utile must be ranked among those Goods.

They ask, 4. If something can be called utile, which is not honest? To this I answer, first, that the Name of utile is ambiguous, and its Signification uncertain. For if it be taken for all that, without Distinction, is conducive towards obtaining something else; I do not see why, that which is not honest, should not be sometimes esteemed *utile*. Since, for Example, nothing is less honest than Calumny, which notwithstanding proves sometimes utile, to those who desire to distress, or ruin others, or supplant them in their Posts. Likewise several make use of Money acquired by an unlawful Means, to buy Honours, Dignities, *&c.* and thus of all the rest. But if we take *utile*, for that only which procures our moral Advancement, renders us better, and disposes us to the Acquisition of the Sovereign Good; there can certainly be no utile Good repugnant to Honesty; since that Kind of Good, if it can be call'd Good, wounds deeply that principal Part of us, which is semblable to God, I mean our Reason; and consequently is rather to be esteemed an Evil, than *Good*. Whence,

I answer, secondly, that all that is contrary to Honesty, is not properly to be call'd utile; which is the Sentiment, not of the Stoicks only, but likewise of the *Peripateticians*, and other Philosophers, who defend it, against those who measure all Things by what is commodious and *utile*. Therefore that cannot be properly called *utile*, which is more hurtful than profitable; for *proprié bona dici non possunt quæ plus incommodi quam commodi habent*, says the 83d Law of the *Digest*, Title, *De Verbor. signific.*

Therefore, tho' several imagine certain Facts *utile*, which

which are not at all agreeable to Honesty, as Theft, Lyes, &c. they are not to be believed; though they be in a greater Number than those of a contrary Opinion; for very few know how to distinguish between true and false Good. According to this of *Juvenal*, at the Beginning of his tenth Satyr.

Omnibus in terris, quæ sunt a Gadibus usque
Auroram & Gangem, pauci dignoscere possunt
Vera bona, atque illis multùm diversa remotâ
Erroris nebulâ, &c.

The next Thing which falls under our Consideration, is the End of *Things*; for it is certain, that every Thing has been created for one End or other, though several of those Ends are not yet, and in all Likelihood never will come to our Knowledge. But some of those Ends are so clearly and perfectly known, that none but the *Epicureans* call them in question. Why, *v. g.* should Feet be given to Animals, but that they should walk; Ears that they should hear; Eyes that they should see? Thus the Roots of Trees are dispersed through the Ground, that they may receive the Aliments, &c. Therefore, there is scarce any Thing less probable, than what *Lucretius* says, *Lib.* 4. *de rer. natur.* in the Name of all the *Epicureans*, that the Eyes have not been given to see, nor the Feet to walk, &c. but that those have seen, and these walked after they have been formed. Thus he expresses himself, Verse 832, and following.

Nil ideo quoniam natum est in corpore, ut uti
Possemus: sed quod natum est, id procreat usum.
Nec fuit ante videre oculorum lumina nata:
Nec dictis orare prius, quam lingua creata est:
Sed potiùs longè linguæ præcessit origo
Sermonem: multo que creatæ sunt prius aures,
Quam sonus auditus: & omnia denique membra
Ante fuere, ut opinor, eorum quam foret usus.
Haud igitur potuere utendi crescere causâ.

As it belongs to the divine Providence to direct each Thing to its End, and that this vast Universe cannot be governed without the consummate Wisdom of the Creator, I cannot subscribe to the Sentiment of the *Epicureans*, and of *Lucretius* in particular; and tho' we have not yet discover'd the End of all Things in particular, we, notwithstanding, are very sure, that the Creator has appointed an End for each created Thing in particular.

Therefore all corporeal Things, either celestial or sublunary, even the Brutes which have no Faculty to govern themselves, or Reason, are directed and moved by the omnipotent Being towards their End, as an Arrow is directed by the Archer. But rational Creatures, as are Angels and Men, tend toward their End of their own proper Will; and chuse the Ways which they judge the most proper to conduct them to their Ends. Whence they are invited by the End, neither could they ever be persuaded to act, without some End; but move themselves of their own Accord, and with a previous Knowledge of their Understanding towards that End, which they know very well to be such.

An *End* is defin'd by *Aristotle*, *Lib.* 2. *Physic. c.* 3. *id cujus gratia fit aliquid*; that in View thereof something is done. There are two Sorts of *Ends*, *viz.* the *End* which is desired, and the *End* for which something is desired. For Example, the End desired in the Construction of a House, is a commodious Habitation; and the End for which that commodious Habitation is desired, is the Person who is to live in it. Again, there is the *End of the Work*, and the *End of the Workman*.

The *End of the Work*, or Operation, is that intended by the Work itself, as the End of Study is the Knowledge of Truth; because we must study only to discover the Truth.

The *End of the Operator*, or Artificer, is that intended by him; as the End of him who learns or teaches Philosophy, can be the Love of Truth, or a vain Curiosity, or something else.

Lastly, the End either of the Work, or of the Workman, one is the first, which is first intended; the other the second, or that which is placed between two, and the other the last, to which all the others have a Relation. Which last End is nothing else, but God himself, from whom all Things flow, and to whom they all return.

But though all Things tend towards procuring the Glory of the Creator, and are all moved by his special Favour; the rational Creatures are said, notwithstanding, to have that Tendency towards God, as their sovereign Good in a more particular Manner; as being sole capable of his Possession. Hence *Boetius*, *Lib.* 3. *de consolat. Philosoph. pros.* 2. *Omnis*, says he, *mortalium cura, quam multiplicium studiorum exercet, diverso quidem calle procedit, sed ad unum tamen beatitudinis finem nititur pervenire.*

This last *End* is defin'd by *Cicero*, *Lib.* 2. *de finib. bon. & mal. That, by which all Things are done well, and are related, and itself is related to nothing.* In the same Sense it is defin'd in the Schools, *that which is desired for itself, and all Things desir'd for it.* This *End* is either the true, proper, and natural End of all Things, *i. e.* to which all other Things have a natural Tendency, or is arbitrary, depending either on the Levity, or Impetuosity, or Affection of the Mind; such is Money with Respect to the Avaricious, Voluptuousness with Respect to the Voluptuous, &c.

But however, let it be how it will, it is certain, that the last, true, proper, and natural *End* of all created Beings, is God himself. Therefore, whosoever by a preposterous Love of himself, or of any other created Being, reports all Things to himself, or to that other created Being, as to their chief *End*, confounds the natural Order of Things.

If it be objected, that bad Actions being not related to God, he cannot be the chief End of all Things; I'll answer, that it is true, that in our Intention, bad Actions are not related to God; but they are so in Effect. Let it be granted then, our bad Actions have no Relation to God, because in those Actions, far from thinking of God, we depart from him as much as it is in our Power; but notwithstanding, they in reality tend towards God, either because he takes an adequate Satisfaction for the Injury done to his Glory, by punishing them eternally; or else, because in all those Things we search the sovereign Good, *i. e.* God himself, known, if not *explicitely*, at least *implicitely*; therefore we are carried by a natural Instinct to him, who alone can be the Cause and Principle of our Felicity. Hence St. *Augustin*, *Lib.* 1. *solil. num.* 2. otherwise *c.* 3. thus speaks to God, *Deus quem amat omne quod potest amare, sive sciens, sive nesciens.*

But that Motion whereby all Men incline towards God, is often interrupted by them; especially when they repose themselves in the Creatures, and search the sovereign Good where there is no true and solid Good, but only an apparent one to be found. Tho' this cannot be an Obstacle to God's being called the proper and natural End of all created Beings, but more particularly of Men; either because all Things and all Actions are terminated in God, or because God alone is, lastly, searched by us, though sometimes we know nothing of it ourselves; because he can alone appease our Desires, or gratify them. *Est enim*, says *Boetius*, *Lib.* 3. *de consolat. Philosoph. pros.* 2. *omnium summum bonorum, cunctaque intra se bona continens, cui si quid absoret, summum esse non posset, quoniam non relinqueretur extrinsecus quod posset operari.* Therefore in him alone, and not in a created Good, confin'd within very narrow Limits, we ought to put our whole Felicity, which according to the Definition of the same *Boetius*, *is a State perfect by the Assemblage of all Sorts of Goods.*

It is a State, *i. e.* a Condition of Life, stable and permanent; otherwise it could not be a blessed State.

Secondly, it is perfect by the Assemblage of all Sorts of Goods, to the Exclusion of all Evils, because it

it comprehends the sovereign Good.

This is the Notion of a true *Beatitude*, though *Beatitude* is commonly distinguished into two Sorts; one which is a *natural* and imperfect *Beatitude*, or the *Beatitude* of the *Way*; and the other *supernatural* and perfect, or the the *Beatitude of the Patrie*. I'll speak of these two *Beatitudes* in their Turn, and begin by the *natural Beatitude*.

When I mention here a natural Felicity, I do not understand as I have done in the preceding Article, the chief End of all human Acts, proper and physical; but only that Felicity, which the Philosophers have assured us, can be acquired in this mortal Life, by our own natural Forces; which is so imperfect and lame, that it scarce deserves the Name of Felicity; which is perhaps the Reason, why the antient Philosophers have taken so much Pains to establish it. For as they could discover nothing among all created Beings that could entirely satisfy the human Desires, they examined every one of them in vain, and after they had refuted the contrary Opinions, they at last could fix on nothing. Which Uncertainty, created an infinite Number of Opinions, all different from one another; for St. *Augustin*, *Lib.* 19. *de civit. Dei*, *c.* 2. quotes from *Varro*, two hundred and eighty eight different Sentiments of Philosophers, on *Beatitude*. Therefore it is true what *Seneca* says, at the Beginning of his Book of a *Blessed Life*, *That all want to live happy, but when they attempt to discover what can render Life happy, their Eyes grow dim.*

But as it would be too prolix, and in some Measure needless, to rehearse here all those different Opinions, I'll confine myself to those which have made a greater Number of Partisans, and begin by the Sentiment of the *Epicureans*.

The antient and modern Philosophers, do not agree among themselves, what was the real Sentiment of *Epicurus*, of the human Felicity. For as that Philosopher places that Felicity in the Sense of Voluptuousness, some have imagined that he meant thereby a sensual Voluptuousness, others that he only understood the Tranquility of the Mind. The first Opinion has gained the greatest Number of Partisans; who have sent down to Posterity the Reputation of *Epicurus*, aspersed with such filthy Spots, that it is almost impossible to wash it off. Others, however, as well in past Ages as in our Time, have endeavour'd to clear him of that Infamy; as *Torquatus apud Tull. Lib.* 1. *de finib. bon. & mal. Seneca*, *Lib. de vit. beat. c.* 13. *Diogenes Laertius*, *Lib.* 10. *Gassendi*, in his Animadversions on the 10th Book of *Laertius*, and especially in the 7th Book of the Life and Manners of *Epicurus*, *c.* 4, 5. &c. *Erasmus*, in the Colloquy, intitled *Erasmus*. For all these pretend that *Epicurus* led a very regular Life, has commanded nothing but what is right and just, and meant no other Voluptuousness, than that which arises from the Practice of Virtue.

As to what regards the *Cyrenaicians*, who had for their Chief *Aristippus Cyrenensis*, it is without doubt, that they propos'd to themselves no other Felicity, but that which consists in filthy and sensual Voluptuousness. As witnessed by *Cicero*, *Lib.* 3. *de offic.* towards the End. The impure *Mahomet*, is of the same Sentiment in his Alcoran, which his Followers call the *Book of Precepts*; and which he has written for the *Musulmen*, i. e. for those who call themselves by *Antonomasy*, devoted to God. For where he speaks of the Paradise which he promises to his Partisans, in the Chapter of the Cow, of Women, *&c.* it inculcates particularly the sensual Pleasures, and engage them to the Observance of his Law, by the Hope of such a Reward.

But however, if *Epicurus* has propos'd the sensual Pleasures as the sovereign Good, with the *Cyrenaicians*, *Mahometans*, and the vilest Tribe of the most filthy Men, he has pursued rather the Felicity of the Brutes, than a human Felicity.

But if *Epicurus* is to be understood of the Voluptuousness of the Mind, which those enjoy who live piously and soberly, I'll deny with *Seneca*, the Sect of of *Epicurus* to be that of the Wicked; though Reprobates borrow its Name for a Sanction to their Debaucheries, and Brutalities. However it is impossible to obtain any other natural Felicity, but that which consists in the Tranquility of an innocent Mind, and in the agreeable Practice of Virtue.

If it be objected by the *Cyrenaicians*, that the sensual Voluptuousness is desired for itself; and thus can supply the Place of the sovereign Good. I'll answer, first, that the sensual Voluptuousness is not desired by every Body as a sovereign Good, but only by those who being drowned in Blood and Flesh, have no Taste for spiritual Pleasures. Secondly, it is deceiving one's self to esteem a sovereign Good that which is desired for itself, without the least Appearance of Reason, by some; otherwise we should consider Wealth and Honours, which are desired for themselves by the Avaricious and Ambitious, as a sovereign Good; but that only is to be called sovereign Good, which can satisfy the Appetite of a Man, and can be possessed without Satiety and Anxiety. *What shall I say of the sensual Voluptuousness*, says *Boetius*, *Lib.* 3. *de consolat. Philosoph. pros.* 7. *the Desire whereof is full of Anxiety, and the Satiety of Repentance?*

The Sentiments of the *Stoicians*, on the human Felicity, is diametrically opposite to that of the *Cyrenaicians*; for they place that Felicity in the sole Virtue of the Mind, which they call *Wisdom*; as they do Misery, in the sole Malice, which they stile *Folly*; and in such a Manner, that even in the Privation of all the agreeable and profitable Goods, provided there was no Malice, they esteemed that Man happy, who should be indued with Virtue and Wisdom. Because they pretended, that *that* Wisdom was sufficient to itself, and wanted no foreign Succours; whence if the Acquisition of the corporeal Goods, and those of Fortune, could be desirable, it is not at all necessary; since without it, a wise Man can esteem himself happy. Nay, that it is even sometimes expedient for a wise Man to procure his own Death, as did *Marcus Cato*, after the Battle of *Pharsalia*, not to be obliged to lead an ignominious Life. Therefore they called all other Goods, except Virtue, Preferment, and Commodities, not real Goods; as they did not use to call any Thing else, except Vice and Folly, Evils, but only Incommodities, and Things to be avoided.

But to be better informed of this Opinion, we must consult *Seneca*, a strenuous Asserter of the Sect of the *Stoicks*, who teaches, *Epist.* 45. *That it is not he whom the Vulgar call happy, or who possesses immense Riches, that is really so; but only he, whose whole Possessions are in his Mind, and despises Pride, Grandeur, and Magnificence; who sees no Body with whom he would change Condition; who values nothing in a Man, but what makes him a Man, his Soul; who submits himself to Nature, follows punctually its Directions, and lives according to its Prescriptions; whom no Violence can deprive of his domestick Peace; who turns Evil into Good; who is sure of his Judgment, immoveable, intrepid; who can be mov'd by Force, but not disturb'd*, &c.

But though the *Stoicks* boast of all these Things, they could never persuade prudent and discreet Men, that the whole human Felicity, so entirely consists in the outward Shew of a vain Virtue, as never to be disturb'd by Sickness, Poverty, and the other Incommodities of Life; for even true Virtue itself, which is very different from the vain Ostentation of the *Stoicks*, cannot be call'd Beatitude, but only the Way to it; since it cannot of itself, render a Man happy, but can only help him to acquire in Time, that sovereign Good to which he is naturally inclin'd.

St. *Augustine* reproves very well this extravagant Sentiment of the Stoicks, *Epist.* 155. otherwise 52. *num.* 2. otherwise *c.* 1. in these Words: *Unde in errorem absurdissimum lapsi sunt, ut cùm asseverant etiam in Phalaridis tauro beatam esse sapientem, cogantur fateri vitam beatam aliquando esse fugiendam; exaggeratis enim malis corporis cedunt, atque in eorum molestiis gravissimis abscedendum ex hâc vitâ esse descernunt.* i. e. whence

whence they are fallen in a very absurd Error, for while they maintain that a wise Man can be happy even in the Bull of *Phalaris*, they must be forced to confess, that a happy Life is sometimes to be avoided. For they are overcome by the great Number of Infirmities, and declare, that it is licite to accelerate their Death, to rid themselves of the greatest Calamities. And lower, *num.* 3. *O nimium superba jactantia! si beata vita est in cruciatibus corporis, cur non in eâ manet sapiens ut ruatur: si autem misera est, quid obsecro te, nisi Tiphus impedit ne, fateatur?* i. e. O too monstrously proud Ostentation! If the Felicity of this Life can be found in Torments, why should not the Wise remain in them, to enjoy it? But if on the contrary, such Life is miserable, what could hinder them from confessing it, but their Pride?

The *Peripateticians* are of Opinion, that *Felicity* is all that's good and perfect, so as to satisfy entirely a human Appetite. Hence they do not place it in the sole Pleasure with the *Epicureans*, nor in Virtue alone with the *Stoicks*, but that every Body should live according to Nature. To live according to Nature, is interpreted by *Piso*, *Vivere ex hominis naturâ undique perfectâ, & nihil requirente*, i. e. To live according to human Nature every Way perfect, and wanting nothing. In that Sense *Beatitude* is defined by *Aristotle*, chief of the *Peripateticians*, *lib.* 1. *Ethic. c.* 6. *Operatio animæ secundum virtutem, in vitâ undique perfectâ.* i. e. An Operation of the Soul, according to Virtue, in a Life every Way perfect.

It is call'd an *Operation*, not an Habit or Faculty; for which he gives this Reason, *c.* 9. of the same Book, That as in the Olympick Games, the most beautiful, or strongest, were not crowned, but those only who fought and conquered; likewise, those only who act justly and honestly, obtain the Crown of Felicity. But, however, this Reason seems only to prove, that the Acts of Virtue are only the Road to Beatitude, not the Beatitude itself: Which is rather a certain permanent *State*, as we have quoted it from *Boëtius*, than an Act, or Operation which soon passes; as we will shew hereafter. But as this Operation must be very excellent, *Aristotle* refers it to the Mind, not to the Body: But he is not pleas'd to tell us what, and which it is; though he says, that *it must be according to Virtue*, because *Virtue* is the most stable of all human Goods, which cannot be ravished from us in Spite of us, as are all external Goods, nor forgotten as Learning.

He adds, in a Life *every Way perfect and wanting nothing*; because there are several Things to be join'd to Virtue to acquire the Beatitude, *which is a State perfect by the Aggregation of all Sorts of Goods.*

And, First, There are required the internal Goods, either of the *Mind*, as Science, Prudence, *&c.* and of the *Body*, as Beauty, Health, Strength, without which no Body can every Way be happy; for if some of those Advantages be wanting, they are always wish'd for.

Secondly, The external Goods, or the Goods of *Fortune*, are likewise necessary; which Virtue uses as Instruments, or Assistants: Therefore *Riches* are wanted for Magnificence; *Power*, for the Accomplishment of Promises; *Friends*, for Authority and Esteem.

There are required besides *Nobility*, *Glory*; i. e. a fine Reputation; and even *Praise* and *Honour*, i. e. a Reputation sustain'd by noble Deeds; for Honour reflects rather on the Person who respects, than on the Person respected.

Lastly, All these Things must be perpetual; for as one Swallow does not make the Spring, says *Aristotle*, *Lib.* 1. *Ethic. c.* 6. neither can one Day make a Man happy.

This is the Sentiment of *Aristotle*, and of the *Peripateticians* on Beatitude. In which, however, he makes no mention of the sovereign Good, or of God. For though in the first Book of the *Ethicks*, *c.* 10. he considers Beatitude as a Gift from Heaven, he notwithstanding declares that it must be acquired by Study and Practice; so that if a Man be indued with some human Virtues, and has besides, Friends, Honours, and Riches, he may be supposed to enjoy a Felicity, without God; which is contrary to Reason. I confess that the Beatitude mentioned by *Aristotle*, is imperfect; and such as he imagines can be enjoyed in this Life. For no Body is properly happy in this mortal Life, subject to so many Calamities: And if there could be any Felicity in it, it should rather be placed in the Tranquility of the Mind, and an agreeable Security, than in the Operation of the Soul.

But how could that Felicity be compatible, with that Multitude of Evils we are environed with, ever since *Adam*'s Sin? Let's hear on that Subject, the Holy Ghost speaking in *Job*. *A Man*, says he, xiv. 1. *that is born of a Woman, is of few Days and full of Trouble.* Neither can those Miseries be removed by those Commodities required by *Aristotle*, to render a Man happy; for if he be in Health, he is afraid of Diseases, if rich, full of Honours, and powerful, he is exposed to Jealousy and Envy; whence he is afraid of Assassins, Thieves, of Fire, and all that can hinder this Life from being secure and happy. *An tu potentem censes*, says *Boëtius*, *lib.* 3. *de consolat. Philosph. pros.* 5. *quem videas velle quod non possit efficere? Potentem censes, qui satellite latus ambit qui quos terret, ipse plus metuit, i. e.* Can you imagine that Man powerful, whom you see wanting what he cannot accomplish? Can you imagine him powerful who is environed with Satellites? and who is more afraid of those he keeps in Awe than they are afraid of him. And lower, speaking of Friends, *an præsidio sunt amici, quos non virtus, sed fortuna conciliat? sed quem felicitas amicum facit infortunium facit inimicum? i. e.* What Dependance can we have on Friends who are the Proselytes of Fortune, not of Virtue? But whom Felicity has made Friends, Misfortune makes Enemies. And having thus considered all the different created Goods, which are too imperfect to satisfy our Mind, he concludes at last *Pros.* 10, that there is no true Felicity to be expected in this Life, but only in the other, where our Mind will be satiated with God.

If it is so, *Aristotle* had no Reason to reprove *Solon*, *lib.* 1. *Ethic.* xi. for being of Opinion, that no Man could be happy but after his Death; and for denying the Felicity of *Cræsus*, though loaded with Riches and Glory. In fact it is certain, that those who are considered as the most happy in this Life, are always to fear the Inconstancy of Fortune: For where there is Fear, there is no Security, no Tranquility of Mind, which are all requisite for a true Felicity: Therefore,

——— ultima semper
Expectanda dies hominis dicique beatus
Ante obitum nemo, suprema quæ funera debet.

Among the Pagan Philosophers, none have approached nearer the Truth than the *Platonicians*, whence St. *Augustin*, *lib.* 10. *de civit. Dei*, *c.* 29. speaks to them thus, *Videtis utcunque, etsi de longinquo, etsi acie caligante, patriam in quâ manendum est, sed viam quâ eundem est, non tenetis, i. e.* You see however, though afar off, though a Multitude darken the Sight, the Country, where we are to settle, but do not follow the Way which leads to it. St. *Augustin* meant here, by *Way*, the Incarnation of the Son of God, whereby we are saved.

For *Plato* (tho' he seems to believe that there is a certain Felicity in this Life, enjoyed by God's Friends, who exercise themselves in all the moral Virtues, and speculative Disciplines, and especially Arithmetick) teaches, notwithstanding, that there is no solid and true Felicity but in the other Life. Therefore he affirms, *That all those who depart this Life appear before a just Judge, from whom they hear an irrevocable Sentence; whence if the Souls, while they have been incarcerated in their Bodies, have resisted the Cupidities, and cleaved to God by Wisdom and Virtue; he believes, that they can entertain a great Hope at the Point of Death, that they are to receive the Reward due to their*

Virtue, and be ravished from these transitory Mansions, to everlasting ones of Glory; where they are to enjoy, to all Eternity, an unalterable and sovereign Good. But if they have abandoned themselves to the captious Charms of this World, and have neglected to pray the supreme Being, to correct their Errors and Vices, they are to be dragged by those Devils, who have been Companions or Guardians of their criminal Life, into a Place of Torments, where they are to be punished for their Crimes. So that if they can expiate them, they are, after they have been purged, to obtain the Reward of their Virtues; but if their Crimes cannot be washed away, they are to be condemned to eternal Torments.

But however *Plato* has erred, in that he imagined, that the Souls were shut up in Bodies, as in Prisons, for certain Crimes they had committed in their former Life. But all the rest he has wrote of Beatitude, except that he has not known the right Way which leads to it, *viz.* the divine Mediator, is very little different from the Christian Truth. For with the Christians he has placed Man's Felicity in God alone; which is the Reason why the antient Fathers have all very much recommended the Philosophy of *Plato*. *Let every Body be silent*, says St. *Augustin*, *lib.* 8. *de civit. Dei*, *c.* 8. *before those Philosophers who have not said that that Man was happy who possessed his Body, or his Mind, but who enjoys God; not as he enjoys his Body or his Mind, or as a Friend, his Friend, but as the Eye enjoys Light.*

For *Plato* in *Phædone*, and *Thæteto*, affirms, that the sovereign Good of the Soul is *God's Similitude*; and that no Body can become like that *divine Sun*, unless he be irradiated with some Infusion of his Light; and consequently that the sovereign Good of the Soul consists in the Contemplation of God, or in the Union of the human Kind with the divine Light. And if we believe *Plato*, this Good possesses first the Mind, and from thence descends in the Will.

Aristotle is offended at *Plato*'s calling the *Idea*, or Contemplation of the sovereign Good, the human Felicity; and on that Account pursues him (tho' *Plato* had been his Master) *Lib.* 1. *Ethic. c.* 4. after he had declared, that *Plato was his Friend, but much more the Truth.* And he argues with him, as if *Plato* had understood nothing else by the *Idea* of Good, than that *Notion* of Good call'd *transcendent*, and *ideal*; when as he had rather design'd thereby the Contemplation of *Good in its Essence*, or the Vision of God Face to Face: As it can be plainly seen throughout his whole Book, *Of the Republick.*

From this Sentiment of *Plato*, of God and of the human Felicity, we'll pass to what the Christian Faith teaches us of a *Supernatural Beatitude.*

If it be impossible that the human Felicity should consist in created Goods, *i. e.* in the external ones of Fortune, *viz.* in Riches, Honours, Dignities, *&c.* or in those of the Body, as Health, Beauty, Strength; or in those of the Mind, *viz.* Science and Virtue; since all those Sorts of Goods are imperfect; and ordered towards one far more excellent; it must be said with St. *Augustin*, the last Book, *De civit. Dei*, the last Chapter, *That he who has given the Virtue, is to be the Reward of Virtue; since he can give nothing better, and greater than himself: What else could he have said by his Prophet, I'll be their God, and they'll be my People; but that I'll be all that they can desire, their Life, Salvation, Honour, Glory, their Peace, and all Sorts of Goods?*

This *Felicity* is justly call'd supernatural, because it cannot be obtained by our natural Strength, but only by the Assistance of God's Grace: It can notwithstanding be call'd natural, if by the Name *natural*, we understand what becomes a Man according to Nature. For we have heretofore shewn, that God was in Fact, the last, natural, and physical End of all Things; because all Things have been created for him. But he may be call'd, in a more particular Manner, the last natural End of Man; because human Nature is so filled with him alone, that it cannot be satiated with any Thing else: Therefore there is no other *objective Beatitude*, as they call it, or no other *Object* of human Felicity, but God himself; to whom while we are intimately united, we are render'd happy.

Besides this *objective Beatitude*, which consists in the Object which renders us happy, there is another call'd *formal*; on which the Schools are much divided. This *formal Beatitude is the Manner whereby a created Soul is rendered happy in the Possession, and Presence of the sovereign Good:* Or, *it is the State of the Soul, reposing herself in the sovereign Good, which she sees and loves:* Or, *a sweet Conjunction of the Soul, with God present and possessed.* Because whoever possess God is happy: Therefore the formal Felicity is better defined the Possession of the sovereign Good.

The *Tomists* place the Essence of this Beatitude in the *intuitive Vision of God.* The *Scotists* in the *fruitive Love.* And several, in the *Joy* arising from the Contemplation of God.

They call *intuitive Vision*, that *whereby we see an Object present, and Face to Face:* And *fruitive Love*, that *whereby we are united to the sovereign Good, present and possessed, as to our chief End.* And, lastly, a *beatifick Joy*, the *perfect and pleasing Sense a created Mind is affected with in a Re-union with the sovereign Good, so as to desire nothing more*; but should repose in it as in a vast Ocean of Pleasures. That *Joy* the *Blessed* are inebriated with, in the Presence and Possession of God, is call'd *primary*, and beatifick; but there is another Sort of Joy, *secondary* and accessory, which is only an *Appendix* of *Felicity*; whereby the Blessed rejoice in their Beatitude.

Therefore the *intuitive Vision*, which wants an Object present, differs from the *Vision*, which they call *ideal* or *abstractive*; whereby an absent Object is only represented by the Idea. The *Peripateticians* imagine this Idea to be commonly abstracted from Things, though the Idea of God, and all other innate Ideas, are not abstracted from Things, as we'll shew hereafter: Whence it should be better call'd an imperfect and *ideal* Knowledge, than abstractive.

There are three Degrees of Knowledge within us; or God infuses three Kinds of Light into our Minds: First, the *Light of Nature*; whereby we naturally know God himself, and several other Things. Secondly, the *Light of Grace*, or of Faith by *Jesus Christ*, whereby the divine Mysteries are manifested to us; as the Trinity of the divine Persons, in Unity of Nature; the Incarnation of the Word, *&c.* and, Thirdly, the *Light of Glory*, whereby God lets himself be seen by the Blessed, in his Glory. Of the first Sort of Light the Royal Prophet speaks, *Psal.* iv. 7. *The Light of thy Face hath shined upon us, O Lord. Simeon* mentions the second, *Luk.* ii. 32. in these Words, *A Light to lighten the Gentiles.* And of the Third, is commonly understood the 10th Verse of the *Psalm*, *In thy Light we shall see Light.*

To these three Sorts of Lights answer three Sorts of Love, *viz.* a *natural Love*; or the natural Inclination we have towards our sovereign Good. A *supernatural Love*, or Charity, which the Holy Ghost, through *Christ*, infuses within us; that despising all terrestrial Things, we should have no Taste but for what is in Heaven. Lastly, a *Love of Fruition*; whereby the Blessed are perfectly united to God, as to their sovereign Good; and who inebriates them with an inconceivable Pleasure. The Love wherewith we love God, either naturally or supernaturally, is only a Love of Desire, which does not render us really happy but only in Hope. The Love of Adhesion, or *Fruition*, is call'd the Love *Patriæ*; whereby the Blessed are intimately united to God.

Therefore the Blessed shall see God, love him, and be delighted in him: But it is much disputed, whether the Vision, or the Love, or the Joy, expresses the Essence of Felicity.

For my Part I am of Opinion, that the *formal Beatitude* consists in the Joy resulting from the Vision and Love of God: Since the formal Beatitude is the State of a created Soul, whereby she reposes with Delight and Pleasure, and entirely satisfy'd, in her sovereign

vereign Good; seen and beloved, as in her last End: Which State, or Condition, of a created Soul, is a true and perfect Joy; which God, whom she sees and possesses as her sovereign Good, inebriates her with. For the Joy or Pleasure of the Soul is nothing else but that intimate, and exquisitely agreeable Sense she is affected with in the Presence and Possession of some Good: Whence, if it be the sovereign Good, the Pleasure or Joy will be entirely perfect and compleat; such as that of the Blessed, who desire nothing more, but repose themselves in the sovereign Good. Therefore a *formal Beatitude* consists in a sovereign Joy, Pleasure, or Delectation.

Having thus discovered what was the sovereign Good, and what that End towards which all our Actions have a Tendency, we must consider at present, those human Acts, such as they are to be directed by Rules of *Ethicks*, towards that End.

Therefore we must search first, what is a human Act, and how many. Secondly, if all human Acts be voluntary. Thirdly, if it be free. Fourthly, if all human Acts be good or bad, and none indifferent. Fifthly, which is the Usage of the Affections of the Soul, and if they be subject to the Rules of the *Ethicks*.

I call, with St. *Thomas*, 1, 2. *quest.* 1. *art.* 1. a human Act that which is done by a Man, acting like a Man; *i. e.* with Prudence and Reflection; that a human Act may be distinguished from that called the Act of a Man, and which is done without the least Reflection.

Of those *human Acts*, some are interiors, commonly called *eliciti*, or gained; and the other exteriors, called *imperati*, or commanded.

The *interior Acts*, are those which are gain'd from the Will, and are accomplished in it; as the Acts of Love and Hatred.

The *exterior Acts*, are commanded from the Will, but are executed by our corporeal Strength, as Walking, Speaking, Writing, *&c.* and even of these Acts several are called transitory, because they pass from the active Cause, to a foreign Object, as Writing, Striking, Building, *&c.* Others are called *immanent*, because they produce nothing sensible beyond the active Cause, as shaking the Head, the Motion of the Arm, rubbing the Eye, *&c.* But however, those are more properly called *imminent Acts*, which remain in the Mind, as Love and Hatred.

To find the Number of the interior Acts, every one must be attentive to what passes within him.

For first, we irresistibly desire *Good* in general, or our Beatitude, and avoid Evil or Misery; whence the first Act of our Will, is the *Love of Good* in general, or of our Felicity, and a Hatred for Evil or Misery. Therefore Good in general, or our Felicity, if it be considered as it is convenient to us, is very well term'd, the primary Object of our Will. But if it be considered as it fixes and terminates our Desires, it is called the last End. Lastly, if it be consider'd as rendering us happy by its Possession, it is called our Felicity.

Secondly, that we may gain the *Good* and avoid the *Bad*, there are Means to be taken, therefore the second Act of our Will is *Consultation*, or an Enquiry into the Means to conduct us to our End.

Thirdly, after that *Consultation*, we chuse one of those Means, and thus the third Act of our Will is *Election*, which is not ill defin'd, the Assumption of one Means before another, in order to gain our End.

Fourthly, where through that Means we have gained our End, we repose ourselves in it and enjoy it, especially if nothing remains to be desired; whence the last Act of our Will is *Fruition*. But if by Misfortune, any Body was conducted to a bad End, he would complain and grieve at it, especially if he could not extricate himself from it.

St. *Thomas* has very near followed this Order, for he reckons six *illicit*, or interior Acts of our Will, three whereof regard the End, *viz. Will* itself, or as they use to speak, *Volition*, *Intention*, and *Fruition*; and three the Means to obtain that End, *viz. Consent*, *Election*, and *Use*.

They call Means all those Things which are conducive towards obtaining the End, as Pharmacy is towards recovering Health.

Volition is defin'd in the Schools, a simple Love of the End, without the least Regard to the Means conducive to that End. Therefore it is sometimes called *Velleity*, because imperfect Desires are often express'd, by the Imperfect Tense of the Optative Mood; as an idle and indolent Man often expresses himself thus, O! I would grow learned, or rich; but mean while, he hates Labour and Study, which are the Means conducive to Learning and Riches. But a laborious and diligent Man, speaks always in the Indicative Mood, *viz.* I will grow learned, I will grow rich, *&c.* and presently applies himself to Work and Study; which is very well express'd by *Solomon* in these Words, *Prov.* xiii. 4. *The Soul of the Sluggard desires and has nothing; but the Soul of the Diligent shall be made fat.*

Intention is term'd, *the Act of the Will whereby we tend to our End through certain Means.* Though those Means are not determined till the Accession of the Election.

Lastly, *Fruition is an Act of the Will, cleaving to the Good possessed, as to the last and sovereign Good*; for according to St. *Augustin*, *Lib.* 1. *de Doctrin. Christ. c.* 4. to enjoy, is to be tied by Love to something for the Sake of that Thing alone. Whence it is understood, that *Fruition*, properly so called, is not of the Means, but of the last End. As the Master of the Sentences teaches it, from St. *Augustin*, *Lib.* 1. *distinct.* 1. he believes that all the human Malice, consists in these two Things, *viz. to enjoy Things which are only to be used*, and *to use Things which are to be enjoyed*; or to enjoy the Creatures, which are only profitable Goods, and ordain'd to arrive at the Possession of God; and make Use of God as a Means to arrive at something, while he alone can fix our Desires, and bless us with a perfect and indicible Joy. These are the Acts of the *Will*, which regard the End, according to St. *Thomas*.

Those which regard the Means, are, *Consent*, *Election*, and *Use*, which are said to be preceded by *Consultation*, or *Deliberation*, commonly attributed to the sole Understanding, but falsly.

Therefore *Consent*, according to that Doctrine, is commonly defin'd an Act of the Will consenting to the Understanding, which judges, after a mature Deliberation, that one Means is more convenient than another.

But as neither Judgment, nor, consequently, Deliberation, pertains to the Understanding alone, as I'll shew in the Metaphysick, we must define Consent in some other Manner, where we'll explain what is Deliberation, Consultation, or Council.

Deliberation, or *Consultation*, is an Enquiry into the Means, which pertains both to the Understanding and Will; to the Understanding because it conceives those Means, and to the Will because in examining them, it judges if this is preferable to that.

Consent seems to be nothing else but *an Act of the Will*, from the previous Perception of the Understanding, approving one Means rather than another.

Election, or *the Assumption of one Means before the other*, differs very little from the *Consent*.

Use is *an Act of the Will*, whereby it makes Use of the corporeal Powers subject to it; and applies them to the Means in order to gain the End propos'd.

We have called *Acts commanded*, those which are commanded by the Will, and performed by the other Faculties; which Definition has been the Occasion of several *Queries* in the Schools, and is of too much Consequence to be passed by in Silence.

It is asked first, what is commanded, and which Faculty it belongs to? I answer, in the Canonist's Dialect, that Command is an Act of something superior, intimating something, *i. e.* denunciating something, or inculcating it in the Mind, and compelling it to perform

form it. Therefore it includes the Underſtanding and Will. The Underſtanding, becauſe what is intimated, muſt penetrate the inmoſt Receſs of the Mind to be underſtood; and the Will, becauſe Impulſion is an Act of the Will, not of the Underſtanding; and as *Command* conſiſts particularly in that Authority, and Impulſion; hence it ſeems that it ought to be attributed to the Will, eſpecially in this Place where it is nothing elſe but *an Act of the Will, moving and directing the inferior Powers*, i. e. the Organs of the Senſes, *which the Creator has ſubjected to it.* Though St. *Thomas*, 1, 2. *quæſt.* 17. *art.* 1. ſeems to differ a little from this Sentiment, where he ſays, that *Command* is an Act of our Reaſon, not of our Will. But all others define *Command* by an Act of the Will, whence this Diſtich:

Sic volo, ſic jubeo, ſit pro ratione voluntas.

They aſk, ſecondly, if the Will moves the Underſtanding, and be moved by the Underſtanding in its Turn?

St. *Thomas* anſwers, 1, 2. *quæſt.* 9. *art.* 1. that the Intellect is mov'd by the Will as to the Practice of the Act, *i. e.* as to acting, or not acting; but that the Will is mov'd by the Intellect, as to the Species of the Act, *i. e.* to act this or that.

But however, the Intellect is not always mov'd by the Will in the Perception, as to the Practice of the Act; either becauſe the Perception is not an Action, but a paſſive Affection, or a Modification of the Underſtanding; or becauſe Ideas or Perceptions, are often excited in our Underſtanding againſt our Inclination; though ſometimes the Will directs the Underſtanding towards its Perceptions; and in that Senſe can be ſaid to move the Underſtanding; but it is better to ſay that the Mind moves itſelf towards the Underſtanding.

They aſk, thirdly, if the Will commands the Motions of the ſenſitive Appetite?

St. *Thomas* anſwers, 1, 2. *quæſt* 17. *art.* 7. that the Will governs the ſenſitive Appetite, with a *political*, not a deſpotical Empire. For he diſtinguiſhes two Sorts of Powers, *viz.* a *deſpotick* one, which is irreſiſtible, ſuch as the Power of a Maſter over his Servants; and a *political* or civil one, which is leſs rigid; as that of a King or Prince over his Subjects. Which Diſtinction he borrows from *Ariſtotle*, *Lib.* 1. *politic. c.* 5. Afterwards he conſiders in the ſenſitive Appetite, either the *Quality*, or *Diſpoſition of the Body*, which conſiſts in the Motion of the animal Spirits, or the rational Soul itſelf, which on Occaſion of that Motion, is determinated to love the ſenſible Good, or to avoid Evil.

Therefore it is with a very great Appearance of Reaſon, that the Will is ſaid to have a political Empire, or Power on the various Motions of the ſenſitive Appetite; in as much as it can, in ſome Meaſure, moderate thoſe Motions, if it it be very attentive to thoſe Things which give Occaſion to the other Motions. But notwithſtanding, it does not govern thoſe Motions with a deſpotick Power. Neither can it be an exceptionable Obſtacle to their being excited in the Organs of the Body, either from the Diſpoſition of the Body, or the various Occaſion of the Objects. Though our Will, can even now after the Fall of the human Nature, refuſe to obey the Motions of the ſenſitive Appetite, though they be excited within us againſt our Will. In the State of Innocence, all the Motions of the Body were entirely ſubject to Reaſon.

They aſk, fourthly, if the Will commands the internal Senſes, *viz.* the Force of Imagination and Memory?

I anſwer, that it does not command them, becauſe ſeveral Species or Repreſentations, are excited within us againſt our Will; neither can we remember, or forget ſeveral Things when we pleaſe.

They aſk, fifthly, if the Will commands the external Senſes, and the motrice Faculty?

I anſwer, that it commands the external Senſes, as far as it can have any Aſcendancy over their Organs, while they are ſound, *v. g.* it can cloſe or open the Eyes at Pleaſure; but if the Eyes or Ears be opened, it cannot hinder the Light, Colours, or the Sun, from being made ſenſible to us.

Likewiſe it commands the motrice Faculty in thoſe Motions, which are called voluntary, ſuch as the Motion of the Arms, Feet, *&c.* but it does not command thoſe which are neceſſary, ſuch as the Motion of the Heart, and Arteries. It is true that none but voluntary Motions are eſteemed human Acts.

From this I'll proceed to examine if all Sorts of *human Acts* are voluntary.

That is ſaid to be voluntary, which proceeds from the Will as ſpontaneous, which is done freely and without any Coaction. The ſpontaneous and voluntary, differ among them, in that every voluntary Act is ſpontaneous, but every ſpontaneous Act is not voluntary. For the' ſpontaneous is alſo attributed to Beaſts, and Things inanimated; for a Horſe runs to Water ſpontaneouſly, and Water is ſaid to flow ſpontaneouſly; but voluntary becomes only rational Beings.

But however, *Ariſtotle* has confin'd ſpontaneous to that only which is voluntary, whence he has defin'd it, *Lib.* 3. *Ethic. c.* 3. *that which is done from an intrinſick Principle, knowing every Thing relating to the Action*, i. e. which is done by the Will, which is intrinſick to the rational Agent, *viz.* Man; and which is the ſame Thing with the Mind itſelf, which knows all the Things in which the Action conſiſts, or which knows the Object, End, and Circumſtances of the Action.

The *Object* of the Action, is that towards which the Action tends. The *End*, that for which the Action is done. And, the *Circumſtances*, are all thoſe Things which accompany the Action, as I'll explain hereafter.

Voluntary, could be defin'd more conciſely, *that which is done with the Underſtanding, Knowledge, and the Will's Conſent.* For there are two Things diametrically oppoſite to *voluntary*, viz. *Force* or *Coaction*, and *Ignorance*. *Force* is defin'd by the *Juriſconſultus*, *Paul*, *Leg.* 2. *digeſt. Titul. quod motûs cauſâ*, &c. *the Impetuoſity of a very great Thing which cannot be repelled*; to which it ſhould be added, and contrary to the Propenſity of the Will: And *Ignorance* is an Abſence of Knowledge. Hence it follows, that *involuntary* is very well defin'd by *Ariſtotle*, *Lib.* 3. *Ethic. c.* 1. *that which is done either by Force or Ignorance.* I'll ſay then with *Ariſtotle*, that Force or Violence, is an inſuperable Obſtacle to what's called voluntary: Or that all Things done by Force are involuntary, becauſe we call voluntary what is done ſpontaneouſly, and with the Propenſity of the Will, which is not the Caſe of Things done by Force, *v. g.* when any Body is put in Priſon, he is not ſuppoſed to enter it ſpontaneouſly, but on the contrary, does it againſt his Will. But as there are two Kinds of Acts of the Will (as heretofore obſerved) *viz. interior* and proper Acts, called *elliciti*, as Love and Hatred; and *exterior* or commanded Acts, as Ambulation, Locution, *&c.* we muſt examine which of them can be properly Force, or ſubject to an external Violence.

The Will cannot be forced with regard to interior and proper Acts, becauſe thoſe Acts are done with the Propenſity of the Will; ſince that is Violence which is done againſt the Inclination of the Will. For Love, for Inſtance, cannot be againſt the Will's Inclination. For if Violence could be done to the Will, it would be willing and unwilling at one and the ſame Time. It would be willing from an Hypotheſis, and unwilling becauſe it would be repugnant to itſelf, which is abſurd. Therefore the Will cannot be forced with Regard to interior and proper Acts.

If it be objected that God is more potent than the Will, and therefore can force it, even with Regard to interior Acts; I'll anſwer, that though God be more powerful than our Will, he notwithſtanding, cannot force it; but only can change it, and make it

it willing of unwilling it was before. For as we have observed already, to force the Will with Regard to interior and proper Acts, is to move it against its own Inclination; so that it would be willing unwilling, which implies a Contradiction. Therefore God changes the Will by his Grace, but not forces it.

The same cannot be said of the *exterior* or commanded Acts with Regard to which the Will can be violated; because those Acts are commanded by the Will, and are practis'd by the corporeal Faculties, which can be forced. For a Person can stop the Arm of another against his Will.

Fear, is very near to Coaction, which *Fear, is a Trepidation of the Mind, caused by a present or future Danger.* The Distinction of *Fear* into a violent or slight Fear, must be taken from the Genius of the Person frightened. But however, the Fear of Death, of Mutilation, and the like, is always great. Therefore:

Every Thing done through a great Fear, is (according to *Aristotle, lib. 3. Ethic. c. 1.*) absolutely and in itself involuntary, because the Will is repugnant to it: Such is the Act of a Person who delivers his Purse to a Thief, because threaten'd with Death if he refuses. Whence all that's contracted through a great Fear, the Laws declare it void.

But, notwithstanding, if Things done through Fear are consider'd respectively to a greater Evil, either real or apparent, which they desire to avoid, they must be accounted voluntary, according to *Aristotle*'s Opinion, *Lib. 3. Ethic. c. 1.* since they proceed from the Will with a Knowledge of all the Things relating to the Action; *e. g.* when the Captain of a Ship, during a Tempest, thro' Fear of the imminent Danger, to avoid Death, and save his Life, throws Part of the Cargo into the Sea, his Act is voluntary, tho' acted through Fear, because his Will is determined to that *Jet*, and knows all the Circumstances of that Action.

If I be asked the Difference between acting *through Fear*, and acting *with Fear?* I'll answer, that he acts *through Fear*, who, without it, had not acted in that Manner: And he acts *with Fear*, whose Action is accompanied with *Fear*, but is not the Cause thereof: Thus, a Thief robs *with Fear*, not *through Fear*; for if there was no Fear, he would still be more willing to rob: So that nothing hinders the Acts done *with Fear* from being voluntary.

We must, at present, inform ourselves what is *Ignorance*; how many Sorts of Ignorance; and which is the Ignorance which hinders an Action from being voluntary.

Ignorance, in general, is the *Absence*, or *Want of Knowledge*; which if join'd with some Error, is call'd *Ignorance of a depraved Disposition*, or *depraved Habit*; because Error is a depraved Disposition of the Mind, or depraved Habit: But if it be not joined with Error, then it is either the Ignorance of a Thing, which a Man by the Condition of his Nature is not obliged to know; *v. g.* how great is the Circumference of the Globe; which *Ignorance* is call'd of *pure Negation*; because God has been pleased to refuse to our Nature the Science opposite to that Ignorance: Or, it is the Ignorance of a Thing we are obliged to know; and is call'd *Ignorance of Privation*, or *Privation of that Knowledge* we should acquire.

This *Ignorance* can be consider'd, or with Regard to the Person who is ignorant, or to the Thing he is ignorant of; or lastly, with respect to the Action, which is done through Ignorance.

If it be consider'd with respect to the Person who is ignorant, the Ignorance is either *vincible*, or *superable*; or *invincible*, or *insuperable*.

A *vincible Ignorance*, is that which can be conquered by a moral Care, or Diligence. And of this there are two Sorts; for it is either affected, as when any Body pretends to be ignorant of something, *viz.* some Precept, that he may have a more plausible Pretence to transgress it: Or, it is *gross* and *idle*; as when Somebody delights in such a Manner in his Ignorance, as to despise or neglect all Means to conquer it; but however of what Kind this *vincible Ignorance* may be, it never deprives us of our Liberty; and therefore cannot excuse us from Sin.

The *invincible* or *insuperable Ignorance*, is that which with all the Care and Precautions imaginable cannot be conquered, and therefore is free from Sin: But it cannot be admitted with Regard to the Precepts of the Law of Nature, as I'll shew hereafter.

But if we consider *Ignorance* with Respect to the Thing we are ignorant of; one if of *Right*, whereby the right itself, or the Thing which should be known, is not; as if one was ignorant of the Dogma's of his Religion, or of the Laws of his Country; and the other of *Fact*, whereby we are ignorant of some Fact; as if Somebody was to know, that the *Romans* made use of Codicils, for want of a Te- Testament, but was ignorant that it was introduced by the Authority of the Emperor *Augustus*, as it appears from the last Title of the Second Book of the Institutions of the *Roman* Civil Law.

Lastly, if *Ignorance* be consider'd with Regard to the Action; one is *antecedent*, another *concomitant*, and the other *subsequent*.

The *antecedent Ignorance*, is that which precedes the Determination of the Will, and which taken off, there would be no Action; or is a Condition, without which one would not act: As when, *Ovid. Metamorp. lib. 7. Cephalus* kill'd his Wife *Procris*, hidden in a Bush, thinking it was a wild Beast; that Ignorance was *antecedent*, and a Condition without which he had not kill'd her: If such Ignorance cannot be conquered, it hinders the Action from being voluntary.

The *concomitant Ignorance*, is that which accompanies the Action, but is not the Cause or Occasion thereof: As if one was to kill, in Hunting, a capital Enemy, whose Death he is determined upon, mistaking him for a wild Beast; this Ignorance accompanies the Action, but is not the Cause thereof: This Ignorance neither hinders, nor makes the Action voluntary.

First, it does not make it voluntary, because a voluntary Action must be done with Knowledge; it does not hinder it from being voluntary, because even with the Knowledge, the Action would be done; as it appears in the Example of the Person killing his Enemy, mistaking him for a wild Beast; whom if he had even known, he had not abstained from Killing: Whence those Actions are neither call'd *voluntary*, nor *involuntary*, but *not voluntary*; and are not done thro' Ignorance, but with Ignorance.

Lastly, *subsequent Ignorance*, is that which follows either the *explicit* or *implicit* Determination of the Will; or directly or indirectly what one pleases; *v. g.* It might happen that one would be ignorant of the Day appointed for a Fast, that he may indulge his Gluttony: This is properly an affected Ignorance, which far from excusing Sin, increases it; therefore does not take off the voluntary.

The *Concupiscence* has a great Affinity with Ignorance, because it darkens the Understanding, disturbs the Reason, and is a great Obstacle to its discovering the Truth. Whence we must examine, if, and in what Manner, it can hinder an Action from being voluntary; which to do with a greater Facility, we must observe, First, that by *Concupiscence* is understood either the vitiated human Nature, *i. e.* our innate Propensity to Evil, which is call'd by the Theologians, *Sensuality*, the *Law of the Flesh*, the *Source of Sins*, &c. or for the Act itself, or the Motion of the sensitive Appetite, or of that Part of the Flesh which rebels against the Spirit; which last Acceptation is the most proper for this Place: For ever since *Adam*'s Sin, we have found the Motions of the Flesh have revolted against the Will; and in Punishment of that Revolt of the human Will, have always grown stronger and stronger, in a Will which does not obey the divine Laws.

Secondly, That *Concupiscence*, taken in this last Sense, ought to be consider'd in two different Manners,

ners, *viz.* either as it proceeds, or follows the Act or Consent of the Will.

The Concupiscence precedes the Consent of the Will, when the Motion of the animal Spirits is excited in the Organs, by the sole Affection of the Body, or the Presence of Objects, either without the Concurrence of the Will, or against its Inclination: But the *Concupiscence* follows the Act or Motion of the Will, when the Will gives Occasion to it: Therefore, if the Concupiscence follows the Act of the Will, it certainly is voluntary; and even what's acted in Consequence thereof, is ranked among the Sins of pure Malice; because the Will is not then overcome by the Concupiscence, but rather provokes and sollicits the Concupiscence.

The sole Doubt remaining, on this Subject, is with Regard to the *antecedent Concupiscence*; which to resolve, I'll say that even this Sort of Concupiscence, which precedes the Will's Consent, does not take off the *voluntary*; because it neither deprives us entirely our Will of its Propensity, nor our Understanding of its Knowledge; on the contrary, the Will has rather a greater Propensity towards the Object, when it acts through Concupiscence; neither is the Understanding then obstructed in the Perception of all the Things which relate to the Action: Therefore, even the antecedent Concupiscence does not take off the voluntary; but rather, with Regard to the Propensity, seems to increase it; though with Regard to the Cognizance or Knowledge, it weakens it.

It may be objected, that the Consent of the Will is depraved by the antecedent Concupiscence; and that, consequently, it takes off the Will. I answer, That tho' it depraves the Consent of the Will, it does not deprive it of the Power of resisting it; and consequently cannot take off the voluntary. For as the Apostle St. *James* says in his catholick Epistle, Chap. i. 15. *When Lust hath conceived, it bringeth forth Sin; and Sin when it is finished, bringeth forth Death.* And as all Sins are voluntary, the *Concupiscence* instead of taking off the voluntary, produces it. The Reason of this, is, that tho' Concupiscence precedes the Will's Consent, the Will has always the Power to resist it; though it very often makes no Use of that Power.

It may be objected farther, that what is done thro' the *antecedent* Concupiscence, being done against the Inclination of the Will, as it appears in those commonly call'd *infirm*, and incontinent, who indulge their Passions but with a certain Repugnance, it cannot be said to be done voluntarily.

I answer, that those Acts are in Fact involuntary, if they be done against the absolute Inclination of the Will; but not if done with a weak Reluctancy, which the Theologians call *Velleity*; therefore they call, after *Aristotle*, *lib.* 7. *Ethic. c.* 1. *incontinent*, a Person who still finds some Repugnance, in committing a Sin, in which he differs from a *Reprobate*, who sins without the least Repugnance, as I'll explain it hereafter. But notwithstanding, this Resistance of the *infirm*, or *incontinent*, does not so much proceed from the bad Action itself, as from the Effect which follows the bad Action; for the Pain displeases not the Action, done through a great Propensity of the Will. Hence *Aristotle*, *lib.* 3. *Ethic. c.* 3. considers as ridiculous the Excuse of a Person, who pretends to have committed a Crime against his Will, as having been forced to it thro' Lust, or Delectation; but teaches, in the first Chapter of the same Book, that the Excuse of that Person ought to be received, who has neglected his Duty, by Reason of some very great Incommodity.

But however, I would not refuse to confess that the Force of the *antecedent Concupiscence* is sometimes so strong as to almost darken entirely the Understanding, in which Case the Voluntary is weakened, and he may be excused. As when a Person is beaten or irritated, abandons himself to Wrath, and thirsts for Revenge against him by whom he has been insulted, his Sin is less, than if he had beat another without the least Provocation. Whence the Motions which we commonly call *Primo-primi*, are esteemed unvoluntary by the Theologians.

Theologians distinguish two Kinds of first Motions of the Concupiscence, *viz. Primo-primi*, and *Secundo-primi*.

The Motions *Primo-primi*, are those which precede the Consent of the Will in such a Manner, that they rather seem to proceed from the Mechanism of the Body, than from our Reason; such is the Motion of a Person, who being stricken behind and unexpected by another, fly at him, without taking Time to consider if the Person he flies at, be his Father, Mother, Friends, *&c.* Motions of this Kind are not voluntary.

The Motion *Secundo-primi*, are those which precede the plain and perfect Consent of the Will; but not that Consent begun, or as they call it, *Semi-plenum*. Such is the Motion of a Person who having lost a Cause, insults the Judges, though he knows at the same Time, that he will want their Favour in some other Occasion. These Motions do not take off entirely the Voluntary, but only weaken it.

From all this, it appears, that all human Acts, *i. e.* acted by a Man in a human Manner, are always voluntary, unless Violence, or a great Fear, or an insuperable Ignorance, interferes.

The next Thing we are to consider, is, if *all human Acts be free.*

We call a free Act, that which is done without Compulsion, or can be done or omitted, at Pleasure. For the Theologians distinguish two Sorts of Liberty, *viz.* Liberty from an *external Necessity*, or *Coaction*, and Liberty from an *intrinsick or natural Necessity.*

Theologians call *Liberty from Coaction*, or *Liberty of Spontaneity*, is that which removes all external Violence, *i. e.* proceeding from an external Principle against the Propensity of the Will. By which Liberty the Will loves Good in general, and hates Evil in general; and therewith the Blessed are said to love God, because they freely, and without Constraint, adhere to him by Love. Therefore Liberty from *Coaction* is the same as voluntary or spontaneous; inasmuch as it is done by the Will without Coaction; and therefore all *voluntary Acts* are *free from Coaction.*

Liberty from Necessity, or *Liberty of Election* and *Indifference*, which is also called *Free-Will* and *Simple Liberty*, is that which excludes all Kinds of Necessity, either natural or internal, or external, or of Coaction. I call *natural Necessity, a certain Determination or Propensity, which our Liberty has naturally to pursue or avoid necessarily, certain Things*; *v. g.* to love necessarily, and by Election, Good in general, and hate Evil. I call likewise *Necessity of Coaction*, or *Coaction itself*, a certain *Violence offered to some Body against his own Inclination*; as when any Body is put in Prison.

Therefore the *Coaction differs from a natural Necessity*, in that Coaction proceeds from an intrinsick Principle, against the Inclination of the Will, and therefore deprives us of our Liberty. And the *Necessity of natural Inclination*, proceeds from the Will itself; and therefore does not deprive us of our Will, but only of our Liberty, taken in a strict Sense, which proceeds from Election.

That if the Necessity of acting or not acting be only hypothetical, and follows the Consent or Election of the Will, it by no Means affects our Free-Will, or *Liberty of Indifference* and *Election*: *v. g.* Suppose I have determined myself to speak, I speak necessarily: But that Necessity does not force me to speak, nor hinders me from speaking: Whence a Free-Will remains in me still, since I have still the Power of Election, which consists in this, that one may act, or abstain from acting as he pleases.

Therefore *Liberty of Election*, is very well defined by St. *Thomas* 1. *part. quæst.* 83. *art.* 4. an *elective Faculty*, *i. e.* a Faculty to chuse one Thing before another: And as in Election, *one is to act or not act*; and the other, *to act this or that, in this or that Manner*; we distinguish two Sorts of Liberty of *Election* and *Indifference*; one to act or not act, call'd *Liberty of Contradiction*, because *acting* or *not acting* are Contradictories;

dictories; and the other to act this or that, in this or that Manner, *v. g.* to love or to hate, to speak or to write, which is called Liberty of *Contrariety*, or *Diversity*; because to *love* and to *hate*, are contrary or opposite; and to *speak* and to *write*, are different.

Free Will, can also be defin'd a Faculty determining itself; or, with all the Theologians, *a Faculty which having all Things requisite to act, can act, or not act, or even act the contrary*; whence it may be inferr'd, that the Liberty of the Will does not regard generally the chief End of our Actions, or our Felicity, because it is impossible we should not desire our Felicity. Neither does it tend towards those Things which have a necessary Connection with our sovereign Good, and without which we cannot gain that sovereign Good; such as are *to be*, and *live*, since we are necessitated to love those Things. What I have said of those Things which have a necessary Connection with the sovereign Good, may likewise be understood of those which have a necessary Connection with the sovereign Truth, such as the common Actions, or Propositions, the Attribute whereof is clearly and distinctly contain'd in the Idea of the Subject. For our Will must give its Assent to those Things.

Therefore it remains, that our Liberty teaches only those Things which are Means to obtain the End, though they have not a necessary Connection with it; or which can appear sometimes good, and sometimes bad.

The *Roman* Catholicks say, that though our *Free Will* be so conspicuous, that to call it in question is an incredible Folly, it has notwithstanding been denied by a great Number of Persons. For (without mentioning those Philosophers, such as *Democritus* and his Disciples, who attributed every Thing to Fate; and Astrologers, who submit all sublunary Things to the Influences of the Planets) it is certain, that there have been, and are still some Christian Sects, whom they call antient and modern Hereticks, who have endeavoured to destroy our *Free Will*, and who have all been anathematiz'd by the Council of *Trent*, *Sess.* 6. *Canon.* 5. in these Words, *If any Body says that the* Free Will *of Man, has been lost or extinct after* Adam's *Sin, or that it is a Thing of Title only, or a Title without the Thing, or lastly, a Tale forged by Satan, and introduced by him into the Church, let him be Anathema.*

They are of Opinion, that *that* Council has defin'd nothing but what is inculcated throughout the whole Scripture; which is witnessed by Authors both sacred and profane, and in whose Favour Nature declares itself. For in the sacred Books, God speaks thus to *Cain*, *Gen.* iv. 7. *And thou shalt rule over thine Appetite.* And St. *Augustin*, *in Psalm.* 91. *num.* 3. *Thine Ears are placed between God admonishing, and the Serpent suggesting; why are they inclined thither, and turned away from hence? Satan is continually persuading Evil, and God persuading Good; but Satan cannot force him who is unwilling; it is in your Power to consent, or not consent.*

But this Persuasion has so prevailed on our Mind, that it would be needless to heap up together a great Number of Reasons and Testimonies to confirm it. If there was no Free Will in Men, the whole Œconomy of the human Life would be subverted; it would be in vain to make Laws, to reprimand, admonish, praise or blame; neither would it be just to give Rewards to the Good, and to punish, if we could not act when we please, and abstain from acting.

From this I'll pass to *the Goodness of the human Acts.*

Human Actions, compared with the *Rules of Manners*, are called moral; and if they be agreeable to those Rules, are esteemed *good*, but if they decline from them, *bad*; so that the Morality, as they call it, is nothing else but its *Relation to its Rule, whereby it is determined morally good or bad.*

The *Rules of Manners* (at least the primary Rules) whereby a human Act must be measur'd, are the *eternal Decrees*, or *divine Law*, and the right Reason, of which I'll speak hereafter. An human Act is to be compar'd with these Rules, as well with Regard to the Object, and the End, as to the Circumstances; for every Body knows that an human Act, consists in the Object, End, and Circumstances.

The Object of a human Act is that towards which that Act tends, and which can be considered either *materially* or *formally*.

It is considered *materially*, as far as it is a Matter subject to certain Acts, with regard to which, several other moral Acts, though of a different Kind, can be done; as the same Man can be an Object of Love or of Hatred; of Adulation or of Reproaches, *&c.* An Object thus considered is always good, of an identical Goodness, it being either God who is perfectly good, or a created Thing, which is good by Participation; but has neither a moral Goodness, nor a moral Vitiosity; because it is neither agreeable to the Rules of Manners, nor contrary to them; and consequently cannot give to the Action, either a good or bad Species, in the Gender of Manners.

The Object is considered *formally*, when considered under some formal Form either physical or moral; and then it establishes a Species of the Act, either physical or moral; and as far as it is agreeable or repugnant to physical or moral Principles, communicates to the Action either a physical or moral Goodness, or Vitiosity. But it might happen that an Object is good *formally*, according to a physical Species, and bad *formally* according to a moral Species, and the contrary. For Instance, if a Painter paints in an elegant Manner some obscene Figures, the Object will be good physically, and bad morally; so that the Action will be good *formally*, according to the physical Species, and with Regard to the Execution of the Rules of his Art of Painting; but will be bad *formally*, according to the moral Species, that is to say, if compared with the Rules of Manners. On the contrary, if he represents ill, pious Things, and proper for Instruction, the Object will be good morally, but bad physically. But if the Object is neither agreeable to the Principles of Physick, nor contrary to them, *v. g.* if any Body proposes a Collyre, which does neither good nor harm to the Person it is applied to, this considered under a physical Form, and with Regard to the Principles of the medicinal Art, is entirely indifferent. Likewise, if the Object is neither agreeable, nor repugnant to the Rules of Manners, the Object thereof, considered in its Species, or under a moral Form, and comparatively to the Rules of Manners, will be neither morally good nor bad. As painting Flowers, Edifices, Woods, Rivers, *&c.* is in its Species, neither good nor bad morally, or comparatively to the Rules of Manners, but is entirely indifferent. Therefore, such Acts whose Objects are indifferent, take their moral Goodness or Malice from the End and Circumstances.

The End of a *human Act*, is that for which the Act is done; and can likewise be considered, either *physically*, or *morally*, *v. g.* if any Body takes a Medicine for the Recovery of his Health, this End is good physically; but is neither good nor bad morally, but when compar'd with the Rules of Manners; therefore the End is good morally, if any Body wish for his Health, with the Intention of making it subservient to God's Glory; and bad if he desires it to gratify his Passions.

Note, That the formal Object of a human Act, is also sometimes called *Motive*; *v. g.* God's Goodness, or the Relation he has with our Nature, which wants several Things from him, *viz.* his Assistance, and that he may perfect it, is called the *Motive*, or Reason why we love him. Sometimes the *Motive* is taken for the End, as when Health is said to be the *Motive* which induces such a Person to take a Medicine. Lastly, *Motive* is also taken, though very seldom, for the efficient Cause; as the Advice which has engaged somebody in a good or bad Action, is said to be the *Motive*, whereby it has been done.

Lastly, we call *Circumstances of an Action*, all the Things which accompany the Action, as the *Place*, the *Time*, the *Manner*, and the *Assistance*, and all these Things are included together, with the *Object*, *End*, and *effective Cause*, in the following Verse:

Quis, quid, ubi, quibus auxiliis, cur, quomodo, quando.

Quis, or who, denotes the Person, or effective Cause; *quid*, or what, the Object, or that on which the effective Cause operates; *ubi*, where, the Place; *quibus auxiliis*, by whose Assistance, the Succours; *cur*, why, the Reason of the Action; *quo modo*, how, the Manner it is done; *quando*, when, the Time when it is done.

At present we must enquire into *the Origin of a moral Evil, and of all the Calamities of our Life.*

As *Manes*, and his Disciples the *Manichæans*, could not very well understand that Evil was not a Thing of some Nature, nor persuade themselves that the Concupiscence whereby Men are incited to perpetrate the most atrocious Crimes, was not the Effect of some very potent effective Cause; following the delirious Dreams of *Cerdon*, *Marcion*, and other Hereticks, and even of the Magi of the *Persians*, they imagined two Gods; one God, from whom proceeded all Sorts of Goodness; and the other Bad, who was the Author of all Evil. For they thought it incredible, that a good and just God could be the Author of that deprav'd Concupiscence, whereby Men are induced to perpetrate the most horrid Crimes, *viz.* Murder, Adultery, and an Infinity of others against Nature itself.

Pelagius, and his Disciples, us'd to teach that the Concupiscence of the Flesh was a Good of Nature, and in that were different from the *Manichæans*; but St. *Augustin* in several Places of his Writings, destroys the Error of the *Pelagians*, and the monstrous Lies of the *Manichæans* of their two Principles. For God has created Man Just, and Right, but Man himself has corrupted his Ways, and has not only given that mortal Wound of Concupiscence to himself, but likewise to his whole Posterity. Therefore we wanted Christ to heal that Wound. For as the Apostle says to the *Romans*, v. 18, 19. *Therefore as by the Offence of one, Judgment came upon all Men to Condemnation, even so by the Righteousness of one, Justice came upon all Men unto Justification of Life. For as by one Man's Disobedience, many were made Sinners; so by the Obedience of one, shall many be made Righteous.* Therefore the Origin or Source of all Evil is *Adam*'s Sin; from which flows the evil Concupiscence, Diseases, Troubles, and all othe Calamities, even Death itself.

There is not the least Room to doubt of the depraved Concupiscence, notwithstanding what the *Pelagians* can alledge to the contrary, and it has another Principle from God; neither was it to be found in *Adam* while he continued in his Innocence. For it is according to Order, that the inferior Part should be governed by the superior; whence if the Flesh revolts against the Spirit, it is not the Work of God, but of the Man himself, who has rebelled against his Creator; therefore the Soul should govern the Flesh, and keep it in Subjection; according to St. *Augustin*, *Lib.* 2. *cont. Julian. n.* 24. but in Brutes which are destitute of Reason, those Motions attributed to Concupiscence, are not contrary to Order, but are agreeable to Nature; and in Man they are Imperfections, or Vices.

In fact, what can be imagin'd more absurd, and more horrible, than to make God the Author of that Depravation of Mind, whereby Men are inclin'd to Things which himself has so strictly forbidden, *viz.* Thefts, Murders, Poisoning, Adultery, and all the other Vices which offend in so sensible a Manner, human Nature? How can it be imagin'd, that the just and wise Creator would have disgraced his own Image, with that horrible and monstrous Concupiscence, when he inspir'd him with the Breath of Life? Or who would not rather acknowledge, the deep Wound inflicted on human Nature by *Adam*'s Sin, which has thrown all his whole Posterity into a languishing State, and wanted a Physician?

Solomon says, that he has only discovered this Thing, *Ecclesiast.* vii. 29. *That God has made Man upright*, which must not be understood of the Uprightness of the Body only, says St. *Augustin*, *Lib. de corrup. & grat. num.* 32. but likewise of the Uprightness of the Soul, which is from Grace and Charity. But Man by his Sin has deviated from that Uprightness, and is fallen from that Grace he had been adorned with; and he has not only lost it for himself, but for us likewise, who are his Descendants; for we all come into the World, in the seminal Way, thro' Concupiscence, which cannot be govern'd by Reason, tho' a little moderated by the Continence of the conjugal Knot. Whence *we are all conceived*, says *Job* xiv. 4. *from a corrupted Seed.* And hence proceeds the *original Sin*, according to St. *Augustin*, *Lib.* 2. *de nupt. & concupisc. num.* 20. for the Soul of Man, in the State of Innocence, govern'd the Motions of the animal Spirits; but after his Prevarication, then those Motions began to rebel against her, and to transfer that Love she had for her Creator, to the Creature, contrary to the Order established by the Creator himself. Therefore if we believe the Author of the Enquiry of the Truth, *Lib.* 2. *c.* 2. as soon as the human Body is formed in the Womb of the Mother, and God has joined a Soul to it, or a thinking Substance, at that same Instant, on Occasion of the corporeal Motions common to the Fœtus and the Mother, it inclines towards corporeal Things; when as he should stick with all his Might to his Creator, who alone deserves his Love. Therefore his first Motion in that Flesh of Sin to which it is joined, is a Sin. And it is very justly that the Royal Prophet cries, *Psalm* li. 5. *Behold I was shapen in Iniquity; and in Sin did my Mother conceive me.*

Let it be then for a constant Truth, *that the depraved Concupiscence is the Revolt of the Flesh against the Spirit, whereby the Mind is in some Measure subject to the Body, and debauched from the Creator*; for the Concupiscence is not God's Work, but an Effect of the Sin in which our first Parent is fallen; and has drawn all his Posterity into the same Ruin. *Non est*, says St. *Augustin*, *Lib. de dono. persever. num.* 29. *ista natura instituti hominis, sed pœna damnati.*

Then as to speak of that Legion of Miseries, which has covered the Face of the Earth, after the Sin of our first Parents, we read in *Genesis* iii. 16. 17. a Law promulgated by God himself, by which (if we except the blessed Virgin *Mary*, who conceived by the Operation of the Holy Ghost, without the Concupiscence of the Flesh) that all Women in the Person of *Eve*, are condemned to bring forth their Children in Sorrow; and Men in *Adam*'s Person, to perpetual Toil and Labour. The Sentence is clear and intelligible; let us hear at present, St. *Augustin* disputing against the *Manichæans*, and *Pelagians*, on the Effects of that Sin. *Sin*, says he, *Sermon* 193. *c.* 3. is the Cause of all our Miseries. And *Lib.* 4. *cont. Jul. Pelag. c.* 16. *the Evidence of that Misery, has forced the Pagan Philosophers, who knew, or believed nothing of the Sin of the first Man, to say, that we are born to blot out the Pains due to Sins committed in a former Life; and that our Souls have been joined to our corruptible Bodies, as a Kind of Torment, like that the* Hetrusians *us'd to afflict Thieves with, joining the Living with the Dead.*

Lastly, with Regard to Death, *Adam* had never been subject to it, if he had abstain'd from Sin. For from the *Wisdom* ii. 23, 24. *God created Man immortal. But through the Envy of the Devil, Death entered into the World.* And in the Epistle to the *Romans* v. 12. *Whereof as by one Man, Sin entered into the World, and Death by Sin; and so Death passed upon all Men, in whom they have all sinned.*

But though Baptism takes off the Guilt of the original Sin, it notwithstanding does not take off the Concupiscence, nor the Necessity of dying, and the other Incommodities of the present Life. For which St. *Augustin*, *Lib.* 2. *de peccat. merit. c.* 3. give this Reason,

Reason, that if we were freed from Death by Baptism, the Strength of our Faith would be thereby very much weakened, because several would embrace that Faith, in Hopes of avoiding Death, and the other Miseries of this Life, rather than by the Desire of acquiring an eternal Life.

St. *Thomas* says, 1 *part. quæst.* 48. *art.* 1. *ad.* 1. that the *Pythagoræans* had shewed the Way to the *Manichæans*, by saying that *Evil was a certain subsistent Nature, as well as Good*; and therefore Good and Evil had established us two Sorts of Genders, or two Categories; which was also the Opinion of the *Persians*. But there is nothing more absurd, than to conceive the moral Good, as a certain positive and physical Nature, which wants an effective Cause; when as it is only a Defect, or Privation of Good; with, notwithstanding, some certain Relation of Opposition to the Order itself, or eternal, or positive Law.

We must next inform ourselves of the *Rules of a moral Goodness and Malice.*

St. *Thomas*, 1, 2. *quæst.* 71. *art.* 6. has established two Rules of the human Acts; one which is the first, and remote, *viz.* the *eternal Law*, which is the absolute Will of God, or the *Order* whereby all Things are wisely disposed; the other *derived*, and nearer, *viz. human Reason*, which is like a certain Participation of that absolute and divine Will: But notwithstanding this Distinction, both are understood either under the Name of Order simply, or of natural Law; and is the Origin of all the other positive Laws, either divine or human.

Law, taken in a general Sense, and according to St. *Thomas*, 1, 2. *quæst.* 90. *art.* 1. is, *A certain Rule, or Measure of the human Acts, whereby we are directed to do Good, or avoid Evil*; or, more concisely, is *the Rule of what is to be done, and omitted*; which, with Regard to the Legislator, can be defined, as it is by *Tully, lib.* 1. *de Leg.* the *just Right of commanding and forbidding*. For the Precepts of the Laws are of two Sorts; one which commands the Good, and are call'd positive or affirmative, as this, *You shall love God*; and the other which forbids Evil, and are call'd *negative*, as, *Thou shalt not kill.*

All Law is either *positive*, or *natural*; that is mutable, and this is not subject to change.

The *natural Law* is either consider'd in God, or in us: In God, it is call'd an *eternal Law*, or an *eternal Order*; and in us, it is either call'd *right Reason*, or *natural Light*; or retains the Name of natural Law only.

The *positive Law* is that which is made by Legislators; whence it is not immutable, like the natural or eternal Law; but, on the contrary, is subject to Changes. But as I design to compile all the positive Laws under the Letter L, I'll confine myself to speak in this Place of the *natural and eternal Law.*

It is a general receiv'd Opinion, that the *eternal Law* is the Source of all others, and the first Rule of the human Actions. This eternal Law is nothing else but an eternal Order, establish'd by the sovereign Wisdom, and which contains all that we are to do, or to avoid. The *eternal Law*, says St. *Augustin, lib.* 22. *contr. faust. c.* 27. *is a divine Order, or God's Will, commanding to preserve the natural Order, and forbidding to disturb it.* The same Father explains, *Lib.* 1. *de ordi. c.* 10. what the natural Order is. *It is an Order*, says he, *by which every Thing is done that God has established:* Therefore the eternal Law is an immutable Order. To which is agreeable, all that's done right; and all that's done wrong, disagreeable. Whence the same St. *Augustin, lib.* 1. *de Lib. arbit. c.* 6. *To explain to you*, says he, *as much as I am capable, and as concisely as possible, what that Notion is of the eternal Law, which is imprinted within us, it is that whereby it is just that all Things should be in Order.* Then lower exposing in the same Book, *c.* 15. which is the first Precept of that same Law, he says, that *the eternal Law commands, to turn our Heart from Things temporal towards the eternal.* Neither does he believe that Men can otherwise sin, than by turning themselves from God towards the Creatures, either to fix their Affections on them, or to enjoy them: For though we are to make use of Things created, we are never to enjoy them. Neither are we to make use of them, but inasmuch as they are conducive towards obtaining the Fruition of the sovereign Good. *The Good*, says the same Doctor, *Lib.* 15. *de civit. Dei, c.* 7. *num.* 1. *make use of the World to attain to the Fruition of God; and the Bad, on the contrary, want to make Use of God to enjoy the World.*

The *natural Law*, which is also call'd *right Reason, natural Light*, and *natural Order*, is that same eternal Law, or a certain Participation of the eternal Law in a rational Creature, whereby she is render'd capable to make the Difference betwixt Good and Evil. According to St. *Thomas*, 1, 2. *quæst.* 91. *art.* 2. where he quotes the Words of the Royal Prophet, *Psal.* iv. 6, *Offer the Sacrifices of Righteousness; and put your Trust in the Lord.* And if any Body was asking which are the Deeds of Justice, the same Royal Prophet adds, *There be many that say, who will shew us any Good?* Answering that Question, he says, *Thou hast made the Light of thy Countenance to shine upon us*; i. e. the Light of a natural Reason, whereby we make the Difference between *Good* and *Bad:* Which natural Law is within us naturally. According to *Cicero, lib.* 1. *de legib. Lex est ratio summa insita in naturâ, quâ jubet ea quæ facienda sunt, prohibetque contraria: eadem ratio cum est in hominis mente, confirmata & confecta lex est.*

The first Principles of that *natural Law* consist in the Love of God above all Things; and of our Neighbours, for the Sake of God; which no Body, that has any Sense, will pretend to deny, or be ignorant of. For with the least Attention we can easily discover, that we have all been created by some omnipotent Being; and therefore the good Order requires,

First, That we should love God with all the Faculties of our Soul, and above all Things; and return him perpetual Thanks for the daily Favours we receive from him. For it does not suffice (instigated internally by God himself, and Nature claiming it externally) to confess him the sole Architect of this vast Universe; but we must besides, with all the Propensity of our Will, return him continual Thanks, as well for his having created us from nothing, as for preserving us, and supplying us with all that's necessary to support our Life. Therefore the Apostle, *Rom.* i. 20. declares *inexcusable those who when they knew God, they glorify'd him not as God, neither were thankful; but became vain in their Imaginations, and their foolish Heart was darkened.*

Secondly, If we love God as we ought; because *Order* requires it, from which the *natural Reason* cannot deviate without Sin, we must also love other Men, created by the same Being, for his Sake; and give to every one of them his own. Therefore, says St. *Peter*, 1 *Epist.* ii. 13. *Submit yourselves to every Ordinance of Man for the Lord's Sake: Whether it be to the King, as supreme; or unto Governors, as unto them that are sent by him for the Punishment of evil Doers, and for the Praise of them that do well*; and all other Men, either our Equals or Inferiors, we must love as our Brethren; not only by doing them no Harm, but rather by rendering them all the good Offices we can. Therefore we'll bare no false Witness, we'll commit no Theft, no Murder, *&c.* because those Things are contrary to *Order*, and consequently to the Love of God and our Neighbours.

Therefore all the moral Duties of Men, are contained in these two Precepts, or are deduced from them. As *Christ* himself witnesses it, *Matt.* xxii. 37. and following. Where a Physican and a Doctor of the Law asking him, which was the greatest Commandment in the Law, he answers thus: *Thou shalt love the Lord thy God with all thy Heart, and with all thy Soul, and with all thy Mind. And the second is like unto it; thou shalt love thy Neighbour as thyself. On these two Commandments, hang all the Law and the Prophets.* Therefore the first Precepts of the natural Law

consist

consist in the Love of God above all Things, and of our Neighbour for the Sake of God.

Note, That we cannot accomplish the natural Law with our natural Strength alone; but Charity is requisite, which is supernatural, and which effects within us what the natural Law shews us. To understand better what I have heretofore said on this Subject, and what I'll say afterwards, we must propose in this Place some Definitions relating to the Love of God and of our Neghbour.

1. Love, as we have so often said already, is a Propensity of our Will towards the Object which delights us; and that Propensity is so great or so strong towards the sovereign Good, or our Felicity, that we cannot resist it: Hence that natural, necessary, and unconquerable Appetite of our Felicity, wherefrom proceeds the Love we bear to ourselves, and other Men; or with which we pursue other Things. For what is the Love we have for ourselves? but the Appetite of our Beatitude; thereby we endeavour to acquire all that can render us happy, such as Life, Health, Strength, Riches, Honours, *&c.* Though we are but very seldom the Object of our own Love, but only that *Subject* to whom we wish well. I am conscious that some Men are much enamour'd with themselves, which was the Crime of the Prince of the Devils; but however, as our Nature is lame in several Parts, and has been robb'd of a great many of its Talents or Perfections, by the Sin of our first Father *Adam*; it is impossible any Body would be so blind, to place his Felicity in himself, as in the Object of that Felicity. Therefore we are never otherwise induced to Love, but by the Appearance of the Good, or of the Delectable, and often of both; without which there could be no Love excited within us. For if we pursue Riches, Honours, and Pleasures, it is because we discover something in them which flatters our Nature. If we love our Parents, Friends, and Relations, we are attracted to it by an inward Sense of Pleasure, which can be better felt than explain'd. Therefore in all Kinds of Love, there is always something agreeable to our Nature, which affects us.

Therefore Love, if it be considered with Regard to its Principles, *viz.* either natural, necessary, and unconquerable, whereby we desire our Felicity in general; or free, whereby we pursue freely some private Good; both become *supernatural* by the Accession of the Grace of God, which is called Charity, of which I'll speak afterwards. If Love be considered with Regard to its Object, it is also of two Kinds; for one the Love of God, and the other the Love of Creatures; *viz.* either of us, of other Men, or of other Things, as Riches, Honours, Pleasures, *&c.* Lastly, if it be considered with Regard to the Manner we incline towards the Thing we love, one is called *Love of Desire*, whereby we pine after an absent Object; and the other *Love of Fruition*, whereby we cleave to the Object we possess, *&c.* but we must remember, all Kinds of Love for the created Things ought to be referr'd to God, as to the Origin or Source of all Sorts of Goods; so that God must be beloved above all Things, and the Creatures for his Sake.

2. To love God above all Things, is to prefer him to all created Beings, or to incline towards him as the sovereign Good, with all the Faculties of our Soul; and to love all other Things for his Sake, and as it is agreeable to Order.

3. Our Love for God, ought to be alone, and properly a *Love of Complaisance*, or a Love whereby we are pleased, or delighted in God as in our sovereign Good. For we are not allowed to delight in ourselves, or in other Creatures, as in a sovereign Good; because this Love terminates in God, as in the sovereign Good, it is improperly called by some, a *Love of Concupiscence*; when as the Love of God is *pure* and *chaste*, and proceeds from our Will, assisted by the Grace of God; not from the Concupiscence, which has only for Object, the Things created. And as that Love has no other Object but God himself, and is divested of all human Views or Considerations, it must be called *gratuite*, not *mercenary*, which, say the antient Fathers, *it is required of you that you should serve him gratis, not because he gives the temporal Things, but because he warrants the eternal.* Says St. *Augustin*, in *Psalm* xliii. 16. 17. and on the *Psalm* lii. 6. *God*, says he, *will be served gratis, be loved gratis*, i. e. *of a chaste Love; not be loved because he gives something besides himself, but because he gives himself.* This Love of God, can also be called Love of Friendship, in as much as we love God in Gratitude for his having loved us first.

4. The Love of our Neighbour, is a *Love of Benevolence*; whereby we wish him all the Good we desire for ourselves. When this Love has for its Object our Parents, or our Country, it is called Piety; if there is a reciprocal Love between us and our Neighbour, it is called a Love of Friendship, or is a true Amity.

5. Again the Love of God, is considered either in the Blessed, or in those who are *in termino*, in us who are yet *in via*. The Love of God in the Blessed, can be called *Amor Patriæ*, or the Love of Fruition. Thereby the Blessed are intimately united to God, and inebriated with a Torrent of Pleasure, desiring nothing, and hoping for nothing. The *Love of God* in us, is a Love joined with Hope and Desire, wherewith loving God, we pine after him; and this Love is more or less perfect, as it is rais'd to a greater or less Degree of Excellence.

6. The Love, called of Complaisance, when relating to God as our sovereign Good, is a Love of Concupiscence, when fix'd on the Creatures, is a vicious Love. For the Order cannot suffer that we should love the Things sensible, with a Love of *Complaisance or Fruition*, though we are not forbidden to love ourselves, or other Creatures, provided we love ourselves, and the other Creatures, for the Sake of God; for then, such a Love is not of *Concupiscence*, or of *Cupidity*; else *Cupidity* is not very different from Charity, and is regular. Therefore an inordinate Cupidity, fixes itself on the Creatures; and a modest Cupidity, tends toward God. But as there is no Charity without Fear, but that Fear is chaste; nor without Cupidity, but that Cupidity is in the Order, says St. *Bernard*, *Tract. de diligendo Deo. c.* 14. that *chaste Fear*, is a *filial Fear*, which includes the Charity, at least begun and imperfect; and is afraid to offend God because he is good, because he is beloved; a *servile Fear* abstains from Sin, not for the Love of God, but for the Hatred of the Torments; so that if there were no Torments, he would make no Difficulty to commit Sins. But God, who calls himself *jealous* in several Places of the Scripture, especially *Exod.* xx. 5. wills that we should avoid Sin through Love for him, and not through Fear of the Punishment; and consequently wills that we should always incline towards him, without fixing our Affections on the Creatures. Tho' it happens but too often, that contrary to the natural Order all our Desires tend that Way. For as God does not delight us in this Life, or flatter our Appetite, but by Means of the Bodies we are environ'd with; it follows hence, that all the Delectation which can excite Love, is supposed to consist in those Bodies; and consequently is not referred to God as received from him. Therefore Fruit appears agreeable to us, because by Means of the Motion of the Particles it is composed, it excites a certain Pleasure when we eat it. Likewise we are surprised by the Love of other Creatures, of any Kind whatever, because they are the occasional Causes of our Delectation; which, notwithstanding is not excited within us by the Creatures, but by God alone; however we cannot be susceptible of that Love of God, as we ought to be with Regard to our eternal Felicity, without the Assistance of his Grace,

We cannot be ignorant (I speak of an invincible Ignorance) of the first Principles of the *natural Law*, since they are universally known; every one having a natural Idea of the natural Law, whereby he knows that he must

must love God, from whom he has received all he has; and afterwards, that he must love other Men for the Sake of God, by whom they all have been created; and hence he can easily infer, that he ought not to do to his Neighbour, what he would not have done to himself; whence it follows, that he is not to rob, nor to kill, &c.

St. *Ambrose*, *Epistle* 73. *class.* 2. and St. *Augustin*, in *Psalm* 57. *num.* 1. is born with us; and that we have Need of nothing else to learn its Precepts, but to consult our own Heart; though some Nations have tolerated Things contrary to this Law. For we learn from *Cæsar*, *Lib.* 6. *de bell. Gallic.* that Theft was not reputed infamous among the antient *Germans*; which proceeded from the Corruption of Nature, and the Barbarity of the People; for if those had been attentive to the Dictates of their Reason, they had condemned that Opinion as repugnant to Nature.

Aulus Gellius relates, *Lib.* 11. *noct. attic.* in the last Chapter, that Theft was licit among the *Egyptians* and *Lacedæmonians*; but they suffered it, not that they were ignorant of the natural Law which condemns Theft, but because they imagin'd that such Licence was advantageous to the Republick. For when the Legislator of the *Egyptians*, says *Diodorus Siculus*, *Lib.* 1. *Bibli. Eccles.* persuaded himself, that it was not expedient that every Body should abstain from Theft; he searched the Means whereby the Proprietor should recover his Goods, without suffering much Damage; therefore, those who embraced that most honourable Profession of Thieving (which flourishes yet) were commanded to give their Name to the Master of the Thieves, and carry to him all that they had stole; that the Owners by applying to him, and paying a fourth Part of the Price they were valued at, as a Punishment for their Negligence, should recover them.

Lycurgus, the Legislator of the *Lacedæmonians*, had not allowed the Theft of all Kinds of Things, indifferently, but of Food only; (as we learn from *Xenophon's Lib. de Repub. & Leg. Laced.*) Neither had he permitted every Body to rob, but Youths only; whom he would have come at their Food by Theft, to learn Industry and Vigilance, how to lay in Ambuscade, and send out Parties, &c.

The Precepts of the *natural Right*, are also immutable, and no Body can be excused from observing them; they are immutable, because they are agreeable to Reason, and never can be contrary to it; no Body can be excused from observing them, because they are so agreeable to Order and Reason, that they cannot be omitted or changed, without causing a great Confusion in the good Order which ought to subsist in a civil Society: For how could a Creature renounce the Love of God, or a Brother oppress his Brother, without violating the Rules of good Order and right Reason?

It may be objected, that the natural Law forbids Murder, Theft, and Adultery; whereas God himself has permitted all those Things.

1. When he commanded *Abraham* to offer up his own innocent Son in Sacrifice, *Genes.* xxii.

2. When he commanded the *Hebrews* to carry off along with them, the Vases of Silver they had borrowed from the *Egyptians*, *Exod.* xii. 35.

3. When he commanded *Hosea* to take a Wife of Whoredom, *Hos.* i. 2. And that therefore the Precepts of the natural Law can be changed.

I'll answer with St. *Thomas*, 1, 2. *quæst.* 94. *art.* 5. *ad* 2. that the Examples above quoted, prove nothing against us. For,

1. Murder, is that which is committed by a Person of his own private Authority; and that is forbidden by the natural Law, which Prohibition has never been altered. If any Body kills a Man of a publick Authority, *v. g.* in a just War, that's not called Murder, much less when God, who is the Lord of all Things, commands a Man to kill another. *For all are condemned to die*, says St. *Thomas*, in the Place above quoted, *of a natural Death, the Innocent as well as the Guilty, which natural Death is inflicted by the Almighty, for Punishment of the original Sin.* —— *Likewise, by God's Command, a Man may be put to Death, either innocent or guilty*; without offending the natural Law.

2. Theft, is never committed but against God's Will, but when God, who is the sovereign Lord of all Things, commands it, it is not done against his Will, and consequently is not Theft. Neither does the natural Law dictate, that we cannot without Injustice, transfer to others what is our own; but we are only forbidden, to take of our own Authority, what we know belongs to another. Therefore the Church sings on *Easter-Eve*, *O veré beata nox, quæ spoliavit* Egyptios, *ditavit* Hebræos! because God, who was Master of all those Things, commanded it.

3. Adultery, is defiling another's Bed, but when the Prophet *Hosea* is commanded to take to Wife a Prostitute, he did not defile another's Bed, and therefore was not guilty of Adultery. Besides, it is not said that his Wife prostituted herself afterwards; and if she had, no Law could have obliged him to keep her: For as we read in *Proverbs* xviii. 22. *He that keeps an Adulteress, is foolish and impious.* But *Hosea* taking a Prostitute to Wife contains a Mystery, which shews that the Synagogue had forsaken God her Spouse, for the false Divinities of other Nations.

The moral Good and Evil, or the Honest and Dishonest, are distinguished not only by Men, but by Nature itself; because the Honest is conformable to the good Order established among us by our divine Creator, and the Dishonest contrary to it. *Cicero* has confirm'd this Truth, by several very solid and persuasive Arguments. *L.* 1. *de Leg. Nothing certainly is more charming*, says he, *than to understand clearly, that we are all born to Justice, not only in Man's Opinion, but of a natural Right.* And a little lower, *Where is the Nation that does not love a complaisant and grateful Spirit? And where is that People which does not despise and hate the Proud, the Vindictive, the Cruel, and the Ungrateful? Whence it follows that we are all naturally born just, for a mutual Communication with one another.*

Somebody will say perhaps, with *Horace*, *Lib.* 1. *Serm. Satyr* 3. *that all Things are to be considered not as they are natural, but as they are useful*; and that *Utility is the Mother of all that's just and equitable. Hobbes* an *Englishman*, *Element. Philos. de cive*, *Title*, *Libert. c. art.* 10. favours this Sentiment of *Horace*, when he says, that *in a State purely natural, and before Men had entered into any Pacts or Conventions among themselves, it was licit for every one to act as he pleased.* And, *art.* 2. that the Action is false, *that Man is born for Society*, though it be approved and received by several: For says he, *that Thing is not done, because it could not be naturally done otherwise, but by a mere Accident.* Whence he infers, that Society is contracted in View only of the Utility resulting from it to one's self, not by Love for the Members of that Society; and therefore, that all the Offices of this Life, are to be measur'd by the Utility, not by the Nature. Which Sentiment is also approved by that Contemner of all Religions, *Spinosa*.

I answer first, that the moral Good and Evil, or Honest and Dishonest, or Licit and Illicit, in question here, are to be measur'd by the *natural Reason*, and *Love of Order*, and not by *Utility* alone; though the publick Utility be joined with Reason and Order. For it is of common Utility, that no Body should attack the Life or Fortune, or Reputation of another, which is also forbidden by natural Reason, and good Order. Whence the *publick Utility* can very well be called the *Mother of the positive Right*, as far as it decrees Punishment, who consulting only their own vicious Inclinations, make no Difficulty of violating the natural Right, by offending others. Therefore if we speak of the positive Right, what *Horace* says in the same Place, is very true,

Jura invicta metu injusti fatcare necesse est.

But what he adds afterwards,

Nec natura potest justo secernere iniquum,
Dividit ut bona diversis, fugienda petendis;

is likewise true, inasmuch as we do not distinguish the Just from the Unjust, by a natural Impetuosity, and without Attention, as we pursue the sensible Good, by the sole natural Instinct; and avoid Evil, likewise by a natural Instinct: Therefore if any Body interprets this of our Capacity to distinguish Good from Evil, Just from Unjust, not by Nature, but by our natural Reason; certainly I am not afraid to say, that such Sentiment is contrary to Reason.

Secondly, With Regard to *Hobbes*'s Sentiment, we do not at all question, but Man inclines of a natural Instinct to that, which he sees more agreeable to him; neither can we love what is displeasing to us, in whatever Manner it may be capable to invite us, either by itself, or with the Assistance of another: For if we love the sovereign Good, it is because it is agreeable to us, and it engages our Will. Likewise we love the Society of other Men, for no other Reason but because it is convenient to us. For the sole *Motive* or *Incentive*, whereby we are excited to Love, is that of its being agreeable and convenient to us; and in that Sense, *Man is defin'd an Animal born for Society*; that he cannot, alone, procure to himself all the Goods of Nature, but wants the Assistance of others. But however, he must not love other Men for himself only, or refer every Thing to his own Utility, as to their chief End, otherwise he would love himself alone and not others; and would be ready to rob them of their Fortune, and even kill his own Father, if he was to think it expedient for him; which the *natural Reason*, and the *immutable Order*, does not permit. Whence nothing can be imagined more horrible than this Principle, That we may do any Thing to advance or promote our Interest; That we have no other Director of our Actions but our own Utility; and that we are not restrained from offending others, by Nature, but only through Fear of the Punishment inflicted by the Laws.

Therefore when *Hobbes* says, That every Body has a Right to consult his own Preservation; he does not offend the Truth: But that Love of one self, which engages us to pursue our own Good, must be subordinate; and though we do not love others for any other Reason but because that Love suits our Conveniency, it is notwithstanding contrary to the natural Law, to procure our own Good to the great Prejudice of others: For we are not allow'd, for Example, to lay violent Hands on another Man, to gain some Advantage by it; whereas we should be very sorry to be treated in the same Manner. Therefore there is a very great Difference between loving others, because they are good or serviceable to us, at least towards assisting us in the Acquisition of the sovereign Good; and between loving them purely for our own Utility, and be ready to offend them, if in so doing we could gain some Advantage; or to neglect or abandon them when they are no longer useful to us; which, notwithstanding, has been the common Practice of almost all the civil Societies, for several Centuries past. For it is very rare to find among Men, especially in our Iron Age, the least Trace of the natural Law, with Regard to that Love we are obliged to have for one another; unless it be that Love mention'd by *Hobbes*, which is entirely founded on, or has no other Object but our *Utility*, which is commonly call'd an interested Love; and more properly no Love at all.

This Kind of *Hobbian Love*, consists entirely in an outward Shew, perfidious Demonstrations, and false Protestations, divested of that Sincerity and Candour, which Nature itself claims from us. For it is at present, an infallible Maxim, that the greater Pains a Person takes to persuade us of the Sincerity of his Love, the more he is to be suspected by us, and the more we are to be upon our Guard, lest he should make use of that Stratagem (as it happens but too often) to deceive us more to his Advantage. His studied Looks, his affected Speech and Smile, his most solemn Vows, and his calling to Heaven to witness his Sincerity, are all convincible Proofs of his Perfidy; and a sincere and disinterested Friend is to be met with, neither upon the Throne, nor in the Sanctuary, nor in the Palaces of the Great, nor among Parents or Relations, nor in the conjugal State; and, must I say it, to the Shame of this Age, not even in the Cottage of a Peasant.

For Instance; where could we find, at present, a Man who would assist or relieve another, without any human or interested View, and for the sake of assisting or relieving him only? Or in View that such Act of Friendship, forwards him towards the Acquisition of the sovereign Good? Where could we find a Prince, who would bestow his Favours on a Subject, on no other Consideration, than that he deserves or wants them? Where is the Ecclesiastick, who would run to the Assistance of a poor Wretch who is on the Brink of Eternity, with the sole View to save him from the Precipice he sees him on the Point to fall into? And where is the Wife who would keep true to her Husband, if she was not afraid that her criminal Intrigues could be discovered.

From this I'll pass to *Conscience*, which some confound promiscuously with *Synteresis*; though St. *Thomas* distinguishes the one from the other, and says, that *Conscience* is properly the Act whereby we apply our Knowledge to our Actions; and *Synteresis*, an Habit, which inclines us to give our Assent to the first moral and practical Principles. Whence in that Sense the habitual Knowledge of the first moral Principles, or Intelligence, is *Synteresis*; and their Applications, which is like the Conclusion of a practical Syllogism, is *Conscience*; thereby every one knows actually, not only that he exists and understands, but likewise when he acts, or has acted right or wrong; therefore our Conscience approves or reproves all our Actions; and though it seems to be in some Measure, asleep, in the Obdurate and Impious; it, notwithstanding, never is entirely extinguished, not even in the damned Souls, according to this Passage of *Isaiah*, lxvi. 24. *For their Worm* (*i. e.* the Remorse of their Conscience) *shall not die.*

Therefore *Cicero* speaks thus of the Conscience, *Lib. de senect. The Conscience of a good Life, and the Remembrance of a great Number of good Deeds, is agreeable.* And *Horace Epist.* 1. *l.* 1.

——— Hic murus aheneus esto,
Nil conscire sibi, nullâ pallescere culpâ.

And *Juvenal*, Satyr. 13.

Pœna autem vehemens, ac multò sævior illis,
Quas & cæditius gravis invenit, ut Rhadamanthus,
Nocte dieque usum gestare in pectore testem.

Those who treat of Manners, distinguish different States of the Conscience. For the Conscience is either true and certain, or probable, or dubious, or erroneous, or false.

The *Conscience* is said to be true and certain, when we understand clearly and distinctly, what is commanded or forbidden; and therefore what we must do or omit, *v. g.* every Body knows, that we are not to do to others what we would not have done to us: Because that Law is engraven on our Mind.

A *probable Conscience* is that founded on probable Arguments. So that if the Arguments on both Sides be of an equal Strength, the Conscience becomes dubious. Whence a *Conscience* is called dubious, wherebyby the Mind remains uncertain of what it ought to do; and has not a plain Security. There is a great Affinity between this and a scrupulous Conscience; which though she walks upright, is nevertheless retarded, by some Scruple or other.

Scruple, is properly a small sharp Stone, which hurts the Foot, and hindereth from walking with Ease. But

But metaphorically, it is the Anxiety of the Mind, proceeding from a true and just Reason, or from a vain and ridiculous one. Whence *Cicero, orat. pro Sexto.* speaks thus of *Cornelius Chrysogonus: He desires you would be pleased to eradicate from his Mind that Scruple which Night and Day teazes and pricks him.*

An *erroneous*, or *false Conscience*, is that which dictates what is forbidden by the Law, or forbids what the Law commands.

What is done against our Conscience, is always morally bad: And what is done according to the Dictates of our Conscience, is not always good.

All that is acted against the Dictates of our Conscience is bad; because it always includes a Perversity of Mind, and an Inclination to Sin; and he that acts thus, knows that he acts ill.

Likewise all that is done according to the Dictates of our Conscience, is not always good; because it may be done against the Order and the Law, as it happens when the Conscience errs. As that of those mentioned by Christ, to his Apostles, *John* xvi. 2. *Yea, the Time comes, that whosoever kills you, will think that he does God Service.*

Therefore the Conscience, generally speaking, cannot be considered as a very secure Rule of our Action; but only when it is true and certain, or when it is agreeable to good Order and the Law; all that is agreeable to it being good, and all that is repugnant to it being bad.

A *Conscience* which errs, excuses from Sin, when the Error proceeds from that Ignorance which renders an Action unvoluntary; but if it does not proceed from such an Ignorance, it cannot excuse from Sin.

There are two Sorts of Ignorance, as we have observed already; one is the *Ignorance of the Fact*, such was that of *Jacob*, when he took *Leah* for *Rachel*: For he was ignorant of what was done; and such Ignorance excuses from Sin, provided it be not accompanied with Negligence: And the other is the *Ignorance of Right*, whereby we are ignorant of some Right; and this Ignorance is either of the *positive Right*, which consists in the Laws depending on the free Will of a Legislator, and are neither eternal nor immutable; and therefore excuses from Sin if it cannot be conquered; or of the natural Right, founded on the natural Law, which we cannot be ignorant of, at least of an invincible Ignorance.

A *probable Conscience*, seems secure in the Practice; as far as the Arguments whereby it is supported are solid, and morally certain, and are not in Concurrence with a contrary Authority, or Reason of an equal Force.

When the *Conscience* is dubious, we must make Use of the Rule prescribed by St. *Paul, Epist.* 1. *Thessal.* v. 21. *Prove all Things, hold fast that which is good.* And consequently if the Reasons are of an equal Force on both Sides, we must either abstain from acting, if possible, or incline on that Side, which is more agreeable to the good Order, and favours less our Cupidity: For though that Side should not appear, perhaps, the more probable, or supported with the strongest Reasons; it is, notwithstanding, the most secure, and farthest from Danger.

If we follow that Rule of St. *Paul*, it will be difficult to determine, if we can, with a safe Conscience, follow the Doctrine of *Probability*, in our Conduct. That Doctrine consists in this, that a probable Opinion, provided it be probable, though in Concurrence with one more probable and sincere, can be proposed a safe Rule of our Actions or Conduct. Whence it follows,

1. That any probable Opinion, can be preferred to one more probable.

2. That when a Divine is consulted, he can answer according to a less probable Opinion, though in Concurrence with one more probable; and even against his own Sentiment, give Advice according to the Opinion of another, tho' less probable; because that Opinion less probable, is notwithstanding probable; and consequently according to that Doctrine, very secure.

They distinguish two Sorts of *Probability*, *viz.* an *intrinsick Probability*, and an *extrinsick Probability*. They call *intrinsick Probability*, that taken from a probable Argument, whereby the Mind is inwardly affected. And *extrinsick Probability*, that which is supported by the Sentiment and Authority of some eminent Divines.

For my Part I am of Opinion, that this Doctrine of *Probability* is to be banished from among us, as very prejudicial to the good Order of a civil Society; and for the other following Reasons.

First, Because it is entirely contrary to Reason and Prudence, that we should prefer, in what relates to our eternal Felicity, the uncertain to the certain: For the *probable Opinion*, either that we have from an *intrinsick*, or inward Probability, or from an *extrinsick*, or exterior one, when in Concurrence with one more probable, and more agreeable to Law, is always uncertain, and very little secure; for which Reason the *Probability*, either *intrinsick* or *extrinsick*, is condemn'd by the Scripture: The *intrinsick*, by this Passage of the *Proverbs*, xiv. 12. *There is a Way which seems right unto a Man, but the End thereof are the Ways of Death.* And to *extrinsick*, by these Words of Christ, *Matt.* xv. 14. *Let them alone; they be blind Leaders of the Blind: and if the Blind leads the Blind, both shall fall into the Ditch.* Whence it appears, that this celebrated Maxim of the Law, *That in dubious Things we are always to chuse the most secure. Illud Dominus extra, de cleric. excommunic.* is no less agreeable to Scripture, than to our Reason. Whence St. *Augustin* likewise, *Lib.* 1. *de Baptism. contr. Donatis. c.* 3. (concerning that Question, If the Baptism received among the *Donatists* was rightly received, which one was sure to receive rightly in the Catholick Church) speaks thus: *Graviter peccaret, in rebus ad salutem animæ pertinentibus, vel eo solo quod certis incerta præponeret, i. e.* He who should prefer the certain to the uncertain, in Things which concern Salvation, in that only would be much culpable. The Pagans themselves have abhorred the Doctrine of Probability; as it appears from *Tully, Lib.* 1. *de officiis*, where he writes, *Those are in the right who forbid to do any Thing, when we are in doubt if it be right or wrong.*

Secondly, If it was licit to follow an Opinion less probable, when in Concurrence with one more probable and certain, there would be hence introduced several Dogma's, no less absurd and false, than dangerous and impious, in the Doctrine of Manners. For there is no Opinion with regard to Manners, let it be ever so monstrous, which is not countenanced by some Doctor or other. For Instance, there have been several Writers, who imagined themselves very eminent, who have wrote, that no Man was obliged, during the whole Course of his Life, to practise any Act of Faith, Hope and Charity, *in virtue of the divine Precepts relating to those Virtues.* So that he who professes himself a Christian, and has been baptized, can recover his pristine Justice, even after he has committed the most atrocious Crimes, without the least Spark of Charity; and pass his whole Life without the Love of God, though it be the first Command of the Decalogue.

After these Doctors have endeavoured to extirpate from our Hearts the Dilection of God; they attempt, likewise, to expunge the Love of our Neighbours. Therefore they are pleased to say, that it is licit for a Son to wish for his Father's Death, though it be against the fifth Precept of the Decalogue, provided he does not consider that Death as prejudicial to his Father, but only as utile to him: For, say they, that *Direction of Intention* sweeps away the Malice of the Action.

But those who imagine that they can disguise the Truth by ambiguous Words, and intricate Speeches, to deceive Mankind, contradict the express Doctrine of Christ; who says, *Matt.* v. 37. *But let your Conversation be, yea, yea; nay, nay; for whatsoever is more than these comes of Evil.*

Others approve the Use of mental Reservations, as they

they call them, as something very advantageous: Especially, in retaining their Propositions to a certain Sense, which they supply in their Mind. As if one was to ask me for Money, and I should answer him, *I have none*; supplying tacitly within myself that Part of the Proposition, *viz. to give you*: Others persuade an officious Lye; others imagine, that one can make Use of false Witnesses to support his Reputation, or that of his Family; and that it is even licit to kill a Calumniator, who threatens to say something to our Prejudice: All which is contrary to the third, sixth, and ninth Precept of the Decalogue.

Lastly, To pass by all the other erroneous and pernicious Opinions of the other Doctors, they are pleas'd to call Casuists, I'll include the whole Question in these few Words; which are, That if the Doctrine of *Probability* was to have Place in the moral Discipline, those Things which have been advanced of the *Philosophical Sin*, to the Scandal of Christianity, are probable; though the single Notion of it is abhorred by all honest Men. This is the Summary of that hellish Doctrine.

The Philosophical or Moral Sin, is a human Act disagreeable to the human Nature, and to right Reason: And the Theological and Moral Sin, is a free Transgression of the Divine Law. The Philosophical, in him who is ignorant of God, or does not think actually of God, is a grievous Sin, but does not offend God; neither is it a mortal Sin, alienating us from God, or punishable with eternal Death. Therefore if this Doctrine was as true, as it is atrociously false, there would be no Sin either against God, or our Neighbour, which could not be perpetrated without offending God: So that neither *Fornicators, nor Idolaters, nor Adulterers, nor Thieves, nor Avaricious, nor Drunkards, nor Calumniators, nor Plunderers*, who, the Apostle St. *Paul* says, 1 *Cor.* vi. 10. are all to be excluded from the Kingdom of Heaven, could provoke the Wrath of God, so as to deserve an eternal Punishment, provided they were ignorant of God, and had not an actual Thought of him: For they could admit the *Philosophical Sin*, which is against the natural Reason; but not the *Theological*, which is contrary to the divine Law actually known. Whence it should follow, that the Condition of the Infidels, Atheists, Obdurates, *&c.* would be far better, than that of those who work their Salvation with Fear and Trembling: Which Opinion must appear horrible, even to those who undertake the Defence of the *Probability*. Therefore they must necessarily abjure the Doctrine of Probability, if they will condemn, without Exception, all the Conclusions which can be drawn from it. Which is the Advice given by St. *Augustin* to *Polentius*, *Lib.* 2. *de conjug. adult. c.* 4. *Hoc qui sentis*, says he, *non ne cernis quàm contra apostolum sentiat? quod quidem non ipse sentis, sed hoc sequitur illa quæ sentis, muta ergo antecedentia, si vis cavere sequentia.*

From all these we may very well infer what we have attempted to prove, that the *Doctrine of Probability* is to be banished from a civil Society.

It may be objected perhaps, that the *Doctrine of Probability*, is not such as represented by us; and that its Partisans do not pretend that every probable Opinion ought to be a sure Directrice of our Actions; but only on the following Conditions: The first whereof is, that it should be supported by very good Reasons; and the second, that it should not be contrary, either to the evident Reason, to the Scripture, or to the Tradition.

I answer to this Objection, that none of the Partisans of the Doctrine of *Probability*, require those Conditions for the Security of their Opinion; and that those who require them, either deceive us by a vain Appearance, or destroy entirely the Doctrine of Probability.

For, first, when they teach, that the probable Opinion must be supported by strong Reasons; what do they mean by those strong Reasons, but those whereby they are affected themselves, or are approved by grave Authors? And if it be so, as certainly it is, the Opinion will be probable among them, and consequently safe in the Practice, which will be supported by those Reasons, which they or their Doctors will judge proper and weighty; and therefore they'll always fall into that same Sentiment attributed to them, *viz.* that an Opinion which has some *Probability*, either *intrinsick* or *extrinsick*, is a safe Directrice of our Conduct, and therefore can be followed with a safe Conscience, when in Concurrence with one more probable.

Secondly, when they pretend that it it is required to render an Opinion probable, that it should neither be contrary to evident Reason, nor to the Scripture, nor to Tradition, they trifle with us; for they maintain, that *that* Opinion is not in Fact, but only in Appearance, contrary to Reason, or to the Scripture, or to Tradition, which is supported with the Authority of an eminent Author; and they consequently declare it very safe. And therefore, let us employ what Arguments we please to oblige them to confess that such an Opinion is repugnant to Reason, or to the Scripture, or to Tradition, they will never do it; but rather insist with Obstinacy, that it cannot be inferr'd that their Opinion is repugnant to Reason, or to the Scripture, or to Tradition; because other Arguments may be alledg'd, stronger and clearer to refute theirs. Which would be true enough, if they would confess that there is no other probable Opinion but that which is agreeable to Reason, or to the Scripture, or to Tradition; which they refuse to do, because that Acknowledgment would ruin entirely the *Doctrine of Probability*; for our Reason, or the Scripture, or Tradition, cannot suffer that we should prefer an Opinion less probable, to one more probable, and more safe. Therefore those Limitations or Modifications, imagined by the *Probabilists* to support the Probability of an Opinion, are mere Veils, wherewith they endeavour to hide the Ridicule of the *Probabilism*.

They will object secondly, that the Doctrine of the *Probability* is not to be rejected, if those who follow a probable Opinion, act then with Prudence and Discretion; for, say they, to whom must have Recourse, a Person of a mean Capacity, who knows nothing of the Doctrine of Manners, and is besides over scrupulous, but to his Pastor or Doctor, to acquire, through his Means, the Tranquility of Conscience he desires? And that the Opinion of his Pastor, which procures him that Tranquility, is an extrinsick Probability.

To this I'll answer, that a probable Opinion cannot be considered as prudent, simply and absolutely; for if there were two probable Opinions with regard to one and the same Thing, one whereof should be for the Law against the Cupidity, and the other favours the Cupidity against the Law; only the first will be prudent, but not the last. For Example, if it was a Question of a Contract, where it would be some Danger of committing Usury, and two Doctors are consulted, one of whom affirms, and the other denies its containing Usury, he does not act prudently, who does not follow the safer Part, and exposes himself to the Danger of Sinning.

As to what concerns the Idiots and Ignorant, who follow the Sentiments of their Pastor, they are excused from Sin, with regard to the Things they are ignorant of, of an invincible Ignorance. But that Excuse does not proceed from the extrinsick Probability of their Pastor's Opinion, but from the insuperable Ignorance of the Idiots. Whence, as they cannot be ignorant, of an invincible Ignorance, of those Things which are of natural Right, as above demonstrated, there is no Security for those, who according to some Doctors Opinion, meditate any Thing against the Precepts of the natural Right: Neither can the Authority of a Doctor, let him be who he will, prevail against the natural Right.

We must say the same of those Things which pertain to the positive Right, when very well known, of which we cannot be ignorant without Sin. For why should we be permitted to be more ignorant of those Things which relate to Manners, than of those which have Relation

Relation to the Dogma's of the Faith? For a Christian from among the Vulgar, would be inexcusable, who did not know the first Rudiments of Christianity; when as, on the contrary, all those who endeavour to learn them, are valued and praised. For it is impossible but a Pastor should sometimes err, either in the Doctrine of the Faith, or in that of Manners? What will then his Sheep do, if he cannot distinguish the wholesome Pasture, from that which is dangerous and unwholesome? Here we must remember what happened at *Constantinople*, in *Nestorius*'s Time; for when the People discover'd in their Bishop's Sermons, that he preached two Persons in *Jesus Christ*, far from following his Sentiment, they condemned and detested it; in which they are much commended by Pope *Celestinus*, in his Epistle to the Clergy, and People of *Constantinople*. *Quid spei habet grex*, says he, *quando lupus seipse pastor ostendit, & sic oves invadit & grassatur in singulas? eæ namque ore laniantur, quo impiæ proferentur: præbentur pabula non refectura sed noxia. Beatus tamen grex, cui dedit Dominus de pascuis judicare.*

Therefore if the People of *Constantinople* had acted with regard to their Pastor, according to the Doctrine of *Probability*, they had all fell into the Precipice with their Pastor; neither could they have brought for Excuse the Ignorance of those Things, which they ought to have learned from the other Bishops, *Nestorius*'s Predecessors, and from Tradition.

Why then should the Ignorance of Things, which every Body is obliged to know, in the Doctrine of Manners, even joined with an extrinsick *Probability*, excuse a common Man, unless he was stupid beyond Measure?

This deserves the Attention of those who have only as they say, the Faith of the *Coal-man*, who when asked what was his Belief? answered, all that the Church believes: And when asked further, what the Church believed? answered again, what I believe. A Faith so ignorant, so lame, and so uncertain, cannot be an Excuse in those Men, who neglect nothing to gain a temporal Felicity, and immense Riches; and leave entirely the Care of their eternal Salvation to the Prudence and Doctrine of a Doctor, whereby they are directed.

Add to this, that the Question is not well stated in the opposite Argument. For the Question is not only if it be licit to follow a probable Opinion: For who denies that such Thing is licit? provided there be no Authority or Reason to the contrary. But the Question is, whether any Body can embrace an Opinion less probable when in Concurrence with one more probable? And afterwards, if a Doctor or Pastor when consulted, can answer, or give his Advice, according to his own Opinion, or that of another Doctor, which is less probable, or favours our Cupidity against the Law; but on the contrary, ought to follow the safest Way, and answer according to the Precepts of the Law, against the Cupidity? This last Opinion is that of the most eminent Theologians against those who stand for the *Probabilism*; for a Physician would be inexcusable, who neglecting the most secure and efficacious Remedies, should prescribe those which are only probable, and less secure.

If it be urged farther, that hence several Things are taken in general, and *speculatively*, either for true or false, of which notwithstanding we judge otherwise in the Practice; therefore it follows, that the Doctrine of *Probability* is not inutile; that the Severity of the Law may be mitigated by the various Interpretations of prudent Men. For Instance, Falshood in general is forbidden by the divine Laws; tho' several Cases occur, wherein that Law is to be soften'd by the Authority of eminent Divines; that Men may thereby be render'd capable of doing several good Offices; *v. g.* of saving the Reputation of some, or the Life or Fortune of others by officious Falshoods, or ambiguous Speeches, or Equivocations, or mental Reservations; which the *Priscillianists* pretended to be authorized by both the Old and New Testament; who, according to St. *Augustin*, *Lib. de hæres. c.* 70. had always their Sentence in their Mouth,

Jura, perjura, secretum prodere noli.

And *Cassianus*, *Collat.* 17. *c.* 17. teaches, that it is licit to lye for a good End. Which Opinion was espoused by the *Semi-Pelagians*, and interpreted by them in their Manner, wherever they thought that their Reputation, or that of their Brethren, required a Lye.

To this I answer, in denying the Proposition; for though, sometimes, the general Laws are to be interpreted *in favorem*, they are not to be evaded by an uncertain Probability; but mitigated by a natural Equity, whereby Regard is had rather to the Spirit of the Law, than to the Words. For Instance, the natural Law commands, in general, that we should return every Body his own, though we are not oblig'd to return his Sword to one that's drunk or furious; because the same immutable Reason which commands to return every one his own, forbids the returning a Sword to one that's drunk or furious, for fear he should lay violent Hands on himself or others.

As to what relates to Falshood, it must be banish'd, not only speculatively, but likewise to Practice, from among us, as a Plague to Society; since it is much abhorred, even by *Homer*, in the Person of *Achilles*, *Iliad*, 9. *v.* 312. as the Gates of Hell.

Haud minus ille mihi exosus, quam janua Ditis,
Mens aliud cui tecta premit, quam lingua loquatur.

St. *Augustin* has very well refuted the *Priscillianists*, in his Book *de mendacio*, and much more in that *contrà mendacium*. Those Partisans of Falshood, followed the Error of *Origen*, and of some *Egyptian* Anchorets, which Error they had unjudiciously borrowed from the third Book of *Plato*, *de Republicâ*; and which the *Priscillianist* attempted in vain to confirm by Examples extracted from the antient Testament. For even *Plato*, who abhors Falshood as dangerous to a civil Society, permits it, notwithstanding, to him who governs the Republick in a single Case, *viz.* to prevent the entire Ruin of the Republick, which is prov'd by *Cassianus* and the other *Semi-Pelagians*, with great Vehemency. But the School of a *holy Ethick*, has Sentiments far more simple, and more sublime; when it forbids absolutely in all Cases, all Sorts of Falshoods, all Fiction or Dissimulation, or mental Reservation; whereby Men may be deceived, and the Christian Candour offended. For it is thus commanded, *Exod.* xx. 16. *Thou shalt not bear false witness against thy Neighbour*, whereby all Falshood, all Fraud, all Artifice, either in Word or Deed, is forbidden; as it appears by other Testimonies; for we read, *Wisdom* i. 11. *That the Mouth which utters Falshood, kills the Soul.* And *Psalm* v. 6. *Thou shalt destroy them that speak Falshood.*

But as the Law is certain, if we find that some Persons, even eminent for their Virtue or Sanctity, have done something against it, we must judge of them according to the Law, but not infringe the Law on that Account. This was the Conduct of St. *Augustin* against the *Priscillianists*, who used to produce several Examples of Falshood, extracted from the Books of the Old Testament. *When we read those Things in the Scripture*, says he, *Lib. cont. mend. c.* 9. *We must not believe that we must do the same, because we believe it has been done; that we may not transgress the Precepts, while we follow the Examples. What because* David *had swore that he would destroy* Nabal, *and has not done it by a Principle of Clemency, must we imitate him, and swear that we'll do, what afterwards we'll find ought not to be done?*

Therefore we must observe this Rule, that if what we read in the Scripture be really a Falshood, it is not proposed there to us as worthy of Imitation; but it happens sometimes, that what is believed a Falshood, is not really such, if well understood; and this happens particularly in two Manners.

First,

First, When something of the Truth is hidden from us, and nothing false is alledged.

Secondly, When what is done or said, it not to be considered absolutely and in itself, but only as it is the Sign or Figure of another Thing. Therefore, those Figures which occur in the Old Testament, though at the first Sight they seem to contain Falshood, when well understood, they do not contain a Falshood, but a Mystery; therefore we are not to draw Conclusions from them, to authorise, or excuse Falshood in the common Practice.

As to what regards the Midwives of the *Hebrews*, mentioned *Exod.* i. and *Rahab* of *Jericho*, we must confess that they told Lyes; not with the Design to deceive, but through a Principle of Compassion. Whence when they are said to have received their Reward, St. *Augustin* answers in the same Book, *de mend. c.* 15. *That they had not received it because they had told a Lye, but because they had us'd Compassion towards the People of God; and therefore it was not their Deceit which was rewarded, but their Benevolency, the Benignity of the Mind, and not the Iniquity of the Lyar.*

In these Cases we must follow the Example which the same Doctor proposes, *Lib. de mend. c.* 13. of *Firmus*, Bishop of *Thagast*, who, *when asked by the Apparitors sent by the Emperor, about a Man whom he took all the Care imaginable to hide; answered, that he could neither tell a Lye, nor deliver the Man, and stood firm in his Resolution, notwithstanding the Torments he was made to suffer; and being afterwards carried before the Emperor, his Conduct appear'd so marvellous to that Prince, that he obtained without Difficulty, the Pardon of that Man whom he had hid.*

But however, there are some very difficult Occasions, where the human Infirmity fails, unless it be powerfully sustained by the Grace of God. Of which St. *Augustin* himself was persuaded, for in the Book above-mentioned, *cont. mend. c.* 18. he says, *but because we are Men and live among Men, I confess that I am not of the Number of those, who are not disturbed by compensative Sins* (i. e. those Actions which seem to have something good, for a Compensation of what they have bad) *For I am often conquered by Sentiments of Humanity; neither can I resist, when it is said to me, that a Man is afflicted with a dangerous Malady, who runs to the greatest Danger, if the News of the Death of his only Son, whom he loves tenderly, be brought to him, he asks you if his Son lives, whom you know to have departed this Life, what may you answer, since whatever you may say besides one of these three Things, that he is dead, or is alive, or you know nothing of it, he believes nothing but that he is dead, which he knows you are afraid to tell, and that you are unwilling to tell a Lye? It would be as well if you was to say nothing. Of these three, two are false, he lives, and I don't know; nor can be said by you, without telling a Lye; and if you tell that only true one, he is dead, and the Person to whom you tell it, falls into Convulsions and dye, it will be said that you have killed him. And who will bear exaggerating Men, since it is as bad to avoid an officious Lye, as to avoid the murdering Truth? Those Oppositions move me much, and it is very well if they do wisely. For it will not be a Murder, and an Act of Chastity, if a Prostitute burning with Lust, having asked a Favour of you, and you have refused her, die of the Disappointment. It will happen — that if we were to grant it to be licit to tell a Lye, to save the Life of that sick Person, that such Toleration would introduce by Degrees, that Practice of officious Lyes, into a civil Society, so as to render it at last a necessary Custom; and to be almost impossible for us to come afterwards at the Knowledge of the Truth. Whence it is prudently wrote,* qui spernit modica paulatim decidit. *But there are some so much enamoured with this transitory Life, that they would have a Man not tell a Lye only, but even forswear himself to save another's Life, and even imagine Rules, and appoint Ends, when he is, and when he is not to forswear himself. O! where are you Fountains of Tears? what shall we do? where shall we go? where shall we hide ourselves from the Wrath of the Truth, since we not only neglect to avoid Lyes, but have even the Temerity to teach Perjury.*

The next Thing we are to do, is to enquire if the Affections of the Soul, are subject to the Precepts of a moral Discipline, and which is their Use.

The Goverment of the Passions, or of the Affections of the Soul, makes a considerable Article in the moral Discipline, and is represented as such by *Aristotle, Lib.* 2. *Ethic.* but before I can treat as I ought to do on this important Subject, I must endeavour to determine that famous Controversy, carried on with so much Heat, between the *Peripateticians* and the *Stoicks*, whether *the Affections of the Soul are bad of their Nature*, as the *Stoicks* pretended, or if they can be subjected to the Rules of a moral Discipline, as believed by the *Peripateticians?* For if all the Affections are so bad of their Nature, that they must be entirely extirpated from the Mind, in vain the *Ethick* should prescribe Rules for their Government; for what is bad of itself, cannot be reform'd by the Rules of the *Ethick*.

This Dispute was rather of Name, as it happens often, than of Fact. For by the Name *Affections*, the *Stoicks* understood only the Perturbations, or Diseases of the Mind, called immoderate Affections; which every Body knows to be bad Affections. But the *Peripateticians* understood by that Name, all the Motions of the Soul, which could be brought under the Direction of Reason.

Therefore as the Opinion of the *Peripateticians*, is more agreeable to the Notions we conceive of those Affections, and is better adapted to the common Way of Speaking, than that of the *Stoicians*; I'll say with the *Peripateticians* against the *Stoicks*, that all the Affections of the Soul are not bad of their own Nature, and consequently are not to be extirpated, but only govern'd and brought within the Limits of Reason; and that a wise and honest Man can be subject to them; because they can direct us towards a right End, and incline us towards doing Good. For Example, Love, Delectation, Cupidity, Fear, and all the other Affections, can direct us towards a good End, and engage us to act honestly.

Besides, the Affections of the Soul, are often given to spur Mankind to act with Courage, and therefore, far from being bad, they are even necessary. For Example, Admiration causes Curiosity, or the Desire of discovering something, which is very conducive towards the Acquisition of Knowledge; but however, that Desire must be confin'd within certain Limits; for it is not licit for us to spend our Time, in the Examen or Consideration of vain and useless Things, or in endeavouring to discover the most sublime Mysteries. *Altiora te ne quæsieris*, says *Solomon, Eccles.* iii. 22. *& fortiora te ne scrutatus fueris; sed quæ præcepit tibi Deus illa cogita semper, & in pluribus operibus ejus ne fueris curiosus.* The same Thing may be said of Wrath, for he who is not in a Passion, when it is necessary, is thought despicable; for says St. *Gregory, Lib.* 5. *moral. in Job* iii. *Other is the Wrath which proceeds from Impatience, and other is that proceeding from a Zeal of Justice*; that is vicious, and this is virtuous. Whence *Jesus Christ* did put himself in a Passion against the Merchants in the Temple, and has been subject to the other Affections of the Soul, as Occasion requir'd it, *viz.* to Sorrow, Fear, *&c.*

Besides, how could those Affections be bad, which can be reduced to an honest Mediocritry, as we have observed already, of Admiration, the Desire of Knowledge, and of Wrath; likewise, Boldness and Fear can be the Foundation of Courage, Prodigality and Avarice that of Liberality, *&c.* Therefore, says *Lactantius, Lib.* 6. *divin. instit. c.* 15. *If Virtue is to refrain our Appetite from desiring what is not ours, certainly he cannot have any Virtue, who wants to refrain that, which to the Use of Virtue is applied*, viz. Cupidity, which is a Passion or Affection of the Soul, and which can be moderated by our Reason; though what is called Sensuality or Lust, is always an immoderate Cupidity, as Envy is an immoderate Emulation. Therefore, without the Affections of the Soul, there would

would be scarce any Virtue, and consequently they are not to be all entirely extirpated; but are to be governed by Reason, and reduced to a just Mediocrity.

If it be objected, first, that the *Concupiscence* (which is an Affection of the Soul, or rather the Source of all other Affections) is called by the Name of Sin, and consequently is itself a Sin: I'll answer, that the Concupiscence is called by the Name of Sin, inasmuch as it proceeds from Sin, and inclines us to Sin; but not as being in itself a Sin; for it cannot become a Sin, but with the Consent of the Will, tho' the Concupiscence, or the Motion of the Concupiscence sollicits us to sin.

The same Objection could also be answered in this Manner, that every Affection of the Soul is *Concupiscence*, if by Concupiscence we understand every Motion of the sensitive Appetite; but not if we understand by Concupiscence, the Sensuality, or the effrenate Motion of the sensitive Appetite. Therefore the Affections of the Soul can be called the Motions of the Concupiscence, provided we understand by Concupiscence nothing else, but the Motions of the sensitive Appetite. But the sensitive Appetite (which is nothing in Man but the rational Soul, as far as directed occasionally, by the Motions of the animal Spirits towards some corporeal and sensible Object) for then its Motion is good with regard to its Object, as Compassion, whereby one is moved to see an honest Man in Distress, is agreeable to Reason; or it inclines towards an Object morally indifferent, and then its Motion is also indifferent; or lastly, it tends towards an Object morally bad, and then its Motion is bad according to its Species, as *Envy* and *Lust*. But as the Will can resist the Motions of the animal Spirits, hence it happens that such Motion is not a Sin, but when the Will consents to it.

If it be objected, secondly, with the Stoicks, that the Affection, or as they call it, the *Perturbation* of the Soul, is a *Commotion of the Soul against Nature, and averse to Reason:* For which Reason it is called a Disease of the Soul; which Commotion is consequently bad.

I'll answer, that the effrenate and immoderate Affection, called otherwise *Sensuality*, is a Disease of the Soul, contrary to Nature; but not a moderate Affection, and governed by Reason. Therefore the Affection in itself is often neither good nor bad; but it becomes good when, directed by Reason, and bad, when not under that Direction. Thus *Emulation*, if it be to imitate Virtue only, as it is then governed by Reason, is to be admired; but if it proceeds from Jealousy, it would be an immoderate Affection, and consequently bad: Whence *Envy* is always immoderate and bad, because it exceeds the Limits of the Reason. Likewise the Name of Sensuality is often taken in a bad Sense; for it is according to *Tull. lib. 2. de invent. an Impetuosity of the Soul, which is not right*; whereby the Soul is not only joined with the Body, and all the Things which have any Report to the Preservation of that Body, but thereby it is in some measure subject to that Body. Therefore every Affection of the Soul is not Sensuality taken in that Sense; since any Body may make a good Use of some Affection of the Soul, but never of Sensuality, or effrenate Cupidity.

It can be urged farther, that the Affections of the Soul are not in our Power, and cannot be governed by Reason, and consequently are contrary to it. To which I answer, that they are not in our Power, with regard to the Motion of the animal Spirits; but are in our Power with regard to the Consent of our Will. For it cannot be supposed that our Reason commands all the corporeal Motions, so as to be capable to hinder them; for its Power over them is only *political*, and not *despotick*, as we have already observed: But it can notwithstanding, maintain its Assent; and by its Attention to turn insensibly the Motion towards another Object, diminishes it, while, as an occasional Cause, it excites in the Body a quite different Motion: Therefore the Affections of the Soul can be governed by Reason.

At present we must say something of the Use of those Affections; since the Corruption of our Nature ever since the Sin of *Adam*, excites within us several unvoluntary Motions: But it must be confessed at the same Time, that it is in our Power, to consent or not consent to it; and to make use of them for a good End. In *Adam*, while in the State of Innocence, those Motions were not untractable as they are in us; because the inferior or corporeal Part was subject to the superior, which is the Soul: Though, mean while, the Motion of the Blood and of the animal Spirits, could give him Occasion to consent to Evil; because his Will was not immutably confirmed in Good, as it is in the Blessed in Heaven: But that could happen gently, and without inordinate Motion. *Christ* our Lord and Saviour, who was both Traveller and Comprehensor, and whose Humanity was hypostatically joined with the divine Word, has felt within him no Motion of the Affections, but those he would suffer; and consequently could not on any Account whatsoever, be inclined to Sin. But we who come into the World guilty of the original Sin, we feel continually the Rebellion of the Flesh, against the Spirit, are almost continually agitated by the Motions of the Affections, and inclined to Evil: Whence our most serious Occupation in this World, is to appease those rebellious Motions; that being brought thereby under the Direction of our Reason, we may make use of them, according to the Rules prescribed by the *Ethicks*, to gain the End proposed to us.

Therefore the right Use of our Affections, according to the Rules for moral Discipline, seems to consist either in that they are to be directed by Reason, or employed in pursuing Good, and avoiding Evil, with respect to our temporal and eternal Felicity. For then they give us the Occasion; or of gaining a Peace and Tranquility of Mind, especially if our Reason refrains the inordinate Motions contrary to that Tranquility; or strengthen us in the Pursuit of Good, and our Flight from Evil.

The Object, towards which our Affections incline us, is either good or bad, or indifferent. If it be good, we must make use of that Affection, to be carried with a still greater Propensity towards that Object: If it be indifferent, we must borrow for it, some Goodness from the End proposed; and make use likewise of the same Affection wherewith we are inclined towards it, for its Acquisition. But if the Affection inclines us towards a bad Thing, *viz.* Blasphemy, Ebriety, Luxury, *&c.* In such Cases we must endeavour either to obstruct the Motion of the Spirit, or to incline it another Way. And this can easily be effected, considering the strict Union which subsist between that Motion of the Spirit, and our Understanding: For as often as we are agitated by such Affection, we must fix our Mind on a quite different Object; that thereby those Spirits which shake our Understanding, may take another Course; but notwithstanding we must not expect to gain so compleat a Victory over those Insults of the Body, as to bring them under a perfect Subjection; for it but too often happens, that when we believe them entirely at rest, they rage all on a sudden, with a greater Fury than they had hitherto done. Our Mind thus afflicted, and almost oppressed, would in vain confide in its proper Strength; which can do nothing in those Occasions unless it be assisted from above, which Assistance is never refused when earnestly desired, at the Example of the Apostle St. *Paul*, who says, *Epist. 2. Corint.* xii. 7. 8, 9. *There was given to me a Thorn in the Flesh, the Messenger of Satan to buffet me, lest I should be exalted above measure, for this Thing I besought the Lord thrice, that it might depart from me. And he said unto me, my Grace is sufficient for thee; for my Strength is made perfect in Weakness.*

Therefore besides the general Method derived from the Principles of a natural Science, there is another Manner much more efficacious of moderating our Affections, which is the Grace of God, and which consequently we are to ask incessantly in our Prayers. Notwithstanding which, we must not abandon the human

human Succours, *viz.* those which are to be acquired by Labour and Practice, and are called Virtues; and are most of them employed in the Government of our Affections; which leads me insensibly into the Consideration of those Virtues, and likewise of the Vices opposite to them.

They usually distinguish in the Schools two Sorts of Principles of the human Acts, *viz.* those which are *born with us*, and those which are *acquired:* Those have been granted to us by Nature, *viz.* Understanding and Will; and these are acquired by Application, and repeated Acts. And are good and ill Habits, or *Virtues* and *Vices*, of which I'll treat in this Place, as well in general as in particular; and first we must know what's Virtue and what's Vice.

Three Things are to be considered in the Soul, says *Aristotle*, *Lib.* 2. *Ethic. c.* 4. viz. its Thoughts and Motions, as Perception, Love, *&c.* afterwards the Faculties or natural Powers necessary to act or suffer, as the *Understanding* and *Will*. Lastly, the *Habits*, either good or bad, that's to say, which incline us either to Good or Evil. The good Habits are called Virtues, and the bad Vices.

I'll speak first of the Virtues *infused*, which are those infused into us by the Almighty without our Concurrence; such are the Virtues called theological, *viz.* *Faith*, *Hope*, and *Charity*. To these are joined, by a certain Tye of Affinity, the habitual and sanctifying Grace, the Gift of Perseverance, or the Grace of persevering in the Practice of Virtues, to the latter End of one's Life, the Gifts of the Holy Ghost, *&c.*

Faith is a theological Virtue, divinely infused, whereby a created Soul consents or agrees, that all that God has revealed is true, though it be far above our Apprehension or Understanding. Whence the *material Object of Faith* is God; and the formal one, or the Manner, wherewith God is consider'd by *Faith*, is commonly expressed in these Words, *Inasmuch as God is the first Truth*; that is to say, as he cannot deceive or be deceived; and consequently he deserves the Consent of our Will, and the Subjection of our Understanding, in all those Things he proposes for Objects of our Faith; whence it appears, that our natural Knowledge of God, and even of our own Mind, precedes Faith: For if we were not to know that God is sovereignly true, and sovereignly potent, and that our Mind is much limited in its Conceptions, we could not easily subject ourselves to the Mysteries of Faith.

What we are to believe, is contained either in Words, Writings, or the Tradition; and proposed to us, say the *Roman* Catholicks, by the universal Church, which is the Column of Truth: So that what we hope sometimes to see, are in our Mind, by Faith, as if they were present. Whence the Apostle, *Heb.* xi. 1. *Est autem*, says he, *fides sperandarum substantia rerum, argumentum non apparentium.* In the *Greek* it is *Hypostasis*, i. e. the Foundation and Base of those Things which are the Object of our Hopes; because it gives them a Subsistence in our Understanding, as if they were present, though they are not to be seen but in Time to come: And therefore it is an *Argument*, or Conviction, or Demonstration of Things, which appears no otherwise, than it renders them present to our Mind.

Hope, is a theological Virtue, which regards the sovereign Good as absent; and with a certain Confidence, that it is sometimes to be obtained or possessed. Or it is a Virtue divinely infused, whereby we expect, with a certain Confidence, our Salvation, or eternal Felicity; its *material Object*, is also God; and its formal Object, is expressed in these Terms, inasmuch as God is to be obtained or possessed in Time to come: Therefore *Hope* includes the Desire of an absent Good; and without that Desire there would be no Hope.

Charity, is a theological Virtue, whereby God is beloved above all Things; and for himself, or for his supreme Goodness; and all the other Things for God. For this is the Order of Love, that the supreme Good should be beloved for himself, and all other Things for him; and as that Order, when it invites us by its Beauty, is nothing else but God himself; Charity is nothing else, likewise, but a supernatural Love of the Order, whereby God is beloved for himself, because he is sovereignly Good, and all other Things for him. By which Definition, it appears that the material Object of Charity is God himself; and the formal one is expressed in these Words, *as he is sovereignly Good*; or as he is the supreme Good, on which we must repose ourselves, and to which every Thing else is to be referr'd.

Therefore God's Goodness is the Reason which induces us to love him, *i. e.* his absolute Goodness, primarily, and afar off; and his relative Goodness, secondarily, and nearer: For, as says St. *Thomas*, 2. *quæst.* 26. *art.* 13. *ad.* 3. If God was good only, absolutely and in himself, and not comparatively, with respect to us, he could not excite our Will to love him; for without some Enticement, our Will cannot be inclined to Love; as without an Impression of Light, there cannot be a Vision. Therefore God is not beloved by us in that Sense, that he is consider'd as perfect in himself; setting aside the Conveniency he has with our Nature, whereby he gains us to him; for in that Manner, God could be esteemed, and much valued by us, but not beloved; for it seems that Love requires a certain Convenience between the Object that loves, and that which is beloved; whereby the Object that loves is attracted and excited to Love. Whence God does not seem to be beloved by us, but when considered relatively or comparatively to us, *i. e.* in as much as he gains us to himself; and inebriates our Mind with a certain Suavity, which supported the Martyrs in their Torments.

But nevertheless, the Act of Charity is distinguished from that of Hope, having both a different Motive. The Motive of the Act of Charity, or its formal Object, is God, as he is sovereignly Good, *i. e.* as by his supreme Goodness he gains us to himself, in such a Manner as we prefer him to all other Things, and refer them all to his Glory. But the Motive of the Act of Hope is God likewise, but only as we hope to possess him in the celestial Mansions.

The natural and acquired Virtues, are those acquir'd by repeated Acts, and these are called either intellectual, or moral.

Those are called intellectual Virtues, which promote the Knowledge of the Mind; and which, consequently, have a greater Relation to the Understanding; since Knowledge, or Perception, is the Office of the Understanding.

Aristotle, *Lib.* 6. *Ethic. c.* 3. reckons five of these habitual Virtues, *viz.* Intelligence, Sapience, Science, Prudence, and Art.

Several after *Aristotle*, define Sapience, *a certain sublime Science*, or *a Knowledge of sublime Things.*

Intelligence, is *the Knowledge of the first Principles, or most common Actions*, which is not so much a new Habit of the Mind, as it is the Mind itself, naturally consider'd. For the Mind, by the sole Dictates of Nature, perceives and embraces the common Notions, or Actions; such as these, *it is impossible to be, and not to be, at one and the same Time.* The *whole is greater than Part thereof*, &c.

The Name of *Sapience*, is to be taken in two Manners, *viz.* either for a Collection of all Sorts of Sciences, or for the Knowledge of all Things, as well universal as sublime.

Science, is commonly defin'd, *a true, certain, and evident Knowledge of every Thing necessary, and immutable, for the true and proper Causes for which it is such; or for which it is constantly affirm'd or denied that it is such.*

It is first said a *Knowledge*, or *Cognition*, not actual as they speak, but habitual, *i. e.* the Facility of Knowing, not the Act or Motion of him that knows. For the Science of a Thing, remains even in a Person while asleep, and not at all thinking of that Thing; provided he has before rendered himself perfect in that Knowledge, by his assiduous Application and Study; that

that he may understand it when he reflects on it. This is as a Reward which God gives to our Industry, that those Things, the Knowledge whereof we have acquired by a long and laborious Study, may be again revealed to us, and subjected to our Understanding, (himself irradiating our Mind) as often as we are pleased to reflect on them. *Science* differs both from the Ignorance, called of *Privation*, and which is the Privation of that Knowledge we should be instructed in, *viz.* of our Duties; and from Ignorance, of a depraved Disposition, which is join'd with Error. But our *Science* being limited, does not exclude from us the Ignorance of pure Negation, whereby we are ignorant of several Things which we are not obliged to know; or the Knowledge whereof, God in his great Wisdom has been pleased to hide from us; *v. g.* no Body is obliged to know if the Number of the Sands of the Sea, be even or uneven.

Secondly, It is a true Knowledge, not of all Things indifferently, but of a necessary Thing, or of a Thing which cannot be otherwise. Thus he who knows that the Eclipse of the Moon, happens from the Interposition of the Earth between the Sun and the Moon, knows a Thing which cannot be otherwise; for it is impossible that the Moon should not suffer an Eclipse, by the Interposition of so opake a Body as is the Earth, between her and the Sun, from which she borrows her whole Light. In which, Science is distinguished from Prudence and Art, which are employ'd about Things contingent, as well as about those which are necessary.

Science, is besides a *Cognition or Knowledge of a Thing by its Causes, or the Reason why that Thing is; or else for which it is affirmed or denied to be so.* Whereby it is evident, that Science is not a bare Perception of a Thing, or to speak the Language of the Schools, an Apprehension, without Affirmation or Negation; but a Knowledge acquired by Ratiocination, and consequently joined with the Judgment, or also a Collection of several Perceptions and Judgments. However, *Science*, besides the Perception of the Understanding, which is passive, includes the Assent of the Will, or the Judgment which is active. For we do not only conceive a Thing by Means of the Sciences, but affirm, besides, that what we conceive, is such as we conceive it.

Science is also a sure *Knowledge*, i. e. firm, permanent, and supported by certain immutable Arguments; to distinguish from Opinion, which is uncertain.

Lastly, it is an evident Knowledge, *i. e.* manifest and perspicuous, or established on clear and evident Principles, to distinguish it from Faith; which is true and certain, but dark. Thus it is true and certain that in the blessed Trinity there is one Nature and three Persons, but that is obscure, and known by the sole Authority of God who has revealed it, and not by an evident Reason.

It is observed here, that in this Definition, the more general Terms are preferr'd to those which are less general. For *true* is more general than *certain*, and *certain* more general than *evident*; for what is *evident* is *certain*, and what is *certain* is *true*, but not interchangeably. This must be observed, likewise, that *Truth* is agreeable both to the Idea, and to Judgment; *Certainty* to Judgment, rather than to Idea; and that Evidence is to be attributed, neither to Idea nor to Judgment; though they be all three agreeable to Science: Because Science includes the Perception of the Understanding, Judgment, Approbation, or Assent of the Will.

Prudence, as well as *Sapience*, or Wisdom, is taken in two Senses, *viz.* either for Science, or general Knowledge of Things, which pertains to Life and Manners, and this is called a *general Prudence*; or for the practical and efficacious Knowledge of those Things, which on all Occasions are to be acted by an honest Man, and is called *particular Prudence*, or Cardinal Virtue, of which I'll speak by and by.

Lastly, *Art*, is the *practical Knowledge of Things which can be accomplished by Industry*; which consists of two Parts, the first and superior Part of *Art*, is the Knowledge of the Mind; if it be either Intelligence only, or Science: The second and inferior; is the Execution, or Work of the Artist. Though *Aristotle*, *Lib. 6. Ethic. c.* 4. makes a Difference between what is called *effectio*, and Action, or Practice, that *Practice is a moral Action, in which the Intention of the Person that acts, is considered comparatively to a moral Honesty*; and *Effection*, is any *Operation*, in which the Industry or Skill of *the Person who acts is considered.* In which Sense the *Effection* is good, while the *Action* is bad; as when a Person robs another of his Purse with great Dexterity; and the *Action* good, while the *Effection* is bad, as it happens in a Mother, who to save her Son from an imminent Danger, suffocates him.

Moral Virtues, are those which incline our Will to a moral Good, which the infused Virtues do; as well as the moral ones. Therefore, *Virtue*, generally speaking, is very well defin'd by St. *Augustin*, *Lib. octogint. quæst.* 31. *an Habit of the Mind, agreeable to Nature and Reason*, i. e. inclining to act, what is placed in so just a Mediocrity, that it neither exceeds the just Limits of Reason and Order, nor falls short from it.

A *Virtue*, or good Habit of what Kind soever, consists of two Parts, one *superior*, which commands and governs, and the other *inferior*, which serves and obeys.

The superior Part of *Virtue*, is that *Affection or Disposition of the Mind*, which follows every where an honest Temperament, with Regard to the Person that acts, the Place, the Time, and all the Circumstances: For the same Things do not become every one, nor the same Things become the same Person at all Times; for Example, a Meal which may be esteemed frugal for a Prince, may be considered as profuse, with respect to a private Person. And among private Persons, a rich Man is esteemed liberal, who treats his Friends in a splendid elegant Manner, when as one of a narrower Fortune, who attempts to do the same, is taxed of Prodigality.

Atticus eximiè si cœnat, lautus habetur:
Si Rutilus, demens:

Likewise, the same Man must alter his Manner of Living, according to the Difference of his Condition, Age, Fortune, and Rank. This superior Part of *Virtue*, can be consider'd as its Soul, or rather, is the *Virtue* itself; for that Part alone prescribes a regular Conduct, Love, and Continence, a just Œconomy, and a good Order. The Author of the Enquiry after Truth, defines *Virtue*, 1 *part. tract. moral. c.* 2, 3. *the Love of Order*, or *the constant and habitual Love of Order:* Which Love in a Man, truly Christian and Just, is that Charity whereby God is beloved above all Things, and for himself, and all other Things for him. Therefore St. *Augustin*, *Lib.* 4. *cont. Julian. c.* 3. teaches, that there is no true Virtue without Charity; because without Charity there is no true *Order of Love*, or true *Love of Order*; whereby God is preferred to all created Beings. St. *Thomas* says, after St. *Ambrose*, that Charity is the Form of Virtue, because virtuous Acts are thereby directed to their chief End. Whence it follows, that the Virtues of the Pagans, have always been lame and imperfect; because as they wanted Charity, they could not love God above all Things.

The inferior Part of *Virtue*, is the Facility of acting, which is placed entirely in the Impressions received in the Brain, in the Determination of the animal Spirits, and in the other Dispositions of the Body, and consequently is corporeal.

This inferior Part may be considered as the *Body* of Virtue, since it is this Part that operates, or acts, *v. g.* he that has the *Virtue of Temperance*, this through an Inclination to Order, moderates the Sensuality of the *Taste* and *Tact*; and has acquired to him by a long Use and often repeated Acts, the Facility of refraining his Appetite. And that Facility, which has its Seat in the Body, is rather an Act of Virtue, than Virtue itself.

ſelf. Becauſe without the leaſt Inclination for a good Order, any Body may acquire the Facility of practiſing ſome Acts of Temperance, *viz.* when he refrains his Appetite through Infirmity, or to avoid Sickneſs, or for any other Cauſe: And likewiſe, he can have the Virtue of Temperance, or a conſtant Love for Order in the Object of Temperance, tho' he cannot very well practiſe the Acts of Temperance.

But Men confound often Virtue itſelf, with the Acts of Virtues, which is the Cauſe of that long Diſpute between the *Thomiſts* and *Scotiſts*, as well about the Eſſence of Virtue, as about the Object on which it is fixed. For if we diſtinguiſh the *Virtue* from the *Act*, the *Thomiſts* have Reaſon to ſay that it is an Habit good of its Nature, and is received in the *Mind* as in its *Subject*. Therefore *Virtue*, properly taken, is *an habitual Love of Order*, or is *a firm and conſtant Love of an honeſt Mediocrity, directed in every Subject by right Reaſon.* Which Love exiſts in the Mind, as *in its Subject*; and ſo good of its Nature that it can never be bad. This Love it not different in an honeſt Chriſtian, from Charity itſelf.

But if we take with the *Scotiſts*, the *Acts of Virtue*, or the Facility of acting, for *Virtue* itſelf, that Facility may be applied to a bad Uſe; as for Inſtance, when any Body faſts, or practiſes any other Act of *Virtue* thro' Vain-glory. Therefore the *inferior Part of Virtue*, or the Facility of acting (ſetting aſide the Love of Order) cannot be ſaid *an Habit eſſentially good*; becauſe it can incline to thoſe Acts, which are not ſo well placed in a *Medium*, but that they may recede from right Reaſon, or Order. When I mention the Acts of *Virtue*, placed in a *Medium*, I underſtand the *Medium* of Reaſon, not of the Thing.

The *Medium* of a Thing is defined by *Ariſtotle*, *Lib.* 2. *Ethic. c.* 5. that which is equally diſtant from the Extremeties, and is every where, and always the ſame, as 6 is the *Medium* between 10 and 2. Becauſe the Number 6, is equal diſtant from the Number 10 and 2, *viz.* of four Units. This Medium, for Reaſons hereafter mentioned, is called by *Ariſtotle*, *Arithmetical Medium.*

The *Medium of Reaſon*, or *Geometrical*, is that which is preſcribed by Reaſon, and thereby is determined, what, where, and how Things are to be done. And this Medium is not only conſidered in Actions, but likewiſe in the Affections of the Soul. For to fear, *v. g.* or to wiſh, is a good Thing, provided it be done with all the Conditions above-mentioned. And this is the principal Office of Virtue, to place that Mediocrity regulated by Reaſon, in the Affections of the Mind, as well as in the Acts of the Will; therefore, if any Body deviates from that Mediocrity, either by exceeding its Limits, or by falling ſhort from them, he falls into a moral Vice; which *moral Vice, is an ill Habit inclining to bad Actions*, i. e. to thoſe Actions, deviating through Exceſs, or Defect, from right Reaſon or Order, theſe Acts are alſo called *Sins*, of which hereafter.

The next Thing which falls under our Conſideration, is *the Diviſion of the moral Virtues.*

If *Virtue* can be conſidered as nothing elſe but *an habitual Love of Order*, or *a firm and conſtant Love of an honeſt Mediocrity, govern'd, or directed in any Subject, by right Reaſon.* There is certainly a general Virtue, which for the different Reaſons, or Manners, by which Order is preſerved in different material Objects, can be divided into different Kinds; and is in Fact, divided into *Cardinal Virtues*, i. e. thoſe which ought to give Motion to, or influence all the Actions of our Life; and in *adjunct*, or *concomitant*, which flow from the *Cardinals*, and are referr'd to them.

We commonly reckon four *Cardinal Virtues*, viz. Prudence, Juſtice, Fortitude, and Temperance. This Number is aſſerted by the Authority of ſeveral divine Writers: And firſt, *Wiſd.* viii. 7. *For the Wiſe teaches Sobriety*, i. e. *Temperance and Prudence, Juſtice and Virtue*, i. e. *Fortitude; nothing in Life being more uſeful to Mankind. St.* Ambroſe, in caput 6. Evang. Luc. *We know*, ſays he, *that there are four Cardinal Virtues, Temperance, Juſtice, Prudence, and Fortitude.* And St. *Auguſtin, in Pſalm* lxxxiii. 8. *Several*, ſays he, *reckon four Virtues, which are alſo found in the Scripture, which ſhould influence our Actions. That is called Prudence, whereby we are rendered capable to make a Difference between good and bad. Juſtice, that whereby we give every Body his own, owing nothing, and loving every Body. Temperance, whereby we refrain our Senſuality: And Fortitude, whereby we ſuffer every Thing with Patience.*

Among the profane Authors, (to ſay nothing of *Plato, Ariſtotle*, &c.) *Cicero* enumerated thoſe four Virtues, *Lib.* 1. *de officiis. All that's honeſt*, ſays he, *proceeds from ſome of theſe four Parts; for it is either employ'd in the Conſideration of the Truth, or in ſecuring the good Order in a civil Society, by promoting and countenancing the diſtributive Juſtice, and encouraging Probity; or in ſupporting Magnanimity and Courage; or preſerving a good Order, or a juſt Subordination, in which conſiſts Modeſty and Temperance.*

The other Virtues which the ſame *Tully* calls concomitant, admit of three Diſtinctions, according to St. *Thomas*, 2. 2. *quæſt.* 4. for ſome are ſubject to a Cardinal Virtue, as a Species, and therefore are called the *ſubjective Parts* of a Cardinal Virtue: Others, without which a Cardinal Virtue cannot be eſteemed entire, as the human Body cannot be eſteemed entire with its Members; thoſe Parts are called *integrant*, or *integral*; and laſtly, others which ſerve for Faculties and Powers to thoſe ſame Cardinal Virtues, and for that Reaſon are called *potential Parts.*

Thoſe Virtues, either Cardinal or Adjunct, are ſo well united together, that none of them can be obtained in a perfect State, without the others: For a perfect Virtue being a *firm and conſtant Love of Order*, that Love includes all Virtues, or rather is but one and the ſame Virtue, which to be perfect, requires a perfect Will to purſue what is right and juſt in every Subject: For that Man, *v. g.* is not perfectly juſt, who wants Fortitude, or Temperance, or Liberality, *i. e.* if he wants the Love of Order, or the Subject of Temperance, or of Liberality, or of Fortitude; an intemperate Judge, for Example, can be tempted by Pleaſure, an avaricious one corrupted by Money, and a puſillanimous one frighted by Menaces. Likewiſe, no Body can obtain Temperance in a perfect State, without Prudence, and the other Virtues.

Therefore one Virtue cannot be perfect in a Subject, but in Society with all the others. I ſay that it cannot be perfect without the others, for it can be imperfect without them; ſince we commonly diſtinguiſh after *Ariſtotle*, *Lib.* 7. *Ethic. c.* 1. three different States of *Virtue*, viz. the *imperfect State*, called the *State of Continence*; the *middle State*, called the *State of Temperance*; and laſtly, the *perfect State*, called the *heroical.*

The *imperfect State of Virtue*, is that in which one is agitated by the Motions of his Affections, to which he reſiſts, though with a certain Reluctancy; and this State is that of the *Beginners*, who are not yet confirm'd in Virtue. To which State is oppoſed that of *Infirmity*, or *Incontinence*, in which he is not yet abandoned to Vice, and entirely reprobate, but is conquered by *Concupiſcence*, though he faintly reſiſts it.

The *middle State of Virtue*, is that in which one is ſo confirm'd in *Goodneſs*, that though he be tempted by his *Concupiſcence*, he notwithſtanding reſiſts to it the eaſier, becauſe he has made a long Practice of that Reſiſtance; and this State is that of thoſe who make a Progreſs in Virtue. To which is oppoſed the State of *Perverſity*, or *Malice*, in which he is ſo uſed to Vice, that he ſeldom reſiſts it.

Laſtly, the *State of Perfection of Virtue*, or the *heroical*, is that whereby the Affections are ſo well conquered, that they cannot make the leaſt Impreſſion on *Virtue*; which State is that of the *Perfect*. To which is oppoſed the State of *Brutality*, whereby one is brought ſo much beneath the common Condition, even of the weakeſt, that he in ſome Meaſure degenerates to that of the *Brutes*; which State is commonly called

called the State of *Obdurateness*, of *Blindness*, and of *Pharaoh*. In both States, *viz.* the middle State, and the perfect, but more particularly in the perfect, or heroical, all the other Virtues, either cardinal or concomitant, are united together; but not in the imperfect State.

I must at present, speak of each *moral Virtue* in particular, that every *moral Virtue*, their Adjuncts, or as St. *Thomas* calls them, their potential and integrant Parts, be united.

I'll begin by *Prudence*, which *Plato* often confounds with *Sapience* or Wisdom, and takes them both, either for the Knowledge of the supreme Good, or for the Means to come at it. But *Aristotle* makes such Difference between them, *Lib.* 6. *Ethic. c.* 5, and 7, that in his Opinion, *Sapience* is the Science of sublime Things, or a Collection of all the Parts of Philosophy; and *Prudence* the Manner of acting. Therefore, the same Author defines *Prudence*, *Lib.* 6. *Ethic. c.* 5. *An Habit acting in Concert with right Reason, in those Things which are either good or bad, with Respect to Man*, i. e. an Habit whereby we know, not only what must be done or avoided, but likewise, whereby we love to act, and act what is to be acted, and abstain from what is to be avoided, because Order requires it.

Acting, however, and *effecting*, are distinguish'd by *Aristotle*, so that the one regards *Prudence*, and the other *Art*; in the Action is considered the Intention of the Person who acts, and in the *Effection*, his Industry.

In the same Sense, *Prudence* is defin'd by *Cicero*, *Lib.* 2. *de invent. the Science of good and bad Things, and of both.* And by St. *Augustin*, *Lib.* 1. *de Liber. arbit. c.* 13. *the Science of Things to be desired, and to be avoided.* In which Definitions, the Term *Science* is to be taken, either in a wider or stricter Sense; as those Definitions are understood, either of the general, or of the particular *Prudence*. For if thereby is understood a general *Prudence*, i. e. that *Prudence* whereby Men know generally what they ought to do, though very often they don't do it; which is the Case of those who say, and not do, (a Vice very common among Courtiers, as well as among our modern *Pharisees*) then the Term Science, is properly and strictly taken, *viz.* for the certain and evident Knowledge of Things immutable, and by immutable Reasons; therefore, what is good *morally*, or is agreeable to Order and right Reason, cannot be *morally* bad; nor what is bad *morally*, cannot be good *morally*. Whence the Things to be done or avoided, generally taken, can be said an immutable Object; and the general *Prudence* which considers them, is truly a practical Science, or the *Ethick* itself, which teaches what is right, and what is wrong, what is to be desired, and what is to be rejected; and can even be found in those who make no Profession of Honesty.

But if thereby the *particular Prudence* is understood, *i. e.* that Cardinal Virtue, whereof we treat at present, and whereby we don't only know in general, what Order prescribes to be done, but likewise conform our Actions to that Order, prompted to it by our constant Love for Order, which is foreign to a Person who makes no Profession of Probity: There the Term Science, is not to be taken in a strict and scholastick Sense, *viz.* for a strict and evident Knowledge of Things, immutable by their Causes; but in a wider Sense, *viz.* for the Knowledge of that, which on every Occasion is to be acted or avoided. For as the particular or special Prudence, which directs our Will in every Action, considers particular Things, it may also be called the Knowledge of Things contingent, or precarious; because the Change of Things, and of Circumstances, must cause also an Alteration in our Actions. And in this, the *Prudence* agrees with *Art*, which has also for Object the Things contingent.

Prudence, notwithstanding, differs from *Art*, according to *Aristotle*, in that this is employ'd towards the *Operations*, and that towards the *Actions*. Besides, by *Prudence* a Man becomes good *simply*, and by *Art* good with *Addition*, viz. a good Artist. Whence if any Body, knowing and willing sins against *Prudence*, he is called *very bad*; but if an Artist, knowing and willing sins against the Rules of his Art, he remains a good Artist; because only an ignorant, and unexperienced Artist, sins against the Rules of his Art, unwilling.

We commonly reckon after *Aristotle*, and St. *Thomas*, three potential Parts, or three Offices of Prudence, *viz.* to *consult well*, to *judge right*, and to *reduce into Practice*, what has been judged or decreed.

St. *Thomas*, 2. *quæst.* 48. mentions eight integrant Parts of Prudence, and has taken them in Part from *Aristotle*, *lib.* 6. *Ethic. c.* 10, 11, and 12. in Part from *Tully*, *lib.* 2. *de invent.* in Part from *Macrobius*, *lib.* 1. *in somn. Scipion. c.* 8. or also from St. *Augustin*, *lib.* 83. *quæst.* 31. where he has transcribed *Cicero* Word for Word. And those integrant Parts are these, *Memory*, *Intelligence*, *Foresight*, *Reason*, *Docility*, *Dexterity* (to which must be added *Sagacity*) *Circumspection*, and *Caution*.

Therefore, to render the *Prudence perfect*, is necessary, 1. *Memory*, i. e. the Remembrance of Things past 2. *Intelligence*, i. e. the Knowledge of Things present. 3. *Foresight*, i. e. the Presence of Things to come. 4. *Reason*, i. e. the Facility of collecting what is to be done from the Things past, present, and to come. 5. *Docility*, or a good Disposition of Mind to take and follow the Advice and Counsels of others. 6. *Sagacity*, and *Dexterity*, i. e. an easy Apprehension, and Application of the Means conducive to the End; for *Sagacity* finds, and *Dexterity* executes happily. 7. *Circumspection*, or a serious Consideration of all the Circumstances. 8. *Caution*, or Care or Solicitude, to avoid all that could be an Obstacle to the Undertaking.

The *Species* or Kinds of *Prudence*, are the *Prudence* wherewith we govern ourselves, and the *Prudence* wherewith we govern others. And this last Sort of Prudence is again divided into other Kinds; for it is either *œconomical*, whereby a Family is governed; or political, whereby a City or Republick is governed: But these *Species* do not differ among themselves, with Regard to their Principles, *viz.* to a Mind loving Order; but only with Regard to the Object it considers; and then they differ only with regard to the material Object, *viz.* with regard to what is acted in a Family, or a City; but not with regard to the formal Objects: Therefore those Acts are consider'd by an œconomical or political Prudence, inasmuch as they are to be conformable to the Rules of Honesty. Whence *Aristotle*, *lib.* 6. *Ethic. c.* 8. says, that the Prudence which we govern ourselves with, is the same as that with which we govern others; let it be either *œconomical*, or the Governess of a Family; or *political*, or Directress of a City; or *monothetical*, or *Conditrice* of Laws; or *dicastical*, or Judge. But he observes, that the principal Kind of Prudence, is that wherewith we consider ourselves, and all that belong to us.

The Vices opposite to Prudence, wounds it either through Excess or Defect.

The *Vices* which affect *Prudence* through Excess, are, 1. The *Prudence of the Flesh*; which is employ'd in gratifying our sensual Appetites. 2. *A too great Solicitude of the temporal Goods*; which proceeds either from an immoderate Desire of possessing them, or from an excessive Fear of losing them. 3. *Fraud*, or *Finesse*, or *Deceit*; which is concerting dangerous Measures to deceive others. When Deceit consists only in Words, it is call'd *Finesse*; and *Fraud*, when it proceeds to Facts: Though oftner *Deceit and Fraud* are indifferently taken for one and the same Thing.

The Vices opposite to *Prudence*, proceed very often from Ignorance; and therefore may be generally styl'd *Want of Prudence*: Of this there are several Kinds; viz. *Precipitation*, *Inconsideration*, *Inconstancy*, and *Negligence*.

Precipitation, is a Vice whereby any one undertakes something without a mature Deliberation; and this

this is opposite to Consultation.

Inconsideration, is a Vice, whereby a Judgment is given, or pronounced without the least Attention to the Means; and this opposite to a good Understanding or Intelligence.

Inconstancy, is changing one's Opinion, on any slight or frivolous Account.

Negligence, is a Want of Diligence, or Care in the Execution of our Affairs.

The Term JUSTICE, is often taken in a wide Sense, *viz.* for Sanctity, or the Assemblage of all sorts of Virtues: Thus it is used in the sacred Scriptures, *Matth.* i. 19. *Joseph* is call'd *Just*, i. e. eminent in Sanctity.

The first Kind of Justice is commonly call'd *General Justice*, or *Legal Justice*; which contains all the Law, and all the other Virtues; according to *Aristotle*'s Sentiment, *Lib.* 5. *Ethic.* 3. where he quotes this Verse of *Theognis:*

Justitia in sese virtutes continet omnes.

But there is another Sort of Justice, call'd *particular* or *special*, which is that meant here, and the second among the Cardinal Virtues: And what is properly call'd the *distributive* Justice, whereby we give every one his own. This *Justice* is defined by the Emperor *Justinian*, at the Beginning of his Institutions of the Civil Law, or Right: *Constans & perpetua voluntas jus suum cuique tribuendi*, i. e. a constant and perpetual Will, to give every one his Due, or Right.

Right, is all that's just and equitable; or what is a Medium between two vicious Extreams: Therefore, those who contend or dispute for something, have Recourse to a Judge, as to a Divisor or Partitioner, who divides between them what they contend for, according to the Rules of Equity, and declares what Part belongs to every one.

Whence it may be inferr'd that the *Talion*, or the *Pain of the Reciprocal*, as it is call'd in the *Theodosian Codex*, *Lex* 3. was not properly a Right, but only a Satisfaction for Damages done. For there is no Reparation made of the Damage done to a Man in breaking one of his Teeth, by breaking likewise the Tooth of the Person who has done him that Injury; but only whereby a Punishment is inflicted on the culpable: Therefore that *Lex Talionis*, mention'd by the Scripture, *Exod.* xxi. 24. which the Law of the twelve Tables had introduced among the *Romans*, became obsolete by Degrees; for the *Roman* Pretors permitted, afterwards, those who had received the Injury, to appretiate it; that the Judge, appointed by the Pretor, should fine the Offender in the Sum the Offended had been pleas'd to value his Injury at; or in a less Fine, as he should judge more proper.

The *special Justice*, which is the second among the Cardinal Virtues, is divided into *commutative*, and *distributive*, as into Species.

The *commutative Justice*, is that which keeps or maintains an Equality, in Commutations of Goods, in Contracts and Covenants.

The *distributive Justice*, is that which distributes Rewards, or Recompence, according to the Merit and Condition of Persons; and when it inflicts any Punishment, according to the Atrocity of the Crime, it is call'd *vindictive*.

Both establish a certain Equality: But in the *distributive Justice*, is observed a *geometrical Proportion*; and in the *commutative*, an *arithmetical one*. For when the *distributive Justice* is employ'd in distributing Recompences, or inflicting Punishments, it has not only Regard to the Merit, Recompence, or to the Pain, but likewise compares the Persons; for there is to be the same Difference between the Pains, or the Rewards, as there is between the Persons, or the Merits or Deserts; and therefore as much as a Captain surpasses a private Soldier in Rank or Dignity, so much greater must be his Recompence, when they have both equally done a brave Action.

But the *commutative Justice* wants a perfect Equality, and has no Regard to Persons or to any other Circumstances. So that as much as the Thing deducted in the Commutation, or in the Contract, is worth; as much must be worth, the Price given for that Thing, without the least Regard to the Persons who change, or to the Manner they change in, or, which is the same, as much one Thing exceeds the other, as much must the Price of that one Thing surpass the Price of the other.

Therefore, if any Body neglects to observe the *Medium of the Regard*, in the *distributive Justice*; or the *Medium of the Thing*, in the *commutative*, he then wounds the Right itself, and violates the Law whereby that Right is established; unless some Cases happen, in which the natural Equity persuades to relent from the Rigour of the Law; for as the general Law cannot foresee all particular Cases; it must be, sometimes, temperated by the natural Equity. Hence *Aristotle*, *Lib.* 5. *Ethic. c.* 14. teaches, that all Things cannot be included in the Law, because of the infinite Variety of human Things; for the Rule or Law of an infinite Thing, must be infinite, and must be applied in a different Manner, according as the different Things occur; consulting always therein the Dictates of our Reason.

Aristotle asks, *Lib.* 5. *Ethic. c.* 11. if an Injury can be done to a Person who is willing? To which I answer, by this Distinction; that if *Injury* be taken for all *that is not just*, i. e. for all that violates the *Right*, or offend any Body, or in his own Person, or in his Family, or in his Fortune; certainly a Person may suffer an Injury, willingly, *v.g.* he can suffer to be vexed, to promote or procure Justice, or to be exposed to some Disadvantages for the Good of the Peace; And likewise a Husband can suffer the Adultery of his Wife, or through an Excess of Stupidity, or for Lucre. But if *Injury* be taken for Affront, or for the Fact which really offends a Person, as *Aristotle* seems to take it here, certainly none can *be injured willingly*, because no Body can love Evil as Evil.

Aristotle asks also, *c.* 15. of the same Book, if it be worse to receive an Injury than to do it? Which Question is easily answered: For he who does an Injury sins against *Justice*; and he who suffers an Injury, is free from Vice and Injustice; therefore it is better to suffer an Injury than to do it.

There are two integrant Parts of *Justice*, viz. to *abstain from Evil*, and to do Good; because those Parts are requisite for a perfect Act of Justice. But though this be true, those Parts are better reported to the legal Justice, or to Virtue in general, than to Justice taken in a strict Sense, which is the second of the cardinal Virtues; since without them there can be no perfect Act of Virtue. Which Sentiment is not very different from that of St. *Thomas:* But as the other Virtues, render a Man perfect in himself and for himself, and Justice be only *to another*; the same Doctor believes that it belongs to Justice, in a more particular Manner, to avoid Evil, and to do Good.

If you ask, whether it be always true, that Justice is to another? I'll answer, that Justice is always to *another*, or *physically*, or *morally*; it is to another, *physically*, when one returns to another what belongs to him: And it is to another *morally*, when he establishes a Law to himself, *viz.* when he absolves or condemns himself; for then he acts two Parts, that of Judge, and of Culpable: Which suffices to call it *Justice to another*.

There are, according to St. *Thomas*, *c.* 2. *quæst.* 80. *art.* 1. eight potential Parts of Justice, whereby it performs its Operations, as if they were so many Faculties or Organs, *viz. Religion*, *Piety*, *Respect*, *Truth*, *Grace*, *Vindication*, *Liberality*, and *Amity*, to which they add *Affability*. Which are almost all taken from the second Book of *Cicero*, *de Inventione*.

Religion is that moral Virtue, which renders to God the *Culte* due to him, in confessing his supreme Power and Excellence. That *Culte*, or Worship, is rendred to God, or inwardly, *i. e.* by *Devotion* and *Meditation*, or outwardly, by Adoration, Vows, *&c.* but we must remember

remember here, that our Worship, that it may be acceptable to God, must be render'd to him through *Jesus Christ* our Lord; for no Body can be saved but in the Christian Religion.

Piety, according to *Cicero*, is a Virtue, whereby we acquit ourselves of our Duties to our Prince, to our Country, to our Parents, and to all our other Relations. *Piety* is also taken among Christians for Devotion.

Respect, from the same *Tully*, is that Part of Justice, whereby Men respect and reverence those who are above them, either by their Age, Wisdom, Honour, or Dignity.

Truth, or as some others call it *Veracity*, is a moral Virtue, whereby we take Care that nothing should be said but what really is, has been, or is to be.

Grace, otherwise *Gratitude*, is that which contains the Remembrance of past Services, or Kindnesses, and the Will of rewarding them.

Vindication, according to *Tully*, is a Virtue whereby we repel the Violence and Affronts offered to us, to ours, and all those who are dear to us, and whereby we punish Crimes. But though every one can hinder himself and his Friends from being injured or insulted; it must be observed with St. *Thomas*, 2. 2. *quæst.* 108. *art.* 1. that *Vindication* is not licit, but to those only, who are placed above the rest, to correct the Delinquents, or at least reprimand them, to procure, or maintain the publick Tranquility, and to countenance Justice. For it is not licit for a private Person to take Revenge of another, though *Cicero* endeavours to prove that it is a Right of Nature; but the Apostle St. *Paul* contradicts him, *Epist. Rom.* xx. 22.

Liberality, is defined by *Aristotle*, *Lib.* 4. *Ethic. c.* 1. a Virtue which keeps a Medium between giving and receiving Money. It is said to differ from *Beneficence*, in that *Beneficence* consists in the Distribution of all Sorts of Goods, and *Liberality*, only in that of Money.

Affability is a Virtue, whereby we study to behave ourselves in a civil Society, with that Freedom and Complaisance, which become us; to which are opposed, *Insolence*, *Haughtiness*, and *Morosity*.

Aristotle defines *Amity*, *Lib.* 8. *Ethic. c.* 2. an open mutual Benevolence, founded on some Good, either profitable, agreeable, or honest; but that only which is founded on the honest Good, deserves that Appellation, because it is a Part of Justice whereby we return Love for Love. Therefore, when according to the Rules of Justice, we return Love for Love, we do not love our Friends only to please ourselves, but likewise to please and oblige them. But those who consider but their own Profit in Friendship, are not Friends to others, but only consult their own Conveniency. For it is not loving our Friends sincerely, to take so much Pleasure in their Company or Conversation, as not to leave them even a Moment free, to mind their own private Affairs, but only consulting our own Satisfaction, and make others servily subservient to it; for we are not only to consider Pleasure and Profit in Friendship, though both agree very well with it, but Honesty, whereby Friendship is made a Part of Justice, and is rais'd to the Nature of Virtue, must take the first Place in it.

The Vice generally opposed to Justice, is Injustice, and which can offend Justice in different Manners, *viz.* either thro' *Excess* or *Defect*, tho' in both it retains the Name of *Injustice*.

Therefore, 1. The *distributive Justice* can be offended through Defect, either in the Distribution of Recompences, or of Pains; for if a Prince grants more Honour, more Glory, and greater Recompences to a Person than he really deserves, he sins, thro' Excess; if less, thro' Defect. Likewise, when greater Punishments are inflicted on the Guilty, than their Crime deserves, the Excess is in the Matter of the *vindictive Justice*, and is called Cruelty; if the Punishment is much more less than the Crime, it is a *Defect*, or a *too great Indulgency*.

2. *Excess* and *Defect*, have Place in the Matter of *commutative Justice*, v. g. when something is sold or bought too dear, or when in Commutation of Goods, something is given or received besides the Principal, Justice is offended through *Excess*; if less is paid than received, then we deviate from Justice, through *Defect*. Whence *Justice* can be offended, not only thro' *Defect*, but likewise, through *Excess*, with Regard to its Matter, or as they call it, its material Object.

But however, Excess is not always a Vice, with Respect to Justice, *v. g.* when a rich Man, in an urgent Necessity, has borrowed something from one less rich, he can, in Gratification, return more than he has borrowed; but if he becomes prodigal in returning, *i. e.* if he returns much more than he has received, he offends, it is true, against Liberality, but not against Justice, no otherwise than Liberality is a potential Part of Justice.

Fortitude, is defin'd by *Aristotle*, *Lib.* 3. *Ethic. c.* 9. *A Mediocrity or Medium, between Temerity and Fear*; it can also be defin'd, *A Virtue between Temerity and Fear, in the Dangers our Reason commands us to encounter, or in supporting with Constancy, the Adversities.* Therefore, the material Subject of *Fortitude*, are the Perils we are to encounter, when our Reason requires it, *v. g.* in a just War, undertaken in the Defence of Religion, of our Prince, or of our Country; or the Adversities, which are either to be repelled where they assail, or supported with Constancy.

Therefore there are two opposite Acts in *Fortitude*, *viz.* to *encounter*, or admit the Peril when it is proper; and *support*, or suffer with an heroical Constancy, the greatest Adversities; both Acts must be entirely directed by right Reason, or the Love of Order. For we are not to attempt any Thing with a too great Temerity, nor fear it without Reason. But a brave Man must be always in a certain Medium between Temerity and Fear.

St. *Thomas*, 2. 2. *quæst.* 128. *art.* 1. is of Opinion, that *Fortitude* has no potential Parts or Species, because confin'd within too narrow Limits; though he reckons, at the same Time, four integrant Parts of *Fortitude*, which can be called potential, *viz. Confidence*, *Magnificency*, *Patience*, and *Perseverance*. Which *Tullius* remembers also, *Lib.* 2. *de invent.* of these, *Confidence* and *Magnificency*, regard more particularly the *Aggression*, and *Patience* and *Perseverance*, the Act of Supporting; though every one of them seems to be agreeable to both Acts.

Therefore, *Confidence* can be defin'd that Part of *Fortitude*, whereby the Mind imagines, that it can undertake and support the most difficult Things, where, and when it is proper. But if those thorny and arduous Things are not common, and not to be undertaken by ordinary Acts, then they become the Object of *Magnanimity*, which differs both in Name and Effect from *Fortitude*.

Magnificency, according to *Tully*, is the Execution of great and pompous Things, which if it consists in Expences, has a very strict Connection with Liberality.

Patience, or *Constancy*, is a Virtue whereby our Mind is sustained, and strengthened in Adversities.

Perseverance, is a firm Resolution in what we have once determined, if it be either to attack, defend, or support.

It is asked, in this Place, if it be more noble, and more courageous, to sustain, or defend, than to attack? It is the common Opinion, that *Fortitude* appears with a greater Lustre in defending, than in attacking; for he who attacks to fight, fights him whom he considers as inferior to him, whence his Temerity is only to be moderated; but he who sustains the Impetuosity of another, fights with him whom he looks upon as superior and stronger; therefore he must conquer Fear, which is the greatest Difficulty, and consequently a greater, and longer Habit of *Fortitude*, or Courage.

It is asked, besides, if *Fortitude* appears better in *sudden Things*, than in those which are *foreseen*? St. *Thomas* answers in the Affirmative, because in sudden Dangers we must have a long Habit of Fortitude, and

very well confirmed, since there is no Time allowed for Deliberation, nor to prepare one's self.

It is asked, thirdly, if to kill one's self, be an Act of Fortitude, or Courage? All sensible Men, answer against the *Stoicks*, that it is not a Man of Courage who kills himself, but a Madman, and a Coward; who does it through Vain-glory, or because he cannot support patiently the Loss of his Fortune, or some other Incommodity. Therefore, St. *Augustin*, *Lib.* 19. *de civitat. Dei. c.* 4. *I ask*, says he, *if* Cato *killed himself through an Excess of Patience, or rather of Impatience? For he had not done it, if he had not bore impatiently the Victory of* Cæsar? *Where is the Courage? indeed he surrendered; indeed he was conquered*, &c. And lower, *those Evils must be very great, which make Fortitude, or Courage a Murderer; must that then be still called Fortitude, which is conquered by those Evils, and which instead of governing and protecting a Man, as a Virtue ought to do, obliges him, on the contrary, to kill himself.*

O ridiculous Courage! O pusillanimous Fortitude! against which, Nature itself revolts, and Religion has shut the Gates of Heaven: O inhuman and barbarous Folly, condemned by right Reason, and punished by the Laws of all Nations, even after Death! O sacrilegious Temerity, to wrest from the Hands of the Almighty, a Power which he has reserved to himself, the Disposal of our Life; and pretend to a Knowledge, peculiar to him alone, that of the Hour of our Death!

It would be needless to rehearse here, the Vices opposite to Fortitude, since they are contained in its Definition. For Temerity is opposed to it, through *Excess*, and Fear and Cowardice, through *Defect*. Thus Pride and Pusillanimity, are opposed to Magnanimity, says *Aristotle*, *Lib.* 4. *Ethic. c.* 9. for a Man must be intrepid, but not mad, as the *Gauls*, who, says *Aristotle* again, *Lib.* 3. *Ethic. c.* 10. were afraid neither of Earthquakes, nor of Tempests.

I call *Temperance*, with *Aristotle*, *Lib.* 3. *Ethic. c.* 13. *A Cardinal Virtue which moderates the sensual Appetite, especially in the Taste and Tact.* I say especially in the *Taste* and *Tact*, or Feeling; because all the Pleasures we are sensible of by Means of the other Senses; as from a Picture, by the *Sight*, from Musick, by the *Hearing*, and from Odours, by the *Smell*, must be referred, according to *Aristotle*, and St. *Thomas*, *secondarily* only, and not *primarily*, to Temperance. Hence *Aristotle* observes, *Problem*, *Sect.* 28. *quest.* 141. *art.* 4, 5. that the Name of *Intemperance*, was used to be attributed only to those Vices, which we have in common with Brutes. For Brutes take but very little Pleasure by Means of the *Sight*, *Hearing*, and *Smell*, but a great deal by the *Taste* and *Tact*. For that Reason, Men who indulge their Taste and Tact beyond Measure, or more than they ought to do, are commonly considered as Brutes, like *Philoxenus*, who wished Nature had gave him the Neck of a Crane, that he could have tasted longer his Victuals and Drink.

But however, the Name of Temperance is often taken in a wider Sense, *viz.* for that Moderation of the Mind, which extends to all the Actions of our Life. Hence St. *Augustin*, *Lib. de morib. Eccles. c.* 19. *Therefore the whole Office of Temperance*, says he, *is to divest us of the old Man, and be renewed in God*, i. e. *to despise all the Vanities of this World, and the publick Honours and Praises, and to turn all our Love towards the divine and invisible Things.* But it must be confessed, that Temperance is oftener taken in the Sense of *Aristotle*, and of St. *Thomas*.

The Species or Kinds of Temperance, are Abstinence, Sobriety, Chastity, and Purity.

Abstinence is imagined to consist in Eating, and Sobriety in Drinking; Chastity is to abstain from all illicit Pleasures, Purity from all impudick Sights and Tact or Feeling; but there are three Degrees of Chastity, *viz.* virginal, conjugal, and of viduity.

Purity is derived from *pudor*, and Pudour is a Trouble of the Mind, occasioned by any Thing which can cause Shame. There was an antient Custom among the *Romans*, in which their Integrity appeared with a very great Lustre; for when they sold a Virgin Slave, they used to take great Care that their Honour or Chastity should be safe, and therefore made a Bargain with the Buyer, that she should not be prostituted, otherwise she should be free. Whence arose the *Pact*, or *Contract of Immission*, or *Casting of Hands*; whereby the Vender could seize and carry away the freed Woman, if she had been prostituted by the Buyer.

If we believe St. *Thomas*, there are two integrant Parts of Temperance, *viz.* Modesty, and Honesty. He calls Modesty, the flying from all that has the least Mark of Intemperance; and takes Honesty, not in general, for the Agreement of every good Act with right Reason, but more particularly in as much as it chuses what appears the most honourable in the Acts of Temperance. Therefore, *honest*, and *honourable*, in this Place, signifies the same Thing; in which Sense, *Tully* says, *Lib.* 1. *de offic.* that *what is honourable is honest*, and *what is honest honourable.*

It is very difficult to tell exactly the Number of the *potential Parts of Temperance.* The first is *Continence*, which resists the Motions of the Concupiscence provoking to Intemperance. The second is *Humility*, which inclines a Man to confess ingenuously his Imperfections. The third is *Mansuetude*, which moderates Wrath, as Clemency does Vengeance. The fourth is Modesty, which keeps in due Order the internal and external Motions of the Mind; and is defined by *Cicero*, *Lib.* 2. *de Invent. a Virtue whereby an honest Pudor acquires a just and permanent Authority.* The fifth is *Studiousness*, which confines the Desire of Knowledge within just Limits. The sixth, *Urbanity*, which regulates our Recreations and Diversions. The seventh, *Moderation*, which directs us in the Care we take of our Person.

The *Vices* opposite to Temperance, are either *thro' Excess*, or *thro' Defect*; but several of them have no Name. Therefore, 1. *Intemperance*, whereby one abandons himself beyond Measure to the Pleasures of the *Taste* and *Tact*, is opposed to Temperance thro' Excess, and thro' Defect; *Insensibility*, when the sensual Pleasures, order'd even by God himself, for the Preservation of human Nature, are neglected without Reason. 2. *Gluttony*, *Drunkenness*, *Luxury*, and *Impurity*, are opposed thro' *Excess*, to *Abstinence*, *Sobriety*, *Chastity*, and *Purity*; and thro' *Defect*, the Vices which have no Name. 3. To *Modesty*, and *Honesty*, are opposed thro' *Excess*, *Immodesty*, *Impudence*, and *Turpitude*; and thro' *Defect*, the Vices which have no proper Names. 4. *Incontinence* to *Continence*, *Pride* to *Humility*, *Wrath* to *Mansuetude*, *Curiosity* to *Studiousness*, *Scurrility* to *Urbanity*, and *Luxury* to *Parsimony*, are repugnant *thro' Excess*. The Vices oppos'd to them, *thro' Defect*, have no Name.

From the Principles heretofore established, can be deduced certain general Rules, whereby all human Actions may be directed towards the salutary End proposed to all Men. Therefore we have no need to run through all the different Conditions of Men; since the same Precepts for a regular Conduct are common to all without Distinction, though notwithstanding *it is a Propos*, to examine, at least in general, the different Duties of Men; because it is not proper that a Philosopher should be ignorant of them. Those Duties are either of a Man to God, and to himself; or of a Man to other Men, either with regard to a Family, or to a Republick. Which different Duties are all as follows.

It seems that Man was formed to God's Image, and created for no other Reason, and for no other End, than to know and love him; and to obtain, through means of a religious Worship, the Fruition of that divine Object, who alone can render him truly happy. Which to facilitate, God himself has infused within him an immortal Soul, capable of Intelligence, of Religion, and of an eternal Felicity; so that though this visible World was entirely destroy'd, that Soul will remain, by the Condition of its Nature, always the same,

ſame, and uncorruptible; which is more than ſufficient to inſpire us with the greateſt Sentiments of Gratitude for that ſupreme and eternal Being, who has been pleaſed to diſtinguiſh us in ſo particular and excellent a Manner from the reſt of his Creatures; and to raiſe our Mind from the Contemplation of our own Excellency, to that of the divine Architect, who has made us his Maſter-piece. That Contemplation will ſoon make us underſtand that we ought to love him, with all the Faculties of that Soul he has created of ſo noble and ſo excellent a Nature; and modelize all the Actions of our Life, according to thoſe ſalutary Rules which in his great Wiſdom he has eſtabliſhed to render them agreeable to him; and which is not to be conſidered as a laborious, but rather as an honourable Taſk. For what muſt we be, whoſe Vows and Prayers a ſupreme and immenſe Being, will have the Condeſcenſion to hear and excuſe? Therefore none but thoſe who forget themſelves, will alſo forget ſo much Honour done to them. But however, if we believe the Royal Prophet, *Pſalm* xlix. 12. *Nevertheleſs, Man being in Honour abides not: He is like the Beaſts that periſh.* Which is the greateſt Puniſhment which can be inflicted on thoſe ungrateful Men, who are not ſenſible of the Advantages of their Condition, to be reduced to that of the Brutes, to have no Taſte but for terreſtrial Things, to nauſeate the celeſtial, and refuſe to be cured of the Wound they do not feel.

Therefore we muſt perſuade ourſelves, 1. That God is the Principal and End of all Things; that his Power is diffuſed throughout this vaſt Univerſe. And his Wiſdom in the Government and Diſpoſition of all Things, *attains powerfully from End to End, and diſpoſes all Things with Suavity*; that all that's done, may be done with a juſt Œconomy and for him. that we all live, move, and reſt in him, ſo that he can never be too much worſhipped and beloved by us, and we always love him leſs than we ought to do. Therefore that it is beneath us, who profeſs Chriſtianity, to fix our Affections on the Creatures, otherwiſe than on tranſitory Things, which vaniſhing in an Inſtant, deſerve but the leaſt of our Attention.

2. And becauſe the Figure of this World paſſes, and we have but one eſſential Obligation, which is to obſerve the Law of God; we muſt learn as perfectly as poſſible, that divine Law, make it the Subject of our moſt ſerious Meditations, and not neglect, if poſſible, even the leaſt Article of it. *Quid enim*, ſays Lactantius, *in Epitom. c.* 1. *tam juſtum ad æquitatem, tam pium ad honorem, tam neceſſarium ad ſalutem, quam Deum cognoſcere ut patrem, venerari ut dominum, ejuſque legi aut præceptis obtemperare?* i. e. What is more agreeable to Equity, more conform to Honour, and more neceſſary to Salvation, than to love God as a Father, reſpect him as a Lord, and obey his Law, or Commandments?

3. But we muſt not content ourſelves with an inward Worſhip, but likewiſe practiſe an exterior one, conſiſting in publick Vows and Prayers, in the Company of the Faithful, that others may be edified by our Example. *Coimus in cætum & congregationem*, ſays *Tertullian, Apologet. c.* 39. *ut ad Deum quaſi manu factâ precationibus ambiamus orantes. Hæc vis Deo grata eſt.*

4. With regard to the Prayer, whereby we aſk ſomething of God, we muſt ſeriouſly conſider what and from whom we aſk. For we are not to aſk God trifling Things, much leſs thoſe which are illicit or unjuſt; but aſk only thoſe which can be acceſſary to our Salvation. For Chriſtians muſt not be like thoſe Pagans reprimanded by *Perſius, Satyr.* 2. who with a loud Voice, aſked Virtue and Sincerity, to be praiſed by thoſe who heard them; but at the ſame Time, whiſpered to Heaven that he would be pleaſed to enrich them with the Spoils of others.

Mens bona, fama fides; hæc clarè & ut audiat hoſpes:
Illa ſibi introrſum, & ſublingua immurmurat; ô ſi
Ebullit patrui præclarum funus! & ô ſi
Sub raſtro crepit argenti mihi ſeria dextro
Hercule! pupilleumve utinam, quem proximus hæres
Impello, expungam! namque eſt ſcabioſus & acri
Bile tumet.

Therefore what it is juſt we ſhould aſk God, is that which can be advantageous to us and to others, *viz.* a Mind ready to execute the divine Commandments, and a Will inclined to do Good to thoſe we live with.

5. We muſt alſo be thankful for all the Benefits or Favours we have received from him: And the beſt Manner to ſhew our Gratitude on thoſe Occaſions, is to ſhew always the ſame Equality of Mind, and the ſame Tranquility, either in Adverſity or Proſperity; for God does not love leſs thoſe he is pleaſed to tempt by Adverſity, than thoſe he loads with temporal Favours.

But to expreſs all we have ſaid on this important Subject in few Words, theſe are the Chief of our Duties to God, that nothing may be capable to divert us from his Direction, and the Execution of his Precepts; that whatever may be our Condition, we may have Recourſe to him as to our Father, and put our whole Confidence in him. For we muſt behave in ſuch a Manner that we may attribute to ourſelves theſe Words of the Apoſtle St. *Paul, Epiſt. Rom.* viii. 35. *Who ſhall ſeparate us from the Love of Chriſt? ſhall Tribulation, or Diſtreſs, or Perſecution, or Famine, or Nakedneſs, or Peril, or Sword?* And afterwards conclude with him in this Manner: *Neither Death, nor Life, nor Angels, nor Principalities, nor Powers, nor Things preſent, nor Things to come, nor Height, nor Depth, nor any other Creature, ſhall be able to ſeparate us from the Love of God which is in Chriſt Jeſus our Lord.*

From the Love of God we'll paſs to the Dilection of our Neighbours: For none is nearer to us than our ſelves. Hence this common Proverb, *Charity begins at home*; which notwithſtanding muſt not be underſtood, as if one was commanded to prefer his own temporal and private Utility, to that of others; for that is the Effect of Self-Love and not of a true Charity; but only thoſe Things which relate to our eternal Felicity, which we muſt prefer to all other Conſiderations: Therefore the chief Duty of a Man to himſelf, is to take Care of his own eternal Felicity, or to love himſelf by a reaſonable and juſt Motive.

That a Man may love himſelf of that Dilection which is utile and juſt, *viz.* with regard to an everlaſting Life, *he muſt lay apart all Superfluity of Malice, and keep himſelf unſpotted from the World*; according to the Apoſtle St. *James, Epiſt.* i. 21. 27. Whence it is neceſſary to take a great Care to moderate all the Faculties and Affections of our Soul; for as no Body is born without Imperfections, which incline us to Evil, we muſt endeavour, if not to root out entirely thoſe depraved Inclinations, at leaſt to keep them in due Order, and under the Direction of our Reaſon.

And, 1. With regard to our Body, it muſt be fed with neceſſary but not ſuperfluous Aliments, that we may neither fall under its Burthen, nor revolt againſt the Spirit; Wine, eſpecially, muſt be uſed with Parſimony, for *when it gives its Colour in the Cup* (ſays *Solomon, Prov.* xxiii. 30, 31.) *when it moves itſelf aright: At the laſt it bites like a Serpent, and ſtings like an Adder.* Therefore we muſt not conſult in our Meals how to pleaſe our Palate, or to indulge Gluttony, but to take the moderate Refection which Nature requires.

2. We ought not to be Idolaters of our Body, nor break it by Idleneſs; but, on the contrary, ſtrengthen it by Exerciſe and Labour: For there is nothing more prejudicial to it than to indulge it in Luxury and Indolence, which not only weakens and corrupts it, but likewiſe proves contagious to the Soul, and plunges it into all Sorts of Irregularities and Vices.

Otia ſi tollas, periere Cupidinis arcus,
Contemptæque jacent, & ſine luce fæces.

Therefore we may very well ſay, that a Man who lives

lives in Indolence, and Inaction, learns how to act ill; and through his Indolence falls of Necessity into all Sorts of Debaucheries; whereby he is so weaken'd and enervated, as to be almost impossible for him, afterwards, to reassume a manly Mind; which renders him incapable of learning any Thing proper to adorn his Soul, or of any Offices or Posts, either in the Cabinet, or the Army, or the Judicature, &c. so that he is forc'd to lead an infamous Life with the greatest Reprobates, till at last he changes it for an obscure and ignominious Death.

3. To use the Terms of the Scripture, we must put a Guard to our Senses; since what enters through our Ears, or Eyes, makes often so great an Impression on our Mind, as to excite its Affections beyond Measure, as to be almost impossible afterwards to conquer them when we please: To which Youth are more subject than Persons advanced in Years, who, by a long Experience of the World, have learn'd how to be upon their Guard. Whence *Juvenal*, Satyr. 14.

Nil dictu fœdum visuque hæc limina tangat,
Intra quæ puer est.

4. We must, besides, endeavour to adorn our Soul with Virtue and Knowledge; that with their Assistance it may, with a greater Facility, govern herself, and the Body which is under her Command. Tho' we ought to have Regard to every one's Condition; for they do not all become every Condition indifferently. Since other must be the Study of a Merchant, other that of a Judge, and other that of an Artisan: But however, they must all observe that just Medium, which is so very agreeable to Virtue. Those are the happiest, whom the divine Providence has destin'd to the Study of the liberal Disciplines; for they know better, not only their own Duties, but likewise those of others; which Knowledge renders them, at the same Time, much less excusable, if they neglect their Duties.

5. It is impossible to describe every one of the Duties of a Man to himself, since they are different according to the Difference of Persons: But however, these general Rules may be prescribed; that there is a certain Medium, or Subordination, to be observed, either in the Judgment which every Body forms of himself; or in his external Gestures or Motions; or in his outward Apparel; or in his Table and Equipage. For as *Juvenal* says, *Satyr.* 11.

Noscenda est mensura sui, spectandaque rebus
In summis minimisque: etiam cum piscis emetur,
Ne multum capias, cùm sit tibi gobio tantum
In loculis.

Therefore we are not to live either with more Splendour, or with a greater Parsimony; but every one must have Regard to his Birth, Fortune, and Faculties; that there may be a certain Subordination, in the Houses, Equipage, and Cloaths.

Auream quisquis mediocritatem
Diligit, tutus caret obsoleti
Sordibus tecti, caret invidendâ?
Sobrius aulâ?

Neither are we to envy those who live in a more elegant Manner than we do, for every Condition has both its Advantages and Difficulties. Whence the Apostle St. *Paul* wisely admonishes us, 1 *Cor.* vii. 20. that *every Man must abide in the same Calling wherein he was called*; without envying that of another.

Therefore those act with Prudence, who study carefully all that belong to their Vocation, follow it, and remain in it. But that Kind of Life, to love what becomes us most, is the Work of Heaven, and not a human one. And the Difficulty is still greater, when we have made Choice of a State of Life, when we were too young, yet, to make that Choice: *In eunte enim adolescentiâ*, says *Cicero*, *lib.* 1. *de offic. cum in est maxima imbecillitas concilii, tum id sibi quisque genus ætatis degendæ constituit, quod maxime adamavit, itaque antè implicatur aliquo certo genere cursuque vivendi, quàm potuit, quod optimum esset judicare.* Therefore, in an Affair of that Importance, we are first to implore Heaven's Assistance, that we may chuse what is more convenient to us, and more agreeable to God: And afterwards consult our Friends, not every one, but those only we know to have a greater Share of Judgment, Prudence, and Discretion.

This leads us insensibly to the Consideration of a *Man's Duty towards his Family*, which *Aristotle* has described in two Books, and which is call'd *Œconomical Doctrine*. The first consists of six Chapters, where he shews the Difference between the *Œconomick* and *Politick*; and treats of the different Parts of a House, of the Manner of acquiring Wealth, of the conjugal Duties of Husband and Wife, Masters and Servants; in the last, which is not divided into Chapters, is almost entirely historical, where he describes several Forms of the *Œconomick*. He has also inserted in his first Book of *Politicks*, several Things relating to the same Subject: All which we design to consider, as far as they relate to Morality; explaining more particularly Men's Duties towards a Family: Which Duties are either of Persons engag'd in the conjugal State, reciprocally to one another, or of Parents and Children, or of Masters and Servants. Therefore,

The first and most natural Society is that call'd the *Conjugal State*; the chief End whereof is the Propagation of the human Race, and the Education of Children; which the easier and better to obtain, a Man should have but one Wife, and a Woman but one Husband; first, because God created at the Beginning *Adam* and *Eve*, and join'd them together. Secondly, because a just Harmony and mutual Love should subsist between Man and Wife; which Love would soon be divided, and perhaps entirely dissolved, if a Man should have several Wives, and a Woman several Husbands; which would be the Occasion of frequent Quarrels and Disputes.

Which, notwithstanding, for the Increase of the human Race, God permitted in former Ages, that a Man should have at once several Wives, but never that a Woman should have several Husbands at once: Thereby we may easily understand, how contrary to the Law of Nature, was the Sentiment of *Plato*, who pretended that all Things, not even Wives excepted, should be in common, not only among the People, but likewise among those who govern'd them. Which Sentiment he attempts to maintain in the fifth Book *of the Republick*. For as *Aristotle* very well observes, in the first Chapter of the second Book of *Politicks*, where he refutes the Sentiment of *Plato*, if that Community (not of Goods only, but of Wives likewise) was tolerated, all Things would be in Confusion, and no Body would know his own Progeny: Whence there would be continual Room for Parricides, Incests, and all other such flagrant Crimes, while all Things would be in that Confusion.

Therefore, the conjugal Society between Man and Wife ought to be one; and it must be cemented, not only by a mutual Love, but likewise by a mutual Honour; in such a Manner, however, that the Wife be subject to her Husband; since she receives all her Lustre from him. *We raise the Wives to the Honours of their Husbands*, say the Emperors *Valentinian*, *Theodosius*, and *Arcadius*, Leg. ultim. Codic. de incolis, *and ennoble them, by their Race* —— but *if afterwards Women marry Husbands of an inferior Rank, they must be deprived of their first Dignity, and be reduced to the Condition of their last Husband.*

But notwithstanding the Power of a Husband over his Wife is not despotick, but only political; so that he is to consider her as his Companion, not as his Servant: For which Reason the Wife was not extracted from the Head or the Feet of the Man, but from his Side; that she may not usurp a Power over her Husband, nor be consider'd as a Servant. Tho' *Aristotle* says, *Lib.* 1. *Politic. c.* 2. that among the Barbarians

Barbarians a Wife was esteem'd a Servant; and to the Poor, an Ox served instead of a Servant, or was the same as a Servant. Hence *Hesiod:*

Sit domus in primis, uxorque & taurus arator.

But *Aristotle* is of another Sentiment, since he acknowledges a perfect Communion between a Man and his Wife; and admires the Providence of God, *Lib.* 1. *Œconom. c.* 3. for having established the Society of Man and Wife in such a Manner, that, though their Occupations be different, they notwithstanding act so as to consult both the same End, *viz.* the Good of their Family, as if they were but one and the same Person. Therefore God has formed the Man active, vigilant, stronger, and more robust, that he may be capable either to defend the Goods he has acquired already, or to acquire them and bring them home; and the Wife weaker and timorous, to stay at home, to œconomise the Estate of her Husband, and take Care of her Children: Hence the Name Matrimony, as *Matris munium*, i. e. the Office or Occupation of the Mother, which is to bring up her Children.

Therefore, as a Wife is a Companion not a Servant, *Aristotle, lib.* 1. *Œconom. c.* 4. forbids a Husband to maltreat his Wife; though at the same Time, as Chief, he has a Right to chide and reprimand her: But that Right has been wrested long since by our termagant Wives from their Husbands; who not only have usurped the Right of Admonition, but likewise that of Correction; applying but too often *activa passivis*, when their honest Husbands have the Presumption to contradict them in the least Thing, or to find Fault and condemn the Irregularity of their Conduct. I know some of that Character, for whom there should be some honourable Place of Correction, if their Misbehaviour proceeds from Impertinence, and if from Madness, should be sent to *Bedlam.*

By the Law of *Romulus*, quoted by *Pliny, Lib.* 14. *hist. nat. c.* 13. it was licit for a Husband to punish his Wife when she was drunk, and to kill her when surprised in Adultery. There is some Appearance, that this Law was inserted in the twelve Tables, since it had been in Force at *Rome* for several Ages, under their Kings. To this succeeded the *Law Julia of the Adulterers*, which was also changed by the Emperor *Justinian*, who ordered by a Constitution, that a Woman surprised in Adultery, should be sent into a Monastery to be whipp'd. In *Moses*'s Law, both the Adulterer, and Adulteress, were put to Death.

Aristotle advises a Man, who wants to form his Wife to his Humour, and Manner of Living, to marry a Maid, or a Virgin, according to this Verse of *Hesiod*,

Ut mores doceas pulchros, tibi virgo sit uxor.

A Wife must neither be too old nor too young, but of an Age capable to govern a Family; but above all she should be of an irreproachable Life, and Conduct; and that Man is a Fool, who prefers Beauty, which passes in an Instant, and Riches, to Virtue and Merit. Whence this of *Plautus, in Aulula, act.* 1. *scen.* 4.

Dummodò morata rectè veniat, dotata est satis.

And what *Horace* says of the *Scythians*, and *Geti*, *Lib.* 3. *carm. Ode*, 24.

Dos est magna parentum
Virtus, & metuens alterius viri
Certo fœdere Castitas.

Likewise, the Probity and Industry of a Man is to be preferr'd to Fortune, though the Goods of Fortune, especially as much as are necessary to defray the Expences of a married State, are not to be neglected; but when a blind Love, or Avarice, seals a Contract of Marriage, we must not be surprised, if such Marriage is disturbed with Jars, Quarrels, and Dissentions. Besides, *House and Riches*, says *Solomon, Prov.* xix. 14. *are the Inheritance of the Fathers, and a prudent Wife is from the Lord*; who must always be consulted in an Affair of so dangerous a Consequence; for in my Opinion, Death is preferable to the Unhappiness of marrying some of our modern Jilts, who make of their House an anticipitated Hell; who, without the least Consideration for their Husband and Children, lavish away his Substance, and confine him at last, for the Remainder of his Days, in a dreadful Dungeon; who have usurped so tyrannical a Power over their Husband, that he appears rather as a Slave in his own House, than as Master; and scarce dare to open his Mouth, to complain, or plead in his own Defence, but it is instantly shut by the clamorous Insolence of the Jilt his Wife; who to support her Extravagancy, and make her soar above her Sphere, forces often her Husband to lay his Honour, Credit, and Reputation at Stake; who do not care whence the Money comes, or what Measures are taken to get it, licit, or illicit, provided she has it when she wants it; who though she brought no other Portion to her Husband, but an inexhaustible Stock of Impudence, Ignorance, and Pride, wants all the Attendance of a Lady of Birth and Fortune, and very often more; who spend their whole Time in Idleness and Indolence, her whole Occupation consisting in consulting every Day, how to put their Husbands to some new Expences for their Dress. For I don't speak here of those infamous Wives, who abandon themselves to all Sorts of Debaucheries; nor of those affected Prudes, who while they recommend publickly Virtue and Modesty, entertain secretly the most criminal Intrigues.

How happy is that Man who finds a Wife of a different Character, which is so rare at present, that even one in Rags, or taken from following a Flock, is preferable to a Jilt with an immense Fortune; for if she brings none, she soon finds the Secret, by her prudent Œconomy, to save one from that of her Husband, which must be more welcome to him, than that brought by a Jilt, who always spends a great deal more than she brings; and the more particular is, that the greatest Jilts are always Fortune-less.

The second Society of Men, is that of Parents and Children, which cannot very well subsist, without a mutual Assistance among them. For it is not enough that Parents have brought Children into the World, they must also provide for their Subsistence and Education; and Children, in their Turn, must honour, love, and assist their Parents.

Aristotle was of Opinion, *Lib.* 7. *politic. c.* 16. that Children born deform'd, or mutilated, were to be killed, as being liable to become burthensome to their Parents, and to the Republick: Likewise, if Women were more fruitful than the Law allowed, an Abortion ought to be procured, before the Fœtus is animated; for then it would not be a Murder, since such Fœtus is not yet a Child. But Nature and Humanity abhor this extravagant Opinion of *Aristotle*; for though we have a despotick Power over Beasts and Plants, we have no Right at all on the Life of Man. Besides, as the Design of the divine Providence, which permits, sometimes, certain Defects in the Production of Things, are entirely hid from us, we are not to oppose its Decrees; but all Children born, let them be perfect or imperfect, must be received and kept. For among those who are deform'd, there are often some found of an excellent Genius, and are a great Ornament to a Republick.

Therefore no Man has any Right on the Life of another Man, though in the earliest Times of the *Roman* Republick, when Men's Manners were not yet civilized, the Law of the twelve Tables, granted to a Father the Power of Life and Death on his own Children; but that primitive Ferocity having been, in Process of Time, banished from the Republick, that Cruelty, so contrary to Nature itself, was mitigated, and Fathers were forbidden to kill their Children of their own private Authority. Therefore, far from its being licit for Parents to kill their Children, they, on the

the contrary, are obliged to cherish them, maintain them, and defend them, as far as it is their Power, from all Injuries.

But to enter into a more particular Detail of the Obligations or Duties of Parents to their Children, we'll begin by the Nutrition, which is the principal Duty of a Mother, which *Plutarch* advises in his Book of the Education of Children, to suckle herself her own Children, and not throw them to other Breasts, which it is impossible should be so natural to them: For by that depraved Custom, the Office of a Mother, which should be the most charming Office under the Heavens, seems to be *divided*, not to say *despised*. Besides, the Body of the Infant which at its first coming into the World, appear'd to be well form'd and healthy, as *Phavorinus* says, *Lib.* 12. *noct. attic. c.* 1. degenerates by its being fed with strange Milk. The same as we see a young healthy Plant transplanted into another Place, where it is nourished with depraved Juices, perish. For it is not supposed that Nature supplies a Mother with so great Abundance of Milk at that Time, for any other Reason, than to suckle her own Children. Add to this, that Mothers who thus desert their Children, and give them to other Women to nurse, weaken, if not entirely destroy that natural Sympathy, and mutual Love, which commonly subsists between Parents and their Children.

Secondly, Parents must take a particular Care of the Education of their Children, without which, their Conduct would be more like that of Brutes than of Men. Hence *Juvenal*, Satyr 14.

Gratum est quod Patriæ civem populoque dedisti,
Si facis ut Patriæ sit idoneus, utilis agris,
Utilis & bellorum, & paucis rebus agendis.

Previously to any other Instruction, they must inspire them, as well by Example, as by Words, with Devotion and Love for the supreme Being, supported with a sufficient Knowledge of the Divinity. Whence *Plutarch* observes, that *Plato* advised very justly, Nurses, to abstain from singing to Children, idle and ridiculous Fables, which often contain Things repugnant to the divine Majesty, or contrary to Reason, or good Manners. It is easy enough to propose to Children, Examples of Piety, of Courage, or of any other Virtue, taken either from sacred or profane Authors; but, first, Parents must take Care not to contradict their Words by their Actions, and engage their Children to imitate their bad Conduct: As *Juvenal*, Satyr 14. reproaches them:

——— Dociles imitandis,
Turpibus ac pravis omnes sumus.

Children must be instructed in those Sciences, which suit best their Genius and Condition; and then are to be treated, neither with too much Severity, nor too much Indulgency, or Complaisance. For they must be allowed some Recreation, or Diversion, but it must be honest, and used with Moderation.

But if the Duties of Parents are such, what must be their Children's Gratitude, who can never requite to the full Value, the Obligations they owe to their Parents? For whatever Children have, except the Faculty of obeying, and behaving well towards them, they have received from them, or from God through their Means. Therefore they must love them, obey, and honour them, assist, or succour them in their Calamities, or Infirmities, not only according to the Dictates of the Laws of Nature, but also by the express Command of God, *Exod.* xx. 12. *Honour thy Father and thy Mother, that thy Days may be long upon the Land, which the Lord thy God giveth thee.* Which Command is confirmed by Christ's Example, *Luke* ii. 51. *And he went down with them and came to Nazareth, and was subject to them.* Therefore, what must we think of those ungrateful Children, those Monsters of Nature, who forgetting the great Obligations they owe to their Parents, not only despise them, but too often use them in the most barbarous Manner? How often do we see Children, whom Fortune has beeen pleased to favour more than she had done their Parents, scandalously ashamed of those from whom they have received their Being, and to whose Industry, and indefatigable Labour, they are indebted in Part, for that chimerical Radiancy, which dazzles their Eyes so powerfully, as to hinder them from seeing the Source they are sprung from? What Scandal to Mankind to see those poor Parents afraid to appear before their proud Progeny, lest they should disoblige or disgrace them, and if Necessity force them to do it, be before them, in the humble Posture of the most despicable Slave, in the Presence of an insolent Master; though often that criminal Conduct proceeds from the extravagant Ambition of Parents, by making their Children greater than themselves, for which they justly deserve such Treatment; especially when they have been ignorant enough to reduce themselves to a State of Indigency, to obtain that End? I say they justly deserve such Treatment, not that I pretend to excuse thereby, the Ingratitude and Insolence of Children, but as a Punishment from Heaven, for having been too ambitious. Prudent Parents reserve always to themselves, the Power of claiming from their Children that Respect, which otherwise they would not be perhaps very ready to shew them. For while Children expect something from their Parents, they are afraid to disoblige them.

As there are in a Family several Offices or Occupations, which are not very proper for Parents or their Children, they are obliged to have Servants to discharge them; therefore there must be a certain Society between Masters and their Servants, for the good Œconomy of a Family.

This Society is founded on two Things, *viz.* on the Authority of the Master, to command what is to be done; and the Submission of the Servants, to obey and execute those Commands; and scarce any human Society can subsist without these two Offices, since a certain Subordination is required in every Society, between *Equals* and *Unequals*; and consequently some must command, and others obey.

Aristotle believes, *Lib.* 1. *Politic. c.* 5. that according to the Order established by Nature, those ought to command, who have a greater Share of Prudence and Judgment; and those obey, who are stronger and more robust, and have less Judgment. Therefore, he says, that some are born for Slavery, or *Servitude*, whereof there are two Kinds.

The first Kind of *Servitude*, is taken for the State or Condition of a Man, which forces him to serve in Spite of himself, another who has acquired a certain Authority over him. Which Kind of *Servitude* is not natural, since all Men are born free, and Masters of themselves, no Body having a despotick Power over them, by Nature, but God himself; especially if we consider the first Condition of Man before his Prevarication. Therefore, that Kind of *Servitude*, is defin'd by *Florentinus*, *Lege* 4. *de statu hominum*, *a Constitution of the Law of Nations, whereby a Person is put under the Jurisdiction, or Power of another, against Nature.* And as we have all a natural Inclination to lord it over others, the *Roman* Emperors had judg'd proper, to put some Limits by their Constitutions, or Ordinances, to the exorbitant Power which Masters had usurped over their Servants; as we read it in the first Book of the Institutions of the *Roman* Civil Law, Tit. 8. where the Emperor *Justinian* speaks thus: *But at present, we do not permit any of our Subjects to lord it beyond Measure over their Servants; for by the Law of the divine* Antoninus, *he who shall kill his own Servant, ought to be punished as severely, as he who kills another Man's Servant. For that Emperor having been asked by the Governors of Provinces, how they were to behave towards Servants who took Sanctuary in Temples, or near the Statues of Emperors, he commanded them, if the Servants had been barbarously used, to oblige the Masters to sell them on good Conditions, since it was*

was expedient to the Republick, that none should abuse, even those Things which belong'd to them.

This Conduct of the Emperor, shews plainly, that we have all naturally a true Sense of Men being born free, and consequently that *that* Servitude is not natural, which is opposed to a natural Liberty; which, for that Reason, is very well called by some, a Servitude of *Coaction*.

The second Kind of *Servitude*, is called of *Household*, or *Attendance*, whereby one serves another, or is of that Quality in a Family, as to be entirely in his Power, and which is the Condition of our Servants or Domesticks, who though they serve us, remain still entire Masters of themselves, so as to be at Liberty to leave us when they please. This Sort of Servitude, if we believe *Aristotle*, is entirely natural; for as that perfect Society, for which Men are designed by Nature, cannot subsist without a Subordination between Equals and Unequals: Hence it is just, that those who are born inferiors, *i. e.* as *Aristotle* interprets it, who have less Understanding, and a narrower Genius, should obey those who have a superior one, and be directed by them.

If it should happen that any Body had Servants properly so called, *i. e.* who are entirely in the Power of their Master, *Aristotle* commands, *Lib.* 1. *Œconom. c.* 5. to chuse them honest, and if they be bad to kill them. He orders, likewise, that they should be well fed, but interdicts Wine to them; and is of Opinion, that after they have serv'd faithfully a certain Time, they should be set at Liberty.

But as under *Christ*, *there is neither bond nor free*, says the Apostle St. *Paul*, *Galat.* iii. 28. that Servitude, which is against Nature, is banished from the Christian Church; whence when we mention Servants among Christians, we understand those who are at their own Disposal, and not those who have entirely lost their Liberty. In that Sense, we apply to ourselves what the Apostle says to the *Colossians*, iv. 1. *Masters give unto your Servants that which is just and equal.* And it is just we should give them Food, and their Wages, there is besides a certain Moderation, as well in the Work we expect from them, as in the Punishment they are to be chastised with. Therefore, we are not to use them cruelly, or refuse them their Wages, which is a *Crime which cries against us to Heaven*, *Deut.* xxiv. 15. Lastly, we must also take Care of their Salvation, according to the Precept of the Apostle St. *Paul*, *Epist.* 1 *Tim.* v. 8. *But if any provide not for his own, and especially for those of his own House, he has denied the Faith, and is worse than an Infidel.*

But the Obligations of Masters to their Servants, and the Duties of Servants to their Masters, are comprised in few Words in the Epistle to the *Ephesians*, vi. 5. and following, *Servants be obedient to them that are your Masters according to the Flesh, with Fear and Trembling, in Singleness of your Heart as unto Christ; not with Eye-Service, as Men-Pleasers, but as the Servants of Christ, doing the Will of God from the Heart. With good Will doing Service, as to the Lord and not to Men: Knowing that whatsoever good Thing any Man doth, the same shall he receive of the Lord, whether he be bond or free.——And ye Masters, do the same Thing unto them, forbearing threatning; knowing that your Master also is in Heaven, neither is there respect of Persons with him.*

These are the principal Societies of Men, and their principal Offices and Obligations; it remains at present to speak of Man's Duties towards the Commonwealth, which I'll do in my Treatise of *Government*, under the Letter *G*, and which will be a very compleat one; containing all the different Sorts of *Government*, and the Maxims necessary to render every one of them happy.

EUCHARIST.

EUCHARIST, *Eucharistia*, (in *Greek*, Ευχαριστια, which literally imports *Thanksgiving*; being formed of ευ, *bene*, well, and χαρις, *gratia*, Thanks) is the Sacrament of the Body and Blood of Christ, under the Species, or Figure of Bread and Wine.

Note, That the Doctrine of the *Eucharist*, is a very great Point of Controversy between the Catholicks and Protestants, which if well understood by both, would soon be determined to the general Satisfaction of the universal Church, and to the Honour of the Christian Name; which has suffered much by those Controversies: But that Spirit of Division which inspires both Parties, makes me almost despair of ever seeing that so long wish'd for Re-union, which would make of all the Christian Sects, but one Flock, and one Sheep-fold, under the Conduct of the good Shepherd JESUS CHRIST. Though I design in this Treatise to contribute all I can to forward that Re-union (if it was a Thing practicable) to state candidly and impartially, without espousing any Party, all that can be said on both Sides on that important Subject, extracted from authentick and original Manuscripts, both *Greek* and *Latin*; leaving my unprejudiced Reader, to judge which of the two Parties is in the Right, or in the Wrong. And lest I should be accused of telling Romances, I'll quote whole Passages as they are found in the Original, and join a literal Translation to them.

For a clearer Intelligence on this Subject, we must observe, first, that the *Eucharist* is acknowledged a Sacrament by all Christian Sects, and that a *Sacrament*, *is a Sign visible, of a Thing invisible*, i. e. that by a visible Sign or Figure, is signified what is meant by the Sacrament, *viz.* the Grace of God for our Sanctification, or Justification: The Point in Controversy, with Regard to the *Eucharist*, is then to know, if to receive that Grace, we must receive, really and substantially, the Body and Blood of our Lord *Jesus Christ*; or rather the Body and Blood of *Jesus Christ* is under the Species or Figure of Bread and Wine.

The *Roman* Catholicks answer in the Affirmative, and support their Sentiment by the Authority of the Scripture, by that of the antient Fathers both of the *Greek* and *Latin* Church, and, say they, by the antient Belief of the Universal Church.

The Passages of Scripture they quote in Defence of their Belief, are, first the Verses 51, 53, 54, 55, 56. of the 6th Chapter of the Gospel of St. *John*, *And the Bread that I will give is my Flesh. Verily, verily I say unto you, except ye eat the Flesh of the Son of Man, and drink his Blood, ye have no Life in you. Whoso eats my Flesh, and drinks my Blood, has eternal Life.* FOR MY FLESH IS MEAT INDEED, AND MY BLOOD IS DRINK INDEED. *He that eats my Flesh, and drinks my Blood, dwells in me, and I in him.* Secondly, the Verses 26, 27, 28. of the Gospel of St. *Matthew*, *Jesus took Bread and blessed it, and brake it, and gave it to the Disciples, and said, take eat,* THIS IS MY BODY. *And he took the Cup and gave Thanks, and gave it to them, saying, drink ye all of it: For this is my Blood of the New Testament, which is shed for many, for the Remission of Sins.*

Those who deny the real Presence, are of Opinion, that these Passages of the Scripture, are to be understood in a figurative Sense, according to this Passage of *Tertullian*, *Lib.* 4. *cont. Marcionem*, *c.* 40. *Acceptum*

ceptum Panem & distributum discipulis, Corpus suum illum fecit: hoc est Corpus meum dicendo, id est, figura Corporis mei, i. e. He made the Bread, he took and distributed to his Disciples, his own Body: Saying, This is my Body; that is to say, the Figure of my Body.

To this the Catholicks answer, That it is in vain to have Recourse to a figurative Sense, when the literal suffices; according to the Rule prescribed by St. *Augustin, lib. de Doctrin. Christian. c.* 10. & 16. which they are the readier to believe, say they, because they cannot imagine that the *Capernaites* could have been scandalized of the Discourse of Christ, if he had promised to them his Flesh to eat, and his Blood to drink, by Faith only, and not by the Mouth. And therefore if they were scandalized, it follows hence, that Christ understood his real Body and Blood, when he promised them his Flesh to eat, and his Blood to drink. That as he spoke at the Time of the Institution of that august Sacrament to his Disciples, who having not been yet enlighten'd by the Irradiation of the Holy Ghost, were yet dull of Apprehension and ignorant, it was necessary he should express himself, on so important a Subject as this, on which he declared so often, and in such formal Terms, depended their Salvation, or eternal Felicity, as clearly and intelligibly as possibly; that it is very reasonable to suppose, that the Apostle understood these Words, *This is my Body, this is my Blood*, (which left no Room for the least Ambiguity) in their genuine and literal Sense; since they did not ask their divine Master to explain them in clearer Terms, as they used to do, when he proposed them some Parables, which they imagined repugnant to Reason, or impossible: And that it would be injurious to Christ's immense Charity and Goodness, who could penetrate the inmost Recesses of Man's Heart, and discover the most hidden of his Thoughts, to suppose, That had he known that his Disciples were mistaken, in taking in a literal Sense, Words which were to be understood in a figurative one, would have left them in their Ignorance, so prejudicial, not only to their Salvation, but likewise to that of all those they should be sent to instruct in his Religion, after his Ascension into Heaven. That the Apostles themselves, conscious of his Omnipotence, were not at all shocked at his telling them, that he gave them his Body to eat, and his Blood to drink, which otherwise had been more capable to excite their carnal Curiosity, and make them wonder how such a Thing could be done, since he was there present among them; while he was enriching them with such inestimable Gifts, without the least Change or Alteration in his sacred Person, than any of the other Things he had heretofore proposed to them, even the most incomprehensible: And that *that* solemn Protestation, that *his Flesh was Meat indeed*, and *his Blood Drink indeed*, took off all Doubts, which they could have entertained on that Subject, and made them convinced of the Truth thereof, without enquiring further.

As to the Passage of *Tertullian*, they say, that it cannot be inferr'd from those Words, that the *Eucharist* is only the Figure of Christ's Body, though the *eucharistical* Species can be said a Figure and Sign thereof; that therefore these Particles, *that is to say the Figure of my Body*, are not related to those, *my Body*, nor explicative of them, so as it should be understood that the whole *Eucharist* is a Figure; but are only related to the Bread; which can be inferr'd from what *Tertullian* says on the eleventh Chapter of *Jeremiah*; where he teaches, that Bread in the Old Testament has been the Figure of the Body of Christ; so that those Particles, *That's to say the Figure of my Body*, are only explicative of this Term, THIS, and the Sense of the whole Passage this; *That which in the Old Testament was the Figure of my Body, is at present my Body*, viz. *by the Consecration.*

To this the *Calvinists* reply, that if these Particles, *That is to say*, are only explicative of the Term *This*, *Tertullian* should have put them immediately after the said Particle, *This*, and not after these, *my Body*.

The *Roman Catholicks* deny the Conclusion; and are of Opinion, that *Tertullian* did it by a Figure, call'd in Grammar *Hyperbaton*, to not interrupt the Order of the Words of Christ; which Manner of speaking was very common to *Tertullian*, and which he uses in several other Places, especially in his Book, *contra Prox. c.* 29. where explaining how Christ, who is God, could die, he quotes this Place of the first Epistle to the *Corinthians*, Chap. xv. *Because Christ is dead*; and says, *Christus mortuus est, id est unctus: id quod unctum est, mortuum ostendit, id est carnem*, i. e. Christ is dead, that is to say anointed: His being anointed, shews him dead, that is to say, the Flesh. That those Particles, *that is to say anointed*, are not related to the Particle *dead*, but the Particle *Christ*; which notwithstanding those Particles are not placed immediately after the Particle *Christ*, to avoid an Interruption of the Order of the Apostle's Words.

It may be urged farther, that if he supposes the Particle *this*, for the Bread, there is no Consecration, because the Words are not pronounced according to the Sense intended by Christ in the Words.

It is answered to this, that *Tertullian* does not give in that Place dogmatically, the legitimate Form to be used in the Consecration of Christ's Body, but explains only the Manner whereby is made the Conversion of the Bread into Christ's Body.

Note, That instead of proceeding to give the Proofs extracted by the Catholicks from the *Councils*, antient Fathers, and the antient Belief of the Church, in Defence of their Sentiments of the *real Presence*, and of the Transubstantiation; I'll content myself with quoting them, when I shall want them to answer the Objections of their Adversaries; and in the same Order themselves employ them, to prove that their Belief on that Subject is not a modern one, as the *Calvinists* reproach them. And as they maintain that that Belief is of the antient Church, which they endeavour to prove by Passages extracted from the Fathers who have lived in the different Ages of the Church; I'll examine carefully, if their Pretension is just.

Some of those they call Sacramentarians, object to them, that till the second Council of *Nice*, no Mention was made of the real Presence; and others pretend, that the Doctrine of the real Presence, and Transubstantiation, was invented by *Paschasius*, a Monk who lived in the ninth Century.

To this the *Roman* Catholicks answer, that even in *Berengarius*'s Time, who is considered as the Chief of the Sacramentarians, the universal Church declared openly against the Belief of the *Calvinists*, in condemning *Berengarius*, in a great Number of Councils of *France* and *Italy*. That *Berengarius* himself abjured several Times his Heresy, and according to *William of Malmesbury*, died in the Catholick Faith. That therefore we see, in the Year 1053, where the first Council of *Rome* was assembled by Pope *Leo* IX. against *Berengarius*, that the universal Church was united in the Faith which the *Roman* Catholicks profess.

From these general Observations they proceed to more particular Proofs; and begin by *Adelmanus*, who was educated with *Berengarius*, under the Conduct of *Fulbert*, Bishop of *Chartres*, and who having learned in *Germany*, the News of his Opinions, in the Year 1035, according to Cardinal *Baronius*, informs *Berengarius*, in the Letter he wrote to him on that Subject, that his Sentiment was considered as manifestly heretical; *It is rumoured abroad*, says he to him, *that you are separated from the Union of the Church, and that you have a Doctrine contrary to the Catholick Faith, on the Body and Blood of the Lord, which is immolated every Day, thro' the whole Earth, on the holy Altar.*

The next they call for their Advocate, is *Hugo*, Bishop

Bishop of *Langres*, who reproached *Berengarius* that his Doctrine had scandalized the whole Church, *universalem ecclesiam scandalisas.*

They say further that a Bishop of *Liege* being consulted by *Henry* I. King of *France*, in Relation to the Conduct he should observe towards *Berengarius*, answered that his Heresy was so clear, that there was no need of a Council to condemn it. That *Durandus*, Abbot of *Troarn*, calls *Berengarius*'s Disciples, despicable and infamous, who being commendable neither by their Piety, nor their Doctrine, contradicted the Fathers and the Doctors of the Church, and what the Catholick Church taught through the whole World, *quod catholica per orbem universum prædicat ecclesia.* That *Lanfranc* at the Beginning of his Book, reproaches *Berengarius* of being full of Arrogancy, and advancing a Doctrine contrary to the whole Earth, *Superbia fastu plenus contra orbem sentire cæpisti*; and with having wrote against the Catholick Truth, and the Opinion of all the Churches, *Contra catholicam veritatem & contra omnium ecclesiarum opinionem.* They are positive that *Lanfranc* proves in the 4th Chapter of his Book, that *Berengarius*'s Doctrine was condemned generally by all the Faithful, either Ecclesiasticks or Seculars, and was maintained but by a small Number of Schismaticks, *paucissimos Schismaticos.* And that after he has explained in the 18th Chapter, the Catholick Doctrine in these Terms, *We believe that the terrestrial Substances of the Bread and Wine, being divinely sanctified on the Table of the Lord, by the Priest's Ministry, are changed by the ineffable, incomprehensible, and miraculous Operation of the Omnipotency of God, into the Essence of the Body of the Lord, nothing remaining but the Species of the Bread and Wine, lest the Sight of a raw and bloody Flesh should make us nauseate. The Body of the Lord still remaining in Heaven at the right Hand of God the Father, where he is entirely whole, entirely incorruptible, entirely inviolable, and entirely immortal.* He adds, *this is the Faith of the Church, which being spread through the whole World, is called Catholick, has been professed in all the Centuries of the Church, and is still professed.* That he repeats the same Thing as evident, and undisputed, in the 8th, 17th, 19th and 21st Chapters. And does it with so much Confidence in the 22d, that he presses *Berengarius* to inform himself of the Sentiment of all the Christians of the World, in the East and West. *Ask*, says he, *all those who have some Knowledge of the* Latin *Tongue, and of* Latin *Books. Ask the* Greeks, *the* Armenians, *and generally all Christians of what Nation soever, and the'll all answer you, that they hold that Faith which we all profess.* And therefore concludes, say they, that if the Doctrine of *Berengarius* was true, the Church should have perished. *If what you believe and maintain*, says he, *with regard to the Body of Jesus Christ, is true, what the Church teaches through all the Nations of the World, is false: For all those who call themselves Christians, and bear with Pleasure that glorious Name, glory in receiving the true Flesh and the true Blood, which Jesus Christ has taken from the Virgin* Mary. *But if the Faith of the universal Church is false, the Church must certainly have perished, or has never been.*

That *Guitmond*, Bishop of *Averse*, and Disciple of *Lanfranc*, but who has wrote almost at the same Time against *Berengarius* and his Disciples, shews as well as his Master, that the whole Body of the Church was contrary to the *Berengarians.* And tells them in his third Book, that they had not in their Party so much as a single Town, or a Village. *Neque enim eis vel una civitatula, vel etiam una villula concessit*; and maintain that *Berengarius*'s Opinion was considered as new, and as having never been in the Church before him. *Notissimum est*, says he, *Lib.* 3. *hoc tempore, priusquam Berengarius insanisset, hujusmodi vesanias nunquam fuisse.*

But *Aubertin*, who has embraced the Doctrine of *Berengarius*, and undertook its Defence, is of a quite different Sentiment: For he pretends that the whole Christian World was united in the Sentiment, that the *Eucharist* was the Body of Christ but in Sign and Figure, or else in Virtue and Efficacy, till the Year of Christ 600. He confesses afterwards, that the Belief of the real Presence could not be established at once. *It cannot be imagined*, says he, *that those Abuses of the Transubstantiation, and of the real Presence, could be produced at once, like Mushrooms.* That Change has happened by degrees: *Mutatio paulatim facta est, & tandem per anfractus eo provecta.*

Afterwards he shews those Degrees, through which he makes that Belief run; and places the first towards the Year 635, and endeavours to prove that *Anastasius Sinaites*, a Monk of the Mount *Sinai*, has laid the first Foundations of it, in a Treatise he composed against certain Hereticks called *Gayans*, where he says, that what we receive in the *Eucharist*, is not the *Antitype* but the Body of *Jesus Christ.* On this he accuses that Monk of having innovated the Doctrine and the Language of the Church; the Doctrine, by teaching not the real Presence, but the Union hypostatick of the Divinity with the Bread, through Means whereof the Bread was made the Body of *Jesus Christ*, and the Wine his Blood, because being united to his Person, they were consequently united to his Body and Blood: The Language, because, says he, it had been always granted, till then in the Church, that the Bread and Wine were Antitypes of the Body and Blood of *Jesus Christ.*

But as this Opinion, which *Aubertin* attributes to *Anastasius*, has no other Foundation but his Fancy, *Blondel* pretends on the contrary, that he has only innovated the Language of the Church, and has not altered her Doctrine.

Aubertin pretends afterwards, that these two Innovations were embraced by *Germanus*, Patriarch of *Constantinople*, in the Year 720, and afterwards by the Bishops of the second Council of *Nice*, in the Year 787, by *Nicephorus*, Patriarch of *Constantinople*, in the Year 806: That the same Language passed from the East into the West, where it was received, as it appears by the Books which *Charlemagne* caused to be made at the Council of *Franckfort*, in the Year 794, where that King and those Bishops decide, that *the Eucharist is not the Image of the Body of Jesus Christ, but his proper Body.* So that according to *Aubertin*'s History, it should be concluded, that the Belief of the *Impannation* of the Word, *i. e.* of the Assumption of the Bread in Unity of Person, had spread universally, in less than a Century, in the eastern and western Church.

The Catholicks, on their Side, pretend that this History of *Aubertin* is a mere Fable; the Contradictions and Absurdities whereof (as they call them) they endeavour to shew in the following Manner.

First, what Appearance is it, say they, that *Anastasius*, who could not be ignorant of the Faith of the Church of his Time, could produce, *en passant*, and without Design, an Opinion which would have been formally opposite to it, and produce it without declaring that he advances it contrary to the common Opinion; but rather as a certain and unquestionable Thing which wants no Proof? So that what *Anastasius* says, that *the Eucharist is not Antitype*, i. e. a Sign of the Body of *Jesus Christ*; does not shew that he had changed the Belief of the Church, but only that it was a certain and undubitable Thing in the 8th Century, that the *Eucharist* was not a simple Image of the Body of *Jesus Christ*, but the proper and real Body of *Jesus Christ.*

Secondly, it is absolutely ridiculous (continue they) to suppose, as that Minister does it, that the Eastern Church which was full of the Books of St. *Basile*, of the two *Gregories*, and of St. *Chrysostom*, which made the chief, and almost the sole Study of the *Greeks*, had forsaken the Belief and the Language of those Fathers, and the Faith in which she had been instructed, to regulate her Language and her Belief, on a single Passage of the Book of a Monk of Mount *Sinai*; but that it is still more out of all Appearance to make that Change pass into the West, and have it received all on a sudden, by the Bishops assembled at *Franckfort*;

ſince none of thoſe Biſhops underſtood *Greek*, and that the Ignorance of that Tongue made them commit ſeveral Errors of Fact, in giving a bad Interpretation to the Sentiment of the Fathers of the 2d Council of *Nice*, and confounding the Council of the *Iconoclaſtes* with that œcumenical Council, becauſe they were no otherwiſe informed of what had been done in the Weſtern Church, but by a *Latin* Tranſlation full of Faults. And conſequently defines in that Book ſubſcribed to by the Biſhops, *Lib.* 4. *c.* 14. *That Jeſus Chriſt has not conferred on us an Image, but the Sacrament of his Body; that the Euchariſt ought not to be called an Image, but Truth; not a Shadow, but a Body; not a Figure of Things to come, but what is repreſented by the Figures*, when he obſerves, *that Jeſus Chriſt has not ſaid* of what he gave to his Apoſtles: *It is not the Image of my Body, but it is my Body, which will be given for you, and this is my Blood which will be ſhed for ſeveral.* When he ſays, *that what was done in the Inſtitution of the Euchariſt, was not done in Figure, but in Reality.* It is not a Proof that he had borrowed that Language from the *Greeks*, whom he had been glad to contradict, and whoſe Books he had never read; but, on the contrary, is an undubitable one, that the *Latin* and *Greek* Church were perfectly agreed on the Point of the *Euchariſt*.

Thirdly (urge they further) or that Book and that Paſſage of *Anaſtaſius*, have remained very little known, and conſequently have not been capable to produce ſo great a Change, or if it be ſuppoſed that they were famous, and in every Body's Hands, how has it happened, that in propoſing, as the Miniſters pretend, an Opinion contrary to the Sentiment of the whole Church, no Body has complained of it, no Body has accuſed that Author of Error, no Body has wrote againſt him, nor againſt any of thoſe who have eſpouſed his Sentiment? For it muſt be obſerved, that the Opinion of the Impannation of the Word which *Aubertin* attributes to *Anaſtaſius Sinaites*, and to St. *John* of *Damaſcus*, though very different from the Opinion of the Catholicks, is notwithſtanding very oppoſite to that of the *Calviniſts*, ſince by means of that perſonal Union of the Divinity with the Bread and Wine, the Bread becomes truly worthy of Adoration, as the Humanity of *Jeſus Chriſt*. That Body of *Jeſus Chriſt* is taken by the Mouth, enters into the Wicked, remains, though not uſed, which are all Points directly contrary to the Doctrine of the *Calviniſts*. Beſides, that hypoſtatical Union of the Bread with the Divinity, would be wholly miraculous, and wholly incomprehenſible, and therefore would include as many Difficulties as the Belief of the real Preſence. What Appearance, then that an Opinion ſo different from the Sentiment wherein they pretend the Church was then, had notwithſtanding been embraced by the whole Eaſtern Church inſtructed in another Faith, without the leaſt Trace of that Change could be ſeen, and even without thoſe who had thus changed their Belief could perceive it? And how could the *Neſtorians*, who were then in great Numbers in the Eaſt, and denied the perſonal Union of the Word with the human Nature of *Jeſus Chriſt*, admit of that Unity of the Divinity with the Bread? And if they would not admit of it, why have they not reproached that Doctrine to the Catholicks, and obliged them by their Reproaches to juſtify and defend it? Why have not the *Iconoclaſtes* (whom the Miniſters pretend to gain on their Side, becauſe they have call'd the *Euchariſt* the Image of the Body of Chriſt, though they confeſs at the ſame Time, that *that* Image is the proper Body of *Jeſus Chriſt*) reproached thoſe who ſtood for the Images, who, according to *Aubertin*, were of the Opinion of *Anaſtaſius Sinaites*; that they had introduced not only a ſuperſtitious Worſhip towards the Images, but a true Idolatry, by teaching that the Bread was united to the Word, and as ſuch ought to be adored.

All theſe Abſurdities, conclude they, ſhew plainly, that it is abſolutely falſe, that any Innovation happen'd at that Time on the Subject of the *Euchariſt*; and alſo equally falſe, that the Belief of that Century, witneſſed by *Anaſtaſius*, by St. *John Damaſcenus*, by *Germanus*, Patriarch of *Conſtantinople*, by the ſecond Council of *Nice*, by *Charlemagne*, and the Council of *Francfort*, was, that the Bread was united perſonally to the Word, and not changed into the natural Body of *Jeſus Chriſt*, that Suppoſition having no Foundation in the Writings of that Time; it being but a Chimera found by *Aubertin*, that he may not be obliged to confeſs, that the Belief of the real Preſence was univerſally received in the Church in the ſeventh and eighth Century.

Firſt, urge they again, not only their Words give no Room to that Explanation, but are formally contrary to it. *Anaſtaſius Sinaites* ſays, *we do not call the Communion Anti-type of the Body of* Jeſus Chriſt, *or ſimple Bread, but we receive in it, the true Body and the true Blood of* Jeſus Chriſt, *incarnated in* Mary *Mother of God. Germain*, Patriarch of *Conſtantinople*, ſays, *Theor. rer. Eccleſ. Tom.* 8. *Bibli, P. P. that the Holy Ghoſt changes the Gifts offered, into the precious Body of our Lord* Jeſus Chriſt, *and what is in the Chalice, into the precions Blood of the great God, which has been ſhed to give Salvation and Life to the World.* Words which expreſs perfectly the Faith of the real Preſence, and exclude formally that pretended Union of the Divinity with the Bread and Wine. Becauſe by Means of that Union, the Bread and Wine could very well become the Bread and Wine of *Jeſus Chriſt*, but not the Fleſh and Blood of *Jeſus Chriſt*; becauſe the Bread ſubſiſting in the Being of the Bread, could not be Fleſh, while even united to the Word, who is inveſted with our Fleſh. Secondly, theſe Authors declare, that what is in the Chalice, is the Blood of *Jeſus Chriſt* ſhed for the World's Salvation, and declare further, that it is not in Figure, but in Truth: Which cannot be underſtood but of the natural Blood of *Jeſus Chriſt*; it being impoſſible, that Wine united to the Blood, could be that Blood ſhed for the Salvation of the World, otherwiſe than metaphorically. Thirdly, St. *John Damaſcenus* excludes, ſtill more formally that chimerical Union. For he declares, *Lib.* 4. *de fide ortho. c.* 14. that the Body of *Jeſus Chriſt*, truly united to the Divinity which is in the *Euchariſt*, *is the ſame which is born of the Virgin* Mary; *not that the Body he has taken from the Virgin* Mary *deſcends now from Heaven, but becauſe the Bread and Wine are chang'd into the Body and Blood of God.* And he adds lower, *that that Body into which that Bread is changed in a marvellous Manner, by the Invocation and Coming of the Holy Ghoſt, is not a Body different from that of* Jeſus Chriſt, *but one and the ſame Body.* Fourthly, it is without the leaſt Appearance, that the Eaſtern Church has entered without perceiving it, in an Error which is clearly condemned by the Books of the Fathers of the preceding Centuries. For St. *Ignatius* the Martyr ſays, *Epiſt. ad Smyrn.* that *the* Euchariſt *is the Fleſh of the Saviour which has ſuffered for our Sins.* St. *Chryſoſtom* in an infinite Number of Places, ſays, that *what is in the Chalice, is the Blood which has ran from the Side of the Saviour, pierced upon the Croſs*, Hom. 24. in Epiſt. ad Corint. *that in all the Places of the Church, there is but one* Jeſus Chriſt, *who is entire in one Place as well as in another, having every where but one Body.* Hom. 17. in Epiſt. ad Heb. *That he who ſits at the Right Hand of God, is in the Prieſt's Hands*, Lib. 3. de Sacerd. c. 4. *and that we ſee the ſame Body which was ador'd by the Magi*, Hom. 24. in Epiſt. ad Corint. How could it happen then, that the whole Eaſt by a general Blindneſs, in reading the Works of the Fathers, would embrace a Sentiment oppoſite to theirs. For it cannot be anſwered that thoſe Expreſſions were taken by thoſe of the 7th and 8th Century, in a metaphorical Senſe, and that when they read that the Bread was changed into the Body of *Jeſus Chriſt*, they underſtood it was changed in the Figure of the Body of *Jeſus Chriſt*, ſince that Explanation is formally condemned by the Authors to whom *Aubertin* attributes the Opinion of the Impannation of the Word. Fifthly, there is no Author to whom that Sentiment can be attributed with leſs

less Likelihood than to *Anastasius Sinaites*, because the chief Reason which could engage those to it, who form their Belief rather on their Reason, than on Faith, is the Difficulty to conceive how a Body could be in several different Places at once. But that Difficulty is void with Respect to *Anastasius*, since he teaches formally, as *Aubertin* acknowledges it, *Lib.* 3. *p.* 906. That the same Body can be, by Miracle, in several Places at once.

Therefore (conclude they again) all that Innovation of Doctrine is a mere Chimera; and it is not only clear that the Church of the 7th and 8th Century, had a Belief different from that of the *Calvinists*; but it is clear, likewise, that she believed the real Presence, not by any Change which had happened, but because she had received that Faith, as well as that of the other Mysteries from those who liv'd in the sixth Century, in which the *Calvinists* agree, that the Doctrine of the Church was free from Corruption. That if *Anastasius Sinaites*, St. *John Damascenus*, the Bishops of the Council of *Nice*, and those of *Francfort*, have made a Difficulty to call the Species or Symbols by the Name of Anti-types after the Consecration, tho' some Fathers have called them by that Name, it is not difficult to conceive, that such Thing was done, not only without any Change of Belief, but in some Measure without any Change of Language. For there must be distinguished in the Words of Image, Figure, and Anti-types, as in several one like Things, two Sorts of Significations, the other natural and original, the other common and popular. The natural Signification of these Words, denotes nothing else but a simple Representation; and as an invisible Thing, tho' present, can be represented by something visible, corporeal, and external; it does not follow that a Thing is not present, because represented by some visible Image. Therefore we commonly say, that the Face or Eyes are the Images of the Soul; and, notwithstanding, those who say it, believe at the same Time, that the Soul is present in the Eyes and in the Face. The fiery Tongues were the Figure of the Holy Ghost who was present in them. The external Ablution is the Figure of the internal one in Baptism, and are nevertheless joined and united together; one must renounce common Sense to amuse himself to dispute on that Point, or to maintain obstinately, as the *Calvinists* do, that those Words include always, and by their Nature, the Absence of the Thing represented.

But, nevertheless, it is true, that as ordinarily the Things figurated are not joined to the Figures, and that seldom any Thing is represented by Images, besides the Absent; another popular Use has been made of those Words, in which to be the Figure and to contain the Truth figurated, are two Things, in some Measure, opposite to one another. And it is in this second Sense, that the Fathers have often said that the Figure did not contain, and was not the Truth.

These two Kinds of Significations subsist both in the Manner of Speaking of Men, and forming an apparent Contrariety in the Words, are united without Difficulty in the Sense. For according to these two different Significations, it is true to say that the *Eucharist* is Figure, Image, and Anti-type of the Body of *Jesus Christ*, and that it is not Figure, Image, Anti-type of the Body of *Jesus Christ*. For it is not Figure, Image, and Anti-type, according to the popular Signification of that Word, which excludes the Truth; but it is Figure, Image, and Anti-type, according to the natural Signification of that Word, which squares with the Truth, and which denotes no other Thing, but only that it represents the Body of *Jesus Christ*, though at the same Time it contains it. Hence it has happened, that the Fathers taking sometimes these Words in their natural Signification, had made no Difficulty to admit that the *Eucharist* is the Image and Figure. But because it contains really *Jesus Christ*, they call it, likewise, Truth, and oppose it to the Figure and Images of the old Law, in taking then the Word Image in its proper Signification. *That Blood*, says St. *Chrysostom*, *Hom.* 45. on St. *John*, *being in Figure, expiated the Sins; that if its being in Figure has had so much Virtue, and so much Efficacy; if Death has feared so much the Shadow of that divine Blood; how much more will it be afraid of the Truth itself?* And because that popular Signification of the Word Figure, which excludes the Truth, is the most common in the Manner of Speaking of Men; and that, besides, the principal Part of the *Eucharist*, is not that which is external and visible, according to which it is a Figure, but the internal and invisible which is the Body of Christ; it has happen'd, that when the Church has no longer been obliged to hide that Mystery to the Pagans, which had, sometimes, engaged the Fathers to use oftner the Words, Figure, and Image, when they spoke of it before the Pagans and *Jews*, the Words, Figure, and Anti-types, have been used but very seldom; and that Mystery has been rather expressed by the principal Part, which is the Truth of the Body of *Jesus Christ*. Therefore at the Time of the second Council of *Nice*, it was very rare that the consecrated Species were called by the Name Anti-types, though that Name had been often given to them by the antient Fathers. Thus the Catholicks answer, the first Degree of Innovation objected to them by *Aubertin*.

But *Aubertin* returns to the Assault, and starts up a second Degree of Innovation, which he supposes will be attended with more Success than the first, by placing it in the ninth Century, and chusing *Paschasius Ratbert* for the Author thereof, whom he represents, *p.* 922. *as very much embarassed in his Conceptions, and contradicting himself, so that it is almost impossible to know what he would say, or what was his Sentiment*; though, at the same Time, he mentions several great Men who opposed it, as *Rubanus*, *Amalarius*, *Heribaldus*, *Walfridus*, *Florus*, *Lupus*, Abbot of *Ferriara*, *Frudegardus*, *Ratrannus*, *John Scot*, *Prudencius*, Bishop of *Troy*, and *Christianus Drutmar*. And thus conducting his History to the tenth Century; and when arrived to it, he declares that it is from the End of the ninth Century to the Beginning of the eleventh, that the Opinion of the real Presence has occupied all the Minds of the whole Earth. HINC *contigit*, says he, *p.* 493. *ut in sequenti quamvis litteratiores facti, hâc tamen opinione unâ cum lacte imbuti illam tanquam veram obtruserunt.*

The *Roman* Catholicks consider this as another Fable of *Aubertin*'s Invention, which they pretend is already destroy'd before-hand, by what they have said of the first Innovation; because if the Faith of the real Presence was received, without Contradiction, by the whole Church, in the seventh and eighth Century; it is ridiculous to make it appear first the first Time in the ninth. But however, they pretend to shew in a more particular Manner, what they are pleased to call the Ridicule of this second History of *Aubertin*, by the following Reflections.

First, they say, that the Mystery of the *Eucharist* being the principal Part of the Worship of the Christian Religion, it must be confessed that the Christians participating often of it, believed with a distinct Faith, either that *Jesus Christ* was really present in the *Eucharist*, or was really absent from it; since it cannot be reasonably imagined that both Opinions have subsisted at the same Time, and form'd two considerable Parties in that Century. For as there is no Century where there have been more Councils, especially in *France*, nor a greater Number of learned Men, it is not reasonable to believe, that if the Body of the *French*, or of the universal Church, had been divided by those two Opinions, diametrically opposite to one another, on the most important, and the most common of our Mysteries; no mention had been made of it in some of those Councils, nor no Measures taken to remedy so strange a Division. That an Error advanced in a Book very little known, and followed but by few Persons, might be neglected by the Church; but that a capital Error, such as would be that of the real Presence, if it was an Error, should be suffered in the Church, and that Bishops, who could not have

have been ignorant of the Division of their Flocks, had not so much as mention'd it in more than 80 Councils, is a Thing entirely contrary to common Sense: For it cannot be said that those Bishops have believed that Division so insignificant, that they judg'd it compatible with the Unity of Communion, since from the Diversity of those two Beliefs, it follows, or that the one had been Idolaters, Superstitious, and Novators; or that the others had been Impious and Hereticks: And that there is no Division less compatible with the Communion of the Church, than that which disunite the Faithful in the very Communion, which is the *Eucharist*, and which changes the whole religious Worship of the Religion. Therefore as the Generality of the Church must have been in one of these two Beliefs, the *Roman* Catholicks ask, if it was in that of the real Presence, or of the real Absence? which they pretend to decide by the following Reasons.

Notwithstanding the Animosity of the *Calvinists* against *Paschasius*, say they, they are obliged to confess, that he was a Man famous in his Time for his Piety and Doctrine. However, this Man so famous, maintaining the real Presence in 818, in the Book he wrote of the Body and Blood of the Lord; and since in his Epistle to *Frudegardus*, and in his Commentaries on St. *Matthew*, proposes it every where as the sole and universal Belief of the Church of his Time. He observes further, that though some Persons had erred in Secret on that important Point, through Ignorance, none however, had ever attempted to declare publickly against a Truth so well known to all the World. He says in the same Place, that whoever was to contradict that Truth, would oppose the whole Church, and commit a very great Crime, in not believing what the Truth itself teaches us, and all the Christians believe. But if the Doctrine of the real Presence, which *Paschasius* maintains in his Epistle to *Frudegardus*, and in all his other Books, had not been the common Belief of the Church, and if it had been the first Time it had appeared in the World, had he not made a Divorce with his Reason to say as he does, of an Opinion which had never been heard of, and of which he had been the first Inventor, that there was no other but that in the Church? That Extravagancy is not human, and it cannot be supposed that *Paschasius* had been in it, only for some Time, but during his whole Life, which was pretty long; since he wrote the same Thing at several Times, at the Beginning in his Youth, and in his old Age.

It must be supposed, continue they, to support the Pretence of *Aubertin*, that the Folly of believing that the Faith of the real Presence was the common Doctrine of the Church, had communicated itself to a great Number of other Persons of that Time. For Example, it had communicated itself to *Frudegardus*, who wrote on the Subject of the *Eucharist*; for that young Man declares to him in his Letter, that the Doctrine of the real Presence had been his first Belief; but that he had been since inclined to doubt of it by some Passages of St. *Augustin*, whereof he asks the Interpretation of *Paschasius*. He does not say that it was the Consent of the Church of his Time, which makes him doubt, but a Passage of St. *Augustin*, which he could not understand, nor reconcile with the Faith he had learned in the Bosom of the Church.

That same Folly had communicated itself to *Hincmarus*, who speaking of some Persons he does not name, says, *lib. de prædest. c. 31. that there are Persons who being great Admirers of the Novelty of Words, and to acquire a vain Reputation, advance Propositions against the Catholick Faith*, viz. *that the Sacrament of the Altar is not the true Body, nor the true Blood of the Lord, but only the Remembrance of his true Body and of his true Blood.*

As to the Adversaries which the *Calvinists* oppose to *Paschasius*, and which, in *Aubertin*, and *Blondel*'s Sentiment, amount to twelve, *viz. Amalarius, Rabanus, Heribaldus, Bertram, John Scot, Frudegardus, Florus*, Deacon, the *Council of Cressi* assembled in 838, *Lupus*, Abbot of *Firrieres*, *Prudencius*, *Walfridus*, *Christianus Drutmar*; the *Roman* Catholicks take at once from that Number, *Walfridus*, *Florus*, *Lupus*, and *Christianus Drutmar*; in whose Writings, say they, there can't be found the least Shadow of Opposition to *Paschasius*; but on the contrary, several Proofs are found for the real Presence, as when *Walfridus* writes, *De reb. Eccles. c. 17. That since the Son of God assures us that his Flesh is Meat indeed, and his Blood Drink indeed, it must be understood, that the Mysteries of our Redemption, that is to say, the Eucharist, are truly the Body and Blood of the Lord; that we should believe at the same Time, that they are the Pledges of the perfect Union, which we have already in Hope, with our Chief, and we are to have one Day actually.* And when *Florus* teaches in the Explication of the Mass, *That the Oblation, though taken from the simple Fruits of the Earth, is made for the Faithful, or to the Faithful, the Body and the Blood of the only Son of God, by the ineffable Virtue of the divine Benediction.*

The Catholicks take off *Hincmarus* also, because accused of opposing the real Presence, in one single Word only, which the *Calvinists* are pleased to attribute to him. For the others, it does not appear, say they, that they have attacked *Paschasius* by Name, which shews plainly that they have not considered him as the Author of a new Opinion, and unheard in the Church, since they had not been afraid to name such a Person, and had even accused him before the Ecclesiastick Judges. But to examine them more in detail, they begin by *Amalarius*, and say, that if he had wrote nothing of the *Eucharist*, but what is found in the Books of the ecclesiastical Offices, there had been no room to rank him among *Paschasius*'s Adversaries. But because the Church of *Lyons* in the Book of the Three Epistles accuses him with having wanted to poison *France* with Books full of Errors and of phantastical Opinions; and declares that those Books deserved to be burnt; and that a Manuscript of *Florus*, written expressly against that *Amalarius*, reproaches him with having advanced Errors against the *Eucharist*, which had been condemned in 838, by a Synod of Bishops assembled at *Cressi*. And because the Manuscript Epitome of *William* of *Malmesbury*, joins him to *Heribaldus* and to *Raban*, and accuses them all three of the Heresy of the *Stercoranists*, it seems as if there was no room to doubt that he had maintained some Error on the *Eucharist*; but that Error having remained almost unknown, has been the Occasion that some *Calvinists*, as well as *Roman* Catholick Theologians, have spoke variously of it.

Usher, an *English* Protestant (continue they) to draw some Advantages from it to his own Party, supposes that *Amalarius* was in the Doctrine of the Catholicks, and therefore pretends that it was the Doctrine of the real Presence which was condemned in that Author by the Synod of *Cressi*, and by *Florus*, Deacon of *Lyons*. *Aubertin* on the contrary, has judged, that it was more advantageous to him, to attribute to *Amalarius* the Opinion of the *Calvinists* to find some Partisans in the 9th Century. But not to be obliged to confess, by a Consequence from that Supposition, that *Calvin*'s Doctrine has been condemned in the 9th Century by a Synod of Bishops, and by the Church of *Lyons*: He takes no Notice of the Synod of *Cressi*, and attributes what the Church of *Lyons* says of *Amalarius*, to a Jealousy. But *Blondel*, instigated by the Desire he had to raise Adversaries against *Paschasius*, has fallen on that Subject in one of the most visible Contradictions, wherein an Author could fall. For finding on one Side some Advantage in the Opinion of *Usher*, who renders *Calvinist* the whole Synod of *Cressi*, who has condemned *Amalarius*. He takes that Part of it, and supposes with him, that the Council of *Cressi* was in the Doctrine of the *Calvinists*, and contrary to *Paschasius*. But finding besides, in the Manuscript Epitome of the Book of the divine Offices, of *William* of *Malmesbury*; that *Amalarius*, *Rabanus* and *Heribaldus*, had wrote against *Paschasius*, without considering that such Supposition was contrary to that of *Usher*; he makes likewise of *Amalarius*, an Adversary of *Paschasius*; so that

that by a manifest Contradiction, he gives to understand, that the Council which has condemned *Amalarius*, and *Amalarius* condemn'd by the Council, were in the same Sentiment, and equally contrary to the Doctrine of *Paschasius* on the Subject of the *Eucharist*. But leaving that Thought which they pretend destroys itself; they say of the other Opinions, that that of *Usher*, who says that the Error of *Amalarius* consisted in the Doctrine of the Catholicks, is entirely false; not only because that Supposition is without Foundation, but likewise because the Epitome of *William* of *Malmesbury* joins *Amalarius* to *Heribaldus* and *Rabanus*, who were *Paschasius*'s Adversaries: That it is equally false, that *Amalarius*, *Heribaldus* and *Rabanus*, were of the Opinion of the Sacramentarians, as *Aubertin* pretends, since *William* of *Malmesbury*, and *Thomas Waldensis* maintain, that those three Authors have been in the Error of the *Stercoranistes*, who pretended that Christ's Body was eaten by the Faithful in such a Manner, as to be reduced to the Condition of common Food digested in the Stomach.

From all this they conclude, that the Doctrine of *Paschasius* was that of the Church of his Time. That if it can be said with Truth, that *Amalarius* was in an Error, equally opposed to that of the *Sacramentarians*, and to the Doctrine of the Catholicks, the Ministers cannot draw any Advantage either from his Error or his Condemnation; nor can weaken, by *Amalarius*'s Testimony, that which *Paschasius* renders to the real Presence, as to that which was universally received of the whole Church of his Time. That if it be supposed, on the contrary, that he had been in the Opinion of the *Calvinists*, they must also confess, that *that* Opinion has been condemned in the 9th Century, by a Council of Bishops, and that of the Catholicks confirmed.

There remain no other of *Paschasius*'s Adversaries (continue they) but *Ratramnus*, and *John Scotus*, or *Scot*: But the Book of the first, say they, is so much embarrassed, and dark, that it is difficult to know his Sentiment. Therefore, as several *Calvinists* have endeavour'd to draw him on their Side; several of them, likewise, have confessed sincerely, that he favour'd Transubstantiation. Likewise there have been several Catholicks who have abandon'd him, and several who have undertook his Defence. For *Tritemius* declares, that he had much Value for *Ratramnus*; and *Berengarius* himself, who made Use of the Book of *John Scot*, has never mention'd *Ratramnus* as one of his Upholders. And if there are in that Author several hard Expressions, there are likewise others so clear and formal, for the real Presence, that they cannot imagine what Advantage the Ministers can draw from it.

But let it be how it will, say they again, if it was ever so true that *Ratramnus*, in wanting to subtilise too much on the *Eucharist*, was fallen in some Errors, what could the *Calvinists* conclude from it, unless, That as there are found in some antient Authors Seeds of the *Arianism*, likewise there have been found, in one or two Authors, some Expressions like those of the *Sacramentarians*.

They say the same Thing of *John Scotus*, whom the Church of *Lyons* represents every where as an intriguing, busy, and ignorant Man, full of Errors; and that if those he produced on the *Eucharist*, and which were the Occasion of his Book being burnt at the Council of *Verseil*, in 1053, have not been condemned in his Time, it is because they had neither Partisans, nor Disciples.

Therefore (conclude they) all these Adversaries the Ministers oppose to *Paschasius*, being either useless to them, as *Amalarius*, *Heribaldus*, &c. or entirely despicable, as *John Scotus*; there is not the least Reason to question, but that the Doctrine of *Paschasius*, on the real Presence, was that of the whole Church of his Time.

Aubertin, on the contrary, believes, that *that* Doctrine of *Paschasius* was a new one, which gain'd Ground in the dark Times of the 10th Century. *It is not surprizing*, says he, *pag.* 940. *that in so dark a Century, the erroneous Opinion of* Paschasius *having encreased in the Bosom of the Ignorance, and Superstition, was found so well established in the* 11*th Century*.

To this the Catholicks answer, that for their Part, they think it surprizing, that Persons of Wit dare to advance Suppositions so contrary to common Sense. And to prove those Suppositions contrary to common Sense, they observe, that *Aubertin* wanting to place that Change at a Time where there were few Writers, who could convince him of Imposture by written Pieces, he has been obliged to suppose, that the Body of the Church was yet of the Opinion of the *Sacramentarians*, till the End of the 9th Century; because, during all that Century, there has been so great a Number of learned Men, that it is impossible, that had any Change happen'd in the Faith of the Church of their Time, they had not taken Care to inform Posterity of it.

It is true that *Aubertin* acknowledges, That not only at the Time *Berengarius* was condemned, *i. e.* in 1053, but even at the Beginning of the 11th Century, the Opinion of the *Sacramentarians* was so entirely banish'd from the Church, that it was a Crime deserving Deposition, to advance a Proposition which could approach near it. For he observes, himself, after an Author who has wrote the Life of *Robert* King of *France*, that *Lutherick*, Archbishop of *Sens*, having advanced some Propositions against that Mystery, *Robert* sent him Letters full of Menaces, in which he declares to him, that he would have him depos'd: And the Catholicks say, that under the same King *Robert*, a Council was held at *Orleans*, in which were condemned two Priests, for having denied, among other Things, that *the Bread was changed in the Body of Christ in the* Eucharist. *Aubertin* confesses besides, that all those found in the 11th Century professing the Opinion of the real Presence, had not done it, by changing Sentiment, but had suckled that Sentiment with their Milk. *Hâc opinione*, says he, *una cum lacte imbuti, illam tanquam veram confidenter obstruserant*.

The *Roman* Catholicks say, in their Turn, that even granting to the Ministers all those Things (which they call absurd and incredible) there remain still some which cannot be granted, without renouncing entirely our Reason. That even supposing, as *Aubertin* will have it, that the Doctrine of *Paschasius*, whose Book, perhaps, never went further than the Kingdom of *France* during that whole Century, had spread in less than a hundred Years, not only in all the *Latin* Church, but likewise in all the East, and in all the schismatical Communions who had neither Commerce nor Union with the *Latin* Church; who never read any Books of the West, and not so much as understood the Language of those Countries; that supposing that all the World had embraced that Belief, and that the whole Church having been instructed in the distinct Belief of the real Absence of Christ in the *Eucharist*, had abandoned without the least Resistance the Faith of their Fathers, to follow a new Opinion introduced by a *French* Monk; how could it be supposed at the same Time, that no Trace should have remained of that Change, and that the Remembrance of it had been so obliterated, that in the 11th Century which follows immediately, no Body had ever heard of it? They ask if those who lived in the 10th Century, had not seen a great Number of Persons of the 9th Century? If the Lives of several was not so divided, that having spent Part of it in the 10th Century, and the other Part in the 11th, that they could tell some News of both? If King *Robert*, who caused those two Priests to be condemned to be burnt, had not lived himself 29 Years in the 11th Century, being dead but in the Year 1032; and having lived 61 Years? If those Persons who had lived in the 10th and 11th Century, had not seen several Persons of the 9th Century, or at least lived with an infinite Number of Persons who had seen them. If it could be possible that themselves being Witnesses, or living with the

Eye-witnesses, of an universal Change of Belief in the Church; they had informed none of their Descendents whom they had instructed in the Faith of that Change? If it could be imagined that a hundred Millions of Men would have agreed together to conceal from their Posterity, so prodigious, and so important an Event, that no Father had told it to his Children, and no Master to his Disciples: That no Monastery had preserved the Memory of it, and that the whole 11th Century had been so well confirmed in the Belief of the real Presence, that those who attacked it, were treated from the very Beginning as Novators and Hereticks; and those who undertook its Defence, presumed to publish that there had never been any other Faith in the Church; though at the same Time, *i. e.* in 1035, when *Berengarius*'s Heresy began to appear, there were perhaps a hundred thousand Persons of 70 Years in the Christian Church, who having lived 35 Years in the 10th Century, had seen a vast Number of Persons, who had passed their whole Life in that Century, and who having been instructed by Persons born and instructed in the 9th Century, could not be ignorant that the Belief of the 9th Century on the *Eucharist*, was different from that professed throughout the Christian World, in the 10th; if it was true, as the Ministers suppose, that till the End of the 9th Century the whole Church was of the Opinion of the *Sacramentarians*.

The Answer of the Protestants to this, is, that the Error and the Truth have equally two Degrees, one of confuse Knowledge, and the other of distinct Knowledge; and that there is scarce any Difference to be observed between them, while they are in that first Degree of confuse Knowledge, unless one comes to the other called distinct Knowledge, the Ideas being so like one another, that they are not to be distinguished but with great Difficulty: That before an Error has made any Noise, and has been signalized by the Dispute, the greatest Part of the Church, the People, and several of their Pastors content themselves with holding the Truth in that undistinct Degree abovementioned. And therefore it is very easy for a new Error to insinuate itself, and be established in the Minds under the Title of *Eclaircissement*, or Explanation given to the antient Truth; the Passage from the confuse Idea of Truth, being very easy under the Pretence of giving Light, Distinction, and Perfection to our first Knowledge.

To apply this general Observation to the *Eucharist*, they say, that before the Establishment of the Transubstantiation, every one believed that *Jesus Christ* was present in the Sacrament, and that his Body and Blood were truly received by the Faithful in the Communion, and that the Sacrament is the Sign and Memorial of the Death of *Jesus Christ*, and of his Passion; that it was the Faith of the whole Earth; but that they are not mistaken in saying, that there were few who carry their Meditations far enough to observe justly, the Difference of the two Opinions which separate, at present, the Reformed from the *Romans*; that there were even some who knew the Truth but in general, so that when the Error, on that Subject, has happened, and that building ill on a very good Foundation, it has declared that it must be understood, that *Jesus Christ* is present in the *Eucharist* substantially and locally, that his Body and his Blood are received in the Communion by the Mouth of our Body; it has been certainly a very extraordinary Novelty, and which had never been heard of before: But that it is not surprizing, several have been thereby deceived, and have taken that Sentiment not for a Novelty, but for an Explanation of the common Faith.

On this Principle they suppose, that the Commonality of the Christians had but a confuse Belief of that Mystery; that they believed *Jesus Christ* present, without distinguishing if it was only in Sign, in Virtue, or in Substance; that they had no positive Thought of the real Presence, nor likewise a positive Idea of the real Absence; but had only a Negation of both. That the Church remained in that Ignorance till the Time of *Berengarius*, when even the greatest Part of the Christians, say they, knew nothing of it, and the greatest Part of the Pastors knew but very little.

This Argument is very strong against the Catholicks, and conducted with a great deal of Wit and Judgment: Therefore let's hear how they'll extricate themselves from this Embarass, and refute this judicious Observation, which they attempt to do, by asking previously to any Thing else, if it be possible to suppose that the Faithful could have remained a thousand Years in the Church, in seeing every Day what was called the Body of Christ, in assisting every Day to the Sacrifice which was stiled the Sacrifice of the Body and Blood of *Jesus Christ*, in receiving often in their Mouth, what was said to them, to be the Body of *Jesus Christ*, *Corpus Christi*; and remain in that Condition without forming a distinct and determinate Thought, if what they saw, was, or was not the true Body of *Jesus Christ*? Which Question they answer in the Negative, founded on the following Reasons.

I. Because they say our Mind is form'd of such a Manner, that in thinking of a Body, it is impossible it should not apply it to some Place, as being always conceived in the Place, where it is expressed to us, unless we know that it is not there. That it is our Manner of conceiving, and a Sequel of our Nature, that our Differences have not given Birth to it, nor are our Differences capable to change it. Therefore the Faithful in assisting at the Sacrifice, hearing say that what was given them was the Body of *Jesus Christ*, and answering *Amen*, i. e. in Truth, did think of him, and applied him to some Place. The Words which made them think of him, have represented him to them as present on Earth. That they must then absolutely have followed them, or contradicted them, in taking them in another Sense. If they have conceived *Jesus Christ* present on the Altar, and in their Mouths, they had then a distinct Belief of the real Presence; and if on the contrary, though the Words expressed him present on Earth, they have only considered him as present in Heaven, they must have had a very distinct Belief of the real Absence, since it made them correct the Sense to which the Words inclined them. And therefore, it is impossible they should have remain'd, with Regard to that Mystery, in that Degree of Confusion and Indistinction, in which the human Mind cannot subsist.

II. The Suspension of Mind between the *Yea* and *Nay* of two contradictory Opinions, cannot proceed but from two Causes, neither of which can be admitted with Regard to the *Eucharist*. The first is a true Irresolution, which proceeds from the Diversity of Reasons, between which the Mind is at a Stand to determine itself. In that Kind of Suspension, one considers distinctly the two opposite Opinions, but as they are seen supported on Reasons equally strong, one knows not what Resolution to take. It is apparent that it cannot be said, that it is in this Manner, the Church has remained in a confused Belief on the Subject of the *Eucharist*; for its being of an extream Importance, and there being a great Difference between the Body of *Jesus Christ* really present, or significatively present, it is not possible that the Christians could have remained in that Doubt, without searching to be better informed, and without determining themselves afterwards, on the Instructions given them on the one or other of those two Opinions; which would have changed that confused and undeterminate Knowledge, into a distinct and determinate one. Therefore it remains but the second Cause of that Suspension, which is the Want of Application to the particular Differences which distinguish the opposite Opinions; the Mind contenting itself, sometimes, to conceive Things in a certain Generality, which unites them without descending to the Particulars which distinguish them. It is properly in that Manner, say the *Roman* Catholicks, that the Protestants want us to believe, that the Belief of the *Eucharist* has remained confused in the first Centuries of the Church, and it is notwith-

notwithstanding, say they also, what cannot be said with the least Appearance of Reason; for the Words, whereby that Mystery is expressed, either in the Celebration of the Sacrifice, or in distributing the Communion to the People, or in instructing them of what they ought to believe, signify so precisely, and so naturally, the real Presence, and fix so well the Mind to the Consideration thereof, that it is impossible, after they have been so often repeated to the Christians, they had not been obliged, thereby, to form some Judgment of it, *viz.* or to reject it, or to admit of it.

III. This Consideration will become still more sensible by the third, which is, that the Custom Men have to not conceive Things without investing them with some Sounds, causes that so soon as the Sound strikes the Ear, the Idea which is ordinarily joined to that Sound, offers itself immediately to the Mind, and that Idea never fails being received, unless the Opinions the Mind is prejudiced by, or the other Circumstances which accompany that Idea, obliges to banish it, to substitute another to it. When one hears the Word Arm, or Hand, he immediately conceives common Arms and Hands, but when they are attributed to God, the distinct Knowledge that God is incorporeal, causes that they banish that Thought to substitute another to it, which is that of Power and Strength. But if they had not that distinct Knowledge, they would receive that corporeal Idea of Arm and Hand, as did the Anthropomorphites. When one hears the Word Light, the Image of a corporeal Light offers itself immediately, and endeavours to enter into our Mind; but when *Jesus Christ* says of himself, that he is the Light of the World, and we read in St. *John*, that there is a true Light which enlighten all Men, the Knowledge we have that God is not a Body, makes us banish that corporeal Image, to substitute to it the Idea of a spiritual Light, which enlighten, not the Body, but the Mind.

We ought to conceive by the Word God, a true God, and it is the Idea which offers immediately to the Mind, when we hear that Word pronounced; but when we hear at the same Time, that it is *Moses*, who is called the God of *Pharaoh*; that it is Men, of whom it is said, *Ego dixi Dei estis, & filii excelsi omnes*; and of the false Divinities St. *Paul* means to speak, when he says, that *there are several Gods and several Lords*. That Idea which offers is excluded, and the Mind furnishes of itself, another, which he sees very well was designed in those Places, but does not furnish it but by the distinct Knowledge he has, that those Men, and the false Divinities, are not true Gods; and therefore, a Pagan who has not that Knowledge, could imagine simply, that St. *Paul* believed that there were several Gods.

It must be then concluded (continue they) that the natural Idea of Words, offers itself first to the Mind, and is always received there, unless it be banished by a contrary Belief. Therefore unless one would absolutely renounce Sincerity and Truth, and deny with a ridiculous Obstinacy, the clearest, and most sensible Things; it is impossible to not acknowledge, that the common Expression used by the Fathers, in the Instructions by them given to the People on that Mystery, and in the Celebration of the Sacrifice, includes the Idea of a real and substantial Presence, in their natural and literal Sense, and cannot have another unless they be taken in a metaphorical Sense.

For they ask the Protestants, what signify naturally these Words, *This is my Body?* What signified those used in giving the Communion to the Faithful, *Corpus Christi*, the Body of Christ, to which they answer (thereby they must have believed that it was truly the Body of Christ) in saying *Amen?* And if it is not true, that those Words taken simply, signify that it was truly the Body of *Jesus Christ?*

They say farther, that they could make a large Volume of all the Passages of the Fathers, which taken literally and simply, signify a real and substantial Presence, and a true Transubstantiation; but that it suffices for their Design, to relate some of them. Therefore they ask if it can be denied, for Example, that one is struck with the Idea of the real Presence, by these Words of St. *Ignatius*, in his Letter to those of *Smyrna*, where speaking of certain Hereticks, he says; *that they did not receive the* Eucharist, *and the Oblations; because they did not confess that the* Eucharist *is the Flesh of our Lord, who has suffered for our Sins, and whom the Father has raised from the Dead through his Goodness?*

By these Words of St. *Justinus*, in his second Apogy, *we do not receive those Things as if they were but common Bread, and common Drink; but as we know that* Jesus Christ *our Saviour, who has been made Man by the Word of God, has vested himself with Flesh and Blood for our Salvation; we know likewise, that that Meat, and that Drink, which by the Change they receive in our Bodies, feed our Flesh and our Blood, having been consecrated and made* Eucharist, *by the Prayers which the same Word of God has taught us, are the Flesh and Blood of that same* Jesus Christ, *who has been made Man for the Love of us. For the Apostles, in the Writings they have left us, called Gospels, say that* Jesus Christ *ordered them to use it as he had done.*

By these Words which *Gelasius* of *Cisick* relates, for being the Words of the great Council of *Nice: Let us not be meanly attentive to the Bread, and to the Chalice, which are exposed to our Eyes, but raising our Mind, let us conceive by Faith, that the Lamb of God who blots out the Sins of the World, is present on that sacred Table, and immolated by the Priests, without Effusion of Blood, and taking truly his precious Body, and his precious Blood, believe that they are the Pledges of our Resurrection?*

By these Words of St. *Cyril* of *Jerusalem*, *Cathec.* 4. *Jesus Christ having said of the Bread, this is my Body; who will, henceforward, question it? This is my Blood, who would entertain any Doubt of it, saying it is not his Blood? He has formerly changed Water into Wine, at* Cana *in* Galilee, *by his sole Will, why should he not be believed when he changes Wine into his Blood?*

By these Words of St. *Gregory* of *Nyssen*, *orat. catech. The same Virtue, which caused that in the Body of Christ, the Bread he used to eat was changed into the Nature of his divine Body; causes, likewise, the same Thing in the* Eucharist; *for as the Power of the Word changed into his Substance, in his sacred Body, which was fed with Bread, and thus, in some Manner, was Bread; likewise here the Bread sanctified, as the Apostle says, by the Word of God and Prayer, not becoming the Body of the Word by Means of Eating and Drinking; but being changed all on a sudden, into the Body of the Word, by the Word, according to what has been said by the Word himself, This is my Body.*

By these Words of St. *Ambrose*, in his Treatise for the Instruction of those newly baptized, *c.* 9. *You'll say perhaps I see another Thing; how can you assure me that I receive the Body of* Jesus Christ? *It is then what remains to be proved. But how many Examples can I produce, that it is not what Nature has formed, but what the Blessing has consecrated; and that the Blessing has more Efficacy than Nature itself?* Afterwards, having related several Miracles of the Old Testament, he concludes, *Could not the Word of Jesus Christ, which could make of nothing all that has a Being, change what has a Being, into what it was not before?*

By these Words of St. *Gaudentius*, Bishop of *Bassia*, *in Exod. tract.* 2. *The Creator and Master of Nature, who produces Bread from the Earth, makes afterwards his proper Body of that Bread, because he can do it, and has promised it, and he who has made Wine of Water, makes likewise his Blood of Wine.*

By these Words of *Optatus*, Bishop of *Milevis*, *Lib.* 6. *cont. Permenium*, where he shews the Sacrileges of the *Donatists* against the Eucharist. *What's the Altar*, says he, *but the Seat of the Body and Blood of* Jesus Christ? *What Offence had you then received from* Jesus Christ, *whose Body and Blood dwelt on that Altar, at certain Times, to do him that Injury?* And lower, *Notwithstanding that detestable Crime has been renewed,*

renewed, and you have again broke the Chalices which used to carry the Blood of Jesus Christ?

St. *Chrysostom* (say they again) is so full of Expressions, which mark naturally a real Presence, that *Aubertin* is oblig'd to acknowledge, that they are in great Number, and specious, *multa & speciosa:* In Fact (pursue they) what is more specious, than what he says in Homily 83. on St. *Matthew*, *How many there are who say at present, could I have but seen his Form, his Figure, his Vestments? Well, you see him, you touch him, you eat him: You was contented to see only his Vestments, and he gives himself to be seen, to be touched, to be eaten, and to be taken within you?*

St. *Isidorus* of *Damieta*, says, *Epist.* 109. *That the Holy Ghost causes that the common Bread, proposed on the Table, becomes the proper Body* Jesus Christ *has taken in his Incarnation.*

St. *Augustin* says, in his Epistle to *Januarius*, *That it has pleased the Holy Ghost, in Honour of that great Sacrament, that the Body of* Jesus Christ *should enter the Mouth of the Christians, before all other Meat.* And *Lib.* 5. *de Baptism. cont. Donat. c.* 8. he says of the *Eucharist*, *That it is the Body and Blood of the Lord, even for those who eating it unworthily, eat and drink their Judgment.*

St. *Cyril*, Patriarch of *Alexandria*, in his Anathema's, approved in the Council of *Ephesus*, speaks in this Manner: *We celebrate the holy vivifying and unbloody Sacrifice in the Churches, believing that the Body which is before us, is not the Body of a common Man, and semblable to us, and the Blood the same; but we receive it, as having been made the proper Body and proper Blood of the Word, who vivifies all Things.*

And *Theodotus*, Bishop of *Ancyra*, in an Homily he made in that Council: *He does not lay in a Manger*, says he, *but is exposed to our Eyes on that salutary Table, that Manger is the Mother of that Table; he has been put in that Manger, that he may be eaten on that Table.*

The most learned among the Protestants (say they again) are obliged to confess, that there are found in the Fathers of all the Ages of the Church, an infinite Number of such Passages; and that it is the common Manner of Speaking, in the Church, of the *Eucharist*. That the Catholicks have no Need to examine, if a metaphorical Sense could not be given to those Expressions, or to refute all the Subtilties, whereby *Aubertin* endeavours to do it in his Book, since it is not necessary for the present Dispute; and that if some *Calvinist* would undertake to prove, that they can or ought to be understood metaphorically, he would shew thereby that he does not so much as understand the State of the Question; since that Question is not to know if those Passages can be taken in a metaphorical Sense, but if it is not true that the first Idea, which they offer to the Mind, is not that of a real Presence, such as the Catholicks believe it? Which Idea must have struck all the Christians, as presenting itself to their Eyes, and endeavouring to introduce itself into their Mind. Which to prove, they ask, if they have admitted or not admitted that Idea, when it presented itself; if they have received the natural and simple Impression thereof, or destroy'd it, by substituting another to it? That if it be confessed, that they have received it, their Adversaries grant them all they want, which is, that the real and substantial Presence has always been believed in the Church: And that if it be pretended that they rejected it, they must then have form'd a Judgment of it, and declar'd themselves against that Belief; and consequently believed, positively and distinctly, the real Absence. That therefore, whatever Supposition may be made, that pretended Confusion of Belief on the Subject of the *Eucharist*, cannot subsist.

IV. But they say further, that even by that it is clear, that the whole antient Church has had a distinct Belief of the real Presence: For why should the Christians have rejected the natural Sense of those Words of the Fathers; since the Ministers confess, that they had not a positive Belief of the real Absence; and there is but that positive, express and distinct Belief, which can hinder Words so formal, from inclining the Mind to the Belief of the real Presence? Therefore, conclude they, the Supposition of that confus'd Belief destroys itself, and establishes the Truth which it opposes. For if the Faithful had not a distinct Belief of the real Absence of *Jesus Christ* in the *Eucharist*, it necessarily follows hence, that they have took the Words of the Fathers in their literal and natural Sense, which was not formerly contrary to their Sentiment; that they have not opposed the Impression, which they must have made in their Mind; and as they propose the Idea of a real Presence, they have received in their Mind that distinct Idea, which they had no Occasion to reject.

V. They repeat once more, because they imagine it necessary to have that Reason very well understood, which, they pretend, decide their Differences with the Protestants; that either those Expressions of the Fathers which form so clearly the Idea of a real Presence, have been received by the Faithful without Explication, and in the simple Sense of the Words, or have been explained in a metaphorical Sense, and void from the natural Signification of the Words: That let the Protestants chuse which of these two Supositions they please, they'll equally destroy that confuse Belief. For, say they, if it be true for Example, what *Aubertin* says, that when St. *Cyril* of *Jerusalem*, said to those newly baptized, *Catech.* 4. *Believe certainly, that this apparent Bread is not Bread, though the Taste represents it as such, but the Body of Jesus Christ*; he wanted to say that that Bread is no longer a common Bread, but a sanctified Bread, and that it was the Body of Christ in Figure, not in Truth, which would be a strange Manner of expressing himself. It is clear that if the Faithful had understood it in that Sense, and with that Explanation, they had had a very distinct Idea of the real Absence; and therefore had not remained in that Degree of Confusion. That if it be supposed on the contrary, that they have not added that strange Interpretation to the Words of that Father, it is still more visible that they have had a distinct Belief of the real Presence; since unless the natural Sense thereof be corrupted by very violent Explanations, it is impossible they could imprint another Idea in their Mind.

But there are no other Words wanting, say they again, but those which have always been in the Mouth of the Faithful: That the *Eucharist* is the Body of *Jesus Christ*, to shew that they have had necessarily a distinct Idea, either of the real Presence or real Absence. For they had either given to those Words the same metaphorical Explanations the Ministers give to them, in understanding that the *Eucharist* is the Body of *Jesus Christ* in Figure, in Representation, in Operation, and not in Truth; or have not added those Restrictions to it: For if they had added those Restrictions, they had believed the real Absence, as the Ministers believe it; and if they have not added those Restrictions, they have believed the real Presence, since it is the simple and natural Sense of those Words, when they are understood without Restriction and Metaphor. When a Metal is said to be Gold, it is said that it is really and substantially Gold. When it is said of a precious Stone, that it is a Diamond, it is said that it is really and substantially a Diamond. Likewise to be the Body of Christ, and to be substantially and really the Body of Christ, are not two different Ideas, but one and the same Idea; so that it is the same Thing to say that the Faithful have always believed that the *Eucharist* was the Body of *Jesus Christ*, without other Explication; as to acknowledge that they have always believed, that it was really and substantially the Body of *Jesus Christ*.

Therefore, conclude they, in whatever State the Faithful may be supposed, it is impossible to make it agree with that confuse Belief which the Protestants will establish; and even from that alone, that it is confessed, that they have not had a very positive Belief of the real Absence, it must be concluded invincibly

cibly that they have had a very distinct Belief of the real Presence.

The *Roman* Catholicks, the better to strengthen their Sentiment, and render it inexpugnable, say they, add to those Reasonings and Proofs above-mentioned, this following Proposition, which appears to me a very bold one, that it was not possible for the Faithful to take in a metaphorical Sense, the common Expressions with which the Pastors used to instruct them in the Mystery of the *Eucharist*, and that the Protestants cannot suppose it, without supposing at the same time, that it has happened in the Church, for the Space of a thousand Years a continual Prodigy, which is, that the Pastors have spoke all that Time in a Manner contrary to their Thoughts, and the People have heard them in a Manner contrary to their Words; so that it should be said, that there was in the Pastors a supernatural Blindness, not to perceive the Occasions of Errors they gave to the People, by the Extravagancy of their Metaphors, and a supernatural Light in the Faithful, not to be abused by Expressions so deceiving and so contrary to common Sense.

They draw the Proofs of this Proposition, from the Rules of the Intelligency of human Language, and from the Means Men have, to distinguish figured Expressions, from simple and natural ones. For it is certain, say they, all the Dispute between the Catholicks and Sacramentarians, on this Subject, is reduced to this Point, *viz.* if the Expressions of the Scripture, and of the Fathers, are to be taken in the Sense which offers first to the Mind, *i. e.* in a simple and natural Sense, or if they must be taken in a metaphorical one.

The Catholicks pretend the first, and the Sacramentarians the second; the Catholicks say, that when the Fathers assure us, that the Bread by the Consecration is changed, and made the Body of *Jesus Christ*, they understand that it is really and truly changed into the proper Body of *Jesus Christ*. The Sacramentarians say, on the contrary, that the Fathers wanted to signify nothing else, but that the Bread is changed figuratively, and not really.

It is in what this important Dispute consists, the Decision whereof, say the *Roman* Catholicks, depends entirely on the Means and Rules Men have to distinguish simple Expressions, from metaphorical ones. That these Rules and these Means, are very difficult to know and to fix; though, notwithstanding, there be some; otherwise, not only the Faith of a particular Mystery would be destroy'd, but generally that of all the Mysteries; since there is none, the Proofs whereof could not be easily destroy'd, in giving a metaphorical Sense to the Expressions of the Scripture and of the Fathers, which contain them.

It is said, for Instance, in the Scripture, that *Jesus Christ* is God, the *Arians* and *Socinians* will answer, that he is God metaphorically, that he is God by Grace, and not by Nature; that he is God, but submitted to another God greater than him. If it be spoke of the Holy Ghost, as of a Person, they'll say that it is a *Prosopopæa*. If it be said that *Jesus Christ* is born of a Virgin, the Answer will be, that *that* is true metaphorically, because he has passed through *Mary*, as through a pure Channel, according to the Opinion of some *Eutychians*. If it is said that he has suffered and is dead, the *Manicheans* and *Mahometans* will answer, that he has suffered and is dead in Appearance and metaphorically, because he has appeared outwardly to suffer. If it is said that he has redeemed Men with his Blood, the *Socinians* will answer, that it is not to be understood that the Blood of Christ has been offered as the Price of their Redemption, but that such an Expression, shews nothing else but that *Jesus Christ* being dead, to confirm the Truth, we ought to attribute to his Death, the Deliverance of Men whom God receives into Grace, when they believe the Truths which *Jesus Christ* has taught them, and follow the Rules which he has given them.

Lastly, say they, the whole Religion, and all the Proofs extracted from the Scripture, and the Fathers to establish it, lean on this Principle, that Men can distinguish simple Expressions from figured Expressions, and were they deprived of those Means, they would likewise be deprived of all Means to discern the Truth from Falshood. Therefore, there is but to consider those Rules, by which Means we make that important Discernment: And provided we act sincerely in it, they believe that it is not possible but one must remain convinced, that the Faithful could by no Means take the ordinary Expressions of the Fathers, with regard to the *Eucharist*, in a metaphorical Sense, and that they must of Necessity have taken them in the natural Sense, which the Words offered to them. The *Roman* Catholicks give us some of those Rules, which are as follow:

I. When the same Thing can as easily be expressed naturally, as metaphorically, the natural and simple Expressions are commonly more frequent than the metaphorical; whence it happens that the simple Expressions forming a distinct Idea of the Truth, serve to reduce the metaphorical to it. They say, when it can be as easily expressed, for they are of Opinion that *there are Things so much above the Reach of a human* Mind, that they seldom can be understood, but in using Metaphors, taken from Things more proportioned to the human Understanding. The Reason of that is, that Men incline commonly, when nothing hinders them, towards that which is most conformable to Truth and Nature; but the metaphorical Expressions are in some Measure contrary to Nature, because they are falsly taken in a strict Manner; and therefore, cannot be so common, and if they were, they would become captious and unintelligible.

II. The Metaphor including something false, it is against Nature to continue long in it, and the Rhetoricians observe, that when one does it, it is no longer an Ornament but a Fault, called *Enigma*; because it renders the Discourse difficult to be understood. Therefore, say they, let us examine by that Rule, the Expressions of the Fathers which mark of themselves a real Presence, and we'll see that it was not possible for the Faithful to take them for Metaphors: For after they have used them, they do not come out of it, but persist in it to the End, and even make the second stronger than the first; and to speak of that Mystery as they have done, they should have had a formal Design of deceiving those they spoke to. They say that they will produce, but an Example of this, among the great Number of those which occur, of which those who are instructed in those Matters know very well, there could be made a whole Volume. They draw that Example from the 24th Homily of St. *Chrysostom*, on the first to the *Corinthians*, and leave to all Persons of Sense, to judge if there was ever any Thing, they don't say more enigmatical, but more nonsensical, than the Discourse of that Saint, taking those Expressions for Metaphors, as the Ministers take them. *These Words of the Apostle*, says he, THE CHALICE OF BENEDICTION WHICH WE BLESS, IS IT NOT THE COMMUNION OF THE BODY OF JESUS CHRIST? *ought not to imprint less Terror, than Faith in the Mind; because they teach us, that what is in the Chalice is the same Blood which flowed upon the Cross.* Here, say they, St. *Chrysostom* is entered into a Metaphor, according to the *Protestants*, and into a strange Metaphor. For, without doubt, to shew simply that Wine is the Figure of the Blood of *Jesus Christ*, it would be very surprising to say, that what is in the Chalice is the same Blood which has flowed from the Saviour; but let's see, continue they, how the same Saint proceeds; *Jesus Christ*, says he, *was not contented with delivering up his Body for us to Death, but because the first Flesh which was formed upon Earth, had been deprived of Life and subjected to Death, by the Sin; he has formed, as it were, another Substance, that's to say, his Flesh, which though of the same Nature with ours, was notwithstanding, free from Sin, and full of Life; and has given it to all, that all should be fed with it, and that divesting themselves of that antient Flesh, they could be renewed by that new*

new Flesh: It must be observed that the Apostle, speaking of the Jews, *does not say, that they are Partakers of God, but only Partakers of the Altar; because what was offer'd formerly on the antient Altar, was to be consum'd by Fire; it is not so of the Body of Christ; in what can that Difference consist? in that a Communication is made of that same Body to the Faithful; and thus we are not made Partakers of the Altar, but of the Body itself of* Jesus Christ. The Metaphor, say the *Roman* Catholicks, begins to be pretty long; and they are sure that a *Calvinist* must be tired of it: But St. *Chrysostom* don't design to come out of it so soon. He establishes on that Truth, continue they, the important Instruction he gives to the Faithful, not to approach that Sacrifice, but with a Spirit of Peace and Charity; that they may be worthy to meet *Jesus Christ* in the Clouds, when he shall come down from Heaven, at the End of the World. Then reassuming his pretended Metaphor, *If it be thus*, says he, *that a Person could be presumptuous enough to receive with Incivility and Indifference a King who would come to visit him; but what do I say, receive a King? who would touch his Cloaths with a too great Familiarity, and too little Respect, if even he was in a Desart, and without a Retinue, if, says I, no Body has the Temerity to touch only the Cloaths of a Man, how can we be so presumptuous to touch within us, with Dishonour, and with Injury, the Body of God himself, who is infinitely above all Things? That Body which is so pure, and in which there cannot be the least Spot, which has been united, and inhabits with the Divinity, by which we receive our Being and Life, and by which the Gates of Hell have been broken, and those of Heaven opened? Let us not be then I desire you, continues he, our own Murderers, but approach that divine Body with a great deal of Fear, and with an extreme Purity, and in considering it when it is presented to you, say within your selves: It is that Body which causes that I am no more of this World, that I am no more Captive, that I am free: It is that Body which makes me hope that I shall one Day enter Heaven.—Death could not destroy that Body, by the Nails it was pierced with; the Sun seeing that Body hanging on the Cross, has turned away its Rays.—This is the same Body which, being pierced with a Lance, has flowed with two Fountains, salutary to the whole Earth, one of Blood, and the other of Water. —And that Body which* Jesus Christ *has given us to hold and to eat, with a prodigious Excess of his Love. —Consider that you see on Earth all that is the most excellent and the most adorable in Heaven; that you not only see it but touch it, eat it, and carry it into your own Houses.*

Certainly, conclude they, a Man, who to make us understand simply that the Bread is the sacred Sign of the Body of *Jesus Christ*, would continue in such a Metaphor, could not be the most eloquent Man of his Age, as St. *Chrysostom* was, but the most impertinent Tatler that ever was: And it is not of St. *Chrysostom* alone he would be obliged to judge thus, but of all the Fathers in general, since they all speak in the same Manner, when they mention the *Eucharist*.

III. The Metaphors cannot be proved, because as they do not subsist for themselves in the Discourse, and taking the Place of simple Terms, they are false in their proper Sense, and are true but in a wide Sense; therefore they are not to be proved in the Sense they offer first, because it is false. But the Fathers prove very often the Expressions which include the real Presence; and after they have told us, for Example, that the Bread after the Consecration is the Body of *Jesus Christ*, they endeavour to make us believe it by the Example of the other Wonders which God has operated; of the Creation of the World; of the Miracles of the Old and New Testament, on the Change of Water into Wine at *Cana* of *Galilee*; and particularly by the Words of *Christ*, who assures us of it.

IV. Metaphors, say they, are never a Subject of Doubt, or Surprize, when they are understood; because it is known that they are not to be taken literally. If it is said, that *Benjamin was a Wolf*; that *Jesus Christ was a Lion* of the Tribe of *Judah*; that *Cows were Years*; that the Blood of the Victims was the Covenant: When those Expressions are understood in their true Sense, one is not surprized at it; and is not consulted as a Thing difficult to believe: For it is not asked, how it could happen that *Benjamin* was a Wolf? *Jesus Christ* a Lion? &c. but it is common to the Fathers to declare, that there is Room to be surprized, that the Bread be the Body of *Jesus Christ*. They form these Questions; how can it happen that what I see be the Body of *Jesus Christ*? *Aliud video*, says St. *Ambrose*, *quomodo me suadeas quod corpus Christi accipiam?* They endeavour to strengthen the Faithful against those Doubts, in telling them, that the Word of God is more to be believed than what affects our Senses.

V. They say that Metaphors are not used in all Sorts of Discourses; that extraordinary Metaphors are not proper in simple Discourses, historical, or dogmatical; that they are Flights of the Mind, which commonly proceed from too much Heat. But the Fathers use every where Words, which shew the real Presence, in the most literal Explications of the Scripture, and in the most familiar Homilies; they were used in the most common Language, and most destitute of the Ornaments of Eloquence. They ask, if there is any Thing more simple than the Discourse of St. *Justin*, and of St. *Gregory* of *Nyssen*, they have related:

VI. That it is ridiculous to use Metaphors before Persons, who, according to all Appearance, could not understand them; and that one is obliged in those Cases, at least to explain them. But that the Fathers use the Expressions, which mark the real Presence, in Writings addressed to Pagans, as St. *Justin*, and in Discourses made before those newly baptized, who had not yet the least Tincture of that Mystery, as St. *Ambrose*, St. *Gregory* of *Nyssen*, St. *Cyril* of *Jerusalem*, and St. *Gaudentius* have done. That the Pagans who knew nothing of our Religion, and those newly baptized, to whom were given the first Instructions of the *Eucharist*, could not understand those Expressions otherwise than in their natural Sense; notwithstanding which, the Fathers do not explain them: That therefore they did not want they should be taken for Metaphors.

VII. That there are Metaphors harder than others, and they are those which are less authorised by Use, and the common Language; and the harder they are, and without Example, the more they are unintelligible in the metaphorical Sense, and easier to be taken in the literal and natural one. But if the Expressions used by the Fathers, in speaking of the *Eucharist*, were metaphorical, they should be consider'd as the harder Metaphors Men have ever used: So that it was impossible they could have been understood by the Simple, in that Sense.

That to conceive better the Hardness of those Metaphors, it must be observed, that where there is a natural Similitude between two Terms, it is not surprising, that the one is substituted to the other. For Example, because a Man in a violent Passion is like a Brute, it is said, naturally enough, that Passion changes Men into Brutes; because the Soul, separated from the Body, are very like Angels, it is often said that a Man after his Death is become an Angel, or is changed into an Angel. But when between two Terms, there is but a Relation of Institution, the Terms are not thus substituted to one another in the common Way of Speaking. It is not said, for Example, that Ivy is changed into Wine, because it becomes the Sign of Wine, by the Institution of Men. It is not said that the Olive-Tree is made and changed into Peace, because it is made the Sign of Peace in those who carry it for that Effect. It is not said commonly that the Paschal Lamb, nor the Manna, have been changed into the Body of *Jesus Christ*, because the Relation of Institution they have with the Body of *Jesus Christ*, is not sufficient to justify the Hardness of those Metaphors. The Water the Baptiz'd are washed

washed with, is the Figure of the Holy Ghost, Charity and Grace. The Holy Ghost, according to the Language of the Fathers, imprints in it a secret Virtue to act in the Souls, and to produce in them, Justification and Grace; nevertheless, neither the Relation of the Sign to the Thing signified, nor the Impression of that Virtue in the Water, have ever engaged the Fathers to say that the Water is made the Holy Ghost; that before the Blessing it was only pure Water, but that after it, it has been changed into the Holy Ghost. Whereas those Expressions are common to them, on the Subject of the *Eucharist*, and compose the common Language used to speak of it.

VIII. To shew still better what little Appearance there is for the Fathers to use Metaphors, so hard and so dark, or the People could have understood them in a metaphorical Sense, it is necessary to observe, that there are two Sorts of Languages, one which can be called of *Constraint*, and the other a *natural Language*. They call *natural Language*, that which we are inclinable to use, by the Desire of making ourselves understood; and *Language of Constraint*, that which one chuses, not only to express himself, but to join to his Sentiments, Expressions received and authorised by others.

For Instance, when the Scripture and the Fathers call *Jesus Christ* God, Lord, Principal, End; that they attribute to him the divine Power and Majesty, the Creation and Conservation of all Things, that they give him the Name of Word, the Character of the Substance of his Father, that they may defer to him Adoration, the Remission of Sins, the Beatification of Men, they have done it with the sole Design of expressing what we ought to believe of it.

But that when we see the *Socinians* use the same Terms, to mark their Belief of those Things, though they be not very proper to express it, we ought not to be surprised at it, since it is by Constraint they do it. They see those Terms authorised in the Scripture, and in the antient Fathers, and it is necessary to them, that they should not appear opposite to the Scripture, nor to the antient Fathers. Therefore they chuse rather to give a forced Sense to the Words, and speak a forced Language, which they deprave and explain afterwards in their own Manner, than to give to understand by the Difference of their Language, the Contrariety of their Opinions with the Sentiments of the first Christians, and the Truths of the Scripture.

Likewise (say they) when the *Calvinists* use, sometimes, to express their Belief with Regard to the *Eucharist*, the same Terms the Fathers have used, and grant that the Bread and Wine are changed into the Body and Blood of *Jesus Christ*; and several other Expressions, which shew naturally and simply the Belief of the Catholicks; there is no Reason to be surpris'd at it, nor even of accusing them, on that, of Folly; they are forced to it; the Motive is plainly seen which engages them to it; they will not appear contrary to all Antiquity; it is important to them, that it should be thought that the Language of the Fathers can agree with their Sentiments; and therefore they use it sometimes. They make whole Chapters which bear for Title that the Bread and Wine are made the Body and Blood of *Jesus Christ*, and that they are changed into the Body and Blood of *Jesus Christ*; they employ the strongest Expressions, and deprave them afterwards by forced Interpretations.

All that is not very strange (continue they) hard and extraordinary Metaphors, are not so surprising, when it is seen that they are used by Force. The Necessity excuses them, and renders them intelligible. But the Fathers have had Recourse to none of those Excuses or Reasons; they were by no Means obliged to use those Expressions; they had no Adversary whose Reproaches they fear'd; they had not that View of joining the antient Expressions with their present Opinions. They followed, simply, Nature, and had no other End than to chuse the most proper Terms to express their Thoughts, and to form in the Mind of their Readers, the true Idea they ought to have of the *Eucharist*.

It is in following Nature thus (say they again) that they have said to us, that the *Eucharist* was the true Body of *Jesus Christ*; that there was no Room to doubt of it, and that the Bread and Wine after the Consecration, were changed into his Body and Blood. That we may judge thereby, if there is the least Appearance that they had used those Expressions, and many others equally strong, and equally precise, if they had only wanted to tell us that the Bread becomes the sacred Figure of the Body of *Jesus Christ*, and that it changed of Signification and Use. If there be something in our Reason, and in the Custom of human Language, which could engage us to use Terms so wide from what we want to understand.

They desire the Protestants to tell them with that Sincerity they recommend to others, in several of their Writings, if they would believe that an *Indian* was very well instructed in the Belief of the *Reformed*, by a Man who would content himself with catechising him in these Terms: *The Lord Jesus the same Night, in which he was betrayed, took Bread, and when he had given Thanks, he brake it, and said, take, eat, this is my Body; after the same Manner, he also took the Cup, saying, this is my Blood. Since, then, when speaking of the Bread, he has declared that it was his Body, who will ever dare to call that Truth in question? And since, when speaking of the Wine, he has assured so positively that it is his Blood, who will ever doubt it, and dare to say, that it is not true, it is his Blood?* Jesus Christ, *while in* Cana *of* Galilee, *changed Water into Wine by his sole Will; and can we believe that he is not worthy enough to make us believe, on his Word, that he has changed Wine into his Blood? If being invited to a human and terrestial Wedding, he operated that Miracle, contrary to Expectation, ought we not to acknowledge still sooner, that he has given to the Children of the celestial Spouse, his Body to eat, and his Blood to drink? For under the Species of Bread, he gives us his Body; and under the Species of Wine, he gives us his Blood; that being made Partakers of that Body, and of that Blood, we should become one same Body, and one same Blood with him. For by that Means we become, as it were, Christ-Bearers in our Bodies, when we receive in our Mouth and in our Stomach, his Body and his Blood. Therefore, I desire you Brethren, to consider them no longer as common Bread, and common Wine, since they are the Body and Blood of* Jesus Christ. *For though the Senses tell you that it is nothing but Bread and Wine, Faith must confirm you in the Truth I tell you. Take Care to judge of it by your Taste, but let Faith make you believe, with an entire Certainty, that you have rendered yourselves worthy to partake of the Body, and of the Blood of* Jesus Christ.

Let the Protestants tell us sincerely (say the *Roman* Catholicks) what Judgment they would form of that Catechist; or those among them, who, though very well instructed in their Belief, were not learned enough to discover that these Words are those of St. *Cyril* of *Jerusalem?* Could they take such a Preacher for any other, but a very zealous Catholick, who would instruct that *Indian* in the Faith of the *Roman* Church? But if, notwithstanding, they were informed that *that* Man is a *Calvinist*, and that he wanted to say nothing else, in that Discourse, but that the Bread and the Wine were the sacred Figures of the Body and Blood of *Jesus Christ*, and that in taking them one is united by Faith to *Jesus Christ* who is in Heaven; could they not answer that *that* Preacher is very unwise to express himself so as to make People understand quite the contrary of what he thinks, and to throw Men into Error, instead of teaching them the Truth? But however, this Preacher, whom all the simple *Calvinists* would take without doubt for a very zealous Catholick, or for the most impertinent of all Men, is, as they have said already, St. *Cyril*, Patriarch of *Jerusalem*, and these Expressions which they would judge Catholick or Extravagant, are the proper Words of that Saint, and not only of that Saint, but of all the Fathers. It is the

common

common Language of all Antiquity; it is the Manner of teaching the Simple what they ought to believe of the *Eucharist*.

Aubertin objects to all this, that it is not at all ridiculous, to give to the Passages of the antient Fathers, which are supposed to mark a real Presence, the metaphorical Sense which the *Calvinists* give to it, and endeavours to invalidate the Expressions employ'd by the Catholicks to prove the real Presence, by others which are metaphorical; as when it is said that Men are changed into Beasts by Avarice; that the Grace of Baptism changes us into a divine Nature; that Men will be changed into Angels by Death, *&c.*

To this the Catholicks reply, that among all these Examples, *Aubertin* does not propose one, where it is said, that a Sign of Institution is changed into the Thing signified, to shew only that it is made the Sign thereof; which is properly the Species in Question, since the Protestants want to make them believe, that the Bread is changed into the Body of *Jesus Christ*, that signifies, that it becomes the sacred Sign of the Body of *Jesus Christ*. Therefore, the Catholicks pretend, that there is no Need but of common Sense to discover the strange Disproportion of all those Expressions, *Aubertin* compares together. Since the Expressions of the Fathers on the *Eucharist* are such, that they cannot be taken in a metaphorical Sense, according to all the Rules whereby Men distinguish the Metaphors from simple Terms; when as the Examples proposed by *Aubertin*, contain but Expressions which ought to be taken for metaphorical, according to all those same Rules; for they are rare Metaphors, and which were easily reduced to the natural Sense, by the distinct Idea Men had formed of the Truth, on the simple Expressions, which were much more frequent. That those Metaphors are not continued. That they are explain'd Metaphors. Metaphors not proved. Intelligible Metaphors to all those one spoke to. Metaphors to which they were inclinable by the common Use of the human Language. And lastly, Metaphors which have nothing extroordinary, nor unreasonable, nor surprising.

The Catholicks give for Proof of this wide Difference between those Expressions represented by *Aubertin*, as semblable. That the Expressions used by them for the real Presence, have so much the Appearance of simple and natural Expressions, that they have been taken so by the whole Church, according to the Ministers themselves, for five hundred Years successively: When as those they propose as semblable to them, have never been explained by any Body, otherwise than in a metaphorical Sense; no Body, for Example, have ever imagined that Men are really converted into Brutes, by Avarice; though St. *Peter Chrysologus* has said it; nor that Baptism changes truly Men into God, though another Father has spoke in that Manner. So that they must say, that the one have deceived the whole Earth, and the others have never deceived any Body. Which is the most sensible Mark of the greatest Difference which can be imagined.

The Protestants object again, that it is not a Question of the Suppression of a Truth which we have desisted from believing, but of the Introduction of an Error, which was not believed before; not of the Extinction of the Faith, but of a vicious Augmentation, which has been made to the Faith. The Truth believed is, that the *Eucharist* is a Sacrament, that is to say, a sacred Sign of the dead Body and of the Blood spill'd of *Jesus Christ*. That *that* Truth has always been, and is still believed in the *Roman* Church: But that the new Error is, that the Sign of the Body of *Jesus Christ*, is substantially the Body itself of *Jesus Christ*.

The *Roman* Catholicks answer, that this whole Discourse destroys itself; because, they say, that they have proved already, that the Faithful had necessarily a distinct Belief of the real Presence, or of the real Absence. That if they have believed the real Presence, nothing new has been introduced, since what is believed at present, has always been believed. And if the real Absence has been believed, the contrary Belief could not have been introduced, but by the Suppression of a Truth which was believed. That distinct Belief of the real Absence of *Jesus Christ*, should have been formally banished, to substitute to it that of the real Presence; one had been obliged to desist from believing what he believed, and begin to believe what he did not believe. It was believed that *Christ* was absent from the Earth, and one had began to believe that he was not absent from the Earth. It was believed that he was but in Heaven, and we had been obliged to believe that it was false, that he was but in Heaven. It was believed that what was received in the Communion was not the proper Body of *Jesus Christ*, and one had began to believe that it was the proper Body of *Jesus Christ*: So that to use the same Terms of the Protestants, *it had been necessary to condemn one's own first Thoughts, and one's own first Actions, which is, in some Measure, renouncing one's self.* And to that Renunciation, should have been joined the Condemnation of the whole Earth, which had necessarily been accused of Impiety; because she did not acknowledge, nor adore *Jesus Christ* where he is; and that is what the Protestants confess cannot be done, without Noise, Violence and Convulsions, which cannot be insensible.

The Catholicks pretend, besides, that the Protestants do not understand that there is an extreme Difference between Explication of the Faith, and Confirmation of the Faith. They call Explication of the Faith, when it is made to pass from a confuse Idea, to a clear and unfolded one. And that in these Sorts of Explanations, though it be the same Thing in the Bottom, nevertheless the Ideas whereby it is known are different, one being confuse and dark, and the other clear and unfolded.

They call Confirmation of the Faith, when, without adding any Explanation to it, what was always believ'd, is only more positively confirm'd.

They say farther, that it is false that any Thing has been added in the *Roman* Church, to the Faith of the *Eucharist*, as to the Substance by Way of Explanation. That it was always believed in that Church, that *Jesus Christ* was present there, and the *Eucharist* was the Body of *Jesus Christ*; and that those Words form the same Idea in our Mind, as those us'd at present. That to be present, to be present really, to be present substantially, are absolutely the same Thing; because a metaphorical Presence, is not a Presence, but rather a true Absence; and thus it is in no Manner included in the simple Idea which those Words imprint in our Mind; so that when but a metaphorical Presence is to be conceived, the simple Idea of Presence, must be banished to substitute to it, that of Sign, or of Operation, or of some other which rather includes the Idea of Absence than of Presence. That the sole Difference then, which is between those Expressions of the antient Church: *The* Eucharist *is the Body of* Jesus Christ, and that of the *Roman* Church, *The* Eucharist *is really and substantially the Body of* Jesus Christ; it is not that the one are more explain'd than the other, but it is only that the last are more affirmed than the first: For when it is said that the Body of *Jesus Christ* is really and substantially in the *Eucharist*, a Reflection of the Mind is added to it, which confirms in a stronger Manner, the Truth of what is said.

Therefore, conclude they, all those pretended Additions and Explications, which the Protestants suppose have been made to the Faith, are Chimera's without Foundation, which they advance without Proofs and without Reason, and which the Catholicks have destroy'd by Reason, and very convincing Proofs.

But Protestants say, in their Turn, that it must be observed, that when an Error begins to make any Noise in the World, no Body thinks yet formally to reject it; for this Reason, that possible Errors being infinite, if our Thought was obliged to reject them actually, even before they have appear'd, Man's Mind would be certainly absorb'd. And hence happens, that

that when an Error appears and forwards itself, it finds Men asleep with Respect to it, so that it is not very difficult for it, either to enter into the Church unperceived, or if it be perceived, to be left to pass unmolested. That thus the Error of Transubstantiation, and of the real Presence, has been introduced softly, and by Degrees, because it was not known, no Body was afraid of it, because no Body had yet felt its dangerous Effects.

The Catholicks reply, that this Reasoning is without Solidity, when it is a Question of an Opinion formally opposed to a distinct and positive Belief, spread in the whole Church, and not only in all the Pastors, but likewise in the most simple of all the Faithful; for it can be said, that with Regard to those Errors, Men do not sleep, nor can sleep; because the distinct Opinion they have of the Truth, keep them in a continual Vigilancy against the Errors which are formally opposite to it. But they have proved, say they, that the Faithful must have had a distinct Belief of the real Presence, or of the real Absence; and consequently, they have always been in a State of Vigilancy, against the one and the other of those two Opinions. It has appeared in the eleventh Century (continue they) that the distinct Belief the whole Church had of the real Presence, as *Aubertin* himself is forc'd to confess it, has not kept her asleep, against the Introduction of the real Absence, attempted by *Berengarius*. All the Pastors have presently been alarm'd at it, and have condemned that Error in its Infancy, by several Councils. The positive and distinct Belief of the real Absence, had produced the same Effects against those who had wanted to introduce a real Presence, if the Church had not always believed it.

This Doctrine of the real Presence, and of the Transubstantiation, the Catholicks pretend, is also that of all the Sects separated from the *Roman* Church, and especially of the *Greeks*; and that it has always been so, notwithstanding what Mr. *Smith*, a Protestant of the Church of *England*, who had travelled in the *Levant*, says, in a Letter he had composed on the present State of the *Greek* Church, that the Word μετουσιωσις, which is the same as the *Latin* Term *Transubstantiatio*, was invented to authorise a new Dogma; that *Gabriel*, Archbishop of *Philadelphia*, is the first, or one of the first who has used it; that his having lived a long while at *Venice*, and having filled his Mind with the scholastical Theology, and having been gain'd by the Cunning and Frauds of those of the *Roman* Church, had established by a new Word, what *Jeremiah*, Patriarch of *Constantinople*, and by whom he had been consecrated Bishop, had entirely been ignorant of. He adds farther, that ever since *Gabriel* of *Philadelphia*, it is not seen that the Word μετουσιωσις had been much in Use in the Books of the other *Greek* Writers; that the Synods held against *Cyril Lucar*, have abstain'd from it; that the same Word is unknown to the antient Fathers; that it is not found either in the Liturgies or the Symbols; lastly, that the Belief of the Transubstantiation, far from being received among the *Greeks*, the contrary is evidently proved by their Liturgy, where the Symbols of the Bread and Wine, even after they have been consecrated, and called the Body and Blood of *Jesus Christ*, are called at the same Time, *Anti-types of the Body and Blood of* Christ, τα αντιτυπα του αγιου σωματος καὶ αιματος του Χριστου. *Greek* Liturg.

To this the Catholicks say, that it is not true that *Gabriel* of *Philadelphia*, is the Author of the Word Μετουσιωσις, among the *Greeks*. That *Gennadius*, who has wrote above a hundred Years before that Archbishop, and has been the first Patriarch of *Constantinople*, after the Taking of that City by the *Turks*, uses indifferently the Words μεταβολη and μετουσιωσις; explaining, besides, how that marvellous Change can happen. Ειναι συμβεβηκοτα του αρτου χωρις της ουσιας του αρτου καὶ την αληθινην ουσιαν του σωματος κρυπτεσθαι εν συμβεβηκοσιν αλλης ουσιας, i. e. *None but the Accidents of the Bread remain, without the Substance of the same Bread; and the true Substance of the Body of* Jesus Christ, *is hidden under the Accidents of another Substance.* This Testimony of *Gennadius*, is taken from a Manuscript of *Meletius Sirigus*, found in the King of *France*'s Library. That it is true that *Jeremiah*, who consecrated *Gabriel*, uses the Word μεταβολη, because it is *Greek*, and that μετουσιωσις is not *Greek*; avoiding thereby to use a Word unknown to the Antients; but that notwithstanding he lets us know, that by μεταβολη, he understands the same Thing as μετουσιωσις, or Transubstantiation of the *Latins*. That the Theologians of *Wittemberg*, who have as great an Aversion to Transubstantiation as the *English* Protestants, in their Answer to that Patriarch, acknowledge for synonimous, in the Question between him and them, the Terms μεταβαλλεσθαι, *be changed*; and μετουσιουσθαι, *be transubstantiated*. *Jeremiah* had wrote to them, that δοξα ζειην η καθολικη εκκλησια οτι μετα ταγιασμεν ο μεν αρτος μεταβαλλεσθαι εις αυτο το σωμα του Χριστου ο δε οινος εις το αιμα δια πνευματος αγιου. i. e. *That according to the Belief of the Catholick Church, the Bread and Wine after the Consecration, were changed by the Holy Ghost into the Body and Blood of* Jesus Christ. *Jerm. Pat. in respons. ad Wittem.* To which those of *Wittemberg* answer'd, το δε του κυριου σωμα, καὶ το αιμα ουτως παρειναι τω κυριακω δειπνω πιστευομεν ο μεντοι τ' αρτου μεταβαλλεσθαι εις το του Χριστου σωμα υπολαμβανομεν. i. e. *They believed that the Body and Blood of* Jesus Christ *were truly in the* Eucharist; *but that they did not believe that the Bread was changed into the Body of Christ.* They employ'd no other Term in their Answer to express the Transubstantiation of the *Latins*, than the *Greek* Verb, μεταβαλλεσθαι, the Patriarch himself had used. Lastly, that *Jeremiah*, after he had read the Reply of the Theologians of *Wittemberg*, makes them again this Answer; αρτος γινεται σωμα Χριστου καὶ ο οινος καὶ το υδωρ αιμα Χριστου επιφοιθησει, του αγιου πνευματος μεταποιουντος αυτα υπερ λογον καὶ εννοιαν. i. e. *That the Bread becomes the Body of Christ, and the Wine and Water his Blood, by Means of the Holy Ghost who changes them; and that* that *Change is above human Reason.*

As to what is said, that ever since *Gabriel* the Word μετουσιωσις is seldom found in the Books of the other *Greek* Writers, nor even in their Synods held against *Cyril Lucar*. The Catholicks answer, that there was printed at *Venice*, in 1635, a small Abridgment of the Theology of the *Greeks*, in Form of Catechism, where not only the Word μετουσιωσις is found; but likewise the Manner in which the Transubstantiation is made, is declared at length. That Author, relating the Difference between the *Eucharist* and the other Sacraments, says, that the other Sacraments contain only the Grace, whereas, εις τουτο το μυστηριον ειναι ο Χριστος καθα παρουσιαν καὶ δια τουτο λεγουσι τουτο το μεταβαλλομενον μετουσιωσιν. i. e. that the *Eucharist* contains *Jesus Christ* present, and for that Reason the Change made in that Sacrament is call'd μετουσιωσις, or *Transubstantiation*. The Author of this Catechism is call'd *Gregory*, resided at *Chio*, and takes the Quality of *Protosyncelle* of the great Church.

Besides this Book, continue they, there was another far more considerable, composed in 1638 by *Meletius Syrigus*, against the Confession of Faith of *Cyril Lucar*, Patriarch of *Constantinople*, printed at *Geneva*, first in *Latin*, and afterwards in *Greek* and *Latin*. The Title of the Writing which has not been printed, is conceived in these Terms: Μελετιου Συριγου ιερομοναχου αντιρρησις προς την εκδοθεισαν ομολογιαν της Χριστιανικης πιστεως υπο του Κωνσταντινουπολεως Κυριλλου επιγραφεισαν καὶ ενομαζει τ' Χριστιανων απαντων της ανατολικης εκκλησιας. They say, that the Author refutes strongly that pretended Confession of the Oriental Church by a great Number of Proofs extracted from the Fathers, and other ecclesiastical Writers, to his Time; and shews evidently, that *Cyril*'s Confession has been extracted from the Works of *Calvin*. Then at the End of his Book he adds a particular Dissertation on the Word μετουσιωσις, or Transubstantiation; and shews by several Examples, that though that Word was not used antiently, it may be us'd at present because of the Hereticks.

common Language of all Antiquity; it is the Manner of teaching the Simple what they ought to believe of the *Eucharist*.

Aubertin objects to all this, that it is not at all ridiculous, to give to the Passages of the antient Fathers, which are supposed to mark a real Presence, the metaphorical Sense which the *Calvinists* give to it, and endeavours to invalidate the Expressions employ'd by the Catholicks to prove the real Presence, by others which are metaphorical; as when it is said that Men are changed into Beasts by Avarice; that the Grace of Baptism changes us into a divine Nature; that Men will be changed into Angels by Death, *&c.*

To this the Catholicks reply, that among all these Examples, *Aubertin* does not propose one, where it is said, that a Sign of Institution is changed into the Thing signified, to shew only that it is made the Sign thereof; which is properly the Species in Question, since the Protestants want to make them believe, that the Bread is changed into the Body of *Jesus Christ*, that signifies, that it becomes the sacred Sign of the Body of *Jesus Christ*. Therefore, the Catholicks pretend, that there is no Need but of common Sense to discover the strange Disproportion of all those Expressions, *Aubertin* compares together. Since the Expressions of the Fathers on the *Eucharist* are such, that they cannot be taken in a metaphorical Sense, according to all the Rules whereby Men distinguish the Metaphors from simple Terms; when as the Examples proposed by *Aubertin*, contain but Expressions which ought to be taken for metaphorical, according to all those same Rules; for they are rare Metaphors, and which were easily reduced to the natural Sense, by the distinct Idea Men had formed of the Truth, on the simple Expressions, which were much more frequent. That those Metaphors are not continued. That they are explain'd Metaphors. Metaphors not proved. Intelligible Metaphors to all those one spoke to. Metaphors to which they were inclinable by the common Use of the human Language. And lastly, Metaphors which have nothing extroardinary, nor unreasonable, nor surprising.

The Catholicks give for Proof of this wide Difference between those Expressions represented by *Aubertin*, as semblable. That the Expressions used by them for the real Presence, have so much the Appearance of simple and natural Expressions, that they have been taken so by the whole Church, according to the Ministers themselves, for five hundred Years successively: When as those they propose as semblable to them, have never been explained by any Body, otherwise than in a metaphorical Sense; no Body, for Example, have ever imagined that Men are really converted into Brutes, by Avarice; though St. *Peter Chrysologus* has said it; nor that Baptism changes truly Men into God, though another Father has spoke in that Manner. So that they must say, that the one have deceived the whole Earth, and the others have never deceived any Body. Which is the most sensible Mark of the greatest Difference which can be imagined.

The Protestants object again, that it is not a Question of the Suppression of a Truth which we have desisted from believing, but of the Introduction of an Error, which was not believed before; not of the Extinction of the Faith, but of a vicious Augmentation, which has been made to the Faith. The Truth believed is, that the *Eucharist* is a Sacrament, that is to say, a sacred Sign of the dead Body and of the Blood spill'd of *Jesus Christ*. That *that* Truth has always been, and is still believed in the *Roman* Church: But that the new Error is, that the Sign of the Body of *Jesus Christ*, is substantially the Body itself of *Jesus Christ*.

The *Roman* Catholicks answer, that this whole Discourse destroys itself; because, they say, that they have proved already, that the Faithful had necessarily a distinct Belief of the real Presence, or of the real Absence. That if they have believed the real Presence, nothing new has been introduced, since what is believed at present, has always been believed. And if the real Absence has been believed, the contrary Belief could not have been introduced, but by the Suppression of a Truth which was believed. That distinct Belief of the real Absence of *Jesus Christ*, should have been formally banished, to substitute to it that of the real Presence; one had been obliged to desist from believing what he believed, and begin to believe what he did not believe. It was believed that *Christ* was absent from the Earth, and one had began to believe that he was not absent from the Earth. It was believed that he was but in Heaven, and we had been obliged to believe that it was false, that he was but in Heaven. It was believed that what was received in the Communion was not the proper Body of *Jesus Christ*, and one had began to believe that it was the proper Body of *Jesus Christ*: So that to use the same Terms of the Protestants, *it had been necessary to condemn one's own first Thoughts, and one's own first Actions, which is, in some Measure, renouncing one's self.* And to that Renunciation, should have been joined the Condemnation of the whole Earth, which had necessarily been accused of Impiety; because she did not acknowledge, nor adore *Jesus Christ* where he is; and that is what the Protestants confess cannot be done, without Noise, Violence and Convulsions, which cannot be insensible.

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that when an Error appears and forwards itself, it finds Men asleep with Respect to it, so that it is not very difficult for it, either to enter into the Church unperceived, or if it be perceived, to be left to pass unmolested. That thus the Error of Transubstantiation, and of the real Presence, has been introduced softly, and by Degrees, because it was not known, no Body was afraid of it, because no Body had yet felt its dangerous Effects.

The Catholicks reply, that this Reasoning is without Solidity, when it is a Question of an Opinion formally opposed to a distinct and positive Belief, spread in the whole Church, and not only in all the Pastors, but likewise in the most simple of all the Faithful; for it can be said, that with Regard to those Errors, Men do not sleep, nor can sleep; because the distinct Opinion they have of the Truth, keep them in a continual Vigilancy against the Errors which are formally opposite to it. But they have proved, say they, that the Faithful must have had a distinct Belief of the real Presence, or of the real Absence; and consequently, they have always been in a State of Vigilancy, against the one and the other of those two Opinions. It has appeared in the eleventh Century (continue they) that the distinct Belief the whole Church had of the real Presence, as *Aubertin* himself is forc'd to confess it, has not kept her asleep, against the Introduction of the real Absence, attempted by *Berengarius*. All the Pastors have presently been alarm'd at it, and have condemned that Error in its Infancy, by several Councils. The positive and distinct Belief of the real Absence, had produced the same Effects against those who had wanted to introduce a real Presence, if the Church had not always believed it.

This Doctrine of the real Presence, and of the Transubstantiation, the Catholicks pretend, is also that of all the Sects separated from the *Roman* Church, and especially of the *Greeks*; and that it has always been so, notwithstanding what Mr. *Smith*, a Protestant of the Church of *England*, who had travelled in the *Levant*, says, in a Letter he had composed on the present State of the *Greek* Church, that the Word μεταβασιωσις, which is the same as the *Latin* Term *Transubstantiatio*, was invented to authorise a new Dogma; that *Gabriel*, Archbishop of *Philadelphia*, is the first, or one of the first who has used it; that his having lived a long while at *Venice*, and having filled his Mind with the scholastical Theology, and having been gain'd by the Cunning and Frauds of those of the *Roman* Church, had established by a new Word, what *Jeremiah*, Patriarch of *Constantinople*, and by whom he had been consecrated Bishop, had entirely been ignorant of. He adds farther, that ever since *Gabriel* of *Philadelphia*, it is not seen that the Word μεταβασιωσις had been much in Use in the Books of the other *Greek* Writers; that the Synods held against *Cyril Lucar*, have abstain'd from it; that the same Word is unknown to the antient Fathers; that it is not found either in the Liturgies or the Symbols; lastly, that the Belief of the Transubstantiation, far from being received among the *Greeks*, the contrary is evidently proved by their Liturgy, where the Symbols of the Bread and Wine, even after they have been consecrated, and called the Body and Blood of *Jesus Christ*, are called at the same Time, *Anti-types of the Body and Blood of* Christ, τα αντιτυπα του αγιου σωματος και αιματος του Χριστου. *Greek* Liturg.

To this the Catholicks say, that it is not true that *Gabriel* of *Philadelphia*, is the Author of the Word Μεταβασιωσις, among the *Greeks*. That *Gennadius*, who has wrote above a hundred Years before that Archbishop, and has been the first Patriarch of *Constantinople*, after the Taking of that City by the *Turks*, uses indifferently the Words μεταβολη and μεταβασιωσις; explaining, besides, how that marvellous Change can happen. Ειναι συμβεβηκοτα του αρτου χωρις της ουσιας του αρτου και την αληθινην ουσιαν του σωματος κρυπτεσθαι εν συμβεβηκοτιν αλλης ουσιας, i. e. *None but the Accidents of the Bread remain, without the Substance of the same Bread; and the true Substance of the Body of* Jesus Christ, *is hidden under the Accidents of another Substance.* This Testimony of *Gennadius*, is taken from a Manuscript of *Meletius Sirigus*, found in the King of *France*'s Library. That it is true that *Jeremiah*, who consecrated *Gabriel*, uses the Word μεταβολη, because it is *Greek*, and that μεταβασιωσις is not *Greek*; avoiding thereby to use a Word unknown to the Antients; but that notwithstanding he lets us know, that by μεταβολη, he understands the same Thing as μεταβασιωσις, or Transubstantiation of the *Latins*. That the Theologians of *Wittemberg*, who have as great an Aversion to Transubstantiation as the *English* Protestants, in their Answer to that Patriarch, acknowledge for synonimous, in the Question between him and them, the Terms μεταβαλλεσθαι, *be changed*; and μεταβασιωσθαι, *be transubstantiated*. *Jeremiah* had wrote to them, that δοξα ζειην η καθολικη εκκλησια οτι μετα τον αγιασμον ο μεν αρτος μεταβαλλεσθαι εις αυτο το σωμα του Χριστου ο δε οινος εις το το αιμα δια πνευματος αγιου. i. e. *That according to the Belief of the Catholick Church, the Bread and Wine after the Consecration, were changed by the Holy Ghost into the Body and Blood of* Jesus Christ. *Jerm. Pat. in respons. ad Wittem.* To which those of *Wittemberg* answer'd, το δε του κυριου σωμα, και το αιμα ουτως παρειναι τω κυριακω δειπνω πιστευομεν και μεντοι τ' αρτον μεταβαλλεσθαι εις το του Χριστου σωμα υπολαμβανομεν. i. e. *They believed that the Body and Blood of* Jesus Christ *were truly in the* Eucharist; *but that they did not believe that the Bread was changed into the Body of Christ.* They employ'd no other Term in their Answer to express the Transubstantiation of the *Latins*, than the *Greek* Verb, μεταβαλλεσθαι, the Patriarch himself had used. Lastly, that *Jeremiah*, after he had read the Reply of the Theologians of *Wittemberg*, makes them again this Answer; αρτος γινεται σωμα Χριστου και ο οινος και το υδωρ αιμα Χριστου επιφοιθησει, του αγιου πνευματος μεταποιουντος αυτα υπερ λογον και εννοιαν. i. e. *That the Bread becomes the Body of Christ, and the Wine and Water his Blood, by Means of the Holy Ghost who changes them; and that* that *Change is above human Reason.*

As to what is said, that ever since *Gabriel* the Word μεταβασιωσις is seldom found in the Books of the other *Greek* Writers, nor even in their Synods held against *Cyril Lucar*. The Catholicks answer, that there was printed at *Venice*, in 1635, a small Abridgment of the Theology of the *Greeks*, in Form of Catechism, where not only the Word μεταβασιωσις is found; but likewise the Manner in which the Transubstantiation is made, is declared at length. That Author, relating the Difference between the *Eucharist* and the other Sacraments, says, that the other Sacraments contain only the Grace, whereas, εις τουτο το μυστηριον ειναι ο Χριστος καθα παρουσιαν και δια τουτο λεγοισι τουτο το μεταβαλσιμον μεταβασιωσιν. i. e. that the *Eucharist* contains *Jesus Christ* present, and for that Reason the Change made in that Sacrament is call'd μεταβασιωσις, or *Transubstantiation*. The Author of this Catechism is call'd *Gregory*, resided at *Chio*, and takes the Quality of *Protosyncelle* of the great Church.

Besides this Book, continue they, there was another far more considerable, composed in 1638 by *Meletius Syrigus*, against the Confession of Faith of *Cyril Lucar*, Patriarch of *Constantinople*, printed at *Geneva*, first in *Latin*, and afterwards in *Greek* and *Latin*. The Title of the Writing which has not been printed, is conceived in these Terms: Μελετιου Συριγου ιερομοναχου αντιρρησις προς την εκδοθεισαν ομολογιαν της Χριστιανικης πιστεως υπο του Κωνσταντινουπολεως Κυριλλου επιγραφεισαν και ενομαζει τ' Χριστιανων απαντων της ανατολικης εκκλησιας. They say, that the Author refutes strongly that pretended Confession of the Oriental Church by a great Number of Proofs extracted from the Fathers, and other ecclesiastical Writers, to his Time; and shews evidently, that *Cyril*'s Confession has been extracted from the Works of *Calvin*. Then at the End of his Book he adds a particular Dissertation on the Word μεταβασιωσις, or Transubstantiation; and shews by several Examples, that though that Word was not used antiently, it may be us'd at present because of the Hereticks.

The Catholicks ſay, that they have, beſides, in the vulgar *Greek*, two Editions of the Book of *Agapius*, Monk of the Mount *Athos*; the firſt whereof is of the Year 1641, and the ſecond of the Year 1664, at *Venice*, under the Title of αμαρτωλων σωτηρια, the *Salvation of Sinners*. That tho' that Author preſerves the antient Words μετατρεπειν, μετοποιειν, he notwithſtanding eſtabliſhes in formal Terms the Belief of the Tranſubſtantiation, and acknowledges that *Jeſus Chriſt has hidden, as under a Veil, his divine Subſtance, under the Accidents of the Bread and Wine.* Εσκεπασετην Θειαν αυτου και υπερλαμπρον ουσιαν μετα συμβεβεκοτα και ειδη ταυτα αρτου και οινου.

They alſo join to the Monk *Agapius*, *Michael Cortacius* of *Creta*, in a Sermon which he pronounced publickly, and dedicated to the Patriarch of *Alexandria*. That Sermon was printed at *Venice* in 1642, under the Title Ομιλια, or λογος επιδεικτικος περι του αξιωματος της ιερωσυνης, *Diſcourſe on the Dignity of the Sacerdoce.* They ſay that *Cortacius* compares in that Diſcourſe the Prieſts with God; and ſays, among other Things, that as *God has changed Water into Wine, likewiſe the Prieſts tranſubſtantiate the Wine into the Blood of Chriſt.* Θεος το υδωρ οινον εκαμε και ο ειρευς το οινον εις αιμα του Χριστου μετουσιων. That he diſclaims, beſides, againſt the new Hereticks, who do not believe the Truth of that Myſtery; and to deſcribe them better, calls *Luther*, *impious*, *abominable Heretick*, *and Apoſtate*, *who has ſeduced by his bad Doctrine an Infinity of Perſons*; μιαρος και ασεβεστατος αιρεσιαρχης Λουτερος, ο οποιος με διδασκαλιαν οχι αποστολικην αλλα αποστατικην πολλους επλανησε.

Whence they conclude, that they cannot believe that Mr. *Smith* will maintain ſtill, after ſo many Teſtimonies to the contrary, that there are but few Authors who have uſed the Word μετουσιωσις, after the Example of *Gabriel* of *Philadelphia*; and that, on the contrary, they have a greater Reaſon to ſay, that there have been but very few who have not uſed it ever ſince.

But Mr. *Smith* ſays, that the two Synods held at *Conſtantinople* againſt *Cyril Lucar*, make no Mention of the Word μετουσιωσις; whence he infers, that they have abſtained from it, not to appear to favour a Novelty.

The Catholicks, on their Side, ſay, that this Objection of Mr. *Smith* is without the leaſt Foundation. That it was a Queſtion in thoſe two Synods to condemn the heretical Propoſitions advanced by *Cyril*, under the Name of the Oriental Church; and as he had uſed, in his pretended Confeſſion of Faith, the Word μετουσιωσις, or *Tranſubſtantiation*, which, he ſays, had been invented by the *Latins*, thoſe two Synods have contented themſelves with anathematiſing the Propoſitions of *Cyril*, without uſing his own Terms. Theſe are the Words of the firſt Synod, held under *Cyril* of *Barrhea*, in 1638. *Anathema to* Cyril, *who teaches and believes, that the Bread which is on the Altar of the Prothesis, and likewiſe the Wine, are not changed into the true Body and Blood of Chriſt, by the Bleſſing of the Prieſts, and the coming down of the Holy Ghoſt.* Αναθεμα Κυριλλω δοξαζει ξουλι μη μεταβαλλεσθαι τον επι της προθεσεως αρτον και ετι τ' οινον δια της του ιερεως ευλογιας και πνευματος αγιου επι ποιησεως εις αληθες σωμα και αιμα Χριστου. This alone, conclude they, is a convincing Proof, that the Verb μεταβαλλεσθαι, is the ſame Thing among the *Greeks*, as the new Term μετουσιουσθαι, which anſwers to the Latin *tranſubſtantiari*, ſince *Cyril* having uſed this laſt, in denying the Tranſubſtantiation, they oppoſe in the Condemnation of his Propoſition, that of μεταβαλλεσθαι. Beſides, that the Biſhops of that Synod ſhew evidently which is their Belief with regard to that Myſtery, when they anathematiſe in the ſame Place this Propoſition of *Cyril*, extracted from the 17th Article of his Confeſſion, *what is ſeen with the Eyes, and receiv'd in the Sacrament, is not the Body of the Lord.*

The Catholicks ſay farther, that the ſecond Council held at *Conſtantinople*, under *Parthenius*, in 1642, againſt *Cyril Lucar*, confirms the Belief of the *Latin* Church with the ſame Evidence as the firſt did. That it condemns *Cyril* for having advanced, with the *Calviniſts*, *that the divine* Euchariſt *was nothing elſe but a pure and ſimple Figure.* That the Biſhops aſſembled in that Synod oppoſe to it, *that* Jeſus Chriſt *has not ſaid, this is the Figure of my Body; but this is my Body*; viz. *what is received, what is eaten, what is broken; what has been already ſanctified and bleſſed.* Ιησους ουκ εφησε τουτο εστιν τυπος του σωματος μου αλλα τουτο εστι το σωμα μου ορμενον και λαμβανομενον, και εσθιομενον αγιασθεν ηδη και ευλογηθεν.

To the other Objection of Mr. *Smith*, that the Word μετουσιωσις, is found neither in the Liturgy nor in the Symbols; and that even in the Liturgy the Bread and Wine are call'd Antitypes after the Conſecration, which ſeems to exclude the Tranſubſtantiation: The Catholicks anſwer, that nothing can be weaker than that negative Argument, which from a ſingle Word concludes a poſitive Thing. That if they would oblige the Proteſtants to abide by their own Principle, which is the Scripture alone, or even to the antient Symbols, they would be much embarraſſed. To ſhew better the Miſtake of that Reaſoning, they will make uſe of no other Author againſt it, ſay they, but of *Calvin* himſelf; who in his Inſtitution, where he refutes the Hereſy of *Servetus* concerning the Trinity of Perſons in God, advances this fine Maxim, that it is lawful to invent new Terms, to explain the Things in a clearer Manner, particularly when one's engaged with Calumniators, who lay hold of Terms to embarraſs the Queſtion. *Quid vetat, quo minus quæ captui noſtro perplexa, in Scripturis, impeditaque ſunt, ea verbis plenioribus explicemus.—Hujuſmodi autem verborum novitas, tum potiſſimum uſu venit, dum adverſus calumniatores aſſerenda eſt veritas, qui tergiverſando ipſam eludunt.* He adds, that it is in this Manner, that the Church has been obliged to invent the Name of *Trinity* and *Perſon*. It is to be feared, ſays *Calvin*, one ſhould be accuſed of Pride and Preſumption, in wanting to reject Names which have not been invented with Temerity. *Quando temere non inventa ſunt nomina, cavendum eſt, ne ea repudiendo, ſuperbæ temeritatiſve arguamur.* The Impiety appear'd firſt, continues the ſame Author, when the *Arians* began to hate and abhor the Word Conſubſtantial. Which Maxims of *Calvin*, the Catholicks apply, in their Favour, to the Subject in Queſtion. The Church, either *Greek* or *Latin*, had no need to authoriſe new Terms with regard to the *Euchariſt*, while no Body attacked the Truth of that Myſtery. The *Latin* Church was the firſt which made uſe of it, and even the only one, for ſeveral Centuries, becauſe ſhe had *Berengarius* to encounter with; the Oriental Church was not obliged to uſe that Term, or any other like it, becauſe they had no *Berengarians* among them; but ever ſince the Knowledge of thoſe Novators has reached the Eaſt, and they have ſeen that the Word *Tranſubſtantiatio*, invented by the *Latins*, could explain as happily the Change which happens in the *Euchariſt*, as their ομουσιος, explain'd the Conſubſtantiality of the Son with God his Father, they have judg'd proper to uſe it, and ſtill oftner, ever ſince the Troubles excited by *Cyril Lucar* in the *Greek* Church. That is, conclude they, in their Opinion the ſimple and natural Reaſon, of that Omiſſion of the Word μετουσιωσις, in the antient Books of the *Greeks*.

To the laſt Objection of Mr. *Smith*, that the Symbols of the Bread and Wine are called Antitypes, even after the Conſecration, in the *Greek* Liturgy, and conſequently that the *Greeks* are very far, in that, from the Belief of the *Latins*; the Catholicks anſwer, that Mr. *Smith* appears very little verſed in the Theology of the *Greeks*, when he ſays, in general, that the *Greeks* call the Symbols, Antitypes after the Conſecration; ſince there is no *Greek* at preſent, and even ever ſince nine hundred Years, of that Sentiment. That it is certain the ſchiſmatical *Greeks* of theſe Days pretend, that the Conſecration is not ended, but after the Prayer called the Invocation of the Holy Ghoſt, which Prayer is inſerted in the Liturgy, after the Words

Words where the sacred Symbols are called Anti-types. That *Marcus* of *Ephesus*, who was the Chief of the Party against the *Latins* in the Council of *Florence*, makes Use of that very Place of the Liturgy, to prove that the Consecration does not consist only in these Words, *This is my Body*, but likewise in the Prayer or Benediction, which the Priest makes afterwards, in invoking the Holy Ghost. That this Defender of the *Greeks*, supports his Sentiment chiefly on that St. *Basil*, in his Liturgy, calls the Symbols *Anti-types*, after the Priest has pronounced these Words, *This is my Body*, whence he concludes, that they are not yet consecrated, since they retain the Name of Anti-types, or of Figure. That the Patriarch *Jeremiah*, in his Answer to the Theologians of *Wittemberg*, speaks likewise of the *Anti-types* in the same Manner, and assures that those who have called the Bread and Wine *Anti-types*, have give that Name but before the Consecration, ειδε ϗ ηνες αντιτυπα τυσωματος ϗ αιματος τυευριυ τ' αρτου ϗ τ' οινου εκαλησαν υ μετα το αγιασθηνας.

They say, besides, that these Authors speak in this, the Language of the other *Greek* Authors, ever since the eighth Century, where that Question was agitated in the second Council of *Nice*. That the Deacon *Epiphanius* declared in that Council, in the Name of all the Bishops, that the Word *Anti-types*, could not be understood otherwise, than in the Liturgy of St. *Basil*, for the Gifts after the Consecration, and that after the Consecration, they were called the Body and Blood of *Jesus Christ*, ωσερ τυ αγιασθηνυ αι εκληθη αντιτυπα μετα δε τον αγιασμον σωματος ϗ αιματος εονται. That ever since all the *Greeks* speak the same Language, and that notwithstanding the Difficulties happened on that Word *Anti-type*, to know if the *Greek* Fathers have applied it to the *Eucharist* after the Consecration, or not, it is certain that those of the antient Doctors of the Church, who have given the Name of *Anti-types* to the Symbols after the Consecration, were not of Opinion, that *that* Word contained in itself any Thing opposite to the Truth of the Body of *Jesus Christ* in the *Eucharist*; and that it can be manifestly proved by the Dispute which was between the *Iconoclastes*, and the Defenders of Images, that there was no Difficulty between them, touching the Body of *Jesus Christ*, which both Parties acknowledge equally to be in the *Eucharist* after the Consecration.

But Mr. *Smith*, who had represented *Gabriel* of *Philadelphia*, as the Author of the Word μετουσιωσις, finding that the Catholicks endeavour to prove, on the Evidence of *Melecius Syrigus*, that the Patriarch *Gennadius*, had used the same Term, a hundred Years before *Gabriel* of *Philadelphia*, assures us, that *Gennadius* could never have wrote, what *Melecius Syrigus* attributes to him, for the following Reasons.

Is it credible, says he, that *Gennadius* had employ'd in his Writings the Word μετουσιωσις, and that so many others who have lived after him, had abstained entirely from it? *Jeremiah*, who was one of his Successors in the See of *Constantinople*, and a learned Man, has, without doubt, seen the Writings of his Predecessor, he has consulted the Archives of his Church, why then, has he not used the same Word, if it was true that *Gennadius* had already used it? It is in vain, continues Mr. *Smith*, that one would pretend to find in the Works of *Germain* of *Constantinople*, and of *John* of *Damascus*, the Word μετουσιωσις, since that of *Transubstantiation*, was not yet known among the *Latins*; neither is it found in the Books of *Nicolas Cabasile*, of *Simeon* of *Thessalonica*, of *Barlaam* of *Manuel Calcas*, and of *Bessarion*.

Mr. *Smith* acknowledges, that *Gennadius* is the same who was called *George Scholarius*, and who appeared inclined to Peace in the Council of *Florence*. He attributes to him the Discourse he made to the Sultan *Mahomet*, touching the principal Articles of the Christian Belief; but he says at the same Time, that the Testimony produced by the Catholicks, is not extracted from that Discourse; though he confesses that the same *Gennadius*, has composed several other Works which have not been rendered publick; but he pretends at the same Time, that *Possevin* and *Allatius*, who have made a careful Collection of the Works of that Patriarch, especially *Allatius*, in a Dissertation intitled *De Georgiis*, had not the least Knowledge of that Piece of *Gennadius*, produced only by a miserable *Greek*, called *Melecius Syrigus*, a great Partisan of the Pope, and who, in all Appearance, had been educated in the College of the *Greeks* at *Rome*. Besides, how can it be possible, that *Cariophilus* had not opposed that Testimony of *Gennadius* to *Gargan*, in his Refutation of the Catechism of that Author? If the Book of *Syrigus* was considerable, why is it kept close, without giving it to the Publick? There is, besides, Room to suspect the Integrity of that Author, who may have put the Name of *Gennadius*, in the Room of some miserable Author; or, perhaps, wanted to give us his own Sentiments under the Name of *Gennadius*; since the Doctrine of the Transubstantiation of the *Latins*, was not yet so well known among the *Greeks* at the Time of *Gennadius*, as it appears in the false Piece published by *Syrigus*; since there are found in it, Terms which are purely of the School, and which were not yet come to the Knowledge of the *Greeks* in that Time.

To this the Catholicks answer, first, that Mr. *Smith* could very well have omitted the Names of *Germain* of *Constantinople*, and of *John* of *Damascus*, since the Word *Transubstantiation*, was not yet in Use among the *Latins*, from whom the *Greeks* have borrowed their Word μετουσιωσις, neither was it necessary to produce the Names of *Nicolas Cabasile*, of *Simeon* of *Thessalonica*, of *Manuel Calcas*, of *Barlaam*, and of *Bessarion*, since the Case in Question does not depend on them, but only on *Gennadius*. That though those Authors do not employ in their Books, the Term μετουσιωσις, they, notwithstanding, acknowledge the Thing signified by that Word. That if the Reasoning of Mr. *Smith*, was concluding, he would prove, likewise, than an Infinity of Authors of the *Roman* Communion, do not believe the *Transubstantiation*, because they do not use that Word, and content themselves with that of Change of Substance, which is the same: So that all these Proofs purely negative of Mr. *Smith*, conclude nothing. That with Regard to *Jeremiah* who succeeded *Gennadius*, not immediately, but after several other Patriarchs, they confess that he has consulted the Archives of the Church of *Constantinople*, but that it was not necessary he should have used the Word μετουσιωσις, as *Gennadius* had done. That it was sufficient to establish manifestly the Thing, in his Answer to the Theologians of *Wittenberg*, without using a Word which could not enter but in a Discourse, where the Expressions are entirely scholastical. That there is even a very great Appearance that the Piece produced by *Syrigus* under *Gennadius*'s Name, was not in the Archives of *Constantinople*, because *Gennadius* had wrote Part of his Letters in a Monastery he had chosen for a Retreat, after he had abdicated the Patriarchate.

Secondly, that if *Possevin* and *Allatius*, who Mr. *Smith* pretends have made a curious Research of the Works of *Gennadius*, make no Mention of this Piece attributed to him by *Syrigus*, it is because those two Authors knew little or nothing of that *Gennadius*, otherwise called *George Scholarius*, being both persuaded that *Scholarius* who has wrote several Things against the *Latins*, has never been Patriarch of *Constantinople*. *Allatius* has composed on that Prejudice, which was false, his Dissertation *De Georgiis*. If he had read the Manuscripts of *Gennadius*, which are in the King of *France*'s Library, or if he had even made the least Reflection on what we have of *Greek* Historians printed, who speak of that Patriarch, he had not fallen into those Errors of Fact. That as to the Jesuit *Possevin*, he has contented himself to indicate in his *Apparatus*, some Manuscripts of *Gennadius*, on the Memoirs which had been furnished to him from some Libraries; and being prejudiced in the same Manner *Leo Allatius* was, he finds Fault that the Patriarch *Gennadius* does not say that the Holy Ghost proceeds from the Father and from

from the Son; which makes him believe that the Discourse of the Patriarch *Gennadius* has been corrupted by the *Greeks*. Notwithstanding, to hear Mr. *Smith* speak, say they again, these two zealous Defenders of the *Roman* Church have had a very great Knowledge of the Works of *Gennadius*.

The Catholicks pretend that what has thus embarrassed the History of *Gennadius*, are, that his Works are marked under different Names. For he is sometimes called *George Scholarius*, Γεωργιος ο Σχολαριος, which is his first and true Name, and sometimes *Gennadius*, Γενναδιος, which is the Name he took when he made himself a Monk, and which he kept after his Promotion to the Patriarchate. He is called sometimes *Gennadius* and *Scholarius*, Monk, Γενναδιος μοναχος ο Σχολαριος, because he has been, in Fact, a Monk, before and after his Patriarchate. Therefore his Works are found with the Title of *Gennadius*, *Scholarius*, *Monk and Patriarch*. Γενναδιος ο Σχολαριος μοναχος ϗ πατριαρχης.

They pretend also, that in the first Part of that Act related by *Melecius Syrigus*, in his Book against *Cyril Lucar*, there are Circumstances which prove manifestly, that it could not be written by any Body else but by *Gennadius*; which they prove by publishing that first Part, thus.—Some Questions had been proposed to that Patriarch, say they, on the *Eucharist*, to which he had already answered; therefore he declares in his second Letter, which they relate after *Syrigus*, that he will answer more at length; for he begins thus: *Having heretofore answer'd to your Questions, on the mystical Body and Blood of our Lord* Jesus Christ, *we answer again more at length.* Επειδη περι τυ μυστηριωδοις Σωματος ϗ αιματος τυ κυριυ η μεν Ιεσυ Χριστυ προχειρως πρωην απεκριναμεθα· προς τον υμετερον ερωτησιν νυν παλιν πλατυτερον αποκρινομεθα. He treats afterwards of the natural Body of *Jesus Christ* and of his mystical Body. But as the only Question in this Place is to know, if that Piece be of *Gennadius* or not; the Catholicks, who are for the affirmative, alledge several Instances to prove it; *viz.* that no Body could say as he has done, *that he had already pronounced a Sermon on the same Subject, the Day of the Parasceve of* Lazarus, *in that unfortunate Palace before the Emperor, the Senate, and the most illustrious Persons of the City.* Και ημεις ποτε εν τω ουστυχει παλατιω ωμιλησαμεν κατα τον παρασκευην τυ Λαζαρυ περι τυ μυστικυ Σωματος τυ δεσπο τυ Χριστυ ενωπιον τυ βασιλεως ϗ της Συκλητυ ϗ των εξαιρετων της πολεως. We learn from the Manuscript Preface found at the Head of his Works, say they, that *George Scholarius* preached every *Friday* in the Palace, in Presence of the whole Court: And when he calls in that same Letter the Palace of the Emperor, an unfortunate Palace, he thereby gives us to understand, that *Constantinople* was then possessed by the *Turks*, and that his Name was then *Gennadius*.

But Mr. *Smith* is of Opinion that this Letter of *Gennadius* is apocryphal, and forged by *Meletius Syrigus*, whom he calls a *Greek* of no Merit, entirely devoted to *Rome*, where he had been educated. The Catholicks, on their Side, endeavour to clear *Syrigus* of those scandalous Aspersions, and pretend that *Meletius*, when he publish'd the Epistle of *Gennadius*, was Protosyncelle and Doctor of the great Church of *Constantinople*; that he was chosen once in a Synod by his Patriarch to go into *Moldavia*, in the Quality of Exarch, or principal Deputy, to examine a Confession of Faith composed by the Clergy of *Russia*, and which was afterwards adopted by all the *Greek* Churches of the East, as their true Belief. That Confession was afterwards printed in *Greek* by the *Dutch*, at the Solicitation of *S. Panagioti*, first Interpreter of the *Porte*. There appears at the Head of that Book a very authentical Approbation, of *Nectarius*, Patriarch of *Jerusalem*, and of all *Palestina*, where he speaks very much in Praise of *Meletius Syrigus*, whom he calls *Doctor of the great Church, Preacher, Interpreter, and the Rule of the true Dogma's of the Faith.* Μελετιος ο Συριγος διδασκαλος της μεγαλης εκκλησιας κηρυξ, ϗ διερμηνευς, ϗ ςαθμη των ορθων της πιστεως δογματων ϗ ιςι, ϗ λεγεται. That far from being of Sentiments different from those of the Eastern Churches, *Nectarius* assures us that *Syrigus* has been educated from his Infancy in the common Belief and Piety. That nothing shews more his Erudition than the excellent Work he has composed against the pretended Confession of Faith of the oriental Church published by *Cyril Lucar*, where in his Epistle to the Readers, which is at the Head of his Book, he complains of the great Disorders the Heresies have caused in the World; and speaks afterwards of the Confession of Faith, which those of *Geneva* had caused to be printed, and had been sent into the *Levant*; which Confession contains, in his Opinion, the pure *Calvinism* under the Name of the Oriental Church; he confesses that he caused much Confusion among the *Greeks*, who thought that *Cyril* was truly the Author thereof; that, notwithstanding several Persons have denied its being his Work, that he dare not pronounce decisively on that Subject; leaving to God the Judgment thereof, who knows what is the most hidden in our Hearts. ημεις δε την περι τυτυ ψηφον σθεω τω τα κρυφια της καρδιας εκαςυ ειδοτι καταλειψαντες, τας αν τιρρησεις ποιωμεθα προς τα Συγγραμματα, ειτε εκεινος ειν ο ταυτα Συντεθικως, ειτε ϗ ετερος.

After this Letter he comes to the Preface of his Book, where he pretends that *Cyril* was in the wrong to call his Confession, *The Religion of the Oriental or* Greek *Church*, since of the four Patriarchs of that Church there is not one who does not condemn it as heretical. The Faith of the Orientals, says he, is not new; but is founded on the antient Symbols, on the Definitions of the seven general Councils, and on the common Belief of the Fathers in every Century.—When he comes to the Article of the *Eucharist* (which is the 17th of his Book) he opposes (say the *Roman* Catholicks) in a very clear Light, the Heresy of the *Calvinists*, whereof *Cyril* had declared himself the Defender, and exposes it strenuously, assuring that *Jesus Christ* is present in the sacred Ministeries, *and eaten there corporally, not only in Spirit by Faith, but that he is offered by the Bread sensibly to those who receive him.* Σωματικως ϗ μηδια πιστεως νοητως, αδια α αδια τυ ςοματυ αισθετως προσφερεσθαι τις αυτου προσιεμενοις. He comes afterwards to the Objections of the *Calvinists*, abstracted from the Scripture, which he refutes in the same Manner, the *Latins* have done it. He employs the rest of his Book to give us a long Sequel of Passages of the Fathers of every Century, from the Time of the Apostles to that of the Patriarch *Gennadius*, who is the last Witness he produces to shew, that the Church has always believed what she believed then of the Sacrament of the *Eucharist*. He quotes for the first Century a Passage of St. *Ignatius*, taken from *Theodoret*, and *Denis* the *Areopagite*; for the second, St. *Justin* the Martyr, and St. *Irenæus*; for the third, *Tertullian*, *Origen*, and St. *Cyprian*, and continues thus through all the other Centuries.

Mr. *Smith* asks, why, if that Work of *Syrigus*, is so considerable, as pretended by the Catholicks, it has been left buried in the Cell of a Monk; and why it has not been printed? The Catholicks answer, that if that Book is unknown to Mr. *Smith*, it does not follow hence that it has remained hidden. That it was publick among the *Greeks* of *Constantinople*, where *Syrigus* made another Figure than that of a Monk; and that if *Meletius Syrigus* had been more favourable to the *Calvinists* he had not been thus maltreated by Mr. *Smith*.

Mr. *Smith* arraigns also, the Merit and Capacity of *Gabriel* of *Philadelphia*, whom he considers as the Inventor of the Word μετουσιωσις. There are so many Inepties in that Writer, says he, that it can be said, without doing him Wrong, that he had no Judgment. *Tot triciæ ineptiæque, ut judicii facultatem, quâ homines maximè sumus, aut nullam, aut prorsus imbecillam omnino fuisse, citra omnem invidiam & odium, quispiam meritò dicat.*

The Catholicks retort Mr. *Smith*'s Argument, by pretending, in their Turn, that himself shews very little

tle Judgment in disclaiming, and loading with Invectives a good Archbishop, who exposes faithfully the Doctrine of his Church, and has even wrote Apologies for it. They say, besides, that if Mr. *Smith* had been pleased to mark in Detail, what displeases him so much in *Gabriel* of *Philadelphia*, they would have shewed him that the very same Things are found in *Simeon* of *Thessalonica*, whom *Gabriel* has often copied, and in other *Greek* Writers, who cannot be accused of Weakness of Mind; that his Apology, where he defends a Ceremony which some *Latins* had condemned of Idolatry, shews sufficiently enough that he wanted neither Wit nor Judgment. But that Work displeases much the Protestants, because he establishes there in an invincible Manner, not only the Transubstantiation, but likewise the Adoration of the Symbols, of the Bread and Wine, after the Consecration; that he supposes it as a Thing in Use, and which was practised generally in the *Greek* Church. That notwithstanding what Mr. *Smith* can alledge against him on that Account, the Praises of that Prelate can be seen in the *Turco Græcia* of *Crusius*, gain'd from the Protestants themselves, who had known him at *Constantinople*, where he had been consecrated Bishop of *Philadelphia*, by the Patriarch *Jeremiah*. That the Author of the Preface, which is at the Beginning of the *Greek* Opuscules, printed in *England* against the *Latins*, and which is addressed to the four Patriarchs of the East, rank *Gabriel* among those zealous Heroes of his Nation, who have wrote against *Rome*, and speak of him in this Manner. Gabriel Severus *of* Monembasia, *established by the Assistance of the Holy Ghost, true Archbishop of* Philadelphia, *and who is the first who has established a Church of Orthodoxes in the Territory of* Venice, ὁ εκ Μονεμβασιας Γαβριηλ ὁ Σεβηρος ὁ χειραγωγια τυ παναγιυ πνευματος αρχιερευς γνησιος Φιλαδελφιας καλας-ας ϗ πρωτος ευ ταις κλιναις ενεδιαις εκκλησιαν των ορθοδοξων πηξαμενος.

Mr. *Smith* objects farther, that none have been produced for Defenders of the Word μεθουσιωσις, but Writers who had neither Reputation, nor Authority among the *Greeks*; Monks, who, in his Opinion, are always great Admirers of Novelties, and had been educated by the Court of *Rome*, for the Ruin of the *Greek* Church, *Scriptores nullius famæ, & existimationis, nullius meriti, nullius apud suos authoritatis, multo minus Monachos* νεοτεριζοντας, *& Romanis artibus pro ratione instituti, & educationis in Græcæ ecclesiæ perniciem instructos, Smith, in Misc. p.* 25. He wants Bishops, and other considerable Persons among the *Greeks*, either for their Erudition, or Dignity; and complains that instead of it, none have been opposed to him, but three miserable modern *Greeks*, who have wrote after the Confession of Faith of *Cyril Lucar*.

To this the *Roman* Catholicks reply, that they do not conceive how Mr. *Smith* can say, but miserable *Greeks*, without Capacity or Character, have been opposed to him. That if it could even be supposed that *Gregory Protosyncelle*, *George Crotessius*, Theologian of the great Church, the Monk *Agapius*, and *Michael Cortacius* were such, as he had been pleased to represent them; they ask if he could have found any Thing to object against those illustrious *Greeks* who have approved in so authentick a Manner, the Book intitled, *Orthodox Confession of the Catholick and Apostolical Church of the East?* Ορθοδοξος ομολογια της καθολικης ϗ αποστολικης εκκλησιας της ανατολιας. There are seen at the Head of that Book (say they) the four Patriarchs of the East, who represent the whole *Greek* Church, with some Bishops, and several great Officers, whose Names are these: *Parthenius*, by the divine Providence, Archbishop of *Constantinople*, the new *Rome*, and œcumenical Patriarch. *Joannicius*, by the divine Providence, Papas, and Patriarch of the great City of *Alexandria*, and Judge of the World. *Macarius*, by the divine Providence, Patriarch of the great Theopolis of *Antioch*. *Paisius*, by the divine Providence, Patriarch of the holy City of *Jerusalem*. After these four Patriarchs follow the Names of some Bishops, who are, *Laurencius*, of *Ancyra*; *Gregory* of *Larissa*; *Pachanius* of *Chalcedon*, *Parthenius* of *Adrianople*, *Joannicius* of *Berrhœa*, *Meletius* of *Rhodes*, *Cornelius* of *Methymne*, *Gabriel* of *Lacedemon*, *Parthenius* of *Chio*. Lastly, to these Bishops are joined *Lascarius*, grand Sagothetes of the great Church; *Chritodulus*, grand Œconomist of the great Church; *Michel*, grand Rhetor of the great Church; and several other *Greeks* of Consideration.

Mr. *Smith* himself quotes this Book, and confesses that the *Greeks* of these Days acknowledge the Transubstantiation in the same Manner the *Latins* do it, either for the Word, or for the Thing; as it appears, says he, by a Book intituled *Orthodox Confession*, and by a new Synod of *Jerusalem*; but adds, at the same Time, that Time which discovers all Things, will let us know, one Day or other, the Artifices used to impose in that on the *Greeks*: And says further, that the *Greeks* who have authorised the Transubstantiation, in their Books, are posteriors to the Confession of Faith of *Cyril*.

The Catholicks answer, that it matters not, if they have been before or after *Cyril*. That they have produced some who have preceded him, and others who have been after him. That the Conformity of the one with the other, proves invincibly that they have all, with an unanimous Consent, approv'd the Transubstantiation, in the Manner it is explain'd by the *Latins*. That the Proof thereof is become stronger, ever since *Cyril* has publish'd his Confession of Faith; because that Question has been oftner brought on the Tapis, and put in a clearer Light. That *Cyril* has been condemned by the whole *Greek* Church, according to the Sentiments they were in, before the Publication of *Cyril*'s Confession.

They say further, that this Agreement of the *Greek* Church with the *Latin*, is so evident, that even Protestants themselves, *viz.* those who profess Justice and Impartiality, will not contradict it. That *William Forbesius*, Bishop of *Edinburgh*, one of the most learned of the *English* Protestants, who had travelled throughout all *Europe*, in the Book he has wrote, under the Title of modest and pacifick Considerations, on Controversies of the Sacrament of the *Eucharist*, *Lib.* 1. *c.* 4. speaks in this Manner, with regard to the Sentiments of the modern *Greeks* on the Transubstantion: *That same Opinion of the Transubstantiation was received a long while ago by a great Number of Persons, though not by all,* (an Exception, say the *Roman* Catholicks, which must not appear strange in a Protestant) *and is still defended, not only in the* Latin, *but likewise in the* Greek *Church, as it appears by the New* Greeks, *without mentioning the Antients; by the Orthodox Treasure of* Nicetas; *by the Panapolia of* Euthymius; *by* Nicholas *Bishop of* Methone; *by* Samonas *Bishop of* Gaza; *by* Nicholas Cabasylas; *by* Marcus *of* Ephesus, *and* Bessarion, *who all confess very openly the Transubstantiation in their Works. Likewise in the Council of* Florence, *it was not question'd if the Bread was changed substantially into the Body of* Jesus Christ, *though* Kemnitius *and other Protestants are of that Opinion; but by which Words that ineffable Change was operated; if it was only by the Words of the Lord, or if the Prayers of the Priest and the Church were to be joined to them.* Jeremiah, *Patriarch of* Constantinople, *in the Censure of the Confession of* Augsbourg, c. 10. *Several Things are said of you on that Subject,* says he, *which we can by no Means approve. The Doctrine of the Holy Church is, then, that in the sacred Supper, after Consecration and Benediction, the Bread is changed, and passes into the Body itself of* Jesus Christ, *and the Wine into his Blood, by the Efficacy of the Holy Ghost:* And a little lower, *When* Jesus Christ *gave the Communion to his Disciples, he gave them the Flesh he wore, and the Blood he had in his Body. Not that in the Administration of the divine Mysteries, the Body of* Jesus Christ, *which ascended into Heaven, comes down from it; for it would be Blasphemy to say it: But the Matter of the Sacrament is changed, and transformed by the Grace of the Holy Ghost; and the Invocation of him who operates and consummates the Sacrament into the true Body of the Lord. That was done in the Supper*

 which

which Jesus Christ *made to his Disciples, and that is done in ours. And afterwards the true Body of* Jesus Christ *is contained under the Species of the leavened Bread.*

That he proves the same Thing by the Answer of the *Greeks* to the Questions of the Cardinal of *Guise*, printed at *Basil* in 1571, and says, that a few Years before, in a Conversation *with a* Greek *Bishop, who was learned enough; he maintained the Transubstantiation in a clear Manner, and proved it by St.* Chrysostom, *clarissime confitebatur, & ex Chrysostomo tueri conabatur.*

That he quotes afterwards the Testimony of *Gaspar Pucirus*, a famous Historian and Physician, and of *Sandius*, an *Englishman*, in his Mirror of *Europe*, p. 233. where he says clearly, that *the* Greeks *are agreed with the* Romans *on the Transubstantiation, on the Sacrifice, and on the whole Body of the Mass.* Of *Poterus* and of *Petrus Arcadius.*

Therefore I am not a little surprized, says he, *that the Bishop* Thomas Morton, *in the third Book he has made of the Sacrament of the* Eucharist, *denies that the Patriarch* Jeremiah *has believed the Transubstantiation; and that to prove it he alledges these Words extracted from the Acts of the* Theologians *of* Wittemberg, *with the Patriarch* Jeremiah. *Non enim his nominis tantum communicatio est, sed rei identitas & enim vera corpus & sanguis Christi mysteria sunt, non quod hæc in corpus humanum transmutentur, sed nos in illa melioribus prævalentibus. For* Jeremiah *does not deny*, says *Forbesius, in that Passage, the Transubstantiation of the Bread into the Body of Jesus Christ, but the Transubstantiation of the Body and Blood of Jesus Christ, into a human Body, according to what St.* Augustin *says, Non tu te mutabis in me, sed ego mutabor in te.*

For my Part I am of Opinion, that if both Parties (I mean the *Roman* Catholicks) would renounce for some Time their Prejudices, and a certain Animosity which subsist among them; and weigh on one Side the Strength and Energy of the Word of Christ, when he instituted this divine Sacrament, *This is my Body, This is my Blood*, which Words are so expressive of themselves, or so clearly significative, as in all Appearance, to admit of no Metaphor, or Amphibology; and on the other, the Incomprehensibility of that Mystery, which is infinitely above a human Apprehension, otherwise it would not be a Mystery. Were they to consider seriously on one side, that that sacred Food is only prepared for the Nourishment of our Souls, which is a spiritual Substance, and consequently wants no other but a spiritual Food; and on the other, that a glorified Body, which is immortal, impassible, and has all the other Qualities essential to a spiritual Substance, without the least of the Infirmities inseparable from human Nature, cannot exist in any other Manner but in that of a spiritual Substance, which admits of no *Ubiquity*; there would be soon a just Understanding between the Catholicks and Protestants on that important Subject: But each Party abounds in his own Sense, and the one would submit that profound Mystery to Reason, while the others endeavour to prove it incomprehensible.

There are several other Points controverted between the Catholicks and Protestants, with regard to the *Eucharist*; the Principal whereof is the Celebration of the *Eucharist*, which the Catholicks believe a Sacrifice, and the Protestants deny it; and the Communion under both Kinds.

To state clearly the first Question, *viz.* If the Celebration of the *Eucharist*, which the Catholicks call *Mass*, be a Sacrifice. We must observe first, that a Sacrifice is an outward Worship, rendered to God alone, and proceeding from an inward Affection. There are five Things required to this Worship, *viz.* 1. The Minister who offers the Sacrifice. 2. The Matter of the Sacrifice. 3. The Form. 4. The Place. 5. The End of the Sacrifice. The Minister of the Sacrifice is the Priest. The Matter, is the Thing offered to God. The Form is the Consumption, or Mutation of the Thing offered. The Place, where the Sacrifice is offered, is the Altar: And there may be four Ends of a Sacrifice. 1. The Acknowledgment of the supreme Authority which God has over us. 2. Thanksgiving for the Benefits we have received from him. 3. Asking for new Favours. 4. The Expiation of Sins. Hence are commonly distinguished four Sorts of Sacrifices. 1. The *Latreutick*, whereby we declare ourselves Servants of God, to whom we are indebted for all we have. 2. The *Eucharistick*, whereby we shew our Gratitude for the Favours we have received. 3. *Impetratory*, whereby we ask new Favours. 4. *Propitiatory*, whereby we endeavour to appease God, that he may forgive us our Sins.

Therefore, say the *Roman* Catholicks, as we may consider Man in three different States or Conditions, from the Beginniug of the World to our present Time, *viz.* the *State of Nature*, the *State of* Moses's *Law*, and the *State of Grace*, or of *the Gospel*. Hence we distinguish three Sorts of Sacrifices; those of the Law of Nature, those of the Law of *Moses*, and those of the Law of the Gospel.

In the *Law of Nature*, there have been the Sacrifices of *Abel, Noah, Abraham, Melchisedech, Jacob* and *Job*.—In the Law of *Moses*, there have been Victims, Libations, and Immolations. Likewise *Holocausts* Victims for Sins, and pacifick Victims.—And in the Law of the Gospel there are two Sacrifices, a bloody one, whereby Christ has been offered on the Altar of the Cross, to God the Father, for the Expiation of our Sins; and another unbloody, whereby the same Christ is offered every Day on the Altar, under the Species of the Bread and Wine.

These Things presupposed, continue they, the Question is, if the unbloody Sacrifice, which we call the Sacrifice of the Mass, be properly and truly a Sacrifice. Themselves answer this Question in the Affirmative, and endeavour to prove their Assertion in various Manners. First, from the Types or Figures of the Old Testament; secondly, from the Prophecy of *Malachi*; thirdly, from the Conversation of Christ with the Woman from *Samaria*; fourthly, from the Apostle St. *Paul*; and fifthly, from the unanimous Consent of the antient Fathers; and form of all these Testimonies, as many Arguments.

Their first Argument is this: In the Old Testament, say they, there have been three very considerable Figures or Types of the Celebration of the *Eucahrist*. 1. The Oblation of Bread and Wine made by *Melchisedech*. 2. The Celebration of the Paschal Lamb. 3. The perpetual Sacrifice; which three Figures were true Sacrifices. Therefore the Celebration of the *Eucharist* is a true Sacrifice. They prove the Consequence by that the Shadow or Figure is more imperfect in its Kind, than the Things it represents: And therefore, to be a Sacrifice, was a sort of Perfection in the Type or Figure of the Celebration of the *Eucharist*, which must be far greater in that Celebration.

Their second Argument is taken from the Prophet *Malachi*; who foretold, Chap. i. 11. *That from the rising of the Sun even unto the going down of the same, and in every Place, Incense and a pure Offering would be offered to the Lord*; they ask, what could be that pure Offering, mentioned by the Prophet, but the Body and Blood of Christ under the Species of the Bread and Wine? as the antient Fathers have interpreted it.

Their third Argument is, from the Conversation of Christ with the Woman of *Samaria*: Where he tells her, that the Difference between the *Judaical, Samaritan*, and *Christian* Sacrifice, is, that the *Judaical* and *Samaritan* Sacrifice have been fixed to a certain Place, but the Christian Sacrifice will be offered throughout the whole Earth. He says, besides, that the two former were imperfect, but the third is to be a perfect Sacrifice. Therefore, conclude they, the Christians have a Sacrifice, properly so call'd, which can be offered every where; which Sacrifice is not the bloody one of the Cross, which has been offer'd but once, and but in one Place; consequently it must be the unbloody Sacrifice of the *Eucharist*, which is offer'd every Day, and every where.

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Their fourth Argument is from the Apostle St. *Paul*, 1 *Corinth.* x. 19. where he distinguishes three Sorts of Tables or Altars: One where the Gentiles sacrifice to the Idols or Devils: The other where the *Jews* offer Victims to God from among Animals: And the third where the Christians offer the Body and Blood of Christ, under the Species of the Bread and Wine: But wherefore? to prove that the *Corinthians* must abstain from the Flesh which has been offered to Idols; which he does in this Manner. He who eats of the Victims which have been offered to Idols, becomes Partaker of an idolatrous Sacrifice, and consequently is an Idolater. But you who are Christians, ought not to be Partakers of an idolatrous Sacrifice, nor Idolaters. Fly, says he, from Idolatry. He confirms the Major by a Similitude: Because Christians who takes the Body and Blood of *Jesus Christ*, are Partakers of the Altar and Sacrifice of Christ; and the *Jews* who eat the *Mosaical* Victims, are Partakers of the *Mosaical* Altar and Sacrifice. Likewise those who eat of the Things offer'd in Sacrifice to Idols, are Partakers of an idolatrous Altar and Sacrifice: But no Body can be Partaker of the Lord's Table, and of the Table of Devils; therefore if you will be Partakers of the Altar of Christ, you must abstain from the Altar of Idols.

They take their fifth Argument from the antient Fathers, who, say they, speak so clearly of the Sacrifice of the *Eucharist*, that no Body can doubt of their Sentiments on that Subject: Which they endeavour to prove in several Manners. First, Because the Fathers make use of the Terms, *Sacrifice*, *Oblation*, *Victim*, *to offer*, *to sacrifice*, *to immolate*. Secondly, They want Altars for the Celebration of the *Eucharist*; and Altars are not erected but for a Sacrifice. Thirdly, They call the Ministers, who offer the *Eucharist*, Priests; and the chief Office of Priests is to offer a Sacrifice, *Heb.* v. 1, 3, 8. Fourthly, They say that *Melchisedech* has been a true Priest, who has offered Bread and Wine in Sacrifice, and thereby has represented the unbloody Sacrifice which Christ instituted under the Species of Bread and Wine, at his last Supper; for which Reason Christ is called in the Scripture a Priest, according to the Order of *Melchisedech*. Lastly, they interpret the Prophecy of *Malachi*, heretofore mentioned, of the Sacrifice of the *Eucharist*. The Catholicks say, that it is not necessary to quote the Passages of the Fathers on that Subject, since even their own Enemies confess, that the Fathers agree in this with the Catholicks, especially *Luth. in lib. de Missâ privatâ. Calvin, lib.* 4. *institut. c.* 19. § 1. 12. *Kemnitius, in exam. concil. Trident.* and others.

The Protestants object, against this Sentiment, that a Sacrifice must be offered to God, and not eaten by Men; that the *Eucharist* is eaten, and consequently is not a Sacrifice.

The *Roman* Catholicks answer, that the last Part of the Major, or this Argument, *viz.* that a Sacrifice is not eaten by Men, is false; for the Paschal Lamb was a true Sacrifice; and notwithstanding was eaten by the *Hebrews*: Likewise, the Peace-Offerings were Sacrifices; and Part of it was apply'd to the Use of the Priests, and of those who offer'd them.

The Protestants object farther; that what is a Sacrament cannot be together a Sacrifice; that the *Eucharist* is a Sacrament, and therefore cannot be a Sacrifice. They prove the Major by the Opposition which is between a Sacrament and a Sacrifice; for in a Sacrament we receive something from God; and in a Sacrifice we give something to God; when as the Manner of the Accepted, and that of the Given cannot be consistent in one and the same Thing.

The Answer of the *Roman* Catholicks to this Objection is, that the Major is false, even in the Opinion of their Adversaries, for *Plessis Morné*, a *Calvinist*, *Lib.* 12. *de Eucharist. c.* 1. says expresly, that the Paschal Lamb was both a Sacrament and a Sacrifice; which is likewise the Sentiment of St. *Thomas*, and of several other Scholasticks, notwithstanding that in the Sacrament we receive something from God, and in the Sacrifice we offer something to God; because those two Things may be consistent together, as is evident in the Paschal Lamb. For if it was not licit to offer to God what we receive from him, there would be no Sacrifice, according to this Passage, the first of *Chronicles* xxix. 4. *For all Things come of thee, and of thine own have we given thee.*

The third Objection of the Protestants is, that Christ, when he instituted the *Eucharist*, did not say *offer*, but *eat*, and *drink*, therefore the *Eucharist*, by Christ's Institution, is not a Sacrifice, but only a Sacrament.

To this the Catholicks answer, that tho' *Christ*, in the Institution of the *Eucharist*, did not use the Term *offer*, he nevertheless used another equivalent to it, when he said, *Do this in Remembrance of me*; that is to say, after this, you must celebrate the *Eucharist* which I have now instituted, for a Thanksgiving in Remembrance of my Death, which I am going to suffer for you and all the human Race.

The fourth Objection is, that *Christ* is Priest to all Eternity: Therefore he has no Successor or Vicar, in the Sacerdoce or Priesthood; therefore there are no Priests now upon Earth, and consequently no Sacrifice; which is confirm'd by the Apostle, *Heb.* 7. where he says, that there were several Priests in the Old Testament, who succeeded one another, because every one of them was mortal; but *Christ* is immortal, and therefore wants no Successors and Vicars.

To this the Catholicks answer, that there is a great Difference between being another's Successor, and being his Vicar or Minister; for a Successor is equal in Dignity and Power to his Predecessor, but not a Minister or Vicar; besides, a Successor is not established but after the Decease or Deposition of his Predecessor, when as a Minister or Vicar is established, while the Person whose Minister or Vicar he is, is yet living; as is evident in a Prince, who has no Successor while he lives, or remains possessed of his Dignity; though he has Ministers or Vicegerents, who are subservient to him. Likewise, *Christ* has no Successor in the Sacerdoce, with an Equality of Power, because he lives eternally, as very well observed by the Apostle; but he has Ministers or Vicars, who are subservient to him in the sacerdotal Office.

The fifth Objection is, that the Sacrifice of the Cross, was of an infinite Efficacy: Therefore we want no other Sacrifice, and to multiply so many Sacrifices of the Mass, is nothing else but denying the Virtue and Sufficiency of the Sacrifice of the Cross.

The Catholicks answer, that the Sacrifice of the Cross was of an infinite Efficacy for our Sanctification; and that we want no other Sacrifice of the Cross, nor a Repetition of the same Sacrifice; or, what is the same Thing, we do not want that another *Christ* should die for us; or that the same *Christ* should oftener die: For in dying once, he has sufficiently satisfy'd God the Father for us, *Heb.* xvi. 28. and xx. 14. but that notwithstanding there are two Things necessary; first that we should remember so signal a Benefit; the other, that the Spirit of that Benefit should be applied to us: Which two Things are done by the Sacrifice of the Mass, and the other Means ordered by God.

The other Point in Controversy, is the Communion under both Kinds, practised by the Protestants, who reproach the Catholicks, first, that contrary to the open Institution, and the Precept of *Christ*, they give the *Eucharist* to the Laicks under one Kind only; secondly, that thereby they defraud them of the other Part of their Inheritance, left them by *Christ*. For *Christ* in his last Supper, made a Testament, whereby he bequeathed to all the Faithful, Laicks as well as Priests, his Flesh and Blood, by Way of Inheritance, *Luke* xxii. 20. *This Cup is the New Testament in my Blood.* But that they deprive the Laicks of the other Part of that Inheritance, in not giving them the Blood, but only the Flesh.

The Catholicks answer, in their own Defence, that all

all that is objected against them by the Protestants, on this Subject, is false. First, say they, it is false that there is a Precept of *Christ*, whereby the Laicks are obliged to take the Communion under both Kinds. Secondly, it is likewise false that the *Eucharist* under both Kinds, is the Inheritance bequeathed to us by *Christ*, in the New Testament. Thirdly, it is equally false, that they give only the Flesh to the Laicks, and not the Blood. Let's see at present, how they prove these three Assertions.

They prove the first Assertion (*viz.* that there is no Precept of *Christ*, whereby the Laicks are obliged to take the Communion under both Kinds) in two Manners. First, because, say they, their Adversaries cannot find such Precept in the Scripture, which Adversaries are of three Kinds, *viz.* the *Hussites*, *Lutherans*, and *Calvinists*, who all search that Precept, but none of them can find it. The *Hussites* search it in these Words, *John* vi. 53. *Except ye eat the Flesh of the Son of God, and drink his Blood, ye have no Life in you.* But the *Lutherans* deny it, and declare, that there is not the least Word throughout all that Chapter, which can be understood of the Sacrament of the *Eucharist*; therefore, themselves search it in those of *Luke* xxii. 19. *Do this.* But *Calvin* contradicts it, and maintains, that those Words were addressed to the Priests alone, and not to the Laicks. Therefore himself searches that Precept in these of St. *Matthew* xxvi. 27. *Drink ye all of it*; but, say they again, St. *Mark* declares that those Words were directed to the Apostles alone, when he adds, *And they all drank of it.* Whence they conclude, that their Adversaries do not agree among themselves on that Precept, but on the contrary, differ in such a Manner, that where some of them imagine to have found that Precept, the others deny it.

Secondly, they say, that they on the contrary, can prove by the Authority of the Fathers, and the unanimous Consent of the Church, that one Kind suffices. Those Fathers they quote to support their Sentiment, are, St. *Jerom*, St. *Chrysostom*, St. *Augustin*, *Theophylactus*, and several others; who assure, first, that *Christ* gave the *Eucharist* to the two Disciples at *Emmaus*, under one Kind. Secondly, who say, that in the Time of the Apostles, it was common to give the Communion under one Kind only, and prove it from this of the *Acts* ii. *And they persevering in the Doctrine of the Apostles, and the Communion of breaking Bread, and in Prayers*; or as *Syrus* translates it, *they communicated in Prayers, and in the Fraction of the* Eucharist. And from this other of the *Acts* xx. 7. *And upon the first Day of the Week, when the Disciples came together to break Bread.* Thirdly, who say, that after the Time of the Apostles, one Kind was used.

They prove their second Assertion, (*viz.* that Christ has not left us in the New Testament the *Eucharist* under both Kinds, by way of Inheritance, or Legacy, (as pretended by their Adversaries) in this Manner: Because, say they, as God, in the Old Testament, promised the *Hebrews* the Land of *Canaan* by way of Inheritance, (*Psal.* cxl. 11. and *Levit.* xx. 14.) Likewise, in the New, he promised us Eternal Life by way of Inheritance, (*Tit.* iii. 7. and *Heb.* ix. 15.) not the *Eucharist*. Neither have we ever read in the Scripture that we are the Heirs of the *Eucharist*, or of the Flesh and Blood of Christ, but of the Eternal Life, or the Kingdom of Heaven, (*Rom.* viii. 17. *Tit.* iii. 7. and *James* ii. 5.) They confirm this Proof thus: Because the Manna was the Figure of the *Eucharist*; but the Manna was not the Inheritance of the *Hebrews*, but a Food, or Viatick, for their Refection in their Way to the Land of *Canaan*, which was their Inheritance. Therefore, likewise, the *Eucharist* is not our Inheritance, but a Viatick, for our Refection, during our Journey from Time to Eternal Life, which is the Inheritance promised to us.

To this the Protestants object the Passage of St. *Luke*, xxii. 20. and of the first Epistle to the *Corinthians*, xi. 25. *This Cup is the New Testament of my Blood.* To which the Catholicks answer, that the Sense of these Words is not this: My Blood which is in this Cup is the New Testament, *i. e.* the Legacy left by me; but quite otherwise, as explain'd by St. *Matthew* and St. *Mark*, when they say, *This is my Blood of the New Testament*; i. e. This is my Blood which gives a Sanction to the New Testament: Where Christ opposes the New Testament to the Old; and his Blood to the Blood of the Victims. For as the Old Testament has been confirmed by the Blood of Animals; the New has, likewise, been confirmed by the Blood of Christ. And as *Moses* said of the Old Testament, *Exod.* xxiv. 8. *Behold the Blood of the Covenant which the Lord has made with you.* And the Apostle, *Heb.* ix. 19. *For when Moses had spoken every Precept to all the People according to the Law, he took the Blood of Calves and of Goats, saying, this is the Blood of the Testament which God has enjoyn'd unto you.* Likewise Christ says of the New, *This is my Blood of the New Testament.* It should be said, according to our Adversaries, continue they, this Blood of Christ is the New Testament; *i. e.* the Inheritance left to the New Testament. Likewise this Blood of the Calves and Goats, is the Old Testament, *i. e.* the Inheritance left to the Old Testament, which is very absurd.

They prove their third Assertion, *viz.* that the Laicks receive under one Kind, not the sole Flesh of Christ, but the Flesh and Blood together; or that Christ is no less contain'd entire under one Kind than under both; by that Christ is immortal, according to this, *Rom.* vi. 9. *Christ being raised from the Dead, dies no more.* Therefore the Flesh and Blood, Soul, and Divinity of Christ, remain always join'd or united together; and consequently as the Flesh of Christ is under the Species of the Bread; his Blood, Soul, and Divinity, must be there likewise; whence it follows, that there is no less Fruit receiv'd from one Species than from both; since the whole Fruit is receiv'd from the Presence of Christ, who is no less present under one Element, than under both.

It may be asked why, then, the Priests are not contented with one Species, as they command the Laicks to be contented with one Species? To which the Catholicks answer, that the *Eucharist* is not only a Sacrament, but likewise a Sacrifice; that the End of a Sacrament can be answered by one Species, but that the End of a Sacrifice requires both Species; that, therefore, the Laicks who receive the *Eucharist* as a Sacrament, can be contented with one Species, but the Priests who offer it as a Sacrifice, must take both Kinds.

The *Hussites* object to this, this Passage, *Unless you eat the Flesh of the Son of Man, and drink his Blood, you will not have Life within you.* To which the Catholicks answer, that those Words contain in Fact, a Precept of taking the *Eucharist*; but not of taking it under both Kinds, since no Mention is made of the Species of the Bread and Wine, but of the Flesh and Blood, which both can be taken under one Kind.

The *Lutherans* object, *Do this in Remembrance of me.* The Catholicks answer, that these Words were spoken after eating the Bread, not after taking the Cup. Whence therefore cannot be inferr'd the Precept of taking the Cup.

The *Calvinists* object this Passage, *Drink ye all of it.* The Catholicks answer, that this was said to the Apostles only, who were then present. For when Christ had divided the *Eucharistical* Bread, and had given to the Apostles every one his Part, it being impossible to divide the Cup in the same Manner, he presented it whole to one of them, with this Caution, that he should not drink it all, but only take some of it, and forward it afterwards to the rest of the Apostles, to every one in his Turn. That therefore these Words, *Drink ye all of it*, have the same Signification as these of St. *Luke*, Chap. xxii. 17. *Take this and divide it among yourselves*; i. e. one must not empty the Cup, but every one must drink some of it: Which was done, according to St. *Mark*, *and they all drank of it.*

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The Proteſtants borrow alſo ſeveral Objections from the antient Fathers; and firſt, from St. *Cyprian*, who, in a Sermon on the Lord's Supper, ſpeaks thus: *The Law forbids the Uſe of Blood, the Goſpel commands to drink it.* The Catholicks anſwer, that St. *Cyprian*, to prove the Precept of drinking Blood, quotes this Paſſage: *Unleſs ye eat the Fleſh of the Son of Man, and drink his Blood, you'll not have Life within you.* But that Precept, as we have prov'd already, ſay they, does not require both Kinds, but eating the Fleſh, and drinking the Blood, which can be done under one Kind; which St. *Cyprian* inſinuates, when he adds, *drinking and eating are to the ſame Purpoſe*; as if he had ſaid, it is the ſame Thing to eat Chriſt, as to drink Chriſt. Therefore whoever eats him under one Kind, not only eats his Fleſh, but likewiſe drinks his Blood; and conſequently accompliſhes the evangelical Precept, mentioned by St. *Cyprian*.

They object, ſecondly, from St. *Chryſoſtom*, *Hom.* 18. on the laſt Epiſtle to the *Corinthians*, where that Father ſays, *And there is no Difference between the Prieſt and the Slave, in the Participation of the ſacred Myſteries; for we are all judged equally worthy to receive them; for it is not now, as it was under the Law, when the Prieſt uſed to eat one Part, and the People the other Part; and the People were not permitted to partake of thoſe Things, whereof the Prieſt was Partaker. But at preſent it is not ſo, for one Body is propoſed to all, and one Cup.*

The Catholicks anſwer, that there is no Mention made in this Place of the Precept of both Kinds; and that St. *Chryſoſtom* does not diſpute here of ſuch a Precept, but only aſſigns the Difference between the Sacrifices of the Old Teſtament and of the New. For in the Old Teſtament, the Prieſt eat one Part of the Sacrifice, and the People the other; but in the New Teſtament, both the Prieſt and the People, eat equally the whole Victim. That all *Chriſt* is to be eaten and drank by both; and that St. *Chryſoſtom* underſtands nothing elſe. That as to what he adds, that the ſame Body, and the ſame Cup, is propoſed to both; it muſt not be underſtood of the Sacramental Species, but of the Fleſh and Blood of *Chriſt*. For the Senſe is not, that the ſame Species of Bread, and the ſame Species of Wine, is propoſed to all indifferently, Laicks and Prieſts, ſince every one receives, each his Part, really diſtinct, of the conſecrated Bread and Wine; but that the ſame Fleſh, and the ſame Blood of *Chriſt*, is propoſed to all; ſo that the Prieſt receives nothing of the Fleſh, and of the Blood, but what the Laicks receive likewiſe; and in that he puts the Difference between the Prieſt and People of both Laws.

Their third Objection is, that the Pope St. *Leo*, in the fourth Sermon for the *Quadrageſima*, ſpeaks thus to the *Manichæans*; *they receive the Body of* Chriſt *with an unworthy Mouth, and decline, entirely, drinking the Blood of our Redemption.* The Catholicks anſwer, that St. *Leo* does not condemn the Communion under one Species, which was then practiſed in the Catholick Church; but in the *Manichæans*, who, by a ſacrilegious Superſtition, abſtained from the Cup; either becauſe they imagined that Wine was the Gall of the Dragon, or becauſe they denied that *Chriſt* was really dead, and had ſpilt a real Blood.

Their fourth Objection is taken from Pope *Gelaſius*, who, *apud grat. c. comperimus, de conſecr. diſtinct.* 2. ſpeaks in theſe Terms, *We find that ſome have taken only the Portion of the ſacred Body, and abſtain from the Cup of the ſacred Blood, which without doubt, proceeds from I do not know what Superſtition; therefore we will have them take the whole Sacrament, or be deprived from taking it at all; ſince the Diviſion of one, and the ſame Myſtery, cannot be made without a great Sacrilege.* The Catholicks anſwer, that this Objection is like the preceding one, that Pope *Gelaſius* does not reprimand the Catholicks who abſtained from the Cup; but the *Manichæans*, who abſtained from it by Superſtition.

The fifth Objection is deduced from Reaſon; *All the Hebrews*, ſay they, *drank of that ſpiritual Rock which followed them*, 1 *Cor.* x. 4. therefore all Chriſtians muſt drink of the Blood of *Chriſt*, for that Water was the Figure of that Blood. The Catholicks anſwer, that they convince their Adverſaries by that very Argument; for if that Water was the Figure of the *Euchariſt*, it favours one Kind, not both. We muſt obſerve, ſay they, that there have been various Figures of the *Euchariſt*. 1. The Bread and Wine of *Melchiſedech*. 2. The Shew-Bread. 3. The Bread under the Aſhes of the Prophet *Elias*. 4. The Manna. 5. The Water from the Rock. 6. The Paſchal Lamb. 7. The Moſaical Sacrifice; all which, except the firſt, repreſent the *Euchariſt* under one Kind: Their Adverſaries, continue they, do not acknowledge the firſt, therefore, according to them, there is no Figure which repreſents both Kinds; and when they infer that all the *Hebrews* have drank the Water from the Rock, and conſequently all the Chriſtians ought to drink the Blood of *Chriſt*, they admit that, but ſay, that we are not convinced thereby of the Neceſſity of both Kinds; ſince we can eat the Fleſh of *Chriſt*, and drink his Blood under one Kind; as they believe they have ſufficiently proved.

EUTYCHIANS.

EUTYCHIANS, were Hereticks, who appeared towards the Middle of the fifth Century; thus denominated from *Eutyches*, the Archimandrite, or Abbot of a Monaſtery at *Conſtantinople*.

Eutyches has courageouſly oppoſed the Errors of *Neſtorius*, and prov'd very ſerviceable to the Fathers of the Council of *Epheſus*, near the Emperor, but in flying from one Precipice, he fell into another, and was the Inventor of an Hereſy, as deteſtable as that which had been but lately condemn'd. For he had the ſacrilegious Preſumption, to teach that our bleſſed Lord *Jeſus Chriſt*, was not conſubſtantial to us according to the Fleſh, having a celeſtial Body, which had paſſed through the Virgin *Mary*, as through a Channel; that there had been two Natures in him before the hypoſtatical Union; but that after that Union, there had remained but one compoſed of both.

By this new Impiety, it could have been reaſonably ſaid, that *Jeſus Chriſt* was crucified between *Neſtorius* and *Eutyches*, as he had been between two Thieves. Since the one robb'd him of the Unity of Perſon, and the other of the Diſtinction of Natures; which was deſtroying the Myſtery of his Incarnation, and his theandrical State, *i. e.* divinely human, and humanly divine. *Eutyches* himſelf, fell, then, without perceiving it, into *Neſtorianiſm*. For if in *Jeſus Chriſt* there had been two diſtinct Natures before the Union, there had been, then, two Perſons, which was the Opinion of *Neſtorius*. And how could one ſingle Nature remain? For it was neceſſary, either that one of the two ſhould be deſtroy'd, or changed into the other; or that both ſhould be abſorbed, and changed into a third; or that remaining entire, that which was left ſhould be made of them; all which Manners were equally ridiculous and impious.

But *Theodoret*, in his ſecond Dialogue, informs us, that *Eutyches* believed that the human Nature, had been abſorbed by the divine Nature; as if a Drop of Honey ſhould chance to fall into the Sea, it would not periſh, but only would be abſorb'd in that Element.

all that is objected against them by the Protestants, on this Subject, is false. First, say they, it is false that there is a Precept of *Christ*, whereby the Laicks are obliged to take the Communion under both Kinds. Secondly, it is likewise false that the *Eucharist* under both Kinds, is the Inheritance bequeathed to us by *Christ*, in the New Testament. Thirdly, it is equally false, that they give only the Flesh to the Laicks, and not the Blood. Let's see at present, how they prove these three Assertions.

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To this the Protestants object the Passage of St. *Luke*, xxii. 20. and of the first Epistle to the *Corinthians*, xi. 25. *This Cup is the New Testament of my Blood.* To which the Catholicks answer, that the Sense of these Words is not this: My Blood which is in this Cup is the New Testament, *i. e.* the Legacy left by me; but quite otherwise, as explain'd by St. *Matthew* and St. *Mark*, when they say, *This is my Blood of the New Testament*; i. e. This is my Blood which gives a Sanction to the New Testament: Where Christ opposes the New Testament to the Old; and his Blood to the Blood of the Victims. For as the Old Testament has been confirmed by the Blood of Animals; the New has, likewise, been confirmed by the Blood of Christ. And as *Moses* said of the Old Testament, *Exod.* xxiv. 8. *Behold the Blood of the Covenant which the Lord has made with you.* And the Apostle, *Heb.* ix. 19. *For when Moses had spoken every Precept to all the People according to the Law, he took the Blood of Calves and of Goats, saying, this is the Blood of the Testament which God has enjoyn'd unto you.* Likewise Christ says of the New, *This is my Blood of the New Testament.* It should be said, according to our Adversaries, continue they, this Blood of Christ is the New Testament; *i. e.* the Inheritance left to the New Testament. Likewise this Blood of the Calves and Goats, is the Old Testament, *i. e.* the Inheritance left to the Old Testament, which is very absurd.

They prove their third Assertion, *viz.* that the Laicks receive under one Kind, not the sole Flesh of Christ, but the Flesh and Blood together; or that Christ is no less contain'd entire under one Kind than under both; by that Christ is immortal, according to this, *Rom.* vi. 9. *Christ being raised from the Dead, dies no more.* Therefore the Flesh and Blood, Soul, and Divinity of Christ, remain always join'd or united together; and consequently as the Flesh of Christ is under the Species of the Bread; his Blood, Soul, and Divinity, must be there likewise; whence it follows, that there is no less Fruit receiv'd from one Species than from both; since the whole Fruit is receiv'd from the Presence of Christ, who is no less present under one Element, than under both.

It may be asked why, then, the Priests are not contented with one Species, as they command the Laicks to be contented with one Species? To which the Catholicks answer, that the *Eucharist* is not only a Sacrament, but likewise a Sacrifice; that the End of a Sacrament can be answered by one Species, but that the End of a Sacrifice requires both Species; that, therefore, the Laicks who receive the *Eucharist* as a Sacrament, can be contented with one Species, but the Priests who offer it as a Sacrifice, must take both Kinds.

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The *Calvinists* object this Passage, *Drink ye all of it.* The Catholicks answer, that this was said to the Apostles only, who were then present. For when Christ had divided the *Eucharistical* Bread, and had given to the Apostles every one his Part, it being impossible to divide the Cup in the same Manner, he presented it whole to one of them, with this Caution, that he should not drink it all, but only take some of it, and forward it afterwards to the rest of the Apostles, to every one in his Turn. That therefore these Words, *Drink ye all of it*, have the same Signification as these of St. *Luke*, Chap. xxii. 17. *Take this and divide it among yourselves*; i. e. one must not empty the Cup, but every one must drink some of it: Which was done, according to St. *Mark*, *and they all drank of it.*

The

The Proteſtants borrow alſo ſeveral Objections from the antient Fathers; and firſt, from St. *Cyprian*, who, in a Sermon on the Lord's Supper, ſpeaks thus: *The Law forbids the Uſe of Blood, the Goſpel commands to drink it.* The Catholicks anſwer, that St. *Cyprian*, to prove the Precept of drinking Blood, quotes this Paſſage: *Unleſs ye eat the Fleſh of the Son of Man, and drink his Blood, you'll not have Life within you.* But that Precept, as we have prov'd already, ſay they, does not require both Kinds, but eating the Fleſh, and drinking the Blood, which can be done under one Kind; which St. *Cyprian* inſinuates, when he adds, *drinking and eating are to the ſame Purpoſe*; as if he had ſaid, it is the ſame Thing to eat Chriſt, as to drink Chriſt. Therefore whoever eats him under one Kind, not only eats his Fleſh, but likewiſe drinks his Blood; and conſequently accompliſhes the evangelical Precept, mentioned by St. *Cyprian*.

They object, ſecondly, from St. *Chryſoſtom*, *Hom.* 18. on the laſt Epiſtle to the *Corinthians*, where that Father ſays, *And there is no Difference between the Prieſt and the Slave, in the Participation of the ſacred Myſteries; for we are all judged equally worthy to receive them; for it is not now, as it was under the Law, when the Prieſt uſed to eat one Part, and the People the other Part; and the People were not permitted to partake of thoſe Things, whereof the Prieſt was Partaker. But at preſent it is not ſo, for one Body is propoſed to all, and one Cup.*

The Catholicks anſwer, that there is no Mention made in this Place of the Precept of both Kinds; and that St. *Chryſoſtom* does not diſpute here of ſuch a Precept, but only aſſigns the Difference between the Sacrifices of the Old Teſtament and of the New. For in the Old Teſtament, the Prieſt eat one Part of the Sacrifice, and the People the other; but in the New Teſtament, both the Prieſt and the People, eat equally the whole Victim. That all *Chriſt* is to be eaten and drank by both; and that St. *Chryſoſtom* underſtands nothing elſe. That as to what he adds, that the ſame Body, and the ſame Cup, is propoſed to both; it muſt not be underſtood of the Sacramental Species, but of the Fleſh and Blood of *Chriſt*. For the Senſe is not, that the ſame Species of Bread, and the ſame Species of Wine, is propoſed to all indifferently, Laicks and Prieſts, ſince every one receives, each his Part, really diſtinct, of the conſecrated Bread and Wine; but that the ſame Fleſh, and the ſame Blood of *Chriſt*, is propoſed to all; ſo that the Prieſt receives nothing of the Fleſh, and of the Blood, but what the Laicks receive likewiſe; and in that he puts the Difference between the Prieſt and People of both Laws.

Their third Objection is, that the Pope St. *Leo*, in the fourth Sermon for the *Quadrageſima*, ſpeaks thus to the *Manichæans*; *they receive the Body of* Chriſt *with an unworthy Mouth, and decline, entirely, drinking the Blood of our Redemption.* The Catholicks anſwer, that St. *Leo* does not condemn the Communion under one Species, which was then practiſed in the Catholick Church; but in the *Manichæans*, who, by a ſacrilegious Superſtition, abſtained from the Cup; either becauſe they imagined that Wine was the Gall of the Dragon, or becauſe they denied that *Chriſt* was really dead, and had ſpilt a real Blood.

Their fourth Objection is taken from Pope *Gelaſius*, who, *apud grat. c. comperimus, de conſecr. diſtinct.* 2. ſpeaks in theſe Terms, *We find that ſome have taken only the Portion of the ſacred Body, and abſtain from the Cup of the ſacred Blood, which without doubt, proceeds from I do not know what Superſtition; therefore we will have them take the whole Sacrament, or be deprived from taking it at all; ſince the Diviſion of one, and the ſame Myſtery, cannot be made without a great Sacrilege.* The Catholicks anſwer, that this Objection is like the preceding one, that Pope *Gelaſius* does not reprimand the Catholicks who abſtained from the Cup; but the *Manichæans*, who abſtained from it by Superſtition.

The fifth Objection is deduced from Reaſon; *All the Hebrews*, ſay they, *drank of that ſpiritual Rock which followed them*, 1 *Cor.* x. 4. therefore all Chriſtians muſt drink of the Blood of *Chriſt*, for that Water was the Figure of that Blood. The Catholicks anſwer, that they convince their Adverſaries by that very Argument; for if that Water was the Figure of the *Euchariſt*, it favours one Kind, not both. We muſt obſerve, ſay they, that there have been various Figures of the *Euchariſt*. 1. The Bread and Wine of *Melchiſedech*. 2. The Shew-Bread. 3. The Bread under the Aſhes of the Prophet *Elias*. 4. The Manna. 5. The Water from the Rock. 6. The Paſchal Lamb. 7. The Moſaical Sacrifice; all which, except the firſt, repreſent the *Euchariſt* under one Kind: Their Adverſaries, continue they, do not acknowledge the firſt, therefore, according to them, there is no Figure which repreſents both Kinds; and when they infer that all the *Hebrews* have drank the Water from the Rock, and conſequently all the Chriſtians ought to drink the Blood of *Chriſt*, they admit that, but ſay, that we are not convinced thereby of the Neceſſity of both Kinds; ſince we can eat the Fleſh of *Chriſt*, and drink his Blood under one Kind; as they believe they have ſufficiently proved.

EUTYCHIANS.

EUTYCHIANS, were Hereticks, who appeared towards the Middle of the fifth Century; thus denominated from *Eutyches*, the Archimandrite, or Abbot of a Monaſtery at *Conſtantinople*.

Eutyches has courageouſly oppoſed the Errors of *Neſtorius*, and prov'd very ſerviceable to the Fathers of the Council of *Epheſus*, near the Emperor, but in flying from one Precipice, he fell into another, and was the Inventor of an Hereſy, as deteſtable as that which had been but lately condemn'd. For he had the ſacrilegious Preſumption, to teach that our bleſſed Lord *Jeſus Chriſt*, was not conſubſtantial to us according to the Fleſh, having a celeſtial Body, which had paſſed through the Virgin *Mary*, as through a Channel; that there had been two Natures in him before the hypoſtatical Union; but that after that Union, there had remained but one compoſed of both.

By this new Impiety, it could have been reaſonably ſaid, that *Jeſus Chriſt* was crucified between *Neſtorius* and *Eutyches*, as he had been between two Thieves. Since the one robb'd him of the Unity of Perſon, and the other of the Diſtinction of Natures; which was deſtroying the Myſtery of his Incarnation, and his theandrical State, *i. e.* divinely human, and humanly divine. *Eutyches* himſelf, fell, then, without perceiving it, into *Neſtorianiſm*. For if in *Jeſus Chriſt* there had been two diſtinct Natures before the Union, there had been, then, two Perſons, which was the Opinion of *Neſtorius*. And how could one ſingle Nature remain? For it was neceſſary, either that one of the two ſhould be deſtroy'd, or changed into the other; or that both ſhould be abſorbed, and changed into a third; or that remaining entire, that which was left ſhould be made of them; all which Manners were equally ridiculous and impious.

But *Theodoret*, in his ſecond Dialogue, informs us, that *Eutyches* believed that the human Nature, had been abſorbed by the divine Nature; as if a Drop of Honey ſhould chance to fall into the Sea, it would not periſh, but only would be abſorb'd in that Element.

Eutyches's Partisans could not agree on the Time when that Confusion of Nature was made: Some said that it was at the very Instant of the Conception; and others understood it after the Resurrection and Ascension. This Heresy deprived likewise the Virgin *Mary* of her Quality of Mother of God: For if the Body of *Jesus Christ* had only passed through her as through a Channel, and if she had furnished nothing of her own Substance for the Formation of that Body, there could be no true Maternity; which does not consist only in bringing into the World, but likewise in begetting the Child. The *Eutychianism* approached, likewise, very near the Heresy of *Valentin*, of *Marcion*, of *Apollinaris*, and of *Manes*; who pretended that the Body of the Son of God had not been a true Body, but only a fantastical one, and which had ran from Heaven, through the Womb of *Mary*, as Water runs through a Channel. But the greatest Impiety, which followed from that Unity of Nature, was, that by a necessary Consequence the Divinity should have suffer'd the Torments of the Passion, and even Death.

Eusebius Bishop of *Dorylæa*, in the Province of *Phrygia*, and *Eutyches*'s Friend, endeavour'd to render him sensible of the Impiety of his Opinions; but *Eutyches* maintain'd them always with Obstinacy; so that *Eusebius* found himself obliged, at last, to inform *Flavian* of it, who was then Bishop of *Constantinople*, and consequently *Eutyches*'s Diocesan, that he might employ his Authority to smother that Fire, before it could break into Flames, and prove as fatal to the Church as had been that of the *Nestorianism*; which was not yet very well extinguished.

Flavian had assembled a Synod, at *Constantinople*, to judge of the Differences happened between *Florentius* Metropolitan of *Sardes* in *Lydia*, and two of his Suffragans. *Eusebius* enter'd that Synod, and presented a Request against *Eutyches*, accusing him of teaching a Doctrine contrary to the orthodox Faith; and desiring the Bishops to oblige him to appear, to answer to the Things which should be exhibited against him. The Bishops desired *Eusebius* to take himself the Trouble to go to the Monastery of *Eutyches*, and endeavour to reclaim him, by fair Means, from his Errors: But having desired to be excused from that Office, the Synod deputed a Priest and a Deacon, to carry to him the Request which had been presented against him; and to entreat him to come to the Synod, and answer, there, the Accusation which *Eusebius* had form'd against him. *Eutyches*, instead of obeying, answer'd, 'He would not come out of his 'Monastery, where he was resolved to remain, as in 'a Tomb; that *Eusebius* was his Enemy, and a Calumniator; that he was ready to subscribe to the Exposition of Faith, made by the holy Bishops in the 'Councils of *Nice* and *Ephesus*; that if they had 'been mistaken on some Points, he would neither reprimand them, nor approve them by his Subscription; because he searched the Truth in the sacred 'Scriptures alone, which were more secure than the 'Exposition of the Fathers.'' After this artificial and equivocal Answer, he says plainly, that 'he adored after the Incarnation of our Lord *Jesus Christ*, 'one single Nature in him; that he confessed him a 'perfect God, and a perfect Man, but having not a 'Flesh consubstantial to ours.'' This Answer having been brought to the Synod, shew'd plainly enough his Heresy, and inspired all those who heard it with Indignation and Horror. But however, to observe the Formalities used on such Occasions, he had a second Citation, which was carried to him by the Priests *Mammas* and *Theophilus*. While those Deputies were executing their Commission, *Eusebius* inform'd the Assembly, that *Eutyches* had sent a Book, he had composed, into all the Monasteries, to corrupt the holy Monks, and make them subscribe to his Doctrine; and required that the Priest of the Church of St. *John the Baptist*, should be examined on that Subject, to know of him, if what he advanced was not true. *Flavian* examined that Witness, who answered, that what *Eusebius* had alledged was true. The Synods sent two Priests and two Deacons to the Monasteries of *Constantinople*, and to those of *Chalcedon*, to get Information, if *Eutyches* had sent his Book to them; who all answer'd, that he had done it.

At the same Time the Deputies, who had been sent to *Eutyches*, came to his Monastery, and found a great Number of Monks at the Gates. The Deputies entered with them; and having told them, that they were there to speak to their Abbot, from the Synod; they were answer'd, that they could not see him, because he was sick; but if they had any Thing to say to him, they might intrust them with it, and they would let him know it; a Monk, call'd *Eleusius*, came from him with the same Message. But as they still insisted, that they were order'd to speak to him in Person, they were at last admitted into his Cell. After he had heard read the Citation of the Synod, he answer'd, as he had done the first Time, 'That 'he was resolv'd not to go out of his Monastery; 'and the most holy Archbishop, and the holy Synod, 'could do what they pleased, without giving the 'Trouble to any Body to come to him; and that he 'considered himself as cited for the third Time.' *Mammas* having made that Report, *Eusebius* pressed the Synod to force *Eutyches* to appear; but to observe all the juridical Formalities, he was cited for the third Time, by *Memnon* Keeper of the sacred Vessels, *Epiphanius* Priest, and *Germanus* Deacon, to appear the 17th of the Month of *November*. The Day before the Abbot *Abrahamus* came to make his Excuses on the Malady which kept him in his Bed. The Synod received them; but advised him at the same Time, to appear to justify himself if he was innocent, and to renounce his erroneous Opinions if he was guilty. 'You know, said the Fathers, the Zeal of his Ac-'cuser; which is such, that the Fire of others seems 'cold when compared to his.' These last Deputies having informed the Synod, that he asked for a Week's Delay, which was granted; that he might not complain of any Precipitation in the Sentence which should be pronounced against him.

That wicked Heresiarch, who had so often protested, that he was determined not to go out of the Monastery, having obtained from the Synod the Time he had asked, came out at last, and went to implore the Protection of *Chrysophius*, to whom he had stood Godfather, to be saved from the Precipice he saw himself engag'd in. That Favourite, who govern'd entirely the Emperor *Theodosius* his Master, obtained from him, that *Eutyches* should be conducted to the Synod by the Patrice *Florentius*, and the Silentiarius, under Pretence that he was afraid of the too great Power of *Flavian* his Enemy. He appear'd then, accompany'd with a great Number of Soldiers, of Monks, and of Messengers or Bailiffs. What had been transacted in the preceding Sessions was read; and *Eusebius*, his Accuser, having complain'd of the Menaces *Eutyches* had caused to be made to him, of having him sent into Exile, asked him, how the Profession of Faith of St. *Cyril* was recited, by which that Father confessed two Natures in Christ, if he was of the same Sentiment? He answer'd, that he acknowledg'd two Natures before the Union, and but one after it. The Patrice *Florentius* pressed him to retract that Blasphemy; but as he persisted obstinately in it, he was degraded by the Synod from the Priesthood, deprived of the Superiority of his Monastery, and of the ecclesiastical Communion, as well as all those who had any Communication with him.

Flavian wrote presently after to Pope *Leo*, to inform him of what had been done, in the Condemnation of *Eutyches*; and to desire his Beatitude, that he would be pleased to let all the Bishops, who were under his Jurisdiction, know it, left thro' Ignorance some of them should keep Correspondence with that Heretick, believing him orthodox. *Eutyches*, on his Side, wrote to him likewise a very artful Letter, and full of Falsehoods; whereby he assured him, that he

he had appealed from the Judgment of the Synod to his Holiness, but that his Appeal had not been minded: Protesting, at the same Time, that he was ready to correct in his Opinions all that he would disapprove. But to gain him on his Side, he found Means to have his Dispatches carried to *Rome* before those of *Flavian*. Not contented with that, he engaged *Theodosius* to complain, that the synodal Acts had been falsified; and dispersed thro' *Constantinople* Libels, where he complain'd of the Injustice done to him. *Chrysophius*, his Protector, procured him, the Year following, Letters from *Theodosius* to Pope *Leo*, to recommend his Innocence to him. As *Leo* had not yet received *Flavian*'s Letter, he answer'd the Emperor (*Epist.* 17.) that 'he prized much his Zeal for 'the Christian Religion, and to prevent Schisms, Heresies and Scandals, from making any Progress in 'it. That he had receiv'd some Complaints from the 'Priest *Eutyches*, who protested to keep the Faith of '*Nice*; and a Libel of Accusation against the Bishop '*Eusebius*, where the particular Fact was not clearly 'stated; so that he had wrote to *Flavian* to let him 'know, that he was in the wrong not to inform him 'of what had been done in an Affair of that Importance; but he hoped, after that Advice, he would 'send him an exact Relation; thereby discovering 'what was yet hidden, he would judge what could be 'agreeable to the Evangelical and Apostolical Doctrine.'

Flavian answer'd his Letter, (*Tom.* 1. *Epist. Pontif.* pag. 165.) and inform'd him of the Impiety of *Eutyches*, which had obliged the Bishops to condemn him; and entreating him to make of the common Cause his own Cause; by declaring that the Condemnation had been regularly made; and would be pleased to confirm by his Writings the Faith of the most pious Emperor. 'For the Cause, says he, wants but 'your Consent and Approbation, to conduct all Things 'to Tranquility and Peace: Thus the Heresy which 'has been invented lately, and the Troubles it has 'caused, will be easily appeased, God co-operating 'with your sacred Letters.'

Chrysophius, who supported with Impatience the Condemnation of *Eutyches*, employ'd all his Artifices near the Emperor, to make it fall on the Head of *Flavian*. He persuaded him, on the frequent Complaints made by the Heresiarch, to assemble Bishops at *Constantinople*, to revise his Cause: In Consequence thereof, Thirty were assembled, in Synod, in the Month of *April*, in the Baptistery of the great Church. All that passed in that Synod, is fairly and impartially related in my Treatise of the *Councils*; therefore a Repetition of the same, would be too tedious in this Place: All I can say is, that notwithstanding all the Intrigues of *Eutyches*, and the great Credit of his Protector and Partisans, his Condemnation was confirm'd in this Synod. Which Disappointments being not capable to disconcert *Eutyches*, he asked, as a new Favour, that *Dioscorus* of *Alexandria*, who was infected with his Error, should be appointed to revise his Affair, which was also granted by *Theodosius*, who for that Purpose assembled a Council at *Ephesus*, where *Dioscorus* presided, where *Flavian* was murther'd by *Dioscorus* himself, *Eusebius* of *Dorilæa* sent into Exile, and all that had been done against *Eutyches*, in the two Synods of *Constantinople*, broken and annull'd; as it may be seen at large in my Treatise of the *Councils*.

Theodosius had wrote to Pope *Leo*, to desire him to come to the Council; but the Term was so short, that if the Pope had even the least Inclination to it, it had been absolutely impossible: For he received the Emperor's Letter but the Eleventh of *May*, and he should have been at *Ephesus* the First of *August*. He notwithstanding wrote to the Emperor, to dissuade him from that Assembly, where he could not be in Person; for, besides that the Thing was without Example, the present Condition of the City of *Rome* could not permit him to be absent from it. But his Letters proving insignificant, he resolved to send his Legates to *Ephesus*; who were *Julian* Bishop of *Pouzol*, *Renatus* Priest, *Hilary* Deacon; and *Dulcitius* his Notary, to represent him in the Council.

He gave them an Epistle or Constitution, wherein he explains at length, and in a marvellous Manner, the Catholick Doctrine of the Incarnation; and tho' it be addressed to *Flavian*, it was nevertheless for all the Bishops of the Church; and became afterwards of such Authority, that every one receiv'd it as a Rule of Faith; and the Custom was introduced in the West, to read it every Year in the Church, in the Month of *December*, before the Feast of the Nativity of our Lord. Those particular Marks of the great Veneration which the whole Christian World had for that Epistle of *Leo*, have engaged me to translate it here at length, for the Instruction and Satisfaction of the Reader.

LEO, *Bishop, to his dearly-beloved* Flavian, *Bishop of* Constantinople.

Having read the Letters of your Dilection, and examined the episcopal Acts you have sent me, we have at last discovered the Scandal happened among you, and what has been done against the Faith; and the Things which first appeared embarrassed to us, are, at present, very conspicuous. At present *Eutyches*, whom the Name of Priest, seemed to render respectable, appears to us imprudent and ignorant; and it seems that it is of him the Prophet speaks, when he says, *He has left off to be wise and to do Good; he devises Mischief upon his Bed.* For what can be more iniquitous, than to have impious Sentiments, and to not believe those who are wiser and more learned? But those fall into that Folly who being stopt by some Obscurities in the Knowledge of Truth, instead of having Recourse to the Writings of the Prophets, and of the Apostles, have Recourse but to themselves; and thus not to be Disciples of the Truth, become Masters of Error. But what Intelligence of the Old and New Testament, can it be said that *Eutyches* has acquired, he who does not so much as know the first Articles of the Symbol? What is confessed by all those who are regenerated by Baptism, is not yet understood by that old Man; then not knowing what he ought to believe of the Incarnation of the Word of God, and unwilling to work to learn it, in the large Field of the sacred Scriptures, we could have wished that he had understood that common Confession of Faith, whereby all the Faithful protest to believe in God the Father Almighty, and in *Jesus Christ* his only Son our Lord, who is born of the Virgin *Mary* by the Operation of the Holy Ghost, three Sentences where all the Machinations of Hereticks are almost destroyed.

For when one believes that God is Almighty and Eternal, one shews that his Son is eternal with him, and that he differs in nothing from the Father, because he is born God of God, Almighty from the Almighty, and co-eternal; neither Posterior in Time, nor Inferior in Power, nor dissemblable in Glory, nor divided in Essence. But the same eternal and only Son of him who begets him eternally, is born of the Virgin *Mary* by the Operation of the Holy Ghost; and that temporal Nativity, which has deprived of nothing, nor given any Thing new, to the divine and eternal Nativity, has wholly employ'd and given herself for the Reparation of Man (who had been seduced) to ruin Death, and destroy, by his Virtue, the Reign of the Devil, who had the Empire of Death. For we could not have conquered the Author of Sin and Death, if he whom Sin could not affect, nor Death keep under its Power, had not took our Nature, and made it his own; therefore he has been conceived in the Womb of the Virgin his Mother, by the Operation of the Holy Ghost, who has brought him into the World, without any Lesion of her Virginity, as she had conceived him, without its having been in the least offended.

But if *Eutyches* could not draw that sincere Sentiment from the pure Fountain of the Faith, because he had eclipsed in him, by a contrary Blindness, the

Splendor of the Truth; why would he not ſubmit himſelf to the Authority of the evangelical Doctrine, in St. *Matthew*, who ſays, the Book of the Genealogy of *Jeſus Chriſt*, Son of *David*, Son of *Abraham?* Why would he not hear the apoſtolical Predication of St. *Paul*, who, writing to the *Romans*, begins thus: *Paul a Servant of Jeſus Chriſt, called to be an Apoſtle, ſeparated unto the Goſpel of God (which he had promiſed before by his Prophets in the Holy Scriptures) concerning his Son Jeſus Chriſt our Lord, which was made of the Seed of David according to the Fleſh?* Why would he not conſult, with Attention and Care, the Writings of the Prophets, and he had found the Promiſe God made to *Abraham*, ſaying, *Geneſ.* xxii. *And in thy Seed ſhall all the Nations of the Earth be bleſſed.* And not to be in doubt of him, who was to be that Seed, he had followed the Apoſtle, who ſpeaks thus: *The Promiſes have been made to Abraham and to his Seed.* God does not ſay Seeds, as if there were ſeveral, but to thy Seed, as ſpeaking of one alone, which is Chriſt. He had inwardly conceived what *Iſaiah* ſays, Chap. vii. *Behold a Virgin ſhall conceive and bear a Son, and ſhall call his Name Emanuel*; which ſignifies, God with us. He had read theſe Words of the ſame Prophet, Chap. ix. *Unto us a Child is born, unto us a Son is given, and the Government ſhall be upon his Shoulder: And his Name ſhall be called Wonderful, Counſellor, the mighty God, the Everlaſting Father, the Prince of Peace.*

He would not abandon himſelf to ſay, without Reaſon, that the Word has been in ſuch a Manner made Fleſh, that Chriſt being come from the Womb of the Virgin, had the Form of Man, but had not the Truth of the maternal Body; becauſe the Angel ſent to *Mary*, ſays to her; *The Holy Ghoſt ſhall come upon thee, and the Power of the Higheſt ſhall overſhadow thee: therefore alſo that holy Thing which ſhall be born of thee, ſhall be called the Son of God.* As if becauſe the Conception of the Virgin has been a divine Operation, the Fleſh of the Infant conceived was not the Nature of the Mother conceiving: But that Generation ſingularly marvellous, and marvelloſly ſingular, muſt not be underſtood ſo that by the Novelty of the Creation, the Truth of the Nature be deſtroyed. For the Holy Ghoſt has given the Fecundity to the Virgin, and the Truth of the Body of *Jeſus Chriſt* has been taken from the Body of his Mother. And the ſupreme Wiſdom building to himſelf a Houſe, *The Word was made Fleſh and dwelt among us*; that is to ſay, in the Fleſh he has taken from Man, and which was animated with a rational Soul. Therefore each Nature preſerving its Property, and uniting in one Perſon, a low Condition has been taken for Majeſty, Infirmity for Power, Mortality for Eternity: And to pay the Debt of Men, the inviolable Nature has united herſelf to a paſſible Nature, that our Remedy being proportioned to our Malady, the only Mediator between God and Men, *Jeſus Chriſt* a Man, could die as Man, and not die as God.

Therefore the true God is born with the perfect Nature of a true Man, poſſeſſing all that's his own, and all that's ours. I call ours the natural Advantages in which God created us at the Beginning, and which Chriſt is come to repair; for what the deceiving Devil has ſlidden into human Nature, and which the deceived Man has received, has not had the leaſt Place in Chriſt; and we muſt not imagine, that becauſe he is enter'd into the Society of our Infirmities and Miſeries, he has alſo participated to our Sins. He has took the Form of a Slave, without taking the Sin, raiſing the Humanity to a higher Degree, without debaſing the Divinity; becauſe that Humiliation, whereby the Inviſible has render'd himſelf Viſible; and the Creator and Maſter of all Things would become one of the mortal Kind; has been an Humiliation of Mercy, and not a Defect of Power; for each Nature has, without Defect, retain'd its Property: And as the Form of God has not took off the Form of Man, likewiſe the Form of God has not took off the Form of Slave. The Devil glorified himſelf, that Man, deceived by his Fraud, was deprived of the Advantages he had received from God, and that having loſt the Gift of Immortality, he was under a Sentence of Death. He gloried that God, by his Juſtice ordering it thus, had changed his Will for Man, whom he had created in ſo high a State of Honour; and it was a Sort of Conſolation for him, in his Misfortune, to have a Companion of his Fault. Therefore it was neceſſary, that by the ſecret Conduct of an adorable Council, God, who is immutable, and whoſe good Will cannot be deceived in his Deſigns, ſhould accompliſh the firſt Reſolution of his Mercy, by a hidden Myſtery; that Man, whom the Devil had prompted to Sin by his Artifices, ſhould not periſh; God wanting to ſave him.

Therefore, the Son of God enters this ſublunary World, deſcending from the celeſtial Throne, without departing from the Glory of his Father, and being begotten by a new Birrh, and of a new Order. There is a new Order, becauſe he being inviſible in his Nature, he has rendered himſelf viſible to ours. The incomprehenſible would be compriſed; he who was before all Times, would begin to live in Time. The Lord of this vaſt Univerſe has took the Form of a Slave; veiling the Immenſity of his Majeſty, under the Cloud of a Body. The Impaſſible has made himſelf capable to ſuffer, and the Immortal would be ſubject to Death. There is a new Nativity, becauſe the inviolable Virginity of *Mary*, having not the leaſt Motion of Concupiſcence, has furniſhed the Matter whereof that Body was formed. The Nature, then, has been taken from the Mother of the Lord, and not the Sin; and from that the Nativity of *Jeſus Chriſt* conceived in the Womb of the Virgin, is miraculous, it muſt not be concluded, that the Nature is different. For he who is true God, is alſo true Man; and there is no Falſhood in that Union, where the Meanneſs of Man is found united with the Sublimity of the Divinity; and whereas God is not changed by the Humiliation his Mercy has reduced him to, Man is not conſumed by the Dignity to which he is rais'd; one Nature acts with a reciprocal Communication of its Properties to the other. The Word co-operating what is of the Word, and the Fleſh exerciſing what is of the Fleſh. The one ſhines with Miracles, and the other is conquered by Miſeries. And as the Word has not loſt the Quality of the paternal Glory; thus the Fleſh has not quitted the Nature of the human Race. For the ſame (which muſt be often repeated) is truly the Son of God, and truly the Son of Man: God, becauſe the Word was at the Beginning, and the Word was in God, and God was the Word: Man, becauſe the Word has made himſelf Fleſh, and has inhabited within us: God, becauſe all Things have been made by him, and nothing has been made without him: Man, becauſe he has been form'd of a Woman, and form'd under the Law.

The Nativity of the Fleſh, is the Manifeſtation of the human Nature; and the Delivery of a Virgin, is the Proof of the divine Power. The Infancy of the little one, is ſhewn by the Humility of the Manger; and the Power of the Almighty, is declared by the Canticks of the Angels. He whom the impious *Herod* attempted to put to Death, is ſemblable from the Beginning of his Life to the other Children of Men: But he whom the Magi come to adore, with ſo much Humility, is the Maſter of all. When he preſented himſelf to the Baptiſm of *John* his Precurſor, leſt his Divinity ſhould remain hid under the Veil of his Fleſh, the heavenly Father cauſed this Voice to be heard from Heaven, *This is my beloved Son.* He whom the Deceit of the Devil has dared to tempt as a Man, in the Deſart, receives there as God, the Services of the Angels. To be hungry, to be thirſty, to be fatigued, to ſleep, it is certainly a human Thing; but to feed five thouſand Men with five Loaves, to give to the Woman from *Samaria* Water of Life, which quenches the Thirſt for ever, to walk on the Sea without ſinking, to appeaſe the Rage of Winds, by commanding the Tempeſt, is certainly a divine Thing. Therefore, (that I may paſs by ſeveral other Things in Silence) as it is not

not the Property of one and the same Nature, to mourn a Friend deceased, by a Motive of Tenderness and Affection, and to raise him from the Dead by the sole Command of his Word; to be crucified, and to change the Day into Night, and to throw all the Elements into Confusion; to be nailed, and open the Gates of Heaven to a Thief: Likewise, it is not a third Nature, who says, *I and my Father are one, and my Father is greater than me.*

Though in *Jesus Christ* our Lord, God and Man there is but one Person, notwithstanding, he is both equal and inferior to his Father; from us he holds his Humanity, which renders him less than his Father; from the Father he holds the Divinity, which renders him equal to him, because of the Unity of the Person, which must be understood in his double Nature. It is said that the Son of Man is descended from Heaven, when the Son of God has took his Flesh from the Virgin, from whom he is born; and again, that the Son of God has been crucified and buried; tho' he has not suffered those Things in his Divinity, whereby he is consubstantial and coeternal with his Father, but in the Weakness of the human Nature; whence we all confess in the Symbol, that the only Son of God has been crucified and buried, according to what the Apostle says, 1 *Cor.* ii. *If they had known it, they would not have crucified the Lord of Glory.* When that same God, our Lord and Saviour, instructed his Apostles in the Faith, in asking them, whom *Men said the Son of Man was?* His Disciples declar'd to him the various Opinions Men had of him. But you, continued he, whom say you that I am, who am the Son of Man, and whom you see in the Form of a Slave, and covered with human Flesh? Then the blessed *Peter*, being divinely inspir'd, made that Confession, so glorious to both Natures, *Thou art Christ the Son of the living God.* After this, it was not without Reason, the Lord pronounced that he was blessed; and that he extracted from the principal and fundamental Stone, the Solidity of his Name, and of his Virtue; he, who by the Revelation of the Father, had confess'd that the same Person was the Son of God and the Christ; because the Confession of the one, could not be useful to Salvation, unless the Confession of the other was joined to it; and that there was an equal Peril for the Faith, to believe that our Lord *Jesus Christ* was God only, or to believe that he was Man only.

But after the Resurrection of the Lord, who has been of a true Body, for he is not risen another, than he who had been crucified and buried; what else has he done, during the forty Days he remained upon Earth, than to dissipate, by his Apparitions, all the Clouds which could darken our Faith. Therefore he used to speak with his Disciples, to dwell, and eat with them; and to suffer that those who doubted, should feel him, with some Curiosity: He entered, while the Doors were shut, the Places where his Apostles were assembled, and would give them the Holy Ghost by breathing on them. He enlightened their Mind with a celestial Light, to make them understand the sacred Scripture; but, at the same Time, he would shew them the Cicatrices of the Nails, and all the Marks of the Passion he had lately suffered, saying to them, see my Feet and my Hands, it is myself; feel and see that a Spirit has neither Flesh nor Bones, as you see me have; to teach them thereby, that the Properties of the divine, and of the human Nature, remained in him without Division; and that we should know that the Word is not what the Flesh is, but that the Son of God is together, Flesh, and the Word.

But *Eutyches* shews but too well, that he conceives nothing of that Mystery of the Faith, in refusing to acknowledge our Nature in the Son of God, either by the Mortality to which his Flesh has been subject, or by the Glory of his Resurrection, without being afraid of this Sentence of the Apostle and Evangelist St. *John*, *Whoever confesses that Jesus Christ is come with a true Flesh, is of God; and whoever divides Jesus Christ is not of God, but is the Antichrist.* And what is to divide *Jesus*, but to separate him from the human Nature; and to destroy by chimerical and imprudent Inventions, the Sacrament of the Faith, whereby we are saved? But he who is blind on the Nature of Christ's Body, must also, thro' the same Blindness, advance some Follies on his Passion. For if he does not believe that the Cross of the Lord is false, if he does not doubt that the Supplice he has suffered for our Salvation is true; he must acknowledge a true Body in him, whose Death he believes, and not deny that he whom he knows to have been passible, has had a Body like ours; because to deny a true Flesh, is to deny, by a necessary Consequence, a corporeal Passion.

Therefore, if he receives the Christian Faith, and does not stop his Ears to the Doctrine of the Gospel; let him consider, which Nature has been pierced with Nails, and fixed on the Cross, and viewing the Side of the crucified open'd with the Launce of the Soldier, let him understand from whence the Blood and Water did run, that the Church of God might have a Bath to wash herself in, and drink to quench her Thirst. Let him hear the blessed Apostle say, that the Sanctification of the Spirit has been made by the Aspersion of the Blood of that *Christ*; let him read with Attention, these other Words of the first of St. *Peter*, i. *Know that you were not redeemed with corruptible Things, as Silver and Gold, from your vain Conversation, received by Tradition (that is to say from Idolatry) but with the precious Blood of Christ, as of a Lamb without Blemish, and without Spot.* Let him not resist the Testimony of the blessed *John*, who says, 1 *John*, ii. *The Blood of Jesus, Son of God, cleanses us from all Sin.* And in another Place, the Victim which triumphs over the World is our Faith, and who is he that triumphs over the World, but he who believes that *Jesus Christ* is the Son of God. It is *Jesus Christ* who is come by Water and by Blood, and not by Water alone, but by Blood and by Water; and the Spirit testifies that *Christ* is the Truth; because Three in Heaven bear witness to him, the Spirit, the Blood, and the Water: And these Three are but One; that's to say, the Spirit of Sanctification, the Blood of Redemption, and the Water of Baptism; three Things which are but one, and which remain undivided, without being separated from one another, because the Catholick Church lives and increases by Faith, which is the Cause why we neither believe a Divinity without a true Humanity in *Christ*, nor an Humanity without a true Divinity.

But when *Eutyches* answered, when you examin'd him, *I confess two Natures in our Lord, before the Adunation or Union*, I am surprised that so absurd, and so perverse a Confession, has been objected against by none of the Judges, and that a Discourse so silly, and so blasphemous, has been left to pass, as if nothing had been heard which could offend the Ears. For there is as much Impiety to say, that before the Union there were two Natures in *Jesus Christ*; as there is Wickedness to maintain, that after the Union there is but one. And that *Eutyches* may not imagine, that this Manner of speaking is either right or tolerable, because neither of you has refuted it, we advise your Dilection, beloved Brother, to take Care, if by God's Mercy this Affair takes a Turn to the Satisfaction of the Church, that the Spot of this bad Sentiment, advanced by that Man, as imprudent as he is ignorant, be blotted thro' your Care and Diligence. For (as we have learn'd by the Synod's Acts) he had very well begun to quit his bad Opinions, when being pressed by your Judgment, he began to say what he had not said before, and to acquiesce to the Faith he was far off; but as he would not subscribe to the Anathema of his impious Dogma, your Paternity discovered that he remained still in his Perfidy, and deserv'd to be condemned.

However, if at present he repents sincerely of what he has done, if he acknowledges with how much Reason the episcopal Authority has been ex-

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Splendor of the Truth; why would he not ſubmit himſelf to the Authority of the evangelical Doctrine, in St. *Matthew*, who ſays, the Book of the Genealogy of *Jeſus Chriſt*, Son of *David*, Son of *Abraham?* Why would he not hear the apoſtolical Predication of St. *Paul*, who, writing to the *Romans*, begins thus: *Paul a Servant of Jeſus Chriſt, called to be an Apoſtle, ſeparated unto the Goſpel of God (which he had promiſed before by his Prophets in the Holy Scriptures) concerning his Son Jeſus Chriſt our Lord, which was made of the Seed of David according to the Fleſh?* Why would he not conſult, with Attention and Care, the Writings of the Prophets, and he had found the Promiſe God made to *Abraham*, ſaying, *Geneſ.* xxii. *And in thy Seed ſhall all the Nations of the Earth be bleſſed.* And not to be in doubt of him, who was to be that Seed, he had followed the Apoſtle, who ſpeaks thus: *The Promiſes have been made to Abraham and to his Seed.* God does not ſay Seeds, as if there were ſeveral, but to thy Seed, as ſpeaking of one alone, which is Chriſt. He had inwardly conceived what *Iſaiah* ſays, Chap. vii. *Behold a Virgin ſhall conceive and bear a Son, and ſhall call his Name Emanuel*; which ſignifies, God with us. He had read theſe Words of the ſame Prophet, Chap. ix. *Unto us a Child is born, unto us a Son is given, and the Government ſhall be upon his Shoulder: And his Name ſhall be called Wonderful, Counſellor, the mighty God, the Everlaſting Father, the Prince of Peace.*

He would not abandon himſelf to ſay, without Reaſon, that the Word has been in ſuch a Manner made Fleſh, that Chriſt being come from the Womb of the Virgin, had the Form of Man, but had not the Truth of the maternal Body; becauſe the Angel ſent to *Mary*, ſays to her; *The Holy Ghoſt ſhall come upon thee, and the Power of the Higheſt ſhall overſhadow thee: therefore alſo that holy Thing which ſhall be born of thee, ſhall be called the Son of God.* As if becauſe the Conception of the Virgin has been a divine Operation, the Fleſh of the Infant conceived was not the Nature of the Mother conceiving: But that Generation ſingularly marvellous, and marvellouſly ſingular, muſt not be underſtood ſo that by the Novelty of the Creation, the Truth of the Nature be deſtroyed. For the Holy Ghoſt has given the Fecundity to the Virgin, and the Truth of the Body of *Jeſus Chriſt* has been taken from the Body of his Mother. And the ſupreme Wiſdom building to himſelf a Houſe, *The Word was made Fleſh and dwelt among us*; that is to ſay, in the Fleſh he has taken from Man, and which was animated with a rational Soul. Therefore each Nature preſerving its Property, and uniting in one Perſon, a low Condition has been taken for Majeſty, Infirmity for Power, Mortality for Eternity: And to pay the Debt of Men, the inviolable Nature has united herſelf to a paſſible Nature, that our Remedy being proportioned to our Malady, the only Mediator between God and Men, *Jeſus Chriſt* a Man, could die as Man, and not die as God.

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Therefore, the Son of God enters this ſublunary World, deſcending from the celeſtial Throne, without departing from the Glory of his Father, and being begotten by a new Birth, and of a new Order. There is a new Order, becauſe he being inviſible in his Nature, he has rendered himſelf viſible to ours. The incomprehenſible would be compriſed; he who was before all Times, would begin to live in Time. The Lord of this vaſt Univerſe has took the Form of a Slave; veiling the Immenſity of his Majeſty, under the Cloud of a Body. The Impaſſible has made himſelf capable to ſuffer, and the Immortal would be ſubject to Death. There is a new Nativity, becauſe the inviolable Virginity of *Mary*, having not the leaſt Motion of Concupiſcence, has furniſhed the Matter whereof that Body was formed. The Nature, then, has been taken from the Mother of the Lord, and not the Sin; and from that the Nativity of *Jeſus Chriſt* conceived in the Womb of the Virgin, is miraculous, it muſt not be concluded, that the Nature is different. For he who is true God, is alſo true Man; and there is no Falſhood in that Union, where the Meanneſs of Man is found united with the Sublimity of the Divinity; and whereas God is not changed by the Humiliation his Mercy has reduced him to, Man is not conſumed by the Dignity to which he is rais'd; one Nature acts with a reciprocal Communication of its Properties to the other. The Word co-operating what is of the Word, and the Fleſh exerciſing what is of the Fleſh. The one ſhines with Miracles, and the other is conquered by Miſeries. And as the Word has not loſt the Quality of the paternal Glory; thus the Fleſh has not quitted the Nature of the human Race. For the ſame (which muſt be often repeated) is truly the Son of God, and truly the Son of Man: God, becauſe the Word was at the Beginning, and the Word was in God, and God was the Word: Man, becauſe the Word has made himſelf Fleſh, and has inhabited within us: God, becauſe all Things have been made by him, and nothing has been made without him: Man, becauſe he has been form'd of a Woman, and form'd under the Law.

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Though in *Jesus Christ* our Lord, God and Man there is but one Person, notwithstanding, he is both equal and inferior to his Father; from us he holds his Humanity, which renders him less than his Father; from the Father he holds the Divinity, which renders him equal to him, because of the Unity of the Person, which must be understood in his double Nature. It is said that the Son of Man is descended from Heaven, when the Son of God has took his Flesh from the Virgin, from whom he is born; and again, that the Son of God has been crucified and buried; tho' he has not suffered those Things in his Divinity, whereby he is consubstantial and coeternal with his Father, but in the Weakness of the human Nature; whence we all confess in the Symbol, that the only Son of God has been crucified and buried, according to what the Apostle says, 1 *Cor.* ii. *If they had known it, they would not have crucified the Lord of Glory.* When that same God, our Lord and Saviour, instructed his Apostles in the Faith, in asking them, whom *Men said the Son of Man was?* His Disciples declar'd to him the various Opinions Men had of him. But you, continued he, whom say you that I am, who am the Son of Man, and whom you see in the Form of a Slave, and covered with human Flesh? Then the blessed *Peter*, being divinely inspir'd, made that Confession, so glorious to both Natures, *Thou art Christ the Son of the living God.* After this, it was not without Reason, the Lord pronounced that he was blessed; and that he extracted from the principal and fundamental Stone, the Solidity of his Name, and of his Virtue; he, who by the Revelation of the Father, had confess'd that the same Person was the Son of God and the Christ; because the Confession of the one, could not be useful to Salvation, unless the Confession of the other was joined to it; and that there was an equal Peril for the Faith, to believe that our Lord *Jesus Christ* was God only, or to believe that he was Man only.

But after the Resurrection of the Lord, who has been of a true Body, for he is not risen another, than he who had been crucified and buried; what else has he done, during the forty Days he remained upon Earth, than to dissipate, by his Apparitions, all the Clouds which could darken our Faith. Therefore he used to speak with his Disciples, to dwell, and eat with them; and to suffer that those who doubted, should feel him, with some Curiosity: He entered, while the Doors were shut, the Places where his Apostles were assembled, and would give them the Holy Ghost by breathing on them. He enlightened their Mind with a celestial Light, to make them understand the sacred Scripture; but, at the same Time, he would shew them the Cicatrices of the Nails, and all the Marks of the Passion he had lately suffered, saying to them, see my Feet and my Hands, it is myself; feel and see that a Spirit has neither Flesh nor Bones, as you see me have; to teach them thereby, that the Properties of the divine, and of the human Nature, remained in him without Division; and that we should know that the Word is not what the Flesh is, but that the Son of God is together, Flesh, and the Word.

But *Eutyches* shews but too well, that he conceives nothing of that Mystery of the Faith, in refusing to acknowledge our Nature in the Son of God, either by the Mortality to which his Flesh has been subject, or by the Glory of his Resurrection, without being afraid of this Sentence of the Apostle and Evangelist St. *John*, *Whoever confesses that Jesus Christ is come with a true Flesh, is of God; and whoever divides Jesus Christ is not of God, but is the Antichrist.* And what is to divide *Jesus*, but to separate him from the human Nature; and to destroy by chimerical and imprudent Inventions, the Sacrament of the Faith, whereby we are saved? But he who is blind on the Nature of Christ's Body, must also, thro' the same Blindness, advance some Follies on his Passion. For if he does not believe that the Cross of the Lord is false, if he does not doubt that the Supplice he has suffered for our Salvation is true; he must acknowledge a true Body in him, whose Death he believes, and not deny that he whom he knows to have been passible, has had a Body like ours; because to deny a true Flesh, is to deny, by a necessary Consequence, a corporeal Passion.

Therefore, if he receives the Christian Faith, and does not stop his Ears to the Doctrine of the Gospel; let him consider, which Nature has been pierced with Nails, and fixed on the Cross, and viewing the Side of the crucified open'd with the Launce of the Soldier, let him understand from whence the Blood and Water did run, that the Church of God might have a Bath to wash herself in, and drink to quench her Thirst. Let him hear the blessed Apostle say, that the Sanctification of the Spirit has been made by the Aspersion of the Blood of that *Christ*; let him read with Attention, these other Words of the first of St. *Peter*, i. *Know that you were not redeemed with corruptible Things, as Silver and Gold, from your vain Conversation, received by Tradition (that is to say from Idolatry) but with the precious Blood of Christ, as of a Lamb without Blemish, and without Spot.* Let him not resist the Testimony of the blessed *John*, who says, 1 *John*, ii. *The Blood of Jesus, Son of God, cleanses us from all Sin.* And in another Place, the Victim which triumphs over the World is our Faith, and who is he that triumphs over the World, but he who believes that *Jesus Christ* is the Son of God. It is *Jesus Christ* who is come by Water and by Blood, and not by Water alone, but by Blood and by Water; and the Spirit testifies that *Christ* is the Truth; because Three in Heaven bear witness to him, the Spirit, the Blood, and the Water: And these Three are but One; that's to say, the Spirit of Sanctification, the Blood of Redemption, and the Water of Baptism; three Things which are but one, and which remain undivided, without being separated from one another, because the Catholick Church lives and increases by Faith, which is the Cause why we neither believe a Divinity without a true Humanity in *Christ*, nor an Humanity without a true Divinity.

But when *Eutyches* answered, when you examin'd him, *I confess two Natures in our Lord, before the Adunation or Union*, I am surprised that so absurd, and so perverse a Confession, has been objected against by none of the Judges, and that a Discourse so silly, and so blasphemous, has been left to pass, as if nothing had been heard which could offend the Ears. For there is as much Impiety to say, that before the Union there were two Natures in *Jesus Christ*; as there is Wickedness to maintain, that after the Union there is but one. And that *Eutyches* may not imagine, that this Manner of speaking is either right or tolerable, because neither of you has refuted it, we advise your Dilection, beloved Brother, to take Care, if by God's Mercy this Affair takes a Turn to the Satisfaction of the Church, that the Spot of this bad Sentiment, advanced by that Man, as imprudent as he is ignorant, be blotted thro' your Care and Diligence. For (as we have learn'd by the Synod's Acts) he had very well begun to quit his bad Opinions, when being pressed by your Judgment, he began to say what he had not said before, and to acquiesce to the Faith he was far off; but as he would not subscribe to the Anathema of his impious Dogma, your Paternity discovered that he remained still in his Perfidy, and deserv'd to be condemned.

However, if at present he repents sincerely of what he has done, if he acknowledges with how much Reason the episcopal Authority has been excited

cited against him; and if to give an entire Satisfaction, he renounces, and condemns openly, and by his Submission, the bad Opinions he has maintain'd, the Mansuetude, and Compassion he is to be treated with, after his Correction, will not be blameable. For our Lord, who is the true and good Pastor, who came to give his Life for his Sheep, to save the Souls, and not to lose them, wills we should imitate his Mansuetude; and that as Justice ought to punish obstinate Sinners, Mercy should not reject those who renounce their Sins. For true Faith is never advantageously defended, but when the false Opinion opposed to it is condemned by his own Partisans. Therefore to terminate all this Affair piously and faithfully, we have sent in our Place our Brothers, *Julian* and *Renatus*, Priests of the Title of St. *Clement*, and the Deacon *Hilary* my Son, to whom we have join'd *Dulcitius* our Notary, of an experienced Fidelity; hoping that the Grace of God will not fail on that Occasion, and that it will move the Heart of him who has advanced these Errors; that renouncing them he may be saved. God keep you in Health, dearly beloved Brother.

Given in the Ides of *June*, under the Consulate of *Asterius* and *Protogenes*.

Pope *Leo* wrote several other Epistles to *Pulcheria*, on the Occasion of the Council which was convoked, to recommend his Legates to her; to *Julian* Bishop of *Coos*, a very eloquent Prelate, and very zealous for the Defence of the Faith; to *Faustus*, and to *Marcian*, Abbots of *Constantinople*, and to the Fathers assembled at *Ephesus*. In this last, he says at the Beginning, 'That the religious Faith of the most clement Prince, 'knowing that his Glory was interested, that in the 'Catholick Church no Seed of Error should pallulate, 'had had that Deference for the divine Institution, to 'join the Authority of the Apostolical See, to make 'the Effect of his holy Disposition succeed: As if he 'had wished that St. *Peter* himself had declared, what 'has been prized in his Confession, thereby, in few 'Words, the Prince of the Apostles, had explained 'the Plenitude of his Faith, saying, *Thou art Christ 'the Son of the living God.* That if *Eutyches* had understood and believed that Truth, he had not deviated from the true Way of the Faith; and that 'since the most Christian Emperors wanted, that an 'Episcopal Council should be assembled, he did send 'his Legates to it to assist in his Place, in the Assembly of their Fraternity; and to establish, with 'an unanimous Consent, the Things which should be 'judged agreeable to God.'

Eutyches, on his Side, wrote to several of the most considerable Bishops of the West, among whom *Peter Chrysologus*, who govern'd then the Church of *Ravenna*, made him a marvellous Answer.

The Council which had been convoked for the First Day of *August*, began the Tenth; all that was transacted in it is clearly and impartially related in my Treatise of the *Councils*.

In this Brigandage of *Ephesus*, *Eutyches* was absolved, and his Heresy approved; *Flavian* Bishop of *Constantinople* was murther'd, even by *Dioscorus* himself (if we believe *Evagrius*) tho' *Marcellinus* in his Chronicle, and the Manuscript of the Vatican, say, that *Dioscorus* sent him into Exile, in the City of *Epepa* in *Lydia*, which *Ptolomæus* calls *Hypepa*, and that he died there of the Wounds he had received in *Ephesus*, and of the Fatigues he endured in the Place of his Banishment. *Dioscorus* deposed likewise *Ibas* of *Edessa*, and *Theodoret* of *Cyr*; or rather, he declared the last deposed by the first Council of *Ephesus*, as Partisan of *Nestorius*, in whose Favour he had wrote against the Articles of St. *Cyril*.

Assoon as *Theodoret* heard of the Sentence given him, he appeal'd to the Pope, and wrote to the Patrice *Anatolius*, to desire him to obtain from the Emperor Leave, to go into the West to be judged by the most holy Bishops, and most beloved of God, of those Places; or if he would not grant him that Liberty, that he may be permitted to confine himself in his Monastery, which was a hundred and twenty Miles distant from *Cyr*. *Theodosius* refused him those two Things, condemned his Writings to be burnt, with those of *Porphyrius*, and of *Nestorius*, and confirmed the Council of *Ephesus* as Œcumenical; decreeing very great Punishments against those who refused to submit themselves to it. The Emperor acted thus, not with any Design to establish the Heresy, but, on the contrary, thinking to defend the Truth, which he had not Light enough to discern, being entirely under the Government of *Chrysophius*, the Protector and Partisan of *Eutyches*, who abused his good Intentions, and made use of him, as of an Instrument, to gratify his private Piques and Passions; notwithstanding which, *Theodosius* was inexcusable, since he was obliged to govern by himself, or to chuse faithful Ministers, and capable to supply his Place; for if he had been pleased to take the Pains himself to examine this grand Affair, he had easily discovered the Passion which prompted *Dioscorus* and his Partisans to act against those good Bishops they accused. Complaints have always been made against this Weakness in Princes; since it is very rare to find any capable to sustain the Weight of their Dignity. Therefore *Theodoret* was forced to content himself by sending *Hypatius* and *Abramius*, rural Deans of his Diocese, and *Alypius* Abbot of *Cyr*, to *Leo* with a Letter, in which he tells him, 'That he expected the Judgment 'of the Apostolical See; and desired him that he 'would be pleased to command him to come to him, 'to give him an Account of his Doctrine, and of 'his Writings, and not to despise his unhappy old 'Age, which, after so many Toils and Fatigues, had 'been so cruelly treated; and above all, that he 'would inform him, if he must acquiesce to his Deposition, or not; protesting, that if he commands 'him to abide by the Things which have been already judged, he would do it; and never more importune any Body, but wait the inflexible Judgment 'of God; minding neither Glory nor Honour: But 'being moved at the Scandal, which caused in the 'Church the unjust Proceeding of the Bishops assembled at *Ephesus*, which could give Room to the 'Ignorant, who were not inform'd of the Truth, to 'suspect him of Heresy.'

Theodoret speaks in the same Manner, in his Letter to the Priest *Renatus*, who had been Legate at the false Council of *Ephesus*. The Pope, as the Commissaries of *Marcian* at the Council of *Chalcedon* witnessed it, receiv'd him into his Communion, and judged that he ought to be re-established. Notwithstanding the Year following he was still in Pain; but some time afterwards, *Theodosius* gave him his Liberty. All the Persecutions he suffer'd could not so much as shake his Constancy; or engage him to seek the Favour either of *Chrysophius*, or of the other Persons who were in some Credit at Court. None but *Sporatius*, Count of the Domesticks, would espouse his Defence; because he was not afraid of the Credit of the Favourite, and knew the Purity of his Faith, though reproached by his Enemies with favouring the Errors of *Nestorius*. Whatever they could do against him, he never ceased of declaiming against the unfortunate Council, where the Catholick Faith had been condemned: And answer'd *Arianus*, (*Epist.* 122, 123.) who advised him to forbear speaking so openly, lest he should still more irritate the Emperor: 'That 'knowing his good Intention, he thank'd him for his 'Advice; but could not receive it, because the divine Apostle commanded the contrary: That for 'him he was afraid of nothing; and that far from 'being afflicted at the Miseries he suffer'd in his 'Exile, he was full of Joy; and blessed him, who 'had render'd him worthy of suffering something for 'his Name.' *Uranius* having received that Answer, wrote to him again, and sent him some Alms for his Subsistence; which he received willingly, as coming from his Friend, having refused those which some other Bishops had sent him; not by Scorn, but to keep the Poverty, which he reputed an inestimable Treasure.

Treasure. Several of his Brother Bishops had abandon'd him; the one because they maintained the Heresy of *Eutyches*, and the others because he was out of Favour at Court, with which they were not willing to quarrel for his Sake; though they condemned in their Heart the Persecution he suffer'd for the Defence of the Church. Such was a Prelate call'd *Romulus*, to whom he writes a Letter full of Friendship, to excuse the Timidity which hinder'd him from professing openly the orthodox Doctrine, though he did it in secret. Certainly the Fear of a secular Power, in Matters of Religion, is not pardonable to a true Christian, who ought to confess *Jesus Christ* before Man, if he wants that Christ should confess him before his Father. But it is abominable in Bishops, who are oblig'd to be an Example of Courage and Intrepidity to their Flock, and who by acting otherwise are Wolves, and not true Pastors.

The Legate *Hilary* having informed Pope *Leo* of the Condemnation of *Flavian*, and of the other Orthodox Bishops; to remedy to all those Disorders, he assembled a Synod at *Rome* of the Bishops of the West, where he annulled all that had been done in the Conciliabulum of *Ephesus*. *Hilary* took care to inform *Pulcheria* of it, desiring her at the same Time, to continue to defend the Faith, always with the same Courage and Intrepidity. *Leo* wrote to her likewise, in the Name of the Synod, and to *Theodosius*, to intreat him, in the Name of all the occidental Churches, to suffer, that Things should remain in the same Condition, they were before the Council held at *Ephesus*, till another greater, composed of all the Bishops of the World, could be assembled; and to order that it should be held in *Italy*, to judge of the Opposition of his Legates, and of the Appeal *Flavian* had intrusted them with; whereby to pacify in such a Manner all Things, and to reunite so well all Minds, that no doubt should remain on the Faith, nor any Bitterness against the fraternal Charity. Three Days afterwards the Synod addressed two Letters to the Church of *Constantinople*, and to the Archimandrites, which were carried by *Epiphanius* and *Denis*, Notaries of the *Roman* Church; in which, protesting of never admitting to their Communion, nor of reckoning among the Bishops him who might be put in *Flavian*'s Place, they condemn with Execration the Heresy of *Eutyches*, and exhort the Faithful to suffer any Thing rather than abandon the Faith.

The Emperor *Valentinian*, *Placidia*, his Mother, and the young *Eudoxia* his Wife, happening to be at *Rome* in the Month of *November*, for the Feast of the Dedicace of St. *Peter*'s Church; *Leo*, environed with a great Number of Bishops who had assisted at the Council, addressed himself to them, and being yet at the Altar, made them with Tears, the Recital of what had been done at *Ephesus* against the Faith, and against *Flavian*, because he had appealed to the apostolical See, and to the Western Bishops, imploring their Authority. To apply some Remedy to those Evils, they all three wrote to *Theodosius* to desire him to refer the Judgment of *Flavian* to a Council, and would give Leave that it should be assembled in *Italy*. *Theodosius* answered them every one in particular; declaring that 'his sole Intention had been to preserve 'the Religion he had received from his Ancestors; 'and for that Subject having caused a Council to be 'assembled at *Ephesus*, the Question had been examined in Presence of the Bishops, with all sort of 'Liberty; that those had been deposed from the Sacerdoce who had been thought deserving that Punishment, and among others *Flavian*, as Author of 'a dangerous Novelty; and that by those Means 'Peace had been restored to the Churches; therefore 'there was no need of another Council.'

Dioscorus, who hated mortally Pope *Leo*, for having declared himself so openly against the Heresy of *Eutyches*, excommunicated him at his Return into his Diocese of *Alexandria*, where he assembled a Synod of his Bishops; but ten only had part in that sacrilegious Undertaking. For the others, though infected with *Eutyches*'s Heresy, had not the Temerity to subscribe to the Condemnation of the Pope. *Theodoret* wrote on that Subject (*Epist.* 125.) to *John*, Bishop of *Germanicy*, where he declares that 'he fears a general 'Apostacy in the East, seeing that those who wished '(as they said) for Things which had passed at *Ephesus*, far from being touched with Repentance; added 'Injustice to Injustice, and Impiety to Impiety! 'and that the others had not Courage enough to condemn publickly, the Evil they had done.' Therefore we see that the Eastern Church was governed in those unfortunate Days, by so pusillanimous and weak Bishops, that they consented to the Evils they did not approve, for Fear of disobliging the Emperor, or rather his Favourite *Chrysophius*, who governed him; and who abused his Authority.

Pulcheria seeing the Faith attacked from all Parts, and her Brother engaged by that wicked Minister, to oppress it, quitted the Solitude where she had retired, and returned to Court; where she soon changed, by her Presence, the Face of the Affairs. For she made *Theodosius* so sensible, that *Chrysophius* had abused his Authority, by engaging him to protect *Eutyches*, who was a detestable Heresiarch, against *Flavian* and the other Orthodox Bishops; that the Emperor, touched with an extreme Repentance, repaired his Fault as well as he could. He banished *Chrysophius* after he had divested him of all his Dignities, and confiscated his Estate. *Pulcheria* (says *Nicephorus*, *Lib.* 14. *c.* 49. and *Marcell. Chr.*) delivered him into the Hands of *Jordan*, the Son of a Man of Quality, whom he had caused to be put to Death. The divine Justice made use of *Jordan* to rid the World of a wicked Minister, who, to gratify his particular Hatred against *Flavian*, had almost ruined the Church. *Theodosius*, not yet satisfied with this Act of Justice, he ow'd to Heaven and to his Subjects, reprimanded severely *Eudoxia* his Wife; who had helped to deceive him, and reproach'd her with the Disgrace of *Pulcheria*, and her Intelligence with *Paulin*, in such bitter Terms, that being frighted at it, she ask'd him, as a Favour, Leave to retire; and to go and visit the holy Places of *Jerusalem*. He sent her to the same Place, where her Intrigues had obliged *Pulcheria* to retire; afterwards, to give a publick Testimony of the Honour he had for the Mother of God, he changed a Synagogue of the *Jews* into a Church, which he had dedicated in her Honour.

Marcian having ascended the imperial Throne, by his Marriage with *Pulcheria*, at *Theodosius*'s Death; which happened soon after his Reformation, published three Days after his Election, a very rigorous Law against the Clerks and Monks, who should desert the Orthodox Religion, to follow the Heresy, and the abominable Dogmas of *Apollinarius* and *Eutyches*; subjecting them to all the Punishments decreed by his Predecessors against the Hereticks. He wrote also, at the same Time, a very respectful Letter to Pope *Leo*, whereby 'he desires his Holiness to ask for him 'the Grace of governing well the Empire, and of 'maintaining the Christian Religion: That the Error being abolished by the Synod which was to be 'celebrated under his Authority, Peace may be restored among the Bishops, and the Orthodox Doctrine remain pure and entire.'

The new Emperor, to give convincing Proofs of the Sincerity of his Intentions, recalled from their Exile all the Bishops who had been deposed or banished by the false Council of *Ephesus*, and sent them back to their respective Diocese.

The Legates sent by Pope *Leo* to *Marcian*, having found near him all the Protection they could desire, applied themselves, soon after their Arrival, to execute their Commission for the Re-union of the Oriental Churches, and for the Re-establishment of the Bishops fallen into the Heresy. *Anatolius*, who had been newly elected Bishop of *Constantinople* to succeed *Flavian*, assembled by their Order, a Synod of Bishops, Abbots, Priests, and Deacons, where was first read, the Epistle of Pope *Leo* to *Flavian*. After they had all heard it, they declared that it was conformable to the

Doctrine

Doctrine of the holy Fathers, and contained the true Doctrine of the Faith. *Anatolius* was the first who subscribed to it, and pronounced Anathema against *Eutyches* and against *Nestorius*; in which he was followed by all those who were in the Assembly. Afterwards it was resolved that the same Epistle should be sent to the absent Bishops, who should be obliged to subscribe to it. For those who had composed the *Conciliabulum* of *Ephesus*, if they abjured their Error, and asked the Communion of the Apostolical See, that of their particular Church should be granted to them, but not that of the universal Church, reserving to *Leo* their entire Re-establishment in the general Council which was to be held; likewise the Deposition of those who would refuse to sign the Confession of Faith proposed to them.

The Legates sent to the Pope a Relation of what had passed at *Constantinople*; and a Letter of *Anatolius*, which contain'd his Profession of Faith. As soon as he had received it, he answer'd it, (*Epist.* 40.) and declared that he had unspeakable Joy to see him in those orthodox Sentiments; hoping that the Church committed to his Care would become soon, by the Purity of his Faith, without Spots and Wrinkles. Towards the End he observes to him, 'That *Dioscorus* 'of *Alexandria*, *Juvenalis* of *Jerusalem*, and *Eustachius* of *Berite*, ought not to be named in the Celebration of the sacred Mysteries; it being wicked, and 'very indecent, to mix among the Names of the 'holy Martyrs, the Names of those who have persecuted the Catholicks.' He recommends to him the Clerks of *Flavian*, that he may receive them to his Communion; and exhorts him to take Care of the Church of *Eusebius* of *Dorylæa*, who, at that Time, was at *Rome*. He wrote the same Day, which was the Thirteenth of *April*, a Letter to *Marcian*, and to the Empress *Pulcheria*, to thank them for the favourable Reception they had given to his Legates, for the Re-establishment of the Bishops deposed by the Hereticks, and for their Zeal against the Heresy of *Eutyches*, and of *Nestorius*.

At last the Œcumenical Council, which was to cause the entire Ruin of *Eutyches* and of his Partisans, was convoked by the Emperor *Marcian*, with the Consent of Pope *Leo*, first at *Nice*, but afterwards transferr'd to *Chalcedon*, for Reasons of State: In that Council *Eutyches* and his Partisans, that's to say those who persisted obstinately in their Error, were deposed and anathematised, and most of them sent into Exile with *Eutyches*, as may be seen in my Treatise of the *Councils*.

The *Egyptian* Bishops, who had assisted at the Council, at their Return into *Alexandria*, assembled the principal Persons of the City, to proceed to the Election of a Bishop in the Place of *Dioscorus*, who had been deposed and banished. There was some Difficulty at first to make them resolve on the Ordination of a new Pastor, because it seemed to them, that *Dioscorus* being yet alive, it was committing a spiritual Adultery to give him a Successor; but at last, says *Evagrius*, *Lib.* 2. *c.* 5. they agreed on the Person of *Proterius*, who was accordingly ordained by the Bishops. Soon after this Ordination the People assembled in a tumultuous Manner, and caused a great Sedition; the one asking that *Dioscorus* should be restored to them, and the others maintaining *Proterius*; and private Interests intervening with the publick Quarrel, from Words they came to Blows, and several were kill'd on both Sides. The Governor of *Thebaides* happening to come at that Time to *Alexandria*, with Soldiers, the Seditious attack'd them, and having forced them to take Sanctuary in a Church, they burnt them there alive. The Emperor being inform'd of those Disorders, sent thither two Thousand Men, who went from *Constantinople* to *Alexandria* in two Days, their Insolence rekindled the Sedition, and this second was still more cruel than the first. The People being in the Circus forced *Florus* Governor of the City, to restore to them the Distribution of the Corn, the Baths, the Spectacles, and all that had been taken from them, for Chastisement of their Mutiny; and that Magistrate did not shew a little Dexterity in appeasing them for some Time. Notwithstanding *Protærius* ran in Danger every Day of losing his Life, and was obliged to have himself guarded by Soldiers, for fear *Dioscorus*'s Partisans should sacrifice him to their Vengeance. It is a Thing almost incredible, that a Bishop so discredited by his Violences, Cruelties, Schism, Heresy, and Sacrileges, not only could find so much Support, and good Will, among the People of *Alexandria*; but that his Name should be still in Veneration among several People in the East, who honour him as a Saint, and are ready to die in the Defence of his Errors.

The Emperor *Marcian*, instead of exterminating those of *Alexandria*, attempted to bring them to a Submission to the Council of *Chalcedon*, by fair Means, and for that Purpose, sent to them one of the Commissaries who had assisted at it, by his Orders, called *John*, a very pious and very eloquent Man. He judged him proper to let them know, that nothing new had beeen decreed in that Council, but that all the Determinations had been made according to the Rules of the Council of *Nice*, and the Sentiments of *Athanasius*, *Theophilus*, and *Cyril*, their Bishops, so that in condemning its Decrees, they condemned, at the same Time, their Pastors and Doctors. But neither the Eloquence of that Magistrate, nor *Marcian*'s Letter could undeceive those, whom the Partisans of the Heresy of *Eutyches*, had so strongly pre-occupied, that they were no longer capable of rendering Obedience to the Truth established by the Council, nor to the Will of the Emperor.

There was no less Trouble in *Palestina*, on the same Subject. The Heretick Monks, who had assisted at the Council of *Chalcedon*, returned to their Monasteries, where they published, impudently, that the Fathers of that Council had established the Heresy of *Nestorius*, and condemned the true Faith. As those good Solitaries were ignorant enough, they were easily persuaded by those who had more Capacity. But as they had, likewise, a very great Zeal for the orthodox Doctrine, they abandoned themselves to almost incredible Violences. *Juvenalis* of *Jerusalem*, attempted in vain to undeceive them; they vexed him to that Excess, and made him so often run the Risque of his Life, that he was forc'd at last to fly to *Constantinople*, near the Emperor. Their Impiety went farther; for *Easter-Day*, they had the Temerity to ordain the Monk *Theodosius*, Chief of the Faction of the Hereticks, Bishop of *Jerusalem*; who, to signalize his new Dignity, he had acquired by all the Crimes the furious Zeal of an Heretick is capable of, burnt Houses, caused several Persons of Piety to be put to Death, and opened the Prisons to a great Number of Criminals who deserv'd Death; had the Gates of the City shut, and Leave granted to the greatest Ruffians to do what they would: So that under the Name of Bishop, he exercised all the Violences of a Tyrant; and as he could not procure the Death of *Juvenalis*, he discharg'd his Rage on *Servian* of *Scythopolis*, and on several other Priests, to whom he procured the Crown of Martyrdom. *Athanasius*, Deacon of *Jerusalem*, reproaching him publickly in the Church, of his Cruelties against the Flock of *Jesus Christ*, and its true Pastor, was carried off by his Satellites, and whipped to Death: He had his Body dragg'd thro' the City, and by a Cruelty which had been abhorr'd, even by the most barbarous Nations, commanded it should be given to the Dogs, who devour'd it. He extended his Fury over all the Churches and Cities of *Palestina*, against those who followed the orthodox Doctrine; in the one he deposed the orthodox Bishops, and in the other ordain'd those who followed his Heresy. He found Means to infect with his Errors, *Eudoxia*, who after the Death of the Emperor *Theodosius*, her Husband, had retired to *Jerusalem*; which unhappily engag'd her to authorise his Violences, and to engage all the Monks in his Party, who followed easily the Sentiments of a Princess, so considerable by her Piety.

Dorotheus,

Dorotheus, Governor of *Paleſtina*, being informed of the Violences exerciſed by *Theodoſius* in *Jeruſalem*, ran thither with Forces; but the Partiſans of the Seditious, ſupported by *Eudoxia*, ſhut the Gates againſt him, and would not receive him, unleſs he would promiſe to eſpouſe their Party, as the Clergy, the Monks, and the People had done. Thus the See of that holy City, was occupied during twenty Months by an Uſurper, who committed all Sorts of Violences to keep it. At laſt, the divine Juſtice, which had made Uſe of him to exerciſe the Faith of the Faithful, puniſhed him for his Wickedneſs. *Marcian*, to ſtop its Courſe, gave the Year following, expreſs Orders to *Dorotheus*, to make him a Priſoner. *Theodoſius* was appriſed of it, and fled to the Mountain of *Sinai*. The Monks, and other Perſons who had followed his Party, were puniſhed with various Supplices, with as much Juſtice, as there had been Iniquity in the Diſorders they had committed. They wrote to *Pulcheria*, a long Letter to complain of it, as of a Perſecution, which they did not deſerve. The Emperor *Marcian* made them an Anſwer, worthy of his Piety, wherein he reproached them, 'that, inſtead of remaining in Peace, of having themſelves inſtructed by the Prieſts, and of obeying their Doctrine, as they were oblig'd by their Profeſſion, they had undertook, by a violent Temerity, to make themſelves Doctors of the People; and had vainly perſuaded themſelves, that they were rather to be followed in the Science of the Faith, than the holy Apoſtles, Prophets, and the Fathers of the Church: That they could not deny their having burnt Houſes and Monaſteries, the Murders, and other Violences they had committed in *Jeruſalem*, as in a City taken by Storm, and of which he was very well inform'd: That he was very much ſurpriſed, that in anathematizing *Eutyches*, they would adhere to *Theodoſius*, who followed all the Opinions of that Hereſiarch, of *Valentin*, and of *Apollinaris*: That he was ſure *Jeſus Chriſt*, our Lord, would puniſh them for ſo many Impieties they had committed: That he had not commanded any Outrages ſhould be offered to the Monks, but only, that the City of *Ælia* (that is to ſay *Jeruſalem*) ſhould be pacified, and that their Rebellion to his Orders, had been the Occaſion of the Violences exerciſed againſt them: That he would order that an exact Information ſhould be made of the Things the *Samaritans* were accuſed of, but that thoſe Puniſhments could not affect them; they who had nothing to think of, but to follow the *Faith he profeſſed*, and to remain in their Monaſteries, to apply themſelves to Prayer, and to the other Exerciſes agreeable to their Profeſſion.' Towards the End, he forbids them the making henceforward, any Aſſembly contrary to the Canons, unleſs they be willing to incur the Pains eſtabliſhed by his Predeceſſors againſt Hereticks; and tells them that *Juvenalis* of *Jeruſalem*, had employ'd himſelf near him, with a great deal of Zeal, to obtain their Pardon; which he grants, hoping that by their Repentance, they would expiate the Crimes they had committed.'

But as that Prince ſaw that the Devil put all in Uſe to leſſen the Authority of the Council of *Chalcedon*, he appeared ſtill more deſirous to maintain it. He confirm'd it a-new by his Edicts, and cauſed one in particular to be publiſhed, to aſcertain the Re-eſtabliſhment of *Flavian*, which he directed to *Palladius*, Prefect of the Pretory of the Eaſt. 'Glory, ſays he, is never ſmothered by a glorious Death, and Virtues, far from periſhing with thoſe who die, on the contrary, their Death increaſes their Reputation, becauſe it diſſipates all Sorts of Envy againſt them: Whence it happens, that we praiſe with ſo much Care the Actions of our Predeceſſors, that the Memory of honeſt Men is ſo much reſpected, and that all great Men have deſired to make an End truly glorious, becauſe they knew very well that thoſe only die for ever, whoſe Life and Death are never mentioned. God's Judgment, and that of Men, have lately ſhewed, that this is true. For *Flavian* of religious and venerable Memory, having been depoſed from the Epiſcopacy (tho' properly ſpeaking, it was keeping it religiouſly in preſerving the Faith, ſince ſuch is a Biſhop who is worthy of the Epiſcopacy) by Calumnies artificially invented; this great City has deſired his Remains, with ſo much Zeal, and has received them with ſo much Reſpect, that he has appeared happier than thoſe who were then living; and that his Death, which ſeemed deplorable, was deſired by thoſe who ſaw the Glory which it had acquir'd to him. God wanted, beſides, to grant to his Merits the Teſtimony of the venerable Synod aſſembled at *Chalcedon*, and compoſed of a vaſt Number of Biſhops, who having diligently examined the Queſtions of Faith, has for ever eſtabliſhed the Foundations of Religion, and give to *Flavian* the Palm of a glorious Death.'

Marcian iſſued, in the Month of *July*, another Edict againſt the *Eutychians*, whereby he ſubjects them to the Pains ordered againſt the *Apollinariſts*, by the Canons, and by his Succeſſors, forbidding them to create Biſhops, Prieſts, and Clerks; to make Aſſemblies of Monks, and build Monaſteries, to receive or bequeath any Thing by Teſtament, and to enter into the Army. He baniſhes particularly from the Empire, the Monks who inhabited at *Conſtantinople*, in the Monaſtery of *Eutyches*, which he will not call by that Name, becauſe it has ſerved for a Retreat to the Enemies of Religion. Towards the End of that Edict, he condemns all the Books written in Defence of the Hereſy, to be burnt, and ſends into Exile thoſe who had compoſed them, or given to others to read, to corrupt their Faith; decrees Pain of Death againſt thoſe who will have the Temerity to teach it, and adjudges ten Pounds of Gold, for Fines, againſt thoſe who could be found aſſembled to hear it.

This Zeal of *Marcian*, for the orthodox Faith, againſt the *Eutychians*, could not hinder their Hereſy from making a very great Progreſs in the Eaſt, where it divided itſelf afterwards into ſeveral Branches; *Nicephorus* makes mention of no fewer than twelve: Some called *Kematici*, or *Apparentes*, as only attributing to *Jeſus Chriſt*, a Phantom, or Appearance of Fleſh, and no real Fleſh: Others *Theodoſians*, from the Monk *Theodoſius* abovementioned: Others *Jacobites*, from one *James* of *Syria*, which Branch eſtabliſhed itſelf principally in *Armenia*, where it ſtill ſubſiſts: And others *Achepſili*, that is to ſay, without Head; and *Severians*, from a Monk called *Severus*, who ſeized on the See of *Antioch*, in 513. Theſe laſt were ſubdivided into five Factions, *viz. Agnoetæ*, who attributed ſome Ignorance to *Jeſus Chriſt*: The Followers of *Paul*: Μελανιται, that is, the *black Angelites*, thus called from the Place where they were aſſembled: Laſtly, *Adrites*, and *Conovites*.

EXCISE.

EXCISE, is a Duty or Impoſition, charg'd on Beer, Ale, Cyder, and other Liquors made for Sale, within the Kingdom of *England*, *Wales*, and Town of *Berwick* upon *Tweed*.

Note, That tho' *Exciſe* be neither an Art nor Science (but a *certain Craft*, which has its particular Rules for the Practice, not always founded on Equity, and the diſtributive Juſtice, nor attended with Humanity and Compaſſion) I will take Notice of it in

in this Place, as of a Thing which touches very near the Publick; and under this same Head I'll treat of the different Duties on Merchandizes, exported and imported into the Kingdom, which I had forgot in my Treatise of Commerce.

Excise is a necessary Evil, tolerated in all Countries, and under all Sorts of Governments, but more particularly under a despotick one, where that Burthen falls heavier on the Subjects, than under an aristocratical, or democratical one; though this Rule is not so very general as to be entirely without Exception, as we'll see by and by; for as the Will of a despotick Prince, or rather that of his Ministers, is but too often the principal Law of the State, and their voracious Appetite for Money is never to be satiated; there are continually new Schemes formed, either to increase the *Excise*, or to invent new ones, against which the Subjects very justly complain, though but too often in vain; for those publick Oppressors, who are continually besieging the Throne, either hinder these Clamours of the Subjects against them, from reaching it; or if by Accident they should reach it, they represent to the Prince those Clamours as unjust, and as proceeding from the natural Inquietude of the Subjects, who can never be easy even under the most mild and happy Government, and murmur against all Sorts of Impositions whatever, even the less burthensome, and those which are indispensably necessary, to support the Glory of the Throne, and supply the Wants of the State, in the greatest Emergency, that those Impositions they so loudly complain of, are but Trifles, if compared to their Hability, since they could very well pay larger Sums, without incommoding themselves.

A Prince, let him ever be so well inclined to ease his Subjects of part of their Burthen, thus unjustly prejudiced against his Subjects, shews himself deaf to their Complaints, or rejects them with Scorn; and the Subjects, instead of being eased, pay dearly for it, by a further Increase of Impositions, which are always raised with a greater Severity on those who are less in a Condition to pay them. For those in better Circumstances keep an *Exciseman* in Awe, either through Fear of being called to an Account, if he was to exceed his Commission, or behave otherwise than he ought to do, or in hope of some Reward if he acts with Complaisance, or overlooks certain Things; but as he hath nothing to fear, and very little to hope from Persons in mean Circumstances, he lays almost the whole Burthen on them, and often makes them pay for the Favours shewn to the Rich. With the Poor he remembers all the Duties of an *Exciseman:* The King must have his Right, and was he to have the least Regard to their Indigency, he would run the Risque of losing his Place. With the Rich, he forgets all those Duties; he is what they please, waits as long as they please, is blind if they please, and reckons what they please. With the one he is a Person of Importance, and must be treated as such; and with the other he is nothing at all, and thinks himself pretty well off, if he is suffered among the menial Servants; and very much honoured if the Master takes any Notice of him, or favours him with a Nod.

Impositions on the Subjects are certainly indispensably necessary, since in several Countries they make the most considerable Parts of the Revenue of the Crown, and defrauding a Prince of the Duties upon Commodities (when confined within just Limits) is a Theft, and as criminal before God, as robbing another Person of his Properties. But there is *Modus in rebus*, and these Impositions must be directed by Justice, otherwise, they are nothing else in Reality, but a mere Plunder on the Subjects, which they are authorised by the natural and divine Laws, to oppose, by Means agreeable to the Respect they owe to their Sovereign, who must have renounced all the Principles of Honour, Generosity, Humanity and Compassion, if he refuses to hear the just Complaints of his Subjects on such an Occasion, and to redress their Grievances, by taking off part of those Impositions, and punishing severely those who have been instrumental to them.

What often makes the *Excise*, and other Impositions of that Nature, fall so heavy on the Subjects, is the vast Number of Persons employed in raising and gathering those Taxes and Impositions; for every one of them must have his Share, some more, some less. Thus the great Frauds, committed in that Branch of a Prince's Revenue, are the Cause, that he has but the least Share of it; for by a reasonable Supputation, we have found in *France* (and perhaps the same could be found in *England* in Proportion) that of twenty Millions raised in that Manner, there were not six carried to the King's Coffers. It is true, that the King has always the Sum which was designed for him at first; but as those Sorts of Impositions are put to Auction, and adjudged to the best Bidders, who are distinguished by the Title of *Fermiers Genereaux*, i. e. General Farmers; those general Farmers under-farmed them to others, at an immense Profit (as well to make themselves whole of what they have been *obliged* to give to a Minister or Favourite, to obtain the Preference, as to make an immense Fortune) those Underfarmers must raise the Sum proposed in the first Instant, together with the Surplus they have paid, or are to pay the General Farmers, for their Commission, and also make besides their Fortune. The Commissioners appointed in the several Districts by the Underfarmers to raise those Impositions, must also have their Part of the Cake, besides their Appointments; the *Commis* of those Commissioners are not behind-hand with their Masters; the *Exciseman*, or *Maltotiers*, plunder likewise as much as they can; and this is the Manner the Substance of the Subjects is lavished among Plunderers, Thieves, and Ruffians, born for the Destruction of a whole Country, and the Scandal of the Throne; for though all the while the Prince be innocent, he is notwithstanding reproached with it.

I must confess, that it is very difficult to avoid those great Evils; but however, it is not absolutely impossible: For a Prince should appoint Persons of Birth, Merit and Fortune, of an approved Integrity, and not at all interested in those Farms, to follow narrowly all the Steps taken by those appointed to raise and gather those Impositions; with the full Power to limit the Number of those Leeches; to keep an exact Account of the Sums rising in a Province, and to dismiss and punish severely, by Confiscation of Estate or otherwise, all those they could find guilty of Malversation; besides the Confiscation of their Estates, to the easing the Subject afterwards, as far as those Estates can go; the last Supplice is not too much for a Farmer, or Commissioner of Excise, *&c.* who plunder the Subjects in the Execution of his Office. Why should twenty Persons, for Example, be employ'd in an Office, which can be discharg'd by ten; or perhaps less? For it must be reasonably supposed, that the greater is the Number of Officers, the greater must be the Sum which is to be raised; if it was but to pay their Salaries; and the more the People must be burthened.

The Employment of an *Exciseman* is no otherwise dishonourable, than he renders it so himself by his Malversations, and irregular, and sometimes very barbarous Conduct, in the Discharge of it; for when they do their Duty as they ought, without Partiality, *i. e.* with doing Justice both to the Prince their Master, and to his Subjects; by not suffering the one to be defrauded of his Revenue, nor oppressing the others; they are to be consider'd as the Rent Gatherers of the Prince; or his Stewards, and treated as such; and a Punishment inflicted on those who should treat them otherwise, on the single frivolous Pretence that they are *Excisemen.*

The Duty of *Excise*, in *England*, was first granted to King *Charles* II. by Act of Parliament, in the Year 1660; during the Life of that Prince: It has been since

ſince continued and augmented by divers Parliaments, under the ſeveral ſucceeding Princes, and extended to *Scotland*. This Duty, as it now ſtands, on ſtrong Beer and Ale, is at the Rate of 4*s.* 9*d.* *per* Barrel; and upon Small Beer 1*s.* 6*d.* Now Brewers being allow'd for Leakage of Beer 3 Barrels in 23; and of Ale, 2 in 22; the neat *Exciſe* of a Barrel of Strong Beer, amounts to 4*s.* 1*d.* $\frac{2}{3}$; of a Barrel of Ale, 4*s.* 3*d.* 3*q*; and of a Barrel of Small Beer, 1*s.* 1*d.* 1*q.* $\frac{14}{15}$.

The *Exciſe* is one of the moſt conſiderable Branches of the King's Revenue. It was formerly farmed out; but is now managed for the King by ſeven Commiſſioners, who ſit in the *General Exciſe-Office*, receive the whole Product of the *Exciſe* of Beer, Ale, and other Liquors, and Malt, collected all over *England*, and pay it into the Exchequer. Their Salary is 800*l.* *per Annum* each; and they are obliged, by Oath, to take no Fee or Reward, but from the King only. From the Commiſſioners of *Exciſe* there is an Appeal to five others, call'd *Commiſſioners of Appeal.*

The Number of Officers employ'd in this Branch of the Revenue is very great. Beſides the Commiſſioners abovemention'd, and their ſubordinate Officers, as Regiſters, Meſſengers, *&c.* there is an Auditor of the *Exciſe*, with his Clerks, *&c.* a Comptroller with his Clerks; a Regiſter, Secretary, Sollicitor, Caſhier, Teller, Clerk of Securities, Houſekeeper, Doorkeeper, an Accomptant for the Impreſt Money, general Gauger, general Accomptants, with their Aſſiſtants; a Clerk for Stationary Wares, Examiners, *&c.* for the *London* Diſtillery, Vinegar, Cyder, *&c.* Alſo Examiners for Malt; general and other Surveyors of the *London* Brewery; with Aſſiſtants, and other Officers, to the Number of an Hundred. General and other Surveyors of the *London* Diſtillery, with other Officers, to the Number of Forty; a Collector, and Surveyor of imported Liquors; with a Land Surveyor at the Cuſtom-houſe, *&c.*

The yearly Salaries of all the Officers in the *Exciſe* Office, as computed by Mr. *Chamberlayne*, amount to 23,650*l.* Beſide which, there are in the Country fifty Collectors, and one Hundred and fifty Superviſors; with a great Number of inferior Officers, call'd *Gaugers* and *Exciſemen*; which may make the Number of Perſons employ'd in the Revenue about two Thouſand.

The *Exciſe* on Beer, Ale, and other exciſeable Liquors, even during a Time of War, is computed to amount to 1.100,000*l.* *per Annum*; and is collected from above 300,000 People.

The Duty on Malt, with the additional Duty on Cyder, *&c.* amounts to betwixt 6 and 700,000*l.* *per Annum*; and is collected from more Hands than the former. And yet the whole Charge of managing all theſe Duties does not amount to 20*d.* *per* Pound; which, conſidering every Thing, is eſteem'd an Exactneſs and Frugality, not to be parallel'd in any Revenue, levied in this or any other Country.

The Rates, with the neat Produce of ſeveral Impoſitions of *Exciſe*, are as follow:

	l.
1. A Duty of 2*s.* 6*d.* *per* Barrel, whereof 15*d.* *per* Barrel during his Majeſty's Life, and the other 15*d.* Hereditary; appropriated to the Civil Government, after a Deduction of 3700*l.* *per* Week for Annuities. — Neat Produce	269,837
2. A Duty of 9*d.* *per* Barrel, granted 4 *Will.* and *Mary*, for 99 Years, commencing *January* 1692; charged with 124,866*l.* *per Annum* for Annuities, and 7567*l.* *per Ann.* on Survivorſhip. — Neat Produce	150,106
3. Another 9*d.* *per* Barrel, perpetual, 5 *Will.* and *M.* for Payment of 100,000*l.* *per Ann.* to the Bank, as alſo ſeveral Annuities on Lives. — Neat Produce	150,094
4. Another 9*d.* *per* Barrel, for 16 Years, continued 4 *Ann.* from *May* 1713, for 95 Years, for paying 140,000*l.* *per Ann.* on Million Lottery Tickets; with Annuities of 99 Years. — Neat Produce 159,898*l.* — Which with ſome additional Duties, granted in a later Act, may amount to	184,898
5. A Duty on Low Wines, and Spirits of the firſt Extraction, continu'd to the 24th of *June* 1710. — Neat Produce	25,267
6. The *Exciſe* on Ale and Beer in *Scotland*, is farmed at	33,500
Total —	*l.* 1.006,102

From *Exciſe* we'll paſs to *Cuſtoms*, which are the Dues, Duties, or Tolls, paid by Merchants to the King, or other Sovereign Prince, for carrying out, and bringing in of Merchandizes.

The *Cuſtoms* of Goods exported and imported throughout *England*, amount yearly to 1.300,000*l.* whereof thoſe of the Port of *London* make a third Part.

The *Cuſtoms* in *England* are very numerous and very high, perhaps beyond what any other trading Nation knows: — The Principals are Duties of *Tunnage* and *Poundage*, which are very antient, being the only one in Uſe before the Time of King *Charles* II. but that Prince and his Succeſſors have introduced divers others: At preſent the Cuſtoms on Liquors, are *Tunnage*, the additional Duty, the Duty of *Exciſe*, *Coinage*; Duty of the *Old Impoſition*, Duty of the *Additional Impoſition*; Duty of *Orphan's Money*, Duty on *French Wines*, *New Subſidy*, $\frac{1}{2}$ and $\frac{2}{3}$ Subſidies.

The Duty of *Tunnage*, or the *Old Subſidy*, was eſtabliſhed in the 12th Year of *Charles* II. it was at firſt only granted him for Life; but afterwards continued in the firſt Year of King *James* II. during the Life likewiſe of that Prince. And laſtly, by ſeveral Acts in the Reign of Queen *Anne*, it was again continued for 96 Years, ending in the Year 1808.

This firſt Duty of *Tunnage*, is 4*l.* 10*s.* *Sterling per* Tun, on all *French* Wines brought by *Engliſh* Veſſels into the Port of *London*, and only 3*l.* into the reſt. — The ſame Wine brought by foreign Veſſels into the Port of *London*, pays 6*l.* and into the other Ports 4*l.* 10*s.* *Sterling*. — *French* Vinegar made of Wine, pays 4*l.* 10*s.* brought by *Engliſh* Veſſels; and 6*l.* by foreign. — *French* Cyder and Perry, and Vinegar made of thoſe Liquors, pay as in the preceding Article.

Rheniſh Wine, brought into any Port of *England*, pays 1*l.* *Sterling per* Awine, a Meaſure amounting to the ſixth of a Tun, ſo that the Duty *per* Tun is about 7*l.* 7*s.* which is a fourth more than that of *French* Wine. *Spaniſh* and *Portugal* Wines, *Muſcadines*, *Malmſeys*, and other *Greek* Wines, pay the ſame as *French* Wines; and the like is to be underſtood of Vinegars made thereof.

The *Additional Duty of the Old Subſidy*, or *Old Tunnage*, was made in 1660, and continued like the Subſidy itſelf to 1708. — For this *Duty*, *French* Wine pays 3*l.* Sterling *per* Tun. *Rheniſh* Wines pay as *French* Wines. *Spaniſh* Wines pay 4*l.* *Portugal* Wines 3*l.* *Muſcadines*, *Malmſeys*, and other *Greek* Wines, pay the ſame as the *Spaniſh* Wines. Vinegar, Cyder, and Perry, are exempt from this Duty.

Duty of Old Impoſition, was eſtabliſhed in the Year 1685, and continued by divers Acts; that of 1711 made it perpetual. — By this *Duty*, *French* Wines pay 8*l.* Sterling *per* Tun, in all the Ports of *England*; *Spaniſh*, *Portugal*, *Muſcadine*, and other *Greek* Wines 12*l.* Vinegar 8*l.*

The Duty of additional Impoſition was eſtabliſhed in 1690, continued by divers Acts to 1702, and in 1712 made perpetual. This *Duty* none but the *French* pay, the other Nations being exempt from it. Each Ton of *French* Wine pays for this Duty 8*l.* Sterling in any Port of *England*: Vinegar, Cyder, and Perry

Perry pay 25 *per Cent* of their Value.

Additional Duty on *French* Wines, is one of the Duties to which *French* Wines alone are subject: It was established in the Year 1695, for 20 Years, and since continued.—It is rated at 25 *l.* Sterling *per* Tun; and Vinegar at 15 *l.*

The *Duty*, called *New Subsidy*, was granted to King *William* III. in 1695 for his Life, and since continued to Queen *Anne* for her Life. This is properly a Duplicate of the *Duty* of Tunnage, to which *French* and other Wines are equally subject, whether brought in *English* or foreign Vessels; though there are some Differences as to Vinegars, Cyders, and Perry.

The *Orphan's Duty* is only charged on Wines brought into the Port of *London*; its Name expresses the pious Office it was intended for.—It had its Rise in the 6th Year of King *William* III. is fixed at 4*s.* *per* Tun, on all Wines indifferently.

The DUTY *on Hungary Wines* is very late, only established in the first Year of Queen *Anne*; and is the same with that paid by *Rhenish* Wines.

The DUTY, called *Third Subsidy*, is a Third of the old Subsidy, first established in 1703, and since continued by divers Acts, to expire in 1805.

The DUTY, called *two Thirds Subsidy*, is likewise a new *Duty* first established in 1704, to last only for a certain Time, though since made perpetual.—It consists in two other Thirds of the old Subsidy, so that these two Duties of 1703 and 1704, are equal to the old Subsidy.

Besides these *Duties* imposed on all Wines imported, both by Natives and Foreigners; there are likewise the *Duty* of *Butlerage*, another *Duty* called *Alien's*, another of *Bristol*, and another of *Southampton*, mounting together to about 40 *s.* *per* Tun: But as these *Duties* are only levied on Wines imported in foreign Vessels, it is but rarely they are paid; most of the Wine-Trade being managed by *English* Vessels.

From this State of the *Duties* paid by Wines and other Liquors brought into *England*, it appears that *French* Wine imported by *Englishmen* into the Port of *London*, pays 55 *l.* 16 *s.* 8 *d.* Sterling *per* Tun. Those imported by the same into the other Ports, 51 *l.* 13 *s.* 6 *d.* Those brought by Foreigners into the Port of *London*, 61 *l.* 15 *s.* 10 *d.* and into the other Ports 57 *l.* 12 *s.* 8 *d.*

Spanish, *Italian*, *Muscadine*, *Malmsey*, and other *Greek* Wines, imported by the *English* into the Port of *London*, pay 27 *l.* 7 *s.* 10 *d.* Sterling; and brought by the same into the other Ports, 23 *l.* 14 *s.* 9 *d.* The same Wines, brought to *London* by Foreigners, pay 33 *l.* 7 *s.* three fourths.

Portugal, *Rhenish*, and *Hungary* Wines, brought to *London* in *English* Vessels, pay 26 *l.* 10 *s.* 3 *d.* into the other Ports, 22 *l.* 7 *s.* 2 *d.* The same Wines, imported to *London* by Foreigners, pay 32 *l.* 9 *s.* 5 *d.* and into other Ports, 28 *l.* 6 *s.* 3 *d.*

French Vinegars, imported to *London* by the *English*, pay 27 *l.* 10 *s.* 11 *d.* and into the other Ports, 26 *l.* 4 *s.* 6 *d.* The same Vinegars, imported to *London* by foreign Vessels, pay 28 *l.* 17 *s.* 3 *d.* and in the other Ports, 27 *l.* 10 *s.* 11 *d.*

Spanish and *Portugal* Vinegars, imported to *London* by *English* Vessels, pay 12 *l.* 10 *s.* 11 *d.* in the other Ports, 11 *l.* 4 *s.* 6 *d.* The same Vinegars, imported to *London* by foreign Vessels, pay 13 *l.* 17 *s.* 3 *d.* and in the other Ports, 12 *l.* 10 *s.* 1 *d.*—As to Cyders and Perries, the Importation is not considerable.

French Brandies, imported by any Vessel into any Port, pay 78 *l.* 4 *s.* Sterling *per* Tun; and Brandies from any other Country, except *France*, only 48 *l.* 4 *s.* All other foreign Brandies being exempted from Duties of 30 *l.* Sterling, charged on *French* Brandy, by Acts of Parliament under the Reign of K. *William* III.

Note, That the *English* Merchants are not oblig'd to pay these several Duties before Twelve Months; nor Foreigners before Nine; giving Security for the same. Or if they pay ready Money, there is a Deduction made them of 5 *per Cent.* on the old new Third, and two Thirds Subsidies, and on the other Duties 6 $\frac{1}{4}$ *per Cent.* Add, that if those Merchandizes be again exported into other Countries, after they have been enter'd into *England*, the Duties are return'd; tho' this only within the Compass of a Year to Natives, and of Nine Months to Foreigners.

The *Duties* on other Commodities are the antient *Duty* of Poundage, the additional *Duty* of 1660, on Linnens and Silks: The new Imposition of Poundage, called the Impost of 1690: Another Imposition of four Fifths in 1693: The *Duty* of 25 *per Cent.* on *French* Goods, imposed in 1695: The new Subsidy of Poundage in 1697: Another additional Subsidy, of a Third of Poundage, in 1703: Another Third in 1704: A *Duty* on Fish, Oils, and Whale-fins, in 1709: Another on Leather, Vellum, and Parchment, in 1711: A second on the same Goods, in 1712: And lastly, in the same Year, a *Duty* on Paper, Pasteboard, and Soap.

Note, That these Sorts of *Duties* are call'd Poundage, because fixed at the Rate of so much *per* Pound; *viz.* one Shilling in every Pound, or twenty Shillings; and for *English* Commodities exported by *Aliens*, one Shilling more. It was first granted to *Edward* VI. for Term of his Life; and afterwards to King *Charles* II. *Anno* 12 *Car.* II.

The Office established for the Receipt of the *Customs*, and *Duties* of Importation and Exportation, imposed on Merchandizes by the Authority of the Sovereign, and regulated by Tariffs, or Books of Rate, is call'd *Custom-House*.

There are several *Custom-Houses* in the several Ports of *England*: The most considerable is that of *London*; which is under the Direction of seven Commissioners, appointed by Patent; who have the Charge and Management of all the Customs (the petty Farms alone excepted) in all the Ports of *England*.—The other Officers are, a Secretary, Solicitor, Receiver-General, Comptroller of the Issues and Payments of the Receiver-General, Comptroller-General, Inspector of the Out-Ports, Collectors of Accompts, Inspector-General of the Exports and Imports, Register-General of all Ships of *Great Britain*, Surveyor-General, Surveyor of Out-Ports, Register of the Seizures, &c. all holding their Places by Patents; with other inferior Officers, appointed by Warrant from the Board of Treasury.

In *Spain*, the *Duties* of Export and Import are call'd *Duties* of *Alcavala*, and amount to above 5 *per Cent.* of the Value of the Goods: For Instance, a Piece of Velvet, of 40 *Spanish* Vares, or Yards, pays 20 Rials; Hats of *Vigonia*, 5 Rials apiece; Linnens, 224 Rials *per* 100 Vares; Gold and Silver Laces, 2 $\frac{1}{4}$ Rials, the Mark Weight: The *Duties* of Exportation are nearly on the same Footing.

In *Portugal*, the *Duties* of Importation were antiently the same on all Kinds of Goods; *viz.* 18 *per Cent.* For Exportation, the *Duties* are only 6 *per Cent.*

In *Holland*, the *Duties* of Exportation and Importation are nearly alike; both of them being about the Rate of 5 *per Cent.* of the Value of the Goods. At *Hambourg* and *Bremen*, the *Duties* are but 1 *per Cent.* At *Lubeck*, $\frac{3}{4}$ *per Cent.* In *Muscovy*, 5 *per Cent.*

At *Venice* these Duties are 6 $\frac{3}{4}$ *per Cent.* for what the Natives import; and 10 $\frac{1}{2}$ to Strangers: The *Duties* of Exportation are 9 *per Cent.*—At *Leghorn*, the *Duties* of Exportation and Importation are very inconsiderable; but with the Addition of a Number of petty Dues, becomes as great as at *Venice*.

In the Ports of the *Levant*, *Constantinople*, *Smyrna*, *Aleppo*, &c. the *Duties* of Exportation and Importation are nearly on an equal Footing, *viz.* 3 *per Cent.* except to the *Venetians* and *Jews*, who pay 5 *per Cent.*—The Consuls Duties are likewise to be added for *Smyrna*, &c. which are about 2 *per Cent.*

At

At *Cairo*, *Alexandria*, and some other Cities of *Egypt*, the *Duties* are of two Kinds; one for Goods brought in Ships from *Europe*, the other for those brought by the Caravans from *Asia*. The first are fix'd at 20 *per Cent*. The second are arbitrary, but always very high. Besides the ordinary *Duty*, they here pay the golden *Duty*, which is the tenth Part of what is paid for the first *Duty*. As to *Duties* of Exportation, they may be said to pay none, the one and a half *per Cent*, being rather a Custom-House Fee, than any *Duty* paid the Sovereign.

FALCONRY.

FALCONRY, or *Fauconry*, (of *Falco*, Falcon, or Faucon, the Bird of most Use and Esteem in this Kind of Sport) is the Art of Taming, Managing, and Tutoring Birds of Prey, particularly Falcons and Hawks; and employing them with Advantage, in the Pursuit of Game. This Art is also called Hawking.

Though this Exercise of *Falconing*, or Hawking, be now very much disused in *England*, in Comparison of what it antiently was, we, notwithstanding, must not abstain from giving some particular Directions for it, beginning by the Birds employ'd in this Kind of Sport, and instructing our Sportsman how to chuse them.

The Hawk-Kind, makes the Subject of the Art of *Falconry*, and tho' Naturalists disagree about the Number and Division of these Birds, it must, however, be observed, that the most commodious Distribution, is into long-wing'd, and short-wing'd Hawks.

To the long-wing'd Hawks, called also of the Falcon Tribe, belong the Falcon, Haggard Falcon, Ger-Falcon, Lanner, Hobby, Saker, Merlin, and Bawler; all which are reclaim'd, mann'd, fed, and mewed much after the same Manner. Of the short-wing'd Species, or Hawks, properly so called, are the Goshawks, and Sparrow-Hawks.

The former are generally brought to the *Lure*, and seize their Prey with their Foot, breaking their Neck-Bone with their Beak, e'er they proceed to plume, or tear it. The latter are brought to the Fist, and kill their Game by Strength, and Force of Wing, at Random, and proceed immediately to plume them.

Note, That Hawk, *Accipiter*, is a Bird of Prey, of a bold and generous Nature. That the Female of all Birds of Prey, is much larger, stronger, and more courageous, than the Male; which is distinguished therefrom by some diminutive Name. Those of the Falcon, and Goshawk, are called *Tiercels*, or *Tiercelets*; that of the Ger-Faulcon, *Jerkin*; that of the Merlin, *Jack*; that of the Hobby, *Robbin*; that of the Sparrow-Hawk, *Musket*; and that of the Lanner, *Lanneret*. Hawks have also different Names, according to their different Ages, and the different Seasons when they are taken. According to their different Ages, the first Year she is called a *Soarage*; the second, an *Interview*; the third, a *white Hawk*; the fourth, a Hawk of *the first Coat*. According to the different Seasons, those taken in the *Ayrie*, are called *Eyesses*, or *Nyesses*; those which had forsaken it, and were fed in some Place, not far off, by the old Ones, *Branchers*; those which had begun to prey for themselves, *Soar-Hawks*; those which have changed their Feathers, once or more, *mew'd Hawks*; and those which liv'd at large, and prey'd for themselves about the Woods, *Haggards*.

Note, Also, that every Part of a Hawk, of any of these Denominations, has also its particular Name. The Legs, from the Thigh to the Foot, are called *Arms*; the Toes, *Petty-singles*; the Claws, *Pounces*; the Wings are called *Sails*; the long Feathers thereof, *Beams*; the two longest, *principal Feathers*; those next thereto, *Flags*; the Tail is called *Train*; the Breast-Feathers, *Mails*; those behind the Thigh, *pendant Feathers*. When the Feathers are not yet full grown, she is said to be *unsummed*; when they are compleat, she is *summed*; the Craw, or Crop, is called *Gorge*; the Pipe next the Fundament, where the Fœces are drawn down, is called *Pannel*; the slimy Substance in the *Pannel*, is called *Glut*; the upper and crooked Part of the Bill, is called *Beak*; the nether Parts, *Clap*; the yellow Part between the Beak and the Eyes, *Sear*, or *Sere*; the two small Holes therein, *Nares*.

From this we'll pass to inform our Pupil-Sportsman, of what relates to the several Species of Hawks, beginning by the *Falcon*, or *Falcon-gentle*.

The FALCON, or *Faucon*, is a Bird of Prey of the Hawk-Kind, superior to all others for Courage, Docility, Gentleness, and Noblenes of Nature. The *Falcon*, is both for the *Fist* and the *Lure*, having yellow Feet, his Head black, and a spotted Beak. The best is that whose Head is round, the Beak thick and short, the Neck long, the Shoulders broad, long Thighs, short Legs, large Feet, the Feathers of the Wings slender, the Pounces black, *&c.*

The *Falcon* is excellent at the River, Brook, and even in the Field, and flies chiefly at the largest Game, as Wild-Goose, Kite, Crow, Heron, Crane, Pye, Shoveller, *&c.*

The *Haggard Falcon*, called here, also, *Peregrine Falcon*, *Passenger*, and *Traveller*, because no Native of this Land; or rather, by Reason of its roving and wandering more than any other Sort, is not inferior to the best of the Tribe, for Strength, Courage, Hardiness, and Perseverance. She is distinguished from the common *Falcon*, as being larger, longer arm'd, with a longer Beak and Talons, a higher Neck, *&c.* She will lie longer on the Wing, and is more deliberate, and advised in her stooping, *&c.* This Bird when wild and unreclaimed, takes the greatest Liberty of all Birds, living either by Land or Sea; and is of such absolute Power, that wherever she comes, all flying Fowl stoop under her Subjection; even the *Tiercelet*, tho' her natural Companion, dares not sit by her, or approach her Residence, except in cawking Time; when, for Procreation Sake, she admits him, in a submissive Manner, to come near and woo her. When very young, she is apt to attack Birds too strong for her; which she persists in, till a sound Beating has brought her to a better Understanding. She is an incessant Pains-taker, no Weather discouraging her from her Game. When unreclaimed she has seized her Prey, and broke the Ink or Neck, she falls on the Crop, and feeds first on what is contained there, then on the other Parts. When she has filled her Gorge, she flies to some solitary Place, near the Water, where she sits all Day, and at Night takes Wing to some convenient Place, where she had before purposed to pearch til Morning.

The *Ger-Falcon*, or *Gyr-Falcon*, is the largest Bird of the Falcon-Kind, coming next the Size of a Vulture; and of the greatest Strength next an Eagle. She is stoutly arm'd, and in all Respects a lovely Bird to the Eye. Her Head and Eyes are like the Haggard; her Beak great and bending, her Nares large; her Sails long and sharp-pointed, and her Train and Mail much like the Lanners, having a large marbled-sear'd Foot, and plum'd Black, Brown, and Russet. She may also be called a *Passenger*, her *Ayrie* being in *Prussia*, *Muscovy*, and the Mountains of *Norway*. She is of a fierce and fiery Nature, very hardly managed and reclaimed; but being once overcome, proves an

an excellent Hawk, ſcarce refuſing to ſtrike at any Thing. She does not naturally fly to the River, but always purſues the Herons, Shovelers, *&c.* In going up to their Game, they do not hold the Courſe or Way, which others uſe to do, but climb up upon the Train; when they find any Fowl, as ſoon as they have reached her, they pluck her down, if not at the firſt, yet at the ſecond or third Encounter.

The *Saker*, or *Sacte*, is the third in Eſteem next the Falcon, and Ger-Falcon, but difficult to be managed, being a Paſſenger, or Peregrine Hawk, whoſe *Ayrie* has not yet been diſcover'd, but chiefly found in the Iſlands of the *Levant*; ſhe is ſomewhat longer than the Haggard Falcon; her Plume rufty and ragged; the Sear of her Foot and Beak like the Lanner; her Pounces ſhort, and her Train the longeſt of all Birds of Prey; ſhe is very ſtrong and hardy to all Kind of Fowl, being a great deal more diſpoſed to the Field, than the Brook, and delighting to prey on great Fowl, as the Heron, Gooſe, *&c.* but for the Crane ſhe is not ſo free as the Haggard Falcon; ſhe alſo excells for the leſſer Fowl, as Pheaſants, Partridges, *&c.* and is much leſs dainty in her Diet, as long-wing'd Hawks uſually are. The *Saker* makes excellent Sport with a Kite, who, as ſoon as ſhe ſees the *Saker* caſt off, immediately betakes himſelf to, and truſts in the Goodneſs of his Wings, and gets to his Pitch, as high as poſſibly he can, by making many Tours and Wrenches in the Air, which together with the Variety of Conteſts and Bickerings between them, affords a curious Sport.

The *Lanner*, or *Lanar*, is a Hawk common in moſt Countries, eſpecially in *France*; making her *Ayrie* on lofty Trees in Foreſts, or on high Clifts near the Seaſide. She is leſs than the Falcon, gentle, fair-plum'd, and has ſhorter Talons than any other Falcon. Such as have the largeſt and beſt-ſeaſon'd Heads are eſteemed the beſt. Mew'd *Lanners* are not eaſily known from Goſhawks, or Sakers; the chief Marks are, that they are blacker, have leſs Beaks, and are leſs arm'd and pounced than any other Hawks, of the whole Hawk Tribe. There is none ſo fit for a young Falconer as this, becauſe ſhe is not inclined to Surfeits, and ſeldom melts Greaſe by being over-flown. There is another Sort of *Lanners*, whoſe *Ayrie* is in the *Alps*, having their Heads white, and flat aloft, large and black Eyes, ſlender Nares, ſhort and thick Beaks; being leſs than the Haggards, and Falcon-gentle, tho' there are different Sizes of them: Their Tail marbled and ruſſet; Breaſt-Feathers white and full of ruſſet Spots, and the Points and Extremities of their Feathers full of white Drops; their Sails and Trains long, ſhort-legg'd, with a Foot leſs than that of a Falcon, marble-ſear'd. This Hawk never lies upon the Wing, after ſhe has flown to a Mark; but after once ſtooping, makes a Point, and like the Goſhawk waits the Fowl. She is more valued abroad than in *England*; the *Engliſh* Falconers looking on her as ſlothful, and hard-mettled. The Truth is, a very ſtrict Hand muſt be kept over her, as being of an ungrateful Diſpoſition. She is flown at Field or Brook, and will maintain long Flights, by which Means much Fowl is kill'd. To fly them they muſt be kept very ſharp; and becauſe they keep their Caſtings long, they muſt have hard Caſtings, made of Tow, and Knots of Hemp.

The *Merlin* is the ſmalleſt of all Birds of Prey, and bears a Reſemblance to a Haggard-Falcon in Plume, as alſo in the Sear of the Foot, Beak, and Talons, and not unlike her in Conditions; when well mann'd, lur'd, and carefully look'd after, ſhe proves an excellent Hawk; eſpecially at Partridge, Thruſh, and Lark: But ſhe is very buſy and unruly, and ſpecial Care muſt be had, leſt ſhe unnaturally eat off her own Feet and Talons, as ſhe is often known to do. She is wondrous ventureſome, and will fly at Birds bigger than herſelf, with ſuch Eagerneſs, as to purſue them even into a Town or Village. Tho' the *Merlin* be accounted a Hawk of the Fiſt, ſhe may be brought to take Delight in the Lure, ſo as ſhe will patiently endure the Hood; you ſhould make her a Train with a Partridge, if ſhe foots and kills her, reward her well; then fly her at the wild Partridge, and if ſhe takes or makes it, at firſt or ſecond Flight, being retrieved by the Spaniels, feed her upon it with a reaſonable Gorge, cheering her in ſuch Manner with the Voice, that ſhe may know it another Time: If ſhe does not prove hardy at the firſt or ſecond Time, ſhe will be good for nothing.

The *Hobby* is a Sort of Hawk, that naturally creeps on Doves, Larks, and other ſmall Game. She has a blue Beak, but the Sear thereof, and Legs, are yellow; the Crinels, or little Feathers under the Eye, very black; the Top of the Head between black and yellow; ſhe has alſo two white Seams on her Neck: The Plumes under the Gorge, and about the Brows, are reddiſh, without Spot or Drop; the Breaſt-Feathers for the moſt Part brown, yet interſperſed with white Spots; her Back, Train, and Wings, are black aloft, having no great Scales upon the Legs, unleſs a few behind: The three Stretchers and Pounces, are very large, with Reſpect to her ſhort Legs; her Brail Feathers are tinctured between red and black, the pendant ones, or thoſe behind the Thighs, of a rufty, ſmoaky Hue. She is a Hawk of the Lure, and not of the Fiſt, and is an high flyer, being in every Reſpect like the Saker, but ſhe is of a much leſs Size; for ſhe is not only nimble and light of Wing, but dares encounter Kites, Buzzards, or Crows, and will give Blow for Blow, till ſometimes they ſiege, and come tumbling down to the Ground both together. But ſhe is chiefly for the Lark, which poor little Creature, does ſo dread the Sight of her, ſoaring in the Air over her, that ſhe will rather chuſe to commit herſelf to the Mercy of Men, or Dogs, or to be trampled on by Horſes, than venture into the Element, when ſhe ſees her mortal Enemy ſoaring there. The *Hobby*, alſo, makes excellent Sport with Nets and Spaniels, for when the Dogs range the Fields to ſpring the Fowl, and the *Hobby* ſoars aloft over them, the poor Birds, apprehenſive of a Conſpiracy between the Hawks and Dogs to their utter Ruin, dare not commit themſelves to their Wings, but think it ſafer to be cloſe on the Ground, and ſo are taken in the Nets. This Sport is called *Daring*.

The *Goſhawk*, or *Goſs-hawk*, q. d. *Groſs-hawk*, is a large ſhort-wing'd Hawk, of which there are ſeveral Sorts differing in Goodneſs, Force, and Hardineſs, according to the Diverſity of their Choice in cawking; at which Time, the ſeveral Sorts of Birds of Prey aſſemble themſelves with the *Goſhawk*, and gallant it together. There are *Goſhawks* from moſt Countries, but none better than thoſe bred in the North of *Ireland*. She ought to have a ſmall Head, a long and ſtrait Face, a large Throat, great Eyes deep ſet; the Apple of the Eye black; Nares, Ears, Back, and Feet, large and black; a black long Beak, long Neck, big Breaſt, hard Fleſh, long fleſhy Thighs, the Bone of the Leg and Knee ſhort, long, large Pounces and Talons; and to grow round from the Stern, or Train, to the Breaſt forward. The Feathers of the Thighs towards the Train, ſhould be large, and the Train Feathers ſhort and ſoft, ſomewhat tending to an Iron Mail. The Brail Feathers ought to be like thoſe of the Breaſt; and the Covert Feathers of the Train, ſpotted and full of black Rundles, but the Extremity of every Train Feather, black ſtreaked. To diſtinguiſh the Strength of the Bird, tie divers of them in ſeveral Places of one Chamber, or Mew; and that Hawk that flies and mutes higheſt, and fartheſt off, may be concluded to be ſtrongeſt. The *Goſhawk* flies at the Pheaſant, Mallard, Wild-Gooſe, Hare, and Coney, nay ſhe will venture to ſeize a Kid or Goat. She is to be kept with Care, as being very Choice and Dainty in Eating, *&c.*

The *Sparrow-Hawk*, is alſo a Kind of ſhort-wing'd Hawk, whereof there are ſeveral Sorts, different in Plumes: Some ſmall plum'd and black, others of a larger Feather; ſome plum'd like the Quail, ſome brown or Canvas-Mail, *&c.* The *Sparrow-Hawk*, ſo far

far as her Strength will give her Leave, is a good Hawk; and he that knows how to man, reclaim, and fly with a *Sparrow-Hawk*, may easily attain to the Keeping and Managing of all others. In this Respect, she really excels, that she serves both for Winter and Summer with great Pleasure, and will fly at all Kind of Game, more than the Falcon.

Having thus given a Description of all the Birds proper for the *Art of Falconry*, and of their different Qualities; we must proceed to the Explanation of the Terms proper for their several Actions, *viz. Bate, Crabbing, Cowring, Feak, Jack, Cawking, Mantling, Muting, Intermewing, Slice, Slime, Dropping, Sniting, Rouze, Warble, Bind, Plume, Trussing, Stooping, Rake, Check, Fly on Head, Quarry, Pelt, Cancelie-ring, Ruff, Reclaiming, Manning, Make-Hawk*, &c.

When the Bird flutters with her Wings, as if striving to get away, either from Perch or Fist, she is said to *Bate*.

Crabbing, is when the Birds standing too near, they fight with each other.

Cowring, is when the young Ones quiver and shake their Wings in Obedience to the Elder.

To *Feak*, is when the Bird wipes her Beak after feeding.

To *Jack*, is when she sleeps.

Intermewing, is the Interval between exchanging her Coat, and turning white again.

Treading, is called *Cawking*.

Mantling, is when she stretches one of her Wings after her Legs, and then the other.

Her Dung is called *Muting*; when she mutes a good Way from her, she is said to *Slice*; when she does it directly down instead of yerking backwards, she is said to *Slime*; and if it be in Drops, it is called *Dropping*; when she, as it were, sneezes, it is called *Sniting*.

To *Rouze*, is when she raises and shakes herself.

To *Warble*, is when after Mantling, she crosses her Wings together over her Back.

To *Bind*, is when she scares.

To *Plume*, is when after seizing she pulls off the Feathers.

Trussing, is when she raises a Fowl aloft, and at length descends with it to the Ground.

Stooping, is when being aloft, she descends to seize her Prey.

To *Rake*, is when she flies out too far from the Game.

To *Check*, is when forsaking her proper Game, she flies at Pyes, Crows, *&c.* that chance to cross her.

To *Fly on Head*, is when missing the Fowl, she betakes herself to the next Check.

The *Quarry*, is the Fowl or Game she flies at.

The *Pelt*, is the dead Body of the Fowl kill'd by the Hawk.

To *Carry*, is when she flies away with the Quarry.

Concelicring, is when in stooping she turns two or three Times on the Wing, to recover herself e'er she seizes.

Ruff, is when she seizes the Prey, yet does not truss it.

Reclaiming, is the making a Hawk tame and gentle.

Manning, is the bringing her to endure Company.

A *Make-Hawk*, is an old stanch one, used to fly and set Example to a young one.

Besides the above-mention'd Terms, there are also several others proper to the *Art of Falconry*, viz. *Casting, Plumage, Rangle, Gleaming, Enseaming, Gurgiting, Imping, Tiring, Ink, Pill*, or *Pelf*.

Casting, is something given a Hawk, to cleanse and purge her Gorge.

Plumage, are small Feathers given to make her Cast.

Rangle, is Gravel given her to help bring down her Stomach.

Gleaming, is her throwing up Filth from the Gorge after Casting.

Enseaming, is the Purging of her Grease, *&c.*

A being stuff'd, is called *Gurgiting*.

Imping, is the inserting a Feather in her Wing, in lieu of a broken one.

Tiring, is the giving her a Leg, Wing, or Pinion of a Fowl to pull at.

The *Ink*, is the Neck of a Bird the Hawk preys on.

The *Pill*, or *Pelf*, is what the Hawk leaves of her Prey.

The Terms proper for her Furniture (for the Lady must be lodg'd and dress'd) are the *Bewits, Lease*, or *Leath, Jesses, Creance, Hood, Rufter Hood, Striking the Hood, Seeling, Lure, Pearch, Hack, Mew*, &c.

Bewits, are the Leathers, with Bells button'd on her Legs.

The *Lease*, or *Leath*, is the leathern Thong whereby the Falconer holds the Hawk; the little Straps by which the *Lease* is fastened to the Legs, are called *Jesses*; and a Line or Pack-thread fastened to the *Lease*, in disciplining the Hawk, a *Creance*.

Hood, is a Cover for her Head to keep her in the Dark; a large wide Hood, open behind, to be wore at first, is called a *Rafter Hood*; and to draw the Strings, that the Hood may be in Readiness to be pulled off, is called unstriking the Hood.

Seeling, is the Blinding a Hawk, just taken, by running a Thread thro' her Eyelids, and thus drawing them over the Eyes, to prepare her for being hooded.

A *Lure*, is a Figure or Resemblance of a Fowl, made of Leather and Feathers.

The *Pearch*, is her Resting-place, when off the Falconer's Fist.

The *Hack*, is the Place where her Meat is laid.

The *Mew*, is the Place wherein she is set, while her Feathers fall and come again.

Being thus perfectly acquainted with the several Terms of the *Art of Falconry*, and informed of their respective Signification, we must apply ourselves next to the Management and Discipline of the Falcon, as being the Foundation of the *Art of Falconry*.

When a young Falcon is first taken, she must be seeled, and the Seeling at length gradually slackened, that she may be able to see what Provisions are brought her. Her Furniture is to be *Jesses* of Leather, mailed *Leashes*, with Buttons at the End, and *Bewits*; besides a small round Stick, hanging in a String, to stroke her frequently withal; which the oftner it is done, the sooner and better will she be manned: Two Bells on her Legs, that she may be the more readily found, or heard, when she stirs, scratches, *&c.* and a Hood raised, and bossed over her Eyes. Her Food to be Pigeons, Larks, and other live Birds, of which she is to eat twice or thrice a Day, and till she be full gorged. When the Falconer is about to feed her, he must hoop and lure, that she may know when to expect it; then unhooding her gently, he gives her two or three Bits, and putting her Hood on again, gives her as much more; but takes Care that she be close seeled, and after three or four Days, lessens her Diet; at going to Bed he sets her on a Pearch by him, that he may awake her often in the Night, continuing to do so till she grows tame and gentle. When she begins to feed eagerly, he gives her Sheeps-Hearts; and now he begins to unhood her by Day, but it must be done far from Company; feeds her and hoods her again, as before, but takes Care not to fright her with any Thing when he unhoods her, and if he can, reclaims her without over-watching. The Falcon must be borne continually on the Fist, till she be thoroughly manned, and induced to feed in Company: For two or three Days, give her washed Meat, and then Plumage, according as you esteem her foul within; if she casts, hood her again, and give her nothing, till she gleams after her Casting: But when she has gleamed and cast, give her a little hot Meat in Company; and towards Evening, let her plume a Hen's Wing, likewise in Company; cleanse the Feather of her Casting, if foul and slimy; if she clean within, give her gentle Casting;

Casting; and when she is well reclaimed, mann'd, and made eager and sharp set, venture to feed her on the Lure.

Three Things are to be considered before you lure your Falcon. 1. That she be bold and familiar in Company, and not afraid of Dogs and Horses. 2. Sharp-set and hungry, having Regard to the Hour of Morning and Evening, when you would lure her. 3. Clean within, and the Lure well garnished with Meat on both Sides. When you intend to give her the Length of a Lease, you must abscond yourself; she must also be unhooded, and have a Bit or two given her on the Lure, as she sits on your Fist; that done, take the Lure from her, and so hide it that she may not see it; when she is unseeled, cast the Lure so near her, that she may catch it within the Length of her Lease; and as soon as she has seized it, use your Voice as Falconers do, feeding her upon the Lure on the Ground.

After you have lured your Falcon, in the Evening give her but little Meat, and let this luring be so timely, that you may give her Plumage, *&c.* next Morning on your Fist; when she has cast and gleamed, give her a little Beaching of warm Water, about Noon, tie a Creance to her Lease, go into the Field, there give her a Bit or two upon the Lure, and unseel her; if you find she is sharp-set, and has eagerly seiz'd on the Lure, let a Man hold her to let her off to the Lure; then unwind the Creance, and draw it after you a good Way, and let him who has the Bird, hold his right Hand on the Tassel of her Hood, ready to unhood her as soon as you begin to lure; to which if she comes well, stoop roundly upon it, and hastily seize it, let her cast two or three Bits thereon; that done, unseize, take her off the Lure, and deliver her again to the Person that held her, and going further off the Lure, feed her as before; and so daily further and further off the Lure. Afterwards you may lure her in Company, but do not fright her; and having used her to the Lure on Foot, do it also on Horseback, which may be sooner accomplish'd, by causing Horsemen to be about you, when you lure her on Foot; 'tis also sooner done by rewarding her upon the Lure on Horseback, among Horsemen. And when she is grown familiar this Way, let some Body a Foot hold the Hawk, and he that is on Horseback must call, and cast the Lure about his Head, while the Holder takes off the Hood by the Tassels; and if she seizes eagerly on the Lure, without Fear of a Man or Horse, then take off the Creance, and lure at a greater Distance. Lastly, if you would have her love Dogs as well as the Lure, call Dogs when you give her Plumage.

Note, That if the Hawk be intended for some particular Sort of Game, her Lure must be a Resemblance of that Sort of Game; and the Falconer ought to make a frequent Practice of feeding, and rewarding her thereon, or on a Train of the same Kind; calling her when feeding, as if she was called to the Lure. And that it may be proper to feed her in such like Places, as those her Game is chiefly to be found in.

Note, Also, that a Brancher, Soar-Hawk, or Ramage-Hawk, needs no Nursing; she is to be brought down from her Wildness, and habituated to another Course of Life; and in Pursuance of her own Views and Interests, to be made subject to those of her Master. An Eyess, needs no reclaiming, she is to be carefully nursed, and brought up in her natural Taments.

The Person who brings up, tames, and makes, that is, tutors and manages Birds of Prey, as Falcons, Hawks, *&c.* is called *Falconer*; the Emperor of the *Turks* usually keeps six thousand *Falconers* in his Service. The King of *France* has a grand *Falconer*, which is an Office dismembred from that of Great Hunt, *Grand Veneur*.

FEASTS.

FEAST, *Festum*, (from *feriari*, to keep Holiday) is a particular Day, entirely dedicated to the Service of God, and celebrated with something particular to the *Feast*.

Feasts and the Ceremonies thereof, have made great Part of the Religion of all Nations and Sects, witness those of the *Greeks*, *Romans*, *Hebrews*, *Christians*, and *Mahometans*.

I cannot pretend to give here a full Description of all the *Feasts* celebrated by those different Nations, and Sects, and of the Ceremonies they were celebrated with, since that alone would make a large Volume; therefore I'll content myself, to give a concise Description of the most considerable of those *Feasts*; and tho' those celebrated by the *Romans*, are not the most antient, notwithstanding, as they occur often in History, and I do not think proper to intermix them with the *Jewish* and *Christian Feasts*, since, *Non sunt miscenda Sacra Prophanis*, which I could not avoid, if I was to place the *Feasts* according to their Antiquity; since those of the *Hebrews*, were established long before the *Roman Feasts*; I'll begin by the *Roman Feasts*, proceed to those of the *Hebrews*, from thence to the *Christian Feasts*, and conclude with those of the *Mahometans*.

The stated *Feasts* of the *Romans*, or those which were celebrated with most Pomp and Ceremony, were the *Saturnalia*, *Cerealia*, *Lupercalia*, *Liberalia*, *Neptunalia*, *Consualia*, *Portumnalia*, *Vulcania*, *Palilia*, *Diralia*, &c.

The SATURNALIA were celebrated among the *Romans*, in honour of the God *Saturn*, tho' Mr. *Dacier* observes, that they were not only celebrated in honour of *Saturn*, but also to keep up the Remembrance of the Golden Age, when all the World was on a Level.

The *Saturnalia* were not only observ'd at *Rome*, but also in *Greece*; and were in Reality much older than *Rome* itself. Some ascribe their Institution to the *Pelasgi*, who were cast upon the Islands of *Delos*; others to *Hercules*, and others to *Janus*. *Goropius Becanus*, *Orig. Lib.* 4. makes *Noah* Author of them; that Patriarch, he tells us (but it is not an Article of Faith to believe him) in the Ark, instituted a Feast to be held the tenth Month, in Memory of this, that the Top of the Mountains began to appear above the Water; and this he makes the Origin of the *Saturnalia*: But it is very probable, the Year then began in Autumn, and of Consequence, *December* could not be the tenth Month. *Vossius* goes still higher, and will have it, that the *Saturn*, in honour of whom this *Feast* was instituted, was *Adam*; which Conjecture appears to me, as probable as that of *Becanus*, that is, that they are both without the least Appearance of Foundation; for as we cannot reasonably suppose, that the one had any other Knowledge of what passed in the Ark, but what he had learned from *Moses*, who does not so much as take the least Notice of those Feasts; neither can we imagine, that *Adam* has ever been considered as a Divinity; of which we do not find the least Hint in History.

During the Solemnity of the *Saturnalia*, the Slaves were reputed Masters, they were allowed to say any Thing, and in fine, were served at Table by the Masters themselves. Every Thing run into Debaucheries, and Dissoluteness, and nothing was heard or seen in the

the City of *Rome*, but the Tumult, Riot, and Disorder, of a People wholly abandoned to Joy and Pleasure. It was an Act of Religion not to begin any War, or execute any Criminal during this *Feast*.

The CEREALIA, were the Feasts of *Ceres*, instituted by *Trystolemus*, Son of *Celeus*, King of *Eleusine* in *Attica*, in Gratitude for his having been instructed by *Ceres*, who was supposed to have been his Nurse, in the Art of cultivating Corn, and making Bread.

There were two *Feasts* of this Kind at *Athens*, the one called *Eleusinia*, the other *Thesmophoria*.

The *Eleusinia*, were the most solemn and sacred Ceremonies in Use among the *Greeks*, for which Reason, they were called Mysteries by Way of Eminence. They are said to be instituted by *Ceres* herself, at *Eleusis*, a maritime Town of the *Athenians*, in Memory of the Zeal and Affection, wherewith the *Athenians* received her; this is the Account *Isocrates* gives in his Panegyrick; but *Diodorus Siculus* assures us, *Lib.* 6. that the *Eleusinia* were instituted by the *Athenians*, in Gratitude to *Ceres*, for having instructed them to lead a less barbarous and rustick Life. Yet the same Author, in the first Book of his *Bibliotheca*, relates the Thing in another Manner: A great Drought, says he, having occasioned a miserable Famine throughout all *Greece*; *Egypt*, which had that Year reap'd a most plentiful Harvest, bestow'd Part of the Fruits thereof upon the *Athenians*, and sent them by *Erictheus*; in Commemoration of which Benefaction, *Erictheus* was created King of *Athens*, who instructed the *Athenians* in these Mysteries, and the Manner of celebrating them. Tho' *Theodoret*, *Lib.* 1. *Græcanic. affect.* is of Opinion, that it was *Orpheus*, not *Erictheus*, who made this Establishment; and who instituted for *Ceres*, what the *Egyptians* practised for *Isis*; which Sentiment is confirm'd by the Scholiast, on the *Alastes* of *Euripides*.

Eleusis, the City where these Mysteries were celebrated, was so jealous of the Glory thereof, that when reduced to the last Extremity by the *Athenians*, it would not surrender but on this Condition, that the *Eleusinia* should not be taken away; tho' these were no religious Ceremonies peculiar to the Town, but were held common to all *Greece*.

The Manner of these Mysteries, as related by *Arnobius* and *Lactantius*, was an Imitation, or Representation, of what Mythologists teach of *Ceres*. They lasted several Days, during which the People ran about with burning Torches in their Hands, sacrificed Abundance of Victims, not only to *Ceres*, but also to *Jupiter*; made Libations from two Vessels, one of them to the East, and the other to the West; marched in Pomp to *Eleusis*, making Pauses from Time to Time, wherein they sung Hymns, and sacrificed Victims: And this they perform'd, not only in going to *Eleusis*, but in returning back to *Athens*. For the rest, they were obliged to keep it an inviolable Secret; and the Law condemn'd to Death any one who should dare to divulge their Mysteries. *Tertullian*, in his Book against the *Valentinians*, relates, that the Figure shewn in the *Eleusinia*, and which was so expressly prohibited to be made publick, was that of a Man's privy Parts: *Theodoret*, *Arnobius*, and *Clemens Alexandrinus*, likewise, make Mention of it; but say it was the Figure of a Woman's Privities.

There were two Kinds of *Eleusinia*, the great and the less; those we have been hitherto speaking of were the greater. The lesser were instituted in favour of *Hercules*; for that Hero desiring to be initiated into the former, and the *Athenians* not being able to gratify him therein, by Reason the Law prohibited the Admission of any Stranger; being unwilling, however, to give him an absolute Denial, they instituted a new *Eleusinia*, whereat he assisted. The greater were held in the Month *Boedranion*, which answered to our *August*; and the lesser in the Month *Anthesterion*, which happened in our *January*.

People were only brought to partake of these Ceremonies by Degrees: At first, they were to be purified, then admitted to the lesser *Eleusinia*, and at last initiated into the greater. Those who were yet only at the lesser, were called *Mystæ*; and those admitted to the greater, *Epoptæ*, or *Ephori*, i. e. Inspectors. They were usually to undergo a Probation of five Years, e'er they passed from the lesser to the greater. Sometimes, indeed, they were contented with a single Year, immediately after which they were admitted to the most secret Parts of the Ceremony. *Meursius* has an express Treatise on the *Eleusinia*, where most of these Points are proved.

Note, That some Writers call the City where the *Eleusinia* were celebrated, *Eleusina*, not *Eleusis*: *Harponati* confirms this Orthography, in deriving its Name from *Eleusinus*, a Son of *Mercury*; to which Sentiment, *Pausanias* likewise adheres in his Atticks. Others, who write it Ελευσις, *Advent*, suppose it thus called, by Reason, *Ceres*, after running over the World in Search of her Daughter, stopp'd here, and put an End to her Pursuit. *Diodorus Siculus*, *Lib.* 5. will have the Name *Eleusis* to have been given this City, as a Monument to Posterity, that Corn, and the Art of cultivating it, were brought from Abroad into *Attica*.

All the *Cerealia*, were celebrated with a great deal of Religion and Purity; so that it was esteemed a great Pollution, to meddle on those Days with conjugal Matters. It was not *Ceres* alone that was honoured here, but also *Bacchus*. The Victims offered were Hogs, by Reason of the Waste they make in the Products of the Earth: Whether there was any Wine offered or not, is Matter of much Debate among the Criticks. *Plautus* and *Macrobius* seem to countenance the negative Side; *Cato* and *Virgil* the positive. *Macrobius* says, indeed, they did not offer Wine to *Ceres*, but *Mulsum*, which was a Composition of Wine and Honey, boiled up together; and that the Sacrifice made on the twenty-first of *December*, to that Goddess and *Hercules*, was a pregnant Sow, together with Cakes and *Mulsum*; and this is what *Virgil* means by *miti Baccho*.

The *Cerealia* passed from the *Greeks* to the *Romans*, who held them for eight Days successively; commencing, as generally held, on the fifth of the Ides of *April*. It was the Women alone who were concern'd in the Celebration, all dress'd in white: The Men, likewise, in white, were only Spectators. They eat nothing till after Sun-set, in Memory of *Ceres*, who, in Search after her Daughter, took no Repast but in the Evening. After the Battle of *Cannæ*, the Desolation was so great at *Rome*, that there were no Women to celebrate the Feast, by Reason they were all in Mourning; so that it was omitted that Year.

The LUPERCALIA (from *Lupercal*, the Name of a Place under the *Palatine* Mount, where the Sacrifices were perform'd) were *Feasts* instituted in antient *Rome*, in honour of the God *Pan*. They were celebrated on the fifteenth of the Calends of *March*, that is, on the fifteenth of *February*, or as *Ovid* observes, on the third Day after the Ides. They are supposed to have been established by *Evander*.

On the Morning of this Feast, the *Luperci*, or Priests of *Pan*, ran naked thro' the Streets of *Rome*, striking the married Women they met, on the Hands and Belly, with a Thong or Strap of Goat's Leather, which was held an Omen, promising them Fecundity, and happy Deliveries.

Note, That the *Luperci*, were the most antient Order of Priests in *Rome*; they were divided into two Collects, or Companies, the one called *Fabii*, and the other *Quintillii*. To these *Cæsar* added a third, which he called *Julii*. *Suetonius* mentions the Institution of this new College of *Luperci*, as a Thing that rendered *Cæsar* more odious than he was: However, it appears from the same Passage of *Suetonius*, that this new Company was

 not

not instituted by *Cæsar*, nor in honour of *Pan*, but by some Friend of *Cæsar*'s, and in honour of himself.

The Reason of this indecent Custom in celebrating the *Lupercalia*, took its Rise from *Romulus* and *Remus*; for while they were assisting at this *Feast*, a Body of Robbers, taking hold of the Occasion, plunder'd them of their Flocks: Upon this the two Brothers, and all the Youths that were with them, throwing off their Clothes to be the more expedite, pursued the Thieves, and recovered their Prey. This succeeding so well henceforward, this Ceremony became a Part of the *Lupercalia*; which were abolished in the Time of *Augustus*, but afterwards restored, and continued to the Time of the Emperor *Anastasius*. *Baronius* says it was abolished by the Pope in 496.

The LIBERALIA, were *Feasts* celebrated by the antient *Romans*, in Honour of *Liber*, or *Bacchus*. They took their Name from *Liber*, i. e. free; a Title conferr'd on *Bacchus* in Memory of the Liberty or Freedom he granted to the People of *Bœotia*; or perhaps because Wine, whereof he was the reputed Deity, delivers Men from Care, and sets their Minds at Ease and Freedom. *Varro* derives the Name of this *Feast* from *Liber*, consider'd as a Noun Adjective, and signifying *free*; because the Priests were free from their Function, and eased of all Care during the Time of the *Liberalia*. For in Effect it was the old Women who officiated in the Ceremonies and Sacrifices of these *Feasts*.

The *Greeks* call'd the same *Feasts*, *Dionysia*, or *Dionysiaca* (from the *Greek* Διονυσια, of Διονυσος, *Bacchus*; and that of Δις, the Genitive of Ζευς, *Jupiter*, and *Nysa*, a City in *Egypt*, on the Frontiers of *Arabia*, where *Bacchus* is said to have been educated by the Nymphs.)

There were Festivals under the Denomination of Διονυσια, *Dionysia*, chiefly two; *viz.* first the antient αρχαιωτερα, probably the same with μεγαλα, or the greater *Dionysia*; sometimes also called by way of Eminence Διονυσια, without other Addition, as being the most celebrated of all *Bacchus* Festivals at *Athens*; where it was held in the Month *Elaphelion*. Secondly the *new*, Νεωτερα, probably the same with μικρα, or the lesser *Dionysia*, held in Autumn, as a Sort of Preparation to the greater. Some will have this the same with Διονυσια ληναια, so called from ληνος, a *Wine-press*, and place it in the Month *Lenæon*.

The NEPTUNALIA, were Feasts held in Honour of *Neptune* in general, and not consider'd under any particular Quality. They were celebrated on the tenth of the Calends of *August*.

There were other *Feasts* of *Neptune*, call'd *Consualia*; that God being particularly consider'd, then, as presiding over Horses and the Manage. The *Consualia* were introduced with a magnificent Cavalcade, or Procession on Horseback; by reason *Neptune* was reputed to have first taught Men the Use of Horses; whence his Sirname of Ιππιος, *Equestris*. *Evander* is said first to have invented this *Feast*: It was re-established by *Romulus*, under the Name of *Consus*, in regard it was some God under the Denomination of *Consus*, that suggested to him the Rape of the *Sabines*. It is said, that it was with a View to this Rape, that he made that Establishment. This however is certain, that it was to this *Feast* all his Neighbours were invited; when taking Advantage of the Solemnities and Sacrifices, he seized the Women. To draw the greater Concourse of People, he gave out, that he had found an Altar hid under Ground, which he intended to consecrate, with Sacrifices to the God to whom it had been originally erected. Those who take upon them to explain the Mysteries of the Heathen Theology, say, that the Altar hid under Ground is a Symbol of the secret Design of *Romulus* to seize his Neighbours Wives.

The *Consualia* were of the Number of the *Feasts* call'd *sacred*; as being consecrated to a Divinity. Originally they were not distinguished from those of the Circus; whence it is that *Valerius Maximus* says, that the Rape of the *Sabines* was effected at the Games of the Circus. *Plutarch* observes, that during the Days of this Solemnity, Horses and Asses were left at Rest, and were dressed out with Crowns, &c. on Account of its being the *Feast* of *Neptunus Equestris*. *Festus* says, the Cavalcade was perform'd with Mules; it being an Opinion, that this was the first Animal used to draw the Car. *Servius* gives us to understand, that the *Consualia* fell on the thirteenth of *August*: *Plutarch*, in *Romulo*, places them on the eighteenth, and the old *Roman* Calendar, on the twenty-first Day of the Month.

The PALILIA, by some call'd *Parilia*, were a *Feast* in Honour of the Goddess *Pales*; and celebrated by the Shepherds on the first of *May*; to beseech that Goddess to take Care of their Flocks, and preserve them from Wolves and Diseases. Part of the Ceremony consisted in lighting Heaps of Straw, and jumping over them.

The PAGANALIA, were an antient rural *Feast*, thus call'd, because it was celebrated in the Villages in *Pagis*. In the *Paganalia*, the Peasants went in solemn Procession all around the Village, making Lustrations to purify it. They had also their Sacrifices, wherein they offer'd Cakes on the Altars of the Gods. *Halicarnasseus* and St. *Jerom* refer the Institution of the *Paganalia*, to *Servius Tullus*: They were held in the Month of *February*.

The DIVALIA, was a *Feast* held on the twenty-first of *December*, in Honour of *Angenora*, the Goddess of Patience and Silence; whence it is also called *Angeronalia*. This Feast was established on occasion of a Disease which destroyed Man and Beast; which was a kind of Squinancy, or Inflammation and Swelling of the Throat, called in *Latin Angina*. On the Day of this Feast the Pontifices performed Sacrifices in the Temple of *Volupia*, or the Goddess of Joy and Pleasure, who was the same with *Angenora*; and supposed to drive away all the Sorrows and Chagrin of Life.

The *Romans* had also Feasts instituted occasionally, as the *Carmentalia*, *Querinalia*, *Terminalia*, *Floralia*, *Compitalia*, *Lemuria*, *Vermalia*; besides other moveable and occasional ones, as to give Thanks to the Gods for Benefits received; to implore their Assistance, or to appease their Wrath, &c. as the *Paganalia*, *Feralia*, *Bacchanalia*, *Ambarvalia*, *Suovetaurilia*, and divers others, particularly denominated *Feriæ*, as *Sementinæ*, *Latinæ*.

The CARMENTALIA, was a Feast celebrated annually on the 11th of *January*, in honour of *Carmenta* or *Carmentis*, a Prophetess of *Arcadia*, Mother of *Evander*, with whom she came into *Italy* 50 Years before the *Trojan* War. The Solemnity was also repeated on the 15th of *January*, which is marked in the old Calender, by *Carmentalia Relata*. This Feast was established on occasion of a great Fecundity among the *Roman* Dames, after a general Reconciliation with their Husbands, with whom they had been at Variance in regard of the Use of Coaches being prohibited them by an Edict of the Senate. It was the Women who celebrated this Feast: He who offered the Sacrifices was called *Sacerdos Carmentalis*. Authors are divided about the Origin of the Word *Carmenta*: *Vigenere* says, the Prophetess was so called, *Quasi carens mente*, out of her Senses, or out of herself; by reason of the Enthusiasm she frequently fell into. Others say, she took her Name from *Carmen*, Verse, because her Prophecies were couched in Verses: But *Vigenere* on the contrary, maintains *Carmen* to be derived from *Carmenta*.

The QUIRINALIA, were Feasts celebrated in honour of *Romulus*, who was called *Quirinus*.—The *Quirinalia*, called also *Stultorum Feriæ*, were held on the 13th of the Calends of *March*, i. e. on our 17th of *February*.

The TERMINALIA, were Feasts celebrated in honour of the God *Terminus*. *Varro* is of Opinion this Feast took its Name from its being at the Term or End of the Year: But *Festus* is of a different Sentiment,

ment, and derives it from the Name of the Deity, in whose Honour it was held. In Reality, the *Terminalia*, or Feast of Land-marks, was held in honour of *Jupiter*, considered in the Capacity of Conservator of the Land-marks and Bounds. *Dionysius Halicarnasseus* tells us, that it was *Numa Pompilius*, who first consecrated Land-marks to *Jupiter*; and adds, that the same Prince appointed an anniversary Day, wherein the Country People assembling together on the Bounds of the Lands, should offer Sacrifices in honour of the Tutelary Gods thereof.—The *Terminalia* were held on the 17th, or as *Struvius* will have it, on the 10th of the Calends of *March*. No Animal was to be sacrificed herein, it being deemed unlawful to stain the Land-marks with Blood: They only offered Sacrifices of the first Fruits of the Earth, and this in the open Air, and on the Spot where the Land-marks were.

The FLORALIA, also called *Anthistesis*, is a general Name for the Feasts, Games, and other Ceremonies, held in honour of the Goddess *Flora*.—They were held at the latter End of the Month of *April*, as *Ovid* witnesses,

Exit, & in majus festum florale calendas.

In effect the *Floralia* began on the 28th of *April*, and lasted six Days. They who assisted at the Ceremony were crowned with Ivy, and committed a World of Indecencies; which indeed was no extraordinary Thing in the Heathen Feasts. Some apply the Word *Floralia* indifferently to the Feasts and Games of this Goddess; but others restrain it to the Feasts alone, calling the Games *Ludi florales*. For my Part, as I find no Difference between *Floralia*, and *Ludi florales*, since most of the principal Ceremonies of the Heathen Feasts were Games, I'll mention the *Florales* Games with the *Floralia*.

Note, That the *Ludi florales* were celebrated with horrible Debaucheries. The most licentious Discourses were not enough; but the Courtesans were called together by the Sound of a Trumpet, made their Appearance naked, and entertained the People with abominable Shews and Postures: The Comedians appeared after the same Manner on the Stage. *Val. Maximus* relates, that *Cato* being once present in the Theatre on this Occasion, the People were ashamed to ask for the infamous Pleasure in his Presence, till *Cato*, apprized of the Reservedness and Respect he inspired them withal, withdrew, that the People might not be baulked of their accustomed Diversion. There were divers other sorts of Shews exhibited on this Occasion; and if we may believe *Suetonius* in *Galba*, *c.* 6. and *Vopiscus* in *Carinus*, these Princes presented Elephants dancing on Ropes.

The *Ludi Florales*, according to *Pliny*, *l.* xviii. *c.* 29. were instituted by Order of an Oracle of the *Sibyls*, on the 28th of *April*; not in the Year of *Rome* 416, as we commonly read it in the antient Editions of that Author; nor in 414, as *F. Harduin* has corrected it; but as *Vossius* reads it in 513, they were chiefly held in the Night-time, in the *Patrician* Street: Some will have it there was a Circus for the Purpose on the Hill called *Hortulorum*. The Goddess *Flora* is by some held to be the same with the *Chloris* of the *Greeks*. Others maintain that this same *Flora* was a famous Courtesan at *Rome*, who having enriched herself by Prostitution, made the People of *Rome* her Heir, on Condition that they should celebrate the Anniversary of her Birth-day, by the Games and Feasts above-mentioned. Some Time afterward, the Senate judging such a Foundation unworthy the Majesty of the *Roman* People; to ennoble the Ceremony, converted *Flora* into a Goddess, whom they supposed to preside over Flowers; and so made it a Piece of Religion to render her propitious, that it might be well with their Gardens, Vineyards, *&c.*—This is the common Account; but *Vossius de Idol. l.* 1. *c.* 12. can by no Means allow the Goddess *Flora* to have been the Courtisan above-mentioned: He will rather have her a sublime Deity, and thinks her Worship might have commenced under *Romulus*: His Reason is, that *Varro*, in his fourth Book of the *Latin* Tongue, ranks *Flora* among the Deities, to whom *Tatius*, King of the *Sabines*, offered up Vows before he joined Battle with the *Romans*. And, that from another Passage in *Varro* it appears, that there were Priests of *Flora* with Sacrifices, *&c.* as early as *Romulus* and *Numa*.

The COMPITALIA or *Compitalitia*, were Feasts held in honour of the *Lares*. These Feasts were more antient than the Building of *Rome*. *Dionysius Halicarnasseus* and *Pliny* indeed say, they were instituted by *Servius Tullus*; but this only signifies that they were then introduced into *Rome*. Notwithstanding what *Dion* relates, that the *Compitalia* were celebrated a little after the *Saturnalia*; and that the *Roman* Calender fixes them on the 12th of *January*: It appears, that they had not any fixed Day, at least not in the Time of *Varro*, as is observed by *Casaubon*. The Feast being thus moveable, the Day whereon it was to be observed was proclaimed every Year. It was ordinarily held on the 4th of the Nones of *February*, i. e. on the second of that Month. *Macrobius* observes, that they were held not only in honour of the *Lares*, but also of *Mania*, Madness. The Priests who officiated at them were Slaves, and Siberi; and the Sacrifice, a Sow.

The *Compitalia* were re-established, after a long Neglect, by *Tarquin* the Proud, on occasion of an Answer of the Oracle, that *they should sacrifice Heads for Heads*, i. e. that for the Health and Prosperity of each Family, Children were to be sacrificed: But *Brutus* after expelling the Kings, in lieu of those barbarous Victims, substituted the Heads of *Garlick* and *Poppy*; thus satisfying the Oracle which had enjoined *capital* Heads. During the Celebration of this *Feast*, each Family placed at the Door of their House, the Statue of the Goddess *Mania*: They also hung up at the Doors Figures of Wool, representing Men and Women accompanying them with Supplications, that the *Lares* and *Mania* would be contented with those Figures, and spare the People of the House. As for Slaves in lieu of the Figures of Men, they offered Bales or Fleeces of Wool. *Servius Tullus* ordered, that Slaves who assisted at the *Compitalia*, should be free during the whole Time of the *Feast*. *Augustus* ordered the Statues of the *Lares* placed in the Cross-ways, to be adorned with Flowers twice a Year.

LEMURIA, or *Lemuralia*, was a *Feast* solemnized at *Rome* on the 9th of *May*, to pacify the Manes of the Dead, or in honour of the *Lemures* which were *Spirits* and *Hobgoblins*; restless Ghosts of departed Persons, who returned to terrify and torment the Living.

The Institution of this *Feast* is ascribed to *Romulus*; who, to rid himself of the Phantom of his Brother *Remus* (whom he had order'd to be murder'd) appearing always before him, order'd a *Feast*, call'd by his Name *Remuria*, or *Lemuria*. In the *Lemuria* they offered Sacrifices for three Nights together; during which Time all the Temples of the Gods were shut up, nor any Marriages permitted. There was a vast Number of Ceremonies in this Feast, chiefly intended to exorcise the *Lemures*, and prevent their appearing, or giving any Disturbance to the Living.

Note, That the *Lemures* are the same with *Larvæ*, which the Antients imagined to wander round the World, to frighten good People, and plague the bad. For which Reason, the *Lemuria* were instituted to appeased the Manes of the Defunct. *Apuleius* explains the antient Notion of the *Manes* thus: The Souls of Men released from the Bands of the Body, and freed from performing their bodily Functions, became a Kind of Dæmons or *Genii*, formerly call'd *Lemures*. Of these *Lemures*, those that

that were kind to their Families, were call'd *Lares familiares*; but those who for their Crimes, were condemned to wander continually without meeting with any Place of Rest, and terrified good Men, and hurt the bad, are vulgarly called the *Larvæ*. An antient Commentator on *Horace* mentions, that the *Romans* wrote *Lemures* for *Remures*; which last Word was formed from *Remus*, who was killed by his Brother *Romulus*, and who returned to Earth to torment him. But *Apuleius* observes that in the antient *Latin* Tongue, *Lemures* signifies the Soul of a Man separated from the Body by Death.

The FORALIA, was a *Feast* held on the twenty-first of *February*, in honour of the Dead; also called *Februa*. *Macrobius*, *Saturn. l.* 1. *c.* 13. refers the Origin of the Ceremony to *Numa Pompilius*; and tells us, that Sacrifices were here perform'd, and the last Offices paid the Shades of the Defunct: And from this *Feast* it was, that the Month of *February* took its Name. The Design of these Sacrifices is somewhat controverted: *Pliny* says, they were performed to render the infernal Gods propitious to the Deceased; tho' some of the Moderns have imagined, that they were intended to appease the Deceased themselves, and were offered immediately to them as a Sort of Duties: What confirms the former Sentiment, is, that *Pluto* himself is sirnamed *Februus*: They lasted twelve Days.

The Word is of an antient Standing in the *Latin* Tongue: From the very Foundation of the City, we meet with *Februa* for *Purifications*; and *februare*, to purge or purify. *Varro*, *de Ling. l.* 2. derives it from the *Sabines*: *Vossius*, and others, from *ferveo*, I am hot; by reason Purifications were chiefly performed with Fire and hot Water. Some go higher, and even deduce the Word from *phur*, or *phavar*, which in *Syriack* and *Arabick* has the same Signification with *ferbuit*, or *eferbuit*; and might probably, likewise, signify to purify; for *phavar*, in *Arabick*, denotes a Preparative given to Women in Child-bed, to bring away the After-birth, and other Impurities remaining after Delivery; much as among the *Romans*, who gave the Name *Februa* to the Goddess, supposed to preside over the Delivery of Women.

Ovid, in his *Fasti*, goes back as far as *Æneas* for the Institution of the *Ferialia*; and adds, that on the same Day, a Sacrifice was performed to the Goddess *Muta*, or dumb; and that the Persons who officiated were an old Woman, attended with a Number of young Girls. *Varro* derives the Word *Ferialia*, from *inferi*, or from *fero*, on account of a Repast carried to the Sepulchres of such as the last Offices were that Day render'd to. *Festus* derives it from *ferio*, on account of the Victims sacrificed. *Vossius* observes, that the *Romans* called Death *Fera*, cruel, and that the Word *Feralia* might arise thence.

The BACCHANALIA, were a *Feast* in honour of *Bacchus*, celebrated with great Solemnity among the Antients, particularly the *Athenians*, who even computed their Years thereby, till the Commencement of the Olympiads. They are also sometimes called *Orgia*, from the *Greek* Ὀργὴ, Fury, Transport; by reason of the Madness and Enthusiasm wherewith the People appeared to be possessed at the Time of their Celebration.

The *Bacchanalia* were held in Autumn, and took their Rise from *Egypt*; whence, according to *Diodorus*, they were brought into *Greece* by *Melampus*. The Form and Disposition of the Solemnity depended at *Athens* on the *Archon*, and was at first exceedingly simple; but by Time became encumbered with a Number of ridiculous Ceremonies, and attended with much Dissoluteness and Debauchery, insomuch that the *Romans*, who grew asham'd of them, suppressed them by a *Senatus-Consultum* throughout all *Italy*. The Women had a great Share in the Solemnity, which is said to have been instituted on their Account: For a great Number of them attending *Bacchus* to the Conquest of the *Indies*, and carrying in their Hands the Thyrsus, *i. e.* a little Lance covered with Ivy and Vine-Leaves, singing his Victories and Triumphs wherever they went; the Ceremony was kept up after *Bacchus*'s Deification, under the Title of *Bacchanalia*, and the Women were install'd Priestesses thereof, under that of *Bacchæ*, or *Bacchantes*. These Priestesses, at the Time of the Feast, ran thro' the Streets, and over the Mountains, cover'd with Tygers Skins, their Hair dishevelled, their Thyrsus in one Hand, and Torches in the other, howling and shrieking. Men and Women met promiscuously at the Feast, all perfectly naked, except for the Vine-Leaves and Clusters of Grapes which bound their Heads, and Hips: Here they danced and jumped tumultuously, and with strange Gesticulations, sung Hymns to *Bacchus*, till weary and giddy they tumbled down distracted.

The AMBARVALIA, were a *Feast*, celebrated annually by the *Romans* to expiate their Grounds, and procure of the Gods a happy Harvest. At these *Feasts* they sacrificed a Bull, a Sow, and a Sheep; which before the Sacrifice, were led in Procession thrice around the Fields; whence the Feast is supposed to have taken its Name, from the *Greek* ἀμφὶ, about; or the *Latin ambio*, I go round, and *arvum*, Field. Though others write it *Amberbalia*, and *Ambarbia*, and deduce it from *Ambire Urbem*, to go round the City. From the Beasts offered in Sacrifice, the Ceremony was also called *Suovetaurilia*. *Halicarnasseus* describing the same, calls it *Solitaurilia*, in Regard it was requir'd that the Victims were perfect, and without any Defect; *Sollus*, or *Solus*, in the Language of the *Osci*, signifying *integer*, entire. It is not certain whether this Feast was fix'd, or moveable; nor whether it was celebrated once or twice a Year; Authors being of different Opinions on both those Heads. The *Ambervale Carmen*, was a Prayer preferr'd on this Occasion, whereof we have the Formula preserv'd in *Cato*, *c.* 141. *de re Rusticâ*. The Priests who chiefly officiated at the Solemnity, were called *Fratres Arvales*, instituted by *Romulus*, and were twelve in Number; all of them Persons of the first Distinction; the Founder himself having been of the Body. They made a College, called *Collegium Fratrum Arvalium*. The Mark of their Dignity was a Garland, compos'd of Ears of Corn, tied with a white Riband, which *Pliny* says, was the first Crown in Use at *Rome*. According to *Fulgentius*, *Acca Laurentia*, *Romulus*'s Nurse was the first Founder of the Order of Priests; she, it seems, had twelve Sons, who used to walk before her in Procession to the Sacrifice; one of whom dying, *Romulus*, in favour of his Nurse, promis'd to take his Place; and hence, says he, came this Sacrifice, the Number of twelve, and the Name of Brother. *Pliny*, *Lib.* 17. *c.* 2. seems to indicate the same Thing, when he mentions that *Romulus* instituted Priests of the Fields, after the Example of *Acca Laurentia* his Nurse.

Note, That *Scaliger*, in his Notes on *Festus*, followed by many others, maintains *Ambarbalia*, or *Ambarbia*, to be the same with *Ambarvalia*.

The *Feriæ* among the *Romans*, were Holidays; or Days wherein they abstained from Work. The Word *Feriæ*, is usually derived a *ferendis Victimis*, on Account of the Victims killed on these Days. *Martinius* says, that *Feriæ* were so called *velut* ἱερὰ ἡμέρα, *Dies Sacri*, Holidays. Others observe, that all Days in general, tho' they were not Feast-Days, were antiently called *Festæ*, or as *Vossius* reads it, *Fesiæ*; whence, according to that Author, was formed the Word *Feriæ*. The *Feriæ*, or *Dies feriati*, were observed, and distinguished chiefly by Rest; whereas the *Feasts*, or *Dies festi*, besides a Cessation from Labour, were celebrated with Sacrifices, and Games; so that there were *Feriæ*, which were not Feast-Days, though Authors frequently confound the *Feriæ*, and *Festi*. Others confound the *Feriæ*, with the *Dies nefasti*, or Non-Court Days.

The *Romans* had divers Kinds of *Feriæ*, their Names, at

at least the principal thereof, are *Æstivales*, or Summer *Feriæ*; *Anniversariæ*, yearly *Feriæ*; *Compitalitiæ*, *Feriæ* of the Streets, and Cross-ways; *Caiceptivæ*, votive *Feriæ*, which the Magistrates promised every Year; *Denicales*, for the Expiation of a Family, polluted by the Death of any one; *Imperativæ*, or *Indictivæ*, those decreed by the Magistrate; *Latinæ*, the *Latin Feriæ*, instituted by *Tarquin* the Proud, for all the *Latin* People amounting to above fifty Nations, being celebrated by *M. Alba*, in Memory of the Peace concluded by *Tarquin*, with the People of *Latium*; *Messis Feriæ*, those of Harvest; *Præcidaneæ*, which were what we properly call the Vigils, or Eves of the *Feasts*; *Privatæ*, or *Propriæ*, those peculiar to the several Families; as the *Familiæ*, *Claudiæ*, *Æmiliæ*, *Juliæ*, &c. *Publicæ*, those observ'd by all in general, or for the publick Weal; *Sementinæ*, those held in Seed-time; *Stativæ*, those kept constantly to the same Day of the Year; *Stultorum Feriæ*, or *Quirinaliæ*, the *Feriæ* of Fools, held on the seventeenth of *February*; *Victoriæ Feriæ*, those of Victory in the Month of *August*, to the fifteenth of *October*; *Vulcani Feriæ*, those of *Vulcan*, which fell on the twenty-second of *May*.

Note, That *Feriæ* was also used among the *Romans*, for Fair Days; by Reason it was the Custom to hold their Fairs, on the *Dies feriati*, or Holidays.

The *Feasts* among the Antients, were divided into Days of *Sacrifice*, Days of *Feasting*, or *Banqueting*, Days of *Games*, and Days of *Rest*, or *Feriæ*, lately mention'd.

A SACRIFICE, properly speaking, is an Offering made to God on an Altar, by Means of a regular Minister, as an Acknowledgment of his Power, and a Payment of Homage. But this is not a proper Definition of the *Sacrifices* of the Pagans; since they had not a true Altar, nor regular Ministers, neither were their Sacrifices offered to the true God.

The *Phœnicians* are usually held the first Authors of *Sacrifices*; *Porphyri*, indeed, attributes the Invention to the *Egyptians*, who, he says, first offer'd the first Fruits of their Ground to the Gods; burning them upon an Altar of Turf. At length they came to burn Perfumes, and at last sacrific'd Animals; observing that they first eat some Herbs, or Fruits, regularly offer'd on the Altar. He adds, that Libations were very frequent, e'er *Sacrifices* of Beasts got Footing.

Note, That Libation was a Ceremony in the Heathen Sacrifices, wherein the Priest spilt some Wine, Milk, or other Liquor, in honour of the Deity to whom the Sacrifice was offer'd, after having first tasted it himself. *Alexander* is said to have sacrific'd a Bull to *Neptune*; and for an Offering to the Sea-Gods, threw the golden Vessel, us'd for the Libation into the Sea. Libations were also in Use under the Law of *Moses*, being enjoin'd by God in *Exodus* xxix, and *Numbers* xv.

Ovid observes, that the very Names, *Victim* and *Hostia*, import that they were not slain, till such Time as Victories were obtained over Enemies: Indeed, while Men liv'd on Herbs and Pulse, it is no wonder they abstain'd from *Sacrifices* of Beasts, since the Law of *Sacrifices* requir'd, that they should eat some Part thereof. In Effect, it is supposed to be this that first introduc'd Flesh as Food, and made Man a carnivorous Animal. The Truth is, in all Antiquity, both sacred and profane, *Sacrifices* were ordinarily nothing else but holy Banquets.

The Scripture furnishes us a somewhat different Account; *Noah* certainly sacrific'd Animals at his coming out of the Ark; and it is even suggested, that *Abel* himself sacrific'd the best and fattest of his Flocks; though *Grotius* thinks it more probable, he contented himself with making a mere Oblation of his Lambs, &c. to God, without sacrificing them; *Macrobius* tells us, that the *Egyptians* long accustomed to bloodless Sacrifices, being at length oblig'd to admit the Worship of *Serapis* and *Saturn*, to whom Victims were to be sacrific'd; would not allow their Temples to be built in the Cities. These Victims, however, or bloody Sacrifices, at length obtain'd, in Exclusion of almost all the rest: The most usual among the Antients, were Bulls, Oxen, Cows, Sheep, and Lambs, in Regard these were the most ordinary Food of Man. The Manner of sacrificing among the *Hebrews*, is amply describ'd in the Books of *Moses*: That in Use among the *Romans* is as follows.

In the Choice of the Victim, Care was taken it was without Blemish or Imperfection, its Tail not too small at the End; the Tongue not black, nor Ears cleft; and the Bulls such as had never been yok'd. The Victim pitch'd upon, they gilt its Forehead and Horns, especially if a Bull, Heifer, or Cow; the Head they also adorn'd with a woollen Infula, whence hung two Rows of Chaplets, with twisted Ribbands; and on the Middle of the Body, a Kind of Pole, pretty large, hung down on both Sides: The lesser Victims were only adorn'd with Bundles of Flowers, and Garlands, together with white Shafts or Garlands. The Victims thus made ready, were brought before the Altar; the lesser were not led by a String, but driven to the Place; the greater were conducted in a Halter, if they made any Struggle, or refused to go, the Resistance was taken for an ill Augury, and the *Sacrifice* set aside. The Victim thus brought to the Altar, was examin'd with a great deal of Circumspection, to see if there were no Defect in it; then the Priest being clad in his sacerdotal Habit, and accompanied with the *Sacrificers*, and other Attendants, and being wash'd and purify'd according to the Ceremonies prescrib'd, began the *Sacrifice*, with making a loud Confession of his Unworthiness, acknowledging himself guilty of divers Sins, for which he begg'd Pardon of the Gods, hoping they would be pleas'd to grant his Requests. These Confessions were like those of the *Hebrews*, with this Difference, that the Pagans confess'd the Frailty of Mankind, and own'd their Faults; the *Jews* confess'd chiefly the Greatness of God, accompanying it with Hymns and musical Instruments. The Confession over, the Priest cried aloud, *Hoc age*, *i. e.* compose yourselves and mind your Business; and presently an Usher, holding a Rod in his Hand, call'd *Commentaculum*, went through the Temple, and made all those withdraw, who were not initiated in the Mysteries of Religion, or such as were excommunicated.

The Custom of the *Greeks*, from whom the *Romans* borrow'd theirs, was, that the Priest coming to the Altar, should ask aloud, τις τιδε? who is here? The People answer'd, Πολλοι ϗ αγαθοι, many good Persons; then the Usher went through the Temple, crying, Εκας εκας εστε βεβηλοι, that is, out with the Wicked. The *Romans* commonly us'd the Words, *Nocentes, profani abscedite*. All those who were driven out of the Temple among the *Greeks*, were comprehended under these general Words, βεβηλοι, αμυητοι, ακαθαρτοι; the Profane being withdrawn, they cried, *Favete Linguis*, or *Animis*, and *Pascite Linguam*, to require Silence and Attention, during the *Sacrifice*.

These Ceremonies ended, the chief *Sacrificer* being sate down, and the rest of them standing, the Magistrates, or private Persons who offer'd *Sacrifices*, came before him, and presented him with the First-Fruits and Victims, and sometimes made a short Discourse by way of Compliment; as we find *Homer* makes *Ulysses* do, when he presented the High-Priest with *Iphigenia* to be sacrificed. As any Person came to present his Offering, he washed his Hands in a Place appointed in the Temple for that Purpose. Lastly, when the Offering was made, the Priest that officiated, perfum'd the Victim with Incense, and sprinkled it with lustral Water; and having washed his Hands, and got up again to the Altar, he pray'd to the God to whom he presented the *Sacrifice*, with a loud Voice, that he would accept of those Offerings, and be pleased with the Victim he sacrificed to him, for the publick Good, and for such and such Things in

 particular.

particular. In the Close of the Offertory and Prayer, made by the Priest to the Gods, he came down the Steps of the Altar, and from the Hand of one of his Assistants, received the sacred Paste, called *mola salsa*, made of Barley or Wheat-Flour, mixed with Salt and Water, which he threw upon the Head of the Victim, sprinkling a little Wine upon it, which was called *Immolatio*. *Servius* says, the Priest scatter'd little Bits of this Paste upon the Head of the Victim, the Altar where the sacred Fire burned, and the Knives by way of Consecration.

He then took Wine in a Vessel call'd *Simpulum*, and having tasted it himself first, and made his Assistants do the same, to shew that they partook of the *Sacrifice*; he poured it between the Horns of the Victim, pronouncing these Words of the Consecration, *Mactus hoc vino inferis esto*; let this Victim be improved and honoured by this Wine. This done, he pulled off the Hairs from between the Horns, and threw them into the Fire. And commanded the *Victimarius*, who asked him again, shall I strike? to knock down the Victim with a Blow on the Head with an Hammer, or Axe; upon which another Assistant, named *Popa*, presently thrust a Knife into his Throat; while a third received the Blood, wherewith the Priests sprinkled the Altar.

When the Victim was slain they flea'd him, if it was not a Burnt-offering, (for then they burned Skin and all) took the Flesh off the Head, and adorning it with Garlands and Flowers, fastened it to the Pillars of Temples, as well as the Skins, as Ensigns of Religion; carrying them about in Procession in publick Calamities: Not but that the Priests often wore the Skins, and others went to sleep upon them in the Temple of *Æsculapius* and *Faunus*, that they might receive favourable Responses in their Dreams, or be cured of their Maladies. They then opened the Victims Entrails, and after circumspectly viewing them, to draw Presages therefrom, according to the Art of the *Aruspices*, they flowered them with Meal, and sprinkled them with Wine, and made a Present of them to the Gods, *reddebant exta Diis*, by throwing them into the Fire in small Bits, boiled or parboiled; and hence the Entrails were called *porricæ*. The Entrails being burned, and the other Ceremonies finished, they believed the Gods to be satisfied; and that they could not fail to find their Vows accomplished, which they expressed by the Word *litare*, *q. d.* all is finished, and well done; whereas *non litare*, on the contrary, intimated there was something wanting to the Perfection of the Sacrifice, and that the Gods were not appeased. The Priest afterwards dismissed the People, with this Word *ilicet*.

Hence it may be observed, that the Sacrifices consisted of four principal Parts; the first called *Libatio*, or the pouring a little Wine upon the Victim; the second *Immolatio*, when, after they had scattered the Crumbs of salted Paste thereon, they killed it; the third *Redditio*, when they offered the Entrails to the Gods; and the fourth *Litatio*, when the Sacrifice was perfected without any Fault.

The *Romans* had Sacrifices, or Ceremonies, call'd LUSTRATION, by which they purified their Cities, Fields, Armies, or People, defiled by any Crime, or Impurity. These *Lustrations* were either publick or private, and performed in three Manners, *viz.* by Fire and Sulphur, by Water, and by Air; which last was done by fanning and agitating the Air round the Thing to be purified. There was also a particular Kind of *Lustration* for young Children.

John Lomeir of *Zutphen* says, that all Persons, Slaves only excepted, were Ministers of some Sort of *Lustration*. When any one died, the House was to be swept after a particular Manner, by way of Purification: The Priest threw Water on new married People, with the like Intention. To purify themselves, People would even sometimes run naked thro' the Streets, such was their Extravagance: And as if Fancy was not fertile enough in inventing Modes of *Lustration*, they even used Enchantments to raise the Dead, in order to get Instructions what they must do to purge themselves of their Sins. Add, that they frequently raised the Opinion of the Sanctity of their Expiations by fictitious Miracles. The Birds, say they, practise *Lustration*, both by washing themselves, and throwing Water on their Nest. The Hen takes Straw, and uses it to purify her Chickens. There was scarce any Action, the Beginning and End of which the Gentiles did not perform some Ceremony to cleanse themselves, and appease the Gods. When they had no Animals to sacrifice, they made the Figure they would offer in Dough, Metal, or other Matter; and thus sacrificed in Effigy.

Some Expiations were performed in the Water; for which Reason certain Fountains and Rivers were in great Reputation: Others were performed in the Air. A certain Heathen caused himself to be seriously sifted in a Sieve, as we now sift Corn: Another hung himself by a Cord, and was tossed backwards and forwards: Another shut his Eyes, and set himself blindfold, to find a Nosegay tied to a Cord: Others play'd at See-saw, as a more efficacious Way of appeasing the Gods. Fire was much used for Expiation: Sometimes the Penitents were cast into the Fire, and others only brought to the Flame, or Smoak. It was common, on these Occasions, to shed human Blood: The Priests of *Cybele*, *Bellona*, and *Baal*, made cruel Incisions on themselves. *Ereuthenus*, King of *Attica*, sacrificed his Daughter to *Proserpina*. Several had their Throats cut at *Rome*, to obtain the Emperor's Health from the Gods. Those who commanded Armies, offered one of their Soldiers, to appease the Anger of the Gods; that he alone might suffer all the Wrath the Army deserved. All Sorts of Perfumes and odoriferous Herbs had Place in *Lustration*. There is scarce any Pot-Herb, Pulse, true Mineral, or Metal, which they did not offer the Gods by Way of Expiation; nor did they forget Milk, Bread, Wine, or Honey: What is more, they made use of the very Spittle and Urine. The Egg was much used among them, as being the Symbol of the four Elements: Its Shell, they say, represents the Earth; the Yolk, a Globe of Fire; the White, resembles the Water; and besides it has a Spirit, which represents the Air. It is for this Reason, that the *Bonza's*, or *Indian* Priests, believe to this Day, that the World came out of an Egg.

The Poets had feigned that the Gods purified themselves; and they did not omit to purify their Statues. They made a *Lustration* for Children the eighth Day after their Birth. When a Man who had been falsly reputed dead, returned home, he was not to enter his House by the Door. It was a settled Custom to offer no Expiation for those who were hanged by Order of Justice; or that were killed by Thunder. Neither did they offer any for those who were drowned in the Sea; it being the common Opinion, that their Souls perished with their Bodies: And hence it was, that Persons, in Danger of Shipwreck, sometimes thrust their Sword through their Bodies, that they might not die in the Sea; where they thought their Soul, which they supposed to be a Flame, would be totally extinguished.

The most celebrated expiatory Sacrifice, was the Hecatomb, where they offer'd a hundred Beasts; tho' they commonly did not offer so many, but contented themselves with killing twenty-five; but those being Quadrupedes, their Feet came to an hundred.

Note, That *Hecatomb* (from the *Greek* ἑκατόμβη, which properly signifies a sumptuous, or magnificent Sacrifice) was a Sacrifice of an hundred Beasts of the same Kind, at an hundred Altars, and by an hundred Priests, or Sacrificers. *Pythagoras* is said to have sacrificed a *Hecatomb* to the Muses, of an hundred Oxen, in Joy and Gratitude for his discovering the Demonstration of the 47th Proposition of the first Book of *Euclid*, *viz.* that in a rectangled Triangle, the Square of the Hypothenuse is equal to the Square of the two other Sides. For the Origin of *Hecatombs*,

Hecatombs, *Strabo* relates, that there were an hundred Cities in *Laconia*; and that each City used to sacrifice a Bullock every Year, for the common Safety of the Country; whence the Institution of the celebrated Sacrifice of an hundred Victims, call'd *Hecatombs*. Others refer the Origin of *Hecatombs* to a Plague, wherewith the hundred Cities of *Peloponnesus* were afflicted; for the Removal whereof, they jointly contributed to so splendid a Sacrifice. *Ælius Capitolinus* relates, that for a *Hecatomb* they erected a hundred Altars of Turf, and on these sacrificed a hundred Sheep, and a hundred Hogs. He adds, that when the Emperors offered Sacrifices of this Kind, they sacrificed a hundred Lions, a hundred Eagles, and a hundred other Beasts of the like Kind.

Lustrations, and lustratory Sacrifices, were not only performed for Men, but also for Temples, Altars, Theatres, Trees, Fountains, Rivers, Sheep, Fields, and Villages. Cities were all to be purified from Time to Time: Some walked the Victim round their Walls, and then slew him. The *Athenians* sacrificed two Men, one for the Men of their City, and the other for the Women. The *Corinthians* sacrificed thus the Children of *Medea*; though the Poets say, *Medea* killed them herself. The *Romans* performed the Ceremony of purifying their City every fifth Year; whence the Name of *Lustrum*, given to the Space of five Years.

Divers of the Expiations were austere: Some fasted; others abstained from all sensual Pleasures: Some, as the Priests of *Cybele*, castrated themselves; others, that they might live chaste, eat Rue, or lay under the Branches of a Shrub call'd *Agnus Castus*. The Postures of the Penitents were different, according to the different Sacrifices: They sometimes joyned Prayers to the Solemnity; at other Times a publick Confession of Sins was made. The *Indians*, when they sacrificed to *Hercules*, call him a thousand reproachful Names; and think they incur his Anger, if any respectful Term comes out of their Mouths.

The Priests changed their Habits, according to the Ceremony to be perform'd; white, purple, and black, were the most usual Colours. They had their Heads always covered, and long Hairs, except in the Sacrifices of *Saturn*, *Hercules*, *Honour*, and few others: Only the Priests of *Isis* were shaven, because that Goddess underwent the same Operation, after the Death of her Husband *Osiris*. In some Ceremonies the Priests were shod, in others barefoot: The Poets express the former by the Word *vincula*. They had no Girdles; nay, they durst not pronounce the Word *Ivy*, because Ivy cleaves to every Thing. In the Sacrifices of *Venus*, and the *Moon*, every one took the Habit of the contrary Sex. Every Thing was to be done by odd Numbers; because they look'd on an even Number, which may be equally divided, as the Symbol of Mortality and Destruction: The odd Number was with them holy: Hence *Neptune*'s Trident, *Cerberus*'s three Heads, and *Jupiter*'s Thunder-Dart, with three Points.

They cast into the River, or at least out of the City, the Animals or other Things that had served for a *Lustration*, or Sacrifice of Atonement; and thought themselves threatened with some great Misfortune, when by Chance they trod upon them. At *Marseilles*, they took Care to feed a poor Man for some Time; after which they charged him with all the Sins of the Country, and drove him away: Those of *Leucade*, fastened a Number of Birds to a Man charged with their Sins, and in that Condition cast him headlong from a high Tower; and if the Birds hinder'd his being kill'd, they drove him out of the Country.

Part of these Ceremonies were abolished by the Emperor *Constantine*, and his Successors; the rest subsisted till the *Gothick* Kings were Masters of *Rome*, under whom they expired.

Note, That the Day whereon the *Lustrations* were performed for a Child, and his Name given, was call'd *Lustral*; which was usually the ninth Day from the Birth of a Boy, and the eighth from that of a Girl: Though others performed the Ceremony on the last Day of that Week wherein the Child was born; and others on the fifth Day from his Birth. Over this *Feast* Day, the Goddess *Nundina* was supposed to preside; the Midwives, Nurses, and Domesticks, handed the Child backwards and forwards, around a Fire, burning on the Altars of the Gods, after which they sprinkled it with Water: The whole ended with a sumptuous Entertainment.

Note, also, That Water used in these Ceremonies and others, was called *Lustral*.

The *Romans* had also a Ceremony, or Sacrifice, called *Lustrum*; celebrated after numbering their People once in five Years.

The *Games*, used by the Antients in the Celebration of their *Feasts*, were the *Ludi Cereales*, *Florales*, *Martiales*, *Apollinares*, *Megalenses*, *Romani Consuales*, or *Circences*, *Capitolini*, *Seculares*, *Plebeii*, *Compitalitii*, *Augustules*, *Palatini*, *Votivi*.

As we have already took Notice of the *Cereales*, and *Florales* Games; we'll begin here by the Description of the *Martiales*, which were Combats instituted in honour of the God *Mars*. They were held twice in the Year; once in the Circus, on the Fourth of the Ides of *May*; and a second Time on the First of *August*. These latter were established sometime after the other, in Memory of the Dedication of the Temple of *Mars* on that Day. These *Games* consisted in Courses of Horses, and Combats with wild Beasts. *Germanicus* is said to have kill'd two hundred Lions in the Circus on these Occasions.

The APOLLINARES *Ludi*, were Games at *Rome*, celebrated yearly, in honour of *Apollo*, on the fifth Day of *July*, under the Direction of the Prætor, in the *Circus maximus*. The Tradition goes, that at the first Celebration thereof, the People were suddenly invaded by the Enemy, and obliged to take to their Arms: Upon which Occasion, a Cloud of Darts and Arrows falling upon their Enemies, the *Romans* soon returned Victors to their Sports.

The MEGALENSES *Ludi*, (from the *Greek* μεγαλη, great) were Games celebrated among the *Romans* on the Twelfth of *April*, in honour of *Cybele*, or *Rhea*, Mother of the Gods; wherein were Sports or Combats held before the Temple of that Goddess.

The ROMAN *Games*, or *Ludi Romani*, were solemn Games, held in antient *Rome*; thus called by Way of Eminence, and on account of their Antiquity, as having been instituted by *Romulus*. They were sometimes, also, call'd *magni Ludi*; from the great Pomp and Expence thereof: Sometimes *Consualia*, because performed in honour of the God *Neptune*; who was also call'd *Consus*, in his quality of God of secret Councils. They also bore the Denomination of *Ludi Circenses*, because held in the Circus. This Solemnity, *Halicarnasseus* observes, was originally instituted by *Evander*, in honour of *Neptune*, under the Name of Ιππιος; whence the Festival itself was call'd Ἱππιοκρατια; and was afterwards renew'd by *Romulus*, in honour of the same Deity, only under another Name. For *Romulus*, needing the Advice of a God to counsel him in the Design he had to furnish his new Citizens with Wives, applied to the God of secret Councils himself; *Consus* proclaimed the *Consualia*, and invited his Neighbours all around to the Celebration thereof. The great Ceremony in these Games consisted in a Cavalcade of Horses and Asses adorned with Garlands: *Neptune* being reputed the first Inventor of riding on Horseback. Their Horses here were of two Kinds, *viz.* πομπικοι, or such as were merely led up and down for State; and δρομικοι, which were for Race and Exercise: The other Diversions were Fencing, and that till one of the Combatants were killed on the Spot;

Spot; Fighting with Beasts, and Cæstus, or Whirlbats; Wrestling, Running, Leaping, Sea-Fights, Horse-Races, Chariot-Races, &c. These Games, *Livy* tells us, were improved, and render'd much more magnificent by *Tarquinus Priscus*. *Manutius* says, they were held on the Eve of the Nones of *September*, *i. e.* on the fourteenth Day of the Month.

The CAPITOLINE *Games*, *Ludi Capitolini*, were annual Games, or Combats, instituted by *Camillus*, in honour of *Jupiter Capitolinus*; and in Commemoration of the Capitol's not being surprized by the *Gauls*. *Plutarch* tells us, that a Part of the Ceremony consisted in the publick Cryers putting up the *Lustrations* to Sale by Auction. They also took an old Man, tying a golden Bull to his Neck, such as were wore by their Children, and exposed him to the publick Derision. *Festus* says, they dressed him in a Pretext, and hung a Bull at his Neck, not accounting him as a Child, but because this was an Ornament of the Kings of *Hetruria*.

There was also another Kind of *Capitoline Games*, called *Agones Capitolini*, instituted by *Domitian*, and celebrated each five Years; wherein there were Rewards and Crowns bestowed on the victorious Poets, and put on their Heads by the Emperor himself. These Games became so celebrated, that the Manner of accounting Time by Lustres, which had obtained till then, was changed; and they began to count by *Capitoline Games*, as the *Greeks* by *Olympiads*. The *Feast* was not for Poets alone, but also for Athleta, Orators, Historians, Comedians, Musicians, &c.

The SECULAR GAMES, *Ludi Seculares*, were held by the *Romans* once in an Age, or in a Period deemed the Extent of the longest Life of Man, called by the *Greeks*, αιων, and by the *Latins*, *Seculum*. The *Secular Games* were also *Terentine Games*, *Ludi Terentini*, either by reason *Manius Valerius Terentinus* gave Occasion to their Institution; for that having been warned in a Dream to dig in the Ground, in a Place near the *Campus Martius*, called *Terentum*; he there found an Altar inscribed to *Diis*, or *Pluto*, and *Proserpine*: Upon which, as had been foretold him in his Dream, three of his Children born blind, recovered their Sight; and he, in Gratitude, performed Sacrifices on the same Altar for three Days and three Nights successively.— Or by reason here was an Altar of *Pluto* buried deep under Ground, because the Water of the Tyber, *Terram tereret*, eat into the Ground in this Place. The *Secular Games* lasted three Days, and as many Nights; during which Sacrifices were performed, theatrical Shews exhibited, with Combats, Sports, &c. in the Circus. Their Origin and Institution is delivered at length, by *Valerius Maximus*: The Occasion whereof, according to this Writer, was to stop the Progress of a Plague. The first who had them celebrated at *Rome*, was *Valerius Publicola*, the first Consul created after the Expulsion of the Kings, in the Year of *Rome* 245; the Ceremonies to be observed therein were found prescribed in one of the Books of the *Sibyls*. At the Time of their Celebration, Heralds were sent to invite all the World to a Solemnity no Body had ever yet seen, nor was ever to see again.

Authors are not agreed as to the Number of Years wherein these Games returned, partly because the Quantity of an Age or *Seculum*, among the Antients, is not known; and partly on other Accounts: Some will have it that they were held once every hundred Years, and that the *Seculum* or Age was our Century. This *Varro* and *Livy* seem to express in very plain Terms; yet others will have it that *Seculum* comprehended 110 Years, and that the Secular Games only returned in that Period, that is, at the Beginning of every 111th Year; which Opinion is countenanced by *Horace*, in his *Secular Poem*, *v.* 20. Be this as it will, it is certain they sometimes did not stay for the 111th Year, nor even for the 100th Year, for the Celebration of these Games. *Augustus*, for Instance, held them in the Year of *Rome* 736; and *Caligula* again in the Year of *Rome* 800, and of Christ 38, *viz.* 64 Years after the former; and *Domitian* again in still less Time, *viz.* in the Year of Christ 87, at which *Tacitus* assisted in quality of *Quindecimvir*, as he himself tells us, *Annal. lib.* xi. *c.* 11. This was the seventh Time that *Rome* had seen them from their first Institution. The Emperor *Severus* exhibited them the eighth Time, 110 Years after those of *Domitian*: *Zozimus* says these were the last; but he is mistaken, for in the Year of *Rome* 1000, fifty Years after those of *Severus*, the Emperor *Philip* had them celebrated with greater Magnificence than had ever been known. We find them represented on Medals.

The AUGUSTALES *Ludi*, were Games celebrated in honour of *Augustus*, during the *Feast* first instituted in his Honour in the Year of *Rome* 835, being the fourth Year after he had ended all his Wars, and settled the Affairs of *Sicily*, *Greece*, *Asia*, *Syria*, and the *Parthians*. The Day whereon he made his Entrance into *Rome*, being the fourth of the Ides of *October*, was appointed to keep that *Feast*, called from his Name *Augustalis*.

The PALATINE *Games* were instituted in honour of *Julius Cæsar*, as some will have it, or as others, of *Augustus*. It is pretended, that *Dion* calls them *Augustalia*; which should seem to confirm the second Sentiment. Indeed it is certain that he says *Livia* instituted particular Games on the *Palatine* Mount, in honour of that Prince; but he apparently distinguishes them from those called *Augustalia*. The *Romans* had also their *Apollo Palatinus*, a Sirname of that Deity, given him in respect of the Temple erected to him by *Augustus* on the *Palatine* Mount, in Consequence of a Report of the Aruspices, which required it to be done. *Augustus* enriched it with a noble Library; as it is intimated by *Horace*, *Lib.* 1. *Epist.* 3. *ver.* 17.

Votivi Ludi, or more properly call'd *Vows*, since they were nothing else but Sacrifices, Offerings, Presents, and Prayers, made for the Emperors and *Cæsars*, particularly for their Prosperity and the Lastingness of their Empire. These were at first made every five Years, then every fifteen, and then every thirty, called *Quinquennalia*, *Decennalia*, and *Vicennalia*.

The QUINQUENNALIA, began to be expressed on Medals about the Middle of the third Century. Father *Pagi* produces a Medal, wherein are engraven those of the Emperor *Posthumus*; they are not found in any Medals of his Predecessors. As for the *Vicennalia vota*, we frequently meet with them on Medals. The Vows put up on that for the Safety of the Emperors, and the Enlargement of the Empire.

These are expressed by VOT. X. & XX. in the Medals of *Tacitus*, *Gallienus*, and *Probus*. VOT. X. M. XX. in those of *Valerius Maximianus*, and *Galerius Maximianus*. VOT. X. MUL. XX. in those of *Constantine*, *Valentinian*, and *Valens*. VOT. MULT. XX. in those of *Diocletian*, *Constantine*, *Julian*, *Valentinian*, *Theodosius*, *Arcadius*, *Honorius*. VOTIS X. MULT. XX. in those of *Julian*, *Valentinian*, *Gratian*, VOT. XII. FEL. XX. in the younger *Licinius*. VOT. XV. FEL. XX. in *Constantine*.

Part of the Ceremony of the antient Festivals consisted also in sumptuous Meals, hence they have been called since *Feasts*.

The principal *Feasts* of the *Jews*, were the *Feasts* of *Trumpets*, that of *the Expiation*, of *Tabernacles*, of *the Dedication*, of *the Passover*, and of *the Pentecost*.

The *Feast of the* EXPIATION, was held on the 10th Day of the 7th Month of the *Jewish* Year, answering to our *September*: And was instituted by God himself, *Levit.* xxiii. 27, &c. on that Day the High-Priest, the Figure, or Type of *Jesus Christ*, confessed his Sins; and after several Ceremonies, made an Atonement for all the People to wash them from their Sins.

The *Feast of the* TABERNACLES, otherwise called *Senopegia*, was instituted after the People of *Israel* were in Possession of the Land of *Canaan*, in Memory of their having dwelt under Tents in the Wilderness. It was held for eight Days successively, commencing on the fifteenth of *September*. The last Day was much the

the most solemn; both on Account of the Conflux of Persons, and of the extraordinary Tokens they gave of their Joy. It is of this eighth Day St. *John* must be understood to speak, when he tells us our Saviour was at the *Feast of Tabernacles*, on the last and great Day. When the holy Scripture says absolutely the *Feast*, it is usually to be understood of the *Scenopegia*.

The PASSOVER was a solemn *Feast*, celebrated among the *Jews*, on the fourteenth Day of the Moon, next after the vernal Equinox. This *Feast* was call'd by the antient *Latins* and *Greeks*, *Pascha*; not from πασχω, I suffer, as *Lactantius* weakly imagines, but from the *Hebrew*, *Pesahh*, Passage, Leap; the Design of the *Feast* being to commemorate the destroying Angel passing over the Houses of the *Israelites*, when he enter'd in and destroy'd the First-Born of the *Egyptians*: Yet many weakly imagine, that it was in Memory of their passing the Red-Sea, that the *Passover* was instituted; though it is certain the *Feast* was held, and had its Name, before the *Israelites* took a Step of their Way out of *Egypt*; and consequently several Days before their passing the Red-Sea. Besides the *Passover* celebrated in the 14th of the first Month, there was a second *Passover*, held on the 14th of the second Month after the Equinox, instituted by God in favour of Travellers, and sick Persons, who could not attend at the first, nor be at *Jerusalem* on that Day.

The *Greeks*, and even some Catholick Doctors, from the 18th Chapter of *John*, take Occasion to conclude, that *Jesus* anticipated the Day mark'd for the *Passover* in the Law; but the Authority of the three Evangelists, seems to evince the contrary. Father *Lamy* is of Opinion, he did not attend at the *Passover* the last Year of his Life; which Sentiment has drawn upon it Abundance of Opposers. F. *Hardouin* maintains, that the *Galileans* celebrated the *Passover* on one Day, and the *Jews* on another.

The *Feast* called PENTECOST, or *Quinquagesimus*, was solemnized among the *Jews*, in Memory of the Law being given to *Moses*, 50 Days after their Departure out of *Egypt*.

The *Feast of the* DEDICATION, among the *Jews*, was the Anniversary of that of their Temple every Year for eight Days. This was first enjoin'd by *Judas Maccabeus*, and the whole Synagogue, in the Year of the *Syro-Macedonian*, Æra 148, *i. e.* 164 Years before *Christ*.

Feasts among *Christians*, are either *immoveable*, or *moveable*.

The *immoveable Feasts*, are those constantly celebrated on the same Day of the Year: The principal are *Christmas-Day*, or the *Nativity*; the *Circumcision*, *Epiphany*, *Candlemas*, or the *Purification*; *Lady-Day*, or the *Annunciation*, called also the *Incarnation*, and *Conception*; *All Saints*, and *All Souls*, besides the Days of the several Apostles, St. *Thomas*, St. *Paul*, &c.

The *Feast of the* NATIVITY, commonly called in *England*, *Christmas*, was first decreed to be held the 25th of *December* (according to some) by Pope *Telesphorus*, in the Year of *Christ*, 146. *John*, Archbishop of *Nice*, in an Epistle upon the Nativity of *Jesus Christ*, relates, that at the Instance of St. *Cyril* of *Jerusalem*, Pope *Julius* procured a strict Enquiry to be made into the Day of our Saviour's Nativity, which being found to be on the 25th of *December*, they began to thenceforth celebrate the *Feast* on that Day.

The CIRCUMCISION, is a *Feast* celebrated on the first of *January*, in Commemoration of the Circumcision of our Saviour. This Day was antiently kept a Fast, in Opposition to the Pagan Superstitions, who feasted on it in honour of the God *Janus*.

The EPIPHANY, is the *Feast* of Kings, a double Festival of the first Rank, solemnized on the sixth of *January*, in honour of the Manifestation of *Jesus Christ* to the three Kings, or Magi, who came to adore and bring him Presents. This *Feast* had, at its first Institution among the *Greeks*, a different Object, *viz.* our Saviour's Birth, and was called *Theophany*, or *Epiphany*, that is, *Manifestation*. Pope *Julius*, who reigned from the Year 337, to 352, was the first who taught the Church to distinguish the *Feast of the Nativity*, and *Epiphany*. The Word in the original *Greek*, Επιφανια, signifies *Apparition*, and was applied, as some Criticks will have it, to this *Feast*, on Account of the Star which appear'd to the Magi.

St. *Jerom*, and St. *Chrysostom*, take the *Epiphany* for the Day of Saviour's Baptism, when he was declared to Men by the Voice, *Hic est filius meus dilectus in quo mihi complacui*, *This is my beloved Son, in whom I am well pleased*. And accordingly it is still observ'd by the *Cophtæ*, and *Ethiopians*, in that View. Others contend that the *Feast* of *Christmas*, or the Nativity of our Saviour, was held in divers Churches on this Day; which had the Denomination *Epiphany*, or Appearance, by Reason of our Saviour's first Appearance on Earth at that Time. And it must be allowed that the Word was used among the antient *Greek* Fathers; not for the Appearance of the Star to the Magi, but for that of our Saviour to the World. In which Sense St. *Paul* uses the Word *Epiphania*, in his second Epistle to *Timothy*, i. 10. Add, that the *Armenians* to this Day, celebrate the Feast of the *Nativity*, on the Day of *Epiphany*. *Ammianus Marcellinus* makes Mention of this *Feast*, *Lib.* 21. *c.* 2. and observes, that it was held in *January*. Upon which Passage, *Valesius* in his Notes endeavours to shew, that the Historian meant by *Epiphany*, the *Feast* of the *Nativity*. The Heathen Writers used the Word *Epiphania* in the like Sense, *viz.* to express the Appearance of their Gods on Earth. And the *Christians*, after their Example, applied it in general, to express any Appearance or Manifestation of the Deity.

CANDLEMAS, is a *Feast* held on the second of *February*, in honour of the Purification of the Blessed Virgin. This *Feast* is also called by antient Writers, *Hypapante*; and among moderns, the Purification. Some will have this *Feast* to have been instituted by Pope *Gelasius*, in lieu of the Heathen *Lupercalia*; and that Procession was thereon made with lighted Candles, round the Fields and Grounds by Way of Exorcism. Hence *Bede* says, 'It is happy for the Church to 'have changed the Lustrations of the Heathens, held 'in the Month of *February* around the Fields, for the 'Processions with hallowed Candles, in Remembrance 'of the divine Light wherewith *Christ* illuminated the 'World. Whence he was stiled by *Simeon*, *A Light* '*to lighten the Gentiles*.' Others ascribe the Origin of *Candlemas*, to Pope *Vigilius*, in the Year 536; and suppose it substituted in the Room of the Feast of *Proserpine*, held with burning Tapers by the Heathens, in the Beginning of *February*.

LADY-DAY, or the ANNUNCIATION, is a Feast celebrated annually on the 25th of *March*, in Commemoration of the Mystery of the Incarnation of the Word. The *Greeks* call it Ευαγγελισμος, glad Tidings; and Χαιρετισμος, Salutation.

This *Feast* appears to be of great Antiquity in the *Latin* Church; among the Sermons of St. *Augustin*, who died in 430, we have two on the *Annunciation*, *viz.* the 17th and 18th *De sanctis*: And yet there are more early Testimonies of its Use in the *Greek* Church. *Proclus*, who died in 446; *Chrysostom*, in 407; and even *Gregory Thaumaturgus*, in 295; have all of them Discourses on the *Annunciation*.

Several of the Eastern Churches, celebrate the *Annunciation* at a different Season from those of the West. The *Syrians* call it *Bascarah*, q. d. Search, Enquiry; and mark it in their Calendar for the first Day of *December*; the *Armenians* hold it on the fifth of *January*; thus anticipating the Time, to prevent its falling in *Lent*.

The *moveable Feasts*, are those which are not confin'd to the same Day of the Year. Of these the principal is *Easter*, which gives Law to all the rest, all of them following and keeping their proper Distance therefrom: Such are *Palm-Sunday*, *Good-Friday*, *Ash-Wednesday*, *Sexagesima*, *Ascension-Day*, *Pentecost*, and *Trinity-Sunday*.

EASTER, is a Feast of the Church, held in Memory of our Saviour's Resurrection, the *Greeks* and *Latins* call it Πασχα, *Pascha*; originally a *Hebrew* Word, signifying *Passage*; applied to the Feast of the *Passover*, which is held among the *Jews*, much about the same Time. In *English* it is called *Easter*; from the *Saxon*, Eastep, a Goddess worshipp'd with peculiar Ceremony in the Month of *April*. The Rule for the Celebration of *Easter*, fixed by the Council of *Nice*, in the Year 325, is, that it be held on the *Sunday* which falls upon, or next after the Full-Moon, next after the 21st of *March*, *i. e.* the *Sunday* which falls upon, or next after the first Full-Moon, after the vernal Equinox. The Reason of which Decree was, that the *Christians* might avoid the celebrating their *Easter*, at the same Time with the *Jewish* Passover, which, according to the Institution of *Moses*, was held the very Day of the full Moon.

PALM-SUNDAY, *Dominica Palmatum*, is the *Sunday* next before *Easter-Day*, or the last *Sunday* in *Lent*. It has been thus called from the primitive Days, on Account of a pious Ceremony then in Use, of bearing Palms, in Memory of the triumphant Entry of *Jesus Christ* into *Jerusalem*, eight Days before the Feast of the *Passover*, describ'd by St. *Matthew*, xxi. St. *Mark*, xi. St. *Luke*, xix.

The Antients had other Names for this Day, for 1. They call'd it *Dominica Competentium*, i. e. *Sunday* of the *Competentes*; because on that Day, the Catechumens came to ask the Bishop's Leave to be admitted to Baptism, which was conferr'd the *Saturday* following. They had also, then, given them the Symbol, or *Credo*, to get off by Heart, to be repeated to the Bishop in the Ceremony of Baptism. They called it *Capitiluvium*, the *Sunday* of washing the Head; by Reason, those who were to be baptized the following *Saturday*, were prepared by washing their Heads on this Day. Some Time afterwards they call it *Indulgence Sunday*, by Reason the Emperors and Patriarchs used to distribute Gifts on that Day.

ASH-WEDNESDAY, is the first Day of *Lent*, so called from a Custom in the Church, of sprinkling Ashes that Day, on the Heads of Penitents then admitted to Penance.

ASCENSION-DAY, popularly called *Holy Thursday*, is a Feast of the Church, held ten Days before Pentecost, in Memory of our Saviour's *Ascension*.

The PENTECOST, (from the *Greek* πεντηκοστη, q. d. *Quinquagesimus*, 50th, because held on the fiftieth Day after *Easter*) is a solemn Feast of the Church, held in Commemoration of the Descent of the Holy Ghost on the Apostles, as describ'd in the *Acts*. In the antient Church, *Pentecost* finished the Paschal Time, or *Easter* Season; wherein, as *Tertullian*, St. *Jerom*, &c. observe, Hallelujah was sang, every where, the Office celebrated standing, no Fasting allow'd, *&c.*

Note, That antiently there were pious Oblations made at the Feast of *Pentecost*, by the Parishioners to their Parish Priest, called *Pentecostals*, *Pentecostalia*; and sometimes by inferior Churches or Parishes, to the Principal, or Mother Church; these Parish *Pentecostals*, were also called *Whitson-Farthings*, and their Sum was divided into four Parts, of which one went to the Priest, one to the Poor, one towards the Repair of the Church, and one to the Bishop of the Diocese.

TRINITY-SUNDAY, is the next *Sunday* after Pentecost; thus called, because on that Day was antiently held (as it still continues to be in the Catholick Church) a Festival in honour of the holy Trinity. The Observation of this Festival, was first enjoin'd by the Council of *Arles*, in 1260.

Besides these *Feasts*, which are general, and enjoined by the Church, there are others, *local* and *occasional*, enjoin'd by the Magistrate, or voluntarily set on Foot by the People; such are the Thanksgivings for Delivery from Wars, Plagues, *&c.* such also are the Vigils, or Wakes, in Commemoration of the Dedication of particular Churches.

VIGIL, or *Eve*, is the Day before any *Feast*, &c. for tho' the civil Day begins at Midnight, yet the ecclesiastical, or scriptural Day, begins at Six o'Clock in the Evening, and holds till Six in the Evening the ensuing Day. Hence the Collect for every *Sunday* and Holiday, by Order of the Church, is to be read at the preceding Evening-Service, at Six o'Clock the Day before; from which Time the religious Day was supposed to begin. And this first Part of the Holiday, from Six o'Clock the Day before, was, by the primitive Christians, spent in Hymns, and other Devotions; and being often continued till late at Night, was call'd *Vigil*. These *Vigils* came by Degrees to be so enlarged, that, at last, all the Day, preceding the Holiday, was called by the Name.

The Origin of *Vigils*, is deduced by *Forbes* from a Custom in the antient Church, for the People, both Men and Women, to meet together in the Evening before *Easter-Day*, and watch and pray, as expecting the Coming of our Lord, who was to rise early in the Morning. This Practice, *Tertullian* observes, *ad uxorem*, afterwards got to other *Feasts* and Saints-Days. But Abuses creeping in, they were forbid by a Council, in 1322, and in lieu thereof, Fastings were instituted on the Day before, tho' still called by the Name of *Vigil*.

WAKES, are certain antient Anniversary *Feasts*, in several Parishes of *England*; wherein the People were to be awake at the several *Vigils*, or Hours, to go to Prayer. They are usually observ'd in the Country, on the *Sunday* next after the Saint's-Day, to whom the Parish Church is dedicated. *Cowel* defines them by *Vigils*, in the Dedications of Churches.

The *Mahometans* have two principal annual *Feasts*, viz. the great and little *Bairam*, which *Scaliger*, *Erpenius*, *Rycaut*, *Hide*, *Chardin*, *Bobovius*, and other *European* Writers, commonly interchange, giving the Apellation *great*, to that which the *Turks* call *little*; and *vice versâ*. The little *Bairam* holds for three Days, during which no Work is done; but Presents pass from one to another with many Manifestations of Joy. If the Day after *Ramezan* should prove so cloudy as to prevent the Sight of the New-Moon, *Bairam* is put off to the next Day, when it begins though the Moon be still obscured. When they celebrate this *Feast*, after numerous Ceremonies, or rather strange Mimickries, in their Mosque, they end it with a solemn Prayer against the Infidels, to root out Christian Princes, or to arm them one against another, that they may have an Opportunity to extend the Borders of their Law.

Note, That the *Ramezan*, or *Ramadan*, is a Sort of *Lent* observ'd by the *Mahometans*; during which they fast the whole Day with such extreme Superstition, that they do not wash their Mouths, nor even swallow their Spittle. The Men indeed are allow'd to bathe themselves; but it is on Condition they do not plunge the Head under Water, lest some Drops enter by the Mouth or Ears, *&c.* But for the Women they are strictly forbid Bathing, for fear of taking in Water at the *Pudendum*. To make amends, they feast all Night, and usually spend more this Month than in six others.

FISHING.

FISHING is the Act, or Art of catching Fish.

The Art of *Fishing* has for its Object all Sorts of Fish indifferently, either Salt-Water or Fresh-Water Fish; and is practised, in a different Manner, according to the different Sorts of Fish; for if the Fish is supposed to go in Shoals, a Net is used; and the Hook, or Harping, *&c.* for solitary Fish, according to the Size of the Fish.

As *Fishing* in Salt-water (commonly called *Fishery*) is the most beneficial to the Common-Wealth, we'll apply ourselves first to that Branch of *Fishing*, reserving the *fishing* in Fresh-water, for a kind of Recreation, after our Fatigues on that tempestuous Element, the Sea; where we do not design to expose ourselves, only for catching all Sorts of Fish indifferently that comes to our Net, to supply daily the several Markets of a City or Town; but for those Kind of *Fishing*, which are far more lucrative, and more taken Notice of, as having their proper Seasons, Places, Baits, and Manner of Application; such as that practised for Whales, Herrings, Cod, Salmon, Mackarel, Pilchards, Sturgeon, Pearls, *&c.*

But as I may be reasonably supposed to carry along with me several Persons, who perhaps have never made any long Voyage by Sea, and even some who have never seen it; it would be a Sort of Imprudence in me to venture too far from the Land for the first Time: Therefore we'll begin by *fishing* Herrings, since this is one of the Seasons when they begin to visit the *English* Coasts.

To fit ourselves for this Employment, we must provide a Boat and a Net, which must have its Mashes an Inch Square, that none of the lesser Fry may be taken.

Herring, is a small Salt-Water Fish, with a bluish Back, and a white silver'd Belly, not unlike the little Shad Fish, chiefly found in the North-Sea: It is true that they are found elsewhere, but not in so great a Quantity; and on the Coast of *Brittany*, where all Sorts of other Fish abound; the *Herring* is but very seldom found among them.

There are usually two *Fishing* Seasons for Herrings; the first in *June*, *July*, and *August*; the second in Autumn: The latter of which is the more considerable on account of the Fogs, which are very favourable to this Kind of *Fishing*.

The *Herrings* go chiefly in Shoals, are fond of following Fire and Light; and in their Passage resemble a Kind of Lightning themselves. The Manner of *Fishing* them has nothing particular in it; but as they are a Fish of Passage, 'tis allow'd to catch them on Holidays and Sundays.

The only Thing worthy our Observation in the *Herring-Fishery*, is the Method of Curing and Preparing them, either for *white* or *pickled Herring*, or for *red Herring*.

For *white Herring*, as soon as they are taken out of the Sea (from whence it is commonly said that they never come out alive) one of the Crew appointed for this Office cuts them open, and takes out the Guts, and every Thing but the Milts and Roes, which are always to be left in the Body of the Fish. Then washing them in fresh Water, they are left the Space of twelve or fifteen Hours in a Tub full of strong Brine, made of fresh Water and Sea-Salt. This Time expired, they take them out of the Brine, drain them, and when well drained put them up in Barrels; taking Care to dispose and range them evenly, in Rows or Layers; pressing them well down, and strewing a Layer of Salt both at Top and Bottom. When the Barrel is full, they stop it up very close, that no Air may get in, nor any Brine out; either of which is very prejudicial to the Fish.

The Method of Salting and Barrelling *Herring*, was not discovered till the Year 1416; though others date it from the Year 1397. *Willoughby*, in his *History of Fishes*, observes, that *Will. Buckeltz*, or *Bacchalen*, a Native of *Bier-uliet*, render'd his Name immortal, by the Discovery of the secret of curing and pickling *Herrings*. He adds, that the Emperor *Charles* V. coming into the *Low-Countries*, made a Journey to the Isle of *Bier-uliet*, with the Queen of *Hungary*, on Purpose to see the Tomb of this first Barreller of *Herrings*.

The *white Herring*, cured by the *Dutch*, are in the greatest Repute, and are distinguished into four Kinds, according to their Sizes. The Goodness of this Commodity consists in its being fat, fleshy, firm, white, salted the same Day it is taken, with good Salt, and well barrelled. The *Irish Herring* are the next in Value after those of *Holland*; and principally those of *Dublin*, which are scarce inferior to the best *Herring* of *Rotterdam* or *Enkuysen*. The *Scotch Herring* is not so well prepared, gutted, salted, nor barrelled, as the *Dutch*; and yet its Taste is excellent: Nor is it doubted, but that if the *Scots* were as careful in these Circumstances as their Neighbours, their *Herring* would be the best in the World. The *Herring* fished in *England* is inconsiderable; the Fish being too dry and fresh for the Market.

For *red Herring*, the Fish being catch'd, they proceed to wash, gut, and lay them in Brine, as for pickled *Herring*; with this single Difference, that they let them lie double the Time in it, *viz.* twenty-four Hours; inasmuch as they are to take all their Salt here, whereas the other Kind takes half its Salt in the Barrel. When the *Herrings* are taken out of the Brine, they spit them, *i. e.* string them by the Head on little wooden Spits, and thus hang them in a Kind of Chimney made for the Purpose; and when the Chimney is as full as it can hold, which less than ten or twelve Thousand seldom effects, they make a little Fire underneath of Brush-Wood, which yields a deal of Smoke, but no Flame. Here the *Herrings* remain, till sufficiently smoaked and dried, which ordinarily is in twenty-four Hours; then they are taken down, and barrelled up for keeping. Their Goodness consists in their being large, fresh, fat, oily, soft, and pliable; their Outside of a yellow golden Colour; their Roes, or Milt within them, and well salted and barrelled.

The *Hollanders* (the most industrious People in the whole World to acquire Wealth) were the first who began the *Herring-Fishery*, and observed the several Seasons of their Passage. Their first regular *Fishing* is fixed to the Year 1163. They begin on the 24th of *June*, and employ no less than ten thousand Vessels therein; which Vessels are a Kind of Barks call'd *Busses*, carrying from forty-five to sixty Tuns; and two or three small Cannon. None of them are allowed to stir out of Port without a Convoy; unless there be enough of them together to make eighteen or twenty Pieces of Cannon: In which Case they are allowed to go in Consort or Company: Before they set out they make a verbal Convention, which has the same Force as if it were in Writing. These Regulations of the Admiralty of *Holland* are partly followed by the *French*, and other Nations; and partly improved and augmented with new ones: As that no *Fisher* shall cast his Net within a hundred Fathoms of another Boat: That while the Nets are cast, a Light shall be kept on the hind Part of the Vessel: That when a Boat is by any Accident oblig'd to leave off *Fishing*, the Light shall be cast into the Sea: That when the greater Part of a Fleet leaves off *Fishing*, and cast Anchor, the rest shall do the same.

Note, That it is a popular Error to believe the *Herring* to be the *Halec* of the *Romans*. The *Halec*

was

was no particular Fish, but a Kind of Sauce, made of any Kind of Salt-Fish. The modern *Herring* seems to have been unknown to the Antients: It is neither the *Halec*, nor *Halex*, nor *Moenis*, nor *Leucomenis*, nor the *Gerres* of *Pliny*.

From the *English* Coasts, we'll venture as far as those of my Country, *Brittany*, and enter the Bay of *Douarneney*, to fish *Pilchard*, though there are some on those of *Cornwal* and *Devonshire*; but not so plentiful as on the Coasts of *Brittany*, from *Belle-Isle* as far as *Brest*. We could find as much on those of *Dalmatia*, and the South of the Island *Issea*; which furnishes all *Greece*, and a great Part of *Italy*, with that Kind of Fish; but it would be venturing too far to no Purpose.

The *Pilchard*, is a small Salt-Water Fish, bigger than the Anchovy, but less than the Herring, which in other Respects it resembles. Its Head is yellow, Belly white, and Back of Sea-green. It is a Fish of Passage, like the Herring and Anchovy, and consequently there is a Season for *Fishing* it, which is from *June* to *September*; at which Time my Countrymen, the *Britons*, employ above three hundred Sloops in that *Fishery*; and make use of the Roes of Cod-Fish, as a Bait; which, thrown into the Sea, makes them rise from the Bottom, and run into the Nets, placed for the Purpose. On the *English* Coasts there are Persons posted ashore, who spying by the Colour of the Water where the Shoals are, make Signs to the Boats, to get among them to cast their Nets. They also, like Herrings, follow the Light; and will gather about a Boat, which bears a Light in the Night-time.

When taken, the Fish are brought to a Warehouse on Shore, where they are laid up in broad Piles, supported by Backs and Sides. As they pile them, they salt them with Bay-Salt; in which lying soaking twenty or thirty Days, they run out a deal of Blood, dirty Pickle, and Bittern; which last draws a deal of the Oil from the Fish, to the great Loss of the Owners. When taken out of the Pile, there remains a deal of Salt, Blood, Scales, *&c.* at Bottom, which, with fresh Salt, serves for another Pile. They now proceed to wash them in Sea-Water, to clear off the Dirt and Blood; and when dry, put them up in Barrels, and press them hard down, to squeeze out the Oil, which issues away at an Hole in the Bottom of the Cask: And in this State they are fit for Sale or Use; though, according to my Taste, they are then very bad Eating, for they are always intolerably salt and dry: But when fresh, or lightly salted, when they come out of the Boat, and broiled half an Hour or an Hour afterwards, they eat admirably; I mean those taken on the Coasts of *Brittany*; for those taken on the Coast of *England*, though twice as large, have not the same excellent Taste.

From the Coasts of *Brittany*, we'll come back on those of *England*, to fish *Mackarel*, which is a Salt-Water Fish, without Scales; its hardy, round and fleshy, terminating almost in a Point at each Extreme, and of about a Foot long. When in the Water, it appears yellow; and when out of it, of a silver white, excepting for Streaks, or Speckles of a deep blue on the Back and Sides.

The *Mackarel* is also a Fish of Passage, found in large Shoals in divers Parts of the Ocean, but especially on the *French* and *English* Coasts. The *Fishing* is usually in the Months of *April*, *May* and *June*, and even *July*, according to the Place. They enter the *English* Channel in *April*, and proceed up to the Straights of *Dover*, as the Summer advances; so that, by *June*, they are on the Coasts of *Cornwal*, *Sussex*, *Normandy*, *Picardy*, &c. where the *Fishery* is most considerable: They are an excellent Food fresh; and not to be despised, when well prepared, pickled, and put up in Barrels.

This Fish is taken two Ways; either with a Line, or Nets: The latter is the more considerable; and is performed in the Night-time. The Rules observed in the *Fishing* of Mackarel, are much the same as those already mentioned in the *Fishery* of Herrings.

There are two Ways of pickling them: The first is, by opening and gutting them, and filling the Belly with Salt, crammed in as hard as possible with a Stick: Which done they range them in Strata or Rows, at the Bottom of the Vessel, strewing Salt between the Layers. In the second Way, they put them immediately into Tubs full of Brine, made of Fresh-water and Salt; and leave them to steep, till they have imbibed Salt enough to make them keep: After which they are taken out and barrell'd up, taking Care to press them close down.

From the Coast of *England* we'll sail for the *Mediterranean* to fish *Anchovies*, which *Scaliger* describes as of the Herring Kind, about the Length of a Finger, having a pointed Snout, a wide Mouth, no Teeth, but Gums as rough as a Saw.—Others make the *Anchovy* a sort of Sardine or Pilchard: But others, with better Reason, hold it a peculiar Species, very different from either.

The *Anchovy* is also a Fish of Passage, caught in the Months of *May*, *June* and *July*, on the Coasts of *Catalonia*, *Provence*, &c. at which Season it constantly repairs up the Streights of *Gibraltar* into the *Mediterranean*. The *Fishing* is chiefly in the Night-time; when a Light being put on the Stern of their little *Fishing* Vessels, the *Anchovies* flock round, and are caught in the Nets. When the *Fishery* is over, they cut off their Heads, take out the Gall and the Guts; then lay them in Barrels and salt them.

From the *Mediterranean* we'll sail for *Newfoundland*, at the Beginning of *February*, when the Season begins for Fishing *Cod*, in those Seas, as well as on the Coasts of *Canada*, &c.

The *Cod* is a Fish of Passage, pretty large, with a frightful Head, Teeth in the Bottom of the Throat; its Flesh white, its Skin brownish on the Back, white under the Belly, and covered with thin transparent Scales. *Cods* taken on our Coasts, in *Europe*, are commonly eaten fresh; but those taken on those of *Newfoundland*, *Canada*, &c. are salted, and are of two Kinds; the one call'd *green* or *white*, and the other *dried* or *cured*; though it is all the same Fish, only differently prepared.

The chief *Fisheries* for *green Cod*, are in the Bay of *Canada*, on the great and little Bank near the Coast of *Newfoundland*, the Island of St. *Peter*, and the Isle of *Sable*; and hither Vessels are yearly sent from divers Parts, both of *America* and *Europe*. The Vessels used herein, are from a hundred to a hundred and fifty Tons; which will bring thirty or thirty-five thousand Fish apiece. The best, largest, and fattest *Cods*, are those taken on the South-side of the great Bank; which is a Kind of submarine Mountain, one hundred and fifty Leagues long, and fifty broad, and at the Distance of twenty-five from *Newfoundland*: Those on the North-side are much smaller.

The most essential Article in this *Fishery*, are three Persons, who know how to open the *Fish*, to cut off the Heads, and to salt them; all three known on board a *French* Ship by the three different Names of *Habilleur*, *Decoleur*, and *Saleur*; but on the Ability of the *Saleur*, or Salter, depends the Success of the Voyage, since the Fish cannot keep, unless it be well salted, which is done on board: For the Head being cut off, the Belly open, and the Guts out, the Salter ranges them in the Bottom of the Vessel, Head to Tail; and having thus made a Layer thereof, a Fathom or two square, covers it with Salt: Over this he lays another, which he covers as before; and thus he disposes all the Fish of that Day, taking Care never to mix the Fish of different Days together. By that Time the *Cod* has lain thus to drain three or four Days, they are moved into another Part of the Vessel, and salted afresh; after this they are no more to be touched, till the Vessel have its Burden. Sometimes they put them up in Barrels, for the Conveniency of Carriage.

Those caught from *March* to *June*, keep well enough;

enough; but those in *July*, *August*, and *September*, soon spoil.

Fishing is sometimes done in a Month or six Weeks; sometimes it holds six Months, as *Lent* draws on: If the Fishermen have but half their Cargo, they strive to make Homeward the first; the Market being then the best. Some will make a second Voyage, before others have got Loading for the first. Each Fisher takes only one *Cod* at a Time, and yet the more experienced, will take from three hundred and fifty, to four hundred *per* Day; but this is the most, for it is very fatiguing Work; both on Account of the Weightiness of the Fish, and of the extreme Cold which reigns on the Bank. The Salary usually allow'd the Captain and Sailors, is one-third of the *Cod* they bring Home sound.

Several Authors will have it, that the *Biscayans* in pursuing their Whales, made the Discovery of the great and little Bank of *Cods*, in *Newfoundland*, *Canada*, &c. a hundred Years before *Columbus*'s Time; and that it was a *Biscayan Newfoundlander*, that gave the first Intimation thereof to *Columbus*. Others say, that the great Bank was discovered by a Native of St. *Malo*'s, nam'd *Chartier*. But be the Inventor of what Name or Nation he will, the Invention is certainly highly valuable; not a trading Nation in *Europe*, but allows the Commerce of *Cod-Fish*, one of the most secure and gainful that is known.

The principal *Fishery* for *dry Cod*, is along the Coast of *Placentia*, from Cape *Rose*, to the Bay *Des Experts*; in which Compass there are divers commodious Ports for the Fish to be dry'd in. The Fish intended for this Use, though of the same Kind with the green *Cod*, is yet much smaller; whence it is the fitter to keep, as the Salt takes more hold.

In this *Fishing*, Vessels of all Sizes are used; tho' such are generally chose, as have large Holds, by Reason this Sort of Fish, incumbers more than it burthens. The Method of *Fishing*, is much the same as that of green *Cod*; only this is the more expensive, as it takes up more Time, and employs more Hands; and yet scarce half so much Salt is spent in this, as in the other. As it is only to be dried by the Sun, the *European* Vessels are obliged to put out in *March*, or *April*, to have the Benefit of the Summer for drying. Indeed the *French* and *English* send Vessels for *Cod* in *June*, and *July*; but those only buy what had been fished by the Inhabitants of the *French* and *English* Colonies of *Newfoundland*, and the neighbouring Parts; in Exchange for which, those *European* Vessels carry them Meal, Brandies, Wine, Biscuits, Pulse, Molosses, Linen, &c.

When several *Fishing* Vessels meet, and intend to fish in the same Port; he whose Shallop first touches Ground, becomes entitled to the Quality and Privileges of Admiral; has the Choice of its Station, and the Refusal of all the Wood on the Coast at his Arrival. As fast as the Captains arrive, they unrig all their Vessels, leaving nothing but the Shrouds to sustain the Masts; and in the mean time, the Mate provides a Tent on Shore, covered with Branches of Fir, and Sails over them; with a Scaffold fifty or sixty Foot long, and one-third as much broad. While the Scaffold is making ready, the Crew are a *Fishing*; and as fast as they catch, they bring their Fish, open them, and salt them on moveable Benches: But the main Salting is perform'd on the Scaffold. When the Fish has taken Salt, they wash them; and to drain them again, lay them in Piles on the Galleries of the Scaffold; when drained, they range them on Hurdles, a Fish thick, Head against Tail, with the Back uppermost; observing, while they lie thus, to turn, and shift them four Times every twenty-four Hours. When they begin to dry, they lay them in Heaps, of ten or twelve apiece, to retain their Warmth; and continue to enlarge the Heap every Day, till it becomes double its first Bulk: At length they join two of these Heaps into one, which they turn every Day as before. Lastly, they salt them over again, beginning with those that had been salted first; and thus lay them in huge Piles, as big as Hay-Stacks. And thus they rest till they are carried a Ship-board, where they are laid on Branches of Trees, disposed for that Purpose in the Bottom of the Vessel, with Mats all round, to prevent their contracting any Moisture.

There are four Kinds of Commodities drawn from *Cod*, viz. the Tripes and Tongues, which are salted at the same Time with the Fish, and barrelled up; the Roes or Eggs, which being salted and barrelled up, serve to cast into the Sea to draw Fish together, and particularly Pilchards: And lastly, the Oil, which is used in dressing of Leather, &c.

The *Scots* catch a small Kind of *Cod*, on the Coasts of *Buchan*, which is highly priz'd, tho' very much like Ling. They salt it, and dry it in the Sun upon Rocks, and sometimes in the Chimney; but the greatest Part of it is spent at Home.

At our Return from *Newfoundland*, &c. we'll change Ship, and embark on board of a Fluyts, from two to three hundred Tuns, making our Compliment of thirty-five or forty-one Men, for the *Whale-Fishery*; and setting Sail about the Beginning of *April*, we'll take our Course by the Isles of *Iceland*, from 60 to 61 Degrees of Latitude; after which, leaving them to the West, we'll steer Northward. thro' 73, 74, and 75 Degrees of Latitude, where we'll begin to find the Ice. It is thro' these huge Heaps of Ice, wherewith the whole Quarter is filled, that we'll first begin to spy the *Whales*, and there most of the Vessels fix their Abode for the *Fishing*. But as the Fish are larger and fatter the farther North we go, some Captains will venture as far as 80 or 82 Degrees of North Latitude. Each Vessel of three hundred Tuns, has six Shallops, and each Shallop six Harpineers, with five Seamen to row it. To every Shallop there are seven Lines, of three Inches Circumference; five of them in the Hind-Part of the Vessel, and two before: the hind Lines together make six hundred Fathoms; and with the Addition of the other two, eight hundred and eighty. If the *Whale* dives deeper, or runs further underneath the Ice, the Line must be cut lest the Shallop be drawn after it. The Instrument wherewith the Execution is done, is a Harping-Iron, or Javelin; five or six Foot long, pointed with Steel in a triangular Shape, like the Barb of an Arrow.

The Harpineer upon Sight of the Fish, from one End of the Shallop where he is placed, flings the Harping Iron with all his Might, against the Whale's Back; and if he be so happy as to make it penetrate the Skin and Fat into the Flesh, he lets go a String fastened to the Harping Iron, at the End whereof is a dry Gourd, which swimming on the Water, discovers whereabout the *Whale* is; which the Minute it is struck, plunges to the Bottom. If it returns to breathe in the Air, the Harpineer takes Occasion to give him a fresh Wound; till Fainting by the Loss of Blood, the Men have an Opportunity of approaching him, and thrusting a long Steel Lance under its Gills into its Breast, and thro' the Intestines, which dispatches him; and when the Carcase begins to float, they cut off the Fins and Tail; and tying a Rope to the Place where the Tail was, swim to the Vessel, where it is taken in. When they have got their *Quota* of *Whales*, they begin to take the Blubber, or Fat, and the Fins, or *Whale* Bone. In order to this, the *Whale* is hoisted over-board, and kept suspended above the Water by two Ropes, the one tied around his Neck, the other about his Tail; and under the Carcase are two Shallops plac'd to receive what may chance to drop. This done, three or four Men go down upon the *Whale*, with a Kind of Calkers, or Iron on their Feet, to prevent their Slipping. They begin to open him on the Side, and to proceed downwards to the Belly; cutting off all the Lard or Fat, in Pieces of about three Foot broad, and eight long: Besides the Fat on the Sides, they likewise cut off that of the Throat and under Lip, leaving all the Lean behind; they next proceed to the *Whale* Bone, which they cut off with a Hatchet, made for the Purpose, from the upper Jaw of the Fish, and make it up in Packets. The Fat and Bone thus procur'd,

cur'd, what remains of the *Whale* they leave for the Bears, who are very fond of it. In proportion as the large Pieces of Fat are cut off, the reſt of the Crew are employ'd in cutting them ſmaller, and picking out all the Lean. When this is prepar'd, they ſtow it under the Deck, where it lies till the Fat of all the *Whales* is on board; then cutting it ſtill ſmaller, they put it up in Tubs, in the Hold, or Bottom of the Veſſel, cramming them very full and cloſe. Nothing now remains, but to ſail Homewards, where the Fat is to be boil'd, and melted down into Train Oil.

The *Dutch* have upwards of theſe hundred Years, had the *Whale Fiſhery* almoſt to themſelves; and is now eſteem'd one of the principal Branches of their flouriſhing Trade. The chief Merchants of the ſeveral Provinces aſſociate themſelves into a Body, for the carrying it on; and ſend every Year a great Fleet of Veſſels, to the North Seas for that Purpoſe. They attempted to make their firſt Eſtabliſhment in *Greenland*; but not ſucceeding, they have ſince fix'd their Fiſhery about the Weſtern Coaſt at *Spitzberg*, from the Latitude of 76 Degrees, 40 Minutes, to 80 Degrees.

In 1725, the *Engliſh* South-Sea Company, began to ſhare it with them; and by the extraordinary Succeſs they met with in their firſt Attempt, beyond any of their Neighbours, were induced to perſiſt in it.

After we have unloaded our Fleet, of its Cargo of *Whale* Fat and Bone, we could ſail for the *Caſpian* Sea, to fiſh *Sturgeon*; but as that *Fiſhery* could not prove very beneficial to us, we'll leave it to the *Muſcovites*, who find Employment in it for a great Number of Men, who catch them in the Mouth of the *Volga*, in the *Caſpian* Sea, where there is the greateſt Fiſhery in the World for that Kind of Fiſh, which is a very large one, and which at its Seaſon runs up the Rivers; having a ſharp pointed Snout, flat Belly, and bluiſh Back. There are *Sturgeons* of all Sizes, and we have even read of ſome twenty Foot long: But the middle Size are reckon'd the beſt. They are alſo ranked among the royal Fiſhes, and when left on Shore belong to the King; but when taken at Sea, are the Property of the Perſon who takes them.

Sturgeons are not caught in Nets, but in a Kind of Incloſure, form'd by huge Stakes, diſpoſed in Triangles, repreſenting the Letter Z, ſeveral Times repeated. Theſe Sort of Fiſheries are open on the Side towards the Sea, and cloſe on the other; by which Means, the Fiſh aſcending in its Seaſon up the River, embarraſſes itſelf in theſe narrow angular Retreats, and not being able to turn itſelf to go back again, by Reaſon of its Bulk, is eaſily ſtruck and kill'd, with a Sort of Harping-Iron.

The chief Object of this Fiſhery, is the Roe, or Spawn; which is a Commodity as much uſed in *Muſcovy*, as Butter in *Holland*; and there are *Sturgeons* that furniſh four hundred Pounds thereof. It is only the leſſer and younger *Sturgeon* they pickle for eating; when freſh it eats deliciouſly.

We have no Need to quit the *Engliſh* Coaſts to go in Queſt of that delicious Fiſh, *Salmon*; ſince the chief *Salmon Fiſheries* in *Europe*, are along the Coaſts of *England*, *Scotland*, and *Ireland*. The *Fiſhing* uſually begins abouts the firſt of *January*, and ends by the laſt of *September*; it is performed with Nets, in the Places where the Rivers empty themſelves into the Sea; and along the Sea Coaſts thereabout. The Fiſh are ſeen to crowd thither frequently in Shoals from all Parts in Search of the freſh Water: They alſo fiſh for them higher up in the Rivers, ſometimes with Nets, and ſometimes with a Kind of Locks, or Wears, made for that Purpoſe with Iron Grates therein, ſo diſpoſed, as that the Fiſh in going up the River, open them with their Head; but are no ſooner enter'd, but the Gate claps to. Thus the *Salmons* are incloſed as in a Reſervoir, where it is eaſy taking them. In ſome Places they fiſh for *Salmon* in the Night-time, by the Light of Torches, or kindled Straw. The Fiſhermen watch when the Fiſh draws towards the Light, whereof he is naturally a great Lover, and ſtrikes him with a Spear or Lifter. In ſome Parts of *Scotland*, it is ſaid, they ride a Fiſhing up the Rivers, and when they ſpy them in the ſhallow Parts, ſhoot them with Fire-Arms.

When the Fiſh are taken, they open them, take out the Guts and Gills, and ſalt them in large Tubs for the Purpoſe; out of which they are not taken before *October*, to be packed up in Caſks from three to four hundred and fifty Pounds Weight.

Salmon, is alſo fiſhed in Rivers, after the Manner of Trout, with a Line and Hook. He bites beſt in the Afternoon, about three o'Clock; in *May*, *June*, *July*, and *Auguſt*, the Water being clear, and a little Breeze of Wind ſtirring; eſpecially if the Wind and Stream ſet contrary-wiſe.

The *Salmon* is caught like a Trout, with Worms, Fly, and Minion; and eſpecially the Garden-Worm, if well ſcour'd and kept twenty Days in Moſs. The *Salmon* nevers ſtays long in a Place, but is continually ſhifting to be as near the Spring Head as poſſible; and ſwimming generally in the deepeſt and broadeſt Parts of the Rivers, near the Ground. Put two or three Garden Worms well-ſcour'd on your Hook at once, as if you was baiting for Trout, and be ſure give him Time to gorge his Bait, before you ſtrike. Some uſe a Wire Ring on the Top of the Rod, through which the Line may be let run to any Length at Pleaſure, by a Reel near at Hand.

Note, That according to ſome, the *Salmon* breeds in the Sea; bur the Opinion of others, ſeems better warranted, that he breeds in the clear ſandy Parts of Rivers, not far from the Mouths thereof. They commonly ſpawn in *October*, and the young becomes a *Samblet* the following Year, and in a few Months a large *Salmon*. The Milter and Spawner having perform'd their Office, betake themſelves to the Sea; and if their Return be prevented by Wars, or the like, they become ſick, lean, pine away, and die in two Years Time. If they ſpawn in the mean Time, the Produce is a diminutive *Salmon*, called *Skegger*, which will never arrive at the natural Bulk; it being the Sea that makes them grow big, and the Rivers fat. The Female is diſtinguiſhed from the Male, in that its Noſe is longer and more hooked, its Scales not ſo bright, and its Body ſpeckled over with dark-brown Spots; its Belly flatter, and its Fleſh not ſo red; more dry, and leſs delicious to the Taſte. In ſpawning Time, when they repair from the Sea up to the Rivers, ſcarce any Thing can ſtop their Progreſs. We have ſeen them leap up Cataracts and Precipices, many Yards high.

PEARLS, (which are a hard, white, ſhining Body, uſually roundiſh, found in a teſtaceous Fiſh, reſembling an Oyſter) are caught in the Sea of the *Eaſt-Indies*, in thoſe of *America*, and in ſome Parts of *Europe*; and in thoſe different Parts of the World, they have different Manners of *Fiſhing* for them.

The *Fiſheries* for *Pearls*, in the *Eaſt-Indies* are, 1. The Iſland of *Barhen*, or *Boorhaam*, in the *Perſian* Gulph. This the *Portugueſe* were Maſters of, while they held *Ormus* and *Maſcara*; but it has been return'd to the Sophi of *Perſia*, ſince the Time that Prince, with the Aſſiſtance of the *Engliſh*, took from them *Ormus*; and the *Arabs*, *Maſcara*. 2. The Fiſhery of *Catiſa*, on the Coaſt of *Arabia Felix*, over-againſt *Bahern*. 3. That of *Manar*, a Sea-Port in the Iſle of *Ceylon*. The *Pearls* here fiſhed, are the fineſt in all the Eaſt for their Water and Roundneſs; but they ſeldom exceed four Carats. Laſtly, there are *Pearls* fiſhed on the Coaſt of *Japan*; but they are coarſe and irregular, and little minded.

There are two Seaſons for *Fiſhing Pearls*, in the *Eaſt-Indies*; the firſt in *March* and *April*, the ſecond in *Auguſt* and *September*; the more Rain falls in the Year, the more plentiful are the Fiſheries. In the Opening of the Seaſon, there appear, ſometimes, two hundred and fifty Barks on the Banks. In the larger

larger Barks are two Divers, in the ſmaller, one. Each Bark puts off from Shore e'er Sun-Riſe, by a Land-Breeze, which never fails; and returns again by a Sea-Breeze, which ſucceeds it about Noon. As ſoon as the Barks are arriv'd, and have caſt Anchor, each Diver binds a Stone ſix Inches thick, and a Foot long under his Body; which is to ſerve him as a Ballaſt, and prevent his being driven away by the Motion of the Water; and to enable him to walk more ſteadily a-croſs the Waves. Beſides this they tye another very heavy Stone to one Foot, whereby they are ſunk to the Bottom of the Sea in a Moment. And as the Oyſters are uſually ſtrongly faſten'd to the Rocks, they arm their Fingers with leathern Mittens, to prevent their being wounded in ſcraping them violently off; and ſome Men carry an Iron Rake for the Purpoſe. Laſtly, each Diver carries down with him a large Net, in Manner of a Sack, ty'd to his Neck by a long Cord, the other End whereof is faſtened to the Side of the Bark. The Sack is intended for the Reception of the Oyſters gathered from the Rock, and the Cord to pull up the Diver when the Bag is full, or he wants Air. In this Equipage he precipitates himſelf, ſometimes above ſixty Foot under Water. As he has no Time to loſe there, he is no ſooner arriv'd at the Bottom, than he begins to run from Side to Side, ſometimes on a Sand, ſometimes on a clayey Earth, and ſometimes among the Points of Rocks; tearing off the Oyſters he meets withal, and cramming them into his Budget. At whatever Depth the Divers be, the Light is ſo great, that they eaſily ſee whatever paſſes in the Sea, with the ſame Clearneſs as on Land. And to their Conſternation, they ſometimes ſee monſtrous Fiſhes, from which all their Addreſs in mudding the Water, *&c.* will not ſave them, but they become their Prey. And of all the Perils of the Fiſhery, this is one of the greateſt, and moſt uſual.

The beſt Divers keep under Water for half an Hour, the reſt do not ſtay leſs than a Quarter. During which Time, they hold their Breath without the Uſe of Oils, or any other Liquors; when they find themſelves ſtraightened, they pull the Rope to which the Bag is faſtened, and hold faſt by it with both Hands; when the People in the Bark taking the Signal, heave them up into the Air, and unload them of their Fiſh, which is ſometimes five hundred Oyſters, ſometimes not above fifty. Some of the Divers need a Moment's Reſpite to recover Breath; others jump in again inſtantly, continuing this violent Exerciſe, without Intermiſſion, for many Hours.

On the Shore they unload their Barks, and lay their Oyſters in an infinite Number of little Pits, dug four or five Foot ſquare in the Sand; raiſing Heaps of Sand over them to the Height of a Man, which, at a Diſtance, look like an Army ranged in Battle. In this Condition, they are left till the Rain, Wind, and Sun, have obliged them to open, which ſoon kills them. Upon this the Fleſh rots and dries, and the *Pearls* thus diſengaged, tumble into the Pit, upon taking the Oyſters out.

The *Pearl Fiſheries* in the *Weſt-Indies*, are all in the great Gulph of *Mexico*, along the Coaſts of *Terra Firma*; and are five in Number, *viz.* the *Fiſhery* of *Cubagna*, an Iſland five Leagues diſtant from New *Andaluſia*, in ten Degrees and a half, North Lat. The *Pearls* of this *Fiſhery* ſeldom exceed 5 Carats, but are found in Abundance; that of the Iſland *Marguerites*, or *Pearl Iſland*, which produces the greateſt Quantity of *Pearls*, and the fineſt, both with Regard to Weight and Water; that of the *Comogete*, near the *Terra Firma*; that of the River *de la Hach*, called *la Rencheria*: And that of St. *Martha*, ſixty Leagues from the River *de la Hach*. The *Pearls* of theſe three laſt *Fiſheries*, are uſually of a good Weight; but ill form'd and of a livid Water.

The Seaſon for *Fiſhing* in theſe *Fiſheries*, is uſually from *October* to *March*. In this Time there ſet out from *Carthagena* ten or twelve Barks, under the Convoy of a Man of War, called *Larmadilla*, each Bark has two or three Slaves for Divers. Among the Barks there is one called *Capitana*; to which all the reſt are obliged to bring at Night what they have caught in the Day, to prevent Frauds. The Divers never hold long, by Reaſon of the great Hardſhip they ſuſtain, continuing ſometimes under Water above a Quarter of an Hour. The reſt is the ſame as in the *Eaſt-India Fiſhery*.

Note, That the *Pearl-Fiſheries* of *Europe*, are in ſome Places on the Coaſts of *Scotland*, and in a River of *Bavaria*: But the *Pearls* found here are no Ways comparable to thoſe of the *Eaſt-Indies*, or of *America*; though they ſerve for Necklaces, ſold ſometimes for a thouſand Crowns and upwards.

At preſent we'll forſake the Sea, and divert ourſelves with *Fiſhing* in Freſh-Water, otherwiſe call'd *Angling*; providing ourſelves, firſt, with all the Tools or Implements neceſſary for that Paſtime, which an infinite Number of Perſons eſteem very agreeable and entertaining, as Rods, Lines, Hooks, Floats, Flies, natural and artificial, *&c.*

We have no Need to give here the Method how to make a *Fiſhing* Rod, ſince they may be eaſily purchaſed; but we'll inform our *Angler* that to make a Line, after the beſt Manner, his Hairs ought to be very round, of an equal Bigneſs, and twiſted even, ſince thereby the Line is ſtrengthened. Afterwards he lays them in Water for a Quarter of an Hour, to find which of the Hairs do ſhrink, then twiſt them over again: Some mix Silk in the Twiſting, which is never ſo good as a Line all Hairs, or all Silk. The beſt Colour for Lines is, the ſorrel, white and grey; the two laſt for clear Waters, and the firſt for muddy Rivers. In the making your Line, leave a Bow at both Ends, the one to put it to and take it from the Rod, the other to hang your loweſt Link upon, to which your Hook is faſtened; and ſo you may change your Hook as often as you pleaſe.

The Hook ought to be long in the Shank, ſomewhat round in its Circumference, the Point ſtanding even and ſtrait; and let the Bending be in the Shank. Strong, but ſmall Silk, is to be uſed in the ſetting on of the Hook; and the Hair laid on the Inſide of it: For if it was on the Outſide, the Silk would fret and cut it aſunder.

As for the Floats, there are divers Ways of making them: Some uſe the *Muſcovy* Duck Quills, which are the beſt for ſtill Waters; but for ſtrong Streams, take good ſound Cork, without Flaws or Holes, and bore it through with a hot Iron; then put into it a Quill of a fit Proportion; then pare your Cork into a pyramidical Form, of what Bigneſs you think fit; after this grind it ſmooth.

Note, That to plumb your Ground, you muſt carry with you a Muſket-Bullet, with a Hole made thro' it, or any other Sort of Plummet, tying this to a ſtrong Twiſt, hang it on your Hook, and ſo you will find the Depth of the Water. And that you may not incommode your Tackle, it will be very requiſite to make ſeveral Partitions in Pieces of Parchment ſewed together, by which each Utenſil may have a Place by itſelf; not forgetting to carry a little Whetſtone with you to ſharpen your Hooks, if you find them blunt and dull; and having ſeveral Bags of divers Sizes for your Hooks, Corks, Silk, Thread, Lead, Flies, *&c.* Likewiſe Linnen and Woollen Bags for all ſorts of Baits; and a ſmall Pole with a Loop at the End thereof, to which you may faſten a ſmall Net to land great Fiſh withal.

There are as many different Sorts of *natural Flies*, as there are of Fruits; and they are all good in their Seaſon, for ſuch Fiſh as riſe at the Fly; but ſome more peculiarly good, as being better beloved by ſome Sort of Fiſh; which is eaſily diſtinguiſh'd when coming in the Morning to the River-Side, you beat the Bulhes with your Rod, and take up what Variety you

you may of all Sorts of Flies, and try them all, by which Means you will quickly know, which are in the greateſt Eſteem among them. Not but that they will change their Fly ſometimes; but then it is when they have glutted themſelves therewith for five or ſix Days together, which is commonly upon the going out of that Fly: For Fiſh never covet that Fly more than when there is a great Plenty, contemning them at their firſt coming in.

There are two Ways to fiſh with natural Flies, either on the Surface of the Water, or a little underneath it. In Angling for Chevin, Roach, or Dace, move not your natural Fly ſwiftly, when you ſee the Fiſh make at it, but rather let it glide freely towards him with the Stream: But if it be in a ſtill and ſlow Water, draw the Fly ſlowly ſideways by him, which will make him eagerly purſue it; whereas if you ſhould move it ſwiftly, they would not follow it, being a lazy Fiſh, and ſlow of Motion.

The *artificial Fly* is ſeldom uſed but in bluſtering Weather, when the Waters are ſo troubled by the Wind, that the natural Fly cannot be ſeen, nor reſt upon them.

Though there are reckon'd no leſs than twelve Sorts of this artificial Fly, it is much better to find the Fly proper for every Seaſon, and that which the Fiſh at that Time moſt eagerly covet, and make one as like it as poſſible you may, in Colour, Shape and Proportion; and for your better Imitation, lay the natural Fly before you. The making of this artificial Fly, is left to the Ingenuity of every particular Perſon; which will be very much helped by ſeeing and obſerving the Artiſts Method in their Compoſition.

The beſt Rules for artificial Fly-*Fiſhing*, are,

1. To fiſh in a River ſomewhat diſturbed with Rain; or in a cloudy Day, when the Waters are moved by a gentle Breeze; the South-Wind is beſt; and if the Wind blow high, yet not ſo but that you may conveniently guard your Tackle, the Fiſh will riſe in plain Deeps; but if the Wind be ſmall, the beſt Angling is in the ſwift Streams.

2. Keep as far from the Water-ſide as may be; fiſh down with the Stream, with the Sun at your Back, not ſuffering your Line to touch the Water, but only your Fly.

3. In clear Rivers, ever angle with a ſmall Fly, with ſlender Wings; but in muddy Places uſe larger.

4. When after Rain the Water becomes browniſh, uſe a red or orange Fly; in a clear Day, at Night, a colour'd Fly; a dark Fly for dark Waters, *&c.*

5. Let the Line be twice as long as the Rod, unleſs the River be encumbered with Wood.

6. For every Sort of Fly have ſeveral of the ſame differing in Colour, to ſuit with the different Complexions of ſeveral Waters and Weathers.

7. Have a nimble Eye, and active Hand, to ſtrike preſently with the Riſing of the Fiſh; or elſe he will be apt to ſpew out the Hook.

8. Let your Fly fall firſt into the Water; for if your Line fall firſt it ſcares the Fiſh, and therefore you muſt draw again and caſt.

9. In ſlow Rivers, or ſtill Places, caſt the Fly croſs over the River; and let it ſink a little in the Water, and draw it gently back with the Current.

Laſtly, *Salmon Flies*, ſhould be made with their Wings ſtanding one behind the other, whether two or four. That Fiſh delights in the gaudieſt Colours that can be; chiefly in the Wings, which muſt be long as well as the Tail.

At preſent we muſt examine what Times are proper, and which are not, for Angling.

Calm and clear Weather is very good for Angling; but cool cloudy Weather in Summer is beſt, provided it be not ſo boiſterous, as that you cannot guide your Tackle; in the hotteſt Months, the cooler the Weather is the better: And if a ſudden violent Shower has diſturbed and mudded the River, then is your Time to angle in the Stream at the Ground with a red Worm.

Note, That to fiſh at the Ground, it muſt be done without a Float, and only with a leaden Bullet, which muſt be placed about nine Inches from the baited Hook; the Top very gentle, that the Fiſh may more eaſily run away with the Bait, and not be ſcared with the Stiffneſs of the Rod. You muſt not ſtrike as ſoon as you feel the Fiſh bite, but ſlack your Line a little, that he may the better ſwallow the Bait and Hook. When you ſtrike, do it gently, for the leaſt Matter does it. Though it may be found a better Way to angle without a Float or Lead, only making uſe of a Garden-Worm, drawing it up and down the Stream; by which you will take more *Trouts* than any other Way, eſpecially if it be in a clear Day. The Morning and Evening is the beſt Time for the Ground-Line for *Trout*: But if the Day proves cloudy, or the Water muddy, you may angle at Ground all the Day.

A very good Time for Angling, is a little before the Fiſh ſpawn; for then their Bellies being full, they come into ſandy Fords, and there rub their Bellies to looſen them, at which Time they will bite very freely. If you intend to fiſh for *Carp* and *Tench*, you muſt commence your Sport early in the Morning, fiſhing from Sun-riſing till eight of the Clock; and from four in the Afternoon till Night; and in hot Months until it be very late. In the Heat of Summer *Carp* will ſhew themſelves on the very Brim of the Water: At which Time if you fiſh with a Lob-worm, as you do with a natural Fly, you have excellent Sport, eſpecially if it be among Reeds.

In *March*, *April*, *September*, and all the Winter, (in which Seaſon, Fiſh ſwim deep very near the Ground) it is beſt fiſhing in a clear ſerene warm Day, for then they bite faſteſt: But all the Summer-time, Mornings, Evenings, and cool cloudy Weather, are the beſt Times for Angling.

Note, That you'll find by Experience that the Fiſh riſe beſt at the Fly, after a Shower of Rain that has only beaten the Gnats and Flies into the River without muddying them. The proper Months and Times of the Day for the Flies, are *March*, *April*, *May*, and the Beginning of *June*; in which Months let your Time be in the Morning about nine, and between three and four in the Afternoon. A warm Evening is very ſeaſonable if the Gnats play much.

After a clear Moon-night, if the ſucceeding Day proves cloudy, is a very proper Time for Angling; for the Fiſh having abſtained from Food all the Night (for they will not ſtir for Fear in bright Nights) the next Day they become hungry and eager, and the Gloomineſs of the Day makes them bite boldly. At the opening of Sluices or Mill-dams go along with the Courſe of the Water, and you will find Trouts; and other Fiſh will then come out to ſeek for what Food the Water brings down with it.

The Seaſons which are not proper for Angling, are,

1. The Winter or Spring, when there happens any hoary Froſt, becauſe the Fiſh will not bite kindly all that Day, unleſs it be in the Morning, when it proves ſerene and pleaſant. When it blows ſo hard that you cannot manage your Tools, that Time is not proper for Angling.

2. Neither is Sheep-ſhearing Time a proper one for the Angler; for then the Fiſh glut themſelves with what is waſhed off the Sheep, and will ſcarcely bite till that Seaſon be over. Likewiſe ſharp Eaſt and North nipping Winds do very much prejudice the Angler's Recreation: Neither is it good to fiſh immediately after the Spawn-time; for then their Appetite is much abated.

3. In the Exceſs of Heat, when the Earth is parched with Drought, there is very little Sport to be expected, eſpecially in muddy or clear ſhallow Rivers.

4. If the preceding Night proves dark and cloudy, the ſucceeding Day will prove improper for fiſhing, unleſs for ſmall Fiſh; for at ſuch Times the great ones

ones prey abroad for the lesser, who, by Instinct knowing the Danger, hide themselves till the Morning; and having fasted all Night, become then very hungry, whilst the great ones having gorged themselves, lie absconded all the Day long.

Being thus provided with all the necessary Tackle, Tools, &c. for Angling, and having informed ourselves of all we should know to apply ourselves to that Sport, with hope of Success; we'll proceed to put those Rules into Practice, beginning by fishing for *Carp*, which is generally held the Queen of Fresh-Water Fish, is exceedingly subtle, and of all others, the Eel only excepted, lives longest out of Water. Mr. *Ray* assures us, that in *Holland* they have a speedy Way of fattening them, with white Bread and Milk. They breed several Times in one Year; for which Reason, we seldom meet with Male or Female, without either Milt or Spawn. Their natural Place is, a Pond; in running Waters, they rarely if ever breed; to make them fat and large, it is a good Way, when the Pond is low, in *April*, to rake all the Sides thereof with an Iron Rake, and sow Hay-Seed thereon; by Autumn there will be a Crop of Grass, which coming to be overflow'd, as the Pond rises, will be a fine feeding Place for them.

Much Patience is requir'd to angle for *Carp*, on Account of their incredible Policy; they always chuse to lye in the deepest Places; they seldom bite in cold Weather, and in hot, a Man cannot be too early, or too late for them; when they do bite, there is no Fear of the Hold. The Baits are, the Red-worm, in *March*; the Cadew, in *June*; and the Grashopper, in *July*, *August*, and *September*. Proper Pastes may also be prepar'd for them; as Honey and Sugar, wrought together, and thrown in Pieces into the Water, some Hours before you begin to angle. Honey, and white Crumbs of Bread mix'd together, do also make a good Paste.

The *Chevin* (which is the next Fish we'll angle for) is a Fresh-Water Fish, with a large Head; it spawns in *March*, and is very strong, though unactive, yielding in a very little Time after he is struck, and the larger he is, the quieter. His Bait is any Kind of Worm, or Fly, particularly the large yellow Moth; also Grain, Cheese, the Pith in the Bone of an Ox's Back, &c. He affects a large Bait, and Variety of them at the same Hook. Early in the Morning, angle for him with Snails; but in the Heat of the Day, chuse some other Bait; and in the Afternoon, fish for him at Ground, or Fly. He will not stick sometimes to snap a *Lamprey*.

We'll fish next for the *Dace*, and *Dare*, which resemble much one another, in Kind, Size, Goodness, Feeding, Cunning, &c. The *Dace*, or *Dare*, will bite at any Fly, but especially the *Stone Cadice Fly*, or *May* Fly, the latter End of *April*, and the Beginning, or most Part in *May*, is a most excellent Bait, floating on the Top of the Water, which they rarely refuse in a warm Day; but when you fish under Water for them, it is best to be within a Handful, or something more of the Ground. To catch *Dace* in Winter, the Bait is a white Worm, with a red Head, as big as the Top of a Man's little Finger, gather'd after the Plough, in Heaths, or sandy Grounds.

Next comes the *Eel*, which is a Fresh-Water Fish, much in the Shape of a Serpent. Naturalists have long been divided as to the Manner how it is produced; whether by Generation, or Corruption, as Worms are; or by certain glutinous Dew Drops, which falling in *May* and *June* on the Banks of some Ponds, and Rivers, are by the Heat of the Sun, turn'd into *Eels*. This is certain, that there is not the least Appearance of Sex or Difference therein. *Abr. Mylius*, in a Treatise of *the Origin of Animals*, describes a Method of producing them by Art; he says, that if you cut up two Turfs, covered with *May* Dew, and lay one on the other, the grassy Side inwards, and thus expose them to the Heat of the Sun, on the Banks of a Water, in a few Hours Time there will spring from them an infinite Quantity of *Eels*.

There are four Kinds of *Eels*, *viz.* the *Silver Eel*, a *greenish Eel*, called a *Greg*, a *blackish Eel*, with a broad, flat Head, and an *Eel* with reddish Fins.

The *Silver Eel* may be caught with divers Baits; particularly powder'd Beef, Garden Worms, or Lobs, Minnows, Hens Guts, Fish, Garbage, &c. But as they hide themselves in the Mud, without stirring out for six Months, and in the Summer, take no Delight to be abroad in the Day, the most proper Time to take them, is in the Night; by fastening a Line to the Bank-side, with a laying Hook in the Water, or a Line plumbed with a Float, to discover where the Line lies in the Morning. The Roach does here very well for a Bait, the Hook being laid in his Mouth.

There is another Way of taking *Eels*, called *Snigling*, perform'd in the Day-time, by taking a strong Line and Hook, baited with a Lob, or Garden-Worm, and resorting to such Holes and Places, as *Eels* used to abscond in, near Mills, Wears, or Flood-Gates, where the Bait being gently put into the Hole, by the Help of a cleft Stick, the *Eel* will certainly bite.

Bobbing for Eels, is done after another Manner, *viz.* by taking very large Lobs, scouring them well, and with a Needle, run some strong twisted Silk through them from End to End; taking so many as may be wrapped a dozen Times round a Board: Then they must be tied fast with the two Ends of the Silk, that they may hang in so many Links. This done, they are to be fastened all to a Cord, and about an Handful and a half above the Worms, a Plummet is fixed, three Quarters of a Pound Weight; and the Cord made fast to a strong Pole. *Fishing* with these in muddy Water, the *Eels* will bite hastily at the Bait, when you think they have swallow'd it, gently draw up the Line, and bring them ashore as soon as may be.

Others use an *Eel* Spear, with three or four Forks, or jogged Teeth, which they strike at Random into the Mud.

In *April*, *May*, *June*, and *July*, you may fish for *Flounders* all Day long, either in a swift Stream, or in the still deep, with Red-Worms, Wasps, and Gentles.

The *Gudgeon*, which is a small Fish of a delicious Taste, and spawns three or four Times in the Summer Season, feeding in Streams, and on Gravel, is easily taken with a small Red-Worm, fishing near the Ground; and being a leather-mouth'd Fish, will not easily be off the Hook when struck. The *Gudgeon* may either be fished for with a Float, the Hook being on the Ground; or by Hand with a running Line on the Ground, without Cork, or Float. He will bite well at Wasps, Gentles, and Cod-baits; and one may even fish him with two or three Hooks at the same Time, which makes good Sport. When you angle for *Gudgeons*, stir up the Sand or Gravel with a long Pole, which will make them gather to the Place, and bite the faster.

The *Pearch*, or *Perch* (the next Fish which comes to our Hook) is hook-back'd, not unlike a Hog; arm'd with stiff Bristles, and its Sides with dry, thick Scales: He is voracious, and will venture on one of its own Kind, with much more Courage than the Pike itself. He spawns but once a Year, and that is in *February*, or *March*, and seldom grows longer than two Foot. He bites best when the Spring is far spent, at which Time you may take at one Standing, all that are in one Hole. The proper Baits are, the Minnow, and small Frog; but a Worm called a Brandling is best; though the Minnow yields the best Sport, which is to be alive and stuck on the Hook through the upper Lip, or Back-Fin, and kept swimming about Mid-Water, or somewhat lower: For which Purpose, you must have an indifferent large Cork, with a Quill on your Line. When you fish with a Frog, you must fasten the Hook through the Skin of his Leg, towards the upper Part thereof. You may also bait with Lob-Worms well scour'd, Bobs, Oak Worms, Gentles, Colewort Worms, Minnows, Dors, Wasps, and Cad-

baits. When the Fish bites, as he is none of the leathern-mouth'd Kind, he must have Time to pouch his Bait. The best Place to fish for him, is, in the Turning of the Water Eddy, in a good Gravel Bottom. He bites well all the Day long, in cool cloudy Weather; but chiefly from Eight in the Morning till Ten, and from Three in the Afternoon till about Six; but will not bite at all the Seasons of the Year, especially in Winter, for then he is very abstemious; yet if it be warm, he will bite then in the Middle of the Day; for in Winter, all Fish bite best about the Heat of the Day.

When we catch a *Pike*, we catch one of the Tyrants of the watery Empire; and do thereby a still greater Service to the weaker Sort of Inhabitants, of those Regions; the Pike is esteem'd by Naturalists, the longest liv'd of all Fishes.

I am not of the Opinion of those, who pretend the larger he is found, the coarser is the Food, and so *vice versâ*; for to my Palate, there is nothing more insipid than a small Pike; and nothing more troublesome, since he is nothing else but Bones. This Fish never swims in Shoals, and a good Reason for it, is, that he devours his own Kind. He spawns in *February* and *March*. The best Sort is in Rivers, the worst in Meres, or Ponds. His common Food, is either Pickerel-weed, Frogs, or what Fish he can procure. Some say that this Pickerel-weed, both feeds and breeds them.

There are two Ways of *Fishing* for the *Pike*; by the *Ledger-Bait*, and the *Walking-Bait*. The *Ledger-Bait*, is that fixed in one certain Place, and which the Angler may leave behind him. And this must be a living Bait, either Fish or Frog. Of Fish, the best are the Dace, Roach, or Pearch; for Frogs, the yellowest are the best. To apply it, if a Fish, stick the Hook through his upper Lip; then fastening it to a strong Line, ten or twelve Yards long, tie the other End of the Line, either to some Stake in the Ground, or to some Bough of a Tree, near the Pike's usual Haunt, ot where you think it is like he may come. Then wind your Line on a forked Stick (big enough to keep the Bait from drawing it under Water) all about half a Yard, or somewhat more, and your Stick having a small Cleft at the End, fasten your Line therein; but so, that when the *Pike* comes, he may easily draw it forth, and have Line enough to go to his Hold and Pouch. If the Bait be a Frog, the arming Wire is to be put in his Mouth, and out at his Gills, and one of the Legs to be stitched or tied over the upper Joint of the Wire.

The *Walking-Bait*, is that which the Fisher casts in, and conducts with a Rod, *&c.* This is perform'd by a Trole, with a Winch to wind it up withal. At the Top of the Rod is to be placed a Ring for the Line to run through. The Line for two Yards and a Quarter next the Hook, to be of Silk double, and armed with Wires, the Length of seven Inches: On the Shank of the Hook is to be fastened a smooth Piece of Lead, so as to sink the Fish Bait, which is to be a Gudgeon with his Head downwards. Thus dispose the Bait to be cast up and down, and if you feel the Fish at the Hook, give him length enough to run away with the Bait, and pouch it; then strike him with a smart Jerk. To fish with a dead Bait, use a Minnow, yellow Frog, Dace, or Roach, anointed with Gum of Jey, dissolved in Oil of Spike; and cast it where the *Pike* frequents. After it has lain a little while at the Bottom, draw it to the Top, and soup the Stream, and you'll soon perceive a *Pike*, in earnest Pursuit thereof. This Fish bites best about Three in the Afternoon, in clear Water, with a gentle Gale, from the Middle of Summer, to the End of Autumn; but in Winter all Day long; and in the Spring he bites best early in the Morning, and late at Night.

The *Roach* is scarce worth fishing for, it being no delicate Fish; but he is as silly, as the Carp is crafty. Those in Rivers are more valued than those in Ponds, tho' the latter are much the larger; they spawn about the Middle of *May*.

To angle for *Roaches* in *April*, the Cads, or Worms, are proper Baits; and small white Snails, or Flies; which Baits must be under Water, for *Roaches* will not bite at the Top. Others use a May-Fly in that Season with good Success. In Autumn you may fish for them with Paste, only made of the Crumbs of fine white Bread, moulded with a little Water, and the Labour of your Hands, into a tough Paste, coloured, not very deep, with red Lead, with which you may mix a little fine Cotton, or Lint, and a little Butter; these last will make it hold on, and not wash off your Hook, with which you must fish with much Circumspection, or you lose your Bait. In Winter, Gentles are the best Bait. Sprouted Malt, the young Brood of Wasps, and Bees dipped in Blood, and the thick Blood of Sheep, half dried, are *Nostrums* in this Sort of *Fishing*.

The Season for catching *Tench*, is in *June*, *July*, and *August*, very early and late, or even all Night, in the still Part of Rivers. His Bait is a large Red Worm, at which he bites very eagerly, if first dipt in Tar. He also delights in all Sorts of Pastes, made up of strong scented Oils, or with Tar: Or a Paste of brown Bread and Honey; nor does he refuse the Cad-worm, Lob-worm, Flag-worm, green Gentles, Cad-bait, or soft boil'd Bread Grain.

Note, That the *Tench* is a fine fresh Water Fish, having very small Scales, but large, smooth Fins, with a red Circle about the Eyes, and a little Barb hanging at each Corner of the Mouth. It takes more Delight among Weeds in Ponds, than in clear Rivers, and covets to feed in foul Water. His Slime is said to have a healing Quality for wounded Fish; upon which he is commonly called the *Fishes Physician*; when the Carp, Pike, *&c.* are sick, they find Relief by rubbing themselves against the *Tench*; of which the Pike is so sensible, that he will not injure the *Tench*, tho' he will seize on any other Fish of his Size that comes in his Way.

We'll conclude our Angling, with the *Trout*, which is a delicious fresh Water Fish, speckled with red and yellow; coming in, and going out of Season with the Back, and spawning in *October* and *November*; whereas all the other Species spawn in hot Summer Weather. All Winter long they are sick, lean, and unwholsome, and frequently louzy. As the Spring comes on, deserting the still, deep Waters, they repair to the gravelly Ground, against which they continue to rub, till they have got rid of their Lice, which are a Kind of Worms, with large Heads; from that Time, they delight to be in the sharp Streams, and such as are swift; where they lie in wait for Minnows, and May-flies. At the latter End of *May* they are in their Prime.

There are several Sorts of Trouts, all valuable; *viz.* the *Fordridge Trout*, the *Amerly Trout*, the *Bull Trout*, with many others, which for Brevity Sake I forbear mentioning; observing only, that the red and yellow *Trouts* are the best, and of these, the Female, distinguished by a less Head and deeper Body, is preferr'd. They are known to be in Season, by their large Back; which may serve for a Rule for other Fish.

The *Trout* is usually caught with a Worm, Minnow, or Fly, natural or artificial. There are several Sort of Worms, which are Baits for the Angler; the Earth-worm, the Dung-worm, the Maggot, or Gentle; but for the *Trout*, the Lob-worm, and Brandling are the best; or the Squirrel-Tail, having a red Head, streak'd down the Back, and a broad Tail. The Brandling is commonly found in an old Dunghil, Cow-Dung, Hogs-Dung, or Tanners-Bark.

Note,

Note, That whatever Worms you fish withal, are the better for keeping; which must be in an earthen Pot with Moss, which you must change often in Summer, that is, once in three or four Days, and in twice as long Time in Winter.

When you fish for a *Trout* by Hand, on the Ground, take a Lob-Worm, and run your Hook through him, a little above the Middle, and out again a little below it; then draw your Worm above the Arming of your Hook, making your first Entrance at the Tail-End, that the Point of the Hook may come out at the Head. When you fish with a Minnow, take the whitest and middle Size, slip the Hook through his Mouth, and the Point and Beard out of the Tail, so as it may lie almost strait on the Hook; then try against the Stream whether it will turn. In Defect of a Minnow, a small Loach may serve the Turn; or for want of either, an artificial one may be made of Cloth, to the Life, which is found every whit as good a Bait as the natural one.

From these different Manners of taking different Sorts of *Fresh-Water Fish*, we'll pass to some particular Observations, with regard to their different Haunts, and Places where they can be met with, and which one must indispensibly know, to be esteemed a good Angler, and angle with some Satisfaction.

Therefore the Angler must understand, that Fishes change Places with the Season. In the Summer, some keep always near the Top or Rim of the Water; and others are continually at the Bottom. For the first you must angle with a Float or Fly; the latter are to be found at the Arches of Bridges, Mill-Ponds, Wears, Flood-Gates, *&c.* In Winter, all Fish in general fly into deep Waters.

The *Barbel*, *Roach*, *Dace*, and *Ruff*, delight in sandy gravelly Ground. The deepest Part of the River, and the Shadow of Trees, are equally grateful. The *Bream*, *Pike*, and *Chub*, chuse a clayey ouzy Ground; the *Bream* delights most in the Middle of a River, whose Stream is not too rapid, but gently gliding; the *Pike* is for still Waters, full of Fry; and that he may the better and securer seize his Prey, he frequently absconds himself among Water-docks, under Bushes or Bull-rushes. *Carp*, *Tench*, and *Eel*, frequent still, foul, and muddy Waters. *Eels* lie lurking under Roots or Stones; the *Carp* for the deepest Place of the Water; and where there are green Weeds, the *Carp* and *Tench* delight most of all. *Pearch* delight in gentle Streams, not too deep, yet they must not be shallow; and a hollow Bank is their chiefest Refuge. *Gudgeons* love sandy Ground in gentle Streams, they prefer small Rivers to large ones, or small Brooks, and bite best in the Spring till they spawn. The *Salmon* delights most in Rivers which ebb and flow, are large and have a swift Current; in such Rivers are the greatest Plenty; and still better, if the Rivers are rocky or weedy. The *Shad*, *Thwait*, *Plaise*, and *Flounder*, have the greatest Love for salt or brackish Waters, which ebb and flow.

We'll conclude this Treatise by informing our Angler, especially those that are in a Condition to make such Expences, and will have the Satisfaction of *Fishing* when they please, without going far from their own Home, how to make Fish-ponds, or Reservoirs of Water, for the Feeding, Breeding, and Preserving of Fish.

The first Thing to be minded in the making of *Fish-ponds*, is the Ground where it is to be placed, which must be full of Springs, and apt to be moorish: Since the one breeds them well, and the other preserves them from being stolen. The next is the Situation of the Pond, and the Nature of the Currents that fall into it; and likewise that it be refreshed with a little Brook, or with the Rain-Water that falls from the adjacent hilly Ground. Add, that those Ponds which receive the Stale and Dung of Horses, and other Cattle, breed the largest and fattest Fish.

It must be observed, in making the Pond, that the Head be at the lowest Part of the Ground; and that the Trench of the Flood-gate, or Sluice, have a good swift Fall, that it may not be too long in emptying. If the Pond carry six Foot of Water, it is enough; but it must be eight Foot deep, to receives the Freshes and Rain that should fall into it. It would also be advantageous, to have Shoals on the Sides for the Fish to sun themselves in, and lay their Spawn on; besides, in other Places, certain Holes, hollow Banks, Shelves, Roots of Trees, Islands, *&c.* to serve as their retiring Places. It must be considered further, whether the Pond be a Breeder; if so, large Carps are never to be expected from thence; the Greatness of the Number of Spawns overstocking the Pond: For large Carps, a Store-pond is ever accounted the best; and to make a Breeding-pond become a Store-pond, we must see what Quantity of Carps it will contain: Then we put in all Milters, or all Spawners, whereby, in a little Time, one may have Carps that are both large and exceeding fat. Thus by putting in but one Sex, there is an Impossibility of the Increase of them; yet the Roach, notwithstanding that Precaution, will multiply.

Some great Waters are to be reserved for the Head-Quarters of the Fish; whence one may take, or wherein one may put any Quantity thereof. There must be likewise Stews, and other auxiliary Waters, so that any Part of the Stock may be conveyed from one to the other; so, to lose no Time in the Growth of the Fish, but the Water may be employed as well as the Land, to the best Advantage; the Grounds must be viewed, and some Fall found out between the Hills, as near flat as may be, so as to leave a proper Current for the Water: If there be any Difficulty in judging of such, one must take an Opportunity after some sudden Rain, or the breaking up of a great Snow in Winter, and he will plainly see which Way the Ground casts; for the Water will take the true Fall, and run accordingly.

The Condition of the Place must determine the Quantity of Ground to be covered with Water. For Example, we may propose in all fifteen Acres, in three Ponds; or eight Acres in two, and not less; and these Ponds should be placed one above another, so as the Point of the lower may almost reach the Head or Bank of the upper; which Contrivance is no less beautiful than advantageous. The Head or Bank, which by stopping the Current is to raise the Water, and so make a Pond, must be built with the Clay and Earth taken out of the Pond, or Hollow, dug in the lowest Ground above the Bank: The Shape of the Pond to be an half oval, whereof the Flat to come to the Bank, and the longer Diameter run square from it.

Note, That for the Breeding of Fish, the Quality of the Pond, Water, *&c.* is scarce determinable, by any Symptom or Rule; for some very promising Ponds do not prove serviceable that Way. One of the best Indications of a breeding Pond, is, when there is a good Store of Rush, and gravelling about it, with gravelly Shoals, such as Horse-ponds usually have: So that when a Water takes thus to Breeding, with a few Milters and Spawners, two or three of each, a whole County may be stock'd in a short Time.

Note, also, That Eels and Pearch are of very good Use to keep down the Stock of Fish; for they prey much upon the Spawn and Fry of a Brood of Fish; and will probably destroy the Superfluity of them. As for Pearch, Tench, Roach, *&c.* they are observed to breed almost in any Waters, and very numerously; only Eels never breed in standing Waters that are without Springs; and in such are neither found, nor increased, but by putting in: Yet where Springs are they are never wanting, though not put in; and which is most strange of all, no Person ever saw in an Eel, the least Token of Propagation, either by Milt or Spawn; so that whether

whether they breed at all, and how they are produced, are Questions equally mysterious, and never yet resolved.

Having thus provided a Habitation for Fish, we must not let them starve in it, but supply them likewise with Food.

In a Stew thirty or forty Carps may be kept from *October* to *March*, without feeding; and by fishing with Tramels or Flews in *March* or *April*, you may take from your great Waters, to recruit the Stews: But you must not fail to feed all Summer, from *March* to *October* again, as constantly as cooped Chickens are fed, and it will turn to as good an Account.

The Constancy and Regularity of serving the Fish conduces very much to their well eating and thriving. Any sort of Grain boiled is good to feed with, especially Peas and Malt, coarse ground. The Grains after brewing, while fresh and sweet, are very proper; but one Bushel of Malt not brewed, will go as far as two of Grains: Chippings of Bread, and Orts of a Table, steeped in Tap-droppings of strong Beer, or Ale, are excellent Food for Carps. Of these the Quantity of two Quarts to thirty Carps every Day, is sufficient: And so fed Morning and Evening is better than once a Day only. There is a Sort of Food for Fish that may be called accidental, and is no less improving than any that can be provided; and this is when the Pools happen to receive the Wash of Commons, where many Sheep have pastured, the Water is enriched by the Soil, and will feed a much greater Number of Carps than otherwise it would do: And further, the Dung that falls from Cattle, standing in Water in hot Weather, is also a great Nourishment to Fish. The best Food to raise Pikes to an extraordinary Fatness, is Eels; and without them it is not to be done, but in a long Time. Setting these aside, small Perches are the best Meat. Breams put into a Pike-pond, breed exceedingly, and are fit to maintain Pikes; which will take Care they do not increase overmuch: The numerous Fry of Roaches and Rouds which come from the greater Pools into the Pike-quarters, will likewise be good Diet for them. Pikes in all Streams, and Carps in hungry-springing Waters, being fed at certain Times, will come up and take their Meat almost from your Hand.

The best feeding Place is towards the Mouth of the Pond at the Depth of about half a Yard; for by that Means the Deep will be kept clean and neat; the Meat thrown into the Water without other Trouble, will be pick'd up by the Fish, and nothing be lost: Yet there are several Devices for giving them Food, especially Pease; as a square Board let down with Meat on it. When Fish are fed in the larger Pools, or Ponds, where their Numbers are great, Malt boiled, or fresh Grains, is the best Food. Thus Carps may be fed and raised like Capons, and Tenches will feed as well; but *Perch* are not for a Stew in Feeding-time.

As to the Benefits that redound from the keeping of Fish, besides furnishing the Table, and raising Money, your Land will be vastly improved, so as to be really worth, and yet more this Way than by any other Employment whatsoever: For suppose a Meadow of 2 *l. per* Acre, four Acres in Pond, will return every Year a thousand fed Carps, from the least Size to fourteen or fifteen Inches long: Besides Pikes, Perch, Tench, and other Fry; if the Carps are saleable, they will bring Six-pence, Nine-pence, and perhaps Twelve-pence apiece, amounting in all to twenty-five Pounds; which is six Pound five Shillings *per* Acre.

Some are of Opinion, that the Art of *Angling* is as antient as *Deucalion*'s Flood; others attribute the Invention thereof to *Belus*, whom they consider as first Author of virtuous Recreations: And others pretend, that *Seth*, *Noah*'s Son, left the Knowledge of Angling to his Posterity, engraven on Pillars of Brass, with the first Rudiments of the Mathematicks and other useful Arts; by which Means they were preserved from perishing in the universal Deluge.

Several say, in Commendation of the Art of *Fishing*, that among the twelve Apostles, there were four of them Fishermen, whom our Saviour elected and inspired to preach the Gospel; and the Reason that some give for this Choice is, that he knew and found the Heart of such Men naturally more inclined to Contemplation and Tranquillity; their Spirits being mild, sweet, and pacifick. Observing besides, that our Saviour seems to have more than a common Respect for their Occupation, for two Reasons: First, that he never reproved these for their Profession, as he did others, *viz.* the Scribes and Money-Changers. Next, he dignified these poor Fishermen with a certain Superiority over the other Apostles. Nay, that which is more observeable is this, that our Saviour took only three of these poor Fishermen, when he ascended the Mount to be Witnesses of his Transfiguration.

Note, That though I have left to every Angler's Ingenuity to make artificial Flies; nevertheless, after a second Thought, I think it best to lay down here the Method of making two Sorts of them, *viz.* the *Palmer-ribbed*, with Silver or Gold; and the *May-Fly*. To make the *Palmer-Fly*, the Angler must arm his Line on the Inside of the Hook; then with a Pair of Sciffars cut so much of the Brown of a Mallard's Feathers, as he shall think sufficient to make the Wings; then lay the outermost Part of the Feather next the Hook, and the Point of the Feather towards the Shank of the Hook; and afterwards whip it three or four Times about the Hook, with the same Silk he armed it with, then he makes his Silk fast; which done, he takes a Plover's Top, or the Hackle of the Neck of a Cock, of which he takes one Side of the Feather; then takes the Hackle Silk, or Gold or Silver Thread, and makes all these fast at the Bend of the Hook, working them up to the Wings; every Turn shifting his Fingers, and making a Stop, that the Gold may fall right, which is to be made fast; and the Hackle worked up to the same Place, and also made fast: Then he takes the Hook betwixt his Finger and Thumb, in the left Hand, and with a Needle or Pin parts the Wings in two: Then with the arming Silk he twists it about, as it falls cross between the Wings, and with his Thumb must turn the Points of the Feathers towards the Bend of the Hook, working it three or four Times about the Shank, and afterwards fastening it. If he makes the Ground of Hog's Wool, sandy, black, or white, or of Bear's Wool, or of a red Bullock, he must work these Grounds on a waxed Silk, and must arm and set on the Wings as above-mentioned. The Body of the *May-Fly*, must be wrought with some of these Grounds; which will be very well, when ribb'd with black Hair. He must make the *Oak-Fly*, with orange-tawney, and black for the Body; and the brown of the Mallard's Feather for the Wings.

FORTIFICATION.

FORTIFICATION, also called *Military Architecture*, is the Art of *fortifying* or strengthening a Place, by raising Works around it, to render it capable of being defended by a small Force, against the Attack of a more numerous Enemy.

Fortifications are divided into *durable* and *temporary*. By *durable Fortifications*, are properly understood the *Fortifications* of Cities, Frontier Places, *&c.* and by *temporary*

temporary Fortifications, are underſtood thoſe erected on ſome emergent Occaſions, and for a little Time. Such are Field-works caſt up for the ſeizing and maintaining a Poſt or Paſſage; thoſe about Camps, *&c.* as Circumvallations, Contravallations, Redoubts, Trenches, Batteries, *&c.*

Durable Fortifications, are divided into *regular*, and *irregular*. The *regular Fortification*, is that wherein the Baſtions are all equal; or that built in a regular Polygon, the Sides and Angles whereof are generally about a Muſket-ſhot from each other. In this ſort of *Fortification* the Parts being all equal, have the Advantage of being equally defenſible, ſo that there are no weak Places.

The *irregular Fortification*, is that wherein the Baſtions are unequal and unlike; or the Sides and Angles not all equal and equidiſtant. In this ſort of *Fortification* the Defence and Strength being unequal, there is a Neceſſity for reducing the irregular Figure, as near as may be, to a regular one. And as the Irregularity of a Figure depends on the Quantity of Angles and Sides; the Irregularity of a *Fortification*, ariſes either from the Angles being too ſmall, or the Sides being too long or too ſhort. Conſequently an irregular Figure being propoſed to be fortified, all the Angles, with the Quantity of the Sides, muſt be found, to be able to judge how it is to be *fortified*.

Fortifications, are repreſented either by Deſigns on Paper, or by Models of Wood, Plaſter, or Paſteboard. There are four Sorts of Delineations, *viz.* the *Deſign*, *Ichnography*, *Ortography*, and *Scenography*.

The DESIGN, in *Latin*, *Delineatio*, in *Italian*, *Deſegno*, is the firſt Draught of a *Fortification*, by ſimple Lines, to know the Length thereof.

The ICHNOGRAPHY, denotes the Plan, or Repreſentation of the Length and Breadth of a Fortreſs; the diſtinct Parts of which are marked out, either upon the Ground itſelf, or upon Paper.

The ORTOGRAPHY, is the Profile, or Repreſentation of a *Fortification*, or a Draught ſo conducted, as that the Length, Breadth, Height, and Thickneſs of the ſeveral Parts are expreſſed; ſuch as they would appear, if it were Perſpective.

The SCENOGRAPHY, is the Repreſentation of a *Fortification*, on a perſpective Plan, or a Deſcription thereof in all its Dimenſions, ſuch as it appears to the Eye.

Note, That before we proceed any farther, we muſt give here ſome general Rules to be neceſſarily obſerved in the *Fortification* of Places. 1. The Manner of *fortifying* muſt be accommodated to that of attacking; ſo that no one Manner can be aſſured will always hold, unleſs it be aſſured the Manner of beſieging be incapable of being alter'd; and to judge of the Perfection of a *Fortification*, the Method of beſieging at the Time when it was built, muſt be conſidered. 2. All the Parts of a *Fortification*, ſhould be able to reſiſt the moſt forcible Machines uſed in beſieging. 3. A *Fortification* ſhould be ſo contriv'd, as that it may be defended with as few Men as poſſible; which Conſideration, when well attended to, ſaves a World of Expence. 4. That the Defendants may be in the better Condition, they muſt not be expoſed to the Enemies Guns and Mortars; but the Aggreſſors be expoſed to theirs. Hence, 5, all the Parts of a *Fortification* ſhould be ſo diſpos'd, as that they may defend each other; in order to this, every Part there is to be flanked, *i. e.* capable of being ſeen and defended from ſome other, ſo that there be no Place where an Enemy can lodge himſelf either unſeen, or under Shelter. 6. All the Campaign around muſt lay open to the Defendants, ſo that no Hills or Eminences muſt be allow'd; behind which the Enemy might ſhelter himſelf from the Guns of the *Fortification*, or from which he might annoy them with his own. The Fortreſs, then, is to command all the Place round about; conſequently the Outworks muſt be lower than the Body of the Place. 7. No Line of Defence to be above Point Blank Muſket Shot, which is about one hundred and twenty Fathom. 8. The acuter the Angle at the Centre, the ſtronger is the Place; as conſiſting of more Sides, and conſequently more defenſible.

Mr. *Vauban*, as well as Count *Pagan*, admits of three Sorts of *Fortifications*, viz. the great, where the exterior Polygon has always two hundred Fathoms; the middle, which has always one hundred and eighty; the ſmall which has but one hundred and ſixty Fathom.

All *Fortifications* conſiſt of *Lines* and *Angles*, which have various Names according to their different Offices.

The *Angles*, fig. 1. are the *Angle of the Centre*, the *Angle of the Polygon*, the *Angle of the Baſtion*, the *Angle of the Courtine*, the *Angle of Defence*, the *flanking Angle*, the *flanked Angle*, and the *Angle of the Epaule*.

The *Lines* are thoſe of the *exterior Polygon*, of the *interior Polygon*, of the *Perpendicular*, of the *Line of Defence*, of the *Complement*, of the *great Semi-diameter*, of the *little Semi-diameter*, of the *Capital*, of the *Face*, of the *Demi-gorge*, of the *Flank*, and of the *Courtine*.

Of theſe *Lines* and *Angles*, are form'd *Baſtions* and *Courtines*, and ſometimes *Demi-Baſtions*, according to the Situation of the Ground; *Cavaliers*, *Ramparts*, *Fauſſe-brayes*, *Ditches*, *Counterſcarps*, *Covert-ways*, *Half Moons*, *Ravelins*, *Horn-works*, *Crown-works*, *Out-works*, *Eſplanades*, *Redents*, and *Tenailles*; which different Pieces of *Fortification*, muſt be examined every one in particular, beginning by the *Baſtion*; to have a clear Theory of *Fortification*, before we can come to the Practice.

A BASTION, in the modern Signification, is a huge Maſſive of Earth, uſually faced with Sods, ſometimes with Brick, rarely with Stone, ſtanding out from a Rampart, whereof it is a principal Part, and anſwers to what in the antient *Fortifications*, is called *Bulwark*.

A *Baſtion* conſiſts of two Faces, and two Flanks: The Faces are the Lines B C, and C S; including the Angle of the *Baſtion*. The Flanks are the Line B A S D. Fig. 1.

Note, That the *Faces* of a *Baſtion*, are the two foremoſt Sides, reaching from the Flanks to the Point of the *Baſtion* where they meet. Theſe are commonly the firſt undermined, by Reaſon they reach fartheſt out, and are leaſt flanked, and therefore weakeſt. The *Flank* is that Part of a *Baſtion*, which reaches from the Courtin to the Face, and defends the oppoſite Face, the *Flank* and the Courtin.

The Union of the two Faces, make the outmoſt or ſaliant Angle, called alſo the *Angle of the Baſtion*, B C S. fig. 1. The Union of the two Faces to the two Flanks, makes the Side Angles, called the *Shoulders*, or *Epaules of the Baſtion*. And the Union of the two other Ends of the Flanks to the two Courtins, the Angles of the Flanks of the *Baſtion*.

The Foundation of the *Baſtion*, i. e. of a Work conſiſting of Flanks and Faces, is, that great Rule in *Fortification*, viz. that every Part of a Work muſt be ſeen and defended from ſome other Part; mere Angles therefore are not ſufficient, but Flanks and Faces are indiſpenſably requiſite. If the *Baſtions* E F G, and H I K, Fig. 26. conſiſted of Faces alone, the Angles G and H could not be defended from the Lines F G, or I H; but if the Baſtion conſiſts of Flanks and Faces, as A B C S D, all the Points may be defended from the Flanks, there being none, *v. g.* in the Face B C, but what may be defended from the oppoſite Angle E L, nor any in the Courtin A E, but what may

may be defended from the adjacent Flanks B A, and E L; nor any in one Flank B A, but may be defended from the other E L.

For the Proportion of the Faces, they are not to be less than twenty-four Rhine-land Perches, nor more than thirty.

The *Flanks* of the *Bastion*, the longer they are the better, provided they stand at the same Angle, under the Line of Defence. Indeed in the antient *Fortifications*, the *Flank* is made perpendicular to the Courtin, so as to have the Angle out of the Enemies Eyes; but this is now provided for, by withdrawing the lower Part of the *Flank* two or three Perches towards the capital Line; which Part thus withdrawn, is better if made concave, than rectilinear; and if double with a Ditch between, than if single. The Business of disposing the *Flanks* of *Bastions*, makes the principal Part of *Fortification*; it is that on which the Defence principally depends, and which has introduc'd the various Forms and Manners of *fortifying*. If the Angle of the Bastion be less than sixty Degrees, it will be too small to give Room for Guns; and besides so acute as to be easily beaten down by the Enemies Guns: To which may be added, that it will either render the Line of Defence too long, or the *Flanks* too short; it must therefore be more than sixty Degrees; but whether or no it should be a right Angle, some intermediate Angle between sixty or ninety, or even whether or no it should exceed a right Angle, is still disputed. Hence it follows, that a Triangle can never be fortified, in regard some, or all the Angles will be either sixty Degrees, or less than sixty.

Note, That *Degree*, in this Place, is a Division of a Circle, including a three hundred and sixtieth Part thereof. Every Circle, great and small, is supposed to be divided into 360 Parts, called *Degrees*; the *Degree* is subdivided into 60 lesser Parts, called *Minutes*; the Minute into 60 others, called *Seconds*; the Second into 60 *Thirds*, &c. which will be more particularized in my Treatise of *Geometry*, under the Letter G.

Bastions are of divers Kinds, *solid*, *void*, *flat*, *cut*, &c. The *solid Bastions* are those that are filled up entirely, and have the Earth equal to the Height of the Rampart, without any void Space towards the Centre. *Void*, or *hollow Bastions*, are those surrounded with a Rampart, and a Parapet only ranging round their Flanks and Faces, so as to have a void Space towards the Centre; where the Ground is so low, that if the Rampart be taken, no Retrenchment can be made in the Centre, but what will lie under the Fire of the Besieged. A *flat Bastion*, is a *Bastion* built on a right Line in the Middle of a Courtin, when it is too long to be defended by the *Bastion* at its Extremes. A *cut Bastion*, is that, whose Point is cut off, and in lieu thereof, has a re-entring Angle, or an Angle inwards, with two Points outwards; sometimes also called a *Bastion with a Tenaille*; used either when without such a Contrivance, the Angle would be too acute, or when Water or other Impediment hinders the carrying on the *Bastion* to its full Extent.

There are, likewise, *compos'd*, *regular*, *irregular*, *deformed*, *demi*, and *double Bastions*. A *compos'd Bastion*, is when the two Sides of the interior Polygon are very unequal, which makes the Gorges also unequal. A *regular Bastion*, is that which has its due Proportion of Faces, Flanks, and Gorges; the Faces being of an equal Length, the Flanks the same, and the two Angles of the Shoulder equal. An *irregular Bastion*, is where this Proportion and Equality is not observed. A *deform'd Bastion*, is where the Irregularity of the Lines and Angles makes the *Bastion* out of Shape, as when it wants one of its Demi-Gorges, one Side of the interior Polygon being too short. A *Demi-Bastion*, is that which has but one Face and one Flank, called also an *Epaulement*; to fortify the Angle of a Place that is too acute, they cut off the Point, and make two *Demi-Bastions*, which form a *Tenaille*, or a re-entring Angle. Their chief Use is before a Horn-work, or Crown-work. A *double Bastion*, is that which on the Plain of the great *Bastion*, has another *Bastion* built higher, somewhat after the Manner of a Cavalier; leaving twelve or eighteen Feet between the Parapet of the lower, and the Foot of the higher.

Note, That every *Bastion* hath its *Capitals*, *Gorges*, and *Distances*. The *Capital* of a *Bastion*, is a Line drawn from the Angle of the Polygon, to the Point of the *Bastion*. Those *Capitals* are from thirty-five, to forty Fathom long, from the Point of the *Bastion*, to the Point where the two Demi-Gorges meet. The *Gorge* of a *Bastion*, is what remains of the Sides of the Polygon of a Place, after retrenching the Courtins: In which it makes an Angle in the Centre of the *Bastion*; such is A H D, Fig. 1. The *Demi-Gorge*, or *Half-Gorge*, is the Entrance into the *Bastion*; not taken directly from Angle to Angle, where the *Bastion* joins to the Courtin, but from the Angle of the Flank to the Centre of the *Bastion*, or Angle the two Courtins would make, were they thus protracted to meet in the *Bastion*. The Distance of the *Bastions*, is the Sides of the exterior Polygon.

The COURTIN, *Curtain*, or *Curtin* (the next Piece of *Fortification* which falls under our Consideration) is that Part of a Wall or Rampart, which is between two Bastions; or which joins the Flanks thereof: *q q*, Fig. 8. The *Courtin* is usually bordered with a Parapet five Foot high; behind which the Soldiers stand, to fire upon the Covert-way, and into the Moat. Besiegers seldom carry on their Attacks against the *Courtin*, because it is the best flanked of any Part.

The *Courtin* has its *Angle* and *Complement*. The *Angle of the Courtin*, or of the Flank, is that made by or contained between the *Courtin* and the Flank. The *Complement of the Courtin*, is that Part of the interior Side thereof which makes the Demi-Gorge.

From this we'll pass to the CAVALIER, which is a Mount, or Elevation of Earth, either round or oblong, having a Platform on the Top, bordered with a Parapet, to cover the Cannon placed on it, and cut with Embrazures to fire through; serving to overlook and command all around the Place. *Cavaliers* are raised in Sieges on the Bastions and Courtins of Ramparts, in order to fire on the Eminences around, and oblige the Enemy to get farther off, as well as to scour the Trenches. But the Gorge of the Bastion, is the Place where *Cavaliers* are most properly erected; those raised on the *Courtin*, being rather called *Platforms*.

A PLATFORM, is an Elevation of Earth, on which Cannon is placed to fire on the Enemy. Such are the Mounts on the Middle of the *Courtin*; and there is always one on the Ramparts where the Cannon are mounted. The *Platform* is made by heaping up of Earth on the Rampart; or by an Arrangement of Madriers, rising insensibly for the Cannon to roll on; either in a Casemate, or on an Attack in the Out-Works.

Note, That a *Madrier*, in this Place, denotes a long and broad Plank, used for supporting Earth.

Next follows the RAMPART, which is a massy Bank, or Elevation of Earth, raised about the Body of a Place, to cover it from the great Shot. Upon the Rampart the Soldiers continually keep Guard, and Pieces of Artillery are planted for the Defence of the Place. Hence, to shelter the Guard from the Enemies Shot, the Outside of the *Rampart* is built higher than the Inside, *i. e.* a Parapet is raised upon it with a Platform. Hence, also, Earth not being capable to be raised perpendicularly, like Stone; the *Rampart*

part is built with a *Talus*, or Slope, both on the inner and outer Side.. The *Rampart* is sometimes lined; *i. e. fortify'd* with a Stone Wall within Side; otherwise it has a *Berme*. It is encompassed with a Moat or Ditch, out of which the Earth that forms the *Rampart* is dug. The Height of the *Rampart* should not exceed three Fathom, this being sufficient to cover the Houses from the Battery of the Cannon; neither ought its Thickness to be above ten or twelve, unless more Earth be taken out of the Ditch, than can be otherwise bestow'd. The *Ramparts* of Half-Moons are the better for being low, that the small Fire of the Defendants, may the better reach the Bottom of the Ditch: But yet they must be so high, as not to be commanded by the *Covert-way*.

Note, That *Talus* of a Bastion, or Rampart, is the Slope, or Diminution allow'd to such a Work; whether it be of Earth or Stone, the better to support its Weight. There is an exterior *Talus*, and an interior one. The exterior *Talus* for Work, is its Slope on the Side towards the Country; which is always made as little as possible, to prevent the Enemies Scalado; unless the Earth be bad, and then it is absolutely necessary to allow a considerable *Talus* for its Parapet. The interior *Talus* of a Work, is its Slope on the Inside towards the Place.

Note, Also, that *Berme*, is a small Space of Ground, four or five Foot wide, left without the Rampart, between its Foot and the Side of the Moat, to receive the Earth that rolls down from the Rampart, and prevent its falling into, and filling up the Moat. This is also called *Leziere*, *Relais*, *Retraite*, *Pas de Souris*, *Foreland*, &c. Sometimes for more Security, the *Berme* is pallisaded.

Next comes the FAUSSE-BRAYE, which is an Elevation of Earth, two or three Fathom broad, round the Foot of the Rampart on the Outside, defended by a Parapet, which parts it from the *Berme*, and the Edge of the Ditch: Its Use is for the Defence of the Ditch. The *Fausse-braye*, is the same with what is otherwise called *Chemin des Rondes & basse enceinte*, it is of little Use where Ramparts are faced with Wall, because of the Rubbish which the Cannon beats down into it. For this Reason, Engineers will have none before the Faces of the Bastion, where the Breach is commonly made; because the Ruins falling, the *Fausse-braye* makes the Ascent to the Breach the easier: Besides, that what flies from the Faces kills the Soldiers placed to defend it.

From the *Fausse-braye* we'll descend into the DITCH, also called *Fosse* and *Moat*, and is a Trench dug round the Rampart, or Wall of a *fortify'd* Place, between the Scarp and Counterscarp, *h h h*, Fig. 8. Some Ditches are dry, others full of Water; each whereof have their Advantages. The *Ditch* should be of such a Breadth, as that the tallest Tree may not reach over it, *i. e.* from 15 to 20 Fathoms; though the Rule others give for the Dimensions of the Ditch, is, that it affords Earth enough to build the Rampart of due Magnitude.

From the *Ditch* we'll ascend on the COUNTERSCARP, which is properly the outward, or exterior *Talus* of the *Ditch*; though at present is understood under that Name, the Covert-way, with its Parapet.

But they are mistaken, for the COVERT-WAY is a Space of Ground, level with the adjoining Country, on the Edge of the Ditch, ranging quite round the Half-Moons, and other Works without-side the Ditch, *b b*, Fig. 8. It is otherwise called *Corridor*, and has a Parapet together with its *Banquette* and *Glacis*, which form the Height of the Parapet. One of the greatest Difficulties in a Siege, is to make a Lodgment on the *Covert-way*; because, usually, the Besieged pallisade it along the Middle, and undermine it on all Sides. This is also, sometimes, called the *Counterscarp*, because it is on the Edge of the *Scarp*.

Note, That a *Banquette*, is a little Foot-Bank, or Elevation of Earth, forming a Path which runs along the Inside of a Parapet; by which the Musqueteers get up, to discover the Counterscarp, or to fire on the Enemies in the Moat, or in the Covert-way. The *Banquette* is generally a Foot and a half high, and almost three Foot broad; having two or three Steps to mount it by. Where the Parapet is very high, they make a double *Banquette*, one over another.

A *Parapet* or *Breast-work*, is a Defence or Skreen, on the Extream of a Rampart, or other Work, serving to cover the Soldiers, and the Cannon from the Enemies Fire. *Parapets* are raised on all Works, where it is necessary to cover the Men from the Enemies Fire, both within and without the Place, and even the Approaches. The *Parapet* Royal, or that of the Rampart, is to be of Earth, Cannon-Proof, from eighteen to twenty Foot thick, six Foot high towards the Place, and four or five towards the Rampart. This Difference of Height, makes a *Glacis*, or Slope, for the Musqueteers to fire down into the Ditch, or at least the Counterscarp. The Parapet of the Wall is sometimes of Stone. The Parapet of the Trenches, is either made of the Earth dug up, or of Gabions, Fascines, Sacks of Earth, or the like.

Glacis is a sloping Bank, which reaches from the Parapet of the Counterscarp, or Covert-way, to the level Side of the Field, *a a a*, *c*, Fig. 8. The *Glacis*, otherwise *Esplanade*, is about six Foot high, and loses itself by an insensible Diminution in the Space of ten Fathoms.

From the *Covert-way*, we'll pass to the HALF-MOON, *Demi-Lune*, which is an Out-work consisting of two Faces, forming together a saliant Angle, whose Gorge is turn'd like an Half-Moon. Half-Moons are sometimes raised before the Courtin, when the Ditch is wider than it ought to be; in which Case it is much the same with the *Ravelin*, only that the *Gorge* of an Half-Moon, is made bending in like a Bow, or Crescent, and is chiefly used to cover the Point of the Bastion; whereas *Ravelins* are always placed before the Courtin. But they are both defective as being ill flanked.

Since we have mentioned RAVELIN, we'll say, that it is now a detached Work, composed only of two Faces, which make a saliant Angle, without any Flanks; and raised before the Courtin on the Counterscarp of the Place. A *Ravelin* is a triangular Work, resembling the Point of a Bastion, with the Flanks cut off, *i i i*, Fig. 8. Its Use before a Courtin, is, to cover the opposite Flanks of the two next Bastions. It is used also to cover a Bridge or a Gate, and is always placed without the Moat. What the Engineers calls a *Ravelin*, the Soldiers generally call a *Demi-Lune*, or Half-Moon. There are also double *Ravelins*, which serve to defend each other. They are said to be double when they are joined by a Courtin.

To cover and defend a Courtin, Bastion, or other Places suspected to be weaker than the rest; as also to possess a Height, there is a Sort of Out-work erected, and advancing towards the Field called *Horn-work*, which consists of two Demi-Bastions, as L M N and O P Q, fig. 9. joined by a Courtin N O. Its Sides or Flanks are usually parallel, tho' sometimes they approach or contract towards the Place, forming what they call a *Queue d'yrondel*, or *Swallow's Tail*; when the Flanks are too long, they sometimes make Epaulments to flank them. The Parts of the Horn-work, next the Country, is to be defended by a Parapet.

Two *Horn-works* joined together, make a *Crown-work*, which is an Out-work running into the Field; designed to keep off the Enemy, gain some Hill, or advantageous Post, and cover the Out-works of the Place, *l l*, Fig. 8. The Crown-work consists of two Demi-Bastions at the Extremes, and an entire Bastion in the Middle with Courtins.

Note,

Note, That all those Works made without-side the Ditch, or *Fossé*, to cover and defend it, are called *Out-works*. *Out-works* called also *advanced*, and *detached Works*, are those which not only serve to cover the Body of the Place, but also to keep the Enemy at a Distance, and prevent their taking Advantage of the Cavities and Elevations, usually found in the Places about the Counterscarp; which may serve them either as Lodgments, or a *Rideaux*, to facilitate the carrying on their Trenches, and planting their Batteries against the Place.

There is a Kind of Work indented in form of the Teeth of a Saw, with Saliant, and re-entring Angles, to the End that one Part may flank or defend another, called REDENS, *Redans*, or *Redant*. It is also called *Saw-work*, and *indented Work*, and is frequently us'd in the *fortifying* of Walls, where it is not necessary to be at the Expence of building Bastions; as when they stand on the Side of a River, a Marsh, the Sea, *&c.* The Parapet of the Corridor is frequently redented, or carried on in the Way of *Redens*.

There is also a Kind of Out-work, consisting of two parallel Sides, with a Front wherein is a re-entring Angle, called TENAILLE, which is of two Kinds, *viz. simple* and *double*. The *simple*, or *single Tenaille*, is a large Out-work, as D A B C E, consisting of two Faces or Sides, A B, and C B, including a re-entring Angle B, fig. 9, and fig. 8, *d*. *Double*, or *flanked Tenaille*, is a large Out-work, consisting of two *simple Tenailles*, or three Saliants, and two re-entring Angles, F G H, and H I K, fig. 8. *e*. The great Defects of *Tenailles* are, that they take up too much Room, and on that Account are advantageous to the Enemy; that the Angle B, is undefended; the Height of the Parapet hindering the seeing down into it, so that the Enemy can lodge there under Covert: And that the Sides A D and C E, are not sufficiently flanked. For these Reasons, *Tenailles* are now excluded out of *Fortifications* by the best Engineers, and never made, but where there wants Time to form a Horn-work. The *Tenaille* of the Place, is the Front of the Place, comprehended between the Points of two neighbouring Bastions; including the Courtin, the two Flanks raised on the Courtin, and the two Sides of the Bastions which face one another; so that the *Tenaille* is the same with what is otherwise called the Face of the Fortress. The *Tenaille* of the Ditch, is a low Work raised before the Courtin in the Middle of the *Fossé*, or Ditch. It is of three Sorts, the first is composed of a Courtin, two Flanks, and two Faces: The Rampart of the Courtin, including the Parapet and Talus, is but five Fathoms thick; but the Rampart of the Flanks and Faces, seven, *e* fig. 8. The second, which M. *Vauban* says he found to be of very good Defence, is composed only of two Faces, made on the Lines of Defence, whose Ramparts and Faces are parallel. The third Sort only differs from the second in this, that its Rampart is parallel to the Courtin of the Place. All three Sorts are good Defences for the Ditch, and lie so low, that they cannot be hurt by the Besiegers Cannon, till they are Masters of the Covert-way, and have planted their Artillery there.

Note, That there is an Inclosure of Stakes, or Piles, drove into the Ground, six or seven Inches square, and eight Foot long; three whereof are hid under Ground, called *Palisade*, or *Palisado*; and are used to fortify the Avenues of open Forts, Gorges, Half-Moons, the Bottom of Ditches, the Parapets of Covert-ways; and in general, all Posts liable to Surprise, and to which the Access is easy, *&c.* *Palisades* are usually pointed perpendicularly; though some make an Angle inclining towards the Ground next the Enemy, that the Ropes cast over them to tear them up, may slip.

After this theorical Account of all the different Pieces of Work which compose the *Fortification* of a Place, we must apply ourselves to the Practice; and endeavour to *fortify* a Place (if possible) with all the different Works heretofore mention'd. But previously to it, we must know that there have been invented various Methods of *fortifying*; the principal, and those which chiefly obtain through *Europe*, are those of *Vauban*, *Blondel*, *Pagan*, *Coehorn*, and *Sheiter*, from which all the rest are easily conceived.

Note, That the Figure, or Perimeter (*i. e.* the *Ambit*, or Extent that binds a Figure, or Body) of a *Fortress*, or *fortify'd* Place, is called POLYGON, which is a Figure whose Perimeter consists of more than four Sides, and Angles. If the Sides and Angles be equal, the Figure is called a *regular Polygon*. *Polygons* are distinguished according to the Number of their Sides. Those of five Sides, are called *Pentagons*; those of six, *Hexagons*; those of seven, *Heptagons*; those of eight, *Octagons*, &c. The *Polygon* of a Place, is distinguished into exterior, and interior *Polygon*. The exterior *Polygon*, is a right Line drawn from the *Vertex*, or Point of a Bastion, to the *Vertex*, or Point of the next adjacent Bastion. The interior *Polygon*, is a right Line drawn from the Centre of one Bastion, to the Centre of another.

We'll begin by making a Draught of a regular *Pentagon*, according to M. *Vauban*'s Method, of his middle *Fortification*, which has always 180 Fathoms. Therefore, to divide the Circumference, we'll take 76 (*o b* (1. and make a Circle of it, which we'll divide into five equal Parts, each whereof will have 90, (*o*, we'll divide the Sides into two Parts, and draw from the Centre, as well through the Angles of the Figure, as thro' the Points found in the Middle of the Sides, right Lines. We'll give from the same Middle, on the Lines drawn towards the Centre, to the Square the eighth Part, to the Pentagon the seventh, and to all the others, the sixth Part of the exterior Side; which makes the Perpendicular A I, fig. 2. afterwards we'll draw through that Point of the two Angles of the neighbouring Gorges, the Lines of Defence A P, O B.

To form the Flank, the Faces, and the Courtin, we'll put on the Lines of Defence, the Faces of the Angles A B, *&c.* which are at all the Polygons; at the first Rank, 27 (*o*, at the second 25; and at the third, 23, (as A *a* B *b*) we'll take, besides, the Distance between the two Extremes of the Faces, as *a b*, placing first one Leg of the Compass in *a*, and directing the other towards the Line of Defence, where we'll make the Point P, and afterwards rest the Compass in *b*; and directing it, likewise, from the Point *a* towards *o*, we draw *a o b* and P together, to make up the Flanks, and *o* P to make up the Courtin.

To form the *Orillon*, as well as the *Brisures*, and the hollow Tower, we divide the Flanks found, into three equal Parts, and put on the superior Parts, Semi-Circles, which touch the Lines of Defence, and that's what makes the *Orillon*. Besides which, we draw Lines from the Points A, B, for Example, from the Points *u*, *o*, *r*, P, &c. towards the Capital, as *r*, *s*, *w*, *t*, &c. O *o*, P *p*, &c. of three Verge in Length. We afterwards take the Distance, *u o*, or *r* P, and make of *u* and of *o*, as well as of P and *r*, outward Intersections, which will give the Centre for the Arch *t o s p*, which is called the hollow Tower.

To make the *Tenaille of the Fausse-braye*, we put the Angles of the Shoulder, or *Epaule*, three Verge, from *a* and *b*, on the Lines of Defence, in *c* and *e*, dividing what remains, by the Intersection of the Lines of Defence, as C *c*, and *e i*, into two Parts in *d* and *f*, thus *c d* and *e f*, make the Faces of the *Tenaille* in the Ditch or *Fosse*. We draw from *d*, the Line *d g*, so that it be perpendicular, or make a right Angle, with the Line of Defence *g f*. Likewise, we draw *f h*, to be perpendicular on the Line *d h*, thus those Lines will be the Flanks, and *g h* will give the Courtin.

Note,

Note, That in the other Figures we'll content ourselves in making Pieces of the Pentagon, according to a larger Scale.

The *Ichnography* of the *Pentagon*, on the Draught, is made by Means of this Table, which may be used in all Works, either regular, or irrregular.

	Feet.
The Base of the Rampart,	66
The Base of the Parapet,	21
The Banquette of the Parapet,	03
The other Banquette,	01½
The Ditch, ———	120
The Covert-way, ——	36
The Gorge of the Place of Arms,	60

Its Face six Verges, six Verges and a half, to seven.

The Glacis ten, to twelve Verges.

The Use of this Table is as follows:

We take 66 Feet for *the Base of the Rampart*, and draw them parallel, inwards, with the Faces, hollow Towers, inferior Brisures, and the Courtins. But if we'll have solid Bastions, we make no Lines to the hollow Towers, nor to the Faces, but join the lower ones with the Brisures, by a right Line, or by Demi-Circles. To make the Line, round the hollow Tower, parallel, we must put the 66 Feet of the Brisure, still more inwards, and take the Distance of the hollow Tower to that Place, with which the Parallel is drawn from the same Centre.

We take, besides, for the Parapet, 21 Feet, and draw, likewise, with the Line of the Draught, Parallels inwards, to the Faces, Orillons, hollow Towers, inferior Brisures, and to the Courtins, before the Ichnography of the Parapet. To that Line we draw another Parallel 3 Feet more inwards, and still more inwards, another of a Foot and a half broad.

The *Ditch* is drawn parallel to the Faces, 120 Feet broad, its Lines cutting one another before the Courtin, and it is made round at the Point of the Bastion, that it may be of an equal Breadth every where. If the Ditch is marshy, it must be full of small Herbs, if dry, of small Points; and if to be filled with Water, of something which can represent Water.

For the *Covert-way*, we trace round the Ditch, outwards, a Parallel, 36 Feet long. Of the re-entring Angles of those Lines, *a b* and *c*, we put on each Side (in *b c*, and *d e*) five Verges outwards, for the Gorges of the Places of Arms; we make of those Points, with the Breadth of six Verges, Intersections, in *f* and *g*; and join the Lines *b f*, and *e f d g*, and *e g*, together; closing, lastly, on both Sides, the Angles *h i k*, and *m n o*, and drawing afterwards the Line *p h i k f m n o q*, as the interior Line of the Glacis.

For the *Traverses*, we continue the Faces of the Places of Arms, *viz.* of *c d e f*, downwards as far as the Ditch; and afterwards make Parallels outwards of the Places of Arms, eighteen Feet broad. Lastly we draw on both Sides, inwards, Banquettes of two Feet broad, so that the Space in the Middle be 14 Feet broad; and that's what is called *Traverses*. Further, we draw Parallels with the interior Line of the Glacis, inside, towards the Covert-way, with the Breadth of 8 Feet for a large Banquette, in the Middle thereof we place Palisadoes; we afterwards draw, besides, still more inwards, an ordinary Banquette of a Foot and a half. Lastly, we draw an exterior Line, of the Breadth of 10 to 12 Verges, and join them together with transversing Lines.

We draw Parallels to the Faces and Flanks of the Tenaille of the Fausse-braye, inwards, five Verges broad, and join them together before the Courtin, by a Parallel from two and a half to three Verges in Breadth, which makes the Base of the Rampart. The Parapet to the Faces, is equal to that of the great Rampart, or thereabouts; but that of the Courtin is but eight Feet broad.

To put a *Half-Moon*, or *Ravelin* before the Courtin, we take the Distance of the Angle of the Flank, and of the Courtin, as far as the Angle of the *Epaule*, or Shoulder, over-against it, and draw from thence an Arch which intersects the Line drawn through the Middle of the Polygon; there is found the Point of the Half-Moon; then draw from thence the Faces, on each Side towards the Angles of the *Epaule*, as far as the Ditch. If we want to make Flanks, we put a Rule to the interior Line of the Glacis, and mark the Points where it intersects the Faces of the Half-Moon, or Ravelin: From hence we make Lines fall perpendicularly on those of the Ditch; these are the Flanks of the Ravelin.

For the Base of the Rampart, it is made parallel to the Flank and Faces, five Verges in breadth; the Parapet is every where equal to that of the great Rampart; the Ditch is parallel to the Faces, and six Yards broad.

Note, That the Covert-way, as heretofore described, environs all the Out-works.

To make a *Horn-work before the Courtin*, we put the Point of the Capital of the Ravelin, on the Line which comes out through the Middle of the Polygon, 44 Verges outwards, (as Q G, fig. 5.) we make of the Point G, on each Side, an Arch of 30 Yards, and intersect those two Arches of the *Epaule*, with 70 Yards in H and *f*, and draw H *f*. Afterwards we'll put, from the Middle of that Line in G, 10 Yards inside towards H, and draw from E and *f* Lines of Defence cross-wise, on which we'll put the Faces 18 Yards long; forming the Flanks with their Orillons and hollow Towers, in the same Manner we have done it to the Body of the Place, except that 4 Yards must always be taken from the Flank for the Orillon, and the rest remains for the Covert-flank, with the hollow Tower.

Note, That *Orillon* is a small rounding of Earth, lined with a Wall, raised on the Shoulders of those Bastions which have Casemates; to cover the Cannon in the retired Flank, and prevent their being dismounted by the Enemy. There are other Sorts of Orillons properly call'd *Epaulements*.

From E *f* we draw the Wings towards the Angles of the Shoulder, as far as the Ditch; and thus the Design of the *Horn-work* is made in the same Manner as that of the Body of the Place, except that the Measures are different; *viz.* the Base of the Rampart has 4 Yards, that of the Parapet 18 Feet, and the Breadth of the Ditch five Yards.

To make a *Horn-work*, before the Bastion, we put the Point of the Bastion lengthened 44 Yards, outwards, as far as B, Fig. 6; draw through B, the Line C D, which intersects the lengthened Diameter into right Angles. We make B C, B D 30 Yards each, and form on that the Horn-work, with its Faces, Flanks and Courtins. We place the Angle of the Shoulder of the Body of the Place on the Faces, 6 Yards and a half in *o* and *p*, and draw towards those Points the Wings of our *Horn-work*, which compleats the Design. But these Sorts of Works are seldom used.

We make a *Crown-work* fig. 7. before the Courtin, by placing the Point of the Ravelin (or in case there was none in the Place where that Point should be) 50 Yards outwards towards B. Making of that Point on each Side, an Angle of the Line A, fig. 7. each whereof is to have from 64 to 70 Degrees, as C B A, and D B A; we put on those Lines B C and B D twice 25 Yards in E C, and *f* D. From E and *f*, we draw Perpendiculars of 9 Yards each, as E G, *f* H; and draw thereby, from E and *f*, the Lines of Defence cross-ways; on which we place the Faces, of 15 Yards in length, and form the Flanks, as in the Horn-work; and thus the Courtins form themselves. We put the Angle of the Shoulder of the Body of the Place five Yards on the Faces, and draw towards those Points the Wings of the Crown-work as far as the

the Ditch. If we ſhould want to place a Ravelin before the Courtin of the Horn-work, or Crown-work, the Proceſs is the ſame as demonſtrated in the Body of the Place; the Baſe of the Rampart has three Yards, that of the Parapet 15 Feet; and the Ditch three Yards and a half.

When we deſign to make the great Lunettes of M. *Vauban*, having made the Draught of the Ravelin, which ought to be done, previouſly to any thing elſe, we continue its Faces on both Sides, from A (fig. 9. A) into B and C, placing afterwards the Lines B D, and E C, of the Ditch of the Ravelin outwards, which muſt be from 22 to 25 Yards long. On the Lines B D, and C E, we make the Angles D B *f*, and E C G, of 60 Degrees; and thus the Lunettes will be made. The Profile of the Rampart, and of the Ditch, is the ſame as to the Horn-work.

Note, That *Lunette* is an envelop'd Counter-guard, or Elevation of Earth, made in the Middle of the *Foſſe*, before the Courtin, about five Fathoms in Breadth. *Lunettes* are uſually made in Ditches full of Water, and ſerve to the ſame Purpoſe as Fauſſe-brayes, to diſpute the Paſſage of the Ditch. The *Lunette* conſiſts of two Faces, which form a re-entring Angle; and its *Terreplain* being only twelve Feet wide, is a little rais'd above the Level of the Water, having a Parapet three Fathoms thick.

If we will make ſmall *Lunettes*, as well as *Counter-guards*, of the re-entring Angles A B, fig. 9. B, which the *Foſſe* of the Ravelin, and the great Ditch make; we muſt put on each Side, outwards, in C D, and E F, 10 Yards for the Demi-Gorges of the Lunettes, and make the Interſections in G and H, 12 or 13 Yards broad, placing the Compaſs on the Points found of the Demi-Gorges; and thus C G, D G, E H, F H, will give the Faces of the Lunettes.

For the Deſign of the *Counter-Guards*, we put of the Ditch, five Yards outwards, and draw from the Ditch to the lengthened Diameters, thro' thoſe Points, Lines parallel to the Ditch; as I K, and L M. For the Ichnography thereof, we give to the Rampart the Thickneſs of three and a half or four Yards; to the Parapet, without the Banquettes, eighteen Feet; for the Breadth of the Ditch, from four to four Yards and a half.

From the *Draught* and *Ichnography*, we'll paſs to the *Profile*, which muſt be drawn in this Manner. After we have made a long right Line, as A R, fig. 3. and A B, which repreſents the Ground or the Horizon; we put firſt upon it, according to fig. 10. the *Profile* of the Rampart of the Body of the Place. *a*, is the firſt Point of the Baſe, behind which we put immediately on the ſame Line, for,

	Feet.
The *Talus* of the interior Wall,	01
The *Cordon* which is on the Wall,	01
The *Talus* of the Terreplain,	03
The Breadth of the *Terreplain* of the Rampart,	30
The Breadth of the firſt Banquette,	01½
The Breadth of the ſecond Banquette,	03
The interior *Talus* of the Parapet,	01
Its ſuperior Breadth, — —	18
The exterior *Talus* of the Parapet,	02
The *Cordon* above, at the exterior Lining,	02½
The *Talus* of the exterior Lining,	03
Baſe of the Rampart, or Sum, —	66

We afterwards erect Perpendiculars on the firſt and laſt Point, and place upon them the following Meaſures, one after another; for,

	Feet.
The Height of the interior Lining,	12
That of the Terreplain, ———	06
That of the firſt Banquette, ——	01½
That of the ſecond Banquette,	01½
The exterior Height of the Parapet,	00½
The interior Height, ———	04½
Sum, ——— ———	26

From the Points which are on the horizontal Line, we draw Lines upwards to be Parallel to the Perpendiculars already drawn, and from the Points of the Perpendiculars, we draw other Lines, to be Parallels to the Horizontal. In that Manner the Interſections give us a Retz, in which we can eaſily trace the Lines of the *Profile*, *a b c d e f g h i k l m n o p*, in drawing only, according to the Figure, from one Point of Interſection to the other. The horizontal Line is marked with ſmall Points; but for thoſe of the Retz, or Net, they are eaſily blotted out afterwards.

The *Profile* of the Ravelin, is made in the ſame Manner; it is but of Earth, except the Ditch, which muſt be lined.

The Meaſures of the Rampart, are the following ones, marked on the horizontal Line, fig. 3. For,

	Feet.
The interior *Talus*, ———	06
The *Terreplain*, ———	25½
The Breadth of the firſt Banquette,	01½
The Breadth of the ſecond Banquette,	03
The interior *Talus* of the Parapet,	01
The ſuperior Breadth of the Parapet,	15
The exterior *Talus* of the Parapet and Rampart together, —— —	08
The Baſe of the Rampart, *a o*, Sum,	60

On the *Perpendiculars*, for

The Height of the Rampart,	13
That of the firſt Banquette,	01½
That of the ſecond Banquette,	01½
The exterior Height of the Parapet,	01
Its interior Height, — — —	04½
Sum, —— ——	21½

In the ſame Manner is made the Deſign of the Ramparts of the Outworks, the Meaſure thereof can be ordinarily this, fig. 3.

On the *horizontal Line*, for

The exterior *Talus*, ———	06
The *Terreplain*, ——— ———	15½
The firſt *Banquette*, ———	01½
The ſecond *Banquette*, ———	03
The interior *Talus* of the Parapet,	01
The ſuperior Height, ———	15
The exterior *Talus* of the Rampart with the Parapet, ——— ———	06
Baſe of the Rampart, Sum, ——	48

On the *Perpendiculars*, for

The Height of the Rampart,	08
That of the firſt *Banquette*,	01½
Of the ſecond, ——— ———	01½
The exterior Height of the Parapet,	01
Its interior Height, ———	04½
Sum, ——— ———	16½

As for the Profile of the Ditches, it is made in this Manner; where the Ramparts are only made of Earth, without being lin'd, a Berme is left at the Bottom, 6 Feet broad, as *o q*, fig. 3. But when the Rampart is lin'd, the Ditch is joined immediately to the Rampart; the ſuperior Breadth of the Ditch having been mark'd on the horizontal Line, we place likewiſe on both Sides of the Ditch inwards, the Breadth for the *Talus*; and lower from thence, Perpendiculars, on which we put the Depth of the Ditch. Afterwards we make the Ditch with its two *Talus*'s, and inferior Breadth. The Meaſures of the Ditch are the following ones.

	Feet
To the *Ditch* of the Body of the Place,	
The ſuperior Height, —— ——	114
The Baſe of the interior and exterior *Talus*,	03
The inferior Breadth, ———	108
The Depth, ——— ———	18

To

To the *Ditch* of the Ravelin.	Feet.
The ſuperior Breadth, —— ——	72
The Baſe of the interior and exterior Talus,	2
The Depth, —— —— ——	12
The inferior Breadth, —— ——	68

To the *Ditches* of the other Out-works.	
The ſuperior Breadth, —— ——	54
The Baſe of the interior and exterior Talus,	$1\frac{1}{2}$
The Depth, —— ——	8
The inferior Breadth, —— ——	51

Laſtly, the *Covert-way* with its Parapet, is made thus: We put on the horizontal Line 27 Feet for the *Covert-way*, and one Foot and a half for the firſt Banquette as uſual; for the ſecond 8 Feet, on which are placed Palliſadoes, almoſt in the middle. All the reſt is made in the Manner of the other Parapets; putting at the End 144 Feet, on the horizontal Line, for the Breadth of the Parapet, and drawing a right Line from the inferior Height, as far as there.

The Pieces of the Profiles may be all joined one to another, as plainly ſeen in fig. 3.

At preſent we muſt inſtruct our Pupil how to trace a Fortreſs in the Campaign or Field. The beſt Inſtrument he can uſe for that Purpoſe is a Circle, or Demicircle, divided into 360 Degrees, each whereof alſo ſhould be ſubdivided into 4 or 6 Parts. Commonly this Deſign is made outwards to the Polygons; but is far better, if it be poſſible, to make it of the Centre. I'll ſhew both Methods in the regular Pentagon.

To deſign a Fortreſs of the Centre, we make 76 Yards quite ſtrait towards the Place where we want to make one Baſtion of the Fortreſs, which will be the Length of the great Demi-diameter of the Pentagon, at the End whereof we ſet up a Pike, or Picket. We adjuſt near that Picket the immobile Dioptres of the Inſtrument, and with the mobile ones ſearch the Angle of 70 Degrees, which is the Largeneſs of the Angle of the Centre. We draw thereby another Line, of the Length likewiſe of 76 Yards and a half, where we ſet up another Picket. We forward the mobile Dioptres on the 144 Degrees, and proceed as before, meaſuring 76 Yards and a half, and ſetting up another Picket, at the End thereof we proceed further on the 216 Degrees. Then on the 288, continuing the ſame Operation, till we have found the Points of the Baſtions. We ſearch beſides, the Middle between both, with 45 Yards, and thruſt into it ſmall Sticks. We meaſure, from each Middle directly towards the Centre, the Extent of the Perpendicular, and ſet up likewiſe ſmall Sticks on the Points found. Then meaſure, afterwards, from the Points of the Baſtions towards thoſe Sticks, perpendicular, 25 Yards on each Side, for ſetting up Pikes at the Points found, which mark the Angles of the Shoulders. Laſtly, we tye a Cord to one of thoſe Pikes, and walk with that Cord as far as the other Pike, and having thus taken the Diſtance between the two Pikes, of the Angles of the Shoulders, we hold it faſt, advancing always inwards, till we be quite behind the Stick of the Perpendicular, and the Pike of the Angle of the Shoulder, where the Cord is tied. There we ſet up another Pike, which marks the Angles of the Flank and of the Courtin; and thus the Faces, Flanks, and Courtins are traced. Afterwards we tie a long Cord to one of the Pikes of the Baſtion, and advance with it as far as the Picket neareſt the Angle of the Shoulder, round which we turn once the Cord; then walk farther to the Picket neareſt the Angle of the Flank and Courtin; then to the other Picket of the Flank and Courtin; afterwards to the other Picket of the Angle of the Shoulder; and laſtly to the other Picket of the Angle of the Baſtion, ſo that the Cord be always once turn'd round the Picket. In this Manner the Faces, Flanks, and Courtins will be drawn by a Line, as well as in Paper. At laſt we dig up, inſide of that Cord, a ſmall Ditch of the Breadth and Depth of half a Foot, the Pickets remain in their Place, but the ſmall Sticks are taken out with the Cord: The Proceſs is the ſame for all Polygons.

If we were to begin by the Polygon, the Operation would be done ſooner; but ſeldom the laſt Line cloſes the Figure as exactly as it ſhould, unleſs the Engineer works with much Art, and with a very good Inſtrument. Firſt the Polygon muſt be traced with two Pickets, on the Place choſen for that Purpoſe; then the immobile Dioptres of the Inſtrument are fixed on that Line, and with the mobile the Engineer ſearches 108 Degrees, as the Angle of the Gorge, or Polygon, or the regular Pentagon; and ordering a Man to walk, with a Picket in his Hand, directly to the ſame Point of Sight; then another is meaſured towards this, of the Station of the Inſtrument, of the length of the Polygon, as in the Pentagon, 90 Degrees, where a Picket is ſet up. Which done, the Inſtrument is carried to that Place, and the Engineer looks through the immobile Dioptres behind, over the Line he has traced laſt; then traces according to the Sight of the mobile Dioptres, the third Polygon, as before, and proceeds in the ſame Manner till the Figure be perfected; tracing the Faces, Flanks, and Courtins, as above directed.

But this firſt Manner of fortifying is but the old one of M. *Vauban*; his new Method is much more eſteemed, as anſwering better the End propoſed in the *Fortifications* of Places; and founded on the ſeven following excellent Maxims; *viz.* 1. The Defence of the Flank muſt be ſuch, that both the Cannon and Muſquetry may be uſed at one and the ſame Time. 2. The Flank ought to be ſo well cover'd, as to be not entirely ruined by the Enemy. 3. The Ditches, horizontally razed. 4. The Baſtions are to be ſo contrived, that thoſe who defend them may be ſhelter'd againſt the Bombs. 5. Some Places and Paſſages are to be contrived for the Sallies. 6. The greater is the Number of Ditches the better. 7. The Counterſcarp muſt be well covered.

To reduce the firſt of theſe Maxims into Practice, M. *Vauban* makes his Flanks in ſuch a Manner, that the Line of Defence may have 70 Yards; and becauſe ſuch a Thing is not practicable in the great Manner of fortifying, the interior Polygon having 100 Yards, M. *Vauban* never uſes it but in Caſes of Neceſſity.

To cover well the Flank, which is M. *Vauban*'s ſecond Maxim, he places a good Ravelin before the Courtin, and contrives the Flank ſo, that two Pieces of Cannon, at leaſt, may be hidden behind the Orillon, which cannot be ſeen by the Enemy, but when he attempts to make a Lodgment on the Breach.

To raze the Ditch, which is the third Maxim, M. *Vauban* will have made, under the Flank of the Tenaille of the Fauſſe-braye, Arches, under which Cannons may be planted on Carriages uſed for Ship's Cannons. The Embraſures are ſhut, and never opened, but when the Enemy wants to croſs the Ditch under the Face. There are alſo Arches made for three Pieces of Cannon, over-againſt the Ditch of the Ravelin.

M. *Vauban* has found three Means to ſhelter, as much as poſſible (according to his fourth Maxim) the Baſtions againſt the Bombs; of Traverſes, of the Separation of the Tenaille of the Fauſſe-braye, from the Body of the Place, by a Ditch, and of Vaults under the Ramparts.

To order ſecurely Places and Paſſages for the Sallies, which is M. *Vauban*'s fifth Maxim, he interſects in ſeveral Places the Glacis of the Counterſcarp with narrow Paſſages, garniſhed with three ſtrong Gates, *enfiled*, or enfiladed, with Works; as *n o*, fig. 9.

To oblige the Enemy to croſs ſeveral Ditches, M. *Vauban*, according to his ſixth Maxim, makes a great many Out-works; and even uſes dry Ditches round the Glacis of the Counterſcarp: As plainly ſeen in fig. 9.

To cover well the Counterſcarp, which is the ſeventh Maxim, the ſame excellent Engineer has found three Expedients: Firſt, he makes the Covert-way, of

so as to be always higher at the Points than at the re-entering Angles. Secondly, he makes the Parapet of the Counterscarp very high. Lastly, he uses Traverses near the Places of Arms. fig. 4.

As we have named at the Beginning of this Treatise the principal Angles of a Fortress, and given the Definition and Description of all the Parts there, we'll give the Method how to make every one of them, beginning by the Angle of the Bastion, or flanked Angle.

Several Engineers are of Opinion, that an obtuse Angle, in a Bastion, is preferable to an acute one; because the obtuse cannot be so soon defaced as the acute. Others say, on the contrary, that though it be very true, that 10 Yards are easier carried off from both Sides of an acute Angle, than of an obtuse, it does not follow hence, that the obtuse is preferable to the acute, and support their Sentiment by this Demonstration: Suppose, say they, we had before us two Angles, equally good and strong, both in Earth and Masonry, one of 60 Degrees, and the other of 120; the Question is, which of the two we could sooner destroy, so as to make a Breach of 18 Yards? We answer, that such a Thing can be done easier to that of 120 Degrees, than to the other which has but 60; since we are but to destroy to that of 120, a Line of 10 Yards on both Sides; and 168 cubick Yards of Stone and Earth, to make a Breach of that Breadth. Some say, that the obtuse Angle is preferable to the acute; because the one gives greater Flanks than the other. Others alledge, for reason of this Preference, that the obtuse Angle gives more room to the Bastion. Those who stand for the acute Angle, say, that the Enemy cannot so well extend his Batteries between two acute Bastions, as between two obtuse; and that therefore the acute Angle is preferable; provided, however, that there be Room enough on the Bastions and in the Fortress, that the Bastions be not too near one another, nor the Line of Defence too long. Therefore the best Manner is to make the perpendicular to the Polygon, from 15 to 20 Yards.

From this we'll pass to the *flanking Angle*, or of the Flank, and to the *Line of Defence*.

M. *Blondel* makes the *flanking Angle* obtuse; the Count *de Pagan*, and *Rusenstein* make it right; but most of the other Engineers make it more or less acute. M. *Vauban* causes his Orillon to make with the Line of Defence, an Angle somewhat acute; the re-entring Flank, an Angle a little obtuse; and that of the Tenaille of the Fausse-bray, a right Angle.

The *Line of Defence*, is that which represents the Course or Flight of the Bullet, of any Sort of Fire-Arms, more especially of a Musket-Ball, from the Place where the Musketeer must stand to scour, and defend the Face of the Bastion: There is a Line of Defence *sichant*, and a Line of Defence *razant*.

The Line of Defence *sichant*, is drawn from the Angle of the Courtin, to that of the opposite Bastion; without touching the Face of the Bastion: This must never exceed 800 Feet, which is reckon'd the Distance at which a Musket-Ball will do Execution.

The Line of Defence *razant*, is that drawn from the Point of the Bastion along the Face, till it comes to the Courtin; and shews how much of the Courtin will scour or clear the Face.

M. *Vauban* puts his first Flank on a Line of Defence of 70 Yards, and that of the Fausse-braye on a Line of Defence of 57 Yards.

As the FACE is always attacked, and it is a very great Advantage for the Enemy to attack a Line of a large Front, the Faces should always be small; tho' if we consider, on the other Side, that the Faces of a *Fortification* are always the best Counter-Batteries, the large Faces should be the best, because they give more room to the Bastion: But however the Faces of 25 or 27 Yards, as those of M. *Vauban*, are always in a Condition to make a tolerable good Counter-battery; especially when provided with a risen Fausse-braye.

The FLANKS must be made large enough, and strong enough. A simple *Flank* can never be large enough, therefore a low one must be made near it: But that this may not be filled with the Earth, which falls from above, by the Violence of the Cannon of the Enemy, nor destroyed by the Bombs, it is absolutely necessary to make it at a reasonable Distance from the high Flank, and even to part it from it by a Ditch. Those two Flanks are large enough, provided both together be as large as the opposite Face.

A Flank can be made strong in several Manners. First, all Engineers agree, that it is apropos to re-inter one Part of the Flank towards the Bastion, and to cover it with the other Part, called the Orillon. Besides, it contributes much to the Strength of the Flank, that it should not be made in a right Line, but either angular or round, that the Battery of the Enemy being directed towards one of those Parts, should not touch the others, but in an oblique Manner.

It is also very proper, that the Flank should not be every where of the same Height; but it must be higher at the Angles of the Shoulder, always going in diminishing towards the Courtin.

From these we'll pass to the Out-works; beginning by the Ravelins, which must be made so strong that the Cannon may be play'd upon it boldly; therefore Care must be taken to make commodious *Departs* in the Ditch, that they may be easily and speedily carried away, in case the Work could be defended no longer. In Ditches full of Water, Boats must be kept ready for that Purpose, that in case the Enemy should force the Ravelin on both Sides, the Cannon may be saved. In dry Ditches Coffers are very good for that. The Ramparts of the Ravelins should be Roofed as much as possible. When the Ravelin is attacked, a Retrenchment ought to be made early with Pallisadoes, at least to facilitate the Retreat. The best Means is to build at first, Redoubts of Stone, and open on the Side of the Fortress, at the re-entring Angles of the Ditch of the Body of the Place.

Note, That *Coffer* denotes a hollow Lodgment athwart a dry Moat, from six to seven Feet deep, and from sixteen to eighteen Foot broad; the upper Part made of Pieces of Timber raised two Feet above the level of the Moat; which little Elevation has Hurdles laden with Earth for its Covering, and serves as a Parapet Embrasures. The Coffer is nearly the same with the Caponiere, abating that this last is sometimes made beyond the Counterscarp on the Glacis, and the *Coffer* always in the Moat, taking its whole Breadth, which the Caponiere does not. It differs from the Traverse and Gallery, in that these latter are made by the Besiegers, and the *Coffers* by the Besieged, who generally make use of *Coffers* to repulse the Besiegers, when they endeavour to pass the Ditch. To save themselves from the Fire of the *Coffers*, the Besiegers throw up the Earth on that Side towards the Coffers.

The COUNTER-GUARDS, are very useful Works, if it be possible to make them with small Ramparts, all of Stone, according to the Method of M. *Blondel*; because they embarrass more the Enemy, after he has render'd himself Master of them, than they are useful to him; but if such a Thing is not practicable, the Engineer must take Care, at least, to make them so, that the Enemy may not find Room enough upon them to raise a Battery. He ought also to mind, that they may be parted, without Trouble, into several Pieces, at least above at the Point, where they are always to be higher, and lower on the Side of the Ravelin, which should receive some Defence from them, as they are defended from it; therefore it is proper to retire, according to M. *Blondel*'s Method, to the inferior Face of the Ravelin, and to put a Parapet in the empty Place.

To render the Polygons equal in Strength, nothing is more proper than the great and small LUNETTES, which can be added to those which are weaker. Besides,

ſides there is no other Rule to be obſerved than that which relates to the Counter-guard. The *Lunettes* can either be made to defend the Counter-guard, or to be defended by it; though this laſt Manner is certainly the beſt. The ſmall *Lunettes* are defended by the Ravelin; and the great *Lunettes*, like the Ravelin, are defended by the Face of the Body of the Place. But as it is an indiſputable Maxim, that each Like muſt have its ſecond Particular, it is better, according to the Method of M. *Coehorn*, to cloſe them on one Side, by Flanks, that they may defend themſelves.

The HORN-WORKS, or CROWN-WORKS, are very proper to fortify a Suburb; which, otherwiſe, the Beſieged are forced to abandon, and deſtroy, when the Place is attacked; for thoſe Works are not ſo good as Redoubts of Stone, to occupy and incloſe a Height; for they require a vaſt Number of Men to be well defended.

Before an Engineer has entirely finiſhed the Body of the Place, he muſt take a particular Care to make a very good COUNTERSCARP, ſince it is of a very great Uſe for the Defence of a Fortreſs. To make a very good *Counterſcarp*, the *Covert-way* muſt be very large; Room muſt be left to put Palliſadoes, at the Places which are attacked; the Points of the *Counterſcarp* ought to be cover'd with Bonnets; they muſt be mined; there muſt be Caponieres at the Angles, to ſhelter the Soldiers; Places of Arms well covered; a good Conveniency to make Sallies; it ſhould be eaſily ſeparated into ſeveral Parts; and it would be very proper to make it in ſuch a Manner, that ſome Pieces of Cannon may be eaſily planted upon it. A Counterſcarp, with all theſe Advantages, would not coſt ſo much as a few Out-works; though it could be capable ſo to fatigue an Enemy, that but very little Strength would be left him for the Attack of the Body of the Place: Becauſe the *Counterſcarp* has this Advantage over all the other Works, that it cannot be ruinated by the Cannon of the Enemy. Whence the three beſt Engineers, *Vauban*, *Rimpler*, and *Coehorn*, have uſed all their beſt Endeavours to ſtrengthen this Part of the *Fortification*.

A RAMPART, all entirely of Earth, without Countermines, or Arches, is good for nothing.

A PARAPET muſt be of Earth, but very hard and tight, interwoven with Twigs; it ſhould have Embraſures, alſo interwoven with Twigs: But that Interwoving ought not to be all of a Piece, for Fear ſome Miſchance ſhould happen to the Parapet by Fire, or ſome Ebraulement. Beſides, thoſe Edges are very commodious to repair the Breaches of the Parapet with *Sacks a Terre*, or Faſcines. They are alſo very advantageous to the interior Talus of the Parapet, and much more than if it was lined with Stone. Small Traverſes ſhould be made to the *Merlons*, in M. *Rimpler*'s Manner, which form almoſt ſmall Embraſures for the Muſqueteers. It would be proper to have Beams ready in the Magazines, to join them immediately to the Parapet, and line them with green Turfs, the better to preſerve the Garriſon: And at the Ramparts lined with Stones, there ſhould be a Berm on the Outſide before the Parapet, to hinder the Earth beaten down by the Cannon, from falling into the Ditch. At the Flanks, if there be Room enough in the Baſtion, there ſhould be a double Parapet, leaving a Space between to place the Cannon, and making one a little lower than the other.

The Ditch ſhould be lined with Stones inward and outward. It is in vain to diſpute which is the beſt, a Ditch full of Water, or a dry one; ſince it is not in the Power of an Engineer to chuſe; otherwiſe it is without queſtion, that a dry Ditch, which can be filled with Water at Pleaſure, is the beſt. But as this Advantage is not found every where, and an Engineer being obliged to make uſe of a Ditch full of Water, as of a dry one, according to the Situation of the Place, he rather minds how to correct the Imperfections found in both; taking Care to facilitate the Sallies, in Ditches full of Water as well as in dry ones. Where the Water is from 7 to 8 Feet above the Horizon, there will be beautiful Ditches, if they be made 10 Yards broad, and 8 Yards only near the Body of the Place, but towards the Covert-way, they ſhould remain dry, at two Yards in Breadth: As it may be ſeen fig. 9.

There are beſides theſe great Works, ſome ſmall ones, auxiliary to the Conſtruction, as the *Caponieres*, *Bonnets*, *ſmall Ditches of Separation*, the *Blochus's*, and the *Traverſes*.

The CAPONIERES is a covered Lodgment, ſunk four or five Foot into the Ground, encompaſſed with a little Parapet about two Foot high, ſerving to ſupport ſeveral Planks covered with Earth. The *Caponiere* is large enough to contain fifteen or twenty Soldiers; and is uſually placed in the Glacis, on the Extremity of the Counterſcarp, and in dry Moats, having little Embraſures for the Soldiers to fire through.

Note, That *Embraſures* denote the Holes, or Apertures, through which the Cannons are pointed; whether in Caſemates, in Batteries, or in the Parapets of Walls. The Embraſures are generally about 12 Foot a-part, from 6 to 9 Foot wide about, and two or three within. Their Height from the Plat-form is uſually three Foot on the Inſide, and a Foot and a half on the Outſide; that ſo the Muzzle, on occaſion, may be ſunk, and the Piece brought to ſhoot low. They are ſometimes called *Cannonieres*, when big enough to paſs the Mouth of a Cannon through; and *Meutriers* when only big enough for Muſkets. When the Parapet is ſo low that the Cannon may ſhoot without *Embraſures*, it is ſaid to ſhoot *en barbe*.

The BONNET is a kind of little Ravelin, without a Ditch, having a Parapet three Foot high; antiently placed before the Point of the ſaliant Angles of the Glacis; being palliſado'd round: Of late alſo uſed before the Angles of Baſtions, and the Points of Ravelins, and Fauſſe-brays; in fig. 8. *m*. The *Bonnet* has two Faces, from ten to fifteen, or more Rods long: The Parapet is made of Earth, from thirty to thirty-ſix Foot thick, and from nine to twelve Foot high: It is environed with a double Row of Palliſadoes, ten or twelve Paces diſtant from each other; hath a Parapet three Foot high, and is like a little advanced Corps de Guard.

The Palliſadoes, ſmall Ditches of Separation, and the Caponieres, are good to ſtop the Enemy, that the Beſieged may not be forced to quit a Poſt all at once, but diſpute it by Inches with the Enemy. The Bonnets are very commodious to keep the Works from being enfiled, and to manage every where Places for ſecure Corps de Guard. The Traverſes and Caponieres, ſhelter the Garriſon from the Bombs and Grenades. The Blochus's are proper to carry ſmall Cannon to Places, where the Enemy ſuſpects it the leaſt; and thereby his Approaches can be enfiled, and his Works oppoſed vigorouſly. Laſtly, theſe ſmall Works, which can be made at a very little Expence, are capable to defend for a long Time, an ill fortified Place, and to annoy the Enemy in ſeveral different Manners.

Note, That for an Example of the fundamental Rules above-deſcribed, there will be found in the Plate, fig. 9. A. a Deſign to *fortify* in the Manner of M. *Vauban*; with a new Ordinance of a Fauſſe-bray before the Face, and a particular Manner of covering the Ravelin.

A CITADEL is alſo a Fortreſs, compoſed of all the Works above-mentioned; but as they are ordered in a particular Manner, we'll join here the general Rules, and particularly of that Ordinance, and reduce them into Practice.

Note, That a *Citadel*, fig. 8. is a Fort, or Place *fortified* with four, five, or ſix Baſtions, built ſometimes in the moſt eminent Part of a City, and ſometimes only

near the City. In the first Case the *Citadel* serves to defend the City against Enemies; in the latter it serves to command it, and to keep the Inhabitants in their Obedience: For which Purpose the City is left *unfortified* on the Part towards the *Citadel*; but the *Citadel* is *fortified* towards the City. The most usual Form of *Citadel* is that of a Pentagon, a Square being too weak, and a Hexagon too big.

The general Rules for *Citadels* are these: 1. The most exalted Place must be chosen for a *Citadel*: 2. If the City be provided with a navigable River, the *Citadel* must be situated at the Influxion: 3. The River disembouging into the Sea, it is best to place the *Citadel* at the Mouth of the River: 4. In case the *Citadel* could not be built on the most eminent Place of the City, the Eminence must be so near the *Citadel*, that it may be joined to it by a Line of Communication, and be separated from the City: 5. The *Citadel* ought to be so well fortified towards the Country, that the Enemy may find more Difficulty to attack it on the outside, than he would have to attack it on the inside after the taking of the City: 6. There must be a large Esplanade between the Citadel and the City: 7. It must have two Gates, one towards the City, and the other towards the Country.

To trace such a *Citadel*, there must be made first, an exact Ichnography of the City and of all its *Fortifications*; after which is drawn on a Paper one Part of the Design of the *Citadel*, whose interior Polygon must have no less than 80, nor more than 90 Yards. We take it afterwards, cut it all around, and put it on the Ichnography of the City, turning it from Side to Side till we find it well plac'd: Then we mark that Design with small Points, and make the whole Plan, but with Colours different from those of the City, that we may easily know what must be demolished of the Fortress. Care must be taken besides, that the two last Lines of the *Fortification* of the City near the *Citadel*, may not be opposite to it, but easily enfiled by it.

From this we'll pass to the *irregular Fortification*, which is practised especially in three Cases: 1. When a *Fortification* is to be made in a Place, which does not allow a Regularity in the Design. 2. When a City irregularly built, must be fortified. And 3. When old *Fortifications* are to be corrected.

In the first Case the *Fortification* of the exterior Polygon inside, is the most commodious. In the second it is best to fortify the interior Polygon outwards. In the third Case the Body of the Place must be left as it is, according to M. *Vauban*'s Custom.

Places on Rivers are also fortified in a particular Manner, and in this Case an Engineer must mind not to make too many Works, nor too few. Simple Lines in form of Tenaille without Flanks, as it is seen at *Dresden*, are not sufficient; tho' it be not necessary to build whole Bastions on the River's side; therefore it is best to make ordinary Bastions, whose Polygons and Faces ought to be larger, and the Flanks smaller than usual; which is done in Proportion to the Breadth and Depth of the River.

If there be a Bridge over the River, a small *Fortification* must be plac'd beyond, and before it; and the best for that Purpose is half a regular Hexagon, whose Polygon must have from 50 to 70 Yards. In Case there should be an Island in the River, before the City, the Bridge must be carried upon it, and the *Fortification* adjusted before the Bridge, that it may be fired from the Island, by Means of Batteries made on Purpose.

The small Flanks of such *Fortification*, of a City on a River, can very well be double; and in that Manner it suffices, that one could put three Cannons abreast, taking a particular Care to place those Cannons in Vaults under the Rampart, which razes the River horizontally.

If the River runs through the City, the *Fortification* must be order'd in such a Manner, that a Bastion may touch each Side of the River with its Flank, and the River run through where the Courtin should be; and a Courtin should even be made, with Arches, over the River. It is also necessary to raise, out of the City, Out-works on both Sides of the River, which should raze it cross-ways: But in Case the River should be so wide, that the Out-works on both Sides could not reach one another (though Rivers of such a Breadth seldom run through a City) a Work ought to be erected in the Middle of the River. At large navigable Rivers it is best to inclose the principal Part of the City towards the River with a Rampart, and part it from the other, as a different Town. In this Manner the *Elbe* passes between the old and new City of *Dresden*.

The Waters of small Rivers being necessary for the Mills of the City, and being stopt for that Purpose with Dikes, such Dikes are commonly made in the Ditch, which are of a double Use; for first, they hinder the Waters, which are round the City, from running, without passing through the Mills of the City; and secondly, the Ditches are, thereby, always kept in a good Condition. It must be observed, that those Dikes are to be placed at the Point of the Bastions, for fear the Enemy should make use of it; though others are of Opinion, that they are better placed before the middle of the Courtin; because the Reason why the Enemy seldom attacks the Point of the Bastion, is, that he would be obliged to cover his Passage with Sides, which would be too difficult; but if he finds there a Dike to cover himself with, he will make no Difficulty to fasten himself to the Point, where the Musketeers cannot so well fire, as at the Bottom of the Face.

There is also a particular Manner of fortifying Places, situated on Eminencies.

The Cities which are situated on Hills, as *Mons* and *Strasbourg*, are much exposed, because neither the Houses nor the Streets can be covered by the *Fortifications*; though, without this Inconveniency, such Places are very proper to be fortified; but the *Fortifications* on a Mountain ought to be made very high at the Bottom, and come sloping down, for fear they should be enfiled. If the Lines are so long, that they must be raised at the Bottom, it is best to make them by Degrees, covering them with Parapets and Traverses.

None but small Forts and Citadels are built on high Rocks, because of the Narrowness of the Space. The best Method is to adapt, as much as possible, the Lines of the *Fortification*, to the Sides and Figure of the Mountain; the Ramparts must be made low; and as the Ditches are commonly dry, the best Defence must be made at the Bottom. The Road to the Fortress must have from Distance, in Distance, Retrenchments very well defended. The Engineer must also take Care to make all Sorts of Works, whence the Foot of the Mountain can be beaten most, they ought to be disposed in such a Manner, that those who defend them may retreat from them in Safety, and annoy, without Interruption, the Enemy, when he has render'd himself Master of them.

Against the Eminences, which are near a Fortress, there should be erected not only good Ravelins on the Ramparts, but those Eminences themselves should also be fortified, by Works capable to resist the Enemy; without, notwithstanding, proving advantageous to him when he has render'd himself Master of them; which can be done in this Manner: At the highest Place of the Mountain is drawn a Line, of the Height and Thickness of a Parapet, so that it may be enfiled by the Cannon of the Fortress. Farther towards the Fortress, where the Mountain grows lower, are erected Redoubts of Stone, which are open on the Side of the Fortress, and distant from one another of a Musket Shot; and contrived so low that they should raze the Mountain. Taking Care besides, lest the Enemy should cut the Retreat into the Fortress to the Soldiers, who are lodged on those Redoubts, or annoy them with his Cannon.

To correct and strengthen old *Fortifications*, an Engineer should be very cautious in not demolishing of the

the Works already erected, but as little as he can; and avoid adding any Thing to the Rampart of the Body of the Place, unless when those Works are very old, or the Faces of the old Bastions have but little Defence.

The Gates, Stone Dikes, and the Sluices, are not to be changed, because such a Thing could not be done without vast Expences, and changing the Gates proves often very detrimental to the Inhabitants.

If the Out-works have not a good Defence, other Works must be added to them, or another Form given to the old ones; and as commonly the Profiles of the Out-works of old *Fortifications*, are too weak, the Ditches must be made larger, and the old Works strengthened with the Earth taken out of them. In old *Fortifications*, the Covert-way to the Counterscarp being too narrow, it must be made wider and stronger.

The Bastions being so far distant from one another, that the Courtins have 60 Yards, or more, the best Way is, to make semblable Bastions in the Middle of the Courtin.

But as this is better represented by an Example, there may be seen, fig. 19. B, a Plan, where the chief Works of the City and Citadel, have been left untouched; except that to the Courtins of the Rampart of the City, the Parts *a b c d* have been retired to have Places. The Out-works have also been left as they were in the old Fortification, except that the Retrenchments, which were good for nothing, have been taken from the Horn-works B C, the Out-works A E E, are also at the old *Fortification*, but the Profile has been strengthened. The Ravelin K, is only a little changed in the Figure. But most of the Out-works of that old *Fortification*, are situated in such a Manner, that it cannot be easily fir'd from one into the Ditch of the other, because of the great Pieces of Earth which are between; it is what has been a little corrected, by Means of some other Works added to them. Lastly, three Ravelins in *p e g*, are entirely taken off, and changed with other new Works much stronger.

Therefore the new Works consist in five great, and thirteen small Works, *viz.* two detached Bastions, *g* K, three great Horn-works, *o p z*, *e e*, five Ravelins, *q i h*, *f* I, four Lunettes, *l n u x*, and four Counterguards, *r s t m*; this Sort of Defence, is, in the Opinion of most Engineers, the most subtile.

A *Fortification*, according to the *Dutch* Method, is that which making the Flank perpendicular to the Courtin, makes the Flank subduple of the Face, and and subtriple of the Courtin; and the Angle of the Bastion equal, either to two-thirds of the Angle of the Polygon, or to half thereof, with the Addition of fifteen or twenty Degrees, to make it equal to a right Angle. *Freitach* determines the Quantity of the Flank in a Square to be six; in a Pentagon, seven; in an Hexagon, eight; in an Heptagon, nine; in an Enneagon, ten; in a Decagon, eleven; and in all other Figures, twelve *Rhineland* Perches: Consequently the Face twenty-four, and the Courtin thirty-six Perches.

To draw the Profile of a *Fortification*, after the *Dutch* Manner, we must draw the inner Polygon G H, fig. 4. into five equal Parts; the Demi-Gorge A H, is to contain one of them, and the Capital H C, two; then divide the Courtin E H into four Parts, and make the Flank A B, one. But the *French* make both the Demi-Gorge and the Flank, a sixth Part of the Polygon; and in Squares and Pentagons, setting aside the second Flanks, describe a Semicircle upon B S, that the Angle of the Bastion C, may be a right Angle. The *Italians* giving the same Dimensions to the Gorge and Flank, make the secondary Flank half the Courtin, in Polygons, exceeding a Hexagon, and a third of the Courtin in the rest. Lastly, the *Spaniards* giving the same Dimensions to the Flanks, omit the secondary Flanks. But Flanks perpendicular to the Courtin, with secondary Flanks, are in Disrepute, on Account of the Obliquity of the Defence; so that the *Dutch* Method of *fortifying*, with the other antient ones, founded on the same Principles, are now out of Doors.

The *Fortification*, according to Count *Pagan*'s Method, supposes, in the larger *Fortifications*, the external Polygon A B, to be 100, the Face A G, 30 Perches; in the smaller, the first 80, and the second 25; and in the middle Size, the first 90, and the second 27½: The Perpendicular C D, 15; and the Flanks G F, and H E, perpendicular to the Lines of Defence A F and B E, covered with an Orillon, and three-fold: To which add a Ravelin and Counterguard to serve for Out-works. This Method was received with great Applause, and must be allowed greatly preferable to the *Dutch* Method. But it has its Defects; for besides that the *fortifying* of Places by it, is very expensive, its triple Flank is too close, so as to be exposed to the Violence of the Bombs; the Orillon is so large as to prejudice the Length of the Flanks; the outer Rampart of the Bastion is too big, *&c.*

M. *Blondel*'s Method, has a great Affinity with that of the Count *Pagan*, only that the Quantity of the Angles and Lines are differently determin'd, Thus a right Angle being subtracted from the Angle of the Polygon, and to a third Part of the Remainder fifteen added; the Sum gives the diminished Angle. In the greater *Fortifications*, the outer Polygon is one hundred, in the smaller eighty-five. The internal Polygon being divided into ten Parts, seven of them give the Lines of Defence, and the Faces are half those of the Tenaille. This Method is very well calculated for the Purposes of Architecture, only being somewhat expensive, it is but little us'd.

Scheiter, in his Method of *Fortification*, supposes, the external Polygon, in the larger *Fortifications*, to be 100 Perches; in the middle Size, 90; in the lesser, 80; the Flanks perpendicular to the Lines of Defence: And the Lines of Defence in the greater *Fortifications*, 70 Perches; in the middle Size, 65; and in the lesser, 60. It detaches Bastions from the Courtin, and forms a Kind of inner Recess behind the Courtin; it assumes the Angle of the Bastion in a Square, to be 64 Degrees; to this adding eight, the Product is the Angle of the Pentagon; to which adding six Degrees, the Sum is the Angle of the Bastion in an Hexagon, and adding five to this, the Sum is the same Angle in an Heptagon.

Having thus given all the best Rules to fortify Places, according to the different Methods of the best and most modern Engineers, I'll take once more my Mareschal's Staff (which I had laid down, ever since I had the Honour to appear in Steel at the Head of an Army) and march to besiege some Town or other; but before we invest a Place, we must be inform'd of its Strength, *viz.* if it be strong of itself, or by Reason of the Easiness of throwing Succours into it. If it be strong of itself, it must be so either by Nature or Art.

Places are strong by Nature, when they are difficult of Access, either by being seated on a Morass, or by being enclosed with Rivers, or Waters; as Lakes, or Part of the Sea which cannot be waded through; and if they are not frozen in Winter, it is a great Advantage to the Place. They are also strong when they are seated high, with steep and rocky Avenues; especially if the Rocks are difficult to be undermined; or where there is no Water or Forage near, and consequently great Armies cannot continue long about them. Again, Places are strong when the Army that attacks it finds it difficult to bring their Convoys, or to carry on their Trenches when the Ground is stony, or when there is a loose Sand, or that there is no digging without meeting Water; or else when the Place is encompassed with high Mountains, which are full Cannon-Shot from it, and therefore the Circumvallation must be carried a great Way about; or so seated that the Lines cannot be carried up to the highest Part of them, and then they who come to relieve the Place, will command the Besiegers Lines. Places are also reckoned advantageous, when there are no Valleys,

Valleys, hollow Ways, Ridges, Hillocks, Trees, Hedges, or Houſes, within Cannon-Shot, that can favour the Approaches: If there are Houſes or Villages, they muſt be burnt down immediately.

The Strength which Places may receive from Art, conſiſts in the Manner of the *Fortification*; as we have already mentioned.

Beſides the *Fortifications*, the Strength of a Place conſiſts in the Ammunition, Proviſion, and Cannon, they are ſtored with; in the Facility of making Retrenchments; in the Number of Troops, and their Valour; in the Capacity of the Governor and other Officers; and in the Unity of the Garriſon among themſelves, and with the Inhabitants.

Being thoroughly inform'd of the Condition of the Place, we muſt conſider next, whether we have, or can have, Men, Proviſions, Ammunition, and Money, which will be requiſite as long as the Siege ſhall hold; and whether while we attack that, the Enemy may not beſiege another of a greater Conſequence.

Being reſolved to attack the Place, we muſt march with all the Expedition we can to ſurprize it, and prevent, if poſſible, any Succours from being thrown into it. If our March be long, and we fear the Enemy may get Intelligence of our Deſign, by our marching directly towards it, and ſo have an Opportunity to ſupply it with what is neceſſary for its Defence; we muſt then ſtrike out of the Road, and endeavour to make the Enemy believe we deſign to lay Siege to ſome other Place, detaching a Part of the Army to inveſt the Place, which we really intend to beſiege, and haſten to join them as ſoon as we can judge them to be before the Place.

The Major-General, or other Officer, who commands the Body that goes to inveſt it, at about a League diſtant from the Place, ſhall detach two or three Parties of Horſe or more; and each of thoſe Parties muſt be ſtronger than thoſe that can come out of the Garriſon; they are to ride up as near the Outworks as poſſible, to hinder any Thing whatſoever from getting in. When the Major-General is come up, he muſt poſt himſelf between the Place and that Side, whence it is moſt likely the Succour may come; and if he takes any Priſoners, he ſhall enquire what Numbers are in the Place, as well Soldiers as Inhabitants, and Peaſants of the adjacent Parts, and what Proviſion and Ammunition they have. He muſt alſo enquire if they had Notice of the Siege, how long ſince, what Succours they expect, and which Way they are to come. He muſt ſend out ſmall Parties upon the Diſcovery, and to his General, to inform him what Intelligence he has got, and divide or keep his Forces together, according to the Notice he has received: As for Example, if the Enemy are marching towards him with equal Strength, or little inferior to him, he ſhall keep in a Body; and if he can be ſure which Way they deſign to throw in Succours, he muſt march a little Way to meet them, leſt they ſlip in by ſome other Paſſage, than that which he guards.

It is better to fight a ſtrong Party, that comes to throw itſelf into a Place, at a Diſtance, than near to it; for though we ſhould defeat them near the Place, yet ſome of them may get into it; whereas if we fight them at a Diſtance, it is eaſier to prevent thoſe that run-away from eſcaping to the Garriſon. If the Major-General thinks he ſhall not ſtand in Need of all his Troops, he may leave ſome near that Place, to prevent any, eſpecially Officers, from throwing themſelves into the Garriſon, in the Confuſion which is often even among victorious Troops.

If the Major-General is ſo uncertain which Way the Enemy will march, that he thinks it beſt to keep near the Place, and always have Parties abroad to diſcover their March, and at Night ſhall be within Cannon-ſhot of the Place, in one or two Bodies, according to the Intelligence he has received. He muſt continue under Arms all Night, and not ſuffer his Troops to have above half Reſt in the Day till the General comes. He ſhall go round the Place, and view the Avenues by which Succours may come, and the *Fortifications*, and which Side is eaſieſt to be attacked; and what Places are propereſt for the Quarters, and to draw the Circumvallation, that he may adviſe and inform the General.

When the General is at hand he muſt ſend a Party to advertiſe the Major-General; and a Perſon of Capacity to bring back an Account of all that has happened; and finding all Things are well, he ſhall advance at the Head of the Army, and go himſelf and view where he is to ſettle the Quarters; the Major-General ſhall meet him a little Way, and tell him all he knows; and as the Forces come up, the General is to ſend them Orders where to encamp.

It is not eaſy to fix the Quarters the firſt Day for the whole Siege, and what Number of Troops is to be in each of them; therefore the General ſhall go round the Place, or part of it the next Day, to view it, attended by the general Officers and Engineers, and having called a Council of War, reſolve what Quarters to take, what Number of Troops each Officer that commands in them is to have, where the Attacks are to be made, and Bridges laid if there be a River, to ſecure a Communication.

The Conſiderations to be had in the Choice of the principal Quarters, are to obſerve which Way the Enemy may come to the Relief of the Place, and where the Attacks are to be made, to the End that the main Quarters being at hand, may relieve them in caſe of Need, and with more Eaſe ſend out the Guards of the Trenches, and carry the Ammunition and other Things neceſſary for the Attacks; and that the General Officers may with more Eaſe go into the Trenches, and back to the Quarters. The Conveniency of Covert, Forage, and Water both for Men and Horſes, are to be conſidered.

After diſtributing the main Quarters, there are ſome ſmall ones poſted between them, according to the Circumference of the Place, and the Number of Avenues there are to it. But if it may be thought that conſiderable Succours may arrive before the Lines are finiſhed, then the Army ſhall be divided only into two or three Parts, leſt the leſſer Quarters might be cut off; but when the Lines are compleat, there ſhall be ſeveral of them poſted about, ſo that if they are attacked on a ſudden, where they are remote from the main Quarters, they may have ſpeedy Succour.

The next Thing a General ought to do, is to view and judge of the Side where the Attacks are to be made; conſidering that the Facility of an Attack depends on the Weakneſs of the Place, or in the Facility of making Approaches. The Weakneſs conſiſts in the Flanks being leaſt flanked, ill-faced, not well terraſſed, leaſt capable of retrenching within, not well ditched, and leſs covered without with detached Works and Covert-works.

The Facility of approaching conſiſts in hollow Ways, Bottoms, deep Valleys, Ditches, Ridges, and the Facility of throwing up the Earth; or in having Hillocks, or ſmall Eminences, which ſerve to plant Cannon to Advantage; or in higher Grounds, which overlook and command the Place, either with Cannon, or ſmall Fire-Arms; and in the Nature of theſe commanding Places, that is, whether they are directly fronting, or which is leaſt dangerous, reverſe; that is, playing on the Back of a Poſt, or Enfilading, which ſweeps quite along it.

If thoſe Parts of the Place are beſt fortified, where the Approaches are eaſieſt, and the weakeſt are more difficult of Acceſs; then in chuſing the Attacks, the Advantages and Diſadvantages on both Sides, are to be weighed: But in a great Siege, the Faults in the *Fortifications* of a Place generally turn to better Advantage, than the Facility of making the Approaches, eſpecially when the Garriſon is ſtrong.

When the General has reſolved upon the Places for carrying on the Attacks, the Engineers muſt go again to take a more ſtrict View of them, both as to the Ground they are to be carried through, to make the beſt Advantage of it; and to ſee whether there

there are Ridges, Hedges, or Ditches, to run the Trenches along them; if there are any Dales or Hollows, to make use of them for Places of Arms; to contrive the Situation of the Redoubts, so that they may defend the Trenches, and look down into the said Deeps and Hollows; and tho' the Way be longer by those Places, than if the Trenches were carried along the Plain, yet it is generally safer for taking the Advantages that lie in the Way. If a General can get a Plan of the Place, it will contribute much to the Facility of taking it.

At present we must enter into a Detail of all the Works made for the Attacks, by Means whereof we approach the Place, and force it at last to surrender. Those Works are generally understood under the *French* Name of *Trenches*, and consist in *Places of Arms*, *Approaches*, *Boyaux*, and *Ditches of Communication*, *Batteries*, *Lodgments*, *Saps*, *Galleries*, &c.

A Place of Arms, in a Siege, is a spacious Place covered from the Enemy, by a Parapet, or Epaulment, where the Soldiers are posted ready to sustain those at Work in the Trenches, against the Soldiers of the Garrison.

Approaches, or *Lines of Approach*, are particularly used for Trenches dug in the Ground, and their Earth thrown up on the Side next the Place besieged; under Shelter or Defence whereof, the Soldiers may approach, without Loss, to the Parapet of the Covert-way; and plant Guns, *&c.* wherewith to cannonade the Place. The *Lines of Approach* are to be connected by Parallels, or Lines of Communication. The Besieged frequently make *Counter-Approaches*, to interrupt and defeat the Enemies *Approaches*.

Boyau is a Branch of the Trenches, or a Line, or Cut, which runs from the Trenches to cover some Spot of Ground; being drawn parallel to the Defence of the Place, that it may not be enfiladed, that is, that the Shot from the Town may not scour along it.

A Battery (of the *French Battre*, to beat, strike) denotes an Eminence cast up, whereon to plant Artillery, that it may play to better Advantage. In all *Batteries*, the open Face to put the Muzzles of the great Guns out at, are called *Embrazures*, and the Distances between the *Embrazures*, *Merlons*. The Guns are generally twelve Feet distant from one another, that the Parapet may be strong, and the Gunners have Room to work. The *Battery* of a Camp, is generally surrounded with a Trench and Palisades at the Bottom, as also with a Parapet on the Top, having as many Holes as there are Pieces of Artillery, and two Redoubts on the Wings, or certain Places of Arms, capable of covering the Troops which are appointed for their Defence.

There are different Sorts of *Batteries*, viz. *sunk*, or *buried Batteries*, *cross Batteries*, *Battery d'Enfilade*, *Battery en Echarpe*, *Battery de revers*, *Battery Joint*, or *par Camarade*, and *Battery en rouage*.

Sunk, or buried Battery, is that, whose Platform is sunk or let down in the Ground, with Trenches cut in the Earth against the Muzzles of the Guns, to serve for Embrazure. This Sort, which the *French* call *Batterie enterree*, and *runante*, is generally used upon the first making Approaches, to beat down the Parapet of the Place.

Cross Batteries, are two *Batteries*, at a considerable Distance from each other, which play a-thwart one another at the same Time, and upon the same Point, forming right Angles; where what one Bullet shakes, the other beats down.

Battery *d'Enfilade*, is one which sweeps the whole Length of a strait Line, a Street, *&c.*

Battery *en Echarp*, is that which plays obliquely.

Battery *de revers*, or *murdering Battery*, is one that plays on the Back of any Place; and being placed on an Eminence, sees into it.

Battery *Joint*, or *par Camarade*, or *Carmaretta*, is when several Guns play at the same Time upon one Place.

Battery *en rouage*, is that used to dismount the Enemies Cannon.

Lodgment, is a Work cast up by the Besiegers, during their Approaches, in some dangerous Post, which they have gained, and where it is absolutely necessary to secure themselves against the Enemies Fire; as in a Covert-way, in a Breach, the Bottom of a Moat, or any other Part gained from the Besieged. *Lodgments* are made by casting up Earth, or by Gabions, or Palisades, Wool-packs, Fascines, Mantelets, or any Thing capable of covering Soldiers, in the Place they have gained, and are determined to keep.

Note, That *Gabions* are large Baskets, made of Osier Twigs, woven of a cylindrical Form, six Foot high, and four wide; which being filled with Earth, serve as a Defence, or Shelter from the Enemies Fire. They are commonly used in *Batteries*, to screen the Engineers, *&c.* in order to which, one is placed on either Side each Gun, only leaving Room for the Muzzle to appear through. There are also a smaller Sort of *Gabions*, us'd on Parapets, Trenches, *&c.* to cover the Musqueteers; being placed so close, as that a Musket can but just peep through. They also serve as a Parapet on Lines, Lodgments, *&c.* where the Ground proves too hard to dig into. To render the *Gabions* useless, they endeavour to set them on Fire, by throwing pitch'd Faggots among them.

Fascines, are small Branches of Trees, or Bavins, bound up in Bundles; which being mixed with Earth, serve to fill up Ditches, to screen the Men, make the Parapets of Trenches, *&c.* Some of them are dipped in melted Pitch or Tar; and being set on Fire, serve to burn the Enemies Lodgments, or other Works. A pitch'd *Fascine*, is a Foot and a half about: A *Fascine* for Defence two or three Foot.

A *Gallery* is a cover'd Walk, or Passage made across the Ditch of a Town besieged, with Timber fasten'd on the Ground, and plank'd over. The Sides of the *Gallery* are to be Musket-Proof, and consist of a double Row of Planks, lin'd with Plates of Iron; and the Top is sometimes covered with Earth, or Turf, to hinder the Effect of the Stones, artificial Fires, *&c.* of the Enemies. *Galleries* are chiefly used to secure and facilitate the Miner's Approach to the Face of the Bastion, over the Moat, which is already supposed to be filled up with Faggots and Bavins, and the Artillery of the opposite Flank dismounted: Sometimes it is called a Traverse. The *Gallery* of a Mine, denotes the Branch, or that narrow Passage under Ground, leading to a Mine, carrying on under any Work design'd to be blown up. The Besiegers, and Besieged, do each of them carry *Galleries*, or Branches under Ground, in Search of each other's Mines, which sometimes meet and destroy each other.

Epaulment, is a Side-work hastily thrown up, to cover the Cannon or the Men. It is made either of Earth thrown up, of Bags filled with Sand or Earth, or of Gabions, Fascines, *&c.* with Earth, of which latter Sort, the Epaulments of the Places of Arms for the Cavalry, behind the Trenches, usually are.

Mantelets, are a Kind of moveable Parapets made of Planks, about three Inches thick, nailed one over another, to the Height of almost six Foot, generally cased with Tin, and set upon little Wheels; so that in a Siege, they may be driven before the Pioneers, and serve as Blinds to shelter them from the Enemies small Shot. There are other Sorts of *Mantelets*, covered on the Top, whereof the Miners make use to approach the Wall of a Town or Castle.

Mine, is a subterraneous Canal, or Passage dug under the Wall, or Rampart of a *Fortification*, intended to be blown up by Gunpowder. The Alley or Passage of a *Mine*, is usually about four Foot square; at the End of this is the Chamber of the *Mine*,

Mine, which is a Cavity about five Feet in width and in length, and about six in height; and here the Gun-powder is bestowed. The *Saucisse* of the *Mine* is the Train; for which there is always a little Aperture left. There are various Kinds of *Mines*, which acquire various Names; as royal *Mines*, serpentine *Mines*, forked *Mines*, according as their Passage is strait, oblique, winding, *&c.* They are either dug within the Body of the Earth, as those made by the Besieged to blow up the Works of the Besiegers, before they make a Lodgment on the Covert-way; or in Eminences and rising Grounds, as to make a Breach in the Ramparts, or to blow up Walls, *&c.* To prevent the Effect of *Mines*, the Besieged sink a Well or Pit, and a Gallery, till it meets the Enemy's *Mine*, and this is called *Counter-Mine*.

Sap, denotes a Work carried on under Ground, to gain the Descent of a Ditch, Counterscarp, or the like. It is perform'd by digging a deep Trench, descending by Steps from Top to Bottom, under a Corridor; carrying it as far as the Bottom of the Ditch when that is dry, or the Surface of the Water when wet. When the Covert-way is well defended by Musketeers, the Besiegers make their Way down into it by sapping. When they are got near the Foot of the Glacis, the Trench is carried on directly forwards; the Workmen covering themselves with Blinds, Wool-packs, Sand-bags, and Mantelets upon Wheels. They also make Epaulments or Traverses, on each Side, to lodge a good Body of Men. The *Sap* is usually made five or six Fathom from the saliant Angle of the Glacis, where the Men are only cover'd sideways; for which Reason they lay Planks over-head with Hurdles, and Earth above them. When they have forced the Enemy to quit the Covert-way, the Pioneers immediately with Sand-bags, Wool-packs, or other Fences, make a Lodgment, and cover themselves as well as they can, from the Fire of the opposite Bastion.

Thus informed of almost all that is necessary to carry on the Siege, we'll open the Trench, from 800 to 1000 Passes of the Counterscarp; tho' this is not a general Rule; (for sometimes it is better to open it as near the Place as possible) there must be prepared, from the very Beginning, at the Tail of the Trench, a Place of Fascines, Sacks of Earth, and the like, for a secure Retreat against the Cannon of the Place, for those who cover the Works, who are most Cavalry, for the Infantry is commanded to the Approaches; hence a Trench is dug, four Feet deep, and which has, at the Beginning, but four or six Feet in width; the Earth being thrown up on the Side of the Place. That Trench is seldom made longer than 40 Yards, and always made in the Night; taking all the Precautions imaginable to hinder it from being enfiladed, either from the Place, or from the Counter-Approaches, the Besieged could build.

The next Day shall be spent in enlarging the Trench, made at Night, to six or eight Feet, if possible, and to raise the Covert of the Place of Arms for the Horse. The Guard of the Trenches is first to be weak in Foot, and strong in Horse, especially in the Day-time, and in a plain Country. The first Day there should not be above fifty or sixty Foot, with a Captain and a Lieutenant, left at the Head of the Workmen; but the Guard ought to be made so strong of Horse, that there should be nothing to fear: The Advantage is, that the Horse may keep at a great Distance from the Place, and yet come up Time enough to relieve the Trenches, if the Enemy sally; whereas the Foot, who cannot march so fast, would be obliged to stand within Falconet Shot of the Place: But it is very rare to find a Plain so open, that there is no Place to put the Foot under Covert, at least if they lie flat; but yet the Foot should be spared as much as possible the first Days, and a small Number be put upon Guard, being always much more fatigued in a Siege of any Continuance than the Horse.

A small Redoubt must be made the second Night, a small Musket-Shot from the Garrison, and a Trench drawn from the Place of Arms of the Horse to the Redoubt, and in the midst of it a Place of Arms for the Foot, which will serve only for the first Day of the Siege, as is usual in all distant Works, because the Guards of the Trenches are continually carry'd on nearer; besides, it is useful some Days for the Soldiers, and serves afterwards to lodge the Sutlers, some of whom must be always in the Trenches, that the Soldiers may not leave their Work to go for Provisions to their Quarters. The second Day, a Body of Foot may be left in the Works of the first Night, and a small Body of Horse in the Place of Arms, till it is finished, which is generally the third Day.

The Trenches are not to be much advanced the third Night, if the Garrison be strong, but the Redoubt must be made tenable, the Place of Arms for the Horse and Foot raised, and a Line of a hundred or fifty Paces advanced. The Intrench-way must not go into the Place of Arms, but there must be Banquettes supported with Stakes, Fascines, and Sand-bags, for the Musketeers to fire over the Parapet; they must be quite open behind, that the Battalions may go out into the Plain, and the Horse beat out the Enemy, if they should come into them. There must be Places enough in Number and Largeness to contain all the Guard of Foot, which must be there at every Attack, or in the Redoubts, but never in the Trenches, unless when near the Place; at which Time the Musketeers should be lodged there to fire upon the Enemy,

Note, That *Redoubt*, or *Redoute*, is a small square Fort, without any Defence but in Front; used in Trenches, Lines of Circumvallation, Contravallation, and Approach; as also for the lodging of Corps de Garde, and to defend Passages. In marshy Grounds, *Redoubts* are often made of Stone-work, for the Security of the Neighbourhood; their Face consists from ten to fifteen Fathom; the Ditch round them, from eight to nine Feet broad and deep; and their Parapets have the same Thickness.

If the Trench can be advanced the third Night, to the Ground where the General shall think fit to place the first Battery, it must be begun the said Night. Batteries cannot have much Effect, if they are above a hundred and fifty Feet from the Place in a plain Ground, and this is generally the Work of the fourth Night. The Battery is to be inclosed between a Redoubt and the Trenches; and the Intent of this Battery is to beat down the Parapets of the Enemy, and to dismount their Cannon that commands the Trenches. All the Cannon for Batteries are generally planted there, both to incommode the Enemy, and to master their Cannon; and tho' the Place be but poorly provided with Artillery, yet it will prevent this Battery doing any Service, unless it has many Cannon: The Batteries nearest the Place are least exposed, because seen from fewest Places; and the Cannon of the Garrison being generally planted high, either on Cavaliers, or on high Ramparts, they cannot do Execution near the Place.

The fifth Night a Redoubt must be made on the Wings of the Battery, and a Line carried forwards as far as may be; and if the Parapets of the Redoubts, and Places of Arms are to be raised, some Workmen must be sent thither.

Three Nights, and two Days, are generally spent in putting Batteries into good Condition; and the third Night the Guns are planted; but if Care be taken, then Batteries of two or three Cannons may be finished in two Nights and one Day.

The Trenches are to be carried on, and a Place of Arms made the sixth Night.

A Redoubt shall be made the seventh Night, and all behind is put into a good Posture.

The

The Trenches shall be carried on the eighth Night, and a great Place of Arms made within a hundred Paces of the Glacis.

Note, That the more the Approaches are advanced, the deeper they must be. At the Beginning they are made greater by Degrees; so that having at first but four Feet in Width, they are made, afterwards, from eight to nine Feet broad, that the Cannon may be transported that Way to the Batteries. That the Places of Arms must be, as much as possible, over-against one another, that they may flank one another, tho' Traverses must be put to those Places of Arms, to shelter those posted in them against the Bombs. That the Approaches must intersect one another; and every where, if practicable, there ought to be deep Places, cover'd with Trees, and Earth, against the Bombs; and that if a Ditch must be conducted directly towards the Place, it is proper it should be made towards the End of the Faces of the Ravelin, towards the Angles of the Epaule of the Bastion, and obliquely towards the Points of the Ravelin; but an Engineer must be very exact in tracing them.

Note, also, That these Rules are to be follow'd with regard to the *Batteries:* 1. Those made to beat the Place, ought not to be above 500 Paces distant from it. 2. The Beginning of the Breach can be made at 300 Paces. 3. To end the Breach, Batteries must be erected on the Glacis, carried off from the Counterscarp. 4. Against Works lined with Stone, the Batteries are erected perpendicularly, the Shots which strike perpendicularly being, in that Case, the best: But against Works of Earth, it is best to dispose them so, that it may be beaten with the heavy Cannon, perpendicularly, and on both Sides, also cross-ways. 5. The Parapets must be very high and thick, well interwove with Hosiers Twigs, and Faggots, and provided with good Embrasures; and, in Case of Necessity, there must be used Gabions and Wool-packs: There should be always a Space from 18 to 24 Feet between each Piece of Cannon, according to their Bigness; whence the Place of a Battery of 12 Cannons, of the second Rank, must have 24 Yards in length. 6. The Embrasures must be made from 2 to 3 Feet broad on the inside, and from 10 to 12 on the outside. 7. The Floor for the Cannons is composed of good Boards, and must be very even, that the Gunner may be more sure in pointing his Cannon. 8. A Ditch must be made behind the Batteries for the Powder, the Inside very well lin'd with Boards, cover'd a-top with Cows Skins, and defended with Gabions, cover'd with Earth against the Bombs. There are also made behind the Batteries several Cross-ditches, like the Approaches, where the Munition is distributed into several Places.

As there is no positive Rule for advancing the Trenches, what has been said may serve to give some Light into what may be done, as near as can be; and the Work may be advanced or retarded, according to the Strength or Weakness of the Place besieged; according to the Defence it makes by Sallies, or firing from the Ramparts, or the Out-works; and according to the Easiness or Difficulty in digging the Trenches, or according to the Number of Men appointed for the Works, or according to their Work, as they are well directed and paid.

There must be more or less Redoubts and Places of Arms, as the Danger of Sallies may be greater or smaller: And for the better carrying on the Work in advancing the Trenches, till it be brought within two hundred Paces of the Place, a Serjeant shall be posted at Night with fifteen Men, at the Head of the Workmen, supported by a Lieutenant and thirty Men; on the Right of them a Battalion, and another on the Left, lying flat on the Ground.

When the Works are advanced near the Place, if there be no Ridge of Ground, or a Hollow capable of covering Men, a Serjeant and fifteen Men only shall be posted at the Head of the Work, and Battalions, in the nearest Places of Arms, and behind the Redoubts, which are nearest the Place, to sustain the Workmen, in Case of a Sally; and great Care must be taken that they do not shew themselves upon false Alarms, which the Enemy will make, to fire with their Cannon and small Shot upon the Battalions, when exposed.

If the Lines drawn from the last Place of Arms, cannot come within four or five Paces of the Foot of the Glacis, one, or rather two Saps should be made toward the Angle, till you are within the said Distance, and from thence you must attempt to lodge yourself on the Covert-way, which is generally the most difficult and bloody Action of a Siege; and which is done in several Manners. For some are for marching bare-faced to dislodge the Enemy, when the Trench is within 12 or 15 Feet of the Glacis, and make a Lodgment on the Angle at the same Time. Others, to save their Men, are for proceeding to the Glacis, by way of Sap, and then making a *Fourneaux*, or small Mines, lodge themselves on their Ruins; some are for making the Lodgments by Day, and some by Night: The best Way to make them is by open Force, without making Saps, or Fourneaux, and to attempt them by Night; and tho' more Men are lost this Way than the other, yet much Time is saved, and the Danger is over in a few Hours; whereas if you proceed the other Way, more Men are lost in the Sallies which the Enemy make, by firing from the Place into the Trenches, and by the continual Fatigues the Soldiers endure in Sieges, than if you had made a Lodgment by open Force: But the *English*, *Germans*, and *Dutch*, are of a contrary Opinion, judging it more safe to make their Lodgments by Saps.

For the better making them, it will be proper that the Line drawn from the large Place of Arms made last, opposite to the Angle saliant of the Covert-way, do run ten or twelve Fathom beyond the said Angle, and be very wide, to contain a Body of Foot, that may sustain the Lodgment.

In the Line H I, shall be all necessary Provisions, of Fascines, Clay, Baskets, Earth-sacks, Barrels, Mantelets, Wheel-barrows, Chandeliers, Pick-axes, Spades, and Shovels, and a sufficient Number of Workmen and fighting Men shall be added, who are to be disposed after this Manner: For Instance, suppose the Guard of the Trenches to consist of a thousand Foot, and with them five hundred Workmen, they shall leave the Place of Arms between E and *f*, the Redoubt E, the Battery D, and all that is behind to be guarded by those that are detached from all the Army, to sustain the Battalions that mount the Trenches that Day, which is always to be practised upon the like Occasion. A hundred Men shall be put into the Redoubt G, two Hundred into the Place of Arms H, four hundred Musketeers into the Line H L, to fire continually from thence; and a hundred and fifty into the Line H I; a strong Detachment shall be appointed to make the Lodgment: And thus ordered, an Engineer in Armour, and a Serjeant with fifteen proved Men, shall first march to the Angle-saliant of the Covert-way, from whence they shall make a Discharge upon the Defendants within, and drive them off, if their Number be small: A Lieutenant with thirty Men shall sustain him; and a Captain, with a Lieutenant or Ensign, and fifty Men, shall sustain him: The rest, commanded by a Field Officer, shall be in two Bodies, one stronger than another, as the Enemy may be feared, either on the Right, or on the Left.

Each of these Bodies shall again be divided into two, commanded by Captains, that is, one third divided by the other two thirds; one of them in the Line H I, and the other in the Line H L, and shall draw up towards the open Country, leaving the Banquette to the Musketeers, who are lodg'd there, to fire.

If the Serjeant who falls on at the Angle of the Covert-way, perceives that the Enemy is very ſtrong, then the two Bodies ſhall come out of the Trenches, and attack the Covert-way, on the Right and Left of the Angle-ſaliant, as near as they can to the Angle-rentrant; and as ſoon as they have fired ſhall run upon the Enemy with Sword in Hand, that ſo the Fire of the Place of the Covert-way, and of the Half-Moons, on the Right and Left, may do the leſs Harm.

Things of this Nature muſt not be undertaken, except they are carried on furiouſly; for if the Enemy do line their Parapets well, their Muſketeers will wound Abundance of Men in a ſhort Time: And, during this Attack, all poſſible Diligence muſt be uſed in working at the Lodgment, which is to be made after the following Manner.

When the Aſſailants, who are commanded to fall upon the Angle-ſaliant of the Covert-way, have beat off the Enemy, then the Lieutenant ſhall poſt himſelf on the Glacis, about fifteen or ſixteen Paces from the Angle, on that Side where there is moſt Danger of Sallies. He is to cover himſelf with two or three Mantelets in Front, and one or two by way of Empalement, to be brought thither after him by the Workmen; *the Serjeant ſhall* do the ſame on the other Side of the Angle, and the Captain ſhall enter the Trench, that he may be under Covert, being always ready to ſuſtain the Lodgment, if the Enemy ſhould offer to diſpute it at handy Strokes. As ſoon as the Soldiers are cover'd, who fall on at the Angle, the Engineer ſhall make the Lodgment, which generally begins by a Range of Wool-packs and Gabions, to be placed along the Covert-way, on the Top of the Glacis, within four or five Feet of the Edge of the Parapet, and the Lodgment to be four or five Fathom long on each Side the Angle, which he cauſes to be done at the ſame Time by two Conductors of the Works, who make the Workmen fill the Gabions with Earth as faſt as poſſible, every Man bringing a Bag of Earth, which he throws into the Gabions. Thirty-two Men ſhall follow the Lieutenant, who commands the Forlorn, carrying eight Mantelets, three to cover the Serjeant, and five for the Lieutenant, over which ſome of them ſhall fire, and the reſt keep themſelves under Covert from the Shot of the Place. When the Workmen have placed the Mantelets, they ſhall fetch Bags of Earth to put into the Gabions, carried by thirty Workmen, follow'd by two Hundred more, each carrying a Bag of Earth, that the Gabions may be ſooner fill'd. The reſt of the Workmen ſhall take Chandeliers and Faſcines, to make Empalements on the right and left of the Lodgment, from the Edge of the Glacis to the Foot of it; and when they have placed the Faſcines they have brought, the firſt turn on the Chandeliers; they muſt continually go for more till they have filled them. They who have carried on the Mantelets and Gabions, ſhall take Tools and work behind the Gabions, to ſink and enlarge the Lodgment; and they that brought the Sacks of Earth, ſhould go for Faſcines, and lay them on the Gabions, and alſo behind them, that the Lodgment may be ſoon in a Poſture of Defence. When the Chandeliers are filled, they who brought Faſcines ſhall take Pick-axes and Shovels, and work behind to cover them with Earth, and ſink and enlarge the Lodgment. The reſt of the Workmen ſhall be employ'd in making a Way or two from the Head of the Trench to the Lodgment; and they muſt endeavour to make a Banquette before the Day appears, and ſet the Parapet of the Lodgment with Sand-bags, or Baſkets, to lodge Muſketeers there.

The Lodgment made on the Angles of the Covert-way, before the Point of the Baſtion, are generally battered with Cannon from the oppoſite Flanks; and therefore, if the Place has Store of Artillery, there ſhall be as much Place left between the Edge of the Covert-way, and the Gabions, as will make the Parapet Cannon-proof.

If there be a Half-moon fronting the Place you attack, with a Covert-way before it, you muſt make a Lodgment there, before you do it on the Angle-ſaliant, before the Baſtion; or rather at the ſame Time, if you have Men, and Neceſſaries enough, to undertake both Lodgments.

If you carry on two or three Attacks againſt the Place, make a Lodgment from every one at the ſame Time, to divide the Enemy's Forces.

They who are for making this Sort of Lodgment in open Day, will have the Trenches carried to the Foot of the Glacis, and then all the Trenches that can muſt fire upon the Town, being lin'd with Muſketeers, and Uſe be made of all the Cannon; then Men in Armour, that is Muſket-proof, and Grenadiers, muſt be ſent to drive away the Enemy out of the Angle-ſaliant, and at the ſame Time a Lodgment made with Gabions and Sand-bags, to extend about two Fathoms on each Side of the Angle. But this Thing being done in open Day, it is almoſt impoſſible to prevent thoſe that work at the Lodgment from being kill'd or wounded, either by thoſe in the Covert-way, or that man the Parapet of the Half-moon, or of the Place; and though the Lodgment ſhould take Effect at the firſt, by ſurpriſing the Enemy, yet if they have any Courage, they will come and demoliſh it, which may be done with a ſmall Loſs, being expos'd to thoſe few Men only, who are contain'd in an imperfect Lodgment, and encumber'd with Workmen.

The greateſt Advantage of attempting to make Lodgments in the Night is, that when the Enemy has ſtrong Bodies in the Covert-way, Battalions are ſent on the Right and Left to mix with them, which cannot be undertaken in the Day-time, by reaſon of the Fire of the Place; beſides the Lodgments may be made larger by Night, and therefore the more tenable.

In order to make the Lodgments, by gaining Ground without open Force, the Trenches muſt be carried on to the neareſt Place that may be, without expoſing them to enfilade; then three or four Saps muſt be carried on by Steps, deſcending directly towards the Angle-ſaliant of the Covert-way: *They* are made by driving a Mantelet, ſet on two Wheels before them, or elſe rouling along a *Sauciſſe*, and placing Faſcines or Gabions on the Right, or Left, as they draw near the Place, and *Blinds* at certain Diſtances, to prevent the Enemy from looking into the Trenches: This Work muſt be continued Day and Night, and the Men being relieved from Time to Time, that being always freſh they may do the more Work. When the Sap has been carried on eight or ten Fathom, Lines muſt be drawn on the right and left, Parallel to the Place, and four or five Fathom long, which are made ſmall Places of Arms to contain ſome Soldiers, both to ſuſtain the Head of the Work, and make the neceſſary Proviſions for advancing it. When you come within a Stone's Throw of the Covert-way, the Sap muſt be cover'd with Clay, and ſome Earth thrown at the Top of them, to defend them againſt Stones, and Hand-granadoes: And when you come to the Foot of the Glacis, you muſt begin the *Fourneaux*, which are ſtill to be carried on deſcending, to avoid the Counter-Mines; and that having more Earth upon them, they may take the more Effect; and they muſt be carried far enough to blow up the Parapet of the Angle.

When the *Fourneaux* are carrying on from middle Lines, the other Saps muſt be carried on as far as may be on the Glacis; and Mines muſt alſo be carried on to diſappoint the Enemy, if you apprehend that he will make other *Fourneaux*.

As ſoon as the *Fourneaux* are ready, they muſt be ſprung by Night or Day, and armed Workmen ſhall be ſent at the ſame Time, ſuſtained by good Soldiers, to place ſome Gabions on the Part demoliſh'd by the *Fourneaux*, and to fill them with Earth, which may be eaſily done, becauſe the blowing up will looſen it all.

To favour this Sort of Lodgment, it would not be amiſs

amiss to make another half Way up the Glacis, raising its Parapet as high as that of the Covert-way, so that the latter being overthrown by the *Fourneaux*, the other might see into the Covert-way; and having thus made one on each Side of the Angle, you would be Master of the Covert-way without Loss of Men.

The Inconveniency of making Lodgments on the Counterscarp after this Manner is, that Saps being made by few Men, the Enemy may send as many to oppose you, either above or under Ground, which is safest for them, and so disappoint your *Fourneaux*, or blow up the Head of your Saps.

As soon as the Lodgment is finished, there must be Saps carried on, both to go down into the Covert-way, and to continue the Lodgments on the Top of the Glacis. The Descent into the Covert-way must be very deep, that it may not be seen by the opposite Flank, and not be open'd till Night-fall, at which Time a Traverse is to be made on each Side, and the Head of the Lodgment on the Edge of the Ditch. While one Part of the Workmen is employ'd about the Lodgment, the rest are to carry on the Trenches along the Edge of the Glacis, which must be done by Sap, if the Enemy make a good Defence; but if they make a bad one, this Lodgment must be done like that of the Angle, that is, with Gabions filled with Earth; and the Empalements with Chandeliers full of Faggots.

Note, That a *Chandelier* is a wooden Frame, whereon are laid Fascines or Faggots, to cover the Workmen instead of a Parapet. *Chandeliers* are sometimes also made to prevent the Enemy from seeing what passes within. The Difference between *Chandeliers* and Blinds consists in this, that the former serve to cover the Pioneers before, and the latter also cover them over Head.

If you would attack the left Face of the Bastion, the Lodgment R shall be made a Battery to dismount the Guns on the opposite Flank, and ruin it as much as may be. While the Battery R is firing, the Lodgment V is to be made to cover it, from whence the Traverse X, shall be drawn and made Cannon-Proof. The Battery shall be enclosed behind, by the Line Y, and if the Enemy be strong and daring, the Redoubt Z shall be made to secure the Batteries against Sallies, and all the Head of the Trenches. When the Battery R is finished, and secured by Works, the Line S shall be pushed on towards the Gorge of the Half Moon, and Descents and Traverses shall be made into the Covert-way at 3 and 4, as also the Line 2. If you are incommoded by the Enemies Traverses in the Covert-way, they must be attacked in the Rear by Night, and when they are dislodged, you may lodge yourself there, if the Head of the Work be not far off, or else you must raze them.

The Lodgments on the Covert-way of the Half-Moon, which are of the same Nature as those that are made on the Angle that covers the Point of the Bastion, are to be perfected, first if you can only make one at once, or both together, provided that you have Men enough to carry on both. There must be Trenches along the Edge of the Glacis, and in the Covert-way, to meet at the Gorge with those made before the Face of the Bastion.

If the *Half-Moon* can be batter'd with Cannon, the Parapet beaten down, the Descent into the Ditch easy, and little or no Water in it, then you may march boldly, and lodge yourself on it, being provided with all Things necessary to make a good Lodgment, and a Way to go to and come from it, under Covert. If the Ditch of the Place is full of Water, and the Enemy can have no Communication with it but by Boats, there will be no very great Danger in attempting this Sort of Lodgment; but if the Ditch be dry, or if the Enemy have one Side of the Covert-way free to succour the Half-Moon, and the Garrison is strong, it must be attempted with more Precaution.

When the Lodgments are made on the Top of the Glacis, and the Bottom of the Covert-way, if the Ditch be dry, you must make two or three Descents into it, which may be cover'd with *Madriers* that are Proof; then make a Gallery or Sap at the Bottom, throwing Earth on them, and having sprung a Mine, give the Assault towards Night, to lodge yourself there, as shall be thought convenient.

Note, That a *Madrier* is a thick Plank, sometimes armed with Iron Plates, having a Cavity sufficient to receive the Mouth of a Petard when charged; with which it is applied against a Gate, or other Body designed to be broke down. *Madrier* denotes also a long and broad Plank used for supporting the Earth in Mining, carrying on Saps, making Caponiers, Galleries, and the like. But *Madriers*, in this Place, are Planks lined with Tin, and covered with Earth, serving as Defences against artificial Fires, in Lodgments, *&c.* where there is Need of being cover'd over Head.

The better to understand what Sort of Lodgments are to be made, you must first consider whether the Half Moon is retrenched or not; after what Manner, whether the Ditch of the Place be dry or full of Water; whether the Enemy can succour the Half Moon, or have no Way left to come at it. If the Half Moon is retrenched, you must know what Sort of Retrenchment it is. Though the surest Way is to make two Mines at all Half Moons, that shall be thought retrenched; the one as near the Gorge as possible to blow up the Traverses or Retrenchments, and the other towards the Angle, to hinder the Enemy from making the Retrenchment a Reverse; and also because the Lodgment made on the Angle, cannot be seen from the Place, as those can which you make on the Face, most of which are exposed to View. When you have mounted on the Ruins of the Mine, if you can perceive that the Retrenchments are not well finished or tenable, you must endeavour to carry them at the same Time; and if the Ditch of the Place be full of Water, and the Enemy have no Communication left to come at it, then you may make a Lodgment as large, or as small as you please, or in what Part you please, provided you carry on a Trench to go to it under Covert.

If you attack the right Flank, and the Enemy is Master of the Covert-way which leads to the Left, then your Lodgment must be made on the Top of the Parapet, at the End of the Face next the Gorge, to sweep the Covert-way through which the Enemy might return; and if you can, you must, at the same Time, make a Lodgment at the Foot of the Rampart on the Edge of the Water. If there be a Bridge of Communication between the Place and the Half Moon, a Lodgment must be made at the Head of it. If you think you cannot sufficiently secure the Lodgments, either at the Head of the Bridge, or at the Communication of the Covert-way of the Half-Moon; then the first Night let a Lodgment be made only on the Effect of the Mine, and if the Ditch of the Half Moon be full of Water, you must endeavour to make the Passage easy.

To pass the Ditches of Half Moons, when they are full of Water, after you have made the Descents on the Edge of the Water, Fascines, loaded with Stones, must be thrown into the Ditch, till they are above Water, and then Earth or Stones cast over both to settle them; and to prevent their being burnt, and an Empalement made with Earth and Fascines next the Place. The Work is favoured by the Cannon, which must have beaten down all the Parapet of the Half Moon, and carried off the Baskets generally set there to cover the Musqueteers, and by the small Shot posted along the Covert-way, both above and below; and if the Enemy lodge any Cannon on the Face of the Bastion, to prevent you from passing the Ditch, you must raise Counter-Batteries on the Angle of the Covert-way to dismount their Guns. If the Cannon and small Shot cannot hinder the Enemy that are lodg'd in the Half-Moons, from firing on those that work at

making the Paſſage of the Ditch, then, beſides the Empalement made againſt the Place, you muſt ſet on the other Side a Row of Chandeliers full of Faſcines, or a Range of very high Gabions, or two, one upon another, to hold up Clay covered with Earth, if the Half Moon is high; and if low, then Blinds will be ſufficient, that the Enemy may not fire on the Gallery, unleſs at the Head, where it is impoſſible to work without Danger.

Half Moons that are low, occaſion more Trouble in paſſing the Ditch, than thoſe that are high, or if they have a Fauſſe-braye, for it is almoſt impoſſible to paſs the Ditch without being cover'd forwards, which is done by putting on Mantelets before the Men, when the Ditches are dry, or laying a great Heap of Faſcines at the Head of the Gallery, if they are wet. And whereas it is difficult to caſt Faſcines into the Water over the ſaid Heap, two Men, each of them with a very long Fork or Prong, are to take up a Faſcine at both Ends, well loaded, and ſo throw it over the Heap into the Water. If the Ditches are dry, and the Retrenchments of the Half Moon be carried at firſt, you muſt lodge yourſelf on them, if you can, or raze them, leſt the Enemy return to the Half Moon, and make uſe of them. If the Ditch of the Place be dry, and you can eaſily mount into the Half Moon by the Gorge, after forcing their Retrenchments you muſt make a Lodgment on it, and its Communication by the firſt Eaſe, that you may be ſuccour'd by it, in Caſe of an Attack: From thence you muſt by Degrees puſh on Lodgments to the Gorge of the Half Moon, which you muſt quite incloſe with a Parapet, to prevent the Enemy from returning. If the Gorge of the Half Moon be lin'd with Stone next to the Place, and the Ground very high and ſteep, then as ſoon as the Retrenchment is forced, you may make a Lodgment on the Edge of it, becauſe the leaſt Work will deter them from coming to lodge themſelves there again. If they have any Traverſes in the Ditch of the Half Moon, or of the Retrenchments, then, as you paſs the Ditch, you muſt empale yourſelf on that Side; and to ſecure the Miners and the Work in the Ditch from Sallies, you muſt make an oppoſite Traverſe in the Ditch.

As ſoon as you are Maſter of the Half Moon, you muſt contrive to paſs the Ditch of the Place, in order to fix the Miner to the Face of the Baſtion; but before you attempt to paſs, Lodgments muſt be made all along the Covert-way, as done before to the Half Moon, both on the Top of the Glacis, and the Edge of the Ditch.

If the Ditch is dry, and its Talus, properly called the Counterſcarp, is very ſteep, or faced with a Wall, you muſt begin the Deſcent from the Foot of the Glacis of the Covert-way, or farther off if the Ditch be very deep; if it were but eight or ten Foot deep, you might begin the Deſcent within the Covert-way. If the Enemy be ſtrong and bold, ſeveral Deſcents muſt be made, that the Lodgments may be ſuccour'd with more Eaſe, and the Men in the Ditch. Among the ſeveral Deſcents, that in the Midſt is to ſerve to fix the Miner to the Baſtion, and the reſt to make Lodgments in the Ditch, which may be made with Chandeliers full of Faſcines, if it is ſo wide that the Enemy cannot throw Fire-works into it; but if they can, then they muſt be made of Gabions ſet one upon another, and covered with raw Hides, and Part of the Lodgments covered with Madriers, or Clays loaded with Earth. Muſket-Shot cannot well reach but from the Flank, againſt which you muſt empale yourſelf; and the Thickneſs and Height of the Baſtion will hinder the Enemy from looking into the Lodgment.

If the Counterſcarp has ſo great a Talus or Slope, that there is no Difficulty in going up and down, Cuts muſt be made from the Top to the Bottom, of the the Depth of a Man, covered with Madriers and Clays covered with Earth.

When the Ditch of the Place is full of Water, and the Enemy not able to make any Sallies on the Works carried on, one Deſcent will be ſufficient, in order to lay over the Bridge or Gallery that Way, to fix the Miner to the Baſtion: But the Gallery or Bridge being generally deſtroyed by the Effect of the Mine, a ſecond Deſcent ſhould be made nearer to the Angle, and laid over a Bridge even with the Surface of the Water, loaden with Earth and Stones, that it may bear againſt the Ruins the Mine may caſt upon it; and this muſt not be made until that which leads to the Mine be finiſhed, that ſo the Gallery or Empalement made upon it, may cover thoſe that work at the ſecond Bridge from the Muſqueteers of the Flank.

As ſoon as the Lodgments are made at the Bottom of a dry Ditch, the Miners are fixed to the Baſtion, and covered from above with Madriers, which they reſt againſt the Wall, and which are caſed with Tin, that the Fire-works may not take hold of them, and the Cannon or Small Shot of the Flank, may not incommode them. The Face of the Baſtion is to be battered more towards the Flank, at the Place deſigned to fix the Miner, that the Ruins of it, which fall into the Ditch, may ſerve the Miner inſtead of an Empalement againſt the Flank. It is requiſite to make the ſame Ruin when the Ditch is full of Water, and Miners may ſwim over to lodge themſelves on it. Sometimes they may dig pretty far into the Wall before the Enemy can diſcover it; and having carried a Rope with them, may draw over their Tools on a Ponton, and Madriers to cover them from above, in caſe the Enemies ſhould diſcover their Work. That the Miners may pierce the Wall with more Eaſe, ſome Cannon ſhould be planted on the Counterſcarp, if poſſible, to the End, that the Wall being already ſhaken, they may find leſs Difficulty in boring it.

If the Enemy defend the Paſſage of the Ditch, by playing their Cannon on the Flank, notwithſtanding your Batteries on the Counterſcarp, or by burning the Blinds and Empalements made on the Bridge; or by cutting off the Miners if the Ditch be dry; in this Caſe a Gallery muſt be made.

The Paſſage of the Ditch being ſecured, all poſſible Care muſt be taken to advance the Mines; and to oblige the Miners to work more vigorouſly, you muſt encourage them with Money. It is alſo expedient to enhance their Price according to the Expedition they make in finiſhing the Mine: As for Example, if they are to have fifteen Pounds for making a good one in three or four Days, promiſe them double if they perform it in two.

Opinions vary as to the Part of the Face of the Baſtion, to which the Miner is to be fixed: Some will have him towards the Angle, becauſe the Semicircle made in the Baſtion, by the Effect of the Mine, is not ſeen from the Baſtions of the Place: Others will have the Mine made nearer the Flank than the flanked Angle, to blow up the Retrenchment, if there be any.

If the oppoſite Faces B and A, are attacked, the Miners will be better in the midſt of the Place, or rather nearer the Flank, to ruin entirely the Face of the Baſtion, and the firſt Retrenchment, and to draw the nearer to the Gorge of the Baſtion, where is generally a ſecond Retrenchment. But if only one Face of the Baſtion be attacked on one Front of the Place, the Mine will be better at the Angle, to prevent the Effect of the Mine's being laid in the View of the oppoſite Baſtion: Moſt Men deſiring that the Effect of the Mine may be great, making a large Breach in the Wall, and overthrowing Abundance of Earth, that there may be an eaſy Aſcent to the Baſtion, and many Men mount a-breaſt to make a Lodgment: But as the Lodgments deſigned on the Top of the Baſtion ſeldom ſucceed, and when they do, they are attended with a great Loſs of Men; it is better to make an indifferent Breach only to overthrow the Walll, to prevent Countermines; and then begin another Mine on the Ruins, to be carried on into the Body of the Baſtion, to take the intended Effect.

Many Inconveniencies attend large Breaches, if you fail to lodge yourſelf upon them: One is the eaſy Deſcent it gives to the Beſieged to come down upon the Lodgments you are making, or have made, either at

at the Bottom, or half way up the Breach, in order to fix the Miner. Another is, that the Enemy having raised a Parapet on the Edge of the Mine, the larger it is the more it overlooks all the Ruins of the said Mine. Besides, it must be considered, that to the End the Mine may have a great Effect, it must be carried far into the Earth, which often gives you an Opportunity of disappointing the Enemy's Countermines: I would therefore make the Mine in the Wall, and after the Effect, make a Lodgment at one third of the Height after this Manner. Ten or twelve sturdy Soldiers with Shovels, shall go as privately as possible, to level the Place where the Lodgment is to be made, so that three or four Gabions may stand on it, in a Range; then four Ranks of Gabions, at about seven or eight Feet distance from one another, shall be pushed on covered with Wool-packs; and then two or three Soldiers shall throw Earth on them, to secure the Lodgment against every Thing that may be thrown from above. Thus four Ranks of Gabions covered, as heretofore described, will make three little Lodgments; the middlemost shall serve for the Miners, who shall presently fall to work to make a Mine in the Earth of the Bastion; and the Lodgments on the Right and Left, shall each of them contain four or five Soldiers well armed, with Head-Pieces and Breast-Plates, Musket-Proof, and with Javelins and Pistols.

For the greater Security, two Lines may be made at the same Time, one at the Angle, and the other towards the Orillon, that the second Line may ruin the Retrenchments made within, as those in the Bastion A B C, which might be ruined by the Effect of the Mine, were it not for Fear they should be disappointed, and the Enemy be in a Condition to ruin the Lodgment on the Top of the Breach.

If the Retrenchment be made as in the Bastion C, and its Ditch deep, it will be hard to be Master of it, unless you lodge yourselves on the Top of the Bastion, after the first or second Mine have taken Effect. There if you think you cannot easily begin a Mine at the Breach of the Rampart, you may carry it under the Ditch of the Retrenchment, spring it, and by that Means plant Cannon at the Top of the Bastion, and batter the Retrenchment; or else make a Lodgment at the Edge of its Ditch; then passing it, fix the Miner to the Retrenchment. While the first Mines are carrying on, it will be proper to begin other Mines in such Places where the Effect of the first may not ruin them, so that the one may be used if the other be disappointed; or else by that Means to carry on Mines into the Body of the Bastion, and under the Retrenchments, if it should prove more practicable that Way, than by the Breach the first Mines have made.

If the Miner can be fixed to the Courtin, it will be of great Use, that being a Place behind which there are seldom any Retrenchments; but the Besieged must make a very weak Defence if they permit the Miner to be fixed there.

If there be a Gallery in the Thickness of the Wall, either of the Body of the Place, or of the detached Works, three *Fourneaux* shall be made at the same Time, upon one and the same Face, which shall only blow up the Thickness of the Wall as far as the Gallery; and being laid open in three Places, the Middle may serve to fix the Miner again to make a large Mine, and the Holes on the Right and Left will prevent the Enemy from passing the Gallery, to obstruct the Work of the Mine. But when the Out-works are taken, and a Breach made in the Bastions, the Town generally surrenders.

Note, That a *Breach* is a Hole, Gap, or Aperture, made in any Part of the Works of a Town, either by laying Cannon or springing Mines, in order to storm the Place, or take it by Assault. They say, make good the *Breach*, fortify the *Breach*, make a Lodgment on the *Breach*, &c. To clear the *Breach*, is to remove the Ruins, that it may be the better defended. A practicable *Breach* is that where the Men may mount and make a Lodgment. A *Breach* ought to be 15 or 20 Fathom wide. The Assailants make their Way to it, by covering themselves with Gabions, Earth-Bags, &c.

Note also, That the Besiegers encompass their Camp, to defend it against any Army that may attempt to relieve the Place with Lines of *Circumvallation*, *Countervallation*, and *Communication*. A Line of Circumvallation, is a Line or Trench, with a Parapet, which must be Cannon-Shot distant from the Place, ordinarily about twelve Feet broad, and seven deep; it is border'd with a Breast-work, and flanked with Redoubts, or little Forts, erected from Space to Space: It serves both to prevent any Succour from being sent into the Place, to keep in Deserters, and prevent Incursions of the Enemy's Garrison. Care must be taken that the Line of *Circumvallation* never pass by the Foot of an Eminence; lest the Enemy, seizing on the Eminence, lodge there his Cannon, and command the Line. *Countervallation*, is a Counter-line, or Ditch, made around a Place besieged, to prevent the Sallies and Excursions of the Garrison when it is strong. Along its Edge, on the Side of the Place, runs a Parapet; and it is flanked from Space to Space. It is without Musket-Shot of the Town, and sometimes goes quite round it, sometimes not, according as the General finds Occasion. The Army forming a Siege, lies between the Lines of *Circumvallation*, and *Countervallation*. The Lines of *Communication* are Trenches six or seven Feet deep, and twelve broad, made between one Fort, or Work, and another; in order for a safe Passage between one Quarter and another.

While a Place is besieged, the Besieged do not remain idle Spectators, but work, likewise, on their Side, in their own Defence, and to oppose the Besiegers. The Works they do, on that Occasion, are *Counter-approaches*, *Retrenchments*, *Caponieres*, *Countermines*, *Fougades*, &c.

COUNTER-APPROACHES, are Lines or Trenches made by the Besieged, when they come out to attack the Lines of the Besiegers in form. A Line of *Counter-approach*, is a Trench which the Besieged make, from their Covert-way, to the Right and Left of the Attacks, in order to scour or enfilade the Enemy's Works. It should commence in the Angle of the Place of Arms of the Half-Moon that is not attacked; above 50 or 60 Fathom from the Attacks; and continued as far as shall be found necessary, in order to see the Enemy in his Trenches and Parallels. This Line must be perfectly enfiladed from the Covert-way, and the Half-Moon, that if the Enemy get Possession of it, it may be of no Service to him. In this Line the Governor must frequently, in the Night-time, send small Parties of Horse and Foot, to drive the Workmen from their Posts; and if possible carry off the Engineers, who have the Direction of the Work.

The CAPONIERE, or *Caponniere*, is a cover'd Lodgment, sunk four or five Feet into the Ground, encompassed with a little Parapet two Feet high, serving to support several Planks cover'd with Earth. The *Caponiere* is large enough to contain fifteen or twenty Soldiers; and is usually placed in the Glacis, on the Extremity of the Counterscarp, and in dry Moats; having little Embrasures for the Soldiers to fire through.

COUNTER-MINE, is a subterraneous Vault, running the whole Length of a Wall, three Feet broad, and six deep, with several Holes and Apertures therein, contrived to prevent the Effect of Mines, in Case the Enemy should make any to blow up the Wall; but this Sort of Counter-mine is now little in Use. The modern Counter-mine is a Well, or Pit, and a Gallery, sunk on Purpose till it meets the Enemy's Mine, and prevent its Effect; it being first pretty well known whereabouts it is.

FOUGADE,

FOUGADE, or *Fougasse*, is a little Mine in manner of a Well, scarce exceeding ten Feet in width, and twelve in depth; dug under some Work, or Post, that is like to be lost; and charged with Barrels, or Sacks of Gunpowder, cover'd with Earth: It is set on Fire, like other Mines, with a *Saucisse*.

Note, That *Saucisse* is a long Train of Powder sew'd up in a Roll of pitch'd Cloth, about two Inches in Diameter; serving to set Fire to Mines, or Caissons. The Length of the *Saucisse* is to extend from the Chamber of the Mine, to the Place where the Engineer stands to spring the Mine. There are usually two *Saucisses* to every Mine, that if one should fail, the other may take Effect.

Note, That there are also *Saucissons*, which are a Kind of Faggots, made of thick Branches of Trees, or of the Trunks of Shrubs bound together; whose Use is to cover the Men, and to serve as Epaulments. The *Saucisson* differs from a Fascine, which is only made of the small Branches, and by its being bound at both Ends and in the Middle. Antiently they made the *Saucisson* 46 Feet long, and 12 thick; bound strongly together with three Bands, strengthen'd with Iron.

Note, again, That having often mention'd *Casemate*, in the Course of this Treatise, I must inform my Pupil, before I conclude it, that *Casemate* is a Kind of Vault, or Arch of Stone-work, in that Part of the Flank of a Bastion next the Courtin; somewhat retired or drawn back towards the Capital of the Bastion; serving as a Battery, to defend the Face of the opposite Bastion, and the Ditch. The *Casemate*, sometimes, consists of three Platforms, one above another, the highest being on the Rampart; but they commonly content themselves to withdraw the last within the Bastion. The *Casemate* is also call'd the *low Place*, and *low Flank*, as being at the Bottom of the Wall next the Ditch; sometimes *retired Flank*, as being that Part of the Flank nearest the Courtin, and the Centre of the Bastion; it was formerly cover'd with an Epaulment, or a massive Body, either round or square, which prevented those without from seeing into the Batteries; whence it was also called *cover'd Flank*. It is now rarely used, by reason the Enemy's Batteries are apt to bury the Artillery of the *Casemate* in the Ruins of the Vault. Besides that, the terrible Smoke made by the Discharge of the Cannon, render it intolerable to the Men. Hence, instead of the antient cover'd *Casemates*, later Engineers have contrived open ones, only guarded by a Parapet, *&c.* *Casemate* is also used for a Well, with several subterraneous Branches, dug in the Passage of the Bastion, till the Miner is heard at Work, and Air given to the Mine.

Some Authors go back to the Beginning of the World for the Author, or Origin, of *military Architecture*, or *Fortification*. According to them, God himself was the first Engineer; and Paradise, or the Garden of *Eden*, the first Fortress. *Cain* improved on the Hint, in building the first City, *Genes.* iv. 17. after him came *Nimrod*, *Gen.* x. 10. then *Semiramis*, as *Polyænus* relates, *Stratagem*, *lib.* 8. *c.* 27. the *Canaanites*, *Numb.* xiii. 19. *Deut.* i. 28. *David*, 2 *Kings* v. 9. *Solomon*, 2 *Chron.* iii. 5. *Rehobcam* his Son, 2 *Chron.* viii. 5. and other Kings of *Judah* and *Israel*; and at length the *Greeks* and *Romans*. *Vitruv. lib.* 10. *c. ult.* and *lib.* 1. *c.* 5.

Such is the Series of those who *fortified* Places; to which might be added *Pharaoh*, the Persecutor of the *Israelites*, who built the Cities of *Pithom*, and *Raamses*, *Exod.* i. 11.

But how antient soever the surrounding of Cities with Walls, Towers, *&c.* may be, the Name *Fortification*, and the Art now understood thereby, are of no very old standing. They had their Rise since the Invention of Cannons; the terrible Effects whereof render'd it necessary to change the Structure of the antient Walls, and add so many Things thereto, that those Changes were thought enough to constitute a new Art, which was call'd *Fortification*, by the Strength it afforded those in Cities, to defend themselves against an Enemy.

The first Authors, who have wrote on *Fortification*, consider'd as a particular form'd Art, are *Ramelli* and *Cutaneo*, *Italians*; after them *Errard*, Engineer to *Henry the Great*, King of *France*; *Stevinus*, Engineer to the Prince of *Orange*; *Marolois*, the Chevalier *de Ville*, *Lorini*, *Coehorn*, the Count *de Pagan*, and the Marshal *de Vauban*: Which last two noble Authors contributed greatly to the Perfection of the Art.

FOUNDERY.

FOUNDERY, or FOUNDRY, (from the *French fondre*, to melt, or fuse) is the Art of Melting and Casting all Sorts of Metals; particularly Brass, Iron, Bell-Metal, *&c.*

The Artists, in this Art, are call'd *Founders*; and from their different Productions, are differently denominated; as *Founders of Small Works*, *Bell-Founders*, *Gun-Founders*, *Letter-Founders*, *Figure-Casters*, &c. so that the Art of *Foundery* must be consider'd as divided into so many different Branches; each whereof will fall under our Consideration; after we have provided ourselves with all the Utensils and Tools belonging to the Art of *Foundery*, as a *Furnace*, *Moulds*, a *Press*, &c.

The *Furnaces* of *Founders*, are various according to the different Kinds of Works to be cast.

That used by the *Founders* of small Works, is much like the Smith's Forge, with this only Difference, that the Fire is made on a Massive, built in a Cavity, in the Middle of the *Furnace*, to which the Pipe of the Bellows reaches. This Cavity goes to the Bottom of the Massive; across the Middle of it is placed a Grate, which holds the Fire and the Crucible: And below is the Place for the Ashes.

The *Statuaries* or Figure-makers use two Kinds of *Furnaces*. One has its Aperture outwards, over which is placed a Grate, to dry the Moulds. The other is made in manner of an Oven, with three Apertures; one to put in the Wood, another for a Vent, and a third to run the Metal out at.

The *Letter-Founders* Furnace, wherein the Bason is placed for the Metal to be melted in, is made of the same Matter as Crucibles, and is usually eighteen or twenty Inches high, and ten or twelve in Diameter. An Iron Grate horizontally placed, divides it into two: The lower Part serves to hold the Ashes, and is furnished with a Hole to let in the Air. The Wood is put in the upper Part, through an Aperture made over the Grate. An Earthen Pipe serves to carry off the Smoak out at a Window, near which the *Furnace* is ordinarily placed. Lastly, a Stone or Wooden Stool, serves to support the *Furnace*, and raise it to a proper Height for the Workmen to work standing.

The Moulds are also different, according to the different Kinds of Works to be cast.

The Moulds of *Founders* of Small Works, like those of Moneyers, are Frames full of yellowish, pretty soft, and greasy Sand; which, after it has been used, becomes quite black, by reason of the Charcoal-dust used in them. These Moulds are made by working and tewing this Sand several Times over on a Board about a Foot square, placed over a kind of Trunk or Box,

Box, into which it may fall from off the Board. This tewing is performed with a Roller or Cylinder, about two Feet long, and two Inches in Diameter; and a kind of Knife made of the Blade of a Sword: With these two Instruments they alternately roll and cut the Sand, and at length turn it down into the Box underneath. Then taking a wooden Board or Table, of a Length and Breadth proportionable to the Quantity of Things to be cast; round this they put a Frame or Ledge, and thus make a sort of Mould. This Mould they fill with the Sand before prepared, and a little moistened. Which done, they take wooden or metalline Models, or Patterns of the Things intended to be cast, apply them on the Mould, and press them down into the Sand, so as to leave their Form indented. Along the Middle of the Mould is laid half a little Cylinder of Brass, which is to be the Master Jet, or Canal for running the Metal; being so disposed as to touch the Ledge at one Side, and only to reach to the last Pattern on the other. From this are placed several lesser Jets or Branches, reaching to each Pattern, whereby the Metal is conveyed through the whole Frame.

This first Frame thus finished, they turn it upside down to take out the Patterns from the Sand; in order to which, they first loosen them a little all round with a small cutting Instrument. After the same Manner they proceed to work the Counter-part, or other Half of the *Mould*, with the same Patterns, in a Frame exactly like the former; excepting that it has Pins, which entring Holes corresponding thereto in the other, make, when the two are joined together, the two Cavities of the Pattern fall exactly on each other.

The Frame thus moulded is carried to the *Founder*, or Melter, who, after enlarging the principal Jet, or Canal of the Counter-part, with a kind of Knife, and adding the cross Jets, or Canals to the several Patterns in both, and sprinkling them with Mill-dust, sets them to dry in an Oven. When both Parts of the *Mould* are sufficiently dried, they join them together by means of the Pins; and to prevent their starting, or slipping aside by the Force of the Metal, which is to come in flaming-hot through a Hole contrived at the Master Jet, they lock them in a kind of Press, either with Screws, or, if the *Mould* be too big, with Wedges.

There are two Sorts of *Moulds* used in casting Statues or Figures, *viz.* the inner *Mould*, or Core; and the outward *Mould* or *Shell*.

The inner *Mould* or *Core* (thus called from *Cœur*, as being in the Heart or Middle of the Statue) is a rude lumpish Figure, a little resembling the Statue intended. It is raised on an Iron Grate, strong enough to sustain it, and is strengthened within-side by several Bars or Ribs of Iron. It may be made indifferently of two Sorts of Matters, at the Discretion of the Workman, *viz.* Potters Clay mixed up with Horse-dung and Hair, or of Plaister of Paris, mixed with fine Brick-dust.

The outward *Mould* or *Shell*, is a Kind of Coat or Crust laid over the Wax, (which Wax is a Representation of the intended Statue) and which being of a soft Matter, and even at first liquid, easily takes and preserves the Impression of every Part thereof, which it afterwards communicates to the Metal, upon its taking the Place of the Wax between the Shell and the *Mould*. The Matter of this outer *Mould* or Shell, is varied according as different Layers, or Strata are applied. The first is a Composition of Clay and old Crucibles, well grounded and sifted, and mixed up with Water, to the Consistence of a Colour fit for painting. Accordingly they apply it with a Pencil, laying it seven or eight Times over; letting it dry betwixt whiles. For the second Impression, they add Horses Dung and Earth; lastly, the Shell is finished by laying on several more Impressions of this last Matter, made very thick with the Hand.

The Shell thus finished, is secured and strengthened by several Bands, or Girts of Iron wound around it, at half a Foot's Distance from one another, and fastened at Bottom to the Grate under the Statue; and a-top to a Circle of Iron, where they all terminate.

Note, That if the Statue be so big, that it would not be easy to move the Moulds when thus provided, it must be wrought on the Spot where it is to be cast. This is performed two Ways: In the first a square Hole is dug under Ground, much bigger than the *Mould* to be made therein; and its Inside lin'd with Walls of Free-stone or Brick. At the Bottom is made a Hole of the same Materials, with the first Furnace heretofore mentioned; in which a Fire is to be lighted to dry the *Mould*, and afterwards melt the Wax. Over this Furnace is placed the Grate; and on this the *Mould*, &c. formed as above directed. In the other Way, it is sufficient to work the *Mould* above Ground; but with the same Precaution of a Furnace and Grate underneath. When finished, four Walls are to be run up around it; and by the Side thereof a Massive, made for a melting Furnace: For the rest, the Method is the same in both.

The *Mould* being finished, and inclosed between four Walls, whether under Ground or above it, a moderate Fire is lighted in the Furnace under it; and the Hole cover'd with Planks, that the Wax may melt gently down, and run out at Pipes, contrived for the Purpose, at the Foot of the Mould; which are afterwards very exactly closed with Earth, as soon as all the Wax is carried off. This done, the Hole is fill'd up with Bricks thrown in at Random, and the Fire in the Furnace augmented, till such a Time as both the Bricks and the *Mould* become red-hot; which ordinarily happens in twenty-four Hours: Then the Fire being extinguished, and every Thing cold again, they take out the Bricks, and fill up their Place with Earth, moisten'd and a little beaten, to the Top of the *Mould*, in order to make it more firm and steady.

The Moulds of *Letter-Founders* are partly of Steel, and partly Wood; the principal Parts whereof are, 1. Two Steel-Plates, with each its Screw, to keep them fast at a Distance from the Boards. 2. Two call'd *long Pieces*. 3. A Piece call'd the *Blank*, which is what properly forms the Body of the Character, at the Extremity whereof the Matrice is put. 4. A Jet or Cast; which is a Sort of little Funnel, to receive and convey the melted Matter to the Matrice. 5. A Register, serving to rejoin the two Parts of the *Mould*, after they have been opened to take out the Letters when cast. On the Outside of the *Mould* are three other Pieces, *viz.* the Bow at Bottom, and two Hooks a-top. The Bow is a thick Steel-Wire, two or three Lines in Diameter, and eight or ten Inches long, bent in manner of a Bow or Arch; whereof the lower Piece of Wood is, as it were, the Cord or String. One End is fastened to the Board, and the other, which is left at Liberty, serves by its Spring or Elasticity, to press and retain the Matrice of the Character against the Extremity of the *Blank*, where the melted Matter running in makes the Impression. The Hooks a-top of the *Mould* are also of Wire, about the same Size with the Bow, and about an Inch and a half long; being fastened, one of them to one Board, and the other to the other. Their Use is, to open the *Mould*, and to take out the Character when cast, so as the Workmen may not be incommoded with the Heat.

From this Description of all Sorts of *Moulds* for *Founders*, of what Denomination soever, we'll pass to that of their Press, which is a strong square Frame, consisting of four Pieces of Wood, firmly joined together with Tenons, *&c.* This *Press* is of various Sizes, according to the Sizes of the *Moulds*; two of them are required to each *Mould*, at the two Extremes whereof they are placed; so as that by driving wooden Wedges between the *Moulds* and the Sides of the *Presses*, the two Parts of the Mould wherein the

Metal

Metal is to be run, may be preſſed cloſe together.

Being thus provided with all theſe principal Utenſils, and likewiſe with Crucibles, Ladles, &c. we'll go to work, beginning by the moſt eaſy Branch of *Foundery*, which is that of ſmall Works; and this by ranging our Moulds near the Furnace, to be in Readineſs to receive the Metal as it comes out of the Crucible, which muſt be an earthen One, about ten Inches high, and four in Diameter. When the Fuel in the Furnace, which is to be of dry Wood, is pretty well lighted, this Crucible full of Metal is put in the Middle, and cover'd with an earthen Lid; and to increaſe the Force of the Fire, beſides blowing it up with the Bellows, a Tyle is laid over Part of the Aperture, or Cavity of the Furnace.

The Metal being brought to a Fluid, the Crucible muſt be filled with Pieces of Braſs, beaten in a Mortar; put into the Crucible with a Kind of Iron Ladle, with a long Shank at the End thereof, formed into a Kind of hollow Cylinder, out of which the Piece is dropped; which done, the *Founder* takes the Crucible out of the Fire, and carries it in a Pair of Iron Tongs (whoſe Feet are bent, the better to embrace the Top of the Crucible) to the Mould; into which he pours it, through the Hole anſwering to the Maſter-Jet of each Mould; thus he goes ſucceſſively from one to another, till his Crucible is emptied, or there is not Matter enough left for another Mould. Then caſting cold Water on the Moulds, they take the Frames out of the Preſſes, and the Caſt-works out of the Sand, which they work again for another Caſting. Laſtly, they cut off the Jets, or Caſts, and ſell, or deliver them to thoſe who beſpoke 'em, without any farther Repairing.

From this we'll paſs to the Caſting of *Statues*, or *Figures*, for *Buſts*, *Baſſo-Relievo's*, *Vaſes*, &c. for doing which, three Things are chiefly requir'd, *viz.* the Mould, Wax, Shell, and Coat; we have already given the Method how to make the Mould, and Coat. Therefore it remains only, before we go to work, to obſerve, that the Wax, if it be a Piece of Sculpture, muſt be all of the Sculptor's own Hand, who uſually faſhions it on the Core itſelf; though it may be wrought a-part in Cavities, moulded or formed on a Model, and afterwards diſpoſed and arranged on the Ribs of Iron over the Grate, as before; filling the vacant Place in the Middle, with liquid Plaiſter, and Brick-Duſt; by which Means, the inner Mould, or Core, is formed, in proportion as the Sculptor carries on the Wax; which is to be of the intended Thickneſs of the Metal, and by the Weight of the Wax us'd therein, is that of the Metal adjuſted; ten Pounds of this laſt, being uſed to one Pound of the former. When the Wax is finiſhed, they fit little waxen Tubes perpendicularly to it, from Top to Bottom; to ſerve both as Jets for the Conveyance of the Metal to all Parts of the Work, and as Vent-holes to give Paſſage to the Air, which would otherwiſe occaſion great Diſorder, when the hot Metal comes to encompaſs it.

The Furnaces, Mould, and Coat, thus prepared, there remains nothing but to melt the Metal, and run it into the Mould, which is the Office of the Furnace above, with the three Apertures; and from that Aperture appointed to run the Metal out at, and which is kept very cloſe all the Time the Metal is in Fuſion; a little Tube or Canal is laid, whereby the molten Metal is convey'd into a large earthen Baſon over the Mould, into the Bottom of which, all the big Branches of the Jets, or Caſts, which are to carry the Metal into all the Parts of the Mould, are inſerted. Which Jets are all terminated or ſtopped with a Kind of Plugs, which are kept cloſe, that upon opening the Furnace, the Braſs, which guſhes out like a Torrent of Fire, may not enter any of them, till the Baſon be full enough of Matter to run into them all at once: Upon which Occaſion they pull out the Plugs, which are long Iron Rods, with a Head at one End capable of filling the whole Diameter of each Tube. The Hole of the Furnace is opened with a long Piece of Iron, fitted at the End of each Pole, and the Mould filled in an inſtant.

The Work is now finiſhed, at leaſt ſo much as belongs to the Caſting, the reſt being the Sculptor's or Carver's Buſineſs; who taking the Figure out of the Mould and Earth it is encompaſſed withal, ſaws off the Jets with which it appears covered over, and repairs it with Inſtruments proper to his Art, as Chiſſels, Gravers, Puncheons, &c.

Note, That the Solution, or melting of Metals by Means of Fire, is called *Fuſion*, from the *Latin fuſio*, of *fundo*, I pour. To give the Ore its metallick Form, they fuſe it; when it is in Fuſion, the metalline Subſtance being the heavieſt, ſinks to the Bottom of the Furnace, the other terreſtial Matters riſing in Form of *Scoria* to the Surface. It is uſually imagined, that the Fuſion, and metalline Form of Ores, is wholly the Effect of Fire, and we have Theories of Fuſibility built on this Principle; but it is a miſtaken one. Fire, no doubt, is the principal Agent; but Fire alone is not ſufficient. A Mineral or Piece of Metal not purified, being put alone in a Crucible, melts with a World of Difficulty, and never becomes a perfect Metal; Copper Ore, for inſtance, being thus applied, its impure Part forms a *Scoria*, and vitrifies; the metalline Part reſiding at the Bottom, under the Appearance of a black Regulus. To promote the Fuſion, and Separation, they mix Coals, Stones, Cinders, or old *Scoria* along with the Ore, the inflammable Principles in which by Help of the Fire, fuſes them perfectly, ſets the heterogeneous Part at Liberty, and raiſes it to the Top. The general Reaſon of Fuſion is pretty eaſily aſſign'd. The Firmneſs or Solidity of a Body, ariſes from the Force wherewith its Particles cohere. And the Coheſion of all Bodies, is as the Quantity of Contact, to the component Particles. Now the Corpuſcles of Fire entering with Rapidity into the Pores of the Metal, agitates, and by Degrees looſens, divides, and diminiſhes their Contact; till at length there is not enough to hinder their rolling over each other, and giving Way upon the leaſt Impulſe. The Dilatation obſervable in all Fuſion, is a Proof that the Particles of the Bodies are ſeparated, and ſet at a Diſtance from each other, and conſequently their Contacts and Coheſions diminiſhed. In Effect, Rarefaction and Dilatation, are the neceſſary Conſequence of Fire and Heat. From the Difference of Coheſion proceeds the Variety we obſerve in the Fuſion of Bodies; for ſuch as have leaſt Contact of Parts, ſooneſt give Way to the Fire, and ſome will melt away by the Warmth of a Vapour only; when others, which have a ſtronger Contact, are not to be ſeparated without much Difficulty; upon this Account, Vegetables very eaſily diſunite; Minerals ſlower; and Metals ſloweſt of all: And of the laſt, thoſe wherein the Contact of Parts is leaſt, as in Lead and Tin, moſt readily melt; but thoſe which are more compact, as Gold and Silver, are not to be managed but by a violent Heat. If now the Force of Coheſion was proportionable to the Quantity of Matter, or to the Weight of Bodies, we might, from Staticks, account for all the Variety that occurs in Fuſion: For by knowing the ſpecifick Gravity of a Body, we ſhould then know what Force is requir'd to melt it: But becauſe the ſame Quantity of Matter may be ſo variouſly diſperſed, that in one Body there ſhall be a much greater Contact than in another, tho' the Gravity be equal, or even greater in the latter; therefore the Force of Coheſion cannot be eſtimated by Gravity; for Lead, tho' more ponderous than all other Metals, except Gold, yet in the Fire is more eaſily melted than any other; ſo that it neceſſarily follows, that in this Metal there muſt be a leſs Coheſion, or Contact of Parts, how much ſoever it may exceed others in the Quantity of its Matter. Bodies after Fuſion return again

again into a ſolid Maſs, upon removing them from the Fire, becauſe their Particles hereupon approach nearer to one another by their attractive Force, and are ſo compelled to unite. Such as conſiſt of homogeneous and unalterable Parts, as Wax, Gums, and the purer Metals, recover their antient Form: For when the ſame Texture of Parts remain in the whole Body, it muſt of Courſe reaſſume the ſame Appearance, when the ſeparative Power ceaſeth to act; but other Bodies, whoſe Parts with reſpect to Denſity and Surface, are extremely different from one another, while ſome are carried off by the Force of the Heat, and others are changed as to Figure and Poſition, muſt be forced to appear in another Form; for they cannot recover their original Phaſes, unleſs every Particle could reinſtate itſelf in that very Situation it had before, which may be hinder'd infinite Ways; as may be experienced eaſily in heterogeneous Bodies. The Difference therefore obſerved in homogeneous Bodies after Liquefaction, is no ways to be accounted for but from the Changeableneſs of Surface in their Parts; for thoſe Bodies, whoſe Parts conſtantly retain the ſame Surfaces, never loſe their Form; but others, by having the Surfaces of their Parts alter'd, have a different Texture, and put on another Appearance.

Note alſo, That the Art of caſting Statues in Braſs is very antient; inſomuch that its Origin was too remote and obſcure, even for the Re-ſearch of *Pliny*, an Author admirably ſkilled in diſcovering the Authors of other Arts. All we can learn for certain, is, that it was practiſed in all its Perfection firſt among the *Greeks*, and afterwards among the *Romans*; and that the Number of Statues conſecrated to the Gods and Heroes ſurpaſſed all Belief. The ſingle Cities of *Athens*, *Delphos*, *Rhodes*, &c. had each 3000 Statues; and *Marcus Scaurus*, tho' only Ædile, adorned the *Circus* with no leſs than three thouſand Statues of Braſs, for the Time of the *Circenſian* Games. This Taſte for Statues was carried to ſuch a Pitch, that it became a Proverb, that in *Rome* the People of Braſs were not leſs numerous than the *Roman* People. Among us the Caſting of Statues was but little known or practiſed before the ſeventeenth Century.

The Proceſs is the ſame, in Proportion, in *caſting Bells*, as in caſting Statues; and all the Difference conſiſts only in the Metal, and the Dimenſions of the Core, and of the Wax. 1. The Metal is different, in that there is a fifth Part Tin in the Metal of Bells; and none at all in Statues. 2. The Dimenſions of the Core and Wax are different, becauſe they are not left to Chance, or the Caprice of the Workman (eſpecially if it be a Ring of ſeveral Bells) but muſt be meaſured on a kind of Scale or *Diapaſon*, which gives the Height, Aperture, and Thickneſs, neceſſary for the ſeveral Tunes required. On the Wax are alſo form'd the Mouldings, and other Ornaments, and Inſcriptions to be repreſented in Relievo, on the Outſide of the Bell.

The Proportions of our *Bells* differ very much from thoſe of the *Chineſe*. In ours, the modern Proportions are to make the Diameter fifteen Times the Thickneſs of the Brim, and twelve Times the Height. The *Chineſe* have an extraordinary Way of increaſing the Sound of their *Bells*, viz. by leaving a Hole under the Cannon; which our *Bell-Founders* would reckon a Defect. The Clapper, or Tongue, is not properly a Part of the *Bell*, but is furniſhed from other Hands. In *Europe* it is uſually of Iron, with a large Bunch at the Extreme, and is ſuſpended in the Middle of the *Bell*. In *China* it is only a large wooden Mallet, ſtruck by force of Arm againſt the *Bell*; whence they can have but little of that Conſonancy, ſo much admired in ſome of our Rings of *Bells*. The Parts of a *Bell* are the Body, or Barrel, the Clapper withinſide, and the Ear, or Cannon, whereby it is hung to a large Beam of Wood.

Note, That the Sound of a *Bell*, ariſes from a vibratory Motion of the Parts thereof, much like that of a muſical Chord. The Stroke, or Clapper, it is evident, muſt change the Figure of the *Bell*, and of round make it oval; but the Metal having a great Degree of Elaſticity, that Part which the Stroke drove fartheſt from the Centre, will fly back again, and this even ſomewhat nearer to the Centre than before, ſo that the two Points which before were the Extremes of the longer Diameter, now become thoſe of the ſhorter. That the Circumference of the *Bell* undergoes alternate Changes of Figure, and by means thereof gives that tremulous Motion to the Air wherein the Sound conſiſts. M. *Perrault* maintains, that the Sound of the ſame *Bell*, or Chord, is a Compound of the Sounds of the ſeveral Parts thereof: So that where the Parts are homogeneous, and the Dimenſions of the Figure, uniform, there is ſuch a perfect Mixture of all theſe Sounds, as conſtitutes one uniform, ſmooth, even Sound; and the contrary Circumſtances produce Harſhneſs. This he proves from the Bells differing in Tune according to the Part you ſtrike; and yet ſtrike it any where, there is a Motion of all the Parts. He therefore conſiders *Bells*, as compoſed of an infinite Number of Rings, which according to their different Dimenſions, have different Tones, as Chords of different Lengths have: And when ſtruck, the Vibrations of the Parts immediately ſtruck, determine the Tone; being ſupported by a ſufficient Number of conſonant Tones in the other Parts.

Note alſo, That the firſt *Bells* are ſaid to have been made at *Nola* in *Campania*, whereof St. *Paulinus* was Biſhop; at leaſt it is aſſured he was the firſt who brought them into the Church. And hence it is added, they had their *Latin* Name *Nolæ*, and *Campanæ*: But others ſay, they take theſe Names, not from their being invented in *Campania*, but becauſe it was here the Manner of Hanging and Ballancing them, now in uſe, was firſt practiſed; at leaſt that they were hung on the Model of a ſort of Ballance, invented or uſed in *Campania*. For in *Latin* Writers we find *Campania Statera*, for a Steel-yard, and in the *Greek* Καμπανιζειν, for *ponderare*, to weigh. *Polydore Virgil* aſcribes the Invention of Church *Bells* to Pope *Sabinian*, St. *Gregory*'s Succeſſor; but by Miſtake: For St. *Jerom*, Contemporary with *Paulinus*, makes mention of one. In effect, Pope *Sabinian*, did not invent *Bells*; but he was the firſt who appointed the canonical Hours to be diſtinguiſhed by them. We even find mention made of *Bells* in *Ovid*, *Tibullus*, *Martial*, *Statius*, *Manilius*, and the *Greek* Authors, under the Appellations of *Tintinnabula*, and *ſounding Braſs*. *Suetonius*, *Dion*, *Strabo*, *Polybius*, *Joſephus*, and others, mention them under the Names of *Petaſus*, *Tintinnabulum*, *Æramentum*, *Crotalum*, *Signum*, &c. but theſe appear to have been no more than Baubles, and little like the large Bells in uſe among us. *Hieronymus Magius*, who has a Treatiſe expreſs on *Bells* (wrote, when in Chains, in *Turkey*, and which is accounted very remarkable, purely from his Memory without the Aſſiſtance of any Books) makes large *Bells* a modern Invention. Indeed we do not hear of any before the ſixth Century: In 610, we are told, *Lupus* Biſhop of *Orleans*, being at *Sens*, then beſieged by the Army of *Clotharius*, frighten'd away the Beſiegers, by ringing the *Bells* of *St. Stephen*. The firſt large *Bells* in *England* are mentioned by *Bede*, towards the latter End of that Century. They ſeem to have been pretty common in the Year 816. The *Greeks* are uſually ſaid to have been unacquainted with them till the ninth Century, when their Conſtruction was firſt taught them by a *Venetian*. Indeed, it is not true, that the Uſe of *Bells* was entirely unknown in the antient Eaſtern Churches, and that they called the People to Church, as at preſent, with

wooden

wooden Mallets. *Leo Allatius*, in his *Dissertation on the* Greek *Temples*, proves the contrary from several antient Writers. It is his Opinion, that *Bells* first began to be disused among them, after the taking of *Constantinople* by the *Turks*; who, it seems, prohibited them, lest their Sound should disturb the Repose of the Souls, which, according to them, wander in the Air. He adds, that they still retain the Use of *Bells*, in Places remote from the Intercourse of the *Turks*; particularly very antient ones in Mount *Athos*. Father *Simon* thinks the *Turks* rather prohibited the Christians the Use of *Bells* out of political, than religious Reasons; in as much as the Ringing of *Bells*, might serve as a Signal for the Execution of Revolts, *&c.*

The City of *Bourdeaux* was deprived of its *Bells* for Rebellion: And when it was offered to have them restored, the People refused it, after having tasted the Ease and Conveniency of being freed from the constant Din and Jangling of *Bells*.

Matthew Paris observes, that antiently the Use of *Bells* was prohibited in Time of Mourning; though at present, they make one of the principal Ceremonies of Mourning. *Mabillon* adds, that it was an antient Custom to ring the *Bells* for Persons about to expire, to advertise the People to pray for them; whence our *passing Bells*. *Lobineau* observes, that the Custom of Ringing of *Bells*, at the Approach of Thunder, is of some Antiquity; but that the Design was not so much to shake the Air, and to dissipate the Thunder, as to call the People to Church, to pray that the Parish may be deliver'd from that terrible Meteor.

The Custom of Christening, or Blessing *Bells*, is very antient: Some say it was introduced by Pope *John* XIII. in 972; but it is evidently of an older Standing; there being an express Prohibition of the Practice, in a Capitular of *Charlemagne*, in 789. *Alcuin* says, it was long establish'd before the eighth Century: So that what has been said of *John* XIII. is only to be understood of an Order of that Pope for restoring the Practice which had been disused.

Nankin, a City of *China*, was antiently famous for the Largeness of its *Bells*; but their enormous Weight having brought down the Tower, the whole Building fell to Ruin, and the *Bells* have ever since lain on the Ground. One of these *Bells* is near twelve *English* Feet high, the Diameter seven and an half, and its Circumference twenty-three. Its Figure almost cylindrick, except for a Swelling in the Middle; and the Thickness of the Metal, about the Edges seven Inches. For the Dimensions of this *Bell*, its Weight is computed at 500,000 Pounds, which is more than double the Weight of that of *Erfort*, said by Father *Kircher* to be the greatest *Bell* in the World. These *Bells* were cast by the first Emperor of the preceding Dynasty, about 300 Years ago. They have each their Name, the Hanger *Tchoui*, the Eater *Che*, the Sleeper *Chaci*, the Will *Fi*. Father *le Conte* adds, that there are seven other Bells in *Pekin*, cast in the Reign of *Youlo*, each of which weighs 120,000 Pounds. But the Sounds even of their highest *Bells* are very poor, being struck with a Wooden, in lieu of an Iron Clapper. The *Egyptians* have none but wooden *Bells*, except one brought by the *Franks* in the Monastery of St. *Anthony*.

The Uses of *Bells* are summed up in this *Latin* Distich:

Laudo Deum verum, plebem voco, congrego clerum;
Defunctos ploro, pestem fugo, festa decoro.

The Casting of *Cannons*, *Mortars*, and *other Pieces of Artillery*, is performed like that of Statues and Bells, especially as to what regards the Mould, Wax, Shell, Furnaces, *&c.* As to the Metal it is somewhat different from both; as having a Mixture of Tin, which is not in that of Statues; and only having half the Quantity of Tin that is in Bells, *i. e.* at the Rate of ten Pounds of Tin to a hundred of Copper. A *Cannon* is always shaped a little conical, being thickest of Metal at the Breech, where the greatest Effort of the Gunpowder is made, and diminishing thence to the Muzzle: So that if the Mouth be two Inches thick of Metal, the Breech is six. Its Length is measured in *Calibers*, i. e. in Diameters of the Muzzle. Six Inches at the Muzzle require twenty Calibers, or ten Feet in Length: There is about $\frac{1}{8}$ of an Inch allowed Play for the Ball.

Note, That the Casting of Guns is quite modern; and it were perhaps to be wish'd we were as ignorant of it as the Antients. All Authors agree, that the first Cannon were cast in the fourteenth Century; tho' some fix the Event to the Year 1338, and others to 1380.

The two Things principally to be regarded in the *Casting of printing* Letters, are the *Matter* and the *Matrices*.

The *Matter* is a compound Metal; partly Copper, and partly Lead, mixed in a certain Proportion, which every *Letter-Founder* regulates at his own Discretion, and to which he frequently adds a certain Quantity of some other Metal, or Mineral, as his Experience directs him, to render his Composition the harder. The most usual Proportion of the two Metals, is a hundred Pounds of Lead to twenty or twenty-five Pounds of Brass. Some (though not the best *Founders*) use Iron instead of Brass; in the Proportion of a hundred Pounds of Lead, to thirty or thirty-five Pounds of Iron. These Metals are melted separately in large Crucibles; the Brass or Iron, with Antimony, and the Lead by itself. When in Fusion they are mixed together: This Fusion and Mixture are the most laborious Parts of the *Letter-Founders* Art.

The *Matrices* of the Letters are Pieces of Copper, whereon the Impression of the intended Character has been cut, or struck in Creux, by means of Puncheons, *&c.* graven in Relievo. Each Letter has its proper *Matrice*; and there are particular ones for Points, Virgula, Figures, Rules, Head-Pieces, and other Ornaments of Printing; excepting the Quadrats, which being only of Lead, and not intended to leave any Impression, are cast without *Matrices*, and only in Moulds; and each *Matrice* has its Puncheon made of Steel, or Iron well tempered. The *Matrices* being struck, and touched up, or repaired where needful, are put each at the End of the *Mould*, heretofore described.

This done, the Mixture or Composition, made in the Crucibles above-mentioned, is melted in a Bason or Copper, of about nine Inches in Diameter, placed over the Furnace, of which it takes the whole Aperture a-top; being even luted to it all around with Potters Earth. Its Matter is a Kind of Pot-Metal; and that it may be fit for melting both hard and soft Metals, it is divided into two equal Parts, by a perpendicular Partition. A little Iron Ladle serves to skim off the Scoriæ or Impurities from the Surface of the melted Metal; which Scoriæ are not all lost, but serve to melt over again.

Two Workmen are usually employ'd at each Furnace: Each of them has its Part of the Bason to empty; and they have a Table or Bench in common, where they lay the Characters as fast as they are cast. To run the Metal into the Mould, the Founder holds it in his left Hand; and in his right, a little Iron Ladle, with a wooden Handle, containing just enough for one Letter. Having now fill'd this Ladle with liquid Metal, he pours it into the Jet or Funnel, whose Aperture is in the Middle of the two Hooks of the Mould; and thrusting his Hand briskly forward, wherewith he holds the Mould, makes the Metal run into the *Matrice* of the Character; which without such Motion might grow cold before it arrived there. He then unbends the Bow, opens the Mould, and with one of the Hooks takes out the Character; and without Loss of Time shuts it again, replaces the Matrice, and casts a new Letter. It is incredible with what Expedition and Address all this is done.

The Letter being caſt, they view it before they break off the Jet, to ſee whether it be perfect; otherwiſe to throw it among the Refuſe of the Fount. If it be found compleat, the Jet or Tail is broke off; the ſuperfluous Metal, occaſioned by the Moulds not being exactly cloſed, taken off with a Knife; the long Tail Letters, as *f* and *ſ* hollowed at Bottom, to give Room for the Maſſive of the other Letters to be plac'd underneath. With the ſame Knife they ſcrape the Letter to ſmooth its two broadeſt Sides, or Faces, and fit them to be rubb'd on the Stone. They take Care only to rub thoſe Sides, for fear of damaging a Notch on one of the other Sides, which is to diſtinguiſh the Sides to the Compoſitor when he ſets his Forms.

The Stone they grind them on, is a Sort of hard, coarſe-grain'd Free-ſtone, placed horizontally; before which the Workman ſits. To ſave his Fingers from the Friction, he has a Kind of Finger Stalls, made of ſome old Piece of Leather; with which he covers the two Fingers next the Thumb; with theſe he works each Side of the Letter backwards and forwards: To ſhift Sides, he makes Uſe of the Thumb, but without diſcontinuing the Motion; ſo that the By-ſtander would eaſily be deceived, and be ready to ſwear they had all the while rubbed on the ſame Side.

The Letters thus ground, are placed on the Compoſitory, to be ſcraped and brought to the proper Thickneſs, on the two other Sides, *viz.* that of the Notch, and its oppoſite. This they ſometimes call *Compoſition.*

Note, That the *Compoſitory* is a wooden Ruler, with a little Ledge at Bottom, againſt which the Letters are ranged. On the ſame Inſtrument, the Quadrats, Rules, Borders, *&c.* are adjuſted.

When the Letters are compoſed, they remain to be juſtified, both as to Thickneſs and Height; which Juſtification is made with a little Copper-Plate, which is their Level.

The Juſtification as to Thickneſs, is made on a Piece of Marble; and that for the Height on an Iron Compoſitory. The Juſtification of the Height is guided by the *m* of ſome Body of Characters already juſtified. Letters are ſaid to be of their juſt Height, when the Part of the Plate, or Level, bears equally on the Standard *m*, placed on its Foot, in the little Compoſitory, and the Face of two Letters, newly caſt, placed aſide of it to be juſtified.

As to the Thickneſs, the Juſtification is performed by laying the Standard Letter flat on the little Marble, and two new Letters aſide of it, and thus levelling the three with the Plate.

All that remains is to dreſs the Letters, *i. e.* to cut the Foot, or rather hollow it, and make that Sort of Groove which every Letter has at Bottom, preciſely oppoſite to the Eye, upper Part, or Face of the Letter. In order to this, they turn a long Line of them upſide down in the Juſtificator: Which is an Inſtrument of poliſhed Iron, or Steel, conſiſting of two long Pieces join'd together by Screws. Between theſe two they encloſe as many Letters as it will hold, all placed againſt each other, in the ſame Situation as when compoſed for Books; excepting that the Face in the former Caſe is downwards, and the Foot a-top. When the Juſtificator is full of Letters, they ſet it on the Table of the Cutter, between two Cheeks of Wood; which preſſing it very tight, enables the Workman to run his Plane along the Line of the Letter thus inverted. This Plane conſiſts of three Parts, two Steel, and the third Wood. Of the Steel ones, that at Bottom conſiſts of two moveable Steel Plates, which may be drawn cloſer, or ſet farther off at Pleaſure, by Means of two Screws. Within the Interval between the two, they paſs the Feet of the Row of Letters; and thus is the Plane kept from deviating. The ſecond Part of the Plane anſwering to the Bit of Steel in the common Planes, conſiſts of two Branches, and two Screws, which ſerve to raiſe, or let down the Steel, as the Groove is to be cut deeper or ſhallower. The Poſition of this Piece of Steel, which is four or five Inches long, is almoſt perpendicular. The laſt Part of the Plane which is Wood, ſerves to join the other two, its Form is that of an Arch: One End of it is faſten'd to the poſterior Extreme of the Plate, and the other to the Branches which carry the Bit of Steel: So that the three Parts together, make a Kind of Triangle, voided in the Middle. The Cutter is a Steel Inſtrument, with a wooden Handle in Manner of a Chiſſel, ſerving to pare off the rough Wire Edge of the Letters when they are dreſſed.

The Letters are now fit for the Printer's Uſe, the Perfection thereof conſiſts in their being all ſeverally ſquare and ſtrait on every Side; and all generally of the ſame Height, and evenly lin'd, without ſtooping one Way or other; neither too big in the Foot, nor the Head; well groov'd, ſo as the two Extremes of the Foot, contain half the Body of the Letter; well ground, barbed, and ſcraped with a ſenſible Notch, *&c.*

Note, That a Set, or Quantity of Characters, or Letters of each Kind, among Printers, is called *Font*, or *Fount*. A compleat *Fount*, does not only include the running Letters, but alſo Majuſcules, or large and ſmall Capitals, ſingle Letters, double Letters, Points, Comma's, Lines, Borders, Head-Pieces, Tail-Pieces, and numeral Characters. The *Letter-Founders* have a Kind of Liſt, or Tariff, whereby they regulate their *Founts*. The Occaſion whereof is, that ſome Letters being in much more Uſe, and oftener repeated than others, their Cells or Caſes ſhould be better filled and ſtored, than thoſe of the Letters which do not return ſo frequently. Thus the *o* and *i* for Inſtance, are always in greater Quantity than *k* and *z*. This Difference will be better perceived from a proportional Compariſon of thoſe Letters with themſelves, or ſome others. Suppoſe a *Fount* of a hundred thouſand Characters, which is a common *Fount*, here the *a*, ſhould have 5000; the *c*, 3000; the *e*, 11000; the *i*, 6000; the *m*, 3000; the *k*, only 30; and the *x*, *y*, and *z*, not many more. But this is only to be underſtood of the Letters of the lower Caſe; thoſe of the upper having other Proportions, which it would be here too long to inſiſt on.

Note alſo, That one of the moſt celebrated *Letter-Founders* in *Europe*, is Mr. *William Caſlon*, a Perſon, who, though not bred to the Art of *Letter-Founding*, has by Dint of Genius, arriv'd at an Excellency in it, unknown hitherto in *England*; and which would even be admir'd at the King of *France*'s Printing-Houſe at *Paris*; the Characters whereof, were thought, before thoſe of Mr. *Caſlon* appear'd, the neateſt and fineſt in *Europe*; though at preſent, I queſtion much, if thoſe of Mr. *Caſlon* were uſed on as good Paper as thoſe of the *Louvre* commonly are, if they would not be eſteem'd preferable to them.

FOWLING.

FOWLING, is the Art of catching Birds with Nets, Birdlime, Decoys, and other Devices; as alſo of Breeding up the ſame.

The moſt neceſſary Implements of the Art of *Fowling*, are Nets, Birdlime, Decoys, *&c.*

The NETS muſt be made of the beſt Pack-Thread, with great and large Meſhes, at leaſt two Inches from Point to Point; for the larger the Meſhes are (ſo that the

the Fowl cannot creep through them) the better it is; for they are more apt to entangle them. The Nets ought not to be above two Fathom deep, and ſix in length, which is the greateſt Proportion a Man is able to overthrow. They muſt be verged on each Side with very ſtrong Cord, and extended at each End upon long Poles made for that Purpoſe.

Birdlime is a viſcid Subſtance, prepar'd various Ways, and from various Materials; in *England* it is made from Holly Bark, boiled ten or twelve Hours; when the green Coat being ſeparated from the other, it is covered up a Fortnight in a moiſt Place, then pounded into a tough Paſte, that no Fibres of the Wood be left, and waſhed in a running Stream, till no Moats appear, put up to ferment four or five Days, ſkimmed as often as any Thing ariſes, and laid up for Uſe.

The *Birdlime* brought from *Damaſcus*, is ſuppoſed to be made of Sebeſtens, their Kernels being frequently found in it; but this does not endure either Froſt or Wet. That brought from *Spain* is of an ill Smell; that of the *Italians* is made of the Berries of the Miſleto heated, mixed with Oil to make it bear Water, they add Turpentine. It is ſaid the Bark of Viburnum, or way-faring Shrub, makes *Birdlime* as good as the beſt.

To make the *Birdlime* bear Water, a Pound of it muſt be waſhed in Spring-Water, till made very pliable; and beaten afterwards, till no Water is perceived in it; and after it has been well dried, it is put in an earthen Pot, mix'd with as much Capon's Greaſe as will make it run; to which are added, two Spoonfuls of ſtrong Vinegar, a Spoonful of the beſt Sallad Oil, and a ſmall Quantity of Turpentine; thoſe Ingredients muſt be increaſed, or diminiſhed, in proportion to the Quantity of *Birdlime*. Being thus mixed together, they muſt be boiled gently over a ſlow Fire, ſtirring them continually: Then they are taken off the Fire and left to cool. This Sort of *Birdlime* is the beſt, eſpecially for Snipes and Feldfares.

Decoys, are Pipes, Whiſtles, and Calls, alſo a Place made fit for catching wild Fowl. Hence alſo a *Decoy-Duck*, is one that flies abroad, and lights into a Company of wild ones, and being become acquainted with them, by her Allurement draws them into the *Decoy* Place, where they become a Prey.

The *Fowler* being thus provided with his moſt neceſſary Implements, he muſt conſider that there are two Kinds of Fowls, which are the Object of the *Art of Fowling*, viz. *Land* and *Water-Fowls*.

The *Water-Fowl*, are ſo called from the natural Delight they take in, and about the Water, where they moſt commonly dwell, and from whence they take all their Food or Nouriſhment. This Kind of *Fowls*, are naturally the ſubtileſt, and wiſeſt of all Birds, and moſt careful of their own Safety: Hence they have been compar'd to a Camp, having Scouts at Land afar off, Guards, Centinels, and all Sorts of other watchful Officers, ſurrounding the Body, to give an Alarm, on any Approach or ſeeming Danger. They always fly in Company, ſo that when a ſingle Fowl, or a Couple fly together, they muſt have been ſeparated from the reſt, either by the Approach of Men, or the Beating of ſome Birds of Prey on the River. But though thus ſeparated, they ſeldom leave Wing till they meet together again.

There are two Sorts of *Water-Fowls*, viz. thoſe that live of the Water, and thoſe that live on the Water. The one take their Food from the Water, by wading and diving for it with their long Legs, and without ſwimming thereon; the others are Web-Foot, and ſwim, as the Swan, Gooſe, Mallard, *&c.*

It does not ſuffice for the *Fowler* to know how to diſtinguiſh his Fowls, but he muſt likewiſe know where to find them, and their reſpective Haunts; for the large *Water-Fowls* do not frequent the ſame Places, where the ſmall ones are to be found.

The large *Water-Fowls*, or thoſe which divide the Foot, frequent moſt commonly the Edge of ſhallow Rivers, Brooks, and Flaſhes of Water; and never fly in Company, but are to be found, here one, there a Couple, and the like; which renders it difficult to take them by Decoys, Nets, or any other Implement of that Kind. They delight likewiſe in low and boggy Places, dry Parts of drown'd Fens, overgrown with tall and long Ruſhes, Reeds, and Sedges; half drown'd Moors, or the hollow Vales of Downs, Heaths, or Plains, where there is Shelter either of Hedges, Hills, Tufts of Buſhes or Trees, where they may lurk obſcurely.

Though it is very difficult to catch this Sort of Fowls, it is not abſolutely impoſſible, ſince they can be caught either with Nets, or with Lime-Twigs.

To catch them with *Nets*, the Fowler muſt know where they feed in the Morning and Evening; and coming to the Place, two Hours at leaſt before that Time, ſpreads his *Net* ſmooth and flat upon the Ground, ſtaking the two lower Ends firm thereon, and leaving the upper ones extended upon the long Cord, the further End whereof muſt be ſtaked faſt down to the Earth, two or three Fathom from the *Net*, and the Stakes which ſtake down the Cord, ſtand in a direct and even Line with the lower Verge of the *Net*; then he ſhall hold in his Hand, at the uttermoſt Diſtance, the other End of the Cord, which muſt be at leaſt ten or twelve Fathom long; there he muſt make ſome artificial Shelter either of Graſs, Sods, Earth, or ſuch like Matter, where he may lie out of Sight of the Fowl. He ought alſo to take Care to ſtrew over all his *Net*, as it lies upon the Ground, ſome Graſs, that he may hide it from the Fowl. It will not be improper to ſtake down near the *Net* a live Hern, or ſome other Fowl formerly taken for a *Stale*.

When the Fowler ſees a ſufficient Number of Fowls to come within the Verge of his *Net*, he ought then to draw ſuddenly his Cord, and ſo caſt his Net over them; continuing to act in that ſame Manner, till the Sun be near an Hour high, and no longer; for then the Fowls feeding is over for that Time; but he may return in the Evening from about Sun-ſet till Twilight. By theſe Means he may not only take great Quantities of large wild Fowls, but alſo Plovers, which take their Food as much from Land as Water.

To take the ſame Fowls with *Lime-Twigs*, the Fowler muſt provide a good Store of long, ſmall, and ſtrait-grown Twigs, and very pliable, beſmearing the upper Part thereof with Birdlime; and being very well acquainted where theſe Fowls frequent Morning and Evening, he muſt plant his Twigs in thoſe Places, from Sun-ſet for the Evening Flight, and before Day for the Morning; pinning down for a *Stale*, one of the ſame Fowls alive. Round about the *Stale*, (which muſt have Liberty to flutter to and fro) the Twigs muſt be ſet in Rows, a Foot diſtant from one another (their Heads bending into the Wind, about a Foot or ſomewhat more above Ground) till the Place ſo haunted be all covered with them, that no Room may be left for the Fowls to eſcape.

When there is any Birds taken, the Fowler muſt not run inſtantly and take them up, if he ſees ſome others in the Air, for by their fluttering, others will be induced to ſwoop in among them. He ſhould alſo have along with him a well taught Spaniel, for the retaking of ſuch Fowl as may chance to flutter away with the *Lime-Twigs* about them.

The leſſer Fowls, which are web-footed, haunt continually drown'd Fens, where they may have Plenty of Water, and ſwim undiſturb'd by Man or Beaſt; main Streams of Rivers, where the Current is ſwifteſt and leaſt ſubject to freeze; and the broader and deeper ſuch Rivers are, the greater Delight theſe Fowls take therein, the Wild-Gooſe and Barnacle excepted, which never abide on Waters above their Sounding; for when they cannot reach the Ouze, they inſtantly remove thence, ſeeking out more ſhallow Places. Theſe two laſt named, are extremely delighted with green Winter Corn; therefore they are to be ſearch'd after where ſuch Grain is ſown, eſpecially if the Ends of the Lands have much Water about them.

Theſe

These smaller Fowls do also frequent much small Brooks, Rivers, Ponds, drown'd Meadows, Pastures, Moors, Loughs, and Lakes, especially if well stored with Islands unfrequented, and well furnished with Shrubs, Bushes, Reeds, &c. They frequent such Places Winter and Summer, and breed there.

To take these smaller Fowls with *Nets*, they must be pitch'd for the Evening Flight before Sun-set, staking them down on each Side of the River, about half a Foot within the Water, the lower Side of the *Net* being so plumb'd, that it may sink so far and no farther: Its upper Side is to be placed slantwise, shoaling against the Water, yet not touching it by near two Foot. The Strings which support this upper Side, ought to be fasten'd to small yielding Sticks set in the Bank, which as the Fowl strikes may give Liberty to the *Net* to rangle and entangle them.

Several of these *Nets* may be placed over divers Parts of the River, at a competent Distance from one another, or as the River or Brook shall give Leave.

To hasten the Fowls to fly to the *Nets*, the Fowler must fire his Gun in the Fens and Plashes, round about the River where they are placed; for thereby the Fowls will be so frighted, that they'll instantly post to the River.

Note, That the *Nets* for these smaller Fowls, must be made of the smallest and strongest Packthread, and the Meshes nothing near so big as those of the greater Fowls, about two Foot and a half or three Foot deep; lin'd on both Sides with false Nets, every Mesh being about a Foot and a half square each Way, that as the Fowl strikes, either through them or against them, the smaller Net may pass through the great Meshes, and so straighten and entangle the Fowl.

This Kind of Fowls are also taken with *Lime-Twigs*, by fitting them in Length according to the Depth of the River, besmearing them with very strong Water-Lime, such as no Wet or Frost can injure; and pricking them in the Water, so that as much of the Rod as is lim'd, be above Water; staking here and there among the Rods, a live *Stale*, as a Mallard, Widgeon, or Teal.

The Fowler needs not to wait continually on his Rods, but may come thrice a Day to see what is taken, *viz.* early in the Morning, at Noon, and late in the Evening; and then he must be accompanied with his Water-Spaniel; for if he perceives any of his Rods missing, he may imagine that some Fowls are fasten'd to them, which are crept in some Hole, Bush, or Hedge by the River Side, which his Dog will help him to find.

Note, That one Haunt must not be beaten too much, for when the Number of Fowls diminishes, the Fowler must remove to another, and in three Weeks Time, the first will be as good as ever.

Small *Water-Fowls* may also be taken by *small*, or *great Springs*, which is done in the following Manner.

Having took Notice where the Fowls feed Morning and Evening, of the Furrows and Water-Tracts where they usually stalk and paddle, to find Worms, Float-Grass Roots, and the like; the Fowler must mark where many Furrows meet in one, and break out, as it were, into one narrow Passage, which divides itself afterwards into other Parts and Branches: Then he marks how every Furrow breaks and comes into this Centre or little Pit, which is most paddled with the Fowl, or which is easiest for Fowl to wade in: This being done, he takes small and short Sticks, and pricks them cross-wise athwart over all the other Passages, one Stick within half an Inch of the other, making, as it were, a Kind of Fence to guard every Way but one through which he will have the Fowl to pass.

Having thus hemmed in all Ways but one, he takes a stiff Stick cut flat on the one Side, and pricks both Ends down into the Water, making the upper Part of the flat Side of the Stick, to touch the Water and no more: This done, he makes a Bow of small Hazel, or Willow, of a Foot long, and five or six Inches broad, in the Form of a Pear, broad and round at one End, narrow at the other, making a small Nick at the narrow End: Then he takes a good stiff grown Plant of Hazel, free from Knots, three or four Inches about at the Bottom, and an Inch at the Top, and having sharpened the Bottom End, he fastens at the Top a very strong Loop of about an hundred Horse-Hairs, plaited very fast together with strong Packthread, and made so smooth that it will run and slip at Pleasure. Near this Loop he fastens a little broad Tricker, within an Inch and half of the End of the Plant, which he makes equally sharp at both Ends: He thrusts the bigger sharp End of the Plant into the Ground, close by the Edge of the Water; and brings the smaller End with the Loop and the Tricker down to the first Bridge, and then the Hoop being laid on the Bridge, one End of the Tricker is set upon the Nick of the Hoop, and the other End against a Nick made on the small End of the Plant, which by the Violence and Bend of the Plant, makes them stick together until the Hoop be moved. This done he lays the Swickle on the Hoop in such a Manner as the Hoop is proportioned; then from each Side of the Hoop pricks little Sticks, making an impaled Path to the Hoop; and as he goes farther from the Hoop and Spring, he makes the Way wider; therefore the Fowl can enter a good Way before he perceives the Fence, and thereby will be enticed to wade up to the Spring, which will be no sooner touch'd, than the Part of the Bird which touches it, will be presently catch'd; and thus according to the Strength of the Plant, a Fowler may take a Fowl of any Bigness.

The Spring for lesser Fowl, as Woodcock, Snipe, Plover, &c. is made after the same Manner, differing only in Strength, according to the Bigness of the Bird we intend to catch.

Note, That this Device is only for the Winter, when much Wet is on the Ground, and not when the Furrows are dry. When the Water is frozen, Plashes must be made; and the harder the Frost, the greater Resort there will be of these smaller Fowls.

There is another Method of *Fowling*, which is with a Gun, commonly called a *Fowling Piece*. The Fowler who will follow this Manner of *Fowling*, must not only provide himself with such a *Piece*, but likewise, with the best Sort of Powder, Shot, and a Water-Spaniel.

Of *Fowling-Pieces*, those are reputed the best, which have the longest Barrel, *viz.* from 5½, to 6 Foot; with an indifferent Bore under the Harquebus; tho' for different Occasions they should be of different Sorts and Sizes; but in all it is essential, the Barrel be well polish'd and smooth within, and the Bore of a Bigness from End to End; which may be prov'd by thrusting in a Piece of Wood, cut exactly to the Bore of the Muzzle, down to the Touch-Hole.

The Powder must not be too old, for keeping weakens it much, especially if it grows damp; therefore when there is Occasion to use it, it ought to be dried well in a Fire-Shovel, and sifted through a fine Searcher, to take away that Dust which hinders its most forcible Effects, and fouls the Piece.

The Shot is to be well siz'd, and of a moderate Bigness, for if it be too big, it scatters too much; if too small, it has not Weight nor Strength enough to do Execution on a large Fowl. Shot not being to be had at all Times, and in all Places, as Occasions serve, we must direct our Pupil Fowler how to make it.

He must take what Quantity he pleases of Lead, melt it in an Iron Ladle, or other such Vessel, and as it melts keep it stirring, and skimming off all the Impurities which may rise at the Top, when it begins to

be of a greenish Colour, he must strew upon it Orpiment in Powder, as much as will lay on a Shilling, to twelve Pounds of Lead; and being stirred afterwards together, the Orpiment will flame. He must have another small Ladle with a Notch on one Side of its Brim, to pour out the Lead with more Facility; and that small Ladle ought to remain in the melted Lead, that the Heat may be agreeable to it, to prevent all Inconveniencies which may happen through Excess of Heat or Cold. To judge whether there be Orpiment enough in, a little of the Lead is dropt into a Glass of Water, and if the Drops prove round, and without Tails, there is Orpiment enough, and the Degree of Heat is as it should be.

This done, a Copper-Plate hollow in the Middle, and three Inches Diameter, bored through with 30 or 40 small Holes, according to the Size of the *Shot*, is placed on an Iron Frame over a Tub of Water, four Inches above the Water: The hollow Part is to be very thin. On this Plate are laid burning Coals, to keep the melted Lead in Fusion. The Lead is now poured gently with the Ladle on the Middle of the Plate, and it will make Way through the Holes in the Bottom of the Plate into the Water, in round Drops. Great Care is taken to keep the Lead on the Plate in its proper Degree of Heat: If too cold it will stop the Holes, and if too hot the Drops will crack and fly.

The *Shot* thus made, are dried over a gentle Fire, always stirring them that they do not melt: This done, the greater are separated from the smaller by passing them through Sieves for that Purpose.

Being thus provided with a good Fowling-Piece, Powder, and Shot, our Fowler wants but a good *Water-Dog*, to be entirely for the Sport.

The Goodness of a Water-Dog consists in his Colour, the Proportions of his Body; and in his being well taught, or trained to the Sport.

As for the Colour, we know by Experience, that a Dog of any Colour may be very excellent; but his Hairs must be long, curled, neither loose nor shagged; his Head round and curled, his Ears broad and hanging, his Eye full, lively and quick, his Nose very short, his Lip Hound-like, his Chops furnished with a full Set of strong Teeth, his Neck thick and short, his Breast sharp, his Shoulders broad, his Fore-legs strait, his Chin square, his Buttock round, his Belly gaunt, his Thighs brawny, *&c.*

For the training such a Dog; as soon as he can lap, he must be taught to lie down, not daring to stir from that Posture without Leave, neither is he permitted to eat any Thing till he deserves it; nor allowed more Teachers, Feeders, and Cherishers than one. That Teacher must never alter the Word he first used in his Lessons; for the *Dog* takes Notice of the Sound not of the Language. When he is acquainted with the Word suitable to his Lesson, he must next be taught the Word of Reprehension; which at first should not be used without a Jerk. He must also be used to cherishing Words, which gives him Encouragement when he does well; and which ought to be always the same, and attended with spitting in his Mouth, stroking him with the Hand under the Belly, *&c.* There is also a Word of Advice to instruct him when he does amiss.

When the Dog understands well these several Words, he must be taught next to lead orderly in a String or Collar, neither running too forward, nor hanging backward. This Instruction is followed by that of coming close at his Master's Heels, without leading; for he must not range, unless it be to beat the Fowl from their Covert, or to fetch the Wounded.

His next Lesson must be to fetch and carry any Thing his Master throws to him out of his Hands. He must be tried first with the Glove, shaking it over his Head, and making him snap at it; and sometimes suffering him to hold it in his Mouth, and striving to pull it from him; and at last throwing it a little way, and letting him worry it on the Ground; and so by degrees making him bring it wherever it is thrown. From the Glove he must be taught to fetch Cudgels, Bags, Nets, *&c.* It will not be amiss to use him to carry dead Fowls; for by that Means he will never tear or bruise what Fowl is shot.

The last Lesson which must be given, is to drop something which the Dog does not see; and being gone a little Way from it, send him back to seek it, by saying, *Back, I have lost.* If he appears amazed, he must be urged to seek out till he has found it. Then something must be dropped at a greater Distance, and he made to find out that too; till he is brought to go back a Mile.

To train him for the Gun, he must be made stalk after the Fowler Step by Step, or else couch and lie close till he has shot.

The last Use of the *Water-Dog* is in Moulting-time, when wild Fowls cast their Feathers and are unable to fly; which is towards the latter end of the Summer. At this Time the Dog must be brought to their Coverts, and hunt them out into the Stream; and there they will be taken in the Nets.

Our *Fowler* thus equipped, may take the Field for his Sport, with his Dog at his Heels under good Command, not daring to stir till he bids him; having first discharged his Piece: For some ill-taught Dogs will upon the Snap of the Cock, presently rush out and spoil all the Sport. He must observe, in shooting, to shoot with the Wind if possible, and not against it: And rather side-ways, or behind the Fowl, than full in their Faces. Chusing the most convenient Shelter he can find, as either Hedge, Bank, Tree, or any thing else, which may hide him from the View of the Fowl.

If he has not Shelter enough by reason of the Nakedness of the Banks and Want of Trees, he must creep upon his Hands and Knees under the Banks, and laying flat upon his Belly, put the Nose of his Piece over the Bank, and so take his Level; for a Water-Fowl is so fearful of a Man, that though a Hawk were soaring over her Head, yet at the Sight of a Man she would betake herself to her Wing, and run that Danger. But it happens sometimes that the Fowl are so shy, there is no getting a Shoot at them without a Skreen, or Device to hide the Fowler, and amuse the Game, while he gets within Shot.

This Device is called *Stalking*; and there is a *stalking Hedge*, a *stalking Horse*, a *stalking Tree*, &c.

A Stalking *Hedge*, is an artificial Hedge, two or three Yards long, and a Yard and half high, made with small Wands, to be light and portable, yet bushed out like a real Hedge, with Stakes to support it, while the Fowler takes his Aim.

Stalking *Horse*, is an old Jade train'd up for the Purpose, which will gently walk up and down as you would have him in Water, *&c.* beneath whose Fore-shoulder the Sportsman shelters himself and Gun. When thus got within Shot, he takes Aim from before the Fore-part of the Horse, which is much better than shooting under his Belly. To supply the Defect of a real *Stalking* Horse, an artificial one is frequently made of old Canvas, shaped in Form of a Horse, with his Head bent down, as if grazing; stuffed with any light Matter, and painted: In the Middle it is fixed to a Staff shod at the Foot, to stick into the Ground while Aim is taken. For Change, when the Fowls begin to be used to the *Stalking* Horse, and to know it, some *stalk* with an Ox, Cow, Deer, or the like. Others use a *stalking Tree* and others a *stalking Bush*.

Having done *Fowling* for Water-Fowls, we'll pass to *Fowling* for *Land-Fowls*; which, as well as Water-Fowls, are of different Sorts; for some are either fit for Food, as *Pigeons* of all Sorts, *Rook*, *Pheasant*, *Partridges*, *Quails*, *Rails*, *Feldfares*, &c. or for Pleasure only, as all manner of Birds of Prey, *viz. Castress*, *Ring-tails*, *Buzzards*, &c. or for Food and Pleasure together, as *Black-bird*, *Thrush*, *Nightingale*, *Linnet*, *Lark*, and *Bull-finch*.

These Land-Fowl of all Sorts are taken either by Day or by Night. If by Day, it is done with the great

great Net, commonly called the *Crow-Net*, not at all different in Length, Depth, Bigness of Mesh, Manner of laying, &c. from the *Plover-Net*; only it will not be amiss if the Cords be longer.

This Net may be laid before a Barn-door, or where Corn has been winnowed, or in Stubble-fields; and it must be hidden, that the Fowls may not discover the Snare. When the Fowler, who must lie concealed afar off, with the Cord in his Hand, perceives a Quantity of Fowls within the Net, scraping for Food, he must quickly pull the Net over them. But to succeed well in this manner of Sport, he must carefully observe the Morning and Evening Haunts of the Fowl, when they come to feed upon the Greensward, and there lay his Net, where he will meet with as good Success as any where else; provided he takes Care to hide himself, and does not pull his Cord too hastily, but wait till he sees a good Number of Fowls within the Net, then pull freely and quickly; for the least Deliberation after the Net is rais'd, proves the Ruin of the Sport.

The *Land-Fowls* may also be taken with Lime-twigs, provided the Fowler takes Notice of the Haunts and Time, as he has done, when fowling for Water-Fowls: Then he pricks in the same Manner, his limed Rods slanting in even Rows, so that the Top may be within a Foot and a half of the Ground over the Haunts, one Row a Yard distant from another; then he has Sticks with Forks to stand pretty high, and cross Sticks over them, then he limes Strings, as he has done his Twigs, placing them some Rows higher than others, waving, and fastens the Ends with a sliding Loop, so that when the Fowl press upon them, and they are strained, they may losen, and lap about them.

There is another Manner of taking Land-Fowls, especially small Birds, with Birdlime, particularly in Frost and Snow; for as those small Birds then assemble in Flocks, as *Larks*, *Chaffinches*, *Linnets*, *Goldfinches*, *Yellow-hammers*, *Buntings*, *Sparrows*, &c. they all, but the Lark, perch on Trees or Bushes, as well as feed on the Ground; which is, when they are perceived to resort about our House, or Fields, to take a Quantity of Wheat-Ears, and cut the Straw about a Foot long besides the Ears, liming them afterwards about six Inches, from the Bottom of the Ears, to the Middle of the Straw: Thus prepared, the Fowler must go into the Field adjacent to his House, and scatter Chaff and thresh'd Ears, which he has carried along with him, twenty Yards wide (it is best in Snow) and then stick the limed Ears up and down, with the Ears leaning, or at the End touching the Ground: Then he retires from the Place, and traverses the Ground round about; the Birds being thereby disturbed in their Haunts fly to the Ears, and pecking at them they stick; which perceiving, they straightways mount up from the Earth, and in their Flight the bird-limed Straws lay under their Wings, and falling are not able to disengage themselves from the Straw, and so are certainly taken.

Land-Fowls are taken by Night, with the Help of a low Bell, and of a Net, whose Mesh is twenty Yards deep; and so broad, that it may cover five or six Lands or more, according to the Company the Fowler has to carry it: This cannot be used but in plain champain Countries, from the End of *October* until the End of *March*.

With these Implements the Fowler goes into a Corn-field; he that carries the Bell, the foremost, tolling it as he goes, very mournfully; next follows the Net, borne up at each Corner and on each Side, by several Persons; then another carries some Iron or Earthen Vessel, with burning, but not blazing Coals in it; at which Coals Bundles of Straw must be lighted, unless one should chuse to carry Links. The Nets being pitched where the Game is supposed to lie, the Ground must be beaten, and a Noise made, at which the Fowls rise, and are entangled in the Net. Which done the Light is extinguished, and the Fowler proceeds to lay his Net in some other Place. If the Fowler designs to have the full Pleasure of the Sport, he must be very silent, and nothing is to be heard but the Sound of the *low Bell*, till the Net is placed, and the Lights blazing; but as soon as they are extinguished, a general Silence must be observed again; for the *low Bell* makes the Birds lie close, so as they dare not stir whilst you are pitching the Net; but the Sight of the Fire makes them instantly to fly up, and thus they become entangled in the Net.

There is another Manner of taking Birds by Night, which roost in Bushes, Shrubs, Hawthorn-tree, &c. called BAT-FOWLING; and which is thus: The Fowler must be very silent till his Lights are blazing; and may chuse if he will carry Nets or not. If he carries none, he must have long Poles with great bushy Tops fixed to them; and having from a Vessel to carry Fire in, lighted his Straw or other blazing Matter, he must beat those Bushes where he thinks Birds are at Roost; which done, if there be any in those Bushes or Trees, he will instantly see them fly about the Flames, so that those who have the bushy Poles may beat them down at Pleasure, and take them up; and the Sport may be continued in this Manner as long as it is dark, and no longer.

Larks, *Buntings*, *Merlins*, *Hobbies*, and any Birds which will stoop either to Stale, Prey, Gig, Glass, or the like, may be taken from *August* to *September*, with the *Day-Net*, which must be planted before Sun-rising; and the milder the Air, the brighter the Sun, and the pleasanter the Morning, the better will be the Sport, and of longer Continuance.

The Place chosen for this Kind of Sport must be a Plain, either on Barley Stubble, green Lays, and level and flat Meadows, remote from Villages, but near Corn-Fields.

These *Nets* being staked down with strong Stakes, tight on their Lines, so as to be cast to and fro at Pleasure, with a nimble Twitch, a dozen of Hand-lines, or drawing Cords, a Fathom long, must be fastened to the upper End of the foremost Staves, and extended of such reasonable Streightness, as with little Strength they may raise up the Nets and cast them over. When the Nets are laid, Stales, Decoys, or playing Wantons, must be placed twenty or thirty Paces beyond them, upon some perching Boughs, which will not only entice Birds of their own Feathers to stoop, but also Hawks, and other Birds of Prey, to swoop into the Nets.

Note, That a *Day-Net* must be made of fine Pack-thread, the Mesh small, and not above half an Inch square half-way; three Fathom in Length, and one in Breadth; like the *Crow-Net* in Shape; verged about in the same Manner with a small strong Cord, the two Ends whereof extended upon two small long Poles, suitable to the Breadth of the Net, with four Stakes, Tail-Strings, and Drawling Lines, as heretofore mentioned; only whereas that was but one single Net, here must be two of one Length, Breadth, and Shape. These *Nets* must be placed opposite to each other, yet so close and even together, that when they are drawn and pulled over, the Sides may touch one another.

Having given these Rules for taking every Species of *Water* and *Land-Fowl*, we'll descend into more particular ones, for catching some particular Birds, as *Snipes*, *Feldfares*, *Pigeons*, *Magpyes*, *Crows*, *Gleads*, *Herons*, *Pheasants*, *Partridges*, *Rails*, *Quails*, *Moor-poots*, &c.

To catch *Snipes* with Bird-lime, the Fowler must know the Places they frequent most, which is easily discovered by their Dung; and there set two hundred limed Twigs, more or less (especially if it be hard, frosty, or snowy Weather, where the Water lies open; for commonly they lie very thick in such Places.) The Twigs must be at a Yard distant from one another, and sloaping, some one Way and some another; then the Fowler retiring at a convenient Distance from the Place, must wait the Success of the Sport, and not be too hasty to stir at the first he sees taken; for the *Snipe* will feed with the Twig under

his

his Wings, and be a Means to entice those down, who come over the Place. When he sees the Coast clear, and but few that are not taken, he must then take up his Birds, fastening one or two of them, that the other flying over, may alight at the same Place. If there be any other open Place near that where the Twigs are planted, they ought to be beaten up.

Felfares, as well as *Snipes*, are also Winter Birds, and are taken by setting a dead one at the Top of a great Birchen Bough, cover'd with small Lime Twigs, and planting the Bough where the *Felfares* resort in a Morning to feed. By this Means, others flying but near, will quickly espy the Top-Bird, and fall in whole Flocks to him.

To take *Rooks*, the Fowler must divide a Sheet of brown Paper into eight Parts, and having made them in the Shape of a Sugar-Loaf, lime a little the Inside; and after they have remain'd three or four Days thus lim'd, he must put some Corn in them, and lay them up and down the Ground under some Clod of Earth, early in the Morning before the Birds come to feed; then standing at a Distance, he'll see that as soon as the *Rooks*, *Crows*, or *Pigeons* come to pick out any of the Corn, the Paper will hang upon his Head, then the Bird will immediately fly bolt upright so high, that he shall soar almost out of Sight; and when he is spent, come tumbling down as if he had been shot in the Air. They may be taken in Ploughing Time, when the *Rooks* and *Crows* follow the Plough, but then Worms and Maggots of the largest Size must be put in the Paper.

Though the *Heron* be a Fowl neither for Pleasure nor for Food, as it is a ravenous one, and very destructive to Ponds, and Rivers, it is very necessary to give some Directions how to take it; which may be done by getting three or four small Roaches, or Dace, and drawing the Wire of a strong Hook within the Skin of the said Fish, beginning without Side of the Gills, and from thence to the Tail, which will not hinder the Fish from living five or six Days afterwards, for if it was dead, the *Heron* would not meddle with it. Then three or four of these Hooks must be tied to a strong Line, made of Silk and Wire, about two Yards and a half long, and likewise a round Stone about a Pound Weight; which whole Complement must be put in the River or Pond, but not so deep that the *Heron* cannot wade unto them.

Pheasants are taken three several Ways, *viz.* by *Net*, *Lime-bush*, or *Driver*.

Note, That *Nets* for *Pheasants*, must be made of double twin'd brown Thread, dy'd blue or green, the Mesh reasonably large and square, almost an Inch between Knot and Knot; its Length about three Fathom, and about seven Foot broad, verged on each Side with strong small Cord, and likewise at the Ends, that it may lie compass-wise and hollow.

In this Kind of Sport, the Fowler must, as in all others heretofore mentioned, know the Haunts of the Fowl, which are never in open Fields, nor in old high Woods, since *Pheasants* seldom frequent any other Place, but young Copses well grown; and of those, none but such as are solitary, and unfrequented by Men or Cattle. In these Places, the Eye or Brood of Pheasants is found, either by viewing carefully these young Copses, searching every where to discover where they run together like Chickens after a Hen; or by rising early in the Morning, or coming late in the Evening to observe how and when the old Cock and Hen call their young ones to them, and how the young ones answer; and so from that Sound the Fowler approaches as near as he can the Place where they are, lying down so close as not to be discovered, by which Means he will know where they meet, and how he may place his Nets accordingly. But the most certain Way of finding them out, is to have a *Pheasant-Call*, which he must learn how to use; understand all their Notes, and how to apply them: For *Pheasants* have several and different Notes; one to cluck them together when the Hen would feed them, another to chide them when they straggle too far, a third to call them to Meat when she has found it, a fourth to make them look out for Food themselves, and a fifth to call them about her to sport withal. The Call may be used early in the Morning, at which Time they straggle abroad to find Provender; or else in the Evening just before Sun-setting, which is their Time likewise for feeding. Tho' they may be called at any other Time of the Day, by only changing Note; for as before Sun-Rising, and at its Setting, the Note must be to call them to feed; in the Forenoon, and Afternoon, it must be to call them to brood, or chide them for straggling, or give them Notice of some approaching Danger.

With all these necessary Instructions, the Fowler must lodge himself as close as possible, and then call at first very softly, lest the *Pheasants* being lodg'd very near him, should be frighted at a loud Note, but if nothing reply, he must raise his Note higher and higher, till he extends it to the utmost Compass, and if there be a *Pheasant* within hearing, she will answer in a Note as loud as his own, provided it be not untunable, for that would spoil all. As soon as he hears this Answer, if it be from afar, and from a single Fowl, he must creep nearer and nearer unto it, so will the *Pheasant* to him, and as he alters his Note so will she, and in all Points he must endeavour to imitate her, whereby he'll get Sight of her at last, either on the Ground or Perch; which got he ceases his Calling, and spreads his Net between the *Pheasant* and himself, in the most convenient Place he can find, with much Secrecy and Silence, making one End of the Net fast to the Ground, and holding the other End by a long Line in his Hand, whereby when any Thing strains it, he may pull the Net close together. This done he calls again, and as soon as he perceives the *Pheasant* come underneath the Net, he rises up and shews himself, whereby the *Pheasant* being frighted, offering to mount, finds herself entangled within the Net.

But if it happens that the Fowler hears many Answers, and from different Parts of the Wood, he must not stir, but keep his Place, and as he hears them by their Sound, to come nearer and nearer unto him, he must make his Nets ready, and spread them conveniently about him, one Net on the one Side, and another on the other; then lie close and apply himself to the Call, till he has allured them under his Nets, which done, he must stand up and shew himself, to fright them, and make them mount, whereby they are entangled.

Pheasant-Powts, or young *Pheasants*, are driven into Nets, with an Instrument made of strong white Wands, or Osiers, set fast in a Handle, twisted about in two or three Places, and bound with other Wands, in the Shape of those Things Cloth-Dressers usually dress their Cloth withal. With this Driver the Fowler must make a gentle Noise, raking upon the Boughs and Bushes round about him, which will make the *Powts* run from it a little Way, and then stand and listen, keeping all close together, till by another Rake of the Driver, they are made to run again as before, and by thus raking they will be driven like so many Sheep into the Nets, which must be placed a-cross the little Pads and Ways which the Fowler sees they have made, which are like Sheep-Tracks, and as near their ordinary Haunt as possible, which may be discovered by the Bareness of the Ground, Mutings, and loose Feathers.

Note, That two Things are to be observed in using the *Driver*; the first is Secrecy in concealing one's self from the Sight of the *Pheasants*; for if they chance to see the Fowler, they will instantly hide themselves in Holes and Bottoms of Bushes, and will not stir from thence till Night. The other is Circumspection in the Work, for nothing obstructs this Pastime more, than too much Precipitation or Haste, for *Pheasants* are fearful Creatures, soon startle,

ſtartle, and when once alarm'd, they all fly in an Inſtant, without ſtaying to behold what they are ſo much afraid of.

To take *Pheaſants* with a Lime-Buſh, the Fowler having diſcover'd their Haunts, beſmears the Top Branch of a Willow, or ſingle Rod twelve Inches long, with the ſtrongeſt Birdlime. The Branch muſt have a pretty long Handle, made ſharp at Bottom to ſtick it into the Ground, or into Shrubs and Buſhes; which muſt be done near the Branch or Tree, where the Pheaſant perches. When the Buſh or Rods are placed, the Fowler, lying cloſe, takes out his Call. If the Call be good, and he knows how to uſe it, he will ſoon have all the *Pheaſants* within hearing about him, and if one happens to be entangled, ſhe will go near to entangle all the reſt, either by her extraordinary fluttering, or their own Amazement and Confuſion; and as they are taken by the Rods on the Ground, they will likewiſe be ſurpriſed with the Buſhes, for being ſcar'd from below, they will mount to the Perch or Buſhes, to ſee what becomes of their Companions, and there be taken themſelves.

Note, That Lime is only for the Winter-Seaſon, beginning from *November* when the Trees have ſhed their Leaves, and ending in *May*. Nets are uſed from the Beginning of *May*, till the latter End of *October*. So that there is no Time of the Year but their Breeding Time, which may not be employ'd in this Pleaſure.

Partridges are alſo taken ſeveral Ways, either by *Net*, *Engine*, *Driving*, or *Setting*. They are naturally ſo fearful and ſimple, that they may eaſily be deceived, without any Train, Bait, or other Device.

The uſual Haunts of *Partridges* (which the Fowler who wants to catch them muſt know) are Corn-Fields, either while the Corn grows, or after it is cut down; for when it grows, they ſhelter under its Covert; and when cut down, they are fed with the Grain they find therein. They alſo hide both themſelves and Covies, in the Furrows, among Brambles and long Graſs. In Winter, when the Fields are plough'd up, or over ſoil'd with Cattle, they fly to the up-land Meadows, and lodge in the dead Graſs, or Fog, under Hedges, among Mole-Hills, or under the Roots of Trees. Sometimes they fly to Copſes, and under Woods, eſpecially if any Corn-Fields be near; or where Broom, Brakes, Fern, *&c.* grows. In the Harveſt Time, when every Field is full of Men and Cattle, they are found in Day-Time, in the Fallow-Fields, next to the Corn-Fields, where they lie lurking till the Evening, and then feed among the Shocks, or Sheaves of Corn, which they do likewiſe in the Morning.

When the Haunts of *Partridges* are known, the Fowler has ſeveral Ways to find them; either by the Eye, which Art cannot be acquir'd but by Experience, diſtinguiſhing thereby the Colour of the *Partridge* from that of the Earth, and in what Manner they lodge and couch together; for which Purpoſe, the Fowler may come near enough to them, for they are a very lazy Bird, and ſo unwilling to take to the Wing, that he may even ſet his Foot upon them before they will ſtir, provided he do not ſtand and gaze on them, but be in continual Motion, otherwiſe they will ſpring up and be gone. Or by going to their Haunts early in the Morning, or at the Cloſe of the Evening, which is called the *Jucking Time*, and there liſtening for the Calling of the Cock *Partridge*, and for the Anſwering of the Hen, after which they meet together, which may be diſcovered at their Rejoicing, and Chattering; then the Fowler may take his Range about them, drawing nearer to the Place he hears them *Juck* in, and caſting his Eyes towards the Furrows of the Land, he'll ſoon find where the Covy lies. Or by the *Call*, having firſt learn'd the true and natural Note of the *Partridge*, and how to tune it in its proper Key. Being perfect herein, he muſt frequent their Haunts, Morning and Evening, and hiding himſelf in ſome ſecret Place, where he may ſee and not be ſeen, liſtens if he can hear the *Partridges* call; if he hears them, he muſt anſwer them in the ſame Notes, and imitate them as near as poſſible, as they change or double thoſe Notes; continuing thus till they draw nearer unto him. Having them in View he lays himſelf on his Back, as if he was dead, without Motion, by which Means he may count their whole Number.

Having proceeded thus far, the next Thing he muſt do is to catch them. If he wants to do it with Nets, having found out the Covy, he draws forth his Nets, and taking a large Circumference, walks a good round Pace with a careleſs Eye, rather from them towards the *Partridges*, till he has trimmed his Nets, and made them ready for the Purpoſe; which done, he muſt draw his Circumference leſs and leſs, till he comes within the Length of his Net, then pricking down a Stick about three Foot in length, faſtens one End of the Net to it, and walking about, letting the Net ſlip out of his Hands, he ſpreads it open as he goes, and thus lays it all over the *Partridges*. But if they ſhould lay ſtraggling, ſo that he cannot cover them all with one Net, he muſt draw forth another, and do with that as he has done with the former; which being done, he ruſhes in upon them, who frighten'd will fly up, and ſo be entangled in the Nets.

Note, That the *Nets* wherewith *Partridges* are enſnared, muſt be every Way like the Pheaſants Nets, both for Length and Breadth, being made of the ſame Thread, and dy'd of the ſame Colour; only the Meſh muſt be ſmaller.

Partridges are taken with Birdlime, either in ſtubble Fields, from *Auguſt* till *Chriſtmas*, or in Woods, Paſtures, or Meadows. If in ſtubble Fields, the Fowler muſt take the largeſt Wheat-Straws he can get, and cut them off between Knot and Knot, and lime them with the ſtrongeſt Lime. Then he goes to the Haunts of *Partridges*, and calls; if they anſwer he pricks at ſome Diſtance from him, his Lime-Straws in many croſs Rows and Ranks acroſs the Lands and Furrows, taking in two or three Lands at leaſt; then lies cloſe and calls again, not ceaſing till he has drawn them towards him, ſo that they be intercepted by the Way by the lim'd Straws, which they ſhall no ſooner touch, but they will be enſnar'd, and by reaſon they all run together like a Brood of Chickens, they will ſo beſmear and daub one another, that very few of them will eſcape.

But if *Partridges* are to be taken in Paſtures, Woods, or Meadows, the Rods muſt be limed as for *Pheaſants*, and ſtuck in the Ground after the ſame Manner.

To drive *Partridges* into the *Nets*, which is one of the moſt diverting Manner of taking them, there muſt be made an Engine in the Shape of a Horſe, cut out of Canvas, and ſtuffed with Straw, or ſuch light Matter; with this artificial Horſe, and the Nets, the Fowler muſt go to the Haunts of *Partridges*, and having found out the Covy, and pitch'd his Nets below, ſlopewiſe and hovering, he muſt go above, and taking the Advantage of the Wind, drive downwards. Then, with his Face cover'd with ſomething green, or of a dark blue, and his Engine before him, ſtalk towards the *Partridges* with a ſlow Pace, raiſing them on their Feet, but not their Wings, and then they'll run naturally before him; if they chance to run a By-way, or contrary to his Purpoſe, they muſt be croſſed with the Engine, and by thus facing they will run into that Track the Fowler would have them: Thus, by a gentle ſlow Pace, he may make them run and go which Way he pleaſes, and at laſt drive them into his Nets.

But the moſt pleaſant of all the Manners of taking *Partridges*, is by a *Setting Dog*, which is a big Land-Spaniel, taught by Nature to hunt the *Partridge* more than any Chace whatever, running the Fields over with ſuch Alacrity and Nimbleneſs, as if there was no Limit to his Fury and Deſire, and yet by Art under ſuch excellent Command, that in the very Height of

of his Career, by a *Hem*, or Sound of his Mafter's Voice, he fhall ftand, gaze about him, look in his Mafter's Face, and obferve his Directions, whether to proceed, ftand ftill, or retire: Nay, when he is even juft upon his Prey, that he may even take it up with his Mouth, yet his Obedience is fo fram'd by Art, that prefently he fhall either ftand ftill, or fall down flat on his Belly, without daring either to make any Noife or Motion, till his Mafter comes to him, and then he will proceed in all Things to follow his Directions.

Note, That to train a Dog from a Whelp till he comes to that Perfection, you muft choofe him a Land Spaniel, of a good and nimble Size, rather fmall than great, and of a courageous Mettle, and tho' thefe good Qualities cannot be difcern'd while young, yet they may be juftly gueffed at, from a right Breed, which have been known to be ftrong, lufty, and nimble Rangers, of active Feet, wanton Tails and bufy Noftrils, whofe Tail was without Wearinefs, their Search without Changeablenefs, and which no Delight did tranfport beyond Fear and Obedience.

When the Fowler has made Choice of his Dog, he begins to inftruct him, while about four or fix Months old; firft by making him loving and familiar with his Mafter, to know him from any other Perfon, and following him wherever he goes: Which the better to effect, he muft very feldom receive his Food from any other Hand but his; and when he corrects him, to keep him in Awe, he muft rather do it with Words than Blows. A Dog thus inftructed will follow none but his Mafter, and can diftinguifh his Frown from his Smile, and fmooth Words from rough. Then he muft teach him to lie down clofe to the Ground; firft, by laying him often on the Ground, and crying, *lie clofe:* When he has done any Thing to his Mafter's Mind and Pleafure, he muft be rewarded with a Piece of Bread; if otherwife, chaftized with Words, but few Blows. After this, he muft be taught to come creeping with his Belly and Head clofe on the Ground, as far, or as little a Way as his Mafter fhall think fit; and this the Mafter may do by faying, *Come nearer, come nearer*, or the like; and at firft, till he underftands his Meaning, fhewing him a Piece of Bread, or fome other Food, to entice him. If he offers to raife his Body or Head, the Part thus raifed muft not only be thruft down, but he muft likewife be threaten'd with an angry Voice; which if he feems to flight, two or three Jerks, with a Whipcord-Lafh, muft be added to the Voice. Thefe Leffons muft be often repeated, till he be very perfect, ftill encouraging him when he does well. If the Fowler walks abroad with his Dog, and he takes a Fancy to range, even when he is moft bufy, he muft fpeak to him, and in the Height of his Paftime made fall upon his Belly, and lie clofe; and afterwards, come creeping. The next which muft be given him, is to lead in a String or Line, and to follow his Mafter clofe at his Heels, without Trouble or ftraining of his Collar. By the Time the Dog has learn'd all thefe Leffons, he muft be near twelve Months old; at which Time, the Seafon of the Year being proper, he muft be taken into the Field and permitted to range, but ftill in Obedience to his Mafter's Command: But if through Wantonnefs he chances to babble or open without Caufe, he muft be fharply corrected, either with a Whipcord Lafh, or pinching him hard at the Roots of his Ears.

Being brought to good Temper, and right Obedience; as foon as he comes upon the Haunt of any Partridge, (which is difcover'd at his greater Eagernefs in hunting, as alfo at a Kind of wimpering and whining in his Voice, being very defirous to open, but not daring) his Mafter fhall fpeak to him, bidding him take Heed and the like: But if, notwithftanding, he either rufhes in, and fprings the *Partridge*, or opens, and fo the *Partridge* efcapes, he muft be corrected feverely, caft off again, and made to haunt in fome Haunts where the Fowler knows a Covy lies, and fees whether he has mended his Fault: And if any *Partridge* be catch'd with the Net, the Dog muft have the Head, Neck, and Pinions, for his future Encouragement.

Having a Dog thus qualified by Art and Nature, the Fowler muft take him where *Partridges* do haunt, caft him off, and by fome Word of Encouragement wherewith he is acquainted, engage him to range, but never too far from his Mafter, who muft fee that he beat his Ground juftly and even, without cafting about, or flying here and there, which the Mettle of fome will do if not corrected and reproved: Therefore when the Fowler perceives this Fault, he muft prefently call his Dog in with a *Hem*, and fo check him, that he dare not do the like again for that Day, fo he will range afterwards with more Temperance. If in the Dog's ranging he be perceived to ftop on a fudden, or ftand ftill, his Mafter muft then make in to him (for without doubt he has fet the *Partridge*) and as foon as he comes to him command him to get nearer, and if he goes not, but either lies ftill or ftands fhaking of his Tail, as if he would fay, here they are under my Nofe; and withal now and then looks back, then the Fowler muft ceafe urging him further, and take his Circumference, walking faft with a carelefs Eye, looking ftrait before the Nofe of the Dog, and thereby fee how the Covy lies, whether clofe or ftragling: Then commanding the Dog to lie ftill, he draws forth his Net and pricks one End to the Ground, and fpreads it all open, and thus covers as many of the *Partridges* as he can. Which done he makes in with a Noife and fprings up the *Partridges*, which no fooner rife but they are entangled with the Net. The Fowler muft always let go the old Cock and Hen.

RAILS, QUAILS, MORE-POOTS, *&c.* are taken in the fame Manner as Partridges, either with Nets, limed Bufhes or Rods, Engine, or a fetting Dog. The Way of finding them is alfo the fame, by the Eye, the Ear, and Haunt; though the chiefeft of all is the *Call* or *Pipe*; to which they liften with fuch Earneftnefs, that you can no fooner imitate their Notes, but they will anfwer them, and purfue the *Call* with fuch Greedinefs, that they will play and fkip about you, nay, run over you, efpecially the *Quail*. The Notes of the Male and Female differ very much; therefore the Fowler muft have them both at his Command; and when he hears the Male call, he muft anfwer in the Female's Note; and when the Female calls, anfwer in the Male's Note; and thus will have them both come to him. Their Haunts are alfo much like thofe of *Partridges*, only the *Quail* loves moft the Wheat-Fields; the *More-poot* the Heath and Foreft-Grounds; and the *Rails* the long high Grafs, where they may lie obfcure.

I'll conclude this Treatife of *Fowling*, by Teaching the Method of Catching, Preferving, and Keeping all Sorts of finging Birds, *viz.* the *Nightingale*, *Blackbird*, *Wood-Lark*, *Linnet*, *Chaffinch*, *Robin Red-breaft*, *Starling*, *Tit-Lark*, *Bullfinch*, *Canary-bird*, *Thrufh*, *Sky-Lark*, *Goldfinch*, *Green-finch*, *Wren*, *Red-ftart*, and *Hedge-Sparrow*. And as thefe Birds are fubject to feveral Difeafes, will give you fome Prefcriptions to cure them.

The NIGHTINGALE, for his Throat, is the *Farinelli* of the Woods; he appears at the latter End of *March*, or Beginning of *April*, and very few know where fhe retires in the Winter; fome imagining that fhe fleeps all that Seafon. She builds her Neft commonly about two Feet above Ground, either in Quick-fet Hedges, or in Beds of Nettles; hatching her young ones about the Beginning of *May*, and naturally delighting in cool Places, where fmall Brooks are garnifhed with pleafant Groves, where they fing melodiouffy till they have hatch'd, for then they grow Mutes; whence

whence this *French* Air, or Song:

Rosignol to m'apprens cequ'il faut que je fasse,
Mon Cœur en t'imitant à de tendres amours,
Mais lorsque le Printems aura changé de face,
Tu sesseras d'aimer, & j'aimeray toujours:
Tu sesse de chanter ton amoureuse flame,
Lorsque tu vois le fruit de tes tendres amours;
Mais je ne sesse point dans le fonds de mon ame,
D'aimer, de soupirer, de me plaindre toujours.

Nightingales must be taken out of their Nests; when they are indifferently well fledged; for if well feathered they will be sullen, and if too little, they are so tender the Cold will kill them.

The Way of taking old and young is thus: For the Young, you must take Notice where the Cock sings; and if he sings long the Hen is not far, who often betrays her Off-spring by being too careful: for when you come near her Nest, she will *sweet* and *cur*: If notwithstanding this you cannot find her Nest, stick a Meal-worm or two upon a Thorn, and laying down or standing, observe which Way it is carried by the old one, and drawing near, you'll hear the young ones while she feeds them. When you have found out the Nest touch not the Young; for if you do, they will not tarry in the Nest.

The *Branchers*, or *Pushers* (thus called, because when thoroughly fledged, the old ones push them out of the Nest) are taken with a Bird-trap, or Net-trap, made with green Silk or Thread, about the Compass of a Yard, and in the Shape of a Shove-net for Fishes; then a large Wire bended round, and the two Ends joined, must be put into a short Stick about an Inch and an half long, and a Piece of Iron, with two Cheeks and a Hole on each Side, through which must be ran some fine Whip-cord three or four Times double, that it may hold the Piece of Wood the faster, into which the Ends of the Wire are put, and with a Button on each side of the Iron the Whip-cord is twisted; then the Net is fastened to the Wire, and the two Cheeks of the Iron joined at the Handle of a Board of the Compass of the Wire; to which is added a Piece of Stick about two Inches long, with a Hole at the Top of it, which must have a Plug to put in, with two Wires to stick the Meal-worm upon; then a String is tied in the Middle of the Top of the Net, which Net is to be drawn up, and having an Eye at the End of the Handle to put the Thread through, it must be pulled till it stands upright. When the Net and Worms are ready, having first scraped the Place, Ants must be put into the Trap-Cage; which Cage is to be placed near the Place where the *Nightingales* are heard calling, and left there.

When the *Nightingales* are taken, the Ends of their Wings must be tied with some Thread, to hinder them from beating themselves against the Cage, which ought to be above half covered with green Bays, and they left for four or five Days undisturbed; though they must be fed six Times a Day with Sheep's Heart and Egg shred very fine, and mingled with some Pismires; and if thro' Sullenness they refuse to eat, their Bill must be forced open.

In the Summer they must be fed every Day with fresh Meat; and when they begin to moult, with half an Egg hard boiled, and half a Sheep's Heart, mingled with Saffron and Water; and sometimes red Worms, Caterpillars, Hog-Lice, and Meal-Worms.

The *Nightingales* taken in *July* or *August*, will not sing till the Middle of *October*, and then they will hold in Song till the Middle of *June*; but those taken from the first of *April* to the twentieth, are the best Birds for Song. The *Nestlings* and *Branchers* (except they have an old Bird to sing over them) have not the true Song for the first twelve Months. When they are so tamed that they begin to *cur* and *sweet*, with Chearfulness, and record softly to themselves, it is a certain Sign that they eat, one need not trouble himself with feeding them; but if they sing before they feed, they commonly prove excellent Birds: Those which are long a feeding, and make no *curring* nor *sweeting*, are not worth the Keeping. One which flutters, and bolts up his Head in the Night against the Top of the Cage ought not to be kept; for he is not only good for nothing, but his bad Example will teach the best of Birds to do the like.

The best Sort of *Nightingales* frequent High-ways, Orchards, and sing close by Houses: These when taken will feed soonest, being more used to Company; and after their feeding will grow familiar, and sing speedily.

To distinguish the Cock from the Hen; the Cock, in the Judgment of some, is both longer and bigger: Others say, the Cock has a greater Eye, a longer Bill, and a Tail more reddish: Others pretend to know them by the Pinion of the Wing, and Feathers on the Head; but these Rules are not so sure as the following ones; *viz.* If a *Nestling* (before he can feed himself) records a little to himself, and in his recording his Throat is perceived to wag, he is a Cock; but when they come to feed themselves, the Hen will record as well as the Cock. *Branchers*, whether Cocks or Hens, (when taken and do feed themselves) will record; but the Cock does it much longer, louder, and oftner.

Nightingales are subject to several Diseases; for if they are not kept clean, their Feet are clogg'd, their Claws rot off; and they are subject to the Gout and Cramp. To cure them of these Diseases, their Feet must be anointed four or five Days with fresh Butter, and they will be well again. They are likewise troubled with Imposthumes and Breakings out about their Eyes and Neb, for which Capon's Grease must be used: If they be melancholy, some Liquorice with a little Sugar-Candy must be put in their drinking Pots.

The CANARY-BIRDS are originally from the *Canary-Islands*; from whence they were brought into *Europe*. They are in Colour much like our Green-Birds, but differ much in their Song, and Nature; for as other Birds are subject to be fat, the Cocks of these are always lean, by reason of the Greatness of their Mettle, and their lavish Singing: The best are long shaped, standing strait and boldly. There are no certain Rules to be given for the Choice of *Canary-Birds*, every one consulting his own Fancy; for some like those that *wisk* and *chew*, like unto a *Tit-Lark*; others are for those that begin like a *Sky-Lark*, and so continue their Song with a long, yet sweet Note; others are for those that begin their Song with the *Sky-Lark*, and then run upon the Note of the *Nightingale*, which is very pleasant if he does it well: The last is for a loud Note, and lavish, regarding no more in it than a Noise; but the long Song is the best, having most Variety of Notes. To discover if a *Canary-Bird* be in Health, before he is purchased, he must be taken out of the Store-Cage, and put into a clean one alone; where if he stands boldly without crouching, without shrinking Feathers, and his Eyes looking brisk and chearfully, these are good Signs of a healthy Bird; but if he bolts his Tail like a *Nightingale*, after he has dung'd, it shews he is not well; tho' he seems lively for the present, there is some Distemper near attending: Likewise, if he either dung very thin and watry, or of a slimy white, and no Blackness in it; these are dangerous Signs of approaching Death.

Canary-Birds above three Years old are call'd *Runts*; at two Years old they are call'd *Eriffs*; and those of the first Year are call'd *Branchers*; when they are new flown, and cannot feed themselves, they are call'd *Pushers*; and those that are brought up by Hand, *Nestlings*. They take great Delight at *Paris* to set *Canary-Birds* to breed; they have Cages made on Purpose, which they call *Cabanes*, where those Birds build, lay, and hatch their young.

The BLACKBIRD builds her Nest upon old Stumps of Trees by Ditch-sides, or in thick Hedges; they are brought up almost with any Meat whatsoever; but above all, they love Ground Worms, Sheep's Heart, hard Eggs, and white Bread and Milk mix'd together. This Bird sings somewhat more than three

Months in the Year; his Note is harsh and loud; therefore to add a Value to him, he must be taught to whistle.

There are five Kinds of Thrushes, *viz.* the *Mistle-Thrush*, the *Northern-Thrush*, or *Feldfare*, the *Wind-Thrush*, the *Wood-Song-Thrush*, and the *Heath-Thrush*.

The first is the largest of all five, and the most beautiful; but as he sings but little, and his Notes are rambling and confuse, he is not worth the Keeping. The second is the *Feldfare*, who comes into *England* before *Michaelmas*, and goes away about the Beginning of *March*. They breed upon certain Rocks near the *Scotish* Shore three or four Times a Year, and are there in very great Numbers: They are not so fit for the Cage as for the Spit, having a most lamentable untuned chattering Tone. The third is the *Wind-Thrush*, or *Whindle*, which travels with the *Feldfare* out of the North, is a smaller Bird, with a dark Red under his Wing. She breeds in Woods and Shaws as *Song-Thrushes* do, and has an indifferent Song exceeding the two former; but yet they are fitter for the Pot or Spit, than for a Cage or Avery. The fourth is the *Wood-Song-Thrush*, and sings most incomparably, both lavishly and with Variety of Notes; and sings at least nine of the twelve Months of the Year. They build about the same Time, Place, and Manner the *Blackbird* does; the Composure of her Nest is so marvellous that it cannot be mended by the Art of Men; besides the curious building, she leaves a little Hole in the Bottom of her Nest, to let out the Water, as may be suposed, if a violent Shower should come, that so her Eggs or young ones may not be drowned. If the Weather favours them, they go very soon to Nest, and breed three Times a Year, *viz.* in *March*, *April*, *May* and *June*; but the first Birds usually prove the best; which must be taken in the Nest when fourteen Days old, and kept warm and clean, not suffering them to sit on their Dung, but must be so contrived that they dung over the Nest. They are to be fed with raw Meat and some Bread chopped together with bruised Hemp-seed, wetting the Bread before it is mingled with the Meat. Being thoroughly fledged, they must be put in a Cage with two or three Perches, where they may have Room enough, and some Moss at the Bottom to keep them clean; for otherwise they will be troubled with the Cramp, and for Want of delighting in themselves their Singing will be spoiled. They must also have fresh Water twice a Week, that they may bathe and prune themselves therein, otherwise they will not thrive. The fifth and last is the *Heath-Thrush*, which is the least we have in *England*, having a dark Breast. Some are of Opinion, that this Bird exceeds the *Song-Thrush*, having better Notes, and neater Plume. The Hen builds by the Heath-side in a Fern-bush, or Stump of an old Hawthorn, and makes not Shaws and Woods her Haunt as other Thrushes do. She begins to breed towards the Middle of *April*, and breeds but twice in a Year; and if kept clean and well fed, will sing three Parts in four of the old Year. To know the Cock from the Hen, according to some, is to chuse the top Bird of the Nest, which commonly is most fledged. Others think that to be the Cock which has the largest Eyes and most Speckles on his Breast. Others chuse the Cock by the Pinion on his Wing; but the best Marks are a white Gullet with black Streaks on each Side, the Spots on the Breast large and black, and the Head of a light shining Brown, with black Streaks under each Eye, and upon the Pinion of the Wing.

The Robin-Red-Breast, for Sweetness of Note, is very little inferior to the Nightingale: He is taken either in a Pit-fall, or with a Trap-Cage and a Meal-Worm. They breed very early in the Spring, and commonly twice a Year. When the young ones are about ten Days old they must be taken from the old ones, and kept in a little Bower-Basket. They are fed in all Respects like the Nightingale: When they grow strong they are put in a Cage, with Moss at the Bottom; but as they are very tender Birds the Cage must be lined, to keep them warm. The Cock has his Breast of a darker Red, and his Red will go further up upon the Head than the Hen.

The Wren is a little Bird, as pleasant to the Ear as he is to the Eye: He builds twice a Year, about the latter End of *April*, in Shrubs where Ivy grows thick, and sometimes in old Hovels and Barns. They lay a numerous Quantity of Eggs. Their second Time of breeding is in the Middle of *June*; of either Breed, what you intend to keep must be taken out of the Nest at thirteen and fourteen Days old; and fed every Day very often, but a little at a Time, with Sheep's Hearts and Eggs minced very small; and when they begin to pick their Meat of their own Accord, off the Stick they are fed with, they must be caged, and Meat put in a little Pan, and about the Sides of the Cage, to entice them to eat, though they must be fed too, lest they neglect themselves and die. When they can feed themselves very well, a Spider or two must be given them once in three Days. The brownest and largest of the young *Wrens* are the Cocks.

The Wood-Lark, is by some preferred to the Nightingale, because he has a great Variety of very excellent and pleasant Notes. The *Wood-Lark* breeds the soonest of any Bird, by reason of his extraordinary Mettle; therefore if they are not taken in the Beginning of *February* at least, they grow so rank that they will prove good for nothing. He delights most in gravelly Grounds and Hills lying towards the Orient, and in Oat-Stubs. Their Building is in Layers-Grounds, where the Grass is rank and russet, making their Nests of Ben-Grass, or dead Grass of the Field, under some large Tuffs, to shelter them from the Injury of the Weather. These Birds are never bred from the Nest, for they die in a Week either of the Cramp or Scowring. The Times of the Year to take them are *June*, *July*, *August*, with a Hobby, in this Manner: Go in a dewy Morning to the Sides of some Hills which lie to Sun-rising, where they most usually frequent, and having sprung them, observe where they fall, then surround them twice or thrice with your Hobby on your Fist, causing it to hover when you draw near, by which Means they will lie still till you clap a Net over them. If three or four go together, take a Net made in the same Manner as that for Partridges, when you go with a Setting-Dog, only the Mesh must be smaller, *i. e.* a Lark-Mesh, and then your Hobby is to the Lark what a Setting-Dog is to Partridges. Those taken in this Season are called *young Branchers*, because they have not moulted yet; and will sing presently, but will not last long, by reason of their Moulting.

Wood-Larks taken at the latter End of *September*, having then moulted cannot be distinguished whether old or young. Those taken in *January* and *February* will sing in five or six Days, or sooner, and they are the best, being taken in full Stomach, and are more perfect in their Song than those taken in other Seasons.

Upon the first taking of the *Wood-Lark*, two Pans must be put into the Cage, one for Sheep's Heart minced small, and mingled with Bread, Egg, and Hemp-seed; and another for Oatmeal and whole Hemp-seed. The Bottom of the Cage ought to be covered with red Gravel, which must be shifted every Week at furthest, and the Perch lined with green Bays; and lest they should not find the Pan soon enough, to prevent Famine, there must be strewed upon the Sand some Hemp-seed and Oatmeal; and if they grow poor at the Beginning of the Spring, there must be given to them every two or three Days a Turf of three-leafed Grass. The Cock is distinguished from the Female, by the Largeness and Length of his Call, by his tall Walking, his strong Singing, and the doubling of his Notes in the Evening.

These Birds are very subject to the Cramp, Giddiness in the Head, and louzy. The best Remedy to prevent the Camp is to shift the Cage often with fresh Gravel, otherwise the Dung will clog to the Feet, which causes the Cramp. The Giddiness of the Head proceeds from feeding upon much Hemp-seed, and is cured with Gentles, or Hog-Lice, Emmets and their Eggs,

Eggs, with Liquorice, all put into Water. Louzinesſ is cured by ſmoaking Tobacco.

The SKY-LARK is a hardy Bird, and will live upon any Food, provided he has once a Week a Turf of three-leav'd Graſs. *Sky-Larks* commonly build in Corn, or thick high Graſs Meadows, and ſeldom have more than four young ones, which they hatch towards the Middle of *May*. They muſt be taken when a Fortnight old, and fed at firſt with minc'd Sheep's Hearts, mix'd with hard Eggs; when they can feed alone, they eat Hemp-Seed and Oatmeal; they muſt have Sand in the Bottom of their Cage, and no Perch.

Sky-Larks are taken either with a Net and Hobby, or a Trammel, or a Pair of Day-Nets and a Glaſs, or with a Low-Bell, or with Pack-Thread.

The *Trammel* is only uſed in dark Nights, and is above ſix and thirty Yards long, and ſix Yards over, run thro' with ſix Ribs of Pack-Thread; which Ribs at the Ends, are put upon two Poles ſixteen Feet long, made taper at each End, and ſo is carried between two Men half a Yard from the Ground, to cauſe the Birds to fly up, otherwiſe the Net might be carried over them without diſturbing them; when they are heard fly againſt the Net, it muſt be clapp'd down. The *Day-Nets* are commonly ſeven Feet deep, and fifteen long, knit with *French* Meſh, and very fine Thread. Theſe *Nets* take all Sorts of ſmall Birds that come within their Compaſs, as *Bunting Larks*, and *Linnets* in Abundance. To take *Larks* with the low Bell, the Bell and a great Light in a Tub, muſt be both carried by one Man, and the Net by another; this Bell and Light ſo amazes them, that they lie as dead, and ſtir not till the Net over-caſt them. To take them with Pack-Thread, a hundred, or two hundred Yards of Pack-Thread muſt be provided, when there is Abundance of Snow upon the Ground, faſtening at every ſix Inches, a Nooſe made with Horſe-Hairs, two Hairs are ſufficient.

Larks, deſign'd to be kept for ſinging, muſt be taken in *October*, or *November*, chuſing the ſtraiteſt, largeſt, and loftieſt Bird, and he that has moſt White on his Tail, for theſe are the Marks of the Cock.

The LINNET builds his Neſt in Thorn-Buſhes, and Fir-Buſhes, and ſome of the hotter Sort will breed four Times a Year. The young ones may be taken at four Days old, if you intend to teach them to whiſtle, or learn the Song of other Birds, for being ſo young they know not the Tune of the old Bird; then they muſt be kept very warm, and fed often, and a little at a Time, with bruis'd and ſoak'd Rape-Seeds, mixed with an equal Quantity of white Bread. The Cock is known from the Hen by the Brownneſs of his Back, and the White of his Wing; that is to ſay, take your young *Linnet* when the Wing-Feathers are grown, and ſtretch out his Wing, holding his Body faſt with the other Hand, and then obſerve the White upon the fourth, fifth, and ſixth Feather; if it caſt a gliſtering White, and it goes quite to the Quill, it is a ſure Sign of a Cock.

This Bird is ſubject to ſeveral Diſeaſes, as the Phthyſick, known by his panting, ſtaring Feathers, lean Breaſt, and ſpilling his Seeds up and down the Cage. Which Diſeaſe happens for Want of Water, or for Want of green Meat in the Spring: He is troubled alſo with Strains, or Convulſions of the Breaſt; ſometimes with Hoarſeneſs, being over-ſtrain'd in ſinging; ſometimes he is melancholy, at others Times afflicted with Scouring, of which there are three Sorts, the firſt is thin, or with a black or white Subſtance in the Middle, not very dangerous; the ſecond is between a black and white, clammy and ſticking, this is bad; but the third and laſt is moſt mortal, which is the white clammy Scouring.

The GOLD-FINCH breeds commonly in Apple Trees, and Plumb Trees, thrice a Year. *Gold-finches* are taken in great Plenty about *Michaelmas*, and will ſoon become tame. The young ones are taken with the Neſt at ten Days old, and fed with the beſt Hemp-Seed pounded, ſifted, and mix'd with the like Quantity of white Bread, with ſome Flour of Canary-ſeed. They muſt be kept very warm till they can feed themſelves.

The TIT-LARK appears at the ſame Time of the Year as the Nightingale does, which is the Beginning of *April*, and leaves us at the Beginning of *September*. He breeds about the latter End of *April*, or the Beginning of *May*, and builds his Neſt on the Ground by ſome Pond or Ditch. The *Tit-Larks* are fed, when taken, as the Nightingale. They are eaſily brought up, being hardy, and are not ſubject to Colds or Cramps, but live long if preſerved with Care. The Song of this Bird is ſhort and ſweet.

The CHAFFINCH builds his Neſt in Hedges, and Trees of all Sorts, and has young ones twice or thrice a Year, which are ſeldom bred up from the Neſt, becauſe they are not apt to take another Bird's Song, or to whiſtle. The *Chaffinch* has but one ſhort plain Song.

The STARLING, to be excellent, muſt be taken from the old ones at the End of three or four Days; for if taken fledg'd out of the Neſt, they retain too much of their own natural harſh Notes. They learn to whiſtle, or ſpeak, or other Bird's Song, by hanging under him.

The REDSTART, is a Fore-runner of the Nightingale, and is of a very ſullen dogged Temper in a Cage, but abroad is very chearful, and has a pleaſing Kind of whiſtling Song. Theſe Birds build uſually in the Holes of hollow Trees, or under Houſe-Eaves. They muſt be taken out of the Neſt about ten Days old, and fed with Sheep's-Heart and Eggs chop'd together. If the *Redſtart* be kept warm in the Winter, they will ſing as well in the Night as the Day. They breed thrice a Year, the latter End of *April*, in *May*, and towards the latter End of *June*. The Cock is fair, and delightful to the Eye.

The BULLFINCH has no Song, nor Whiſtling of his own, but is very apt to learn any Thing, if learn'd with the Mouth.

The GREENFINCH breeds three Times a Year, very ſillily by the Highways, and early before the Hedges have Leaves upon them, which expoſes their Neſts to publick View, ſo that ſeldom their firſt Neſts comes to any Thing. The young ones are very hardy Birds to be brought up, and may be fed with white Bread and Rape bruiſed and ſoaked. The *Greenfinch* is a beautiful Bird, but very dull; and will never kill himſelf either by ſinging or whiſtling; therefore is not worth keeping for his Song.

The HEDGE-SPARROW builds in a white Thorn, or private Hedge, laying Eggs of a fine blue Colour. Theſe Birds are taken at the latter End of *January*, or Beginning of *February*, and will feed almoſt on any Thing. They are very tractable, and will take any Bird's Song, if taken young out of the Neſt. Old or young they will become tame very quickly; ſo that it is not ſo deſpicable a Bird as ſome will have it.

Note, That the *Sterling* is the beſt Bird for whiſtling; That the *Robin-red-Breaſt* whiſtle and ſpeak: And that the *Canary-Bird*, will learn to whiſtle almoſt any Thing if taken young out of the Neſt, otherwiſe not; for he being a very hot-mettled Bird, he will run upon his own Song do what you can. That the *Linnet* will learn almoſt any Tune if not too long, and too full of Variety.

Note alſo, That as to the Length of Birds Lives; among *Nightingales*, ſome live but one Year, ſome three, ſome five, ſome eight, and ſome twelve, ſinging better and better for the firſt ſeven or eight Years, and afterward decline by little and little. The *Wood-Lark* ſeldom lives in a Cage above ſix Years. The *Robin-red-Breaſt* rarely lives above ſeven Years, for he is a tender Bird, and much ſubject to the falling Sickneſs, Cramp, and Oppreſſion of the Stomach. The *Sky-Lark*, as he is a hardy Bird, ſo he is long-liv'd alſo. All Sorts of Seed-Birds live longer than any ſoft beaked Birds, eſpecially the *Canary* and *Linnet*; for the *Canary* and *Linnet* live and ſing within a Year of twenty.

FULLING.

FULLING, is the Art of Cleanſing, Scouring, and Preſſing Cloths, Stuffs, and Stockings, to render them ſtronger, cloſer, and firmer.

Fulling is done with a *Mill*, called *Fullers Mill*, which, excepting what relates to the Stone and Hopper, is much the ſame as a Corn-Mill. The principal Parts of this *Fullers Mill*, are the Wheel with its Trundles, which gives Motion to the Tree or Spindle, whoſe Teeth communicate it to the Peſtles, or Stampers, which are hereby rais'd, and fallen alternately, according as its Teeth catch on, or quit a Kind of Latch in the Middle of each Peſtle. The Peſtles and Troughs are of Wood, each Trough having at leaſt two, ſometimes three Peſtles, at the Diſcretion of the Maſter, or according to the Force of the Stream of Water. In theſe Troughs are laid the Cloths, Stuffs, *&c.* intended to be *fulled*; then letting the Current of Water fall on the Wheel, the Peſtles are ſucceſſively let fall thereon, and by their Weight and Velocity, ſtamp, and preſs the Stuffs very ſtrongly; which by this Means becomes thicken'd and condenſed. In the Courſe of the Operation, they ſometimes make Uſe of Urine, ſometimes of *Fullers Earth*, and ſometimes of Soap.

Note, That *Fullers Earth*, is a fatty, foſſil Earth, abounding in Nitre, dug in great Plenty out of certain Pits, near *Brickhill* in *Staffordſhire*; alſo near *Ryegate* in *Surry*; near *Maidſtone* in *Kent*; near *Nutley* and *Petworth* in *Suſſex*; and near *Wooburn* in *Bedfordſhire*. That it is abſolutely neceſſary to the well dreſſing of Cloth; and hence Foreigners, who can procure Wool to be exported out of *England*, can never reach to the Perfection of the *Engliſh* Cloths, *&c.* without *Fullers Earth*. For this Reaſon it is made a contraband Commodity; and the Export made equally criminal with that of exporting Wool. Abroad they make a great Uſe of Urine, in lieu of *Fullers Earth*, which is very prejudicial, and ought to be entirely diſcarded; not ſo much on Account of its ill Smell, as of its Sharpneſs and Saltneſs; which is apt to render the Stuffs dry and harſh.

In *France* they *full* Cloaths and woollen Stuffs with Soap, according to the Method deliver'd by M. *Colinet*, ſupported by Experiments made by Order of the Marquis *de Louvois*, then Superintendant of the Arts and Manufactories of *France*; the Subſtance of which is as follows: A colour'd Cloth of about forty-five Ells, is to be laid in the uſual Manner, in the Trough of a *Fulling* Mill, without firſt ſoaking it in Water, as is commmonly practiſed in many Places. To *full* this Trough of Cloth, fifteen Pounds of Soap are requir'd; one half of which is to be melted in two Pails of River or Spring Water, made as hot as the Hand can well bear it. This Solution is to be pour'd by little and little upon the Cloth, in proportion as it is laid in the Trough: And this is to be *fulled* for at leaſt two Hours; after which it is to be taken out and ſtretched. This done, the Cloth is immediately return'd into the ſame Trough, without any new Soap, and there *fulled* two Hours more. Then taking it out, they wring it well to expreſs all the Greaſe and Filth. After the ſecond *Fulling*, the Remainder of the Soap is melted as the former, and caſt at four different Times on the Cloth; remembring to take out the Cloth every two Hours to ſtretch it and undo the Plaits and Wrinkles it has acquir'd in the Trough. When they perceive it ſufficiently *fulled*, and brought to the Quality and Thickneſs requir'd, they ſcour it out for good in hot Water, keeping it in the Trough till it be quite clean. As to white Cloths, in regard theſe *full* more eaſily, and in leſs Time than colour'd ones, a third Part of the Soap may be ſpared.

The *Fulling* of Stockings, Caps, *&c.* ſhould be performed ſomewhat differently, *viz.* either with the Feet or the Hands; on a Kind of Rack or wooden Machine, either arm'd with Teeth of the ſame Matter, or elſe Horſes or Bullocks Teeth. The Ingredients made Uſe of herein, are Urine, green Soap, white Soap, and Fullers Earth. But the Urine alſo is reckoned prejudicial here. Woven Stockings, *&c.* ſhould be *fulled* with Soap alone: For thoſe that are knit, Earth may be uſed with the Soap. Indeed it is frequent to *full* theſe Kinds of Works with the Mill, after the uſual Manner of Cloths, *&c.* but that is too coarſe and violent a Manner, and apt to damage the Work, unleſs it be very ſtrong.

Cloths, *Stuffs*, *Stockings*, &c. thus *fulled*, have their Wool or Nap carded or drawn with a Kind of Plant called *Teazel*, or *Teaſel*, *Carduus Fullonum*, the *Fullers Thiſtle*, in order to render them cloſer and warmer. This Plant is cultivated with great Care in ſeveral Parts of *France*, particularly *Normandy*; and the Exportation thereof prohibited, by Reaſon of the vaſt Uſe thereof in the woollen Manufacture; the Stem is very high: And its Extremity, as alſo thoſe of its Branches, bears an oblong, prickly, yellowiſh Ball or Bur, which is the Part uſed. The largeſt Burs, and thoſe moſt pointed, are eſteemed the beſt, and are now called *Male Teazles*, moſtly uſed in the dreſſing and preparing of Stockings and Coverlets; the ſmaller Kind, properly called the *Fullers* or *Drapers*, and ſometimes the *Female Teazle*, are uſed in the Preparation of the finer Stuffs, as Cloths, Rateens, *&c.* The ſmalleſt Kind, ſometimes called *Linnets Heads*, are uſed to draw out the Nap from the coarſer Stuffs, as Bays, *&c.*

The *Art of Fulling* was invented, according to *Pliny*, *Lib.* 7. *c.* 56. by one *Nicias* the Son of *Hermias*: And it appears by an Inſcription quoted by Sir *George Wheeler*, in his Travels through *Greece*, that this ſame *Nicias* was a Governor in *Greece*, in the Time of the *Romans*.

The *Fullers* among the *Romans*, waſhed, ſcoured and fitted up Cloaths, and their Office was judged of that Importance, that there were ſeveral Laws preſcrib'd them for the Manner of performing it: Such was the *Lex metalla de fullonibus*, &c.

GAMING.

GAMING, is an Art reaſonable in its Inſtitution, mutable in its Principles, and often very dangerous in the Practice.

I ſay that *Gaming* is reaſonable in Inſtitution, ſince it may be ſuppoſed it was firſt invented for an honeſt Recreation. That it is mutable in its Principles, ſince no Sort of Games has infallible ones, but are all founded on the Inconſtancy of our Mind, and often but ridiculous Caprices. It is dangerous in the Practice, ſince *Gaming* puts all our moſt criminal Paſſions into a Ferment, makes us ſometimes appear rather like Furies vomited from Hell, than rational Men; and cauſes the entire Ruin of an infinite Number of Families, which from an opulent State, it reduces to Beggary.

Gaming is applied either to *Games of Exercise* and *Addreſs*, or thoſe of *Chance*, or *Hazard*.

To the firſt belong *Tennis*, *Billiards*, *Chess*, *Bowls*, *Cudgels*,

Cudgels, *Wrestling*, *Quoits*, *Shooting with Bows*, &c. To this belonged also the antient *Just*, and *Turnament*.

Under the second comes *Cards*, *Dice*, &c. and under *Cards*, several subordinate Games; the principal whereof are, *Ombre*, *Picquet*, *Basset*, and *Wisk*.

To begin with those of Exercise, TENNIS is supposed one of the most noble, as being the most in Vogue among Persons of Fashion, tho' very fatiguing; since those who exercise themselves at it, tho' commonly in their Shirt, sweat, notwithstanding, so violently, that when the Practice is over, they are forced to change Shirt, and be rubb'd by Servants kept on Purpose in the TENNIS-COURT, which is a long and broad Alley or Court, pav'd with large and flat Stones, and cover'd over; with Galleries, or Piazzas, on both Sides, for the Spectators, or those who bet. The Game is perform'd with Battlers and Balls, and consists chiefly in the Agility and Dexterity of the Gamesters, in catching and throwing the Ball.

BILLIARDS (from the *French Billard*, of *Bile*, the Ball made Use of; and that from the *Latin Pila*, a Ball) is an ingenious Kind of Game, play'd on an oblong Table, covered with green Cloth, and placed exactly level, with little Ivory or wooden Balls, which are driven by crooked Sticks, made on Purpose, into Hazards or Holes on the Edges and Corners of the Table, in *French* called *Blouzes*. There are three of those Holes or *Blouzes* on each Side of the Table, one at each Corner, and one in the Middle. The whole Secret of this Game consists in Lodging the Ball of our Antagonist, in one of these Holes, or *Blouzes*, and avoid having ours lodg'd there. When we *blouze* our Antagonist, we get two Points, or Numbers of the *Partie*, which commonly is of seven, and when he lodges our *Bille*, or Ball, we lose two. If we miss touching the Ball of our Antagonist, we lose one; and if when both Balls are close together, as it happens often, we touch the Ball of our Adversary, at the same Time we touch ours, we lose one also. If we throw his Ball off the Table, which the *French* call *Faire Sauter*, we get two; but if at the same Time, or at any other, we throw off ours, we lose two. One's Adversary is distressed in several Manners, 1. By *blouzing* him. 2. By nailing his Ball close against the Side of the Table. 3. By bringing it upon the Edge of a Hole, that he may run the Risk of *blouzing* himself, in attempting to *blouze* us, or miss touching our Ball.

To play well at *Billiards*, the Gamester must understand perfectly well how to use his *Masse* and also the Tail, when his Ball is nailed close against the Side of the Table, or so near that of his Adversary, that he cannot use the *Masse* without running the Risk of touching the Ball of his Adversary, as well as his own. He must also endeavour, as much as possible, to touch always the Ball of his Adversary in full, for when he touches it corner-wise, tho' he sometimes *blouzes* his Adversary, he seldom misses of *blouzing* himself also. He should besides understand how to draw Perpendiculars, Diagonals, and equilateral Lines with his Eyes, either to touch always the Ball, or to lodge it in the Hazards, or *Blouzes*; and he is not to be unacquainted with the Faults of the Billiard Table, if it has any. Formerly that Table was all level; but the *French*, to render the Game more difficult, have incumbered the Middle thereof with an Iron Rod, placed arch-wise, with only Room for one Ball to pass thro' it.

Note, That the Game of *Billiards* caused the Ruin of the Chevalier *de Rohan*, at the Beginning of *Louis* XIV's Reign (a Prince who was a great Lover of that Game) and made the Fortune of *Chamillard* towards the End of the same Reign. The Chevalier *de Rohan*, a Nobleman of an illustrious House of *Britanny*, was then great Equery to the King, and his Favourite besides, and as such was at all his Parties of Pleasure; particularly at *Billiards*. One Day the King made one of the Conditions of the Game that the Loosers should pay, in *French Louis d'Or*, and not in *Spanish* Pistoles, though they had at that Time Currency in the Kingdom at the Rate of the *French Louis d'Or*; but were not of the same intrinsick Value, because they were either clipped, or counterfeited. The Chevalier play'd that Day against the King, and lost an hundred *Louis d'Ors*; but either not remembring the Conventions made, or having at that Time no other Gold by him but *Spanish* Pistoles, he sent to the King's *Cassette*, as it is called in *France*, which is the Money allow'd for the King's Pleasures, or Diversions, an hundred *Spanish* Pistoles, instead of an hundred *Louis d'Ors*. The King, always well pleased when he won, and careful of informing himself if the Losers have been punctual in their Payments, being inform'd that the Chevalier had sent an hundred *Spanish* Pistoles, chid him the next Day in a gentle Manner, for his having not fulfilled the Conditions agreed upon. The Chevalier, piqued at the Reproach, though made without the least Design to offend him, sent immediately one of his Gentlemen, who attended, for a hundred *Louis d'Ors*, which he deliver'd to a Lord there present, who kept the King's Money, who at the same Time return'd him his hundred *Spanish* Pistoles; which the Chevalier had no sooner receiv'd, but he open'd a Window, and threw them away, saying, that if that Money had no Course at a Billiard-Table, it was not worth keeping. The King, who took that for an Affront, told the Chevalier he was impertinent, and commanded him to withdraw. This was the Cause of all the Misfortunes which befel the poor Chevalier afterwards, and which brought him at last to lose his Head on a Scaffold; for having enter'd into a Conspiracy with Madame *de Villars* at *Latreaumont*, and several others for the Enlevement of the Dauphin, this King's Grandfather, to deliver him into the Hands of the *Dutch*. It was supposed then, that if the Chevalier could have been prevailed upon to ask the King's Pardon, for his first Indiscretion, he had been receiv'd into Favour again; but he was a true *Briton*, *i. e.* had too great a Heart to be persuaded to humble himself, when he thought he had not offended.

Chamillard met with a quite different Fate, at the same Place, and in the same Company, for having found the Secret to please the King by his great Dexterity in playing at *Billiards*, his Majesty took him into Favour, and imagined afterwards, that *Chamillard* could manage his Finances with the same Dexterity, he did a *Masse*, but he was mistaken; it is true, that like a true Gamester he played then a Game for himself; where the King his Master, was always on the Loser's Side.

CHESS, is an ingenious Game, where Art and Address are so indispensably requisite, that Chance seems to have no Place, and a Person never loses but by his own Fault.

Note, That *Sarrasin* has a precise Treatise on the different Etymology, or the Origin of the *Latin Schacchi*, whence the *French Echecs*, and the *English Chess*, is formed. *Manage* is also very full on the same Head. *Leunclavius* takes it to come from *Uscoches*, famous *Turkish* Robbers: *P. Sirmond* from the *German Scache*, Theft; and that from *Calculus*. He takes the *Chess* to be the same with *Ludus Latrunculorum* of the *Romans*, but mistakenly. This Opinion is countenanced by *Vossius* and *Salmasius*, who derive the Word from *Calculus*, as used for *Latrunculus*. *G. Tolosanus* derives it from the *Hebrew Schach*, *vallavit & mat mortuus*; whence *Chess* and *Chess-mate*; *Fabricius* says, a celebrated *Persian* Astronomer, one *Schatrenscha*, invented the Game of *Chess*, and gave it his own Name; which it still bears in that Country. *Nicod* derives it from *Scheque*, or *Xeque*, a *Moorish* Word for Lord, King and Prince: *Bochart* adds, that *Scach* is originally,

ginally *Persian*, and that *Scachmat* in that Language signifies the King is dead. The Opinion of *Nicod* and *Bochart*, which is likewise that of *Scriverices*, appears the most probable.

The Theatre upon which this Game, if acted, is a chequered Board, half black and half white, like a Draught-Board; and by two little Armies drawn up in Order of Battle, opposite to each other; each Army is commanded by a King (which is seldom practised at present, except at *Chess*) and several great Officers, in all (the King included) eight principal Persons.

The *King*, as may be very well imagined, is the first in Rank and Order; next to him stands the *Queen*, two *Rooks* next; next to the two Rooks, two *Knights*; two Bishops next, which the *French* call *les fous* (but why the *French* have made Fools of Bishops, and the *English* made Bishops of Fools, is what I will not pretend to determine; for it could not be imagined that the *English* have made Bishops of Fools, because those Pieces which the *French* call Fools, and the *English* Bishops, have no regular March, but jump from one Side to the other as it suits best their Conveniency.) The next are the Pawns, who though they are no other than common Soldiers, yet when they are well commanded, perform sometimes great Actions.

The Method of drawing up this little Army, is to place the principal Pieces on the lowest Rank of the Board next to the Gamester, *viz.* the *King* first upon the fourth Spot from the Corner, which is white; the *Queen* on the black Spot on his Right; the two *Bishops*, one next the *King* and the other next the *Queen*; the *Knights* on the Sides of the *Bishops*, and the two *Rooks*, one in each Corner. The Pawns, which are also eight in Number, are placed just in the Rank before those illustrious Persons, to serve as their Rampart. The other Army is drawn up on the opposite Side in the same manner; and lest they should not be distinguished when they are engaged, one Army is always cloathed in *Black*, the other in *White*.

The King (whose Pace ought always to be very grave and modest, though without Affectation) never moves but from one Chequer to another; forward in a Line, or side-ways in a Line, or backward in a Line. If he meets with any Scout of the Enemy in his Way, he may take him Prisoner, and place himself where he stood; and when it is his Turn to move again, he may go backwards, side-ways, or retire. The King can also, the first Motion, pass over one Chequer, but after that he can only move from Chequer to Chequer.

The Queen, provided the Passage be clear, may pass from one End of the Board to the other at one Movement, either in a Line forwards, or in a Line Side-ways; and if any of the Enemy stands in her Way, she may take him Prisoner, and stand in his Place.

The Bishop, has a Motion hard to be described upon Paper, for it is neither directly forwards, nor altogether side-ways, but betwixt both; it is an oblique Movement, he may either move from Chequer to Chequer, or run along a whole Row, according as he sees an Advantage to snap an Enemy. One *Bishop* stands upon a black Chequer, and the other upon a white; but he who stands upon a black Chequer must always move upon the black Row, without touching the white; as he who stands upon a white, must always move on the white Row, without touching the black.

The *Knight* has but one Way of moving, which is that of jumping from Black to White, and from White to Black: In this Motion he jumps over one Chequer, not directly forward, but moves in the Form of a Demi-circle; and if one of the Enemy should stand next to him, he can jump over his Head.

Note, That an Officer, or a Pawn of the Enemy, may stand next to a Knight or Bishop without Danger; for these being confined to one Way of moving, can hurt nothing but what lies directly in that Way. But *Note* also, That this Rule is observed no where else but at *Chess*.

The *Knight* is of great Use in the Beginning of the Battle; for very often he makes a Passage through the Enemy's Army, and forces his Way up to the King, whom he attacks, and to whom he gives *Cheque-Mate*; but at the latter End of an Action, he has not the same Opportunity of exercising his Valour; therefore the best Play is to employ him at first.

Note, That giving the King *Cheque-Mate*, is putting him in Danger; for whenever the King's Person is in Danger of being taken by the Enemy, out of respect to Royal Majesty, Notice must be given him, by saying *Cheque*, that so he may either retire or cover himself with some of his Men; for when he is taken, his Army is lost, and there is an End of the Game. If those who put the Enemy's King into this Danger should omit saying *Cheque*, they cannot take him.

The Motion of the Rooks is in a direct Line every Way, they can neither cross the Chequer as the *Bishops* do, nor hop like the *Knights*: They may either move from Chequer to Chequer, or else as far as the Passage is clear. If any of the Enemy stands in their Way to interrupt their March, they may take him Prisoner, and stand in his Place, as all the others must when they take a Prisoner, till the next Movement. By their being placed one at one Corner, and the other at another Corner of the lowest Row, in the same Rank with the other Commanders, they defend the Flanks of the Army, and guard the Quarters of the King and his Officers; but they are seldom put upon Action till after several Skirmishes and Repulses; and are generally of more Service than any, except the *Queen*.

The eight Pawns, at the first Movement, may, if it be thought necessary, pass over two Chequers, reckoning that they come from, one; but afterward they can only move from Chequer to Chequer in a direct Line forwards: But if one of the Enemy should stand next to one of them in an oblique Manner, they may take him. And if any of them should make his Way up to the first Rank of the Enemy, he is immediately preferred and made an Officer; and the *King* may prefer him to the Post of any Officer he has lost. If the *Queen* herself had been taken Prisoner, she must be exchanged for this *Pawn*.

Note, That the general Rules to be observed in playing at *Chess*, are, 1. To play at the Beginning with a great deal of Caution, and not too open, as if there was no Danger while the Enemy is at a Distance; since the *Queen*, a *Bishop*, and a *Rook*, can take a Prisoner from one End of the Board to the other, if he lies uncovered. 2. That, as it is impossible to proceed without exposing the Men or Officers, a good Player will give up an inferior Officer to take a superior one from the Enemy. For instance, he'll play his *Knight* just in the Mouth of a *Rook*, when he has placed another Officer in Ambuscade to surprize the *Rook*. 3. A good Player endeavours always to get behind the Enemy, to attack the *King*, and give him *Cheque-Mate*; that by this Means he may either take him, or block him up, and so win the Game. 4. The King can be chequered two Ways; the first is a *simple Chequer*, when the King can either retire out of Danger, or cover himself with an inferior Man, or take that Man which chequers him: The second is, when the King is so besieged and over-power'd, that he can neither move nor defend himself, nor cover himself with another: This is called *Cheque-mate*, in which Case the Game is lost.

Note also, That there are several particular Rules given by Captain *Joseph Bertin*, as will perfect those who are somewhat skilled in the Game of *Chess*; which Rules are these: 1. The Pawns of the King, Bishop, and Queen, must move before the Knights; for were they to move last, the Game would be

crowded

crowded by uſeleſs Removes. 2. The *Queen* is not to be plaid till the Game be well opened; ſince otherwiſe ſome Moves would be loſt. 3. For the ſame Reaſon uſeleſs Checks ought not to be given. 4. Upon being well poſted, either for Attack or Defence, no Opportunity of taking your Adverſary's Men muſt tempt you, for this may divert you from gaining the main Deſign. 5. Do not caſtle, but when very neceſſary, becauſe the Move is often loſt by it. 6. Never attack or defend the King without a ſufficient Force; and take Care of Ambuſhes and Traps. 7. Never crowd your Game by too many Men in one Place. 8. Conſider well before you play, what Harm your Adverſary is able to do you, that you may oppoſe his Deſigns. 9. To free your Game, take off ſome of your Adverſary's Men if poſſible, for nothing; though to ſucceed in your Deſign, you muſt often give away ſome of your own, as Occaſion ſerves. 10. He who plays firſt, is underſtood to have the Attack. When the Game is opened you muſt endeavour to defend in your Turn; for the Defence, if well played, is ſtill the beſt againſt the *Gambets*, in which you change all your Pieces except the *Gambet* that gives three *Pawns*, which will be neceſſary to keep a *Rook*, to conduct your *Pawns* to the *Queen*. 11. A good Player ought to foreſee the concealed Move, from 3 to 5 and 7 Moves. The concealed Move is a Piece that does not play for a long Time, but lies ſnug in hope of getting an Advantage. 12. At the Beginning of a Game you may play any *Pawn* two Moves without Danger. 13. The *Gambet* is, when he who firſt gives the *Pawn* of the King's Biſhop in the ſecond Move, for nothing, the other keeps it, or takes another for it, if he is obliged to loſe it. 14. The *cloſe Game* is, when he that plays firſt, gives no Men, unleſs to make good Advantage; but in giving a Pawn firſt, he loſes his Advantage. 15. He who caſtles firſt, the other muſt advance his three *Pawns* on the Side of his Adverſary's King, and back them with ſome Pieces, in order to force him that Way, provided his own King or Pieces are not in Danger in other Places. 16. When your Game is opened, to gain the Attack, you muſt preſent your Pieces to change; and if your Adverſary, who has the Attack, refuſes to change, he loſes a good Situation; and either in exchanging or retiring, the Defence gets the Move: *Ex. gr.* in the Beginning of a Game, to ſhew the Neceſſity of playing the Pawns before the Pieces, if there were but two Pawns on each ſide of the Board, *viz.* the Pawns of the Rooks, the firſt that ſhould play would ſoon win the Game, by taking the other Pieces by Check; and that Situation may come in leſs Number of Pieces. 17. To play well the latter End of a Game, you muſt calculate who has the Move, on which the Game always depends. 18. To learn well and faſt, you muſt be reſolute to guard the *Gambet* Pawn, or any other Advantage againſt the Attack; and when you have the leaſt Advantage you muſt change all, Man for Man. A Draw-Game ſhews both Players to be good.

Note alſo, That theſe Rules are of great Service in the Practice of the Games; and will prevent making any uſeleſs Moves; but Rules for Over-ſights are not to be given.

Being ſuppoſed well inſtructed in thoſe general and particular Rules; we'll ſet at *Cheſs* and play a *firſt Game*; where the *Gambet* ſhews the Reaſons why he who plays firſt, gives the three Pawns, and the King's Biſhop.

I. GAME.

WHITE, The King's Pawn, moves twice.
BLACK, The ſame moves twice.
W. The *King's Biſhop's* Pawn moves twice.
B. The *King's Pawn* takes the white Pawn.
W. The *King's Knight* in the King's Biſhop 3d Square.
B. The *King's Biſhop* in his King 2d Square.
W. The *King's Biſhop* in his Queen's Biſhop 4th Square.
B. *King's Biſhop* gives a Check in the white King's Rooks 4th Square.
W. The *King's Knight's Pawn* covers.
B. The *Pawn* takes it.
W. The *King* caſtles.
B. The *Pawn* takes the white Pawn, and gives a Check.
W. The *King* moves in his Rook's Place.
B. The *Queen's Pawn* moves once.
W. The *King's Biſhop* takes the Biſhop's Pawn of the black King's Biſhop, and gives a Check.
B. The *King* takes the white Biſhop.
W. The *Knight* gives a Check in the black King's 4th Square.
B. The *King* moves in his Place.
W. The *Queen* gives a Check in the black King's Rook's 4th Square.
B. The *King's Knight's* Pawn covers.
W. The *King's Knight* takes it.
B. The *King's Rook's Pawn* takes that Knight.
W. The *Queen* takes that Pawn and gives a Check.
B. The *King* moves in his 2d Square.
W. The *Queen* gives a CHECK-MATE in the black King's Biſhop's 2d Place: Which puts an End to this firſt Game.

The *Second* GAME, where the white King's Pawn begins again, ſhews the *Gambet's* Defence, which gives 3 Pawns and a Biſhop; and is play'd thus,

II. GAME.

WHITE, The *King's Pawn* moves twice.
BLACK, The *ſame* moves twice.
W. The *King's Biſhop's Pawn* moves twice.
B. The *King's Pawn* takes that white Pawn.
W. The *King's Knight* in his King's Biſhop's 3d Square.
B. The *King's Biſhop* in his King's 2d Square.
W. The *Queen's Biſhop* in his Queen's Biſhop's 4th Square.
B. The *King's Biſhop* gives a Check in the white King's Rook's 4th Square.
W. The *King's Knight's Pawn* covers.
B. The *Pawn* takes it.
W. The *King* caſtles.
B. The *Pawn* takes the white Pawn, and gives a Check.
W. The *King* moves in his Rook's Place.
B. The *Queen's Pawn* moves once.
W. The *King's Biſhop* takes the black King's Biſhop's Pawn, and gives a Check.
B. The *King* takes it.
W. The *King's Knight* gives a Check in the black King's 4th Square.
B. The *King* in his Place.
W. The *Queen* gives a Check in the black King's Rook's 4th Square.
B. The *King's Knight's Pawn* covers it.
W. The *King's Knight* takes that Pawn.
B. The *Rook's Pawn* takes the Knight.
W. The *Queen* takes the black King's Rook.
B. The *King* in his Queen's 2d Square.
W. The *King's Rook* gives a Check in the black King's Biſhop's 2d Square.
B. The *King* in his Queen's 2d Square.
W. The *King's Rook* gives a Check in the black King's Biſhop's 2d Square.
B. The *King* in the Queen's Biſhop's 3d Square.
W. The *Rook* in the black King's Knight's 2d Square.
B. The *Queen* in her King's Knight's 4th Square; and the *Black* wins.

The *Third* GAME ſhews the Defence of the three *Pawns Gambet* at the 14th Move: Thus,

III. GAME.

III. GAME.

WHITE, The *King's Pawn* moves twice.
BLACK. The *same* moves twice.
W. The *King's Bishop's Pawn* moves twice.
B. The *King's Pawn* takes it.
W. The *King's Knight* in his King's Bishop 3d Square.
B. The *King's Bishop* in his King's 2d Square.
W. The *King's Bishop* in his Queen's Bishop 4th Square.
B. The *King's Bishop* gives a Check in the white King's Rook's 4th Square.
W. The *King's Knight's Pawn* covers it.
B. The *Pawn* takes it.
W. The *King* castles.
. The *Pawn* takes the white Pawn, and gives a Check.
W. The *King* in his Rook's Place.
B. The *King's Bishop* in his 3d Square.
W. The *King's Pawn* moves once.
B. The *Queen's Pawn* moves twice.
W. The *King's Pawn* takes the black Bishop.
B. The *King's Knight* takes the white Pawn.
W. The *King's Bishop* in the Queen's Knight's 3d Square.
B. The *King* castles.
W. The *Queen's Pawn* moves twice.
B. The *King's Rook's Pawn* moves once. And the Players may finish the Game.

Note, That if the three Pawns *Gambet* gives you Check with his King's Bishop, you must take it; and keep your own to the 14th Move, to prevent his Designs, in which you ought to oppose him every Move.

The *Fourth* GAME, is the opening for the three *Pawns Gambet*, which Defence begins at the 14th Move; and is conducted in the following Manner:

IV. GAME.

WHITE, The *King's Pawn* moves twice.
BLACK, The *same* moves twice.
W. The *King's Bishop's Pawn*, moves twice.
B. The *King's Pawn* takes it.
W. The *King's Knight* in his King's Bishop's 3d square.
B. The *King's Bishop* in his King's 2d Square.
W. The *King's Bishop* in his Queen's Bishop 4th Square.
B. The *King's Bishop* gives a Check in the white King's Rook 4th Square.
W. The *King's Knight's Pawn* covers it.
B. The *Pawn* takes it.
W. The *King* castles.
B. The *Pawn* takes the white Pawn, and gives a Check.
W. The *King* in his Rook's Place.
B. The *King's Bishop* in his third Square.
W. The *Queen's Pawn* moves twice.
B. The *Queen's Pawn* moves once.
W. The *Queen's Knight* in her Bishop's 3d Square.
B. The *Queen's Bishop* in his King's 3d Square.
W. The *King's Bishop* in his Queen's 3d Square.
B. The *Queen's Knight* in his Queen's 2d Square.
W. The *Queen's Bishop* in his King's Bishop 4th Square.
B. The *Queen's Bishop* in the white King's Knight's 4th Square.
W. The *Queen's Knight* in his King's 2d Square.
B. The *Queen's Bishop* takes the white Knight, and gives a Check.
W. The *Rook* retakes it.
B. The *Bishop* in his King's Knight's 4th Square.
W. The *Queen's Bishop* takes the Pawn near his King.
B. The *King's Knight* in his King's 2d Square.
W. The *Queen's Bishop's Pawn* moves twice.
B. The *King's Knight* in his 3d Square. And those that Play may finish the Game.

The *Fifth* GAME, is a second Opening for the three Pawns Gambet; which Defence begins at the 14th Move: Thus,

V. GAME.

WHITE, The *King's Pawn* moves twice.
BLACK, The *same* moves twice.
W. The *King's Bishop's Pawn* moves twice.
B. The *King's Pawn* takes it.
W. The *King's Knight* in his King's Bishop 3d Square.
B. The *King's Bishop* in his King's 2d Square.
W. The *King's Bishop* in his Queen's Bishop 4th Square.
B. The *King's Bishop* gives a Check in the white King's Rook's 4th Square.
W. The *King's Knight's Pawn* covers it.
B. The *Pawn* takes it.
W. The *King* castles.
B. The *Pawn* takes the white Pawn, and gives a Check.
W. The *King* in his Rook's Place.
B. The *King's Bishop* in his 3d Square.
W. The *Queen's Pawn* moves twice.
B. The *Queen's Pawn* moves once.
W. The *Queen's Bishop* in his King's Bishop 4th Square.
B. The *Queen's Bishop* in his King's 3d Square.
W. The *Queen's Knight* in her Rook's 3d Square.
B. The *Queen's Bishop* takes the white King's Bishop.
W. The *Queen's Knight* takes the black Queen's Bishop.
B. The *Queen's Knight* in his Queen's 2d Square.
W. The *Queen's Bishop's Pawn* moves once.
B. The *King's Knight's Pawn* moves twice.
W. The *Queen's Bishop* takes the black Pawn near his King.
B. The *King's Knight's Pawn* moves once.
W. The *King's Knight* in his Queen's 2d Square.
B. The *King's Rook's Pawn* moves twice.
W. The *Queen* in her Knight's 3d Square.
B. The *Queen's Knight* in his 3d Square.
W. The *Queen's Rook's Pawn* moves twice.
B. The *Queen's Pawn* moves once.
W. The *Queen's Knight* in his King's 3d Square.
B. The *Bishop* in his King's Knight 4th Square.
W. The *Queen's Rook* in his King's Place.
B. The *King's Knight* in his King's 2d Square.
W. The *Queen's Rook's Pawn* moves once.
B. The *Queen's Knight* in the white Queen's Bishop 4th Square.
W. The *Queen's Knight* takes it.
B. The *Pawn* takes that Knight.
W. The *Queen* takes that black Pawn.
B. The *King* castles.
W. The *Bishop* takes the black Queen's Bishop's Pawn.
B. The *Queen* in her 2d Square.
W. The *Bishop* in his King's Rook's 2d Square.
B. The *Queen* at her Bishop's 3d Square.
W. The *Queen* in her 3d Square.
B. The *King's Knight* in his 3d Square.
W. The *Queen's Pawn* moves once.
B. The *Queen* in her 2d Square.
W. The *King's Pawn* moves once.
B. The *Knight* in the white King's Rook's 4th Square.
W. The *Queen's Bishop's Pawn* moves once.
B. The *Knight* in the white King's Bishop's 3d Square. And here the Game may be finished.

The *Sixth* GAME, is a third Opening for the three Pawns *Gambet*, and begins at the 14th Move; in the following Manner:

VI. GAME.

WHITE, The *King's Pawn* moves twice.
BLACK, The *same* moves twice.
W. The *King's Bishop's Pawn* moves twice.
B. The *King's Pawn* takes it.

W. The

W. The *King's Knight* in his King's Bishop 3d Square.
B. The *King's Bishop* in his King's 2d Square.
W. The *King's Bishop* in his Queen's Bishop 4th Square.
B. The *King's Bishop* gives a Check in the white King's Rook's 4th Square.
W. The *King's Knight's Pawn* covers it.
B. The *Pawn* takes it.
W. The *King* castles.
B. The *Pawn* takes the white Pawn, and gives a Check.
W. The *King* in his Rook's Place.
B. The *King's Bishop* in his 3d Square.
W. The *Queen's Pawn* moves twice.
B. The *Queen's Pawn* moves once.
W. The *Queen's Bishop* in his King's Bishop 4th Square.
B. The *Queen's Bishop* in his King's 3d Square.
W. The *Queen's Knight* in her Rook's 3d Square.
B. The *King's Rook's Pawn* moves once.
W. The *Queen's Bishop's Pawn* moves once.
B. The *Queen's Bishop* takes the white King's Bishop.
W. The *Queen's Knight* takes the black Queen's Bishop.
B. The *Queen's Knight* in his Queen's 2d Square.
W. The *King's Pawn* moves once.
B. The *Queen's Pawn* takes it.
W. The *Queen's Pawn* takes the black Pawn.
B. The *Bishop* in his King's Knight's 4th Square.
W. The *Queen's Bishop* takes the Pawn at his King's Rook's 2d Square.
B. The *King* castles.
W. The *Queen's Rook* in his Queen's Place.
B. The *Queen* in her Bishop's Place.
W. The *King's Knight* takes the black Bishop.
B. The *King's Rook's Pawn* takes the white Knight.
W. The *Knight* in his King's 3d Square.
B. The *Queen's Knight* in her Bishop's 4th Square.
W. The *Queen* in her Bishop's 2d Square.
B. The *Queen* in the white King's Rook's 3d Square.
W. The *Queen* in her King's 2d Square.
B. The *Queen's Knight* in his King's 3d Square.
W. The *King's Rook* in his King's Bishop's 3d Square.
B. The *Queen* in her King's Rook's 2d Square.
W. The *Queen* in her King's Knight 2d Square.
B. The *Queen* in the white King's 4th Square.
W. The *Queen's Rook* in her King's Knight's Place.
B. The *King's Knight* in his 3d Square.
W. The *Knight* in the black King's Bishop's 4th Square.
B. The *double Pawn* moves once.
W. The *Queen* takes it.
B. The *Queen* takes the white Queen. And here the Game may be finished.

The *Seventh* GAME, is a fourth Opening for the three Pawns *Gambet*.

VII. GAME.

WHITE, The *King's Pawn* moves twice.
BLACK. The *same* moves twice.
W. The *King's Bishop's Pawn* moves twice.
B. The *King's Pawn* takes it.
W. The *King's Knight* in his King's Bishop 3d Square
B. The *King's Bishop* in his King's 2d Square.
W. The *King's Bishop* in his Queen's Bishop 4th Square.
B. The *King's Bishop* gives a Check in the white King's Rook's 4th Square.
W. The *King's Knight's Pawn* covers it.
B. The *Pawn* takes it.
W. The *King* castles.
B. The *Pawn* takes the white Pawn, and gives a Check.
W. The *King* in his Rook's Place.
B. The *King's Bishop* in his 3d Square.
W. The *Queen's Pawn* moves twice.
B. The *Queen's Pawn* moves once.
W. The *Queen's Bishop* in his King's Bishop 4th Square.
B. The *Queen's Bishop* in his King's 3d Square.
W. The *Queen's Knight* in her Rook's 3d Square.
B. The *Queen's Pawn* moves once.
W. The *King's Pawn* takes that Pawn.
B. The *Queen's Bishop* takes the white Pawn.
W. The *King's Bishop* takes that black Queen's Bishop.
B. The *Queen* takes the white King's Bishop.
W. The *Queen's Bishop's Pawn* moves twice.
B. The *Queen* in her 2d Square.
W. The *Queen* in her Knight's 3d Square.
B. The *Queen's Bishop's Pawn* moves once.
W. The *Queen's Rook* gives a Check.
B. The *King's Knight* covers.
W. The *Queen's Bishop* in the black King's 4th Square.
B. The *King* castles.
W. The *Bishop* takes the black Bishop.
B. The *Pawn* takes the white Bishop.
W. The *Queen* in her King's 3d Square.
B. The *King's Knight* in his 3d Square.
W. The *Queen's Knight* in her Bishop's 2d Square.
B. The *Queen's Knight* in her Rook's 3d Square.
W. The *Queen's Rook's Pawn* moves twice.
B. The *Queen's Rook* in his King's Place.
W. The *Queen* in the black King's Rook's 3d Square.
B. The *Queen's Rook* takes a white Rook.
W. The *King's Knight* takes that black Rook.
B. The *Queen* in the white King's Knight's 4th Square.
W. The *Queen* takes the black Pawn near her King.
B. The *King* in his Knight's 2d Square.
W. The *Queen's Knight* in his King's 3d Square.
B. The *Queen* gives a Check in the white King's 4th Square.
W. The *Rook* covers.
B. The *Rook* in his King's Place. And the Game may be finished.

The *Eighth* GAME, one Pawn's *Gambet* gives a Knight, and his Queen, to give a Check-Mate, with his Queen's Bishop. Thus:

VIII. GAME.

WHITE, The *King's Pawn* moves twice.
BLACK, The *same* moves twice.
W. The *King's Bishop's Pawn* moves twice.
B. The *King's Pawn* takes it.
W. The *King's Knight* in his Bishop's 3d Square.
B. The *King's Knight's Pawn* moves twice.
W. The *King's Bishop* in his Queen's Bishop 4th Square.
B. The *Queen's Pawn* moves once.
W. The *Queen's Pawn* moves twice.
B. The *King's Rook's Pawn* moves once.
W. The *King's Rook's Pawn* moves twice.
B. The *King's Bishop* in his Knight's 2d Square.
W. The *King's Rook's Pawn* takes the black Pawn.
B. The *King's Rook's Pawn* takes the white Pawn.
W. The *King's Rook* takes the black King's Rook.
B. The *King's Bishop* takes the white Rook.
W. The *King's Knight* in the black King's 4th Square.
B. The *Queen's Pawn* takes the white King's Knight.
W. The *Queen* in the 4th Square of the black King's Rook.
B. The *Queen* in her King's Bishop's 3d Square.
W. The *Queen's Pawn* takes the black Pawn.
B. The *Queen* in her King's Knight's 2d Square.
W. The *Queen's double Pawn* moves once.
B. The *King's Knight* in his Rook's 3d Square.
W. The *Queen's Pawn* takes the black Pawn and gives a Check.
B. The *King* in his Bishop's Place.
W. The *Queen's Bishop* takes the black Pawn in his King's Bishop's 4th Square.

B. The *Queen's Bishop* in the white King's Knight's 4th Square upon the white Queen.
W. The *Queen's Bishop* takes the black Queen.s Bishop's Pawn.
B. The *Queen's Bishop* takes the white Queen.
W. The *Queen's Bishop* gives a *Check-mate* at the black Queen's 3d Square.

The *Ninth* GAME is a Defence of the same *Gambet*, which gives a Knight and his Queen to give a CHECK-MATE.

IX. GAME.

WHITE, The *King's Pawn* moves twice.
BLACK, The *same* moves twice.
W. The *King's Bishop's Pawn* moves twice.
B. The *King's Pawn* takes it.
W. The *King's Knight* in his Bishop's 3d Square.
B. The *King's Knight's Pawn* moves twice.
W. The *King's Bishop* in his Queen's Bishop 4th Square.
B. The *Queen's Pawn* moves once.
W. The *Queen's Pawn* moves twice.
B. The *King's Rook's Pawn* moves once.
W. The *King's Rook's Pawn* moves twice.
B. The *King's Bishop* in his Knight's 2d Square.
W. The *King's Rook's Pawn* takes the black Pawn.
B. The *King's Rook's Pawn* takes the white Pawn.
W. The *King's Rook* takes the black King's Rook.
B. The *King's Bishop* takes the white Rook.
W. The *King's Knight* in the black King's 4th Square.
B. The *Queen's Pawn* takes the white King's Knight.
W. The *Queen* in the black King's Rook's 4th Square.
B. The *Queen* in her King's Bishop 3d Square.
W. The *Queen's Pawn* takes the black Pawn.
B. The *Queen* in her Knight's 2d Square.
W. The *double Pawn* takes the black Pawn, and gives a Check.
B. The *King* in his Bishop's Place.
W. The *Queen's Bishop* in his Queen's 2d Square.
B. The *Queen's Knight* in his Queen's 2d Square.
W. The *Queen's Bishop* in his 3d Square.
B. The *Queen's Knight* in his King's 4th Square.
W. The *Queen's Knight* in his Queen's 2d Square.
B. The *Queen's Bishop* in the white King's Knight 4th Square, upon the white Queen.
W. The *Queen* in her King's Rook's 2d Square.
B. The *Rook* in his Queen's Place.
W. The *King's Bishop* in the Queen's Knight's 3d Square.
B. The *Queen's Bishop's Pawn* moves twice.
W. The *Queen's Knight* in his Queen's Bishop's 4th Square.
B. The *King's Knight* in his 3d Square.
W. The *King* in his Bishop's 2d Square.
B. The *Rook* in the white Queen's Place.
W. The *Rook* takes the black Rook.
B. The *Queen's Bishop* takes the white Rook.
W. The *Queen* in her King's Rook's Place.
B. The *Queen's Bishop* in the white King's Knight's 4th Square.
W. The *Knight* in the black Queen's 3d Square.
B. The *King's Knight* in the white King's Rook's 4th Square.
W. The *Knight* in the black King's Place.
B. The *Queen* in her King's Rook's 2d Square.
W. The *Knight* in the black Queen's 3d Square.
B. The *Queen's Knight's Pawn* moves once.
W. The *Queen* in her King's Place.
B. The *King's Knight* takes the white King's Knight's Pawn.
W. The *King* takes the black Knight.
B. The *Queen* gives a Check in the white King's Rook's 3d Square.
W. The *King* in his Bishop's 2d Square.
B. The *Queen* gives a Check in the white King's Rook's 2d Square.
W. The *King* in his Bishop's Place.
B. The *Queen's Bishop* gives a *Check-Mate* in the white King's Rook's 3d Square.

Next we'll play a CLOSE GAME.

X. GAME.

WHITE, The *King's Pawn* moves twice.
BLACK, The *same* moves twice.
W. The *Queen's Bishop's Pawn* moves once.
B. The *Queen's Bishop's Pawn* moves twice.
W. The *King's Bishop* in his Queen's Bishop's 4th Square.
B. The *Queen's Pawn* moves once.
W. The *King's Knight* in his King's 2d Square.
B. The *Queen's Bishop* in her King's 3d Square.
W. The *King's Bishop* takes it.
B. The *King's Bishop's Pawn* takes the white Bishop.
W. The *Queen* in her Knight's 3d Square.
B. The *Queen* in her 2d Square.
W. The *King's Bishop's Pawn* moves twice.
B. The *Queen's Knight* in her Bishop's 3d Square.
W. The *King* castles.
B. The *King's Knight* in his Bishop's 3d Square.
W. The *Queen's Pawn* moves once.
B. The *King's Bishop* in his King's 2d Square.
W. The *Queen's Bishop* in her King's 3d Square.
B. The *King* castles in the Queen's Bishop's Place; and the Game may be finished.

The *Eleventh* GAME, is the Opening for the *Close Game*.

XI. GAME.

WHITE, The *King's Pawn* moves twice.
BLACK, The *same* moves twice.
W. The *King's Bishop* in his Queen's Bishop's 4th Square.
B. The *King's Knight's Pawn* moves once.
W. The *Queen's Pawn* moves once.
B. The *King's Bishop* in his Knight's 2d Square.
W. The *Queen's Knight* in her Bishop's 3d Square.
B. The *Queen's Pawn* moves once.
W. The *King's Knight* in his King's 2d Square.
B. The *Queen's Bishop's Pawn* moves once.
W. The *Queen's Bishop* in her King's 3d Square.
B. The *Queen's Bishop* in her King's 3d Square.
W. The *King's Bishop* in his Queen's Knight 3d Square.
B. The *King's Knight* in his Bishop's 3d Square.
W. The *King* castles.
B. The *King* castles.
W. The *King's Bishop's Pawn* moves twice.
B. The *Queen's Bishop* takes the white King's Bishop.
W. The *Queen's Rook's Pawn* takes the black Bishop.
B. The *Queen's Knight* in her Rook's 3d Square. And the Game may be finished.

Another *Close-Game*, that gives no Pawn at the second Move.

XII. GAME.

BLACK, The *King's Pawn* moves twice.
WHITE, The *same* moves twice.
B. The *King's Bishop* in his Queen's Bishop's 4th Square.
W. The *Queen's Bishop's Pawn* moves once.
B. The *Queen's Bishop's Pawn*, moves once.
W. The *Queen's Pawn* moves twice.
B. The *King's Pawn* takes that Pawn.
W. The *Queen's Bishop's Pawn* takes it.
B. The *King's Bishop* in his Queen's Knight 3d Square.
W. The *King's Bishop's Pawn* moves twice.
B. The *King's Knight* in his King's 2d Square.
W. The *Queen's Knight* in her Bishop's 3d Square.
B. The *Queen's Pawn* moves twice.
W. The *King's Pawn* moves once.
B. The *King* castles.
W. The *King's Knight* in his Bishop's 3d Square.
B. The *Queen's Bishop* in the white King's Knight's 4th Square.

W. The *King's Bishop* in his King's 2d Square.
B. The *King's Bishop's Pawn* moves twice.
W. The *King* castles.
B. The *Queen's Knight* in his Queen's 2d Square.
W. The *Queen's Bishop* in her King's 3d Square.
B. The *Queen's Bishop's Pawn* moves once.
W. The *Queen's Pawn* takes it.
B. The *Queen's Knight* takes the white Pawn in her Bishop's 4th Square.
W. The *Queen's Knight* takes the black Queen's Pawn.
B. The *Queen* takes the white Queen's Knight.
W. The *Queen* takes the black Queen.
B. The *King's Knight* takes the white Queen.
W. The *King's Bishop* in his Queen's Bishop's 4th Square.
B. The *Queen's Rook* in his Queen's Place. And the Game may be finished.

The *Thirteenth* GAME, shews the Situation of a concealed Move, in which the white wins by the Moves, though inferior as to the Number of Pieces.

XIII. GAME.

WHITE, The *King* in his Bishop's Place.
A *Bishop* in his Queen's Place.
The *Queen's Knight* in his 3d Square.
The other *Knight* is his Queen's Rook's 4th Square.
A *Rook* in the Black Queen's Rook's 3d Square.
The *Queen* in his black King's 3d Square.
A *Pawn* in the King's Knight's 2d Square.
A *Pawn* in the King's Rook's 3d Square.
A *Pawn* in the King's Bishop's 4th Square.
A *Pawn* in the white Queen's 4th Square.
A *Pawn* in the black King's 4th Square.

Situation of the BLACK *for the same.*

BLACK, The *King* in his Queen's Place.
A *Rook* in his King's Place.
A *Rook* in his Queen's Bishop's Place.
A *Knight* in his King's Bishop 2d Square.
A *Bishop* in the Queen's Rook's Place.
A *Bishop* in the Queen's Bishop 2d Square.
A *Pawn* in the King's 2d Square.
A *Pawn* in the Queen's 3d Square.
A *Pawn* in the King's Bishop's 4th Square.
A *Pawn* in the white King's Rook's 4th Square.
A *Pawn* in the white King's Knight's 3d Square.

BLACK, The *Queen* in the white King's 3d Square, and the White must play first.

WHITE, The *Queen* gives a Check in the black Queen's 2d Square.
BLACK, The *King* takes the Queen.
W. A *Knight* gives a Check in the black Queen's Bishop's 4th Square.
B. The *King* in his Queen's Place.
W. The same *Knight* gives a Check in the black King's 3d Square.
B. The *King* in his Queen's 2d Square.
W. The other *Knight* gives a Check in the black Queen's Bishop's 4th Square.
B. The *Queen's Pawn* takes the Knight.
W. The *Bishop* gives a Check in his Queen's Rook's 4th Square.
B. The black *Bishop* covers.
W. The *Bishop* takes it, and gives a Check.
B. The *King* takes the white Knight.
W. The *Queen's Pawn* gives a *Check-mate*, and it would be the same if the black Pawn takes the Knight that gives the first Check.

The *fourteenth* GAME gives the Situation of the latter End of a Game.

XIV. GAME.

WHITE, The *King* in the black King's Bishop's Place.
WHITE, The Queen's *Rook* in his Queen's Place.
The King's *Rook* in his King's Bishop's Place.
The King's *Knight* in his King's Bishop 3d Square.
The King's *Pawn* in his King's 4th Square.
BLACK, The *King* in his 3d Square.
The King's *Pawn* in his King's 4th Square.
The *Queen* in the white Queen's Rook's 4th Square.
The Queen's *Rook* in his Queen's Knight's 2d Square.
The Queen's *Knight* in her Bishop's 3d Square.
The King's *Knight* in his King's Rook's 3d Square.
The King's *Rook* in his King's Knight's 3d Square.
The *Queen's Rook's Pawn* in his Rook's Square.
The *Queen's Knight's Pawn* in his Queen's Knight's 3d Square.
And the *White* playing 3 Moves will give *Check-mate* to the black King.

WHITE, The King's *Knight* gives a Check in the white King's Knight's 4th Square.
BLACK, The *Rook* takes the white Knight.
W. The King's *Rook* gives a Check in the black King's Bishop's 3d Square.
B. The *King* takes the white Rook.
W. The Queen's *Rook* gives a Check-Mate in the black Queen's 3d Square.

The *Fifteenth* GAME, is the Situation of a concealed Move, and the Knight gives MATE.

XV. GAME.

WHITE, The *King* in his Knight's Place.
The *Queen* in the black Queen's Rook's Place.
The Queen's *Rook* in his Place.
The King's *Rook* in his King's Place.
A *Knight* in his Queen's 2d Square.
The King's Rook's *Pawn* in his Place.
The King's Knight's *Pawn* in his Place.
The Queen's Knight's *Pawn* in his Place.
BLACK, The *King* in his Knight's Place.
The *Queen* in her King's 2d Square.
A *Knight* in the white King's Knight's 4th Square.
The King's *Bishop* in his Place.
The King's Rook's *Pawn* in his Place.
The Queen's Knight's *Pawn* in his 3d Square.

The *Black* to play.

BLACK, The *Queen* gives a Check in her Bishop's 4th Square.
WHITE, The *King* in his Rook's Place.
B. The *King* gives a Check.
W. The *King* in his Knight's Place.
B. The *Knight* gives a Check in the white King's Rook's 3d Square, and the Check is double by the Queen.
WHITE, The *King* in his Rook's Place.
BLACK, The *Queen* gives a Check in the white King's Knight's 4th Place.
W. The *Rook* takes the black Queen.
B. The *Knight* gives a *Check-Mate* in the white King's Bishop's 2d Square.

Situation to give a Check-Mate, *with a* Knight *and a* Bishop, *in which the* Bishop *must be of the same Colour as the Corner of the Chequer, to carry the* King *alone in it.*

XVI. GAME.

WHITE, The *King* in his Rook's Place.
BLACK, The *King* in the white King's Bishop's 3d Square.
The *Knight* in the white King's Rook's 3d Square.
The *Bishop* in the white King's Knight's 3d Square.

And the *Black* to play.

BLACK, The *Knight* gives a Check in the white King's Bishop's 2d Square.
WHITE, The *King* in his Knight's Place.
B. The *Bishop* in the white King Bishop's 4th Square.
W. The

W. The *King* in his Bishop's Place.
B. The *Bishop* in the white King's Rook's 2d Square.
W. The *King* in his Place.
B. The *Knight* in the white King's 4th Square.
W. The *King* in his *Bishop's* Place.
B. The *Knight* gives a Check in the white Queen's 2d Square.
W. The *King* in his Place.
B. The King in the white King's 3d Square.
W. The *King* in his Queen's Place.
B. The *King* in the white Queen's 3d Square.
W. The *King* in his Place.
B. The *Bishop* gives a Check.
W. The *King* in his Queen's Place.
B. The *Bishop* in the white King's Bishop's 2d Square.
W. The *King* in his Queen's Bishop's Place.
B. The *Knight* in the white Queen's Bishop's 4th Square.
W. The *King* in his Queen's Place.
B. The *Knight* gives a Check in the white Queen's Knight 2d Square.
W. The *King* in his Bishop's Place.
B. The *King* in the white Bishop's 3d Square.
W. The *King* in the Knight's Place.
B. The *King* in the white Knight's 3d Square.
W. The *King* in the Bishop's Place.
B. The *Bishop* gives a Check in the white King's 3d Square.
W. The *King* in the Knight's Place.
B. The *Bishop* in the white Queen's 2d Square.
W. The *King* in his Queen's Rook's Place.
B. The *Knight* in the Bishop's 4th Square.
W. The *King* in his Knight's Place.
B. The *Knight* gives a Check in the Rook's 3d Square.
W. The *King* in the Rook's Place.
B. The *Knight* gives a Check in the Rook's 3d Square.
W. The *King* in the Rook's Place.
B. The *Bishop* gives a *Check-mate.* This Game varies according to the Situation of the King alone.

Situation of the Game *called* PATT.

XVII. GAME.

WHITE, The *King* in the black Queen's Knight's Place.
The *Queen* in her King's Bishop's Place.
A *Rook* in the black Queen's Knight's 4th Square.
The King's *Knight* in his 3d Square.
The King's Rook's *Pawn* in his Place.
BLACK, The *King* in the white King's Rook's 4th Square.
The *Queen* in her King's Knight's 2d Square.
A *Pawn* in the white King's Rook's 3d Square.
A *Pawn* in the white King's Knight's 4th Square.

The *Black* to play.

BLACK, The *Queen* gives a Check in her Bishop's 2d Square.
WHITE, The *King* in the black Queen's Rook's Place.
B. The *Queen* gives a Check in her Rook's 2d Square.
W. The *King* takes the black Queen. *And the* white *loses the Game, the* black King *being* PATT, *and a* Rook *often makes a* Drawing Game.

A Game *won by the Patt, if the contrary* King *will hinder the* Pawn *to go to a* Queen.

XVIII. GAME.

WHITE, The *King* in his Bishop's 4th Square.
BLACK, The *King* in the white King's Rook's 4th Square.
The King's Rook's *Pawn* in his Place.

And the *Black* to play.

BLACK, The *Pawn* moves twice.
WHITE, The *King* in his Bishop's 3d Square.
B. The *King* in the white Rook's 3d Square.
W. The *King* in his Bishop's 2d Square.
B. The *King* in the white Rook's 2d Square.
W. The *King* in his Bishop's 3d Square.
B. The *Pawn* moves once.
W. The *King* in his Bishop's 2d Square.
B. The *King* in the white Rook's Place.
W. The *King* in his Bishop's Place.
B. The *Pawn* moves once.
W. The *King* in his Bishop's 2d Square.
B. The *Pawn* moves once.
W. The *King* where he pleases, and the Black loses.

A Game in which a Knight *gives a* Check-Mate *in few Moves by Force.*

XIX. GAME.

BLACK, The King's *Knight's Pawn* in his Place.
The King's Rook's *Pawn* in the white King's Rook's 3d Square.
BLACK, The *King* in the white King's Rook's 2d Square.
WHITE, The *King* in his Bishop's 2d Square.
A *Knight* in the black King's Knight's Place.

And the *Black* is to play.

BLACK, The Knight's *Pawn* moves twice.
WHITE, The *Knight* in the black King's Bishop's 3d Square.
B. The *King* in the white Rook's Place.
W. The *Knight* in his King's Knight's 4th Square.
B. The Rook's *Pawn* moves once.
W. The *Knight* in his King's Bishop's Place.
B. The Knight's *Pawn* gives a Check.
W. The *Knight* takes that Pawn, and gives a CHECK-MATE.

Situation of a concealed Move.

WHITE, The King in his *Knight's* Place.
The King's *Rook* in his Place.
The *Queen* in the 3d Square of the black Queen's Bishop.
A *Bishop* in the 4th Square of the black Queen's Knight.
A *Knight* in the black King's Knight's 3d Square.
A *Knight* in his King's Bishop's 2d Square.

WHITE, A *Pawn* in the black Queen's Rook's Square.
A *Pawn* in the white Queen's Bishop's 4th Square.
A *Pawn* in his King's Knight's 3d Square.
The King's Rook's *Pawn* in his Place.

BLACK, The *King* in his Queen's Bishop's Place.
The *Queen* in her King's Knight's 4th Square.
A *Rook* in the white King's 2d Square.
The Queen's Bishop's *Pawn* in his Place.
The Queen's Knight's *Pawn* moves once.
The King's Bishop's *Pawn* moves twice.
The King's Pawn in the white King's 4th Square.

The *Black* to play.

BLACK, The *Rook* gives a Check.
WHITE, The *King* in his Knight's 2d Square.
B. The *Knight* gives Check in the white King's 3d Square.
W. The *King* in his Rook's 3d Square.
B. The *Queen* gives Check in her King's Rook's 4th Square.
W. The *Knight* covers.
B. The *Queen* gives Check in the white King's Knight's 4th Square.
W. The *Knight* takes the black Queen.
B. The *Pawn* takes the white Knight, and gives Mate.

Situation of the second concealed Move.

WHITE, The *King* in his *Knight's* Place.
The *Queen* in her Rook's 4th Square.
A *Rook* in his King's Place.
A *Rook* in his Queen's 2d Square.

A *Knight* in the black Queen's 4th Square.
A *Bishop* in his King's Bishop's 4th Square.
A *Pawn* in the black Queen's Bishop's 4th Square.
The King's Bishop's *Pawn* in his Place.
The King's Knight's *Pawn* moves once.
BLACK, The *King* in his Queen's Knight's Place.
The *Queen* in the white King's Rook's 3d Square.
A *Rook* in the Queen's Bishop's Place.
The King's *Rook* in his 2d Square.
The King's *Knight* in his 2d Square.
The Queen's *Knight* in her Bishop's 2d Square.
A *Bishop* in the white King's Bishop's 3d Square.
A *Pawn* in the white King's 4th Square.
The Queen's Rook's *Pawn* in his Place.
The Queen's Knight's *Pawn* in his Place.

And the *White* to play.

WHITE, The *Bishop* takes the black Knight, and gives Check.

BLACK, The Queen's *Rook* takes the said Knight.

W. The *Queen* takes the black Queen's Rook's Pawn and gives Check.

B. The *King* takes the white Queen.

W. The *Rook* that stands in his King's Place gives Check.

B. The *King* in his Queen's Knight's Place.

W. The same *Rook* gives Check in the black Queen's Rook's Place.

B. The *King* takes it.

W. The *Knight* gives Check in the black Queen's Knight's 3d Square.

B. The *King* in his Queen's Knight's Place.

W. The *Rook* gives Check in the black Queen's Place.

B. The *King* in his Queen's Rook's 2d Square.

W. The *Rook* gives *Mate* in the black Queen's Rook's Place.

Note, That to find out expeditiously the Situation of these Sort of Games, you must put both Kings in their Places, and change them where it is necessary, after the white and black Men are posted.

CHESS, is certainly a most antient and universal Game: The common Opinion is, that it was invented by *Palamedes*, at the Siege of *Troy*, to divert tedious Evenings during that long Siege. Others attribute the Invention to *Diomedes*, who lived in the Time of *Alexander*: The Romance of the Rose ascribes it to one *Attalus*; but the Truth is, the Game is so very antient, there is no tracing its Author.

In *China* it makes a considerable Part of the Education of their Maids, and seems to take the Place of Dancing among us. In *Spain* whole Cities challenge each other at *Chess*.

Donatus, on *Terence*'s *Eunuch*, observes that *Pyrrhus*, the most knowing and expert Prince of his Age, ranging a Battle, made use of the *Men* at *Chess* to form his Designs; and to shew the Secrets thereof to others. *Vopiscus* in his Life of *Proclus*, informs us, that one of the *Roman* Emperors had the Title *Augustus* given him, because of his gaining ten Games at *Chess* successively. *Tamerlane* is recorded as a very expert Gamester at *Chess*.

John of *Salisbury* relates, that in a Battle between the *French* and *English* in 1117, an *English* Knight seizing the Bridle of *Louis le Gros*, King of *France*, and crying to his Comrades, *The King is taken*, *Louis* struck him to the Ground with his Sword, saying, *Ne scais tu pas qu'aux Echecs, on me prend pas le Roy?* i. e. Dost thou not know, that at *Chess* the King is never taken? The Reason is, that when the King is reduced to such a pass that there is no Way for him to escape, the Game ends, without exposing the Royal Piece to further Affront.

Cardinal *Cajetan*, and other Casuists, rank *Chess* in the Number of prohibited Games, as requiring too much Application: And *Montaign* blames it as too serious for a Game.

BOWLING, is a Game of Recreation, Exercise, and Address, which consists chiefly in having a kind of Compass in the Eye, to measure well the Distance between the Place the Gamester lets fall his Bowl at, and the *Jack*, that it may neither fall short of it, nor run too far from it.

Besides this general Rule, there are some particular ones; the most essential whereof is to chuse well one's *Bowl*, according to the Situation or Disposition of the Alley; for if it be a close one, a flat *Bowl* is best; round-byassed *Bowls* for open Grounds of Advantage, and *Bowls* round as a Ball for green Swarths that are plain and level.

In *Britanny*, my Country, we have none of those green Swarths; but only Alleys about ninety Feet long and ten or twelve broad, open on both Sides and at both Ends, and covered a-top. The Alley is very level and smooth; and covered, in lieu of Gravel, with Sea-Sand. The *Bowls* used in those Alleys are very round, with a Hole on one Side filled up with Lead, which is called the *Fort* or Biass of the *Bowl*, which *Fort* carries the *Bowl* on that Side the Player turns it, and designs his *Bowl* should go. The *Jack* is also a round *Bowl*, wiht such a Fort; and he who plays first throws it as far as he pleases, and where he pleases, in the Alley. We imagine that he who lets fall his *Bowl* at his very Feet without extending his Arms is the best Gamester.

There, as well as here, we screw our Body into all Forms, cajoling the Bowl while it rolls, to engage it to approach the *Jack* as near as possible, and scolding, and even insulting it in the most scurrilous Manner, if it stops too soon, or runs too fast.

CUDGEL-PLAYING, is a Game of Exercise and Address, attended very often with broken Pates, bloody Noses, and other Trifles of that Kind.

In my Country, especially that Part of the Province called the *Low-Brittanny*, *Cudgel-Playing* is very much in Fashion; and the Peasants learn it with the same Assiduity, the Nobility do *Fencing*. They have a *Cudgel* of about three Feet long, which they use with an extraordinary Dexterity; the whole Secret of this Game is to strike one's Adversary, and to receive little or no Blows from him. With that *Cudgel* they cover their whole Body, and you find it every where to oppose a Blow over the Head; before, behind, *&c.* I have seen a Master in that Art fight against three Dragoons armed with Swords, disarm one of them, and with his Sword put the other two to flight.

WRESTLING, is a kind of Combat, or Engagement between two Persons unarmed, Body to Body, to prove their Strength and Dexterity; and try which can throw his Opponent to the Ground.

This kind of Exercise is also much practised in *Britanny*; the *Britons* undress themselves to the Skin, hiding only what Modesty forbids exposing to View, and sometimes not even that. The Law of *Wrestling* among them, is to give no Blows at all, nor lay hold of the Hairs, but all must be done by main Strength. If he that throws his Opponent to the Ground falls upon him, or even stoops in throwing him, the Throw is not fair; for to be such, the Conqueror must send his Opponent to bite the Dust, and he stand upright. The Conqueror, besides the publick Applauses, is often entitled to some Reward, as to a Sum of Money, a Hat, or some other Things, at the Discretion of those who encourage the Wrestling-Match, who is often the Lord of the Manor.

Wrestling, *Palæstra*, is an Exercise of very great Antiquity and Fame. It was in Use in the heroick Age; witness *Hercules* who wrestled with *Antæus*. It continued a long Time in the highest Repute; and had very considerable Rewards and Honours assigned it at the Olympick Games. It was the Custom for the *Athletæ* to anoint their Bodies with Oil to give the less Hold to their Antagonist. *Ablancourt* observes, that *Lycurgus* ordained the *Spartan* Maids to wrestle in Publick quite naked, to break them of their too much Delicacy and Niceness, to make them appear more robust, and to familiarise the People, *&c.* to such Nudities.

Justs and Turnaments, were the Games of Exercise of the Antients.

Just, was a sportive kind of Combat on Horseback, Man against Man with Lances.

Antiently *Justs* and *Turnaments* made a Part of the Entertainment at all solemn Feasts and Rejoicings. The *Spaniards* borrowed these Exercises from the *Moors*, and called them *Juego de Cannas*, Reed or Cane-Play. Some take them to be the same with *Ludus Trojanus*, antiently practised by the Youth of *Rome*. The *Turks* use them still, and call them *lancing the Gerid*.

The Difference between *Justs* and *Turnaments* consists in this, that the latter is the *Genus*, of which the former is only a Species. *Turnaments* included all Kinds of military Sports and Engagements, made out of Gallantry and Diversion. *Justs* were those particular Combats, where the Parties were near each other, and engaged with Lance and Sword: And that the *Turnament* was frequently performed by a Number of Cavaliers, who fought in a Body. The *Just* was a single Combat of one Man against another. Though the Justs were usually made in *Turnaments*, after a general Rencounter of all the Cavaliers, yet they were sometimes singly, and independant of any *Turnament*. He who appeared for the first Time at a *Just*, forfeited his Helm or Casque, unless he had forfeited before at a *Turnament*.

Turnament or Tournament, was a martial Sport or Exercise, which the antient Cavaliers used to perform to shew their Bravery and Address.

The first *Turnaments* were only Courses on Horseback, wherein the Cavaliers tilted at each other with Canes, in manner of Lances; and were distinguished from *Justs*, which were Courses or Careers accompanied with Attacks and Combats with blunted Lances and Swords.

Others say it was a *Turnament*, when there was only one Quadril or Troop; and that where there were several to encounter each other, it was a *Just*. But it is certain the two became confounded together in Process of Time; at least we find them so in Authors.

The Prince who published the *Turnament*, used to send a King at Arms with a safe Conduct, and a Sword, to all the Princes, Knights, &c. signifying that he intended a *Turnament*, and a clashing of Swords, in the Presence of Ladies and Damsels: Which was the usual Formula of Invitation.

They first engaged Man against Man, then Troop against Troop; and after the Combat the Judges allotted the Prize to the best Cavalier, and the best Striker of Swords; who was accordingly conducted in Pomp to the Lady of the *Turnament*; where, after thanking her very reverently, he saluted her, and likewise her two Maids.

These *Turnaments* made the principal Diversion of the 13th and 14th Centuries. *Munster* says, it was *Henry* the *Fowler*, Duke of *Saxony*, and afterwards Emperor, that first introduc'd them; but it appears, from the Chronicle of *Tours*, that the first Inventor of this famous Sport, was one *Geoffry* Lord of *Priuli*, in *France*, about the Year 1066.

From *France* they passed into *England* and *Germany*. The *Historia Byzantina* tells us, that the *Greeks* and *Latins* borrow'd the Use thereof from the *Franks*; and we find Mention made of them, in *Cantacuzen*, *Bessarion*, and others of the late *Greek* Authors.

Budeus derives the Word from *Trojana agmina*; others from *Trojamentum*, *quasi ludus Trojæ*. *Menage* deduces it from the Latin *Tornensis*, or the French *Tourner*, in regard the Combatants turned and twisted this Way and that. *M. Paris* calls them in Latin *Hostilitia*; Meubrigensis *Meditationes militares*; others *Gladiaturæ*, others *Decursiones ludiræ*, &c.

Pope *Eugenius* II. excommunicated those who went to *Turnaments*, and forbad them Burial in holy Ground. King *Henry* II. of *France* died (as was observed in the Article *Chronology*) of a Wound receiv'd at a *Turnament*. One *Chiaou*, who had assisted at a *Turnament*, under *Charles* VIII. of *France*, said very happily, *If it be in Earnest, it is too little; if in Jest, too much*.

It is to the Exercise of *Turnaments* that we owe the first Use of Armories; of which the Name Blazonry, the Form of the Escutcheons, the Colours, principal Figures, the Mantlings, Labels, Supporters, &c. are undeniable Evidences.

In *Germany* it was antiently a Custom to hold a solemn *Turnament* every three Years, to serve as a Proof of Nobility: For the Gentleman who had assisted at two, was sufficiently blazoned and published; *i. e.* he was acknowledged noble, and bore two Trumpets by way of Crest on his *Turnament* Cask. Those who had not been in any *Turnaments*, had no Arms, though they were Gentlemen.

Thus far for *Games* of Exercise, of Address, &c. The modern Ones of Chance are *Cards* and *Dice*, &c. and the principal *Games* of Cards are *Ombre*, *Quadrille*, *Quinquille*, *Picquet*, *Basset*, *Faro*, &c.

Ombre, is a celebrated Court-Game at Cards; play'd by two, by three, or by five Persons; but generally by three.

The Game of *Ombre* is borrowed from the *Spaniards*; and requires all the Phlegm and Gravity of that Nation in the Playing. The Name signifies as much as the *Game of Man*; *Ombre*, or *Hombre*, in *Spanish*, signifying Man; in Allusion to the Thought and Attention required therein.

In *Ombre by Three* (which is the most ordinary Way of playing it) nine Cards are dealt to each Party; the whole *Ombre* Pack being only 40; by reason the Eights, Nines, and Tens, are thrown aside. The two black *Aces* are always Trumps, in both Colours, either red or black: The Ace of Spade (called *Spadille*) being always the first and best Trump; and the Ace of Clubs (called *Basto*) always the third Trump. The second Trump in Red, is the *seven* of Diamonds, when *Diamond* is Trump, or of Hearts, when Heart is Trump: And in black the *Duce* of Spade, when Spade is Trump; or of Clubs, when Clubs is Trump. This second Trump, in both Colours, is call'd *Manille*; but the *seven* in red, or the *two* in black, is no longer of such a Value; but while the Suit they are of is Trump, otherwise they return to their natural inferior Rank.

The *red Aces*, when we play in red, change likewise their Place. Thus when we play in *Hearts*, the Ace of Hearts, takes Place of the King, and is the fourth *Trump*; as likewise does the *Ace of Diamonds*, when we play in *Diamonds*; and are call'd *Punto's*.

For the better understanding the Nature of the Trump, here follows a Table, where they are placed in their Order.

Red.	Black.
Spadille, Ace of Spade	*Spadille*, Ace of Spade
Manille, the Seven	*Manille*, the Duce
Basto, Ace of Clubs	*Basto*, Ace of Clubs
Punto, the Red Ace	*King*
King	*Queen*
Queen	*Knave*
Knave	*Seven*
Duce	*Six*
Three	*Five*
Four	*Four*
Five	*Three*.
Six.	

Thus you see there are 12 *Trumps* in Red, and but 11 in Black. But when the red, or black Suit, is not Trump, the Cards observe the following Order:

Red.	Black.
King	*King*
Queen	*Queen*
Knave	*Knave*
Ace	*Seven*
Duce	*Six*

Three

Three	*Five*
Four	*Four*
Five	*Three*
Six	*Duce*
Seven	

Note, That the three firſt, or principal Trumps, are called *Matadores*; which have this Privilege, that they are not obliged to attend an inferior Trump when it leads; but for Want of another ſmall Trump, the Perſon may renounce Trump, and play another Card; though an inferior Matadore is obliged to obey a ſuperior one, *ex. gr.* if your Antagoniſt plays *Spadille*, and you have no other Trump but Matadores, you are obliged to play one of thoſe *Matadores*; but if your Antagoniſt plays *Baſto*, and you have but *Spadille* in your Hand, without any other Trump, you may renounce every time, and keep *Spadille* as long as you think fit; likewiſe if your Antagoniſt plays *Baſto*, and you have but *Manille*; you are not obliged to play that Manille, but renounce every time, if you pleaſe, unleſs he plays *Spadille*, to force it out of your Hand, and thus of all Matadores; but you have not the ſame Privilege to keep the ſmall Trumps; for you are obliged to play them when called for, and if you renounce you are beaſted. Another Privilege of Matadores is, that whoever has them, ſhall be paid a Counter for each, *i. e.* if they follow one another, *viz. Spadille*, *Manille*, *Baſto*, &c. for when there is an Interruption, *viz. Spadille*, *Baſto*, without *Manille*, or *Manille Punto*, without *Baſto*, no Matadores are to be paid for. None but the *Ombre* can be paid for *Matadores*; and if he loſes the Game with three *Matadores* in his Hand, he is to pay three Counters to each of his Antagoniſts.

Note alſo, That thoſe Trumps which immediately follow, *Spadille*, *Manille* and *Baſto*, when they happen to meet in the Hands of the *Ombre*, uſurp the Name of *Matadores*, and muſt be paid as ſuch. For Example, if I have *Spadille*, *Manille*, *Baſto*, *Punto*, *King*, *Queen* and *Knave*, I have ſeven *Matadores*, and muſt receive ſeven a-piece from my two Oppoſites; likewiſe, if in Black I have *Spadille*, *Manille*, *Baſto*, *King*, *Queen* and *Knave*, I have ſix *Matadores*.

Having thus informed ourſelves of the Value of the Cards at *Ombre*, we muſt know next that the Trump is not made at *Ombre*, by turning up a Card, as at other Games; but after the Cards are dealt (the Dealing beginning in this Game at the right hand) every one examines his Game in his Turn, the eldeſt Hand being to ſpeak firſt, and declare if he either plays or paſs; if he paſſes, the next to him has the ſame Liberty of playing or paſſing, and thus the third; and he who plays declares the Trump.

For Example, we'll ſuppoſe that you are the eldeſt Hand, and that you have *Spadille* the Ace, and *Manille* the Duce of Spades, *Baſto* the Ace of Clubs, the ſeven, and the three of Spades; you will find upon Examination, that you have three *Matadores*, and two Trumps, which is a very good Game; you muſt aſk the others if they play, that is underſtood, if they play without *taking in* (for if any one of them do, tho' you are the eldeſt Hand, you cannot hinder him, unleſs you offer to play *Sans Pendre* yourſelf, of which, being the eldeſt Hand you have the Preference.) If they anſwer *No*, then you are to ſay Spades are Trumps, and make your Diſcard accordingly, and in that Manner the Trump is made.

Note, That the Perſon who plays muſt always name the Trump before he looks at the Cards he takes in, for if he ſhould happen to turn them up, tho' he ſhould not ſee them before the Trump is made, then either of the other two may name it; and he ſhall be obliged to play in that Suit, let it be what it will. If the *Ombre* ſhould name two Colours at the ſame Time, then the Perſon who ſits at his right Hand, ſhall chuſe which of thoſe two Colours he thinks fit, and the *Ombre* ſhall be obliged to play in that Suit. In this Caſe the *Ombre* ſhall have the Liberty to look at his Diſcard, and if he has put out any of that Suit which is nam'd for him, he may take them in again, provided the Cards he took in, are not join'd to the reſt of his Game; if ſo he has not this Liberty.

Note alſo, That it is neceſſary to be very exact in naming the Trump. For Example, if a Perſon who intends to play in Clubs, ſhould ſhew three Cards that he puts out, a Heart, a Spade, and a Diamond, and ſay you may know my Trumps by what I put out, this will not be ſufficient, and the others may name it as if he had not ſpoke at all: For ſometimes, in that Caſe, a Man might put out a Trump to deceive others. If after the *Ombre* has look'd at the Cards he takes in, recollects that he did not name the Trump, and the other two ſhould forget to ſpeak before him, he may name it then without incurring any Penalty.

The Perſon who undertakes the Game, is called OMBRE.

Before the *Game* at *Ombre* begins, a certain Number of Fiſhes and Counters muſt be provided, ſuppoſe nine Fiſhes, and twenty Counters to each.

Note, That a *Fiſh* is a *Counter*, made in the Shape of a *Fiſh*, to diſtinguiſh it from the other *Counters*, and is generally made to be worth ten *Counters*; the Price thereof muſt be according to the Sum you intend to play for, as a Crown, half a Crown, a Shilling or Six-pence. Before the Deal begins, every Player muſt lay down a Fiſh a-piece.

After the Fiſhes are laid down, a Perſon taking the Pack, turns up a Card in the Middle of the Table, and afterwards gives a Card a-piece round, and whoever has the higheſt Card of that Suit which lies in the Middle, is the firſt Dealer. Another Way is, by giving Cards round, and whoever has the firſt black Ace, deals firſt.

The Dealer thus choſen, ſhuffles the Cards, and lays them down to be cut by the Perſon on his left Hand, and then deals, beginning, as we have already obſerved, by the Perſon on his right Hand, giving 3 and 3 round, till he has dealt 9 a-piece; and if he ſhould by Miſtake, or otherwiſe, give the Cards in another Manner, or give more, or fewer Cards, he is oblig'd to deal again. When he has dealt, there will be 13 Cards left, which he is to lay down at his right Hand.

The Cards thus dealt, the eldeſt Hand ſpeaks firſt, as we have obſerv'd, and if all three ſhould *paſs* (which often happens) every one is to lay down a ſingle Counter, and the next Perſon deals; which Counters, are not to be mix'd together, but every one lays his own juſt before him, to avoid Diſpute, if there was any wanting, by diſcovering preſently who has omitted to lay down.

Note, That if in dealing the Cards there happens to be one *faced*, the Dealer is to go on without Interruption, unleſs it happens to be a *Black-Ace*, in which Caſe he is oblig'd to deal again. But if the Dealer ſhould turn one of the Cards, then it is at the Choice of him it belongs to, either to receive it, or make him deal again. If there happens to be a great many Cards faced, they muſt be dealt again. If the *Ombre* plays *Sans Pendre*, and there happens to be a Card faced in the Stock, the Deal is to go for nothing. If the Dealer ſhould give 10 Cards, either to himſelf, or any other, he muſt deal again if they demand it; for they may play tho' they have 10 Cards dealt them, provided they declare it before they take in: In which Caſe they are oblig'd to lay out one Card more than they take in, for if they have 10 Cards after they have taken in, they are *Beaſted*; and likewiſe, if they ſhould take in without declaring they have 10 Cards. If the Perſon who has 10 Cards dealt him, has a Mind to play *Sans Pendre*, he muſt ſhuffle his Cards, and one of the

the Company shall draw out a Card at Hazard, and put it among those which they discard.

Note also, That the Rules laid down for 10 Cards, are the same with 8, because the Reason is the same. He that has but 8 Cards, and would play *Sans Pendre*, must with 8 Cards win enough for his Game. If he takes in with 8 Cards, he may take in one Card more than he lays out.

He that plays (after he has asked Leave) discards 2 or 3 or more Cards, according to the Strength of his Game; and taking up the Remainder of the Pack, he serves himself with as many Cards from thence, as he has laid out; then laying his Discard at his left Hand, where the Pack laid before, he places the Remainder in the Middle of the Table, still remembring to name the Trump before he takes in.

When the *Ombre* has discarded, he that discards next to him, must not go to the Bottom of the Cards, *i. e.* ought to leave, at least, five Cards to him that takes last; unless he has a *Matadore*, and some other good Cards, whereby there is a Probability of winning three or four Tricks, otherwise he will spoil all by dividing the Trumps, which is a sure Way of giving the Game to the *Ombre*. Therefore it cannot be supposed that a *Matadore*, without any other Trumps, is a good Pretence for taking in a great many Cards; tho' it is not to be expected that he who goes to the Bottom of the Cards should propose to win as sure Tricks as if he was *Ombre*, for that seldom happens; but he should have a good Appearance, since the third Person is to assist him in making the *Ganos* of his Kings, and forcing the Trumps of the *Ombre*.

When the *Ombre* plays *Sans Pendre*, it is very easy for the other two to discard; he that is first may take eight or nine, but those that understand the Game, take Care to discard so that the Game should not be divided.

If after they have all taken in, there should be a Card left, he who discarded last may see it, if he pleases; in which Case all the rest have the same Liberty; but if he does not, and either of the other two should look at it, that Person is *Beasted*.

If any of the Gamesters should take in a Card more than he lays out, he is not *beasted* for this: If he has not look'd at his Cards, he is to return the last Card. If they are mixed with the rest of his Cards, the other two shall draw a Card at Hazard out of his Game, and put it into the Stock; if he should take one too few, it is much the same Thing; if the Stock is still upon the Board, he may take a Card; if they are all taken in, he must draw one by Chance out of the Discard.

The *Ombre* should be very attentive in observing how the others discard, and remember which of them takes in most Cards; for he may judge by that, where the Strength against him lies: In this Case if he finds he is not strong enough to win five Tricks, he must endeavour to give two Tricks to him whom he judges the weakest of the two; that though he beastes, none should win the Stakes, and make it a *Remise*.

When all have *discarded*, the eldest Hand plays first; and he who wins the last Trick next, as it is practised at all other Games.

If you have not a Card of that Suit which leads, you are not obliged to play a Trump, but you may do it for the Conveniency of your Game.

When one of those that defends the Stake demands *Gano* of his Comrade, he ought to give it, if he can. The Meaning of this Word *Gano*, is, *I win*; or let it pass; so that he who demands *Gano*, may be supposed to have the best Game; and the other should pass the Trick to him. For Example, if the *Ombre* should play a *Spade*, and one of those that defend the Stake should play the Queen, and say *Gano*, or *Gano del Re*, his Comrade ought not to play the King; but in this Case he ought to have a small Spade in his Hand, otherwise he must play the King, or else be beasted. If after one has called *Gano*, his Comrade seems to hesitate or make Difficulty of it, he may call to him three Times, very earnestly, *To Gano si se puede*; which is, you must let me have it if you can; but *Gano* must never be demanded but to defend the Stake; and not with a Design to win *Codille*.

When one of those who defend the Stake, raps his Hand upon the Board on delivering his Card, it is to be understood as a Signal to his Comrade to play a high Trump, to force out the *Ombre*'s Trump; which is not held unfair, since the Game allows it.

If you should separate one Card from the rest of your Game, so that the *Ombre* should see it, he may, if he pleases, oblige you to play it; provided that in playing it you do not make a *Renounce*.

As it is of great Consequence in this Game to know the Number of Trumps, and how many are out; every one has the Liberty of examining his own Tricks, and those of others: This is permitted on all Sides, as often as any shall think fit, though there be no Trumps play'd. If the Pack should not be true, the Game should go for nothing, if it be discovered in playing the Cards; but if it be not found out till after the Game is play'd, it stands good.

Whenever he who undertakes the Game (that is to say the *Ombre*) does not win, he is *beasted*: And to win the Stake he ought to make five Tricks; except five Tricks are divided betwixt his two Opponents; *i. e.* when one wins three, and the other two; for in this Case the *Ombre*, making four Tricks, wins the Game.

He is likewise beasted who plays with more or less than nine Cards; as likewise he who makes a *Renounce*; but it is not a *Renounce*, when one by Surprize has thrown down a wrong Card upon the Table; even when the Person that wins the Trick, has played again for a second Trick; if he has not folded up the first, he who play'd wrong may recover his Card and play again; but after the Trick is folded up it is too late, and he must submit to the *Beast*.

When one finds out that another has *renounced*, as that it is a Prejudice to his Game, he may oblige every one to take their Cards back and play over again, beginning with the Trick where the *Renounce* began. But if the Deal be finished the Cards must not be play'd over again.

Whoever *renounces* several times in a Deal, suffers a *Beast* for every *Renounce*.

The Tricks may be variously divided, according to which, one either saves or makes a *Beast*.

There are but two Ways for the *Ombre* to win, which we have spoke of already, and as many whereby he may be *beasted*.

When the Players win three Tricks a-piece, the *Ombre* is beasted, and this is what is called the *Remise by three*. When the *Ombre* wins four Tricks, and one of those that defend the Stake, four Tricks, the *Ombre* is likewise *beasted*, and this is also called *Remise*, *Risposte*, or *Respuecest*. Therefore he who defends the Stakes, and has not the Game by which he may almost depend upon winning, at least three Tricks, should avoid winning above one; but assist his Comrade in getting four Tricks, in order to *beast* the *Ombre*.

Note, That all the *Beastes* that are made in one Deal must lie together upon the Board, and be played for the next. When there are many *Beastes* upon the Board, that which was laid down first is to be taken up first; afterwards, that which is of the highest Value. If one should be *beasted* for playing with ten Cards, and the *Ombre* for not winning his Number of Tricks; these are two *Beastes*, which with the Stake upon the Board, makes three Stakes, which are to be laid together, and play'd off the next Deal, unless they are separated by Agreement. He who makes many *Beastes* at one Deal, may put them all to one Stake if he pleases, and the others cannot hinder him. All *Beastes* which are made of what Nature soever, must be of the same Value which the *Ombre* is to take up if he wins, whether it consists of one, two, or more Fishes.

When

When the *Ombre* makes but four Tricks, and one of the Defendants five; or when the *Ombre* makes but three Tricks, one of the others four, and the third two, the *Ombre* is beasted; and he who wins more Tricks than the *Ombre*, takes up the Stake; and this is what is called winning *Codille*.

He who aspires at CODILLE should play with Honour, and, as observed before, never demand *Gano*, when he is sure of winning four Tricks; but as there is no Penalty in this Case, all the Defence we can have against such People, is to play with them no more.

When it happens that one of the Gamesters by his Play may either give the *Ombre* his Game, or give the other the *Codille*, he should rather give the *Codille*, and let the *Ombre* be beasted: The Reason is, that when the *Ombre* wins, he takes up the Stake; but, in the other Case, he lays one down for that which the *Codille* takes up.

If he who aims at *Codille* should call *Gano* at his fourth Trick, when he is sure of a fifth, he ought not to draw the Stake; though there is no Law to hinder him from it.

Some as soon as they have discarded, and seen the Cards they take in, if they find a very bad Game, will give it up, and yield themselves *beasted*, in order to prevent the *Codille*: But this does not seem fair; and as it is not any Part of the Game of *Ombre*, there is no Rule provided in this Case; however, it is never done among those who value themselves upon their good Manners: Therefore there is but one Way of disappointing a *Codille*, and that is by good Play.

When one Person gains the nine Tricks, it is call'd winning the VOLE; which is attended with this Advantage, that he who wins it sweeps the Board, let there be ever so many Stakes upon it: And suppose there was but one Stake upon the Board, either double or single, in this Case he, who wins the *Vole*, gains double what lies upon the Table: As for Example, if there be a Stake of two Fishes, and two Counters before each Player (for each Player must stake before him) which were laid down for the *Passes*, each of the other two shall pay him, who wins the *Vole*, one Fish and three Counters, which makes the Stake upon the Board double; but if there be more Stakes than one upon the Board, he who wins the *Vole* must be content with them, without receiving any Thing from the other two Gamesters.

If many *Beastes* were made in one Deal, which by Consent, or by him who made the last *Beaste*, are put together; this is but one Stake, and he who wins the *Vole* shall have it made it up double to him by the other two, as was hinted.

It is very difficult to win the *Vole*, and therefore it should never be undertaken but upon a very good Title; for he who once engages in it, is obliged to go forward.

When the *Ombre* has won his five Tricks, and plays down one Card more without saying any Thing, he engages for the *Vole*; in which Case his two Adversaries have the Liberty of shewing each other their Game, and consulting how to defend it.

If he who undertakes the *Vole* should miscarry, the other two shall divide between them what lies upon the Board, but he shall pay them nothing; on the contrary, if he plays *sans prendre*, or has *Matadores* in his Hand, he shall be paid for them, though he does not take up any Thing.

Note, That as this Game requires a great deal of Application, it is necessary to set some Limits to the Continuance of the Play; therefore the Gamesters generally agree before-hand, how many *Tours*, or Stakes, they will play for, as ten, twenty, thirty, forty, more or less; after which, if any of them be disposed to leave off, he may throw up the Cards without Offence. Every Stake you play, you set aside a Counter to mark the Tours, and so on till they amount to the Number you agreed to play; but a *Codille* is not to be marked as one. After you have play'd your Number of *Tours*, you may go on to the first *Beaste*, and this is often practised; but if any of the Gamesters should refuse it, you have no Reason to complain of him. If one of the Gamesters through Peevishness, or any other Cause, should throw up the Cards, before the *Tours* agreed upon are play'd out, he is oblig'd to pay, not only his own Losing, but likewise what either of the others lose, and the Cards.

When the *Ombre* leads, and has the first *Matadores* in his Hand, he should always play the highest of those *Matadores* first, to discover how the Trumps lay, and if they be divided or not: He may also do it, to see if it be possible to play for the *Vole*: For Example, he has perhaps, in his Hand, in black, *Spadille*, *Basto*, King, Queen, Knave, a small Trump, a King and a Queen, he must play *Spadille*, if he intends for the *Vole*, to discover if *Manille* be guarded.

Nothing puzzles more Beginners at this Game, as to know when they may venture to play, and when they should *pass*; to remove this Doubt, they must take this for a general Rule, that to undertake the Game, they should have three sure Tricks; for the most that can be expected from taking in three or four Cards, is to win two Tricks more: But when a Man is perfect Master of the Game, and can by his Address manage it so as to divide the Tricks between his Adversaries, he may venture to play a bold Game.

But, however, as this Treatise is not written for Instruction of those who are Masters at *Ombre*, since they want none; we'll insert here a List of the smallest Games that can be play'd, beginning with the black Sort, *Clubs* and *Spades*.

I.
Manille, the Duce
Basto, Ace of Clubs
King
A small Trump.

II.
Spadille, Ace of Spades
Basto
King
A small Trump.

III.
Spadille
Manille
King
A small Trump.

IV.
Spadille
Manille
1 Trump
2 Trumps.

V.
Spadille
Basto
Queen
Seven.

VI.
Manille
Basto
Queen
1 Trump
2 Trumps.

VII.
Spadille
King
Queen
Knave
Seven.

VIII.
Manille
King
Queen
Knave
Seven.

IX.
Basto
King
Queen
Knave
Seven.

X.
Manille
Basto
Seven
Six
Five
Four.

XI.
King
Queen
Knave
Seven
Six
Five.

XII.
Spadille
King
Five
Four
Three.

Note, That all the Cards, named here, must be of the same Colour, except the Black Aces: And that a King is never to be put out, tho' of a different Colour.

The *Games* which may be play'd in RED, are as follow:

I.
Spadille, Ace of Spades
Manille, the Seven
Punto, Ace of Trumps in (Red
1 Trump.

II.
Basto
Manille
Punto
1 Trump.

III.
Spadille
Basto
Punto
1 Trump.

IV.
Spadille
Manille
King
Queen

V.
Spadille
Manille
Knave
Three
A *King*.

VI.
Spadille
Basto
King
Queen
Knave.

VII.
Basto
Punto
King
Queen
Knave.

VIII.
Manille
Punto
King
Queen
Knave.

IX.
Manille
Basto
King
Queen
1 Trump.

X.
Manille
Basto
Knave
Duce
Three
Four.

XI.
Spadille
Basto
King
1 Trump
A *King*.

Note, That as there are more Trumps in *Red*, than in *Black*, your Game ſhould be ſomething better when you play in *Red*, becauſe there are more againſt you; and that the Games marked here are the ſmalleſt that can be play'd upon the Cards.

Note, alſo, That you muſt have a better Game, when you are to play ſecond, than if you were to lead or play firſt; for when you are thus hemm'd in, you will find it very hard to diſengage yourſelf, unleſs you have a good Game; never venturing to play, when you are not the Leader, with ſeveral Cards of different Suits in your Hands, unleſs they be Kings.

From theſe ſmall Games, which may be play'd with diſcarding, we'll paſs to thoſe which can be play'd *ſans prendre*.

Games in Black, which may be play'd *ſans prendre*.

I.
Spadille
Manille
Basto
King
1 Trump
A Renounce.

II.
Spadille
Manille
Queen
Knave
2 *Kings*
A Renounce.

III.
Spadille
Manille
Basto
King
2 *Kings*.

IV.
Spadille
Manille
Basto
3 Trumps
A Renounce.

V.
Basto
Manille
Queen
Knave
2 Trumps
King.

VI.
Manille
Basto
King
3 Trumps
A Renounce.

VII.
Basto
King
Queen
Knave
Seven
Six
A *King*.

VIII.
King
Queen
Knave
Seven
Six
Five
A *King*.

IX.
Spadille
King
Queen
Seven
Six
Four
A *King*.

X.
Manille
King
Queen
Knave
Seven
Four
A *King*
A Renounce.

Games in RED, that may be play'd *Sans Prendre*.

I.
Spadille
Manille
Basto
3 Trumps
A *King*.

II.
Spadille
Manille
Basto
King
1 Trump
A *King*.

III.
Spadille
Manille
Basto
Punto
Queen
1 Trump
A *King*.

IV.
Manille
Basto
Queen
Knave
2 Trumps
A *King*.

V.
Basto
Punto
3 Trumps
A *King*
A *Queen* guarded.

VI.
Punto
King
Queen
Knave
Duce
Three
Six
A *King*.

VII.
Manille
Basto
Punto
3 Trumps
A *King*
A Renounce.

VIII.
Spadille
Punto
King
Queen
2 Trumps
A *King*
Queen guarded.

Note, That a good Player will venture to play upon a weaker Game when he is to lead, or play laſt, than when he is ſecond; tho' a very good Player has ſometimes loſt a Game with four *Matadores* and three Kings; when the eight Trumps againſt him were all in one Hand; ſo that his Kings being all *trumped*, he won but four Tricks.

There are different Sorts of *Ombre*, viz. *force Spadille*, *Gaſcarille*, *Whim*, *Quadrille*, *Quintille*, and *ſingle Ombre* between two.

Force SPADILLE, is play'd like the Game at *Ombre* we have deſcribed; every one ſpeaks in his Turn, and if all *paſs*, then he who has *Spadille* in his Hand is oblig'd to play, let his Game be ever ſo bad; therefore he has nothing to do but to name his *Trump*, and to diſcard: But he may paſs, to ſee if either of the other two will put him out of his Pain, and play; if they do not, he muſt play.

When all *paſs*, and No-body owns *Spadille*, the Cards that are left muſt be examined; and if it be not in the Stock, it muſt be in ſome Hand: In this Caſe, he who has it, and did not own it, incurs a *Beaſte*, and the Deal is not to be play'd, becauſe the Cards were ſeen.

Note,

Note, That this Manner of playing at *Ombre*, is diverting enough when People do not play for any Thing, becauſe the *Beaſtes* happen almoſt continually, and the *Codille* is often won when it is leaſt expected; but where People play for Money, it is quite different: For *Ombre*, which is a Game of Art and Judgment, when it is thus play'd, degenerates into a Game of Chance; and Conduct can be of no Uſe to a good Player, who finds *Spadille* in his Hand very ill attended.

GASCARILLE is the new Way of playing at *Ombre*, and is ſeldom practiſed but where People play for Trifles. The Method of it is thus; when all have paſſed, one Perſon declares to play *Gaſcarille*; then that Perſon lays out eight Cards, and after having taken in, and examined his Game, he names the Trump in that Suit in which he is the ſtrongeſt. Sometimes he who plays *Gaſcarille* lays out all nine; and obſerves, that he is obliged to lay out at leaſt eight. If he wins his Game, he is to receive three a-piece for *Gaſcarille*; if he loſes it, he pays them three a-piece, and pays or receives for *Matadores* as at the other Games of *Ombre*.

WHIM, is another odd Way of playing at *Ombre*, and ſeems to be invented for Variety Sake: It is thus, when all have paſſed, one declares to play the *Whim*, turns up the Top Card of the Stock, and whatever Suit that happens to be of, is his Trump, and he is obliged to abide by it; then he diſcards, and takes what Number he pleaſes, and the Card turn'd up muſt be one of them. If he wins the Game, he receives nothing for playing the Whim, nor pays any Thing if he loſes it; but he pays or receives for *Matadores*, as at the other Games of *Ombre*.

QUADRILLE, or *Ombre by four*, varies from *Ombre by three*, in having all the forty Cards dealt out; to each Perſon ten a-piece, *viz.* twice three, and once four; or once four, and twice three, as the Dealer pleaſes.

If in the Dealing any Card happens to be faced, the Deal is loſt; for this Reaſon, that it is not juſt that any of the Players ſhould lie under the Diſadvantage of having any of his Cards known.

The *Ombre* may call what King he pleaſes, and even call one of his own, or any Queen except that of Trumps; but to call a Queen, he muſt have the four Kings in his Hand, and if he wants the King of Trumps, notwithſtanding he has the three others, he is obliged either to call one of his Kings, or to paſs.

He who draws from his Game a Card, and preſents it as if he was going to play it, is oblig'd ſo to do, if his retaining it can do the Game any Prejudice, or give any Knowledge, or Intimation to the Friend, eſpecially if it is a *Matadore*. He who plays *Sans Prendre*, or has called his own King, is not ſubject to this Law, by Reaſon that by diſcovering his Card he can reap no Advantage.

Note, That to play *Sans Prendre*, at *Quadrille*, is to call no King, or to play alone, or without a Partner.

He who renounces is not *beaſted*, even if the Trick is taken off the Board, in Caſe he recollects, and perceives it before the Trick is turn'd down, by the Perſon who won it; but if it is turn'd down, he muſt be *beaſted*. He is likewiſe *beaſted*, if the Trick be cover'd with another Card, by the Perſon who won it, except he immediately recollects himſelf before the next Card is play'd; in which Caſe he may recover his Card, and muſt not be *beaſted*.

He does not *renounce*, who, having forgot the *Trump*, has been told by any Body that the *Trump* is in ſuch a Suit, and who, having none of the Card which is led, ſhall trump it with one of that Suit he has been told was Trumps; but he cannot take up his Card again, and the Trick muſt belong to him who won it.

He who without aſking what is *Trumps*, ſhall trump with a Card which is not ſo, and ſhall have turn'd down the Trick, muſt be *beaſted*, if it appears, or may be ſuſpected, that he did it with a fraudulent Deſign.

He who renounces ſeveral Times in one Deal, if it it is not perceived till after the Tricks are turn'd down upon the Board, is to be *beaſted* but once; but if after he has been made ſenſible of the firſt, he is ſtill ſhew'd a ſecond, and then a third, he muſt be *beaſted* for every *Renounce* he made; and he muſt take up all his Cards, and play them over again.

It is not permitted either to thoſe who undertake to play, or to thoſe who defend the Stake, to diſcover their Cards before the Game is won, by Reaſon that the Friend of him who has ſhew'd his Cards, may make ſome Advantage of it; therefore he who does it muſt be *beaſted*. But this Caſe does not regard him who plays *Sans Prendre*, or has called his own King; becauſe his Game can be favourable to none.

Thoſe who defend the Stake, tho' they have made ſix Tricks, are not to expoſe their Cards, but to continue playing to the laſt, to ſee whether the *Ombre* can win his three Tricks to avoid being *beaſted* alone.

It is not permitted at *Quadrille* to ſpeak at all, not even to ſay, *that is the King*; ſince the Perſon who is to play next, either ought to know that, or may find it out by the Tricks already made. He who ſpeaks a Word in playing to encourage his Friend, muſt not pretend to the *Vole*; and he who ſays a Word to make him deſiſt, muſt be *beaſted*. It is not even permitted to ſay, *we have ſix Tricks*.

There is no Time preſcrib'd when the *Beaſte* is not to be forfeited; it may be demanded ſeveral Deals after, if he who won it, can prove that he won it in the ſame Deal, wherein it naturally ſhould have been play'd for; but it is not ſo of the Miſtakes that have been made in reckoning the *Beaſte*.

The *Sans Prendre* and *Matadores*, are to be demanded before the Cards are cut for the next Deal, otherwiſe they are not to be paid.

If he who plays *Sans Prendre* with *Matadores*, demands through Miſtake the one for the other, he muſt have nothing paid him, except he recollects himſelf before the Cards are cut.

He who playing *Sans Prendre*, ſhews his Game, which he has ſure in his Hand, without naming the Trumps, is obliged to play in the Suit, which one of his Adverſaries ſhall name.

When all the Players have paſſed, he who has *Spadille*, is forced to play; with this Advantage, that he is not *beaſted* alone, tho' he does not win three Tricks; and he who plays thus, cannot pretend to the *Vole*, by Reaſon of the Advantage *Spadille* diſcovered may procure him.

He who having play'd *Sans Prendre*, and undertaken the *Vole*, but miſſed it, muſt pay to every one of the Players the Forfeit of the *Vole* he has loſt; and muſt not be paid for *Sans Prendre*, *Matadores* if he had them, or the Rewards; nor muſt he even draw the Stake, or the *Beaſtes* that were play'd for; but he muſt not be *beaſted* himſelf, except he loſt the Game; in which Caſe he muſt pay all that is due for the *Rewards*, the *Sans Prendre*, the *Vole*, and the *Matadores* if he had them. The auxiliary King muſt have appeared before there is any Right to undertake the *Vole*, otherwiſe, as no Riſque is run, ſo no Recompence is to be expected.

QUINTILLE, or *Ombre by five*, was play'd at firſt without Fiſhes, each Player taking only 20 or 30 Counters, valued at 5, 10, 15, 20, or 30 *d.* a-piece. They draw'd the Places, and when they had ſeen who was to deal, every one laid down a Counter before him, and had 8 Cards dealt him, and no more, which is the uſual Way of Dealing at this Game, there being no Cards left, and conſequently no Diſcard to be made.

The Manner of Speaking, and Beginning to play at *Quintille*, is the ſame as at *Quadrille*; and to win, five Tricks muſt be made.

He who has the *King*, which has been called, aſſiſts the *Ombre*, and if between them they make five Tricks, they have jointly won, and the *Ombre* takes up two of the three Counters, and the Friend one; unleſs

unless the Counters happen to be even, for then they divide equally.

It is a *Remise* when the *Ombre* and the auxiliary *King* make but four Tricks between them; in such Case the *Ombre* puts down two Counters, and the other one. They lose *Codille* if they make but three, and in this Case the other three Players have a Right to take up each of them one *Counter*.

If *Codille* is won, and there is four or five Counters down, each of the three who defended the Game, taking up one; there are either one or two remaining upon the Board. If there is but one, it belongs to him who has the highest Trump, if more it is for him who has the next best Trump.

If *Codille* is lost the first Time, the three Defendants who win it, take up each of them a Counter, and the remaining two are to be play'd for in the following Deal.

The four eldest Hands having *passed*, the fifth is obliged to play, let him have ever so bad a Game, calling however a King to his Assistance.

If the *Ombre* having called a *King*, happens to win the *Vole*, he receives two Counters from each of the Defendants; and if the Number chances to be odd, the auxiliary King has one: And he who undertakes to play for the *Vole*, and miscarries, incurs no Penalty, having nothing to pay to the other Players.

He who plays *Sans Prendre*, must name the Trump, and to win make five Tricks: If he wins he has two Counters paid him for the *Sans Prendre*, by each of the Defendants, and as much for each of the three *Matadores* if he had them; but should all his eight Cards have been Sequents of *Matadores*, he must expect no more.

If several *Beastes* are at once upon the Table, and he who plays *Sans Prendre* makes the *Vole*, he has no more than what is down, and two Counters from each of the Players. If there are only single Stakes upon the Board, he who plays *Sans Prendre*, and wins, of the five Counters that are down, besides his due for the *Sans Prendre*, draws only two, and consequently there remain three.

Whoever of the Players, except the youngest Hand, plays, after having asked, must name the Trump, and call to his Assistance any King except that of Trumps.

The *Matadores* are to be paid for only when they are found in one Hand, and the auxiliary King has no Share in that Payment, when they are in the *Ombre*'s Hand; if on the oontrary they are in the auxiliary King's Hand, they are to be paid to him; but if the *Ombre*, and the Friend are *beasted*, he of the two, who had the *Matadores* in his Hand, is to pay them to the rest, except to his Fellow-Loser. This Law is to be understood in the same Sense when they win jointly.

The Rules of the new QUINTILLE follow the Law of *Quadrille*, in every Point except where there is a Necessity of deviating from them. The *Stakes-marking*, and paying the Game, are the same as at *Quadrille*.

When you have agreed upon the Value of the Fish, the Places drawn, *&c.* the Dealer must stake down one Fish, and each of the others one Counter for the Game, after which the Dealer having caused the Cards to be cut by the left Hand Man, is to give 8 Cards a-piece, 4 at a Time. The Cards being dealt, every one is to speak in his Turn, beginning at the eldest Hand. If any one has a Mind to play with the Assistance of a King, he is to name the Trump (after he has asked the Question) and call a King; who in Conjunction with him to win, must make 5 Tricks. And they lose it by Remise if they make but four, and by *Codille*, if they make less. If they win they are paid the *Rewards*, and the *Matadores* in case they had them, whether they are *beasted* by *Codille* or *Remise*.

The *Beast*, or whatever else is to be paid, is done one half by the *Ombre*, and the other by the *King* his Ally; if in the Payment there happens to be an odd *Counter*, the *Ombre* is to pay it; as in the winning they divide equally, and the odd *Counter* falls to the *Ombre*'s Share.

In regard to playing *Sans Prendre*, the Laws of *Quadrille* are to be observed in all Points. When he who plays *Sans Prendre*, or calls a King he has in his Hand loses *Codille*, the four Players his Adversaries, divide among them, what was played for; and if there are any odd *Counters*, as it often happens, he of the four who had the highest Trump takes up one, the second is for the next best Trump, and the third, if there are three, for the next to that.

There is no Risque in undertaking the *Vole*, there being no Penalties for those who miss it; being only obliged to pay the *Vole* to their Adversaries; which *Vole* when won, is to be paid to those who make it, who jointly divide the Gain.

The *Vole* draws no more than what was play'd for; the Cards are cleared by a certain Number of *Counters*, as has been at first agreed upon to be play'd by each Player.

It is the best way for the *Ombre* to trump about as soon as he can, and likewise for the Friend, when the King that was called has appeared, or even before if he can, the better to accommodate the *Ombre*'s Game, that his *Kings* may pass, which otherwise may run the Hazard of being trumped.

The first *Beast* is always of 15 *Counters*, the second of 45, except the Game, in which the first *Beast* was made, was won by *Codille*, in which Case the second is but 30. In each Case you must add the Number of 15 for each *Beaste*, according as they are made.

Single *Ombre*, is never play'd but when a third Person is wanting. The Manner of playing it, is exactly the same with the other *Ombre*. You must take an entire Suit out of the Pack, either Diamonds, or Hearts, then there will remain 30. You are to deal 8 Cards a-piece, beginning with 3 and 3, and last of all with 2 a-piece; which done there will remain 12 in the Stock, out of which the *Ombre* is to take as many as he pleases, the others may take the rest. When the Trump is named, you are paid for your *Matadores*, and lay down for your Passes here, as you do at *Ombre with three*. The *Ombre* is to win 5 Tricks to gain the Stake; when the Tricks are divided by 4 a-piece, it is a *Remise*; and if he who defends wins 5 Tricks, he wins *Codille*.

I'll conclude this Article of *Ombre*, with Mr. *Pope*'s beautiful Description of the Manner of playing this Game, between *Belinda* and her two *Knights*, at *Hampton-Court*.

BELINDA *now, whom Thirst of Fame invites,*
Burns to encounter two advent'rous Knights
At Ombre *singly to decide their Doom,*
And swells her Breast with Conquests yet to come.
Strait the three *Bands prepare in Arms to join;*
Each Band the Number of the sacred Nine.
*Soon as she spreads her Hand, th'*Aerial *Guard*
Descend, and sit on each important Card:
First Ariel *perch'd upon a* Matadore,
Then each, according to the Rank they bore;
For Sylphs, *yet mindful of their antient Race,*
Are, as when Women, wond'rous fond of Place.
Behold four Kings *in Majesty rever'd,*
With hoary Whiskers, and a forky Beard:
And four fair Queens, *whose Hands sustain a Flower,*
Th' expressive Emblem of their softer Power.
Four Knaves *in Garb succinct, a trusty Band,*
Caps on their Heads, and Halberds in their Hands;
And party-colour'd Troops, a shining Train,
Draw forth to Combat on the Velvet Plain.
The skilful Nymph reviews her Force with Care,
Let Spades *be Trumps, she said, and Trumps they were.*
Now move to War her sable Matadores,
In Shew like Leaders of the swarthy Moors.
Spadilla *first, unconquerable Lord!*
Led off two Captive Trumps, and swept the Board.
As many more Manillia *force'd to yield,*
And march'd a Victor from the verdant Field.

Him

Him Basto *follow'd, but his Fate more hard,*
Gain'd but one Trump, and one Plebeian *Card.*
With his broad Sabre next, a Chief in Years,
The hoary Majesty of Spades *appears;*
Puts forth one manly Leg, to Sight reveal'd;
The rest in many colour'd Robes conceal'd.
The Rebel Knave, *who dares his Prince engage,*
Proves the just Victim of his Royal Rage;
Ev'n mighty Pam, *that Kings and Queens o'erthrew,*
And mov'd down Armies in the Fights of Lue;
Sad Chance of War! now, destitute of Aid,
Falls undistinguish'd by the Victor Spade.
Thus far both Armies to Belinda *yield;*
Now to the Baron, Fate inclines the Field.
His warlike Amazon *her Host invades,*
Th'imperial Consort of the Queen of Spades.
The Club's *black Tyrant first her Victim dy'd,*
Spite of his haughty Mein and barb'rous Pride:
What boots the regal Circle on his Head,
His Giant Limbs, in State unweildly spread;
That long behind he trails his pompous Robe,
And of all Monarchs, only grasps the Glob e
The Baron now his Diamonds *pours apace;*
Th' embroidered King who shews but half his Face,
And his refulgent Queen *with Powers combin'd,*
Of broken Troops an easy Conquest find.
Clubs, Diamonds, Hearts, *in wild Disorder seen,*
With Throngs promiscuous strew the level Green.
The Knave *of* Diamonds *tries his wily Arts,*
And wins (O shameful Chance!) the Queen *of* Hearts.
At this, the Blood the Virgin's Cheeks forsook,
A livid Paleness spreads o'er all her Look;
She sees and trembles at th' approaching Ill,
Just in the Jaws of Ruin, and Codille.
And now (as oft in some distemper'd State)
On one nice Trick depends the gen'ral Fate;
An Ace *of* Hearts *steps forth, the* King *unseen*
Lurk'd in her Hand, and mourn'd his Captive Queen,
He springs to Vengeance with an eager Pace,
And falls like Thunder on the prostrate Ace.
The Nymph exulting, fills with Shouts the Sky,
The Walls, the Woods, and long Canals reply.

PICQUET, or PICKET, is a celebrated Game at Cards (of *French* Invention) much in Use throughout the polite World. It is play'd between two Persons, with only 32 Cards; all the *Duces*, *Threes*, *Fours*, *Fives*, and *Sixes* being set aside.

In Reckoning at this Game, every Card goes for the Number it bears, as ten for ten; all Court-Cards go for ten, and the Ace for eleven; and the usual Game is one hundred up. In playing, the *Ace* wins the *King*, the *King* the *Queen*, and so down.

Twelve Cards are dealt round, usually by two and two, which done, the Remainder are laid in the Middle; if one of the Gamesters finds he has not a Court-Card in his Hand, he is to declare he has *Carte-Blanche*, and tell how many Cards he will lay out, and desire the other to discard that he may shew his Game, and satisfy his Antagonist that the *Carte-Blanche* is real; for which he reckons ten.

Each Person discards, *i. e.* lays aside a certain Number of his Cards, and takes in a like Number from the Stock; but he is not allowed to take more than five, though he can take less; for he must always leave three to his Partner, who may take them all three if he pleases, or leave them, or even all three if it suits best his Game; he can also take more than three, if his Adversary leave more, provided he discards as many as he takes; and see those he leaves; and the eldest Hand also, if he declares what Card he will lead, both are obliged to discard at least one Card, let their Game be ever so good.

After discarding the eldest Hand examines what Suit he has most Cards of, and reckons how many Points he has in that Suit; if the other has not so many in that or any other Suit, he is to tell one for every ten of that Suit: An Example will make this plain.

If the eldest has *Ace*, *King*, *Queen* and *Knave*, of any Suit; he asks, are 41 good? If the other cannot reckon up as many or more, he shall tell 4 for them; for if he had 50 he should tell 5; if 60, 6, and so on. But suppose 35 in either Hand should be good, he who has them is to reckon as much as for 40, that is to say 4; and the same for any Number betwixt 35 and 40; but for any Number less than 5, nothing is reckoned: And for 41, 42, 43, or 44, you reckon but 4. He who thus reckons most is said to win the *Point*.

The *Point* being over, each examines what *Sequences* he has of the same Suit, *viz.* how many *Tierces*, *Quartes*, or fours, *Quintes*, or fives, *Sixiemes*, or sixes, *&c.* For a *Tierce* they reckon three Points, for a *Quarte* four, for a *Quinte* fifteen, and for a *Sixieme* sixteen, *&c.* And the several *Sequences* are distinguished in Dignity by the Cards they begin from: Thus, *Ace*, *King* and *Queen*, are called *Tierce Major*; *King*, *Queen* and *Knave*, *Tierce to a King*; Knave, ten and nine, *Tierce to a Knave*, all which tell 3. Likewise *Ace*, *King*, *Queen* and *Knave*, are called *Quarte Major*; *King*, *Queen*, *Knave*, *Ten*, Quarte to a King, and thus of the *Queen* and *Knave*, as in the *Tierces*; which *Quartes* tell 4. The *Ace*, *King*, *Queen*, *Knave*, Ten, are a QUINTE *Major*; the King, Queen, Knave, ten and nine, QUINTE to a *King*, &c. all *Quintes* tell 15. The Ace, King, Queen, Knave, ten, nine, are a SIXIEME *Major*, and this Sequence follows the same Order of the others, and tells 16. The best *Tierce*, *Quarte*, *Quinte*, or *Sixieme*, i. e. that which takes its Descent from the best Card, prevails, so as to make all the others in that Hand good, and destroy all those in the other Hand. In like manner a *Quarte* in one Hand sets aside a Tierce in the other.

The Sequences over, they proceed to examine how many *Aces*, *Kings*, *Queens*, *Knaves*, and *Tens*, each holds; reckoning for every three of any Sort, three: But here too, as in *Sequences*, he that with the same Number of Threes has one that is higher than any the other has, *e. gr.* three *Aces*, has all his others hereby made good, and his Adversary's all set aside: For Example, if I have three *Aces*, three *Knaves*, and three *Tens*, and my Adversary three *Kings*, my three *Aces* sets his three *Kings* aside, and make my three *Knaves* and three *Tens* good; so that I reckon of this Article only, nine, while my Adversary reckons nothing. Four of any Sort, *viz.* four *Aces*, or four *Kings*, *Queens*, *Knaves*, or *Tens*, are called a *Quatorze*, and tell 14. The *Quatorze* of *Aces*, setting aside that of *Kings*; that of *Kings*, the *Quatorze* of *Queens*; and thus of the *Knaves* and *Tens*, for you are allowed nothing for the Nines, Eights and Sevens.

All the Game in Hand being thus reckoned, the eldest proceeds to play, reckoning one for every one he plays above a nine, and the other follows him in the Suit; and the highest Card of the Suit wins the Trick. If two Cards of different Suits are play'd, that which leads wins the Trick, though the first was but a 7 and the last an *Ace*.

It is not the Person that wins the Trick who always reckons for it, and in some Cases both reckon one for the same Trick, of which this is an Example. If the Person who leads plays a tenth Card, he reckons one for it as soon as he plays it down; if another plays another Card that is higher he wins it, and also reckons one; thus they both reckon for the same Trick.

If the Leader plays an 8 or 7 he reckons nothing; and if the Follower should win it with a nine he reckons nothing; for as it has been observed before, a Card under a ten can't count at this Game: Nevertheless that Trick serves towards winning the Cards. It must be observed that the Follower, that is, he who plays last, never reckons for his Cards unless he wins the Trick; and that he who wins the last Trick reckons one for it, though it be won by any Card under a 10; and if it be won with a 10 or upwards he reckons 2 for it.

When the Cards are played out, each is to count his Tricks, and he that has most is to reckon 10 for winning the Cards; if they have Tricks alike neither is to reckon any Thing.

Note,

Note, That the first Thing that's reckoned at *Piquet* is the *Carte-Blanche*; if there be no *Carte-Blanche* the Point is the first Thing. The second Thing is the *Sequences*, as *Tierces*, *Quartes*, *Quints*, &c. The next are the *Threes* or *Quatorzes*; as three *Aces*, or four *Knaves*, or *Tens*, *Queens*, or *Kings*: For instance, if both Parties should be 95 of the Game, and one has in his Hand 45, or 50 for Point, which we will suppose to be good; and the other a *Quint*, or a *Quatorze* of Aces, he who has the Point wins the Game, because it is to be reckoned first; and the rest have the same Preference according to their Ranks. If one be 99 of the Game before he plays down the first Card, he plays it up if it be a tenth Card, tho' he loses the Trick. If the Parties are 99 each when they are to play down, the Leader must win the Game if he plays a tenth Card; because he tells as soon as he plays down, the other cannot till after the Trick is won. When the *Points*, *Tierces*, *Quartes*, or *Quintes*, are equal in both Hands, neither is to reckon any thing for them.

He who wins all the Tricks, instead of reckoning ten, which is his Right for winning the Cards, reckons 40: And this is called a CAPOT.

He who without playing down, can reckon up 30 in Hand, either in *Carte-Blanche*, Points, Quints, or *Quatorzes*, when the other has reckoned nothing, reckons 90 for them; and this is called a REPICQUE: And if he can make up above 30 in hand, he reckons as much above 90; *e. gr.* if he has 32, 33, or 34, he reckons 92, 93, 94, and so on.

He who can make up 30, part in hand and part by Play, before the other has told any thing, reckons them for 60; and this is called PICQUE. But if when he makes his 30, he should, by Mistake, omit saying 60, and reckon only 30, and so go on with 31, 32, and in playing the Cards out in this manner, he should afterwards recollect his Error, and reckon 30 more for the *Picque*; he is not to lose the Benefit of his *Picque*: But if he has marked up his Game, and the Cards are cut, and distributing for the Deal following, it is too late to recall, and his Game must stand as it is marked.

There is a great Number of Accidents attending this Game, and which are attended with Penalties: for,

1. If the Dealer by Mistake, or otherwise, should give a Card too many, or too few, it is at the Option of the eldest Hand either to play the Game, or make him deal again.

2. If the eldest having 13 Cards dealt him, will play, he must lay out 5 Cards and take in but 4; and if he plays when he has but 11 Cards dealt he must lay out a Card less than what he takes in. The Dealer is to do the same, if 11 or 13 Cards fall into his Hand; with this Difference, that it is the Choice of the eldest to play, or make him deal again.

3. If one should have 15 Cards, or but 9 dealt him, which may happen when the Dealer does not think what he is doing; in this Case the Cards must be dealt again, and neither have Power to hinder it.

4. He that has *Carte-Blanche*, *Point*, *Quinte*, or *Quatorze* in his Hand, and plays down a Card before he remembers to name it, loses the Benefit thereof; and so he does of every thing that is to be told in Hand, if he does not name them before he plays down.

5. If one Party names his *Point*, and the other allows it to be good, and does not remember to shew it before he plays down a Card, he must not reckon it; the same must be said of *Tierces*, *Quartes*, and *Quintes*, if he forgets to shew them before he plays down a Card; which gives an Opportunity to his Antagonist of telling his *Points*, *Tierces*, *Quartes* or *Quintes*, &c. though they are not so good; but the Antagonist must likewise shew them before he plays down to the Leader's Card, otherwise he loses the Right of reckoning them as well as the other.

6. He that has *Threes*, or *Quatorzes* of *Aces*, *Kings*, *Queens*, *Knaves*, or *Tens*, is not obliged to shew them.

7. If one should count a *Three* or *Quatorze*, which he has not in his Hand, though he laid it out by Mistake; or otherwise, if the other finds it out at any Time, before the Cards are cut for the next Deal, he cuts him off from all he reckoned, and he is to count nothing that he got by the Deal. And if the eldest should count 3 Aces when he laid out one of them, and the other three Kings, or any thing else, he shall count his three Kings, though he does not discover the other's false Reckoning till the End of the Deal. But it must be observed, that though he who reckons false, can count nothing by the Deal, yet what he has in his Hand may hinder the other, and save a *Picque* or a *Repicque*: As for Example, he who counts 3 Aces false, and has a *Quint-Major* in his Hand, though he cannot count for it, yet it cuts the other off from counting one inferior *Quint*, *Quarte* or *Tierce*.

8. He that takes in a Card more than he lays out, counts nothing; but he that takes in a Card less than he lays out, may count his Game; and must play Card for Card with the other as long as his Cards last.

9. When one has 12 Cards and the other but 10; if he who has the 12 Cards should win 10 Tricks successively, then he has 2 Cards left in his Hand, which we'll suppose to be the King of *Spades*, and any small Card of another Suit; the other has but 1 Card, which we'll suppose to be the Ace of *Spades*; if the first plays his small Card, the other must play the Ace of *Spades* to it. Thus he suffers a *Capot* for Want of another Card; and this seems just, because it was his own Fault that he wanted a Card.

10. When one Card is once played out of Hand, it cannot be taken up again, unless it be the Case of a *Renounce*; if then by Mistake, one should throw down a Card of a different Suit when he has one of the same in his Hand, he may take it up again and play down the other.

11. If the Leader should play a King, and the other having the Ace of the same Suit in his Hand, should, in Surprize, play a small Card of the same Sort, he cannot recall it, but must be content to lose the Trick.

12. If a Player has three *Aces* in his Hand, and by Mistake, should count three *Kings* instead of three *Aces*, he counts nothing that Deal, provided he does not recollect his Mistake before he plays down his first Card; if he does he saves the Penalty.

13. If when the Deal is half played out, one of the Parties expecting to win no more Tricks, should throw up the Cards, and mix them with the rest; if he repents after, and would take his Cards up again, he is not allowed: But if they are not mixed with the rest he may take them up again, and play out the Deal.

14. When the Cards are play'd out, except two or three on one Side, and one supposing the other's Cards to be better than his own, should throw them down; but finding himself mistaken, he takes up his Cards again, he shall be oblig'd to play what Card the other directs him.

15. It is not allow'd in any Case to discard twice; nor to look before discarding, to examine the Cards you are to take in, even on the Outside, lest they should be known by their Back.

16. He that takes in first, should always tell how many he leaves, if he does not take in all his five; that the other may discard accordingly.

17. He that takes in a Card too many, and perceives it before he looks on them, may turn it back again, unless he mixes it with the rest of his Game; in which Case he loses the whole Profit of that Deal, and reckons nothing.

18. If any one takes the Cards to deal when it is not his Turn, and should deal them all out; and if the other examines his Cards, provided he that dealt by Mistake has not looked on his Cards also; he may throw them up to be dealt by the other.

19. If the Person who is to speak first, should shew a *Point*, or a *Tierce*, *Quarte*, or *Quinte*, &c. or a *Three*, or *Quatorze* of any Thing, which the other two should allow to be good; if, after this, he should find he was mistaken, and that he has a better of that Sort than the Eldest shew'd, he may count it afterwards: And

And he suffers nothing by this Mistake, provided there be not a Card play'd down.

20. He that has nothing in his Hand, but the *Carte-Blanche*, saves a *Picque* or a *Repique*.

21. If you should have in your Hand three Aces, three Kings, three Queens, three Knaves, or three Tens, and in discarding lay out one, or either of these, you are to count but three: Then the other may ask you which *Ace*, which *King*, &c. you laid out, and you are oblig'd to tell him; and if he requires it, you must shew him which you laid out.

22. If it should happen that the Pack should be false, (as sometimes there may be two Cards of a Sort) when it is found out, that Deal goes for nothing; but if you have play'd several Deals before with the same Pack, they are all good. If the Pack should be found false, the very first Deal you play you must adjust the Pack, and begin again; but you are not to cut again for Deal, for the first Cutting stands good.

23. Every Gamester is to lay his Discard near himself; which he has the Liberty of looking on as often as he pleases.

24. He that cuts the Cards is not to look at the Bottom; if he should, forgetting what he was about, they must be shuffled, and cut again.

25. Whoever is found taking a Card in, that he had laid out before, loses the Game.

26. When by Mistake one has taken a Card in, more than he had laid out before; and to avoid the Penalty, which is of reckoning nothing that Deal, he should attempt secretly to lay it out again, he is to lose the Game.

BASSET, is reckoned one of the most polite Games of the Cards, and only fit for Persons of the first Rank to play at.

The *Tailleur*, or *Dealer*, who keeps the *Bank* at *Basset*, having the sole Disposal of the *first* and *last* Card, with other considerable Privileges in dealing the Cards, and consequently a greater Prospect of gaining than those who play; the late King of *France* made a publick Edict, that the Privilege of a *Tailleur*, or one who keeps the *Bank* at *Basset*, should only be allow'd to *Cadets*, or younger Brothers of a noble Family; supposing, that whoever keeps the *Bank* must, in a very short Time, acquire a considerable Fortune: But all other Persons, for fear of ruining private Families, were *there* confined politically to a twelve-penny Bank, though here they have the Liberty of staking what they please.

The *Basset* has Terms particular to itself; *viz.* *Tailleur*, *Croupier*, *Punter*, *Fasse*, *Couch*, *Paroli*, *Masse*, *Pay*, *Alpieu*, *Sept-et-le-va*, *Quinze-et-le-va*, *Trente-et-le-va*, and *Soissante-et-le-va*.

The TAILLEUR, is the *Bank-Keeper*, who lays down a Sum of Money before all that play, to answer every winning Card, which shall appear in his Course of dealing.

The CROUPIER, is one who is assistant to the *Tailleur*, and stands by to supervise the losing Cards; that when there are a considerable Company at Play, he may not lose by overseeing any Thing which might turn to his Profit.

The PUNTER, is every Gamester who plays.

The FASSE, is the first Card that is turn'd up by the *Tailleur*, belonging to the whole Pack, by which he gains half the Value of the Money that is laid on every Card of that Sort by the *Punters*.

The COUCH, is the first Stake that every *Punter* lays upon each Card; every one who plays having a Book of 13 Cards before him, upon which he may lay his Money, more or less, according to his Fancy.

The PAROLI, is when whoever won the *Couch*, and having a Mind to go on to get a *Sept-et-le-va*, crooks the Corner of his Card, letting his Money lie, without being paid the Value of it by the *Tailleur*.

The MASSE, is when those who have won the *Couch*, and will venture more upon the same Card, who knows, or ought to know, the great Advantages the *Tailleur* has, and therefore should be subtle enough to make the best of his own Game.

The PAY, is when the *Punter* has won the *Couch*; and being fearful to make the *Paroli*, leaves off; for by going the *Pay*, if the Cards turn up wrong, he loses nothing, having won the *Couch* before; but if by this Adventure, Fortune favours him, he wins the Money that he staked.

The ALPIEU, is much the same as the *Paroli*; and like that Term, is used when a *Couch* is won by turning up, or crooking the Corner of the winning Card.

SEPT-ET-LE-VA, is the first great Chance, that shews the Advantages of the Game, *viz.* if the *Punter* has won the *Couch*, and then makes a *Paroli* by crooking the Corner of his Card, and going on to a second Chance, his winning Card turns up again, it comes to a *Sept-et-leva*, which is seven Times as much as he laid upon his Card.

QUINZE-ET-LE-VA, is attending the *Punter*'s Humour, who perhaps is resolved to follow his Fancy, and still lay his Money upon the same Card, which is done by crooking the third Corner of his Card, which coming up by the dealing of the *Tailleur*, makes him win fifteen Times as much Money as he staked.

TRENT-ET-LE-VA, is mark'd by the *Punter*'s crooking or bending the End of the fourth Corner of his Card; which coming up, makes him win 33 Times as much Money as he staked.

SOISSANTE-ET-LE-VA, is the highest Chance that can happen in the Game, for it pays 67 Times as much Money as is staked, and is seldom won but by some *Punter*, who resolves to push the Extreme of his good Fortune to the Height: It cannot be won but by the *Tailleur*'s Dealing the Cards over again, which, if his winning Card turns up, pays him with such a prodigious Advantage, and by the Courage and extraordinary Luck of a pushing *Punter* at this Game, some great Stake with *Soissante-et-le-va*, may turn up, and by that Means break the *Banker*.

Being thus informed of all the Terms of the Game, we'll play at *Basset*; or to speak more properly, some of my Pupils, who have Money, may, if they please, provided they don't ruin themselves and Family, sit round a Table, the *Tailleur* in the Midst of them, with the Bank of Gold and Silver before him, and the *Punters* each having a Book of 13 Cards, laying down 1, 2, 3, or more, as they please, with Money upon them, as Stakes; then the *Tailleur* takes the Pack altogether in his Hand, and turns them up, the bottom Card appearing is called the *Fasse*, and pays him half the Value of the Stakes laid down by the *Punters* upon any Card of that Sort.

After the *Fasse* is turned up, and the *Tailleur* and *Croupier* have look'd round the Cards on the Table, and taken half the Advantage of the Money laid on them, he proceeds in his Deal, and the next Card appearing, whether the King, Queen, Ace, or whatever it be, wins forr the *Punter*, who may receive, if he has laid Money on such a Sort of Card, the Value; or making *Paroli* go on to *Sept-et-ve-la*. The Card after that, wins for the *Tailleur*, who takes Money from each *Punter*'s Card of that Sort, and brings it to his Bank.

The *Tailleur*, if the winning Card be a King, and the next appearing after it be a Ten, says (shewing the Card that appears to all the *Punters* round) *King wins*, *Ten loses*; pays the Money to such Cards as are of the winning Sort, and takes that to supply his Bank from those who lose; this done, he goes on with the Deal; as *Ace* wins, *Five* loses; *Knave* wins, *Seven* loses; and so every other Card alternately *winning* and *losing*, till all the Pack be dealt to the last Card, which turns up with an Advantage to the *Tailleur*; because by the Rule of the Game, which was contrived for his Benefit, tho' it be turned up, and the *Punter* may happen to have staked upon one of the same Sort, yet it is allow'd as one of his Dues, in relation to his Office, and he does not pay any Thing.

Note, That I do not think it necessary to enter here into a Detail of the Games common in *England*, as

as *Whisk*, *Put*, *Cribbidge*, &c. since almost every Body is acquainted with them; and would be of no other Service here, than to render this Treatise too voluminous; therefore I'll pass from *Basset* to those Games which are partly of Chance, and partly of Address, as the *Grande* TRICK-TRACK, and *Back-Gammon*, &c.

The *Grand* TRICK TRACK, is also of *French* Extraction, and commonly played by Persons of the first Quality. The most ready Way to learn this Game for a young Gamester, is to see it performed by two Masters; and then with the following Instructions, he will presently be let into the Secret.

1. It must be observed, that besides the Table-men with which you play, and which are to be placed on the Side of the Tables, there are three other Pieces used called *Markers*, whether Half-crowns, or Half-pence, or any other Coin. These *Markers* are to mark the Throw of your Dice, on the Points of the Tables which are advantageous to you: For Example, if in your first Tables you make single *Toots* in 3 Casts, you mark with one *Marker* 4.

2. The 12 Holes on the Sides of your Tables, with Pegs in them, are also used to mark the Game; for 12 Marks gained on the Points of your Tables, make one Hole, and the 12 Holes commonly make up the Game.

3. If you fill up your Points for every single Throw on the Dice, you make 4, and for *Doublets* 6; and may hold your Game as long as you think proper.

4. If you hold with your double Men on your Tables before you can make a Point, and your Adversary cannot fill his Table, you are obliged with your Man to pass over into his Tables, though it be commonly a Disadvantage; but if he throw so well as to fill up, then it alters the Marker and it cannot pass. As to those Men that are obliged to pass over into the Adversary's Tables, if he hits them he marks thus: For every single Throw 4, for *Doublets* 6; and if at any Time in throwing, you can mark over and above 12, you must then mark a Hole, or else 2 if you go double, and the Overplus remaining is called *to the Good*, provided you do not stake your Game.

5. You cannot go off nor break your Game by your Adversary's Throws; and if you chance to make more or less than is right, it is in his Power to take the Advantage, put you back, or oblige you to mark full.

6. If in playing this Game you touch a Man rashly, as intending to play it, and think to change it for another, you are obliged to play it as you before intended. This is what is most considerable in your *first Tables*.

As to your Adversary's second Tables; for every Man you hit of his with a single Die, you mark but 2, and for *Doublets* 4; though in his first *Tables* 4 for each single Die, and 6 for *Doublets*. If you chance to hit a Blot or two in his Tables and cannot pass, by reason of his Men standing in your Way and hindering you, he may make the Advantage of marking by your own Throws in both *Tables*.

The *Ace-Point* of both Corners in the second *Tables* cannot be divided here, nor fill the Corners, as at other Games; though in lieu of that Convenience, if the Dice favour, for each single Cast, you mark 4; and for *Doublets* 6.

As to that Part of the Game called *Gens de Retour*, or the *back Game*, which is the latter Part: Next bearing off your Men, as it is used in *Back-Gammon*, you play your Men as fast as you can into his Tables, endeavouring to fill up the Points as at the *fore Game*; which being done, you bear off your Men, only there is a Distinction between this and *Back-Gammon*, that as *Doublets* thrown at the last Cast give considerable Advantage to the Gamester there, it is here of no Value, nor gives any Addition to the Throw.

If at any Time you break up your Tables, and disorder your Men (except by gaining 12 Points you can mark a Hole) it is in your Adversary's Power to oblige you to hold your Game on still, and to play all the Table-men, you have so touched and disordered, to his own Advantage.

The *single* may be distinguished from the *double* in this Manner: If your Adversary, by his ill Fortune in throwing, has no Points marked on his Table, altho' your Throw is single, yet still you may mark a double Point; but if otherwise he has such good Luck by the Dice to have any Point to mark, then he coins double, which you are to take off again if you can hit him.

BACK-GAMMON, is an ingenious Game, and requires a great deal of Skill to play it well. The Men, which are 30 in Number, are equally divided between you and your Adversary, and are thus placed; 2 on the *Ace-Point*, and 5 on the side of your left-hand Table, and 3 on the Cinque, and 5 on the Ace-point of your right-hand Table, answered on the like Points by your Adversary's Men with the same Number; or thus, 2 of your Men on the *Ace-point*, 5 on the double *Sice*, or Sice-cinque Points, 3 on the *Cinque-point* in your Tables, and five on the *Sice-point* at home, and all these pointed alike by your Adversary.

In your Play have a Care of being too forward; and be not rash in hitting every Blot, but with Discretion and Consideration, move slowly but securely; by which Means, though your Adversary has filled his Tables, but with all Blots, and you by hitting him enter, you may win the Game; nay, sometimes tho' he has borne his Men all to a very few.

It is the Part of a prudent Commander as he leads out his Men, to bring them home as safe as possible: So must you have a Care of your Men as you are bringing them home, that they are not picked up by the Way.

Be sure to make good your *Trey-ace-points*; hit boldly, and come away as fast as you can; to which end if your Dice run high, you will make the quicker Dispatch.

When you come to bearing, have a Care of making when you need not; and *Doublets*, now, will stand you most in stead. If both bear together, he who is first off without *Doublets*, wins one. If both bear, and one goes off with *Doublets*, he wins two.

If your Table be clear, before your Adversary's Men be come in, that is a *Back-Gammon*, which is three; but if you thus go off with *Doublets*, it is 4.

Note, The Business of Chance, or Hazard, is of mathematical Consideration, in as much as it admits of more or less. It is, or is supposed to be an Equality of Chance, upon which the Gamesters set out: This Equality is to be broke in upon during the Course of the Game, by the greater good Fortune, or Address of one of the Parties; upon which he comes to have a better Chance; so that his Share in the Deposite, or Stakes, is, now, proportionably more, or better, than at first; this more and less is continually varying, and runs through all the Ratio's between Equality, and infinite Difference; or from an infinitely little Difference, till it arrives at an infinitely greater one, upon which the Game is ended. The whole Game therefore, with respect to the Event, or Issue thereof, is only a Change of the Quantity of each Person's Share, or Chance; or of the Proportion their two Shares bear to each other; which Mathematicks alone can measure.

Hence several Authors have computed the Variety of Chance, in several Cases and Circumstances that occur in *Gaming*; particularly M. *de Moivre*, in a Treatise, *de Mensurâ Sortis*; which as it may either be of Service to the practical Gamester, or the better, in teaching them on what Side the Advantage lies; and whether they lay on the Square, or to the speculative one, in letting him into the Way of thinking, and determining in such Cases, we shall here give the Reader an Abstract of.—Suppose p the Number of Cases wherein an Event may happen,

happen, and q the Number of Cases wherein it may not happen; both Sides the *Contingent* and *Non-contingent*, have their Degrees of Probability; and if all the Cases wherein the Event may, and may not happen, be equally easy; the Probability of the happening to that of not happening, will be as p to q.

If two Gamesters, A and B, engage on this footing, that if the Cases p happen, A shall win; but if q happen B shall win; and the Stake be a Chance, or Expectancy of A will be $\frac{pa}{p+q}$; and that of B $\frac{qa}{p+q}$; consequently if A or B sell their Expectancies, they should have for them, $\frac{pa}{p+q}$; and $\frac{qa}{p+q}$ respectively.

If there be two independent Events, and p be the Number of Cases wherein the first may happen, and q the Number of those, wherein it may not happen, and p the Number of Cases, wherein the second Event may happen, and s the Number of those wherein it may not happen; multiply $p+q$ by $r+s$; the Product, *viz.* $pr+qr+ps+qs$, will be the Number of Cases, wherein the Contingency, or Non-contingency of the Events may be varied.—Hence if A lay with B, that both Events shall happen, the Ratio of the Chances will be as ps to $pr+qr+qs$. And if there were three, or more Events, the Ratio of the Chances would be found by Multiplication alone.

If all the Events have a given Number of Cases wherein they may happen, and also a given Number of Cases, wherein they may not; and a be the Number of Cases wherein any one may happen; and b the Number of Cases wherein it may not; and n be the Number of all the Events; raise $a+b$ to the Power of n.

If now A and B agree, that if one or more of the Events happen, A shall win; if none, B; the Ratio of the Chances will be, as $a+b^n-b^n$ to b^n; for the only Term where a is not found is b^n.

If A *and* B *play with a single Die, on this Condition, that if* A *throws two or more Aces at eight Throws, he shall win; otherwise* B *shall win; what is the Ratio of their Chances?*—Since there is but one Case wherein one *Ace* may turn up; and five wherein it may not; let $a=1$, and $b=5$. And again, since there are eight Throws of the Die, let $n=8$; and you will have, $\overline{a+b}|^n-b^n-nabn-1$, to $b^n+nabn-1$; that is, the Chance of A, will be to that of B, as 663991, to 10115625; or nearly as 2 to 3.

A *and* B, *are engaged at single Quoits, and after playing sometime,* A *wants* 4 *of being up; and* B 6, *but* B *is so much the better Gamester, that his Chance against* A *upon a single Throw, would be as* 3 *to* 2, *what is the Ratio of their Chances?*—Since A wants 4, and B 6, the Game will be ended at nine Throws at most; therefore raise $a+6$ to the ninth Power, and it will be $a^9+9a^8b+36a^7bb+84a^6b^3+126a^4b^5+84a^3b^6+36aab^7+9ab^8+b^9$: and take all the Terms wherein a has 4 or more Dimensions, for A; and all those wherein it has 6 or more, for B: and the Ratio of the Chances will be as $a^9+a^9b+36a^7bb+84a^6b^3+126a^5b^4+126a^4b^8$, to $84a^3b^6+36aab^7+9ab^8+b^9$. Call a, 3; and b, 2; and you will have the Ratio of the Chances in Numbers 1759077 to 194048.

A *and* B, *are to play with two single Quoits; and* A *is the best Gamester, so that he can give* B 2 *in* 3; *what is the Ratio of their Chances then in a single Throw?*—Suppose the Chances as z to 1; and raise $z+1$ to its Cube; it will be $z^3+3zz+3z+1$. Now since A could give B 2 out of 3; A might undertake to win three Throws running; and consequently the Chances in this Case will be as z^3 to $3zz+3z+1$. Consequently, $z^3=3zz+3z+1$, or $2z^3=z^3+3zz+3z+1$; and therefore $z\sqrt[3]{2}=z+1$; and consequently $z=\frac{1}{\sqrt[3]{2}-1}$. The Chances therefore are $\frac{1}{\sqrt[3]{2}-1}$, and 1 respectively.

To find the Number of Cases, wherein any given Number of Points may be thrown with a given Number of Dice. Let $p+1$, be the given Number of Points; n the Number of Dice; and f the Number of Sides or Faces of each Die; Let $p-f=q$, $q-f=r$, $r-f=s$, $s-f=t$, &c. the Number of Cases will be,

$$+\frac{p}{1}\times\frac{p-1}{2}\times\frac{p-2}{3},\ \&c.$$
$$-\frac{q}{1}\times\frac{q-1}{2}\times\frac{q-2}{3},\ \&c.\times\frac{n}{1}.$$
$$+\frac{r}{1}\times\frac{r-1}{2}\times\frac{r-2}{3},\ \&c.\times\frac{n}{1}\times\frac{n-1}{2}.$$
$$-\frac{s}{1}\times\frac{s-1}{2}\times\frac{s-2}{3},\ \&c.\times\frac{n}{1}\times\frac{n-1}{2}\times\frac{n-2}{3}.$$

which Series is to be continued till some of the Factors either become equal to nothing, or negative. And note, some Factors of the several Products $\frac{q}{1}\times\frac{p-1}{2}a\frac{p-2}{3}$, &c. $\frac{r}{1}\times\frac{r-1}{2}\times\frac{r-2}{3}$, &c. $\frac{s}{1}a\frac{s-1}{2}$, &c. are to be taken as there are Units in $n-s$.

The *Romans*, besides their *sacred*, and *honorary Games*, had also *ludicrous Games*, which were of the same kind with the *Games* of Exercise and Hazard among us. Such were the *Ludus Trojanus*, or *Pyrrhius*; the *Tesseræ*, and *Tali*, or Die, and the *Latrunculi*, or Chess; the *Discus*, or Quoit; the *Pila*, Ball; *Trochus*, Top; *Nuces*, Nuts; *Harpustrum*, Foot-Ball; *Capita vel Navem*, Cross and Pile, *&c.*

The *Trojan* GAMES were instituted by *Ascanius*, Son of *Æneas*, and which afterwards passed to the *Romans*, and were celebrated in the Circus by the Youth of *Rome*. One of the Number who presided at the Solemnity, was called *Princeps Juventutis*; and was always of one of the first Families of *Rome*.

At first, it is supposed, they only engag'd on Foot, and on Horseback; because *Virgil*, who describes these Games in the *Æneid*, *Lib.* 5. only speaks of Horses and Cavaliers, without any Mention of *Bigæ*, and *Quadigæ*, which were not in Use at *Rome*, till long after *Ascanius*. And yet *Dion*, speaking of *Cæsar*'s Games, says, the Youth there combated in Chariots; but it is thought by some, that these were not the *Trojan Games*, but Races and Combats of a different Kind, proper for young People of a more advanced Age.

Others distinguish the antient *Games* into three Classes, *viz.* *Races*, *Combats*, and *Spectacles*. The first were called *Equestrian*, or *Curule Games*, *Ludi Equestres*, or *Curules*; being Races of Horses and Chariots, perform'd in the Circus in honour of the Sun and *Neptune*. There were six Kinds of Exercises in the Circus; the first Wrestling, fighting with Swords, with Staves, and with Pikes; the second was Racing; the third *Saltatio*, Dancing; the fourth *Disci*, Quoits, Arrows, and *Cestus*, all which were on Foot; the fifth was Horse-coursing; the sixth Courses of Chariots, whether with two Horses, or with four. In this last Exercise the Combatants were first divided into two Squadrons or Quadrils, then into four, each bearing the Name of the Colours they wore. *Factio Alba*, *Russea*, &c. at first they were only white and red; then green was added and blue. *Domitian* added two more Colours, but they did not hold. It was *Ænomaus* who first invented this Method of distinguishing the Quadrils by Colours. The Green was for those who represented the Earth; the Blue for the Sea, *&c.*

The second were called *Agonales*, and *Gimnici*, being Combats of Men or Beasts, in the Amphitheatre dedicated to *Mars* and *Minerva*.

The *Gymnici Ludi*, or *Gymnick Games*, were also Games of Exercise, *viz.* Wrestling, Running, Dancing, the Use of the Lance, Quoit-Playing, *&c.* It was these made the chief Diversions of the *Olympick*, *Nemæan*, *Pythian*, and *Isthmian* Solemnities.

The last called *Scenici*, *Poetici*, and *Musici*, were

Tragedies, Comedies, Balls, *&c.* represented on the Theatre sacred to *Venus*, *Apollo*, and *Minerva*.

Homer gives us a fine Description of the *Games* which *Achilles* instituted at the Funeral of his Friend *Patroclus*, in his *Iliad*; and others of the different *Games* held among the *Pheaci*, *Ithacans*, and at the Court of *Alcinous*, in his *Odyssee*. *Virgil*'s Description of the *Games* celebrated by *Æneas*, at the Funeral of old *Anchises*, is not inferior to any of them.

GAUGING.

GAUGING, is the Art or Act of measuring the Capacities, or Contents of all Kinds of Vessels; and determining the Quantity of Fluids, or other Matters contain'd therein. Or rather the Art of reducing the unknown Capacity of Vessels of divers Forms, cubical, parallelopedal, cylindrical, spheroidal, conical, *&c.* to some known cubick Measure; and of computing, for Example, how many Gallons, Quarts, Pints, or the like of any Liquor, *e. gr.* Ale, Beer, Wine, Brandy, *&c.* are contained therein.

The principal Vessels that come under the Operation of *Gauging*, are Pipes, Barrels, Rundlets, and other Casks; also Backs, Coolers, Fats, *&c.* and the Persons who practise that Art are called *Gaugers*, who are Officers appointed by the King, to *gauge*, or measure all Casks, Tuns, Pipes, Barrels, Hogsheads, of Beer, Wine, Oil, *&c.* and to give them a Mark of Allowance (which is a Circle burnt with an Iron) before they be sold in any Place within the Extent of this Office.

The easiest and aptest Ways for Practice in *Gauging*, are those perform'd by the Help of Tables, or *Gauging-Rods*, purposely composed upon sliding Rules, of nine Inches or a Foot long; but before we give the particular Constructions of those Rods, and instruct our Pupil how to use them, I'll insert here some arithmetical Questions, on which those *Gauging-Rods* were first composed.

1. To find the *Area* of any square Tun, Back, or Cooler, either in Ale or Wine Gallons; the given Length or Breadth must be multiplied into itself, and the Product will be the *Area* in Inches; then that *Area* is divided by 282, which gives the *Area* in Ale-Gallons; and by 231, and the Quotient gives it in Wine Gallons: For Example, suppose the Side of a square Tun, Back, or Cooler, be 124. 5 Inches, what will be its Content in Ale and Wine Gallons?

	Area in Inches.
First, 1245 multiplied by 1245, gives in the Product,	15500. 25.
	Gal. In.
Then 15500. 25 divided by 282, gives the Quotient in Ale Gallons,	54. 96.
	Gal. In.
And 15500. 25 divided by 231, gives in the Quotient the *Area* in Wine Gallons,	76. 10.
	Gal. In.
So that the Answer is for Ale,	54. 96.
And for Wine, —— ——	76. 10.

Note, That the Ale Gallon contains 282 cubical Inches, and that a Wine Gallon contains 231.

2. Suppose a Cask whose Diameter at the Bung is 31. 5, and at the Head 245, and its Length 42 Inches, what will be the Content in Ale Gallons, and Wine Gallons? Unto twice the *Area* of the Bung Circle, must be added the *Area* of the Head Circle; and their Sum multiplied into one Third of the Length, and the Product will be the Content in their respective Gallons.

	Gal. In.
First, 31. 5, multiplied by 31. 5, is	1984. 5.
And 24. 5, multiplied by 24. 5, is	600. 25.
Again, 1984. 5, added to 600. 25, makes	2584. 75.
And 2584. 75, multiplied by 42 Inches, makes ——	108559. 5.
	Ale.
Then 108559. 5, divided by 1077. 15, gives in the Quotient the Content in Ale Gallons,	100. 78.
	Wine.
And 108559. 5, divided by 882, 35, gives in the Quotient the Content in Wine Gallons, ——	123. 03.

Answer { 100. 78, *Ale Gallons*, 123. 03, *Wine Gallons*.

3. If the Diameter on the Head of a Vessel be 18 Inches, and at the Bung 32 Inches, and the Length is 40 Inches, what is the Content of that Vessel in Wine Gallons? Having found the Difference of the two Diameters at the Bung and Head of the Vessel, seven-tenths must be taken of that Difference; and the lesser Diameter added to it; then that Sum must be squar'd, and the Product reserv'd; that done, if the Content be requir'd in Wine Gallons, the Product reserv'd, this Decimal Fraction, 0034, and the Length of the Vessel must be multiplied one into the other (according to the Rule of continual Multiplication) so shall the last Product be the Number of Wine Gallons requir'd: But if the Content be requir'd in Ale or Beer Gallons, the Product before reserv'd, this Decimal Fraction, 00271, and the Length of the Vessel must be multiplied one into the other continually, so shall the Product be the Content in Ale Gallons. We'll explain this Rule by two Questions, one in Wine Gallons, and the other in Ale Gallons.

Question in Wine Gallons.

	Gal. In.
The Diameter at the Bung,	32. 0.
The Diameter at the Head,	18. 0.
Their Difference, ——	14. 0.
Which multiplied by seven-tenths, that is,	00. 7.
The Product will be ——	09. 8.
Which added to the lesser Diameter, gives the mean Diameter,	27. 8.
Which mean Diameter being squar'd (that is multiplied by itself) produces,	772. 84
Which said Product multiplied by,	0. 0034.
The Product then arising will be,	2. 6276+
Which multiplied by the Length of the Vessel, *viz.* — —	40. 0
The Product is the Number of Wine Gallons sought, — —	105. 1040+

Answer, 105. 1040+ *Wine Gallons*.

Note, The Superficies of any Figure is usually called its *Area*.

Question in Ale Gallons.

If the Diameter at the Bung of a Barrel of Ale be 25 Inches, the Diameter at the Head 20. 5 Inches, and the Length 32. 75 Inches, what is the Content of the Barrel in Ale Gallons?

	Gal. In.
The Diameter at the Bung,	25. 0+
The Diameter at the Head,	20. 5.
The Difference ——	4. 5.
Which multiplied by $\frac{7}{10}$, that is	0. 7.
The Product will be ——	3. 15.
Which added to the lesser Diameter gives the mean Diameter	23. 65
Which mean Diameter being squar'd, that is multiplied by itself, produces	559. 3225

Which

Which Product multiplied by	0. 0027
The Product thence arising is —	1. 5101+
Which multiplied by the Length of the Vessel produces	32. 75
The Product is the Number of Ale-Gallons sought, *viz.*	49. 452

Answer 49. 452 *Ale-Gallons.*

On the Foundation above-mentioned on the Reason of the Rule to be granted, *viz.* that in every Gallon of Wine there is 231 cubick Inches, and 282 cubick Inches are equal to an Ale-Gallon: The Decimal considered as the Base of one Wine-Gallon, or as 1 is to 0034, so is the Square of the equated Diameter, to the superficial Content of that Circle in Wine-Gallons, and Parts of a Gallon: And after the same manner, supposing as before, 282 cubick Inches are equal to an Ale-Gallon, the Decimal 0027 prescribed in the said Rule, will be found out.

But the *Gauging-Rods* or *Rules*, do this Business at once, and answer the Questions without so much Calculation; which is no inconsiderable Addition, both to the Ease and Dispatch of the Work. But before we can pretend of being capable to practise this instrumental Method of *Gauging*, we must give the Description of the *Gauging-Rod*, as it will be represented in our *Table of Surveying*, under the Letter S.

For the Construction of that *Rod*, the Diameter A B *fig.* 12. of a cylindrical Vessel, A B C D is taken that holds one of the Measures wherein the Fluid is estimated, *e. gr.* Gallons, and is joined to the indefinite Line A 7. from B to 1, a right Line is set off equal to A B; then B 1 is the Diameter of a Vessel which holds two Measures or Gallons, of the same Height as the former. Again A 2 = B 2, are let; then B 3 is the Diameter of a Vessel that holds three Measures, but of the same Height of that which only holds one: And after the same manner are found the Diameters of other larger Vessels, B 4, B 5, B 6, B 7, *&c.* Lastly, the several Divisions thus found, A 1, A 2, A 3, *&c.* are set off upon the Side of a Rod, or Rule; and the other the Height or Depth of a Cylinder that holds one Measure or Gallon, repeated as often as it will go. Thus is the *Gauging-Rod* compleat: For Cylinders that have the same Altitude, are to each other as the Squares of their Diameters; consequently the Square of the Diameter that holds 2, 3, or 4 Gallons, must be double, triple, or quadruple of that which only holds one. And since in the first A B = A 1, the Square of B 1 is double, that of B 2 triple, that of B 3 quadruple, *&c.* it is evident, that the right Lines A 2, A 3, A 4, *&c.* are the Diameters of the Vessels required. These Divisions therefore being applied to the Sides of a cylindrical Vessel, it will immediately appear how many Measures, *e. gr.* Gallons, a cylindrical Vessel of that Base, and of the Height of that which holds one Gallon, will contain. Wherefore, finding by the Divisions on the other Side of the Rod, how often the Height of one Gallon is contained in the Height of the given Vessel; and multiplying the Diameter before found by this Number, the Product will be the Number of Gallons the Vessel contains. Thus, *v. gr.* if the Diameter of the cylindrical Vessel be 8, and its Height 12, its Contents will be 96 Gallons.

Note, 1. The less you take the Height of the Cylinder, containing one Gallon, the greater will be the Diameter of the Base: Whence both that, and the Diameters of the Cylinders, containing several Gallons, will be more easily divided into lesser Parts. *Boyer* directs such Height to be only one Digit, or Tenth of an Inch. 2. The Diameters of Vessels holding one or more decimal Parts of a Gallon, will be had by dividing one or more decimal Parts of the Vessel holding a whole Gallon by its Height; which gives us the Area of the circular Base; and after the same manner the Diameters are found for the Divisions of Vessels, that hold two or more Gallons.

To find the Content of a Cask by the *Gauging-Rod*, that is, to determine the Number of Measures, *e. gr.* Gallons it will hold: The *Gauging-Rod* must be applied to the Vessel, as directed in the preceding Article; and both the Length of the Cask A C *fig.* 13. and both Diameters G H and A B found; and as we find by Experiment, how far soever it may be from geometrical Exactness, that a common Cask of this Form, may safely enough be reputed as a Cylinder, whose Base is a Medium between the Head and the Belly; we must find such Medium which is called the *equated Diameter*: Then multiplying the Number thus found, by the Length of the Cask A C; the Product will be the Number of Measures the Vessel contains. Suppose, *e. gr.* A B = 8, and G H = 12, and A C = 15; the equated Diameter will be 10; which multiplied by 15, gives the Capacity of the Cask 150 Measures. If it happens that the Diameter of the two Ends be not equal, they must be both measured, and half their Sum taken for the Diameter to work by.

There is another Method, whereby the Content of a Vessel is had without any Calculation at all, which obtains in divers Parts of *Germany* and the *Low Countries*: But as this supposes all Vessels to be similar to each other; and their Length double of the equated Diameter, that is, of half the Sum of the Diameters A B and G H; it is not safe to use it in all Places. *Kepler* however prefers it so much before all others, as including all the Precautions possible; that he recommends it to the Publick to enact it by Law, that all Casks be made in that Proportion.

The Method of *Gauging* (which chiefly obtains in *England*) are by the four Foot *Gauging-Rod*, and *Everard*'s *Sliding-Rule*.

The four Foot *Gauging-Rod* is usually made of Box, and consists of four Rules, each a Foot long, and about three Eighths of an Inch square, joined together by three Brass Joints; by which Means the Rod is rendred four Foot long, when the four Rules are quite opened, and but one Foot when they are folded together. On the first Face of this Rod marked 4, are placed two diagonal Lines, one for Beer, and the other for Wine; by means of which the Contents of any common Vessel, in Beer, or Wine-Gallons may be readily found, by putting the Rod in at the Bung-hole of the Vessel, till it meets the Intersection of the Head of the Vessel with the Staves opposite to the Bung-hole. For Distinction of this Line, there is writ thereon *Beer, and Wine-Gallons*. On the second Face, 5, are a Line of Inches, and the *Gauge Line*; which is a Line expressing the Areas of Circles, whose Diameters are the correspondent Inches in all Gallons. At the Beginning is writ *Ale Area*. On the third Face, 6, are three Scales of Lines; the first, at the End of which is writ *Hogshead*, is for finding how many Gallons there is in a Hogshead when it is not full, laying with its Axis parallel to the Horizon. The second Line, at the End of which is writ B. L. signifying a *Butt Laying*, is for the same Use as that for the Hogshead. The third Line is to find how much Liquor is wanting to fill up a Butt when it is standing: At the End of it is wrote B. S. signifying a *Butt Standing*. Half way the fourth Face of the *Gauging-Rod*, 7, are three Scales of Lines, to find the Wants in a Firkin, Kilderkin and Barrel, lying with their Areas parallel to the Horizon, they are distinguished by Letters F. K. B. signifying a *Firkin*, *Kilderkin* and *Barrel*.

To find the Content of a Vessel in Beer or Wine-Gallons, with the diagonal Lines on the *Gauging-Rod*, the brass End of the *Gauging-Rod* must be put into the Bung-hole of the Cask, with the diagonal Lines upwards, and the Brass End thrust to the meeting of the Head and Staves: Then a Mark is made with Chalk on the Middle of the Bung-hole of the Vessel, and also on the diagonal Lines of the Rod, right against, or over one another, when the Brass End is thrust home to the Head and Staves. Then the *Gauging-Rod* is turned to the other End of the Vessel, and

and the Brass End thrust home to the End as before.

Lastly, it must be observed if the Mark made on the *Gauging-Rod*, come even with the Mark made on the Bung-hole, when the Rod was thrust to the other End; which if it be, the Mark made on the diagonal Lines will on the same Lines, shew the whole Contents of the Cask in Beer or Wine-Gallons. If the Mark made on the Bung-hole, be not right against that made on the Rod, when put the other Way; then right against the Mark made on the Bung-hole, must be made another on the diagonal Lines: And the Division on the diagonal Line between the two Chalks, will shew the Vessel's whole Contents in Beer or Wine-Gallons. Thus *e. gr.* if the diagonal Line of a Vessel be 28 Inches four Tenths, its Contents in Beer-Gallons will be near 51, and in Wine-Gallons 62.

If a Vessel be open, as a half Barrel, Tun, or Copper, and the Measure from the Middle on one Side, to the Head and Staves, be 38 Inches, the diagonal Line gives 122 Beer-Gallons; half of which, *viz.* 61, is the Content of the open half Tub. If you have a large Vessel, as a Tun or Copper, and the diagonal Line, taken by a long Rule, proves 70 Inches, the Content of that Vessel may be found thus: Every Inch at the beginning End of the diagonal Line must be called ten Inches; thus ten Inches become 100 Inches; and every tenth of a Gallon, must be called 100 Gallons; and every whole Gallon, 1000 Gallons. For Example: At 44.8 Inches, on the diagonal Beer Line, is 200 Gallons; so that 4 Inches 48 Parts, now called 44 Inches 8 Tenths, is just two Tenths of a Gallon, now called 200 Gallons: Thus also, if the diagonal Line be 76 Inches and 7 Tenths, a close Cask of such Diagonal will hold 1000 Beer Gallons: But an open Cask, but half so much, *viz.* 500 Beer Gallons.

To find the Content of any cylindrical Vessel in Ale Gallons, with the *Gauge-Line*: Seek the Diameter of the Vessel in Inches, and just against it, on the *Gauge-Line*, is the Quantity of Ale Gallons contained in one Inch deep; this multiplied by the Length of the Cylinder, will give its Content in Ale-Gallons. For Example: Suppose the Length of the Vessel 32.06, and the Diameter of its Base 25 Inches, what is the Content in Ale-Gallons? — Right against 25 on the *Gauge-Line*, is one Gallon, and .745 of a Gallon; which multiplied by 32.06, the Length gives 55.9447 Gallons for the Content of the Vessel.

The Bung Diameter of a Hogshead being 25 Inches, the Head Diameter 22 Inches, and the Length 32.06 Inches, to find the Quantity of Ale-Gallons contain'd in it, you must seek 25 the Bung Diameter on the Line of Inches; and right against it, on the *Gauge-Line*, you will find 1.745: Taking one Third of it, which is 5.80, and setting it down twice, you must seek 22 Inches the Head Diameter, and against it you will find on the *Gauge-Line* 1.356; one Third of which added to twice 580, gives 1.6096; which multiplied by the Length 32.06, the Product will be 51.603776, the Content in Ale-Gallons, provided the aforesaid Hogshead be in the Figure of the middle Frustum of a Spheroid.

The Use of the Lines, or the two other Faces of the Rod, is very easy; since it is only to be put down right into the Bung-Hole (if the Vessel you desire to know the Quantity of Ale-Gallons contain'd therein be lying) to the opposite Staves; and then where the Surface of the Liquor cuts any one of the Lines appropriated to that Vessel, will be the Number of Gallons contain'd in that Vessel.

Everard's SLIDING *Rule*, is ordinarily made of Box, a Foot long, an Inch broad, and $\frac{3}{10}$ of an Inch thick. It consists of three Parts; a Rule on each Side with Grooves, and two small Scales, or *Sliding* Pieces, which slide in the Grooves. When both these Pieces are drawn out to their full Extent, the Instrument is three Feet long. On the first broad Face of the Instrument are four Lines of Numbers; the first marked A, consisting of two Radius's, numbered 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; and then 2, 3, 4, 5, &c. to 10. On this Line are four Brass Centre-Pins, two in each Radius; one in each whereof is mark'd M B, to signify that the Number it is set against, 2150,42, is the cubick Inches in a Malt Bushel; the other two are marked with A, to signify that the Numbers they are set against, *viz.* 282, are the cubick Inches in an Ale-Gallon. The second and third Lines of Numbers, are on the *Sliding* Pieces, and are exactly the same with the first. Close to the Figure 7, in the first Radius, is a Dot marked S *i*, set exactly over 707, denoting .707 to be the Side of a Square inscribed in a Circle, whose Diameter is Unity. Close to 9 is another Dot, mark'd S *e*, set over .886, which is the Side of a Square, equal to the Area of a Circle, whose Diameter is Unity. Another Dot, nigh W, is set over 231, the Number of cubick Inches in a Wine-Gallon; and another near C, is set over 3.14, the Circumference of a Circle, whose Diameter is Unity. The fourth Line of Numbers, mark'd M D, to signify *Malt Depth*, is a broken Line of two Radius's, number'd 2, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1, 9, 8, 7, &c. the Number 1 being directly set against M B on the first Radius.

On the second broad Face, mark'd *c d*, are, 1. A Line of Numbers of one Radius, number'd 1, 2, 3, &c. to 10, noted by the Letter D, on this are four Centre-Pins; the first mark'd W G, is the *Gauge-Point* for a Wine-Gallon, *i. e.* the Diameter of a Cylinder, whose Height is an Inch, and Contents 231 cubick Inches, or a Wine-Gallon, which is 17.15 Inches; the second Centre-Pin A G, stands at the *Gauge-Point* for an Ale-Gallon, which is 18.95 Inches; the third M S, stands at 46.3, the Side of a Square, whose Content is equal to the Inches in a solid Bushel; the fourth M R, is the *Gauging-Point* for a Malt-Bushel, which is 52.32 Inches. — 2. Two Lines of Numbers on the *Sliding* Piece, which are exactly as those on the *Sliding* Piece on the other Side. Close to the Division 8 is a Dot mark'd *c*, which is set to .795, the Area of a Circle, whose Diameter is Unity; and another mark'd *d*, stands at .785, the Area of a Circle, whose Diameter is Unity. — 3. Two Lines of Segments, each number'd 1, 2, 3, to 100; the first for finding the Allage of a Cask, taken as the middle Frustum of a Spheroid, lying with its Axis parallel to the Horizon; and the other for finding the Allage of a Cask standing. — Again, on one of the narrow Sides, noted *e*, are 1. A Line of Inches, number'd 1, 2, 3, &c. to 12; each subdivided into ten equal Parts. 2. A Line by which, with that of Inches, we find a mean Diameter for a Cask, in the Figure of a middle Frustum of a Spheroid; it is number'd 1, 2, 3, &c. to 7, and mark'd Spheroid. 3. A Line for finding the mean Diameter of a Cask, in the Figure of a middle Frustum of a parabolick Spindle, which *Gaugers* call the second Variety of Casks; it is number'd 1, 2, 3, 4, &c. and noted *Second Variety*. 4. A Line by which we find the mean Diameter of a Cask of the third Variety, *i. e.* of a Cask in the Figure of two parabolick Conoids, abutting on a common Base; it is number'd 1, 2, 3, and noted *third Variety*. — On the other narrow Face, mark'd *f*, are, 1. A Foot divided into 100 equal Parts, mark'd *f* M. 2. A Line of Inches, like that before-mention'd, noted I M. 3. A Line for finding the mean Diameter for the fourth Variety of Casks, which is the middle Frustum of two Cones, abutting on a common Base; it is number'd 1, 2, 3, &c. and noted *f* C, signifying Frustum of a Cone. — On the Backside of the two *Sliding* Pieces, are, a Line of Inches, from 13 to 36, when the two Pieces are put End-wise; and against that the correspondent Gallons, or hundred Parts, that any small Tub, or the like open Vessel (from 13 to 36 Inches Diameter) will contain at one Inch deep.

After this Distinction of *Everard*'s *Sliding Rule*, we must apply it to the Use we intend to make of it in this Place, *viz. Gauging*. Beginning, by finding the Area in Inches, or in Wine, or Ale-Gallons, of the Diameter of a Circle given; and supposing that Diameter 20 Inches, will set 1 upon *D*, to .785 (noted

ted *d*) on C; then against 20 on D is 314.159 the Area required. Now to find that Circle's Area in Ale-Gallons, we'll set 18.95 (mark'd A G) upon D, to 1 on C; then against the Diameter 20 upon D, is the Number of Ale-Gallons on C, *viz.* 1.11. The same may serve for Wine-Gallons, having only Regard to the proper *Gauge-Point*.

The two Diameters of an Ellipsis being given, to find the Area in Ale-Gallons. Suppose the transverse Diameter 72 Inches, and the Conjugate 50; we'll set 359.05, the Square of the *Gauge-Point* on B, to one of the Diameters (suppose 50) on A; then against the other Diameter 72 on B, we will have the Area on A, *viz.* 10.02 Gallons, the Content of this Ellipsis at one Inch deep: The like may be done for Wine-Gallons, if instead of 359.05 we use 249.11 the Square of the *Gauge-Point* for Wine-Gallons.

To find the Area of a *Triangular Surface*, in Ale-Gallons: Suppose the Base of the Triangle 260 Inches, and the Perpendicular let fall from the opposite Angle 110 Inches; we'll set 282 (mark'd A) upon B to 130, half the Base on A; then against 110 on B is 50.7 Gallons on A.

To find the Content of an *Oblong* in Ale-Gallons: Suppose one Side 130 Inches, and the other 180; we'll set 282 on B, to 180 on A; then against 130 upon B in 82.97 Ale Gallons, the Area required.

To find the Content of a *regular Polygon*, in Ale-Gallons, one of the Sides being given: We find the Length of the Perpendicular let fall from the Centre to one of the Sides; this multiplied by half the Sum of the Sides, gives the Area. For an Instance: Suppose a Pentagon, whose Side is 1 Inch; here the Perpendicular will be found .837, by saying as the Sine of half the Angle at the Centre, which in this Polygon is 36°, is to half the given Side .5, so is the Sine of the Complement of 36°, *viz.* 54° to the Perpendicular aforesaid: Whence the Area of a Pentagon, whose Side is Unity, will be found 1.72 Inches; which divided by 282, give .0061 the Ale-Gallons in that Polygon.

To find the Content of a Cylinder in Ale-Gallons: Suppose the Diameter of the Base of the Cylinder 120 Inches, the perpendicular Height 36 Inches; we'll set, therefore, the *Gauging-Point* (A G) to the Height 36 on C; then against 120, the Diameter on D, is found 1443.6, the Content in Ale-Gallons.

The Bung and Head-Diameters of any Cask, together with its Length, being given; to find its Content in Ale or Wine-Gallons: 1. Suppose the Length of a Cask taken (as the middle Frustum of a Spheroid, which is the first Case or Variety) be 40 Inches, its Head-Diameter 24 Inches, and Bung-Diameter 32 Inches; we'll substract the Head-Diameter from that of the Bung, the Difference is 8. Then we look for 8 Inches on the Line of Inches, on the first narrow Face of the Rule; and against it, on the Line spheroid, stands 56 Inches, which added to the Head-Diameter 24, gives 29.6 Inches, for that Cask's mean Diameter; we set therefore the *Gauge-Point* for Ale (mark'd A G) on D, to 40 on C; and against 29.6 on D, is 97.45, the Content of the Cask in Ale-Gallons. If the *Gauge-Point* for Wine (mark'd W G) be used instead of that for Ale, we'll have the Vessel's Content in Wine-Gallons. 2. If a Cask of the same Dimensions as the former be taken (as the middle Frustum of a parabolick Spindle, which is the second Variety) we'll see what Inches, and Parts, on the Line mark'd second Variety, stand against the Difference of the Bung and Head-Diameters, which in this Example is 8; and we'll find 5.1 Inches, which added to 24, the Head-Diameter, makes 29.1 Inches, the mean Diameter of the Cask; we'll therefore set the Rule as before, and against 29.1 Inches, we'll have 94.12 Ale-Gallons for the Content of the Cask. 3. If the Cask taken be the middle Frustum of two parabolick Conoids, which is the third Variety; against 8 Inches, the Difference of the Head and Bung-Diameter, on the Line of Inches, we'll find 4.57 Inches on the Line call'd *third Variety*; this added, as before, to 24, gives 28.57 for the Cask's Mean-Diameter: Proceeding as before, we'll find the Content 90.8 Gallons. 4. If the Cask taken be the Frustums of two Cones, which is the *fourth Variety*, against 8 Inches, on the Line of Inches, we'll find on the Line mark'd *f* C 4.1 Inches, to be added to 24 Inches: The rest carried on as before, gives the Content of the Cask 87.93 Ale-Gallons.

A Cask partly empty, lying with its Axis parallel to the Horizon, to find the Quantity of Liquor therein, we find its whole Content as above; which suppose 97.455 Gallons, and suppose the Inches left dry 8, and the Bung-Diameter 32: Then as the Bung-Diameter on C is to 100 on the Line of Segments L, so are the dry Inches on C to a fourth Number on the Line of Segments: And as 100 upon B is to the Cask's whole Content on A, so is that fourth Number to the Liquor wanting to fill up the Cask; which subtracted from the whole Content of the Cask, gives the Liquor remaining therein: *E. gr.* Set 32, the Bung-Diameter on C, to 100 on the Segment Line L; then against 8, the dry Inches on C, stands 17.6 on the Segment-Line: Set therefore 100 on B, to the Cask's whole Content on A; and against 17.6 on B, you have 16.5 Gallons on A; subtracting therefore the said Gallons from 97.45, the Vessel's whole Content, the Liquor in the Cask will be 8.95 Gallons.

To find the Liquor in a Cask standing upright, or with its Axis perpendicular to the Horizon; suppose the Length of the Cask 40 Inches, and 10 of them dry; we'll set 40 Inches on the Line C, to 100 on the Segment Line S; and against 10, the dry Inches on the Line C, stand 24.2 on S, the Segment Line. Then we set 100 on B, to 97.455, the Cask's whole Content on A; and against 24.2 on B, we'll have 23.5 Gallons, which is what is wanting to fill up the Cask; this therefore subtracted from the whole Content 97.455, gives 73.955 Gallons, for the Quantity of Liquor remaining in the Cask.

GEOGRAPHY.

GEOGRAPHY, Γεωγραφια, (formed from Γη, *Terra*, Earth, and γραφω, *scribo*, to write) is the Doctrine or Knowledge of the Earth, both as in itself, and as to its Affections; or a Description of the terrestrial Globe, and particularly of the known inhabitable Part thereof, with all its Parts.

Geography is distinguished from *Cosmography*, as a Part from the whole; this latter considering the whole visible World both Heaven and Earth; and from *Chorography*, and *Topography*, as the whole from a Part.

CHOROGRAPHY, is the Description of a Kingdom, or Province; as of *France* or *England*, *Britanny* or *Middlesex*.

TOPOGRAPHY, is only the Description, or rather the Plan, of some particular Place; as of a City, Fortress, House, &c.

Golnitz considers GEOGRAPHY as either *interior* or *exterior*; but *Varenes*, more justly, divides it into *general* and *special*; or *universal* and *particular*.

General, or *universal* GEOGRAPHY, is that which considers the Earth in general, without any Regard

to particular Countries; or the Affections common to the whole Globe, as to its Figure, Magnitude, Motion, Land, Sea, &c.

Special or *particular* GEOGRAPHY, is that which considers the Constitution of the several Regions, or Countries; their Bounds, Figure, &c. with the Mountains, Forests, Mines, Waters, Plants, Animals, &c. therein; as also their Climates, Seasons, Heat, Weather, Distance from the Equator, &c. and their Inhabitants, Arts, Food, Commodities, Customs, Language, Religion, Policy, Cities, &c.

To proceed with the same Order, in this curious Treatise, I have observed in all the others, I'll begin by the general, or universal *Geography*.

The general, or univeral *Geography*, considers the *Earth* as a terraqueous *Globe*, or Ball, consisting of Land and Sea.

The Figure of this *Ball*, or Globe, is demonstrated to be nearly spherical thus: The Moon is frequently seen eclipsed by the Shadow of the Earth; and in all Eclipses, that Shadow appears circular, what Way soever it be projected, whether towards the East, West, North, or South, howsoever its Diameter vary, according to the greater or less Distance from the *Earth*: Hence it follows, that the Shadow of the *Earth*, in all Situations, is really conical; and consequently the Body that projects it, *i. e.* the Earth, is nearly spherical.

The natural Cause of this Sphericity of the Globe, is, according to Sir *Isaac Newton*, the great Principle of Attraction, which the Creator has stamped on all the Matter of the Universe; whereby all Bodies, and all the Parts of Bodies mutually attract one another.

We say that the Earth is nearly spherical; for the Inequalities on its Surface prevent its being perfectly so. Besides that *Huygens*, and Sir *Isaac Newton* have shewn, that the Earth is higher and bigger under the Equator, than at the Poles; so that its Figure, nearly, is that of an oblate Spheroid, swelling out towards the equatorial Parts, and flatted or contracted towards the Poles: The Ratio of the greater Diameter to the less, *Huygens* determines to be as 578 to 577. The Reason of this Inequality is deduced from the diurnal Rotation of the Earth on its Axis.

This Roundness of the *Earth* is farther confirm'd, by its having been frequently sail'd round: The first Time was in the Year 1519, when *Ferd. Magellan* made the Tour of the whole Globe in 1124 Days. In the Year 1557, Sir *Francis Drake* perform'd the same in 1056 Days: In the Year 1586, Sir *Thomas Cavendish* made the same Voyage in 777 Days: *Simon Cordes* of *Rotterdam* in the Year 1590; and in the Year 1598, *Olivert Noort*, a *Hollander*, in 1077 Days: *Will. Corn. Van Schaiten*, in the Year 1615, in 749 Days: *Jac. Heremite* and *Joh. Huygens*, in the Year 1623, in 802 Days: All of whom sailing continually from East to West, at length arriv'd in *Europe*, whence they set forth; and in the Course of their Voyage observed all the Phænomena, both of the Heavens and *Earth*, to correspond to, and confess this spherical Figure.

What the *Earth* loses of its Sphericity, by Mountains and Valleys, is nothing considerable; the highest Eminence being scarce equivalent to the minutest Protuberance on the Surface of a Lemon: What it loses by the swelling of the equatorial Parts, is more sensible.

Sir *Isaac Newton* makes the greatest Diameter 34 Miles bigger than the less, fixing the Ratio, as 692 to 688. If the *Earth* were in a fluid State, its Revolution round its Axis would necessarily make it put on such a Figure, by Reason the centrifugal Force being greatest towards the Equator, the Figure would there rise, and swell most: And that it should be so now, seems necessary to keep the Sea in the equinoctial Regions from overflowing the *Earth* thereabout.

In the Solidity of the *terraqueous Globe*, are imagined a *Point*, which is the Centre thereof, and four Lines, *viz.* the Diameter of the Globe, and three Axes, one of the terrestrial Globe, one of the Zodiack, and the other of the Horizon.

The CENTRE of the *terrestial* GLOBE is a *Point*, which we conceive in the Middle thereof; from which Point all the Right-Lines drawn to its Surface, are equal between themselves, and each form a Semi-Diameter.

The Centre of the *Globe* serves, 1. Of Foundation and Base to the Semi-Diameters. 2. It is the Centre of all the great Circles described around the Surface of the terrestrial Globe, and which divide it into two equal Parts. 3. It is esteemed, by the Vulgar, the Centre of the Universe.

The *Diameter* of the *Globe* is a right Line, drawn from one of its Extremity to the other, and which passes through its Centre. The Multiplication of the Circumference of the *Earth* by its *Diameter*, gives us the whole Extent of its Surface; and that *Surface* multiplied by the sixth Part of the same *Diameter*, gives us the Solidity of the Globe.

An infinite Number of *Diameters* can be drawn in the Solidity of the Globe, among which three are called Axis.

The *Diameter* which describes the Points of the North and South, is called the *Axis of the terrestrial Globe*; that which describes the Polar Circles, is called the *Axis of the Zodiack*; and the *Axis of the Horizon*, is the Diameter which shews the Zenith and Nadir of every Place.

The *Axis* of the *terrestrial Globe*, or its two Extremities, or Ends, mark on the Surface of the same Globe, two Points call'd *Poles*: The Vulgar imagine that round this *Axis*, not only the terrestrial Globe, but likewise the whole Universe turns.

The AXIS *of the Zodiack*, by its two Extremities, describes on the Surface of the Globe the two Polar Circles; and round that *Axis* the twelve Signs of the Zodiack are imagined to make their Course.

The *Axis* of the *Horizon*, by its two Extremities, gives us the Zenith and Nadir of every Place.

On the Surface of the *Globe* are conceived ten Points, and ten Circles.

Among the *Points*, four are call'd *Cardinal*, four *Collateral*, and two *Vertical*.

The four first *Points* are call'd *Cardinal*, i. e. principal, because they shew the four principal Parts, or Regions of the World, *viz.* the North, South, East, and West.

The *Points* of the North and South are esteem'd fix'd, and immobile, and are the same with the Poles, which we have said to be the Extremities of the Axis of the *terrestrial Globe*. They are call'd *Poles*, from a *Greek* Word, which signifies *to turn*; because the Heavens are imagined to turn round these two Points. One of those *Poles* is call'd *Arctick*, or of the *North*, because of the Constellation of the *Ursa*, call'd by the *Greeks* ἄρκτος; and by the *Latins*, *Septentrio*; from that Constellation being composed of seven Stars; under which that *Point* is mark'd on the Globes. The other *Pole* is call'd *Antarctick*, from its being diametrically opposite to the *Arctick*: We *Europeans* call it, likewise, the *Point* of the *South*, because it is towards the South with respect to us.

As these two Points are fix'd, they can serve for all the Parts of the terrestrial Globe; one under the Name of *Arctick*, and the other under that of *Antarctick*. And as for the Name of South, which we give to the *Antarctick*, it is only with respect to us, who are placed between the Equator and the North; because the northern Point is the southern Point, respectively to the *Point*, or antarctick Pole, and to all those who inhabit between that *Pole*, and the Equator.

The *East* and *West*, are mobile Points, which the Sun changes as often as it changes Meridians. These *Points* of the *East* and *West*, simply taken, must be understood of the Equinoxes, when Days are equal to Nights. The *East* is the Point where the Sun rises, and begins to appear by ascending on our Horizon, where

where he makes his Course on the Equator. The *West* is the *Point* where the Sun sets, and begins to disappear, in descending from our Horizon; when it rolls on the Equator.

These *Points* of *East* and *West*, though mobile, and though they be *East* and *West* respectively to one another, notwithstanding in the Chart, or Maps, of the Correspondence of the Globe with the Sphere, they are marked as fix'd at the Extremity of each Hemisphere; the *East* on the Right, and the *West* on the Left, and on the Equator.

The *Collateral* POINTS, are those laying between the Cardinal *Points*. Which are either *primary*, viz. those equi-distant from the two Cardinals, as *North-West*, *South-East*, &c. or *secondary*, which are again either of the *first Order*, viz. such as are equi-distant from a Cardinal, and the next *primary*, as North-North-East; or of the *second Order*, i. e. equidistant between a Cardinal or Primary, and first Secondary, as North-East by North.

The primary *collateral Points*, therefore, are 45° distant from the Cardinals; the first Secondaries 22° 30′ from the Cardinal, and next primary Collateral; and the Secondaries of the *second Order* 11° 15′ from a Cardinal, or first Collateral, and a second.

Some *Geographers* called these collateral Points, the *Summer-East*, and the *Winter-East*; the *Summer-West*, and the *Winter-West*; and called the *Summer-East* that Point where the Sun rises, and begins to appear on the Horizon, the longest Day of the Year; the *Summer-West*, that Point where the Sun sets, the same Day. The *Winter-East*, that Point where the Sun rises on the Horizon, the shortest Day of the Year; and the *Winter-West*, that Point where the Sun sets, the same Day.

These Risings and Settings of the Sun, in the longest and shortest Day of the Year, happen but when the Sun accomplishes his Course on the Tropicks; and though these four collateral *Points* be mobile, and roll always on the Tropicks, and consequently different from those which have different Meridians, they are, notwithstanding, marked as fix'd at that Place where the Tropicks are intersected by the *Colure* of the Equinoxes.

For the Use of the northern Hemisphere, *i. e.* of those placed between the Equator and the Arctick Pole, the *Summer-East* and *West*, are mark'd on the Tropick of Cancer, and the *Winter-East* and *West*, on that of Capricorn.

But for the Use of the meridional Hemisphere, *i. e.* of those situated between the Equator and the Antarctick Pole, the *Summer-East* and *West* must be placed, on the Tropick of Capricorn; and the *Winter-East* and *West*, on that of Cancer; so that the *Points* which are the *Summer-East* and *West*, at the northern Hemisphere, are the *Winter-East* and *West*, at the meridional Hemisphere; and the *Summer-East* and *West* of the meridional Hemisphere, are the Points of the *Winter-East* and *West* of the northern Hemisphere.

The two vertical Points, are those which we carry along with us, and which are call'd *Zenith* and *Nadir*: They are diametrically opposite to one another.

The ZENITH (as we have already observ'd in our Treatise of *Astronomy*) is a Point imagined over our Head; and every Time we change Place, our *Zenith* changes in Proportion.

The NADIR, is a Point imagined directly under our Feet, and over the Head of our Antipodes.

The four *Cardinal* Points, and the four *Collateral*, serve to let us know the Situation of Countries, with regard to one another; and compose the Rumbs of Wind.

According to the four *Cardinal Points*, the World is divided into four principal Regions; and the four Continents have borrow'd their Names from them. The antient Continent, is call'd *Oriental*, or *Eastern*; the new, *Occidental*, or *Western*; the *Magellanick*, *Meridional*, or *Southern*; and the Arctick, *Septentrional*, or *Northern*.

The *Arctick* and *Antarctick* Poles, by their Elevation on the Horizon of a Place, discover or shew the Latitude of that Place; as I'll explain afterwards.

The North, is the Point on which all the northern Geographers ought to to regulate their Charts, or Maps; because they put, or can put in those Maps, the *North* a-top, the *South* at Bottom, the *East* on the Right, and the *West* on the Left.

The *Zenith* and *Nadir*, serve as Poles to the Horizon; discover the Countries where the Inhabitants are reciprocally Antipodes; and fix the Meridians.

From this we'll pass to the *Ten* CIRCLES, described, likewise, on the Surface of the *Globe*; which may be consider'd in three Manners; either as great, or small Circles; or as fix'd, or mutable.

There are five *Circles* parallel between themselves; *viz.* the *Equator*, the two *Tropicks*, and the two Polar *Circles*: And five dissemblable from one another, and which intersect one another; *viz.* the *Ecliptick*, *Horizon*, *Meridian*, and the two *Colures*.

Of these ten Circles, six are great; and four small. The four great Circles are the *Equator*, *Ecliptick*, *Horizon*, *Meridian*, and the two *Colures*. The four small, are the two *Tropics*, and the two *Polar Circles*.

Though these ten Circles be marked as fix'd in the Maps of the terrestrial Globe, the *Horizon* and the *Meridian*, are mutable, according to the Diversity of Places we change.

The eight others, *viz.* the Equator, the two Tropicks, the two Polar Circles, the Ecliptick, and the two Colures are fix'd for all the Inhabitants of the Earth, and are always found in the same Place.

The *great Circles* are all equal in Bigness, have all the same Centre with the *terrestrial Globe*; and divide the said Globe into two equal Parts, intersecting likewise one another, into two equal Parts.

The *small Circles* are unequal, and have not so much Circuit as the great ones, because they have each a Centre different from that of the terrestrial Globe; which, therefore, they cut into two unequal Parts.

We must next consider these ten Circles, one in every Particular; beginning with the first of the great ones, which is the *Equator*.

The EQUATOR, is a great Circle, equally distant from the two Poles of the World, or having the same Poles with those of the World. It receives the Name of *Equator*, of Equinoctial, and of the Line according to its different Uses. It is called the *Equator*, because it divides or cuts the terrestrial Globe into two equal Parts: *Equinoctial*; by reason when the Sun is therein, the Days and Nights are equal; and *Line*, by way of Excellence, for its being the first and principal of all the Circles, described on the terrestrial Globe. — The Uses of the *Equator* are several:

1. It divides the terrestrial Globe into two equal Parts, and those Parts are call'd Hemispheres; the one whereof is call'd the *Northern Hemisphere*, and the other the *Southern Hemisphere*.

2. It marks the true *East* and *West*, call'd *Equinoxes*, in all the Regions of the Globe.

3. It serves for a Foundation and Base, to find and reckon the Latitude of all that is on the Surface of the Globe, its being the first and principal of the Parallels of Latitudes; that *Latitude* being the Distance from the *Equator* to the Place proposed, in going forwards towards the one or other Poles.

4. It marks on the Ecliptick the two Points, where the *Equinoxes* are made, *i. e.* that the Sun passing there, renders the Days and Nights equal in all the Parts of the terrestrial Globe: To all that is between the *Equator* and the *Poles*, it divides the 24 Hours of the natural Day, into 12 Hours of Day, and 12 Hours of Night; but begins, at the same Time, under the Poles, a Day and a Night of six Months; so that when the Day of six Months begins under the *Arctick* Pole, the Night of six Months begins at the same Time under the *Antarctick*; and, on the contrary, when the Night after the Days of six Months begins under the *Arctick*, the Days of six Months begins under the *Antarctick*.

5. Those

3. Those who inhabit under the *Equator*, have the Day equal to the Night, not only at the Time of the Equinoxes, but likewise all the Days of the Year, *i. e.* perpetually, because their Horizon cuts into equal Parts all the Circles which the Sun makes every Day of the Year. All others have their Days unequal; which, notwithstanding, those who approach nearer the Equator, have their Days and Nights more equal than those who are at a greater Distance from it.

6. The Sun, by Means of the same Points of the Equinoxes, gives to all Parts of the Globe, the Spring and Autumn, but at different Times; for while it gives the *Spring* to the northern Hemisphere, it gives, at the same Time, the *Autumn* to the southern Hemisphere; and *vice versâ*.

7. On its whole Circle, the natural Day of 24 Hours is determined; since the Sun makes upon it, 15 Degrees every Hour; which reckoned 24 Times, makes up the 360 Degrees, into which that Circle is divided. Hence we have frequent Occasion for the Conversion of Degrees of the *Equator* into Time; and again, for the Re-conversion of Parts of Time into Parts of the *Equator*. For Performance whereof, I subjoin the following Table; wherein are exhibited the Arches of the Equator, which pass the Meridian in the several Hours, Minutes, *&c.* of equated, or mean Time.

Conversion of Parts of the Equator *into Time, and* vice versâ.

Deg. of Equat	*Hours*	I	*Hours*	*Deg. of* Equat	*Hour Min.*	*Deg. of* Equat	I
Min.	I	II			*Second*		II
Second	II	III			*Third*		III
Third	III	IV			*Fourth*		IV
1	0	4	1	15	1	0	15
2	0	8	2	30	2	0	30
3	0	12	3	45	3	0	45
4	0	16	4	60	4	1	0
5	0	20	5	75	5	1	15
10	0	40	6	90	6	1	30
15	1	0	9	135	10	2	30
30	2	0	12	180	20	5	0
60	4	0	15	225	30	7	30
90	6	0	18	270	40	10	0
180	12	0	21	315	50	12	30
360	24	0	24	360	60	15	0

The Use of the Table is obvious; suppose, *e. gr.* it were required to turn 19° 13′ 7″ of the *Equator* into Time: Against 15 Degrees in the first Column, we have 1^h 0′ 00″; against 4 Degrees, we have 16′ 0″; against 10 Minutes 40″; against 3 Minutes, 12″ 0‴; against 5 Seconds, we have 0″ 20‴; and against 2 Seconds, 8‴; which added together, give 1^h 16′ 52″ 28‴.

Again, suppose it were required to find how many Degrees, Minutes, *&c.* of the *Equator*, answer to 23 Hours 25 Min. 17 Sec. and 9 Thirds: Against 21^h in the fourth Column of the Table you have 315°; against 2 Hours, 30°; against 20 Sec. 5°; against 10 Sec. 2′ 30″; against 5 Sec. 1′ 15″ 0‴; which added together, give 351° 19′ 17″ 15‴.

8. In cutting the Zodiack, into two equal Parts, it parts the northern Signs from the southern, and divides the long Days from the short ones.

9. It serves to the Construction of Sun-Dials.

10. It is esteem'd, by Astronomers, the Rule and Measure of the *Primum Mobile*, and serves to several other Uses.

The ZODIACK, is one of the great Circles, and the only one which has any Width. This Circle is call'd *Zodiack*, *Signifer*, or Sign-Bearer, oblique Circle, and Ecliptick.

1. It is call'd *Zodiack* by the *Greeks*, either because most of the Constellations it contains, have borrow'd the Name of some Animal, and are represented under their Form or Figure; or because the Sun and the Moon rolling through that Circle, help to the Production of all Things.

2. It is called *Signifer*, by the *Latins*, because the twelve Constellations it contains are call'd Signs.

3. Some call it the *oblique Circle*, by reason of its Obliquity, with respect to the Equator, by which it is cut into oblique Angles.

4. The Eclipses of the Sun and Moon, which happen in it, have given it the Name of Ecliptick, *i. e.* the *Line of the Eclipses*; though Geographers mark but the Ecliptick, which is the Line represented in the Middle of the Zodiack; and describe that *Line* on the terrestrial Globe, and the general Maps of the World, between the two Tropicks.

The *Ecliptick*, like the Zodiack, is divided into 12 Parts, and each Part subdivided into 30, called Degrees, which together make up 360 Degrees, into which the Ecliptick is divided.

The Uses of the *Ecliptick*, are: 1. It marks, by each Degree, very near the Course which the Sun makes every Day; by each of the twelve Parts, it shews the Sign and the Month; by the 30 Degrees of each Sign, the 30 Days, which the Sun takes to run through each Sign; by the 360 Degrees, it gives us the annual Progress of the Sun, which is of 365 Days 6 Hours, or thereabout, which 6 Hours, every fourth Year, makes up one Day; which is added to that fourth Year, which Year is of 366 Days, and is call'd *Bissextile*, as we have observ'd in our Treatise of *Astronomy*.

2. Each twelfth Degree of the Ecliptick marks the diurnal Progress of the Moon.

3. The Ecliptick being divided into two equal Parts by the Equator, that Part which advances towards the Arctick Pole, marks the long Days of the northern Hemisphere, and the short Days of the southern Hemisphere; the other Part, which advances towards the Antarctick Pole, marks the short Days of the northern Hemisphere, and the long ones of the southern Hemisphere.

4. The *Ecliptick* is divided into four Parts by the *Colures*, marks three Signs for each of the four Seasons of the Year. The *northern Hemisphere* has for its Spring, *Aries*, *Taurus*, and *Gemini*; and for its Summer, *Cancer*, *Leo*, and *Virgo*; for its Autumn, *Libra*, *Scorpio*, and *Sagittarius*; and for its Winter, *Capricorn*, *Aquarius*, and *Pisces*. On the contrary, these last Signs make the Summer of the *meridional*, or western Hemisphere: *Libra*, *Scorpio*, and *Sagittarius*, makes its Autumn; *Cancer*, *Leo*, and *Virgo*, its Winter; and *Aries*, *Taurus*, and *Gemini*, its Spring: So that when an Hemisphere has its Spring, the other opposite to it has its Autumn; and when one has its Summer, the other has its Winter.

5. The *Ecliptick* cuts the terrestrial Globe into two equal Parts, but obliquely, with respect to the Equator and the Poles.

6. It describes by its Poles the Polar Circles.

7. It comprehends, by its Obliquity, all that Space of the terrestrial Globe, call'd the *Torrid Zone*.

The TROPICKS, are two among the small Circles, described by the Sun at divers Times, when it passes through the two Points of *Cancer* and of *Capricorn*. These two Circles are equal and parallel to one another, and to the Equator, from which they are equally distant of 23½ Degrees, or thereabouts. They are call'd *Tropicks*, of the *Greek* Τροπη, *Return*; because the Sun being arrived at either of them two, it retrogrades, and returns towards the Equator.

The *Tropick* which is towards the Arctick Pole, or the North, is call'd the *Tropick of Cancer*; because that Circle is form'd at the first Point of Cancer; and *Northern*, because in the northern Hemisphere; of which Hemisphere it is likewise the Summer's *Tropick*, as it is, at the same Time, the Winter's *Tropick* of the southern Hemisphere.

The *Tropick* which advances towards the Antarctick Pole, is call'd the *Tropick of Capricorn*, because of

of the first Point of that Sign in which it is form'd; it is also call'd *Meridional*, or *Southern*, but only with respect to our northern Hemisphere: And also the Winter's Tropick, but with respect to us only, since, at the same Time, he is the Summer's *Tropick* of the Hemisphere, which we call *Meridional*.

These two Circles are also call'd *Solstices*, as if one would say *Station of the Sun*, from the Sun's advancing so slow, when it approaches or departs from the Tropicks, that it seems to pass for some Time thro' the same Places; and that neither the Days, nor the Nights, diminish or increase, but remain for several Days in the same State.

The *Uses* of the *Tropicks*, are: 1. That they encompass a certain Space, beyond which the Sun never goes; and within which, it every Day makes its Course by a spiral Line; advancing now towards one, and then towards the other Tropick.

2. They mark on the *Ecliptick* the two Points where the *Solstices* are made; which shews us the longest and shortest Day of the Year.

3. Their Distance from the Equator marks the greatest Declination of the Sun towards the one, or the other Pole; which is not always equal, but is ordinarily placed at 33 Degrees, 30 Minutes.

4. They inclose the *Torrid Zone*, and separate it from the *Temperate*.

The *Polar* CIRCLES, are two small Circles, which the Poles of the Zodiack, or of the Ecliptick, describe round the Poles of the World: They are equal and parallel to one another, and also to the two Tropicks and to the Equator; and are as much distant from the Poles of the World, as the Tropicks are from the Equator. That round the Arctick Pole, is call'd the *Circle of the Arctick* or *Northern Pole*; and the other round the Antarctick Pole, is call'd by its Name.

The *Uses* of the *Polar Circles*, are: 1. To shew us the Poles of the Zodiack, or Ecliptick.

2. They inclose the *Frigid*, or *Glacial Zones*, and separate them from the *Temperate*.

2. They inclose the great Climates, where the long Days, and long Nights of several Months, reign, and part them from the little Climates.

The COLURES, are two great Circles, which intersect each other at right Angles in the two Poles of the World. One is call'd the *Colure of the Equinoxes*, because it cuts the Equator and the Ecliptick in the first Points of *Aries* and *Libra*, where the Equinoxes happen, or are made. The other the *Colure of the Solstices*, from its cutting the Ecliptick, and the Tropicks, where the *Solstices* happen, at the first Point of *Cancer*, and at the first of *Capricorn*.

As these two Circles are whole Meridians, the *Colure of the Equinoxes* is marked on the terrestrial Globe, and in the Map of the Correspondence of the Globe with the Sphere, by the first Meridian, which is found to be the first, and the 180th Degree of Longitude, which environs our western Hemisphere; the *Colure of the Solstices* by the 90th Degree of Longitude, which is in the Middle of our eastern Hemisphere; and the 170th, which is in the Middle of the other, or western Hemisphere. Thus these two *Colures* cut the Ecliptick into four equal Parts, and mark the four Points where the four Seasons of the Year begin.

Note, That the Name *Colure*, comes from the *Greek* κωλυω, *to cut*, and ουρα, *Tail*, so that Κωλουρα signifies *Cut-Tail*. These Circles are thus called, because that which cuts the Ecliptick where it meets with the Equator, and that which cuts the same Ecliptick where it meets with the Tropicks, have, on both Sides, very acute Angles, which represent Tails.

The *Uses* of the *Colures*, are: 1. That they both cut the Ecliptick into four equal Parts, and mark there the Points, where the Equinoxes of the Spring and Autumn, and the Summer and Winter Solstices happen; which are the Beginning of the four Seasons of the Year.

For the northern Hemisphere, the *Colure of the Equinoxes* mark the *Equinox*, or Beginning of the Spring, at the first Point of Aries, towards the 21st of *March*, New Style, or the 10th of the same Month, Old Style; the *Equinox*, or Beginning of the Autumn, at the first Point of Libra, about the 21st of *September*, New Style, or the 10th of the same Month, Old Style. The *Colure of the Solstices*, mark the *Solstice*, or Beginning of Summer, at the first Point of Cancer, about the 21st of *June*, New Style, or the 10th of the same Month, Old Style; the *Solstice*, or Beginning of Winter at the first Point of Capricorn, about the 21st of *December*, New Style, or 10th of the same Month, Old Style.

But for the opposite Hemisphere, which we call *Meridional*, or Southern, the *Colure of the Solstices*, marks the first Point of Capricorn, for the *Solstice*, or Beginning of Summer; the first Point of Cancer, for the *Solstice*, or Beginning of Winter. The *Colure of the Equinoxes* marks the first Point of Libra for the Equinox, or Beginning of Spring; and the first Point of Aries for the Equinox, or Beginning of Autumn; those two Hemispheres having always the Seasons contrary, at the same Time.

The HORIZON, from the *Greek* ὁριζω, *to finish*, or *terminate*, is a great Circle, dividing the World into two Parts or Hemispheres; the one upper, or visible; the other lower, and invisible.

There are two Sorts of *Horizon*, one *sensible*, and the other *rational*. We call *sensible Horizon*, the Circle which terminates what our Sight, being free on all Sides, or meeting with no Opposition, in a level Champagne, can discover on the Earth; and that *Horizon* is but a small Circle which divides the visible Part of the Sphere, from the Invisible.

The *rational Horizon*, is a great Circle, whose Plane passes through the Centre of the Earth, and whose Poles are the Zenith and Nadir, round which it is described, and which divide the Heavens, and the terrestrial Globe into two Hemispheres.

The *Horizon* changes, as often as we change Places.

Though there be as many *Horizons*, as there are Zeniths, *i. e.* different Places on the Earth; there are notwithstanding but three Sorts of *Horizons*, viz. the *right*, *oblique*, and *parallel Horizon*.

1. The *Horizon* is *right*, when it has its Zenith in the Equator, when it passes through the four cardinal Points, and cuts the Equator into right Angles.

2. That's an *oblique Horizon*, whose Zenith is between the Equator and one of the Poles, and which cuts the Equator into oblique Angles.

3. That *Horizon* is *parallel*, which has for Zenith one of the Poles, and the Equator for *Horizontal Circle*.

The *right Horizon*, is only for those who inhabit under the Equator. The *parallel Horizon*, for those who are directly under the Poles. But the *oblique Horizon* is for all those who inhabit between the Equator, and one and the other Pole.

The *Uses* of the *Horizon*, are: 1. That the rational *Horizon*, of every Person, serves to divide the terrestrial Globe into two Hemispheres; one whereof is call'd *superior*, and the other *inferior*.

2. The *Horizon* shews us the Length of the artificial Day, which is the Time the Sun takes to accomplish its Course on our *Horizon*; and the Length of the artificial Night, which is the Time the Sun is hidden under our *Horizon*. Those who have a right *Horizon*, have a perpetual Equinox, having always the artificial Day equal with the Night; because the Sun is every Day twelve Hours on their *Horizon*, and twelve Hours under it. Those who have their *Horizon parallel*, have one Day six Months long, and one Night of the same Length; the Sun being six Months on their *Horizon*, and six Months under it. Those who have an *oblique Horizon*, have the Equinoxes but twice a Year; and all the other Days and Nights unequal, in Proportion of their Distance from the Equator, and the Elevation of the Pole, on their *Horizon*. Between the Equator and the Polar Circles,

the Days increase above 12 Hours to 24; because those who inhabit under those Circles, have, during 24 Hours, the Sun on their Horizon. Between the Polar Circles and the Poles, the Days increase in proportion as the Sun is on their Horizon, the Day grows a Week, one, two, three, four, five, and at last six Months long under the Poles.

3. The *Horizon* serves for the Construction of the Compass, for Navigation, and of Dials, because the Division of the Compass is nothing else but the Division of the *Horizon*.

4. The *Horizon* shews the Height of the Pole, and marks, at the same Time, the Latitude, which is the Distance of the Equator, because the Distance of the Equator to our Zenith, is equal to the Distance which is between our Horizon and the Pole.

The MERIDIAN is a great Circle, which passes thro' the Poles of the World and our Zenith and Nadir, and cuts the terrestrial Globe into two Hemispheres, *viz.* the Eastern and Western. This Circle is called *Meridian*, because the Sun passing into that Circle, it is Noon for all those who are in that Part of that Circle, exposed to the Sun, and Midnight for all those who are in the other Part of the same Circle opposite to it.

As the *Meridian* is determined by the Zenith, as many can be imagined as vertical Points from East to West.

Of that great Number of *Meridians*, Astronomers retain but 180, but which are reckoned by half or simple Meridians, to the Number of 360.

Geographers mark on the Equator the 360 simple *Meridians*, the Lines whereof they describe, to avoid Confusion, but thro' every tenth Degree of the Equator, or thro' every tenth Degree of Longitude.

The first *Meridian*, having not been yet determined by Astronomers, its Position is left arbitrary.

The antient Geographers having considered that the *Meridian* serves to measure the Length of the Earth, have given it the Name of Longitude, and have placed the first *Meridian* at the occidental, or western Extremity of our Continent, whence they have began to reckon from West to East the 360 *Meridians* or Longitudes, which I'll explain more particularly in the Division of the Surface of the terrestrial Globe, into Longitude and Latitude.

The Uses of the *Meridian* are, —— 1. That every whole *Meridian* serves to divide the terrestrial Globe into two Hemispheres, Eastern and Western, those divided by the *first Meridian* being preferred by Geographers to represent in Plane the terrestrial Globe.

2. The *Meridian* shews us, at the same Time, the Height of the Pole, and the Distance of the Equator, or Latitude; because the Arch of the *Meridian*, comprised between the Equator and the Zenith, and the Arch of the same *Meridian*, inclosed between the Horizon and the Poles, are equal.

3. It marks Noon and Midnight to all those who are within its Circle.

4. It begins the natural astronomical Day by Noon, and the civil Day by Midnight.

5. It divides the artificial Day into two equal Parts.

6. The *Meridian* of each Region, shews which Countries have Noon before, or after, or at the same Time.

7. In reckoning by every fifteenth *Meridian*, we discover at the same Time the Hour of every Country.

8. The *Meridians* serve to reckon the Latitude, that Latitude being reckoned along one *Meridian*, from the Equator advancing towards the one or the other Pole.

Note, That the *Points*, *Lines*, and *Circles* we have described in the Solidity, and on the Surface of the Globe, furnish the Geographers with seven Manners of dividing the Surface of the terrestrial Globe, with Regard to the Heavens. 1. Into Regions. 2. Into Hemispheres. 3. Into Zones. 4. By Shadows. 5. By Positions. 6. By Climates. 7. According to the *Longitude* and *Latitude*; and an eighth Division, as well of the Surface, as of the Solidity of the Globe by Measures. I'll begin by the Division of the Surface of the terrestrial Globe into Regions; and proceed thro' all the other Divisions, every one in Order.

With Regard to the four cardinal Points, *viz.* the *North*, *South*, *East* and *West*, the Surface of each horizontal Hemisphere, is divided into four Regions, *viz. Northern*, *Southern*, *Eastern*, and *Western*; having Regard to the Zenith which is the Centre of that Division. This Division serves to compare the respective Situation of Countries with one another, and makes one of the most essential Parts of *Geography*. So that one Country considered with Regard to the neighbouring one, is *Northern* to one of them, and *Southern* to the other; and its Situation is *Western* to that which is *Eastward* of it, and *Eastern* to that which is *Westward*. *France*, for Example, is *Northern* with Regard to *Spain*, *Southern* with Respect to *England*, *Western* with Respect to *Germany*, and at the same Time, *Eastern* with Respect to *Canada*.

The *Europeans*, considering the *Continents* according as they are situated, with Regard to them, call their *Continent* which is the antient, the *Eastern Continent*; have given the Name of *Western* to the *New Continent*, or *America*; have called *Southern* the *Magellanick Continent*, and call *Northern* that *Continent* which is towards the *North*. Which notwithstanding the *antient Continent*, and the *new*, are respectively at the *East* and *West* of one another; likewise the *Northern* and *Magellanick*, are reciprocally *Southern*.

Therefore the *Continents* considered as they are situated with Respect to *Chili*, *America* will be the *Eastern Continent*; the antient will be the *Western*; the *Septentrional*, or *Northern*, will be the *Southern*; but the *Magellanick* will not be reciprocally the *Northern*, since its Pole cannot be called its North, but only its Pole; the Name *North* being particular to our Pole, which we call *Arctick*; therefore the *Magellanick Continent*, cannot be called otherwise than *Antarctick*, or *Anti-northern*, as opposite to the *Arctick*; or *Northern*, till its Pole be capable to communicate to it, the Name which in Process of Time it may borrow from some neighbouring Constellations.

The four great Regions of the Horizon, are subdivided into several less, which are the same Thing with the *Winds*; for the Distribution thereof, the four cardinal Points serve as Foundation and Rule.

The *Winds* are divided with Respect to the Points of the Horizon, from which they blow, into *Cardinal* and *Collateral*.

The *Cardinal Winds*, are those blowing from the four Cardinal Points, *East*, *West*, *North*, and *South*.

Collateral Winds, are the intermediate *Winds*, between two *Cardinal Winds*. The Number of these is infinite, as the Points from which they blow are, but only a few of them are considered in Practice, *i. e.* only a few of them have their distinguishing Names.

The antient *Greeks*, at first, only used the four cardinal ones, at length they took in four more. *Vitruvius* gives us a Table of twenty, besides the Cardinals in Use among the *Romans*.

The Moderns, as their Navigation is much more modern than the Antients, have given Names to 28 collateral ones; which they range into *primary* and *secundary*. And subdivide the *secundary* into those of the *first* and *second Order*.

The *English* Names of the primary collateral *Winds*, are compounded of the Names of the cardinal ones, *North* and *South* being still prefixed.

The Names of the secundary collateral *Winds* of the first Order, are compounded of the Names of the Cardinals, and the adjacent primary one. —— Those of the second Order are compounded of the Names of the Cardinal, or the next adjacent Primary; and the next Cardinal, with the Addition of the Word (*by*). The *Latins* have distinct Names for each, all which are expressed in the following Table.

Names

Names of the Winds.		Distances from the N.	
English.	*Latin* and *Greek.*		
1. *North.*	*Septentrio*, or *Boreas.*	0°	0′
2. North by East.	Hyperboreas. Hypaquilo. Gallicus.	11.	15.
3. North-North-East.	Aquilo.	22.	30.
4. North-East by North.	Mesoboreas.	33.	45.
5. *North-East.*	*Arctapeliotes.* Baropeliotes. Græcus.	45.	
6. North-East by East.	Hypocæsias.	56.	15.
7. East-North-East.	Cæsias, Hellespontius.	67.	30.
8. East by North.	Mesocasias. Carbas.	78.	45.
		from the E.	
9. *East.*	*Solanus*, *Subsolanus*, *Apeliotes.*	0°	0′
10. East by South.	Hypeurus, or Hypercurus.	11.	15.
11. East-South-East.	Eurus, or Volturnus.	22.	30.
12. South-East by East.	Mescurus.	33.	45.
13. *South-East.*	*Notapeliotes*, *Euro-auster.*	45.	
14. South-East by South.	Hypophœnix.	56.	15.
15. South-South-East.	Phœnix, Phœnicias, Leuco-notus, Gangeticus.	67.	30.
16. South by East.	Mesophanx.	78.	45.
		from the S.	
17. *South.*	*Auster*, *Notus*, *Meridies.*	0°	0′
18. South by West.	Hypolibonotus, Alfanus.	11.	15.
19. South-South-West.	Libonotus, Austro-Africus.	22.	30.
20. South-West by South.	Mosolibonotus.	33.	45.
21. *South-West.*	*Noto-Zephyrus*, *Noto-Libicus*, *Africus.*	45.	
22. South-West by West.	Hypolibs. Hypafricus. Subvesperus.	56.	15.
23. West-South-West.	Libs.	67.	30.
24. West by South.	Mesolibs. Mesophyrus.	78.	45.
		from the W.	
25. *West.*	*Zephyrus*, *Favarius*, *Occidens.*	0°	0′
26. West by North.	Hypargestes. Hypocorus.	11.	15.
27. West-North-West.	Argestes, Caurus, Corus-Japyx.	22.	30.
28. North West by West.	Mesargestes, Mescorus.	33.	45.
29. *North-West.*	*Zephyro-boreas*, *Borolibycus.*	45.	
30. North West by North.	Hypocircius, Sicrem.	56.	15.
31. North-North-West.	Circius, Thrascias.	67.	30.
32. North by West.	Mesocircius.	78.	45.

From this we'll pass to the Division of the terrestrial Globe into several Sorts of Hemispheres.

The terrestrial Globe is divided into two Hemispheres, by each of the six great Circles; but as the Circles of the Colures are Meridians, and the Hemisphere made by the Ecliptick, are of no Use but in Astronomy, *Geographers* esteem but the Hemispheres divided by the Equator, Horizon, and Meridian.

The *Equator* divides the terrestrial Globe into two Hemispheres, *viz.* Northern and Southern, with regard to us; for if their Situation be well consider'd, they are respectively Southern to one another; therefore they are more properly call'd *Arctick*, and *Antarctick.*

The Globe is divided by the *Horizon*, into two Hemispheres, *superior* and *inferior*; the *superior* is that to which the Zenith serves as Pole, *i. e.* which is towards us; and the *inferior*, that to which the Nadir serves as Pole, and which is under us; therefore that which is inferior to us, is superior to our Antipodes; and that which is superior to us, is, on the contrary, inferior to them.

Each entire *Meridian* divides the Globe into two Hemispheres, one whereof is call'd *Eastern*, and the other *Western*; which must be understood of that Part of the *Meridian* of our Zenith; and not of the other half of the *Meridian.*

Of all these different Sorts of Divisions of Hemispheres, there is none fixed and immutable but that of the Equator; that made by the *Horizon* changes at every Place; and the Division made by the *Meridian* is the same, since it can be as often multiplied as the Meridians.

Geographers, to represent the Surface of the terrestrial Globe in Plane, prefer the *Hemispheres* divided by the first *Meridian*, because each Hemisphere, containing almost a whole Continent, of those that are known, the geographical Divisions are thereby made with a better Method.

The two *Tropicks*, and the two *Polar Circles*, divide the Surface of the terrestrial Globe into five Parts, call'd ZONES, from the *Greek* ζώνη, *Girdle*; these Zones receive their Name from the Quality of the Temperature, to which their Situation is subject, according to the different Degrees of Heat and Cold, which the Sun gives them, by its Approaches, and its Distance, which reduce them to three Sorts of Zones, which make five, a *Torrid Zone*, two *Temperate*, and two *Frigid.*

The *Torrid* ZONE, is in the Middle of all the others; the *Frigid* keep the two Extremities; and the *Temperate* take up what is between the *Torrid* and the *Frigid* on either Side.

The *Torrid Zone* is terminated by the two Tropicks; its Breadth therefore is 46 Deg. 58 Minutes. The Equator running thro' the Middle of it, divides it into two equal Parts. The Antients imagined the *Torrid Zone* uninhabitable.

The *Temperate* ZONES, are contained between the Tropicks, and Polar Circles; that between the Tropick of Cancer and the Arctick Pole, is call'd *Northern*; and the other, situated between the Tropick of Capricorn, and the Antarctick Pole, is call'd *Southern*, with regard to us. These *Zones* are call'd *Temperate*, because being situated between the *Torrid* and the *Frigid*, they enjoy a temperate Air, particularly towards the Middle of that Zone, its Extremities participating of the Excess of Heat or Cold, in Proportion as they approach nearer the *Torrid* or *Frigid Zones.*

The *Frigid* ZONES, are between the Polar Circles and the Poles, or rather terminated the one by the Antarctick, and the other by the Arctick Circle. They are call'd *frigid*, because during the greatest Part of the Year there is felt there an excessive Cold, and all is frozen, when the Sun appears but little, or not at all on their Horizon.

The Antients have also imagined, that the *Frigid Zones*, were uninhabitable, because of the excessive Cold, and continual Ice. But Experience has convinced us that the *Frigid Zones* are not entirely Desart; and that in the *Torrid Zone* the Heat is not so excessive under the Equator, and the neighbouring Places, where the Sun only passes as it is towards the Tropicks, near which the Sun making its Course, for several Days successively, causes an almost intolerable Heat; when as throughout almost the whole *Torrid Zone*, the Mountains in some Places, the long Nights, the Rain, and great Dews, cool sufficiently to render the Earth not only inhabitable, but likewise so fertile, that it gives in several Places two Harvests in a Year, produces with little Culture, all Sorts of Spices and Drugs, furnishes alone a greater Quantity of perfect Metals, of precious Stones and Pearls, than all the other *Zones* together. And the Desarts found in it, as in *Africa*, are rather a Proof that the Soil is sterile of its Nature, then rendred such by the Heat of the Sun; since such Desarts are found in the Middle of the *Temperate Zone*; and in that Part of *Africa* which is in the *Torrid Zone*, there are Places extremely fertile; that all the Countries and Isles of *Asia*, situated in that *Zone*, abound in all Things; and what we know of *America* in that

that *Zone*, is of the ſame Nature.

The *Zones* may alſo be conſidered as great and ſmall; there are three great *Zones*, viz. the *Torrid* and the two *Temperate*; and two ſmall ones, *viz.* the two *Frigids*.

The *Zones* have different Length and Breadth. The Breadth of the *Torrid Zone* is 46 Degrees 58 Minutes; that of each of the *Temperates*, 43 Degrees 2 Minutes, and that of each of the *Frigids*, 23 Degrees and about 30 Minutes.

If we reckon the Degrees of Latitude, each at 25 common Leagues of *France*, the *Torrid Zone* is found to have 1175 Leagues in Breadth; the *Temperate Zones*, each 1075; and the *Frigids* have each but 587 Leagues and a half in Breadth.

The Length of the *Zones*, or rather their Circuit, is alſo very different, though they have all the ſame Number of 60 Degrees of Longitude; for as the Degrees diminiſh in Proportion of their Diſtance from the Equator, and of their Neighbourhood to the Poles, under which they become a *Point*; likewiſe the Circuit of the *Zones* diminiſhes in Proportion, according to the Latitudes under which the *Zones* are ſituated.

The *Torrid Zone* has 9000 common *French* Leagues of Circuit under the Equator, which is its greater Extent; and a little more than 8250 Leagues in its Extremities under the Tropicks.

The Circuit under the Tropicks is the greater of the *Temperate Zones*, having each in their Middle, which is the 45 Degrees, about 6350, and in their Extremities under the Polar Circles about 3575 Leagues.

Theſe *Polar Circles* make the greater Circuit of each of the *Frigid Zones*, the Middle whereof is but about 1850 Leagues; and their Extremity under the Poles, nothing elſe but a *Point*.

None of the *Zones* is entirely known; tho' the Northern Temperate and the Torrid are more known than the others; and nothing is known of the Southern but what belongs of it to our Continent, and to *America*. The Northern *Frigid Zone* has ſome Iſles, and ſome Coaſts known; but for the *Frigid Zone* Antarctick, which we call Meridional, it is entirely unknown to us.

Of the three great Zones, the Northern, Temperate, ſeems to have once more Land than the *Torrid*, and the *Torrid* much more than the Southern.

Note, That our next Diviſion of the Terreſtrial Globe is by *Shadows*.

The different Situations of the *Zones* have given Occaſion to divide the Inhabitants of the Surface of the Globe, according to the Diverſity of the Shadow of thoſe *Zones*. This Diverſity is taken either at Noon, or from the whole Courſe of the *Shadow*.

The Antients having diſcovered, that the *Shadow* turned round the Inhabitants of the *Frigid Zones*, when the Sun gives them continual Days; that the Inhabitants of the *Temperate Zones*, had always the *Shadow* turned on the ſame Side at Noon; thoſe of the Northern, towards the Arctick Pole; thoſe of the Southern, towards the Antarctick; and that the Inhabitants of the *Torrid Zone* had always their Meridian *Shadow*, ſix Months towards one of the Poles, and ſix Months towards the other: They have called the Inhabitants of the Frigid Zones, *Periſcians*, i. e. *ſhadowed round*; the Inhabitants of the Temperate Zones, *Heteroſcians*, who have but one or the other of the two Shadows; and the Inhabitants of the Torrid Zone, *Amphiſcians*, i. e. who have both Shadows.

Reaſon and Experience have diſcovered ſince, that the Inhabitants of the Torrid Zone are *Aſcians*, i. e. without a *Shadow* at Noon, when the Sun paſſes perpendicularly on their Zenith; that when it is no more on their Head, the *Aſcians* who are under the Tropicks, have never their *Shadow* but of one Side; and that the other *Aſcians* have their *Meridian Shadow*, ſometimes on one ſide, and ſometimes on the other.

Therefore the Diviſion of the Inhabitants of the Earth, according to the Diverſity of *Shadows*, is more exactly made into *Periſcians*, *Heteroſcians*, and *Aſcians*; who are ſubdivided into *Aſcians Heteroſcians*, and *Aſcians Amphiſcians*.

The *Periſcians*, or Inhabitants of the Frigid Zones, can be conſidered of three Sorts: 1. Thoſe who live under the Poles are always *Periſcians*, i. e. their *Shadow* turns always round them, during the ſix Months the Sun ſhines upon them continually. 2. Thoſe who dwell under the Polar Circles are *Periſcians*, but during a natural Day, or 24 Hours, which is their longeſt Day. 3. And the others are *Periſcians* for ſeveral Days, or ſeveral Months, according as they are near, or diſtant from the Pole. Thoſe under the Poles have the Year divided into two continued Parts, *i. e.* a Day of ſix Months, and a Night of ſix Months, and generally all *Periſcians* have but a very moderate Summer, and a very cold Winter.

The *Heteroſcians*, or Inhabitants of the Temperate Zones, have 1. Always their *Meridian Shadow* towards one of the Poles, *viz.* thoſe of the Northern, towards the Arctick Pole, and thoſe of the Southern towards the Antarctick. And, 2. Always their Days unequal to their Nights, except the two Days of the Equinoxes.

The *Aſcians*, or Inhabitants of the Torrid Zones, are of three Sorts: 1. Thoſe who inhabit directly under the Equator, are every Year twice *Aſcians*, or without Shadow, and all the reſt of the Year *Amphiſcians*, and have one or the other of the two *Meridian Shadows*, according to the Seaſons, having two Summers and two Winters, two Springs and two Autumns.

Thoſe who dwell between the Equator and the Tropicks, are likewiſe twice a Year *Aſcians*, and the reſt of the Year *Amphiſcians*; among whom thoſe who are in the Neighbourhood of the Equator, have alſo two Summers and two Winters; but which terminate in a Summer and Winter, in Proportion as they approach the Tropicks; and are ſenſible of the Equality of the Days and Nights, the more they approach the Equator.

Thoſe who inhabit under the Tropicks are *Aſcians*, and without a Shadow at Noon, but the Day of the Solſtices, and *Heteroſcians* all the reſt of the Year; their Meridian Shadow never going but on one Side, and they have but one Summer and one Winter.

Therefore theſe three Sorts of *Aſcians*, *Heteroſcians*, and the three Sorts of *Periſcians*, give us ſeven Sorts of Habitations, according to the *Shadows* on the Surface of the Earth.

Having thus divided the Surface of the Terreſtrial Globe into Zones, and conſidered the Inhabitants according to the Diverſity of their Shadows, we can, beſides, conſider the ſame Inhabitants, as *Periœcians*, *Antœcians*, and *Antipodes*, Names taken from the different Reports they have in their Situation, with regard to the ſame Circles, Parallels, and Meridians, or oppoſite, under which they inhabit.

PERIOECIANS, are ſuch Inhabitants of the Globe as have the ſame Latitudes, but oppoſite Longitudes: or live under the ſame Parallel, and the ſame Meridian, but in different Semi-Circles of that Meridian, or oppoſite Points of the Parallel.

ANTOECIANS, are thoſe Inhabitants of the Globe who live under the ſame Meridian, and at the ſame Diſtance from the Equator; the one towards the North, and the other to the South. Hence the *Antœcians* have the ſame Longitude and the ſame Latitude, only of a different Denomination, they lye in the ſame Demi-circle of the Meridian, but in oppoſite Parallels.

ANTIPODES, are ſuch Inhabitants of the Earth as live diametrically oppoſite to one another. The *Antipodes* have the ſame Degree of Heat and Cold, the ſame Length of Night and Day; but at contrary Times; it being Midnight with one, when it is Noon with the other; and the longeſt Day with one, when ſhorteſt with the other.

The Inhabitants under the Poles have no *Periœcians*, but they are, at the ſame Time, *Antœcians*, and *Antipodes*.

Those who live under the Equator have no *Antœcians*, but the *Periœcians* are there, mean while *Antipodes*.

Of the Places which are under the Equator and the Poles, there are found every where else, *Periœcians*, *Antœcians*, and *Antipodes*.

The *Periœcians* have the same Zone and the same Temperature, the Seasons at the same time, *i. e.* the same Summer and the same Winter, are in the same Climate, have the same Increase of Days and Nights, except that in the Torrid Zone, and in the Temperate, when the one has Noon, the other has Midnight; and that in the Frigid Zone where the Days are continual they have only the Hours opposite.

The *Antœcians* are situated in the same Zone, in the same Temperature, in the same Climate, have the same Seasons, and the same Increase of Days, and Nights, but are in opposite Hemispheres; which is the Cause that when the one has Summer, the other has Winter, and when the one has the long Days, the other has the short; having nothing semblable at the same Time, but the Hours.

The *Antipodes* have also the same Zones, are in the same Temperature, in the same Climate. have the same Seasons, the same Heat in Summer, and the same Cold in Winter, the same Length of Days and Nights, but as they are diametrically opposite, they have all this in different Times.

With regard to those who live under the Poles, their diametrical Opposition, their Day and Night contrary, at the same Time, prove that they are *Antipodes*; and their Situation under the like Extremity of the same Meridian equally distant from the Equator, the same Hours of the natural Day, may make them pass for *Antœcians*, with this Difference, that when the one has a continual Day, the other has a continual Night, at the same Time.

But for those who live under the Equator they may be considered both as *Periœcians*, and as *Antipodes*, who notwithstanding have nothing like other *Antipodes*, but of being diametrically opposite, being in every Thing else true *Periœcians*.

It must be observed that our *Periœcians* are *Antœcians* to our *Antipodes*; that our *Antipodes* are *Periœcians* to our *Antœcians*, and that our *Antœcians* are *Antipodes* to our *Periœcians*.

Note, That from this we'll pass to the Division of the Surface of the Globe, by *Climates* and *Parallels*.

The Manner of discovering the Situation of Places, by the Height of the Pole, and Latitude, or Distance of the Equator, being not in use among the Antients; they searched that Situation by the Difference of the Length of the Days; which made them think of dividing the Surface of the terrestrial Globe, by means of Circles parallel to the Equator, into several Parts, or small Zones, each whereof should contain the same Lengths of the Days.

They gave to those Portions, or small Zones, the Name of CLIMATES, from Κλιμα, *Inclination*, or *Climate*, signifies rather Increase, because of the same Increase or Length of Days which those have who live in the same small Zone, which they subdivide by a Circle, or parallel Line, into two *Demi-Climates*, to which they gave the Name of Parallel; so that each *Climate* contains two Parallels, or *Demi-Climates*.

There are two Sorts of *Climates*. Those which are between the Equator, and the Polar Circles, where the artificial Days increase insensibly, are regulated by half Hours; and those who live between the Polar Circles and the Poles which contain continual Days, are regulated by Months, or 30 continual Days.

The *Parallels* are likewise of two Sorts, the one divides the *Climates* of half Hours into Quarters, and the other divides the Days of a Month into 15 Days.

Therefore *Climate* is a Space of the Surface of the terrestrial Globe contained between two parallel Circles, or Lines, between which there is a Variation of an half Hour, or of 30 Days in the longest Days of the Year.

Likewise the *Parallel* is a Space of the Earth contained between two Lines, or parallel Circles, between which there is a Difference, either of a Quarter of an Hour, or of 15 Days in the longest Days of the Year.

The *Climates* and *Parallels*, are, between them, very unequal; in those of artificial Days, the more they approach the Equator, the broader they are, and diminish in proportion, as they depart from the Equator and approach the Poles.

The *Climates* of continual Days, on the contrary, are broader in proportion they are nearer the Poles; and diminish as they depart from them, and advance towards the Tropicks.

The Inequality of the Latitude of the *Climates*, as well of artificial, as of continual Days, proceeds from the different Obliquities of the Horizons, with regard to the Course of the Sun, when it is in the Tropick; where it determines the Length of the longest Days, for all the Inhabitants of the same Hemisphere.

There are sixty *Climates*, thirty between the Equator and the Artick Pole, for the northern Hemisphere, and thirty between the Equator and the Antartick Pole for the opposite Hemisphere, which we commonly call Southern.

The thirty *Climates* of each Hemisphere are divided into *Climates* of half Hours, or artificial Days, and *Climates* of continual Days.

The *Climates* of half Hours are reckoned between the Equator and the Polar Circles, to the Number of 24. Because the artificial Day being always of 12 Hours under the Equator, and of 24 Hours, in the longest Day of the Year under the Polar Circles, the Increase is of 12 Hours, which make up 24 half Hours, and consequently 24 *Climates*.

The *Climates* of continual Days are reckoned between the Polar Circle and the Pole, to the Number of six, and by Months; because the longest Day under the Polar Circle, is of a natural Day, *i. e.* of 24 Hours, and of six Months under the Poles; which make up six Months of Increase, which are distributed by Months, each whereof makes a *Climate*.

The sixty *Climates* making up 120 *Demi-Climates*, or Parallels, *i. e.* 60 Parallels for each Hemisphere, there will be 48 by Quarters of an Hour, for the 24 *Climates* of Half-hours, and 12 for the *Climates* of Months, which together make up the 120 Parallels.

Note, That the People under the Equator have no *Climate*; those whose longest Day is of 12 Hours and an Half have one *Climate*; or are towards the End of the first *Climate*: Those whose longest Day is of 11 Hours, have two *Climates*, and thus in order to 66 Degrees 31 Minutes, where there are, as I have observed already, 24 *Climates*, i. e. that they are at the End of the last *Climate* of an Hour, because their longest Day lasts 24 Hours; and as from the End of the twenty-fourth *Climate*, every Quarter of a League towards the Pole, the Day increases 24 Hours at once, afterwards a Week, a Month, *&c.* the six last *Climates* have been determined by the Difference of a Month of continual Day more at their End, then at their Beginning.

The antient *Geographers*, who confined the *Climates* to what they imagined the habitable Parts of the Earth, only allowed of seven; under which were comprehended the Regions known to them; and design'd the *Climates* of the opposite Hemisphere, which they thought habitable, though unknown to them, by the opposite Situation in which they were with respect to the *Climates* known to them.

They began to reckon their known *Climates* where the longest Day is of 12 $\frac{1}{4}$ Hours, which they imagined to be the Beginning of the Habitations of the Torrid Zone; therefore they establish'd their first *Climate* between 12 $\frac{1}{4}$ Hours, and 13 $\frac{1}{4}$ Hours; the second

cond between 13 ¼ Hours and 13 ¾ Hours; thus every Half-hour; and called every one of the seven *Climates* by the Name of some celebrated City, Isle, Sea, or River through which the middle Parallel pass'd. Therefore they made the first pass thro' *Meroe*; the second thro' *Sienna*; the third thro' *Alexandria*; the fourth thro' *Rhodes*; the fifth thro' *Rome*; the sixth thro' *Pontus*; and the seventh thro' the Mouth of the *Borysthenes*; to which have been added since an eighth, passing thro' the *Riphæan* Mountains; and a ninth passing thro' the *Tanais*.

To these nine *Climates*, *Ptolomy* in his *Geography* added the Value of nine other *Climates*, as much of the Earth being known in his Time, *viz.* two *Climates* for the southern Hemisphere, and the Value of seven *Climates* for the northern Hemisphere. It must be observed, that against the Method of his Predecessors, he does not reckon by *Climates*, but by Parallels of Quarters of an Hour, and that he begins them at the Equator, which he reiterates in his *Almageste*, where after he has distributed his Parallels, a little otherwise than in his *Geography*, which however accounts for the same Increases, he adds the Days that increase as far as to 24 Hours under the Polar Circle, and places between that Circle and the Pole six Parallels, which contain each an Increase of a Month, which shews that the Antients have established more than seven *Climates*, since they have divided the whole Surface of the terrestrial Globe into *Climates* and Parallels, as we do; but that what most of the Antients shew of the Earth, was comprised but in seven *Climates*, then in nine; and that in *Ptolomy*'s Time was known the Value of sixteen *Climates* of the northern Hemisphere, and the Value of two of the opposite Hemisphere.

Note, That M. *Mathion* has invented a Line of an excellent Use to determine by the sole Inspection, without Movements, Tables, or Writings, the longest Day of all the Countries of the World, at least as far as the Polar Circle. That Line is drawn from the 90 Degree of the Equator to the 66 and an Half of the first Meridian. The Use of this Line is, that if one wants to know the longest Day of some Country, he must observe where that Line cuts the Parallel of the Country in Question, and what Meridian passes thro' that Place, then reckon 15 Meridians for one Hour, *i. e.* 4 Minutes of Hours for each Meridian; and that Number of Hours is the Hour of Sun rising in the Middle of Summer in that Country, whence the Duration of the whole Day will be known. For Example, If we would know for *Paris*, which has almost 49 Degrees of Latitude; we'll look what Meridian passes thro' the Place where the said Line cuts the 49*th* Parallel, which is the 60*th* Meridian, for which we must reckon 4 Hours, since 4 times 15 are contained in that Number 60; therefore in the Middle of Summer the Sun rises at four in the Morning at *Paris*, and in all the Countries of the same Parallel, or of its Anti-parallel, *i. e.* of the 49*th* Degree, Southward. And hence it is easy to judge that the longest Day is of 16 Hours, since from 4 in the Morning to 12, there is 8 Hours, and as many to Sun setting. Therefore the longest Day of those two Parallels is of 16 Hours,

The *Geographers* perceiving that the Division of the Surface of the terrestrial Globe into *Climates*, could be of no other Use than to consider that Surface in general, and from South to North, judged, that not only a more exact Division was necessary to mark with a greater Regularity, the Situation of every Place from South to North, but that another should be established from East to West.

Having discovered that the Poles determine to their respect, the North and South; that the Extent from East to West is perfectly marked by the Equator, whose Circuit contains double the Distance which is between the two Poles; they have called LATITUDE the Space of the terrestrial Globe, which runs from North to South; and LONGITUDE, that which extends from East to West, and that for this Reason, because that Part of the Earth, then known to them, had once more Extent from West to East, than from South to North.

In Imitation of Geometers who divide all Sorts of Circles into 360 Parts, *Geographers* divide the Circumference of the terrestrial Globe into 360 Degrees. Therefore they divide the Length of the Surface of the Globe by 360 Semi-Circles, or meridional Lines drawn from one Pole to the other into 360 Parts, which they call Degrees of *Longitude*, thereby to measure the Length thereof. And because the Distance between the two Poles, makes but half the Circumference of the whole Globe, they divide the Breadth of the same Surface between the two Poles, but into 180 Parts, or small Zones, which they call Degrees of *Latitude* to measure its Breadth, and these Degrees are distinguished by the Poles, and the 179 Lines, or Circles parallel, and equi-distant.

As the Equator is the greatest of the parallel Circles, and in an equal Distance from the Poles, *Geographers* have establish'd it the Rule and the first of those Circles, and begin to reckon from it the Degrees of *Latitude*, advancing towards the one or the other Pole. Therefore these *Latitudes* being reckon'd twice towards one or the other Pole, are found divided by the Equator into Degrees of *Northern Latitude*, and Degrees of *Southern Latitude*, with respect to us, 90 Degrees on each Side.

And because each parallel Circle, by its Circumference on the terrestrial Globe, marks the same Degree in its whole Circuit, *i. e.* in both Hemispheres; *Geographers* divide each Hemisphere, by the Equator, into two equal Parts, Northern and Western, which makes up four Quarters for the whole Surface of the terrestrial Globe; and to let us know in what Part of the two Hemispheres, Eastern and Western, that *Latitude* is found, they express if that *Latitude* be in the northern, or southern Parts of the one, or other Hemisphere. Therefore to avoid Confusion, they reckon four Times the Degrees of *Latitude* 90 between the Equator and the Artick or Northern Pole; and 90 between the Equator and the Southern Pole for our Eastern Hemisphere; reckoning again twice 90 for the other, or Western Hemisphere, between the Equator and the same Poles, which together make up 360, tho' they mark but 180 Degrees of *Latitude* or small Zones, for the parallel Circles which contain thus one Degree of each Hemisphere.

The Degrees of *Latitude* are mark'd in Globes, on the first simple Meridian, which is the first *Longitude*; and only twice 90, one for each Circle. But in Maps they are mark'd on the first whole Meridian; which dividing both Hemispheres, cut likewise all the Circles of *Latitude* into equal Parts; therefore the Degrees are mark'd there four Times, one for each Demi-Circle, or Parallel of *Latitude*.

All these Degrees, in the Globe and Maps, are mark'd one by one; but for the Lines or Circles which divide them, are drawn five by five, ten by ten, or fifteen by fifteen, according to the Bigness of the Globe, or Map.

These Degrees of *Latitude* thus marked, shew in what *Latitude* Regions and Places are situated, which is the Distance from the Equator to the Place proposed; and give at the same Time the Altitude of the Pole, *i. e.* how much the Pole is risen above our Horizon, which passes as much beyond the Pole, as we are distant from the Equator; the *Latitude* of one Place, and the Altitude of the Pole being equal.

The 360 Degrees of Longitude are marked in the Globe, and the general Maps of the Earth, one by one; the Demi-circles or Meridians, which distinguish them, are delineated five by five, ten by ten, or fifteen by fifteen, according to the Bigness of the Globe or Map.

These Degrees are reckoned from West to East, because the Antients being more sure of the Western Extre-

Extremity of the Lands of our Continent, as being next Neighbours, they have eſtabliſhed there the firſt Line of the *Longitudes*, whence they began to reckon from Weſt to Eaſt the 360 Degrees of *Longitude* for the Length of the Earth.

The Demi-Circles, or Lines of Longitude, which are the ſame with the Meridians, are drawn from one Pole to the other, towards which they are conducted from the Equator; theſe Lines make the Space they contain narrower, in Proportion they depart from the Equator and approach the Poles, where they terminate that Space into a *Point*; therefore a Degree of Longitude marked on the Equator, which muſt be conceiv'd to extend the whole Space which is between the Equator and the Poles between two of thoſe Lines, diminiſhes in Proportion it departs from the Equator, and becomes with thoſe Lines, a Point under the Poles.

The Degrees of Longitude thus marked, ſhew the *Longitude* of Countries and Cities, which is their Diſtance from the firſt Longitude, or firſt Meridian: The Longitude being the Arch of the Equator, or of a Parallel compriſed between the Meridian of a Country, City, or Town, *&c.* and the firſt Meridian.

Therefore *Geographers*, by means of the Degrees of *Latitude*, divide the Surface of the terreſtrial Globe from North to South, and by means of the Degrees of Longitude, they divide the ſame Surface from Weſt to Eaſt. When they conſider that Surface from North to South, *i. e.* from one Pole to the other, they divide it into 180, or twice 90 Degrees of *Latitude*, or ſmall Zones, all of the ſame Breadth; but the Circuit of each diminiſhing in Proportion they depart from the Equator, and approach the one or other Pole, being never but two alike, *viz.* thoſe which are at an equal Diſtance from the Equator, the two firſt having in their Circuit the ſame Extent with the Equator; and the two Ninetieths and laſt, having for Extent but what the Circle drawn at one Degree of Latitude of the Point of the Pole can incloſe in its Circumference. And when *Geographers* conſider that ſame Surface from Weſt to Eaſt, they divide it into 360 Parts or Degrees of *Longitude*, which are very different from thoſe of *Latitude*; conſidering that each Degree of *Latitude* has always the ſame Proportion in all the Extent of its ſmall Zone, which is properly ſpeaking, a Circle of one Degree in Breadth; when as each Degree of *Longitude*, conſidered in its Extent, which is from one Pole to the other, is broad in its Middle, and picked, or in *Point*, at its Extremities, being broad but on the Equator, and diminiſhing as they advance towards the Poles, where they terminate in a Point.

The *Geographers*, who, as we have obſerved, have followed the Aſtronomers, in eſtabliſhing the Equator for the firſt Circle, or Parallel of Latitudes, have likewiſe made uſe of their Meridians for their *Longitudes*; but Aſtronomers having not yet found any Thing in the Heavens to determine the firſt Meridian, the Opinions of *Geographers* have been found divided, with regard to the Place where the firſt *Longitude* may be fixed.

The Weſtern Nations of our Continent, and the *Arabs* have placed it at the Weſtern Extremity of our Continent, whence they reckon the other *Longitudes* from Weſt to Eaſt. The People of the Eaſt, and particularly the *Indians*, have eſtabliſhed the firſt *Longitude* in the Middle of our Hemiſphere, at a Place ſituated at 90 Degrees, from the one and the other Pole, *i. e.* under the Equator, which Place they have alſo pretended to be diſtant of 90 Degrees of *Longitude* from each Extremity of our Continent, *viz.* at 90 Degrees of the Weſtern Coaſts, and at 90 Degrees of the Eaſtern. Then they have afterwards eſtabliſhed that firſt Longitude at the eaſtern Extremity of our ſame Continent, in order to follow, in reckoning the other Longitudes, the Courſe of the Sun; and tho' this Order be preferable, Uſe has notwithſtanding authoriſed, among the weſtern Nations, that of reckoning from Weſt to Eaſt.

Though the People of the Weſt have all agreed to place the firſt *Longitude* at the Weſt of our Continent, they nevertheleſs differ among themſelves as to the Place where they fix that *Longitude*. *Ptolomy*, and the Antients, have placed the firſt Longitude at the *Fortunate Iſlands*, which we ſuppoſe to be the *Canaries*. Among the *Arabs*, ſome have follow'd *Ptolomy*; and others place it at the Streight of *Gibraltar*.

Some modern Authors have eſtabliſhed the firſt Longitude at the *Tercieres* Iſlands; others at the Iſlands of *Cape Verd*, at the *Pike of Teneriff* in the *Canaries*. The *Caſtilians* fix it at *Toledo*; the *Portugueſe* at *Liſbon*; the *French* could pretend the ſame Thing for *Paris*; the *Engliſh* for *London*: And thus all other Nations could place the firſt *Longitude* at their capital City.

All theſe different Opinions having but little or no Foundation, that of *Ptolomy* is preferable, ſince he fixes his firſt Meridian, and conſequently his firſt Longitude, at the firſt Lands; and that Meridian thus placed, conſider'd as entire, *i. e.* with its Supplement, contains, in its Hemiſphere, the antient Continent: Therefore moſt of the *Europeans*, at preſent, place the firſt Longitude, or firſt Meridian, at the *Iſle of Ferre*, the moſt Weſtern of the *Canaries*.

The Obſervation of Latitudes is made exactly enough, either by the meridian Altitude of the Sun, or by that of the fix'd Stars, which laſt is the moſt exact; that is to ſay on Land; the Obſervation which one is obliged to make, there, at ſeveral Times, for the ſame Place, ſhewing plainly that the Obſervations of Latitudes made at Sea cannot be very juſt, nor taken, with all the Exactitude required, ſince they are made but once, *en paſſant*, and in a Place which is not ſtable.

Note, That we'll next divide the Surface and Solidity of the terreſtrial Globe by *Meaſures*.

The whole Circuit of the terreſtrial Globe taken upon one of the great Circles, either by the Latitude or Longitude, being of 360 Parts or Degrees; *Geographers* (following the Example of Geometers, who after they have divided every Circle into 360 Parts, ſubdivide each of thoſe Parts into 60 others) have likewiſe divided each of their Degrees into 60 Minutes, and ſubdivided the Minute into 1000 Parts, to which they give the Name of *Geometrical Paces*, becauſe they ſerve to meaſure the Earth.

Each *Geometrical Pace* is compoſed of five geometrical Foots; — the *Foot* is compoſed of 12 Inches; — the *Inch* of 12 Lines; — and the *Line* of 12 Points.

The Degree thus divided into 60 Minutes, or 1000 geometrical Paces, ſerves for a Foundation and Rule, for the Evaluation of all Sorts of itinerary Meaſures, great, middling, or little of all Countries.

In the Evaluation of *Meaſures*, let them be ever ſo indifferent, by Means of the Number of 1000 Paces, they contain: — The Degree contain 60 *Italian Miles*, — 48 common *Engliſh Miles*, — 15 common *German Miles*, — 20 common *Poliſh Miles*, — 10 common *Hungarian Miles*, — 25 common, 30 ſmall, and 20 great *French Leagues*, 17½ *Spaniſh Leagues*, — 12 *Swediſh Leagues*, — 80 *Werſts* of *Muſcovy*, — 20 *Farſangs* of *Perſia*, — 25 *Kaſſes*, and 12½ *Gos* of *India*, — 250 *Ly*, and 25 *Pu* of *China*, — 20 *itinerary Meaſures* of *Japan*.

The 1000 geometrical Paces, being the Rule of all the itinerary Meaſures, I'll make Uſe of it here to meaſure the terreſtrial Globe.

As the *Terreſtrial* GLOBE is a ſolid Body, compriſed under a ſingle Superficies, four Things are to be conſider'd in it, *viz.* the *Circuit*, the *Diameter*, the *Surface*, and the *Solidity*; which will be eaſily determined, after we have obſerved with the Geometers, that all Circumference is very near to its Diameter at the Rate of 22 to 7; and approaching nearer the entire Exactneſs (unknown yet) at the Rate of 355 to 113; that multiplying the Circumference by the Diameter,

Diameter, the Surface of the terrestrial Globe is found. And that multiplying the third of the Surface, by the Semi-Diameter, or the Surface by the sixth Part of the Diameter, the Solidity of the Globe is discover'd.

This presuppos'd, the Circuit of the terrestrial Globe, being of 360 Degrees, it must be of 21600 Minutes, or common *Italian* Miles.

The *Diameter* is of 6875½ of those Miles, or thereabouts.—The *Surface* of 148.580,800 of those Miles Square, which are so many Plans of a Mile in Length and Breadth.—The *Solidity* is of 170,180.000,900 Miles Cube, *i. e.* so many Solids and Squares make a Mile in Length, Breadth, and Thickness.

It will be easy to reduce by those Miles, or by the whole Degree, all the different Measures abovemention'd. For Instance, if we would make that Supputation by common *French* Leagues, 25 of which make a Degree, the Circuit of the terrestrial Globe will be just 9000 of those Leagues. The Diameter of 1164¾ a little more. The Surface of 25. 782. 750. The Solidity of 12. 310. 188. 843½ or thereabout So that, according to this Supputation, it may be said that the whole Circuit of the Earth, is 21,600000 geometrical Paces, or common *Italian* Miles; or 9000 common *French* Leagues. That its Surface contains about 148 Millions and a half of thousand geometrical Paces, or common and square *Italian* Miles; or 25 Millions and a half of common *French* Leagues. And that in its Solidity, are comprised 170 Millions of Millions, 181 Million of thousand geometrical Paces or common cube Miles of *Italy*.

Note, That as the terrestrial Globe consists both of Earth and Water, I'll consider the Solidity and Surface of the Water a-part; that by comparing them together, we may be capable to judge by how much the one can surpass the other in Quantity; in Case all the Lands were known, and the Sea was not unequal in its Depth.

Tho' the Magellanick Continent be not yet entirely discover'd, no more than the Antarctick Lands, the Globes and Maps leave us Room to judge that there may be very near as much Water as there is Earth on the Surface of the terrestrial Globe.

If that Equality was just, the Surface of the Water would be 74. 255. 400. *i. e.* 74 Millions of thousand geometrical Paces, or square common *Italian* Miles.

With Regard to the Depth of the Sea, it is well enough known near the Coasts; but that's nothing in Comparison of the vast Extent of the rest of the Sea, the Depth whereof is unknown.

Pilots say, a Sea without Bottom, when it has more than two hundred Fathoms in Depth; some pretend that it does not exceed five hundred Fathoms, *i. e.* about half a Mile; tho' it has been found by Experience, that it was in some Places 4000 geometrical Paces deep.

But suppose that the Sea was equally a Mile deep every where, the Solidity of the Water would be of about 74. 255. 400. geometrical Paces, or common *Italian* Miles.

The Earth has almost as much Thickness, as its Demi-Diameter, except Places where the Sea is supposed to be a Mile deep; so that taking the 74. 255. 400. cube Miles of the Sea, from the Totality of the Solidity of the whole terrestrial Globe, which we have said to be of 170. 181. 000. 900. it will remain 170. 106. 745. 500. cube Miles for the Solidity of the Earth. Therefore for about 74 Millions of cube Miles, which the Sea could have in giving to it a Mile in Depth, the Earth would have more than 170 Million of Millions, a hundred and six Millions and a half of cube Miles.

Note, That we are indebted for the Determination of the Bigness of the Earth to the late King of *France*. It is true, that *Snellius* and *Riccioli*, attempted it towards the Middle of the last Century, but they were so unhappy in their Discovery, that they differed yet of 7550 Fathoms on the Length to the Degree, *i. e.* of more than ⅛ on the Circumference of the Earth; when *Louis* XIV. commanded that as exact a Measure as could be, should be taken of the terrestrial Globe; and the famous M. *Picard* who was entrusted with it, executed it with all the Care and Exactness, the King's Orders and the Importance of the Thing requir'd. This Measure taken by so celebrated an Astronomer, was thought to be exactly that of the Earth; till Experiences made soon after on Ponderosity, found unequal in different Climates, made its Figure to be call'd in Question; and if its Figure was not that of a perfect Globe, its Bigness could not be known, because the Degrees of the Meridian, were no longer equal, as supposed by M. *Picard*.

Mr. *Richer* having departed for *Cayenne*, in 1672. to make in that Island astronomical Observations, found that his Pendulum Clock, which he had regulated at *Paris* on the mean Motion of the Sun, being transported to *Cayenne*, which is but about five Degrees distant from the Equator, did go slower by 2′ 28″ every Day. He brought back this Experience into *France*, which became the Object of the Attention of the most curious Philosophers and Mathematicians. It was presently found that this Experience supposed the Ponderosity less at *Cayenne* than at *Paris*. When the Pendulum which regulates the Clock, departs in its Motion from the vertical Situation, the Strength which brings it back to it, it's the Ponderosity, and it brings it back the sooner, the greater it is, and later the less it is. The Pendulum does not permit the Needle of the Clock to mark or shew each Second on the Dial, but after it has ended one of its Oscillations. Therefore if the Needle shews less Seconds during one Revolution of the Stars, the Pendulum employs more Time in falling back into its vertical Situation; and the Strength which pushes it, and the Ponderosity, is less. It is true that in hotter Climates, the Rod of the Pendulum, as any other Rod of Metal, grows longer, and its Conglution retards the Oscillations. A longer Pendulum, all Things besides equal, oscillates slower than a shorter one; but it is exactly enough discover'd by how much the Heat lengthen the Pendulums, and consequently by how much it retards their Motions; and notwithstanding the Heats of *Cayenne*, the Slowness observed could not be attributed to that Cause; therefore the Ponderosity was smaller at *Cayenne* than at *Paris*.

But what was the Cause of that Diminution of Ponderosity? A Body which turns round the Centre, makes a continual Effort to depart from that Centre, which Effort is called *centrifuge Force*. All Bodies which turn are subject to it; and in those which make their Revolution at the same Time, it is proportionable to the Bigness of the Circle they describe. The Earth's making every Day one Revolution round its Axis, all Bodies, all Parts of the Matter which compose it, describe Circles; all partake of the *centrifuge Force*, and each more or less, according to the Bigness of the Circle it describes: That *Force*, or Strength vanishes at the Poles, and is greater than any where else under the *Equator*, because that Circle is greater than all those which describe the various *Points* of the Surface of the Earth. The total Effect of the *centrifuge Force*, is to tend towards dispersing Bodies from the Centre of the Circles they describe, and a Part of that *Force* is opposite to Ponderosity, which, in all Places, tends towards making all Bodies fall, as near as possible, in the Centre of the Earth; that Part of the *centrifuge Force* opposite to Ponderosity, is greater the nearer it approaches the Equator: 1. Because the Circles those Bodies describe are greater: 2. The more one approaches the Equator, the more the Direction of that *Force* is opposite to Ponderosity.

The *centrifuge Force*, therefore, diminishes, the nearer the Equator a Place is, much more the Ponderosity is diminished in that Place; and Ponderosity

derosity thus alter'd, must appear smaller at the Equator, than towards the Poles; and smaller in Places nearer the Equator, than in those which are at a greater Distance from it: This was observed after the Pendulum had been carried from *Paris* to *Cayenne*. Whence it was concluded, that there was no depending on the Measure of M. *Picard*, but for the Degree he had measured; and that the Figure of the Earth, instead of being a perfect Globe, should be a little flatten'd towards the Poles, and have the Shape of an Orange. But the Measures of M. *Cassini* give the Earth a quite opposite Figure, *viz.* that of a lengthen'd Spheroid, or of a Lemon. These Measures were repeated by M. *Cassini* at different Times, in different Places, with different Instruments, and by different Methods; and the Result of six Operations, made in 1701, 1713, 1718, 1733, 1734, and 1736, was always that the Earth was *stretched towards the Poles*. The best of those Methods was found to be that taken from the Observation made by Travellers, that after their Departure, in following the Direction of the Meridian, the Elevations of the Stars were not the same at the Place where they arriv'd, as they were at that from whence they departed. After having travell'd 20 Leagues, there was found the Difference of a Degree in the Elevation of the Stars; and it was hence concluded, that a Degree of the Circumference of the Earth was of 20 Leagues; and the whole Circumference 7200. To account for this Conclusion, we must observe, that the Altitude of a Star, is the Angle form'd by the horizontal Line, and that drawn from the Eye of the Spectator to the Star; but as the Stars made Use of to measure the Earth, must be as near the *Zenith* as possible, to avoid the Refraction of the Atmosphere, which is great towards the *Horizon*, and subject to great Variations; instead of referring the Altitude of the Stars to the *horizontal Line*, it is referred to the *vertical Line*, according to which a Thread loaded with Lead is directed. It is easily demonstrated by the Hydrostatick, that this Line is every where perpendicular to the Surface of the Waters, and has the same Figure with that of the Earth; since in all Places the Coasts follow the Surface of the Sea, and never rise above it, but of a Height, which is nothing with Regard to the Totality of the Surface of the Earth; that Line with Lead, perpendicular to the Surface of the Waters, is taken every where, for the Perpendicular to the Plane which touches the Surface of the Earth in that Place.

This *vertical Line* is always directed exactly towards a Point imagined in the Heavens, directly above a Place, and called, as we have already observ'd, the *Zenith* of that Place. This Line can serve as the *horizontal Line* to measure the Height of the Star, because as it makes with it a right Angle, the Distance of a Star to the *Zenith* is always equal to a right Angle, the less the Elevation of the Star is above the *Horizon*. And if in two Places of the Earth, the Elevation of a Star is different, its Difference to the *Zenith* differs, likewise, of the same Quantity.

It is by this Method that M. *Picard* having measur'd the Distance between *Paris* and *Amiens*, and observ'd the Angles form'd by the two Verticals of *Amiens* and *Paris*, found the Degree of the *Meridian* to be of 57060 Fathoms.

M. *Cassini* being order'd to measure the whole *Meridian* of *France*, divided that *Meridian* into two Arches, one extended from *Paris* to the meridional Extremity of the Kingdom, of $6\frac{1}{3}$ Degrees; the other from *Paris* to the northern Extremity of $2\frac{1}{3}$ Degrees. One of the Advantages these Operations had over that of M. *Picard*, was the Bigness of those Arches; the other was the Possibility of giving the Comparison of two Arches of the *Meridian*, one Southward, and the other Northward. For if there was some Inequality between the Degrees of the Earth, as pretended by Messr. *Newton* and *Huygens*, that Inequality should be thereby discovered; and with a still greater Security, because on several Degrees those Differences should have been accumulated.

M. *Cassini* had published in 1718, a Book of the Bigness and Figure of the Earth, in which, after he has related all the Operations he had already made, he concluded, not only that the Earth was lengthened towards the Poles, but determin'd, besides, the Quantity of that Elongation, and all the Dimensions of the Figure of the Earth; which was an *Ellepsoide*, lengthen'd towards the Poles, whose Axis was of 6579368 Fathoms, and whose Diameter from the Equator was 6510796, and the first Degree Northward of *Paris*, which M. *Picard* had determin'd of 57060 Fathoms, was but of 56975 Fathoms. The principal Object of this Work, the most useful, was the Table found in it, of the Value of each Degree of the *Meridian*, and of each Degree of Latitude; and all the other Measures taken by M. *Cassini* in 1733, 1734, 1736, confirmed very well that Table.

These Measures being found contrary to the Figure which the Rules of Hydrostatick seem to give to the Earth, and the Decision of that Question appearing of some Importance, *Louis* XV. ordered in 1736, that two Companies of learned Mathematicians should go, the one to the Equator, and the other to the Polar Circles, to take the Measures which were supposed more decisive than that M. *Cassini* had taken in *France*. We know nothing yet of the Measures taken by the Mathematicians sent to the Equator; but those of the Polar Circles have brought over theirs, which contradict all that M. *Cassini* has done, and make the Earth flatten'd. M. *de Maupertuis* and his illustrious Companions, have found the Degree of the *Meridian* where it cuts the Polar Circle of 57438 Fathoms, that is to say, of about 1000 Fathoms bigger than it should be according to M. *Cassini*'s Table. But without pretending to decide the Question between M. *Cassini* and the Gentlemen who came lately from the Pole, here follows a Table, one Column whereof is formed on the Measures given by M. *Cassini* in his Book of the *Bigness and Figure of the Earth*, and the other Column on the Measures of Messrs. of the North. Those Gentlemen have found in *Laponia*, in the Latitude of 66° 20′, the Degree of the *Meridian* of 57438 Fathoms; and having measured again with the same Instrument the Degree in *France*, at the Latitude of 49° 22′, they have found it 57183 Fathoms, bigger 208 Fathoms than that same Degree was given by M. *Cassini*. According to these Measures, and taking the *Meridian* of the Earth for an Ellipsis, the Diameter of the Equator is found 6562480 Fathoms, and the Axis of the Earth 6525600: These two Numbers are very near to one another, as 178 to 177. It is true, that the Report of the Axis of the Earth to the Diameter of the Equator, will be determined yet more exactly, if the Mathematicians sent to *Peru*, bring back an exact Measure of the Degree of the *Meridian* towards the Equator. The more the two Degrees compared together, are distant, the more the Comparison made is advantageous to determine the Figure of the Earth; but however, the Advantage which can be got from that Comparison, depends likewise on the Exactness of the Measure of each Degree; and the Exactness of the Measures on which we depend appears to be such, that it could counter-ballance, or surpass the Advantage which could proceed from a greater Distance between the measur'd Degrees. A Circumstance which appears to be of great Importance is, that the Amplitude of the Degrees compar'd, has been determined with the same Instrument.

When one has two Degrees of the *Meridian* very well measured, the Value of each Degree of Latitude is easily determin'd, by using the Theorem given by Sir *Isaac Newton*, and demonstrated by

by M. *Maupertuis*; that the Degrees of the *Meridian* from the Equator towards the Pole increase, like the Square of a Sine of Latitude.

As to the Degrees of Longitude, if we take M for the Demi-Axis, N for the Demi-Diameter of the Equator, T for the Tangent of the Latitude, G for the Degree of the Circle, R being the Radius thereof, we'll have $NNG : \sqrt{(NNR + MMTT)}$ for the Degree of Longitude, or for the Degree of the Circle parallel to the Equator, which passes thro' that Latitude.

By this Formula, the following Table may be fill'd, where the Degrees are only given five by five, and all the intermediate Degrees placed in it, but as the Calculation is troublesome and tedious, the following Formula may be used, which will always give a sufficient Exactness. Let N be the Demi-Diameter of the Equator; D the Difference between the Demi-Diameter of the Equator, and the Demi-Axis; S the Sine of the Latitude; C the Cosinus, and G a Degree of the Circumference of the Circle; R being the Radius thereof: The Formula to find each Degree of Longitude, will be $\frac{NCG}{RR} \pm \frac{CSSGD}{R^4}$; in which the Sign – is for the Earth lengthen'd, and the Sign + for the Earth flatten'd.

TABLE *of the Degrees of* LATITUDE.

Latitude.	*Degrees of M.* Cassini.	*Degrees of M.* de Maupertuis.	*Differences.*
0	58020 *Fath.*	56625 *Fathoms.*	+1395 *Fath*
5	58007	56630	1377
10	57969	56655	1314
15	57906	56690	1215
20	57819	56740	1079
25	57709	56800	909
30	57580	56865	715
35	57437	56945	492
40	57285	57025	260
45	57130	57110	20
50	56975	57195	— 220 *Fath*
55	56825	57275	455
60	56683	57350	667
65	56555	57420	865
70	56444	57480	936
75	56355	57530	1175
80	56287	57565	1278
85	56243	57585	1342
90	56225	57595	1370
	Axis of the Earth, 6579368 *Fath.*	*Axis of the Earth,* 6525600 *Fathoms.*	53768 *Fath.*

TABLE *of the Degrees of* LONGITUDE.

Longitude.	*Degrees of M.* Cassini.	*Degrees of M.* de Maupertuis.	*Differences.*
0	56820 *Fath.*	57270 *Fathoms.*	450 *Fath.*
5	56695	57050	455
10	55935	56410	475
15	54845	55340	495
20	53325	53850	525
25	51400	51955	555
30	49075	49665	590
35	43380	46995	615
40	43335	43970	635
45	39965	40610	645
50	36295	36930	635
55	32360	33970	610
60	28185	28755	570
65	23805	24315	510
70	19255	19685	430
75	14560	14900	340
80	9765	10000	235
85	4900	5020	120
90	0	0	0
	Diameter of the Equator, 6510796 *Fath*	6562480 *Fathoms.*	51684 *Fath.*

Note also, That as the artificial Globe, and geographical Charts, are the true Representation of the Surface of the Earth, I must give the Description of both, and instruct my Pupils how to use them, before I proceed to a more particular Division of that same Surface; beginning by the Globe; but as we have already mention'd the celestial Globe in our Treatise of *Astronomy*, and inform'd there our Pupils of all Things he should know relating to it, I'll confine myself here to the terrestrial Globe; as the only one adapted to this present Subject.

The *terrestrial* GLOBE is an artificial Sphere, on whose Surface are delineated the principal Places of the Earth, in their proper Situations, Distances, *&c.* together with the Circles imagined on the Surface of the terrestrial Sphere.

Note, That the Construction of a *terrestrial Globe*, whether of Metal, Plaister, Paper, *&c.* is the same as that of a *celestial*, the same Circles being delineated on both; and as for the Places, *viz.* Cities, Towns, *&c.* they are laid down from the Longitudes and Latitudes given; as the Stars are from their right Ascensions, and Declinations: Hence all Problems, depending on the Circles, may be equally wrought on either *Globe*; as the Ascensions, Declensions, Amplitudes, Azimuths, Risings, Settings, Altitudes, *&c.* of the Sun; the Length of Day and Night; Hours of the Day and Night; Crepuscula, *&c.*

The Use of the *terrestrial Globe*, is to exhibit the several Affections, and Phænomena of the different Places of the Earth, depending on Magnitude, *&c.* in an easy, obvious Manner, without the Trouble of trigonometrical Calculation.

Note, That it is very difficult to find a *Globe* perfectly round, exactly divided by its Circles and their Degrees, which turns as it should round its *Pivots*; and with all the Conditions necessary to make exact Observations: Among the Globes made of Pasteboard, it is almost impossible to find one. But suppose we should find such a Thing, we may gratify our Curiosity upon it by the following Propositions, which I have judged the most necessary.

1. To find on a *terrestrial Globe* the Latitude and Longitude delineated on that Globe. Bring the Place to the graduated Side of the Brass Meridian: The Degree of the Meridian it cuts, is the Latitude requir'd; and the Degree of the Equator at the same Time under the Meridian, is the Longitude requir'd.

2. The Latitude and Longitude given, to find the Place on the Globe. Seek on the Equator the given Degree of Longitude, and bring it to the Meridian; then count from the Equator on the Meridian, the Degree of Latitude given, towards this or that Pole, as the Latitude is either North or South; the Point under this is the Place requir'd.

3. To find the *Antiœcians*, *Periœcians*, and *Antipodes* of any Place. 1. The given Place being brought to the Meridian, count as many Degrees on the Meridian from the Equator towards the other Pole. The Point thus arrived at, is the Place of the *Antiœcians*. 2. Note the Degrees of the Meridian over the given Place, and its *Antiœcians*; and turn the *Globe* till the opposite Degree of the Equator comes under the Meridian; or which amounts to the same, till the Index which before stood at twelve, comes to the other twelve: Then will the Place corresponding to the former Degree, be the *Periœcians*; and the latter that of the *Antipodes*.

4. To find what Place of the Earth the Sun is vertical to, at any Time assigned. 1. Bring the Sun's Place, found in the Ecliptick, to the Meridian, and the Index to the Hour of twelve; noting what Point of the Meridian corresponds thereto. 2. If the given Hour be before Noon, substract it from twelve Hours; and turn the Globe towards the West, till the Index points at the Hours remaining. Thus will the Place required be under the Point of the Meridian before noted.

noted. 3. If the Hour be after Noon, turn the *Globe* in the ſame Manner towards the Weſt, till the Index points at the given Hour: Thus again will the Place requir'd be found under the Point of the Meridian before noted. If at the ſame Time you note all the Places which are under the ſame half of the Meridian with the Place found, you will have all the Places to which the Sun is then in the Meridian; and the oppoſite half of the Meridian will ſhew all the Places, in which it is then Midnight.

5. A Place being given in the Torrid Zone, to find two Days in the Year wherein the Sun is vertical to the ſame. 1. Bring the given Place to the Meridian, and note the Degree of the Meridian correſponding thereto. 2. Turn the Globe about, and note the two Points of the Ecliptick paſſing through that Degree. 3. Find on what Days the Sun is in thoſe Points of the Ecliptick: For on thoſe Days he is vertical to the given Place.

6. To find thoſe Places in the Torrid Zone, to which the Sun is vertical on a given Day. Bring the Sun's Place in the Ecliptick to the Meridian; then turning the *Globe* round, note all the Places which paſs thro' that Point of the Meridian; thoſe are the Places requir'd. After the ſame Manner are found what People are *Aſcians* for any given Day.

7. A Place being given in the Frigid Zone, to find on what Days of the Year the Sun does not riſe; and on what Days he does not ſet to the ſame. 1. Count as many Degrees in the Meridian from the Equator towards the Pole, as is the Diſtance of the given Place from the Pole. 2. Turning the Globe round, note all the Points of the Ecliptick, paſſing through each Point noted in the Ecliptick: By this Means you will have the Arches which the Sun deſcribes when he neither riſes nor ſets; and the Points themſelves give the Places of the Sun, when he neither riſes nor ſets, at the Beginning and Ending. 3. Find what Days of the Year the Sun is in thoſe Places: Theſe are the Anſwers to the Queſtion.

8. To find the Latitude of Places wherein any given Day is of any given Length. 1. Bring the Sun's Place for the given Day to the Ecliptick, and ſet the Index to the Hour of twelve. 2. Turn the *Globe* till the Index points at the Hour of Riſing and Setting. 3. Raiſe and depreſs the Pole till the Sun's Place appear in the eaſtern or weſtern Side of the Horizon: Then will the Pole be duly elevated, and conſequently the Latitude given.

9. To find the Latitude of thoſe Places in the Frigid Zone, where the Sun does not ſet for a given Number of Days. Count ſo many Degrees from the next Tropick, towards the equinoctial Point, as there are Units in half the Number of the given Days; by Reaſon the Sun in its proper Motion, goes nearly a Degree every Day. 2. Bring the Point of the Ecliptick, thus found, to the Meridian: Its Diſtance from the Pole will be equal to the Elevation of the Pole, or Latitude of the Places requir'd.

10. Any Hour of the Day or Night being given, to ſhew all thoſe Places to which the Sun riſes and ſets; where it is Noon or Midnight; and where Day or Night. 1. Find what Place the Sun is at that Time vertical to, as already taught. 2. Let this Place be brought to the Zenith of the wooden Horizon, *i. e.* elevate the Pole as the Latitude of that Place requires. Then will the Places on the eaſtern Side of the Horizon, be thoſe the Sun is ſetting to; and on the weſtern Side, that he riſes to; thoſe under the upper Semi-circle of the Meridian, have it Noon; and thoſe under the lower, Midnight. Laſtly, to thoſe in the upper Hemiſphere, it is Day; and to thoſe in the lower, Night. Hence, as in the Middle of an Eclipſe, the Moon is in that Degree of the Ecliptick oppoſite to the Sun's Place; by the preſent Problem it may be ſhewn, what Places of the Earth then ſee the Middle of the Eclipſe, and what the Beginning or Ending.

11. To find what Places of the Earth a Planet, *v. gr.* the Moon is vertical to, any Day of the Year. 1. Mark the Planet's Place on the *Globe*, as above taught. 2. Bring this Place to the Meridian, and note the Degree over it. 3. Turn the *Globe* round, the Places which paſs under the Point are thoſe requir'd.

12. The Declination of a Star, or any other Phænomenon given, to find what Parts of the Earth the ſame is vertical to. Count as many Degrees in the Meridian, from the Equator towards one Pole, as are equal to the given Declination; *viz.* towards the North, if the Declination be Northward; and towards the South, if the Declination be South. Then turning it round the Places that paſs through the Extremity of this Arch, in the Meridian, are the Places requir'd.

13. To determine the Place of the Earth where any Star, or other celeſtial Phænomenon, will be vertical at any given Hour. 1. Elevate the Pole according to the Latitude of the Place, from whoſe Noon, or Midnight the Hours are number'd. 2. Bring the Sun's Place for that Day to the Meridian, and ſet the Index at 12 o'Clock. 3. Determine the Place of the Star on the Surface of the *Globe*, and bring it to the Meridian: The Index will ſhew the Difference of Time between the Appulſe of the Sun and Star to the Meridian of the Place: Note the Point of the Meridian over the Place of the Star. 4. Find in what Places of the Earth is then Noon, and ſet the Index to 12 o'Clock. 5. Turn the *Globe* towards the Weſt, till the Index have paſſed over the Interval of Time between the Culmination of the Sun and Star. Then under the Point of the Meridian before obſerved, will the Place requir'd be found, and hence may be found what Place a Star, or other Phænomenon riſes, or ſets to, at any given Time.

14. To place the *Globe* in ſuch Manner, under any given Latitude, as that the Sun ſhall illuminate all thoſe Regions, which he actually illuminates on Earth. 1. Rectify the *Globe*, i. e. elevate the Pole according to the *Latitude* of the Place; bring the Place to the Meridian; and ſet the *Globe* North and South by the Compaſſes: Thus the *Globe* having the ſame Situation, with Regard to the Sun, as the Earth has; that Part thereof will be illuminated, which is illuminated on Earth. Hence alſo the *Globe* being ſituated in the ſame Manner when the Moon ſhines, it will ſhew what Parts are then illuminated by the Moon. And in the like Manner may we find where the Sun and Moon riſe and ſet at any given Time.

15. To find the Diſtance of two Places on the *Globe*. Take the given Places in the Compaſſes, and apply them to the Equator: The Degrees they there ſubtend, being reduced into Miles, Leagues, or the like, give the Diſtances requir'd. The ſame may be done, and more commodiouſly, by laying the graduated Edge of the Quadrant of Altitude over the two Places, and noting the Degrees intercepted.

Note, That from the *Globe* I'll paſs to the *geographical Maps*, which are yet of greater Uſe than the *Globe*, becauſe they can be tranſported every where along with us, with little or no Trouble, when as the *Globe* cannot.

A *geographical* MAP, is a Plan, or flat Figure, which repreſents the Deſcription of the Surface of the terreſtrial Globe, in the Whole, or in Part.

Theſe *Maps* are of three Sorts. 1. *General*. 2. *Chorographical*. And 3. *Topographical*. In this Senſe the Name of *general Chart* does not properly belong but to that which repreſents the whole Surface of the terreſtrial Globe. The Name of *chorographical* to thoſe which repreſents a large Tract of Land. And of *topographical* to thoſe which contain but a ſmall Tract of Land.

But theſe three Sorts of *Maps*, commonly called by Geographers, *geographical Charts*, are divided into *general*, *particular*, and *topographical Charts*.

Under the Name of *general Charts*, they underſtand not only the *general Chart* of the terreſtrial Globe, but likewiſe all *Charts* which repreſent in general, *i. e.* in ſhort, a Region, where none but the moſt conſider-

able

able Things are figured, as the *Chart* of *Europe*, the *Chart* of *England*, the *Chart* of *Middlesex*.

They call particular *Charts*, those in which, besides Cities, Towns, and Boroughs, are also delineated all the Parishes of the Jurisdiction, represented in the *Chart*; as the *Chart* of the Diocese, *Prevosty*, or Election of *Paris*, &c.

They call *Topographical Chart*, that which is geometrically measured on the Places; and in which, besides all Boroughs, Villages, Castles, Houses, Mills, *&c.* are also delineated the Mountains, Hills, Heights, Valleys, Plains, *&c.* on which are figured Woods, Vineyards, Meadows, Arable Lands, Fens, *&c.* where are also mark'd the Brooks, Ponds, Marshes, Springs, *&c.* and generally all other remarkable Things.

We must first instruct our Pupils, in what Manner those Things are represented in the Charts, either general, or particular, that they may be capable, afterwards, to find in all those *Charts*, what relates to all the Parts of *Geography*.

1. The Land and Sea are parted, in them, from one another, by Shadows, which distinguish the Coasts of the Lands, from the Sea-shores. On the Land are mark'd the Cities, Towns, *&c.* and the Extent of Countries, as we have already observed. And in the Sea are marked the Shoals, Rocks, *&c.* that's to say, the Banks of Sand, by small Points; and the Rocks, by small Crosses, in the general Charts; but in more particular ones, the uncover'd Rocks are figur'd by Tops of Rocks; and those under Water, by small Crosses.

2. The *Cities* are mark'd in the general Charts of the terrestrial Globe of a whole Sheet, by a simple *Round*; in those of the Globe of several Sheets, and in those of the four Parts of the World of one, or several Sheets, the *Round* of the most considerable Cities, is adorned with several Towers: In less general Charts, as those of a Region, or of a large Kingdom, where several Cities are render'd bigger, the *Capitals* are distinguish'd from the rest by their Bigness: In the *Charts* of a Province, of a whole Sheet, where all the Cities or Towns are mark'd, they are distinguish'd by their different Bigness into large, middling, and small; and in the particular *Charts*, where all the Parishes are figured, the great Towns are commonly in Plan, or adorned with several Towers and Steeples; and the others in Proportion. The Market-Towns are figur'd bigger than the simple Parishes; and the Villages, which have a Parish-Church, are design'd by a Steeple, at the Top whereof there is a Cross.

3. The *Mountains* are marked with a great A, much erased, shadowed on one Side with small Waves, to shew the Declivity of the Mountain.

4. The *Forests* and *Woods*, are figur'd by Heaps of young Trees.

5. The *Rivers*, are Lines which run Serpent-wise.

6. *Bridges*, are mark'd by two small parallel Lines traced through the Rivers.

7. *Lakes* are shadow'd, in the same Manner, as the Sea is parted from the Land.

8. *Marshes* are represented by small Waves, intermixed with small Points and Herbs.

9. The Extent of Regions, of Provinces, or of Jurisdictions, is inclosed with Points, which part them from the neighbouring Places, and thereby mark the Limits; the *Frontiers* of the whole Country in general represented in the *Chart*, are commonly large Points; and the Subdivisions into Provinces, or Jurisdictions, are small Points.

10. In some particular *Charts* of Bishopricks, there are often mark'd *Wind-Mills*, *Water-Mills*, and *Fords*. —*Wind-Mills*, are figur'd by a St. *Andrew*'s Cross, or X, at the Top of the Spindle.—*Water-Mills* are design'd by a Round, cross'd in the Middle.

Note, That the *general Chart* of the terrestrial Globe, represents its Surface in Plan, according to the Rules of Optick, and as if each Hemisphere was concave, though it be convex; whence it happens, that the Middle of each Hemisphere, is shorten'd with regard to the Extremities, which is the contrary of what the Eye discovers, in considering the Globe; the Middle whereof appears bigger than the Extremities, because of the convex Roundness of the Globe.

In all *Charts*, either general or particular, are figur'd certain Characters or Marks, to some Towns, or other considerable Places. Those Characters are either for the Church, or the Temporality.

In the general *Charts*, those for the Church signify: —The *double Cross*, an Archbishoprick; the *simple Cross*, a Bishoprick; the *Crozier's-Staff*, an Abbey.

The Characters which relate to the Temporality in the Governments of *France*:—A *Hand of Justice*, signifies a Parliament, or sovereign Court; a *Sun*, marks a Chamber of Accompts, or Court of Aids; a *small Round*, or *full Moon*, at the Top of a Point, marks a Generality; a *half Moon*, designs the Elections, or Receipt.

In the *Charts* of *Germany*:—A *spread Eagle*, is put to the Imperial Towns.

A. H. I. P. These Letters denote an Abbey of Monks, Imperial, and Principality.

A. F. I. P. An Abbey of Nuns, Imperial, and Principality.

A. H. I. An Abbey of Monks, Imperial.

A. F. I. An Abbey of Nuns, Imperial.

In the *Charts* of *Poland*:—The *double Weather-Cocks*, mark the Palatinates; the *simple*, denote the *Chatellenies*.

In the *Charts* of *Turky*:—Two *half Moons*, mark a *Beglerbeg*, or general Government; and a *half Moon*, denotes a *Sangiac*, or particular Government.

Each CHART has commonly a Scale of *Leagues*, or of *Measures*, used in the Places it represents. There are often joined to them those of the neighbouring Countries, because of the Frontier Places, or Limits of the Countries; but the thousand geometrical Paces, 60 of them making up a Degree, are almost always added to them, to shew of how many thousand geometrical Paces the Leagues of each Country are composed of; and how many of those Leagues are wanted for a Degree of Latitude.

The general *Charts*, of the five Parts of the World, of a Sheet of Paper, have commonly no Scale at all, no more than those which represent the great Regions of those great Parts, the Degrees of Latitude being sufficient to measure the Distances, as I'll shew afterwards.

Geographers divide each Degree of Latitude into 60 Minutes, and the Minutes into a thousand Parts, which they call *geometrical Paces*, because they serve to measure the Earth; and these geometrical Paces serve for Rule, or Foundation, to make the Evaluation of all the different itinerary Measures, both Antient and Modern, of every Country.

The *itinerary Measures* most common, and most in Use among the Antients, were the *Stadium*, the *Mile*, the *Parasange*, the *Schœne*, &c.

The *Stadium* was of 125 geometrical Paces.—The *Mile*, or 1000 Paces, is of 8 *Stadia*, or 1000 geometrical Paces.—The *League* of the antient *Gauls*, is of 1500 geometrical Paces.—The most common *Parasange* is of 30 *Stadia*, or about 4000 geometrical Paces; some *Parasanges* being from 20 to 60 Stadia.—The *Schœne*, the most common, is of 40 *Stadia*, which make 5000 geometrical Paces, there being likewise some of 20, 30, 60, and 100 Stadia.

The *Stadium* has been in Use in all the Places where there were *Greek* Colonies; and their Authors, Historians, and *Geographers*, have seldom made Use of any other Measure, to give the Distances of other Countries.

The *Romans* divided the Highways of their Empire by *Miles*, which they mark'd each by a Stone or Column; whence their Authors express, sometimes, the Mile by the Word *Lapis*; saying, *à tertio ab urbe Lapide*, *à septimo Lapide*; or *ad tertium Lapidem*, *ad septimum*

septimum Lapidem, i. e. at three Miles, at seven Miles, &c.

The *Persians* had also divided the Roads of their Empire by *Parasanges*; and the *Egyptians* introduced their *Schœnes* among the neighbouring Nations.

This Variety of antient Measures, and their Difference, is one of the greatest Difficulties those who want, at present, to treat of the antient *Geography*, meet with; because antient Historians having not carefully enough examined that Diversity, have often given Distances greater or smaller than they were in Reality.

The modern *itinerary Measures*, are *Miles*, *Leagues*, *Werfts*, *Farsanges*, *Kosses*, *Gos*, *Ly*, *Pu*, *Station*, *Journey* or *Diete*, and *Hour*.

Distances are expressed by *Miles*, in *Great-Britain*, *Italy*, *Germany*, *Poland*, and *Hungary*.—By *Leagues*, in *France*, *Spain*, *Sweden*, and *Switzerland*; —by *Werfts*, in *Muscovy*;—the *Farsanges*, are particular to *Persia*; the *Kosses* and the *Gos*, to *Indostan*; the *Ly* and the *Pu*, to *China*: They count by *Stations*, the Distances in *Arabia*, *Tartary*, and in the greatest Part of *Africa*; among several People of *America*, by *Journies*. The *Europeans* count in the Countries they possess out of *Europe*, by the Distances used in their own Countries: And the Use of reckoning by *Hours*, is not only received in *Europe*, but likewise in several Places of the other Parts of the World.

Each Country has not only its particular Measure, but has them likewise of several Sizes; I'll only mention here those which are most in Use, and which are call'd common.

The common Mile of *Italy* consists of 1000 geometrical Paces;—the common Mile of *England*, is of 1250;—the common Mile of *Scotland* and *Ireland*, is of 1500;—the common Mile of *Germany*, is of 4000;—the common Mile of *Poland* of 3000;—and that of *Hungary*, of 6000.—The common *League* of *France*, is of 2400 geometrical Paces; the small one of 2000, the great of 3000; and in some Places of 3500.—The common *Spanish League*, is of about 3428; and those of *Sweden* and *Switzerland*, of 5000. —The *Werst* of *Muscovy*, is but of 750 geometrical Paces;—the common *Farsang* of *Persia*, of 3000; —the common *Kosse* of the *Indies*, is of about 2400, or 2500; likewise the common *French* League;—the *Gos*, is double the *Kosses*.—The *Ly* of *China*, is but 240 geometrical Paces; ten of which make the *Pu*, which contains likewise 2400 geometrical Paces, like the common *French* League.—The *Japonese itinerary Measure*, is of two Miles.—The ordinary *Station*, is of 20,000 geometrical Paces.—The *Journey*, or *common Diete*, is of 30,000 geometrical Paces; and an *Hour's Walk*, is of 3000.

So that referring to the Degree of Latitude, all Sorts of Measures, by Means of those Miles, I have said to be 60 for a Degree; the Degree of Latitude count 60 common *Italian* Miles,—48 *English* Miles, —15 *German* Miles;—20 Miles of *Hungary*;—25 common, 30 small, and 20 great *French* Leagues; —17½ *Spanish* Leagues;—12 *Swedish* Leagues, and likewise of *Switzerland*;—80 Werfts of *Muscovy*; —20 Farsanges of *Persia*;—25 Kosses, and 12½ of *Indostan*;—250 Ly, and 25 Pu of *China*;—20 Itinerary Measures of *Japan*.

The same Degree includes 3 Stations; the Value of two Journies, or Dietes, and 20 Hours-Walk.

Besides these common Measures, I have said that each Country had some of different Bigness; the Evaluation of which will be easily made, by Means of the 1000 geometrical Paces, or Minutes of the Degree of Latitude, when those different Measures are marked in the Scale.

Note, That those who express the Distances, by Leagues, or Miles, do not often consider, that there are Leagues of 2000, of 2500, and of 3000 geometrical Paces; if they be *French* Leagues; that there are Miles of 715, and 6000 geometrical Paces; if they be *German* Miles of only 1000, 1250; and 3000, if they be *English* Miles; and thus of the Measures of other Countries.

Among the *French*, who have travelled in the *Indostan*, some say that the *Kosse* makes but half a *French* League; and others pretend, that it makes a whole League.—The *English* put two *Kosses*, for an *English* Mile.—Some *Dutch* will have three *Kosses* to make two *German* Miles; others put but two *Kosses* for the Mile of the *Low-Countries*; but none of them determine which of the *French* Leagues, which of the *English*, *German*, and *Low-Countries* Miles, they understand, and which we have said to be different in Bigness, therefore it is very difficult to determine the Distance they pretend to give; since there is a great Difference between 100 *Kosses* at 3000 geometrical Paces each, and 100 *Kosses* which are but of 2500, of 2000, or 1500, of 1250, and of 1000. But tho' there be *Kosses*, thus different in Bigness, most of the Relations we have of those Countries confound them, as if there was but one Sort of *Kosses*, whereby Travellers give false Distances, as it would be easy to prove by an infinite Number of Instances; though I'll content my myself, here, to relate the Distance, which the famous *Tavernier* gives in his Relation of *Surat* to *Goa*. Those two Places are upon the same Coast, which runs from North to South; and differ only of a Degree in Longitude. He puts between those two Places 61 *Gos*, says, that the *Gos* is worth four *Kosses*, and that the *Kosses* are equal to common *French* Leagues; therefore there would be 244 *Kosses*, or *French* Leagues, of 25 to a Degree, which make more than 9⅔ of Latitude; and had he even estimated those Leagues but as small *French* Leagues, 30 of which are wanted for the Degree, the 244 Leagues would make yet eight Degrees of Latitude; which, at his Manner of Reckoning, should be between *Surat* and *Goa*; though, according to the *Portuguese* and *Dutch* Maps, there are not six Degrees. The *Geographer*, who had reformed on the *Map* the Distances and Position of those two Places, on that Relation of *Tavernier*, had been accused of Ignorance, and the *Map* consider'd as false, by those who have travell'd since in those Countries. The Distances taken by *Stations* are no less uncertain, since those Stations are only regulated by the Conveniency of Water-Carriages, which is not found every where on the Road, which render the Stations very unequal.

We ought to form the same Judgment of *Journies*, or *Dietes*, which must be distinguished into Journies of common Travellers, Journies of Caravans of Horses, and Journies of Caravans of Camels; and even all those Sorts of Journies are not equal among themselves, the Facility or Difficulty of the Roads, rendering them lesser or greater. F. *Marini*, in his Relation, gives to the *Tonquin*, according to the common Opinion of the People of that Country, 50 Journies in Length from South to North, and 20 in Breadth from East to West; having said before, that this Length is of 1500 Miles, and the Breadth of 600 Miles; whence it appears, that the Author of that Relation gives 30 Miles for each Journey; but as that Country has not above 13 Degrees of Latitude, which make but 780 Miles, in a direct Line, it follows hence, that those Journies must be but of 15 or 16 Miles, since, otherwise, the *Tonquin* would rise to 35 Degrees of Latitude, which would contain two Thirds of *China*.

Though almost all Relations are full of such Errors, several notwithstanding tax the Maps of being erroneous; and accuse *Geographers* of Ignorance, as if they were responsible for the Negligence of some Travellers, for the narrow Capacity of several, and for the Ignorance of others.

It is a general Rule, or rather a common Practice in *Geography*, that all Sorts of *Charts*, should always

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have the *North* a-top, and consequently the *South* at bottom, the *East* on the right, and the *West* on the left Hand. Which done, it is not difficult to find the *North by East*, the *South by East*, the *North by West* and the *South by West*.

All *Charts* which are not disposed thus, are less perfect than those that are; though they be *oriented*, and will be defective and imperfect, if they are not *oriented*.

A *Chart* is *oriented* when it has a certain small Circle, or simply a Cross in some Place, with a Flower de Luce at the End, representing the Needle of a Sea-Compass; which ought to be turned towards the North.

It is pretty difficult to find precisely the *Longitude* of a Place, on a *general Chart* or Planisphere; because of the Curvity of the Meridians and Parallels, unless that Place be under the Equator, or under some Meridian. The same must be said of the *Latitude*, unless it be under one of the Parallels, or under the 180th Meridian, represented by the Circumference of the graduate Circle, which contains one Half of the *Chart*.

There are certain *particular Charts*, in which the Meridians and Parallels are represented, yet by curve Lines; in this Case if the *Latitude* and *Longitude* of a Place cannot be found on the *Planisphere*, or *general Chart*, Recourse must be had to the Globe.

Note, That before we search the *Latitude* and *Longitude* on the common *Charts*, we must take Notice that the Lines, divided by Degrees, which are on both Sides of those *Charts*, represent two Meridians, or at least their Division into Degrees, which are those of *Latitude*, and are worth each 20 great *French* Leagues. Besides, that the Lines thus divided, in the same manner a-top, and at bottom, represent the Degrees of *Longitude*, which are never worth more than 20 Leagues, unless they represent the Equator.—Now for the Use of those *Charts*.

1. If we want the *Longitude* and *Latitude* of a Place, when the Equator is not in the *Chart*, a very tight Thread must be carried on that *Chart*, so that it takes on the Place proposed, and on Numbers of equal Degrees a-top, and at the bottom: Those Degrees will be the *Longitudes*. If the Equator be in the *Chart*, it may be used in lieu of one of those Lines according to the Situation of the Place.

If we want to know the *Latitude* of the same Place, we must carry that Thread always tight to that Place, so that it be parallel to the Lines a-top, or at bottom, and it will mark the *Latitude* on the Sides.

Therefore it is easy to conceive, that a Place will be easily found in the *Chart*, whose *Latitude* and *Longitude* are known; for in carrying two Threads, as we have observed, one on the *Longitude*, and the other on the *Latitude*, that Place will be found at their Intersection.

It is as difficult to find the Distance of two Places proposed, on the *Planispheres* or *general Charts*, whose Meridians and Parallels are represented by curve Lines, as to know the *Longitude* and *Latitude* thereof; unless they be oriented, as we have heretofore mentioned; but in the common *Charts* it is found by the following Scale.

If the Distance of the Places proposed is longer than the Scale, the Compass must be opened of the Length of the Scale; then applying one of its Limbs on one of the Places, that Opening must be transported in a right Line, as many Times as are necessary to come at the other Place: And if the last Limb transported, does not fall just upon it, the Limbs of the Compass must be drawn nearer one another till it falls upon the Place; then that last Opening must be transported on the Scale to discover the Distance, that's to say, the Number of Leagues it contains, which must be added to that of the Distances of the Scale taken at first.

If the Distances of those Places be less than the Scale; then that Distance must be taken and brought to the Scale: If there is no Scale, it must be carried on the Lines divided into Degrees, which are on the Sides of the *Charts*, then the Degrees it will contain must be reduced into Leagues, counting 20 Leagues for each Degree.

I'll conclude here, what I had to say of *general* or *universal Geography*, and proceed to *particular Geography*, which I'll begin by the Division of the Earth into four principal Parts, call'd *Continents*.

Among the four *Continents*, two are known, and two of which we have but little Knowledge.

The first and greatest of the two known *Continents*, is that we call *Ours*, the *Antient*, *Superior*, *Eastern*, and *Ptolemaick Continent*. It is call'd *Ours*, because we dwell in it; *Antient*, because we have known it by History, for several thousand Years; *Superior*, according to the Vulgar's Opinion, which believe it to occupy the superior Part of the eastern Globe, because in the Maps of the terrestrial Globe, in two Hemispheres, it is placed Eastward of the first Meridian. And, lastly, *Ptolemaick*, because of the Name of *Ptolemy*, the first among the Antients who gave a more exact Description of it.

We call the second Continent known, *Other Continent*, *New*, *Inferior*, *Western*, *America*, and *West-Indies*. *Other Continent*, because on the Surface of the Globe, it is separated from our Continent by the Sea; *New*, because it was known to us but within two Centuries; *Inferior*, according to the Vulgar's Opinion, which believe it under ours; *Western*, because described Westward of the first Meridian, in the terrestrial Globe; *America*, of the Name of one of the first Navigators who discover'd it; and, lastly, the Vulgar calls it *West-Indies*, *Indies* because its Riches equal those of the true *Indies*; and *West*, because situated Westward of *Europe*.

A third Continent is supposed towards the South, which may be call'd *Southern Continent*, with respect to us, which is call'd *Terra Australis*, *Terra Incognita*, *Magellanick Land*, and *Land of Quir*. It is call'd *Terra Australis*, because situated towards the South, with regard to us; *Incognita*, or *Unknown*, from the little Knowledge we have of it; *Magellanick*, from *Magellan*, the first *European* who approached it; and *Land of Quir*, from *Fernando Quir*, the first who discover'd it, and gave us a more certain Knowledge of it.

It will be easy to make a fourth Continent of the *Arctick Land*, if they be contiguous, and make a Body separated from *America*; and that Continent will be call'd *Northern*, or *Arctick*, from its Situation.

Our *Continent*, is divided into three great Parts, *viz.* *Asia*, *Africa*, and *Europe*.

The other *Continent*, call'd *America*, contains two Continents, the one call'd *North-America*, and the other *South-America*.

The two other pretended *Continents*, are not well enough known to be divided into great Parts.

From this Division of the Continents into great Parts, I'll pass to a Sub-division of those great Parts into their principal Regions, beginning by *Europe*; which though the lesser Part of our Continent, is notwithstanding the noblest for its Temperature, Fertility, and the infinite Numbers of its Inhabitants. Besides, it is *Europe* which has formed the greatest Men, whose Memory has been render'd immortal by their military Exploits, great Actions, &c. *Greece* has been *Alexander*'s Cradle, *Italy* has produced the *Cæsars*, *France*, *England*, *Spain*, &c. a great Number of great Princes and Heroes.

EUROPE.

EUROPE, by its Situation, has a very good and temperate Air, the Earth produces all Sorts of Corn, Vines, and Fruits in Abundance, and is covered with an infinite Multitude of Cattle.

But to confine myself to my Subject (without amusing myself with the Romances of the Origin of *Europe*) I'll say that this Part of the World is almost intirely

tirely situated in the Temperate Zone, extending from about 34 Degrees of Latitude towards 72; and from 9 of Longitude to 39, so that it may have 800 great *French* Leagues from South to North; and 900 in its greater Extent from East to West.

It is confined, or limited at the North by the Icy Sea; at the West by the Western Ocean; at the South by the *Mediterranean*; and at the East by the *Archipelago*, the Sea of *Marmara*, the *Pont Euxine*, the *Limen*, the *Tanais*, and by a Line drawn from the most Eastward Curvature of that River, to the Gulph of the Icy Sea, which is between the Streight of *Weigatz*, and the Mouth of the River *Oby*.

Among the Rivers of *Europe*, we take particular Notice of the *Danube* in *Turky*; of the *Wolga* and *Don*, or *Tanais* in *Muscovy*; of the *Nieper* and *Wistula* in *Poland*; and of the *Oder*, *Elbe*, and *Rhine* in *Germany*.

The most easy and natural Sub-division of *Europe* (the Isles included) is into nine Parts; three of which are towards the North, three towards the South, and three in the Middle of the six others.

The three Northern Parts are: 1. The BRITANNICK ISLES, which contain the Kingdoms of *England*, *Scotland*, and *Ireland*. 2. SCANDINAVIA; containing *Sweden*, *Denmark*, and *Norway*. 3. MUSCOVY, or *White Russia*.

The three Parts which are in the Middle of *Europe*, are: 1. FRANCE. 2. GERMANY. 3. POLAND.

The three Southern Parts, are: 1. SPAIN. 2. ITALY. 3. TURKY in *Europe*.

The three last Parts are *Peninsulæ*; the three in the Middle are contiguous: Of the three Northern Parts, the first is composed of several Islands; the second, of several Peninsulæ; and the third, is in the Main Land.

I have included under the general Name *Germany*, as having always been Parts thereof,

1. The *Low-Countries*, or Seventeen Provinces.
2. The *Switzers*, and the *Grisons*.

I have also comprized under *Turky* in *Europe*, the Principalities which are tributary to it, *viz.* *Transilvania*, *Moldavia*, *Little Tartary*, &c.

Also *Lorrain*, and *Franche Compte*, under FRANCE; *Portugal*, under SPAIN; and *Savoy*, under ITALY.

Note, That the Manners of the *Europeans* are different, according to their different Countries; but they are generally witty, skilful, generous, and tractable; and have not that Ferocity, and Brutality, natural to the Inhabitants of the other Parts of the World: They are white, well-shaped, and agreeable.

There are several Sorts of Governments in *Europe*, *viz.* The *Monarchical*; as in *France*, *Spain*, &c. The *Despotick*; as in *Turky*, and *Muscovy*; the *Aristocratical*; as the Republick of *Venice* in *Italy*; the *Democratical*; as that of *Switzerland*, and of the *United Provinces*. Others, which are a Mixture of *Monarchy*, *Aristocracy*, and *Democracy*; as, in *England*, *Germany*, and *Poland*.

The *Monarchical State*, is that govern'd by a sole Sovereign.

The *Despotick*, is that where a Sovereign has Power of Life and Death over his Subjects, without any other Formality than his own Will.

The *Aristocracy*, is that which is govern'd by the Nobles.

The *Democratick*, is that where the Governors are chosen among the People.

There are several Sorts of Religions professed in *Europe*; though among so many there are but five principal, the others being only Branches, or Sects of those five.

1. The most antient of the five is the CATHOLICK RELIGION; which is the reigning one in *France*, *Spain*, *Portugal*, *Italy*, part of *Germany*, *Poland*, &c. and in all that belongs in *America*, *Asia* and *Africa*, to the Crowns of *France*, *Spain*, *Portugal*, &c.

2. LUTHERANISM, is professed in *Germany*, in *Sweden*, *Denmark*, &c. and is divided into several different Sects.

3. CALVINISM, is professed in *Great Britain*, in *Germany*, *Poland*, &c.

4. The GREEK RELIGION, which made a Divorce with the *Roman* Church to follow the Schism of *Photius* false Patriarch of *Constantinople*, is professed in the Dominions of the Grand Seignor, in *Muscovy*, and in some Parts of *Poland*.

Europe has five general Languages, four of which are natural to its Inhabitants, *viz.* the *Latin*, *Greek*, *Teutonick*, *Esclavone*; and a foreign one which they have received from *Asia*, and which is the *Tartarian*, under which is comprised the *Turkish* Tongue.

Note, That *Europe* has one Prince Ecclesiastick, three Emperors, seven Kings, six Republicks, and more than three hundred Sovereign Princes; whose Estates are as Fiefs or Tributaries of superior Powers.

The Ecclesiastick Prince is the POPE, who styles himself *Servus Servorum Dei*.

The three Emperors are, the EMPEROR *of Germany*, called Emperor of the Holy *Roman* Empire.

The EMPEROR *of the Turks*, who calls himself Sultan of the *Ottomans*, or Grand Seignor of the *Turks*.

The EMPEROR *of Muscovy*, who assumes the Title of Emperor of the *Two Russias*; vulgarly called *Czar* of *Muscovy*.

The nine Kings are;

The *Most* CHRISTIAN KING, or King of *France*, who notwithstanding the vast Extent of his Dominions, composed of several Sovereignties, *viz.* *Britanny*, *Normandy*, *Burgundy*, *Provence*, *Languedoc*, &c. takes no other Title than that of King of *France* and *Navarre*.

The CATHOLICK KING, or King of *Spain*.

The KING OF GREAT BRITAIN, or of *England*.

The KING of *Portugal*.

The KING of *Sweden*.

The KING of *Denmark*.

The KING of *Poland*, call'd *Orthodox*.

The KING of *Prussia*.

And the KING of *Sardinia*.

The six Republicks, are those,

1. Of *Venice*. 2. Of *Genoa*. 3. Of *Lucca* in *Italy*. 4. Of the *United Provinces*. 5. Of the *Switzers*. And 6. Of the *Grisons*, in *Germany*.

The 300 subaltern Sovereign Princes, are of two Sorts, viz. *Ecclesiasticks* and *Laicks*.

Among the *Ecclesiasticks* are two *Grand Masters*.

1. The GRAND MASTER of the *Knights of Malta*.
2. The GRAND MASTER of the *Teutonick Order*.

Four *Archbishops*, and the three first *Electors* of the Empire.

1. The ARCHBISHOP and ELECTOR of *Mentz*.
2. The ARCHBISHOP and ELECTOR of *Treves*.
3. The ARCHBISHOP and ELECTOR of *Cologn*.
4. The ARCHBISHOP of *Saltzbourg*.

Twenty-two Bishops, who are,

1. *Munster*. 2. *Paderborn*. 3. *Liege*. 4. *Worms*. 5. *Spire*. 6. *Strasbourg*. 7. *Basil*. 8. *Syon*. 9. *Coire*. 10. *Briseen*. 11. *Trente*. 12. *Constance*. 13. *Augsbourg*. 14. *Frisingue*. 15. *Passau*. 16. *Ratisbon*. 17. *Richstott*. 18. *Wurtzbourg*. 19. *Bamberg*. 20. *Hidelsheim*. 21. *Osnabrug*. 22. *Lubeck*.

A GRAND PRIOR of *Malta*, who calls himself *Grand Prior* of *Germany*.

Several ABBOTS, that of *Fulde*, who has a greater Extent of Lands than any of the others.

Several PREVOSTIES, the most considerable of which is that of *Berchtelsgaden*.

Among the *Laick* SOVEREIGNS, are five *Electors*.

1. The ELECTOR and DUKE of *Bavaria*.
2. The ELECTOR and DUKE of *Saxony*.
3. The ELECTOR and MARQUIS of *Brandebourg*.
4. The ELECTOR and COUNT *Palatine*.
5. The ELECTOR and DUKE of *Hanover*.

An

An ARCHDUKE of *Austria*.

A GREAT DUKE of *Tuscany*.

The several *Dukes* are those of *Newbourg*, *Weimar*, *Lunebourg*, *Brunswick*, *Wirtemberg*, *Mecklenbourg*, *Lawembourg*, *Holstein*, &c. and all in *Germany*.

Those of *Savoy*, *Mantua*, *Modena*, *Parma*, and several others whose Territories are of a lesser Extent, are in *Italy*.

That of *Bouillon* is between *France* and the *Low-Countries*.

And that of *Courland* in *Poland*.

Among the *Marquisses*, the most considerable are, those of *Baden*, and *Durlach*, of *Anspach*, and of *Culmbach* in *Germany*.

And several in *Italy*, but whose Territories are of a little Extent.

Several LANDGRAVES, some of whom are Princes, *viz.*

The LANDGRAVE of *Hesse-Cassel*, and of *Hesse-Darmstad*.

Several *Princes*, and the most considerable among them are,

The PRINCE of *Anhalt* in *Germany*.

The PRINCES of *Monaco*, of *Solfarini*, and of *Castillione* in *Italy*.

Several *Counts* or *Earls*, among whom those who are Princes are,

Of *Nassau*, *Furstemberg*, *West-Friseland*, *Hohenzollern*, and *Amberg*.

Besides whom are,

The CHAM of the *Little-Tartary*.

The *Vaivodes* of *Transilvania*, *Valachia*, *Moldavia*, and of *Ukrania*.

And the Republick of RAGUSA. — This Republick, and the five last Princes, are Tributaries of the *Ottoman* Empire.

At present I'll enter into a more particular Description of all the different Dominions and States, *Europe* is divided into; beginning by the Kingdom of *France*, (not through Partiality) but as acknowledged by all the other Sovereigns and Princes, as the first in Rank; and represented by all Authors, even the most partial, and most prejudiced against the *French* Nation, as the most fertile, most agreeable, and most powerful of all *Europe*.

F R A N C E.

FRANCE, is situated in the Middle of the temperate Zone, between the 42 and 51 Degree of Latitude, extending from the 15 Degree 30 Minutes of Longitude to the 29th; so that it may have 180 great Leagues from South to North, and 170 in its greatest Extent from East to West. It is limited at the North by the *British* Channel and the *Low Countries*; at the East by *Lorrain*, *Franche Compte*, *Savoy*, and *Piedmont*, from which it is separated by the *Alps*; at the South, by the *Mediterranean*, and the *Pyreneans*, which separate it from *Spain*; and at the West by the Ocean. — Its Climate is mild and very healthy; the Soil fertile in Corn, Wine, Fruit, and Hemp: There are found in it beautiful Meadows, large Forests, and agreeable Plains cover'd with numerous Flocks of Oxen, Sheep, Goats, Horses, &c. and Abundance of Game of all Sorts, as Harts, Deers, wild Boars, Hares, Rabbets, Pheasants, Partridges, Woodcocks, Plovers, Quails, &c. — There are found in its Bosom, Mines of Iron, Lead, and other Minerals. Towards the South, several Springs of Mineral Waters; a great Number of Quarries of Marble, and other very good Stones fit for Building; and likewise of very fine Slates; a great Abundance of very good Salt is made on the Coasts, where are fished all Sorts of the most delicious Fishes; in a Word, *France* produces all that can be desir'd for a delicious Life; and it is observ'd, that all that grows in it is excellently good.

France is bathed with a great Number of Rivers, four of which deserve a particular Notice, *viz.* the *Loire*, the *Seine*, the *Garonne*, and the *Rhône*, and have all their Source in it, except the last, which has its in the Mount St. *Gothard*, in the Country of the *Grisons*, and passes through the Lake of *Geneva*.

France is divided into twelve Governments; four of which, *viz.* *Picardy*, *Normandy*, the *Isle de France*, and *Champagne*, are situated at the North of the River *Loire*, and towards the River *Seine*, except the first, which is yet more North than the other three: Those of *Britanny*, *Orleanois*, *Burgundy*, and *Lyonnois*, are in the Neighbourhood of the *Loire*; and the four others are at the South of the same River, *viz.* the *Guyenne* and *Languedoc*, towards the *Garonne*; *Dauphiné* and *Provence*, Eastward of the *Rhône*, one towards the North, and the other towards the South.

The Metropolis of the Kingdom of *France* is *Paris*, situated in the Middle of the *Isle de France*, on the River *Seine*; it is esteemed one of the fairest, best inhabited, richest, and most flourishing Cities of the whole World.

PARIS is honoured with a Parliament, a Chamber of the Accompts, a Court of *Aides*, a Mint, a Bureau of the Finances, &c. and with an Archiepiscopal See. It is adorn'd with the first University of the World, and one of the most famous; and with two illustrious Academies, embellished with a great Number of very fine Churches, Palaces, and other sumptuous Edifices

Note, That the *French* are witty, active, quick, dexterous, industrious, inventive for the Arts and Sciences, and very good and loyal Subjects. They are polite and agreeable in their Conversation, sincere in their Words, courteous to the Ladies, but inconstant: They receive Foreigners with a great Affability, and they are so brave, that ever since the first Establishment of the *French* Monarchy, they have always been the Terror of their Enemies, and the greatest Hope of their Allies. A *French* Author is pleased to say, that it is easy to judge of the Merit of the *French*, by observing the implacable Jealousy Foreigners have conceived against them, tho' they have never received from them but good Offices.

France is govern'd by a very powerful King, and the Crown is hereditary in his House, with this Particularity, that none but the legitimate Issue Males can pretend to it, all Females being excluded.

There are twelve *Parliaments* in *France*, ever since the Conquest of *Franche Compte*; twenty three Generalities, or Bureaux of the Finances; and fourteen Universities, whose Seats I'll mark in the particular Discourse of the Cities where they are established.

It is pretended that the *Parliament* of *Paris* was instituted by *Pepin*, *Charlemagne*'s Father; and that it was ambulatory, till *Philip the Fair* rendered it sedentary in 1302. The Courts of Justice of the *Isle de France*, of *Picardy*, *Champagne*, *Orleannois*, and *Lyonnois*, resort thither.

That of *Thoulouse* was instituted by the same *Philip the Fair*, in the same Year; and rendered sedentary under *Charles* VII. in 1443.

That of *Rouen* was instituted by the same *Charles* VII. in the same Year; and made sedentary in 1503. under the Reign of *Louis* XII.

That of *Grenoble* was instituted sedentary by the same *Charles* VII. in the Year 1453.

That of *Bourdeaux* was instituted sedentary by *Louis* XI. in 1462.

That of *Dijon* was instituted sedentary by the same King in 1476.

That of *Aix* was instituted sedentary by *Louis* XII. in 1501.

That of *Rennes* in *Britanny* was instituted sedentary by *Henry* II. in 1553.

That of *Pau* in *Bearn* was instituted sedentary by *Henry* I. King of *Navarre*, in 1519.

That of *Metz* was instituted sedentary by *Louis* XIII. in the Year 1663.

That of *Tournay* was instituted sedentary by the late King *Louis* XIV. in 1669.

That of *Dole* in *Franche Compte* was instituted in the

the Year —— and rendered sedentary by *Philip the Good*, Duke of *Burgundy*, in the Year 1422. it is at present transferred to *Besançon*.

Note, That the *Parliaments* in *France*, are not of the same Nature of the *Parliament* of *England*; they are on the contrary quite different, since the *French Parliaments* have no Share in the Government of the State, nor ever had, otherwise than as they are to register the Edicts the King issues out, for the Levy of Taxes; they have the Privilege to make Remonstrances, when they find those Edicts too oppressive. Those *Parliaments* are only Courts for the Administration of Justice, and judge, *In Dernier Ressort*, in their several Districts; though one may appeal from every one of them to the King's Council, in civil Matters; and their Sentences of the Criminals are executed without any Confirmation from the King. Those *Parliaments* are all composed of Noblemen, most of them of very antient and illustrious Families; and all of them Persons of considerable Estates. The *Parliament* of *Paris*, is called the Court of the Peers; because the Princes of the Blood, and all the Peers of *France*, both Ecclesiastick and Laick, have their Seats in it.

From this I'll pass to a particular Description of the twelve Governments of *France*, heretofore mention'd, beginning by that of *Picardy*.

PICARDY was once Part of the antient *Belgick Gaul*, and no Author can say, with any Certainty, whence it has borrowed the Name *Picardy*. — It extends 44 Leagues from East to West; from between the *Capelle* and *Rocroy*, to the Mouth of the River *Bresle*, which parts it from *Normandy*; and 34 from South to North, from the *Bauvoisis* to *Calais*. It confines at the East with *Champaigne*, at the West with the *Isle de France*, at the North with the *British* Sea and *Normandy*.

Its Soil is very fertile in Corn, Fruit, and Pasture, but it produces little or no Wine. Its greatest Rivers are, the *Oise*, which receives the *Serre*; the *Somme*; the *Authie*, and the *Canche*. The two first are towards the East, and the three others run towards the West, where they disembogue into the Sea.

Note, That in the Government of *Picardy* is included the *Artois*; to which must be added, the Conquests made in *Flanders*, and *Hainault*.

Picardy is divided into seven small Provinces, which keep the following Order:—The *Tiérache*, which is in the Neighbourhood of the Rivers *Oise* and *Serre*: The *Vermandois*, *Santerre*, *Amienois*, which are *Picardy* itself, and the *Ponthieu* on the Course, and round about the River *Somme*:—Then the *Boulenois*, to which is added, what is called the *Païs reconquis*, with the Principality of *Ardres*, which is more advanced towards the North, between the Sea and *Artois*.

AMIENS, is the Capital of the whole Province; which is a very antient and fair City, very well fortified, according to the antient Method of fortifying. It is honoured with an Episcopal See, a Mint, a Bureau of Finances, and a Presidial.

ARRAS on the *Scarpe*, is the Capital of *Artois*; it is an Episcopal City, and very well fortified.

Note, That the *Picards* are Men of Letters, very good Soldiers, but a little too hot-headed.

The Government of *Picardy* is described in the following Manner:

1. The AMIENOIS, which includes *Amiens*, *Bishop. Corbie*, *Dourlens*, *Pecquiny*.
2. SANTERRE, including *Perone*, *Mandidier*, *Roye*, *Moreuil*, *Nicfle*.
3. VERMANDOIS, including *Saint Quentin*, *Ham*, *Le Castelet*, *Beaurevoir*.
4. TIERACHE, including *Guise*, *La Fere*, *Vervins*, *Marle*, *La Capelle*.
5. PONTHIEU, including *Abbeville*, *St. Valery*, *Rue*, *Monstreuil*, *Crecy*.
6. BOULONNOIS, including *Boulogne*, *Bishop. Etaples*.
7. PAIS RECONQUIS, including *Calais*, *Guisnes*, *Ardres*, Principality.
8. ARTOIS, including *Arras Bishop. Hesdin*, *Bapaumes*, *Lens*, *St. Venant*.
9. FLANDERS, which includes *Dunkirk*, *Gravelins*, *Lisle*, *Courtray*, *Douay*, *Audenarde*.
10. HAINAULT, including *Le Quesnoy*, *Landrecy*, *Ath*.

NORMANDY, which is the next Government (thus called from the People of the North who came to settle there) once call'd *Western Neustria*, is situated on the *British* Ocean; and may have 62 Leagues from East to West; that's to say, from *Aumale*, to the western Coast of the *Coutantin*.

It confines with the *British* Sea, at the North and West; with the *Isle de France*, at the East; and with the *Perche*, and *Maine*, towards the South.

This Province has lost a great deal of its Lustre, and of the Authority it had in the Time of its antient Dukes, who were sovereign Princes; and so powerful, that they have often maintain'd long Wars against the Kings of *France*, of *England*, and other Princes.

This Country abounds in Corn, Cattle, Woods, and Fruits, especially Apples, of which the *Normans* make excellent Cyder, which is their common Drink. There are found in it several Mines of Iron; and Fish is so common, that it is almost given for nothing.

The principal Rivers of *Normandy* are the *Seine*, into which disembogue the *Eure*, and the *Rille*, which hides itself under Ground for the Space of a League, near *Beaumont Le Roger*; the *Orne*, which passes at *Caen*; and the *Vire*, which passes at *St. Lo*, and parts the Bishoprick of *Coutance* from that of *Bayeux*.

Note, That the *Normans* have always been very warlike; which is confirmed by the Conquests of *William* Duke of *Normandy*, who made himself King of *England*; and by those of the Children of *Hauteville Guischard*, who render'd themselves Masters of *Calabria*, *Naples*, and *Sicily*. They are very cunning and crafty, and do not submit themselves willingly to foreign Laws, but live under the antient Policy which they defend obstinately: They are very litigious, and are accused of not keeping their Word; otherwise they have a vast deal of Wit, and are very pious.

The Government extends no further than that Province, which is divided into *Higher* and *Lower Normandy*. The *Higher* contains the Balliwicks of *Rouen*, *Evreux*, *Caux*, and *Gisors*. The *Lower*, those of *Caen*, *Alançon*, and *Coutance*. It is subdivided into seven Dioceses, the Episcopal Cities whereof are, *Rouen*, *Lisieux*, *Bayeux*, *Coutance*, *Avranche*, *Sez*, and *Evreux*. The first four are found in this Order, on the *British* Channel, going from East to West. The three others are Southward of these, and are found in their Order returning from West to East.

The Diocese of *Rouen* contains four small Countries, called *Caux*, *Bray*, *Normand Vexin*, and *Raumois*. In the Country of *Caux* there is the Estate of *Ivetot*, which, certain Authors pretend, was erected into a Kingdom in the Year 534, by King *Clotaire*, for Reparation of the Homicide committed by him, on the Person of *Walter* Lord of *Ivetot*, whom he killed in the Church on *Good Friday*; but that Opinion is not approved.

At the West of *Coutance*, are seen the Isles of *Jersey*, in 18 Deg. 10 Min. Longitude, and 49 Deg. 20 Min. Latitude; of *Guernsey*, in 17° 40′ Longit. and 49° 30′ Latitude; and several other small ones, in the Neighbourhood of these two. These Isles belong to the King of *England*, and may have each 14 or 15 Leagues in Circuit.

The Capital of *Normandy* is ROUEN, built on the River *Seine*, and is esteemed one of the most Trading Cities of all *France*: It has an Archiepiscopal See, a Parliament, a Mint, and a Generality of Treasurers.

CAEN, passes for the second City of *Normandy*; and is honour'd with a Bureau of Finances, and an University.

The Government of *Normandy*, is divided in the following Manner:

1. The *Archbishoprick of* ROUEN, VEXIN NORMAND, which contains, *Rouen Archbishop. Ponte-de-Larche, Gisors.*

2. ROUMOIS, containing *Quillebeuf, Montfort.*

3. CAUX, containing *Dieppe, Havre, Caudebec, St. Valery.*

4. BRAY, containing *La Ferté, Gournay, Fleury.*

5. The *Bishoprick of* LISIEUX, containing *Lisieux, Honfleur, Pont-l'Eveque, Bernay.*

6. The *Bishoprick of* BAYEUX, containing *Bayeux, Caen, Vire, Torigny.*

7. The *Bishoprick of* COUTANCE, containing *Coutance, St. Lo, Granville, Carentan, Harfleur, Valogne, Cherbourg.*

8. The *Bishoprick of* AVRANCHE, containing *Avranche, Mont St. Michael, Pont. Orson, Mortain, Eu.*

9. The *Bishoprick of* SEZ, containing *Sez, Alençon, Falaise, Argenton.*

10. The *Bishoprick of* EVREUX, containing *Evreux, Beaumont Le Roger, Bretheüil, Nonancourt, Rugles, Lire, Vernon.*

The next Government is that of the ISLE DE FRANCE, which is comprised between the Rivers of *Seine* and *Marne*. Its Extent is of 35 Leagues from East to West; that's to say, from *Neufchatel* on the *Aixne*, to *Gisors*; and as much from North to South, from *Noyon* to *Courtenay*, in *Gatinois*.

It confines, Northward, with *Picardy*; Eastward, with *Champagne*, and *Brie*; Southward, with the *Gatinois*, and *Beausse*; and Westward, with *Normandy*.

The Soil is very fertile, in most excellent Corn, produces Wine and Fruits in Abundance: It is diversified with pleasant Plains, agreeable Meadows, and large Forests, which abound with all Sorts of Game.

The principal of its Rivers are, the *Seine*, which receives the *Marne*, and the *Oyse*, swell'd with the Waters of the *Aixne*, which passes at *Soissons*; and of the *Terrain*, which bathe the Walls of *Beauvois*.

There are distinguish'd in this Government ten small Countries, which have been dismember'd from *Champagne, Beausse, Normandy*, and *Picardy*. In the first, between the *Marne* and the *Seine*, has been taken the *French Brie*: In the second, between the *Seine* and the Road of *Chartres*, the *Hurepois*, with Part of the *Gatinois*; between the same Road of *Chartres* and the same River, the *Mantoan*: In the third, between the Rivers *Seine, Osye*, and *Epte*, the *French Vexin*, which is parted from the *Normand Vexin*, by the last of these three Rivers. Lastly, in the fourth, in the Neighbourhood of the *Terrain*, has been taken the *Bauvoisis*; between the *Oyse* and *Marne*, the *Valois*; in the Neighbourhood of the *Aixne*, the *Soissonois*; beyond the same River the *Laonnois*, with the Quarter of *Noyon*, which is beyond the *Oyse*.

The Capital of the Government of the *Isle de France*, is *Paris*; the next to it is *Soissons*, a very antient City and a Bishoprick, situated on the River *Aizne*; next to this is *Laon*, also an episcopal City, whose Bishop is ecclesiastick Peer of the Kingdom. *Bauvois*, on the River *Terrain*, and *Noyon*, near the *Oyse*, have their Bishops, Counts and Peers Ecclesiastick of *France*.

The Government of the *Isle de France* is divided thus:

1. The ISLE DE FRANCE contains, *Paris*, Archbishop. *St. Denis, Montmorency.*

2. The FRENCH BRIE, containing *Lagny, Brie Comte Robert, Rosoy, Villeneuve, St. George.*

3. HUREPOIS, containing, *Melun, Corbeil, Fertealais, Fontainebleau.*

4. GATINOIS, containing *Nemours, Dourdans, Courtenay, Moret, Monchery.*

5. MANTOAN, containing *Mant, St. Germain, Poissy, Meulan, Montfort-Clamacey.*

6. The FRENCH VEXIN, containing *Pontoise, Magny, Chaumont.*

7. BAUVOISIS, containing *Beauvois*, Bishop. *Clermont, Gerberoy, Merlon.*

8. VALOIS, containing *Cresy, Senlis* Bishoprick, *Ferte-Milon, Pont Sainte Maixence, Villers-Cotterets.*

9. SOISSONOIS, containing *Soissons* Bishop. *Compiegne, Raine, Velle, Fere.*

10. LAONOIS, containing *Laon* Bishop. *Coucy, N. D. de Liesse, Noyon* Bishop. *Chauny.*

CHAMPAGNE, the next Government, was antiently a Country famous for the Grandeur of its Counts, who possessed it in Sovereignty, and were so powerful, that they have maintained long and difficult Wars against the Kings of *France*, and *Burgundy*; and so noble, that those same Kings have contracted several Alliances with them.

It is called *Champagne*, from its beautiful and large Extent. It extends more than 46 Leagues from West to South by East, from *Lagni*, in the Province of *Brie*, to *Bourbon les Bains*, in the *Bassigni*; and 54 from South to North, that is to say from *Ravieres* in the *Senonois* to *Rocroy*.

The Soil is almost every where white and chalky, and produces no other Corn than Rye; but it abounds with delicious Wines; there are but few Forests towards the South, but they are pretty frequent towards the North: and there are found in it several Mines of Iron.

Its principal Rivers, are, the *Seine*, which receives the *Jonne* and *Aube*; the *Marne, Aixne*, and *Vesle*.

This Government includes the *Champagne* and the *Brie*. The *Champagne* is divided into *Higher* and *Lower Champagne*; the first comprehends the Territories of *Chalons*, of *Rheims*, the *Parthois, Rethelois*, and what is towards the North, *viz.* the Principality of *Sedan*, and of *Raucourt*, and the *Revôty of Donchery*: The other includes the Territory of *Troyes*, the *Vallage*, and the *Bassigny*, to which is added the *Sennonois*.

TROYES, on the *Seine*, is the Capital of the whole Province; it is adorned with an episcopal See and a Mint.

RHEIMS, has its Archbishop, first Duke and Peer of *France*, who has the Honour to anoint the Kings of *France*. It has besides a famous University.

LANGRES, Capital of the *Bassigny*, has also its Bishop, Duke, and Peer.

CHAALONS, on the *Marne*, has its Bishop, Count, and Peer.

SENS, on the *Jonne*, has its Archbishop, who stiles himself *Primate of the Gauls*. This City is very antient, and was very famous in *Cæsar*'s Time.

The Province of BRIE, is situated between the *Seine* and the *Marne*, and may have 10 or 12 Leagues in Length and Breadth.

Its Soil is not of an equal Goodness, for near *Champagne*, and towards *Chateau Thierris*, it produces pretty good Wine; and towards the *Isle de France*, the Wine is coarse. It produces every where pretty good Corn, and very good Fruits. The Country is very pleasant, and one may spend agreeably his Time there in Hunting.

The *Brie* is divided into three Parts, which are distinguished by the Names of the *Higher* and *Lower Brie*, or Country of *Gallevelle*, where are *Gandelu, Montmor, Thesmes, Orbay*, &c.

MEAUX, near the *Marne*, is the most considerable among the Cities of the *Higher Brie*; it is very antient, and honour'd with an episcopal See, and a Bailliwick.

CHATEAU THIERRY, on the same River bears the Title of Dutchy, and passes for the Capital of the *Higher Brie*. It is adorned with a Bailliwick, and a Presidial.

PROVINS, on the small River *Vourie*, is received, by several, for the Capital of the whole Province. It is situated in the *Lower*.

The Government of *Champagne* is divided in the following Manner;

1. CHAMPAGNE, containing *Troyes* Bishop. *Pont-sur-seine, Mery, Ramerü, Plancy, Chaalons* Bishop, *Epernay, Ay, Dormant.*

2. RHEMOIS, containing *Rheims* Archb. *Cormicy*, *Fismes*, *Geneville*, *Machaut*.

3. PERTHOIS, containing *Perthes*, *Vitry le Francois*, *Larzicourt*, *Sainte Menhon*.

4. RETHELOIS, containing *Rhetel*, *Mezieres*, *Charleville*, *Rocroy*, *Sedan*, &c.

5. VALLAGE, containing, *St. Dizier*, *Joinville*, *Brienne*, *Vignoris*, *Barsur-Aube*, *Clervauxe Abbey*.

6. BASSIGNY, containing *Langres* Bishop. *Chaumont*, *Lusy*, *Nogent le Roy*, *Bourbon les Bains*.

7. SENNONOIS, *Sens* Archb. *S. Julian du Saut*, *S. Florentin*. *Tonnerre* Bishop. *Chutles*.

8. BRIE CHAMPENOISE, containing *Provins*, *Meaux* Bishop. *Chateau*, *Thierry*, *Colomieres*, *Sezanne*, *Montereau*.

The next Government is that of BRITAINE, or BRITANNY.

Note, That after *Maximus* had usurped the Empire, and the Army he commanded in *England* had proclaimed him Emperor, *Conan*, one of his most famous Captains, who had powerfully supported him in that great Enterprize, received soon the Recompence of his Services; the Emperor gave him *Britain*, of which he caused himself to be proclaimed King, in the Year 700. (so that had this Monarchy subsisted it had been the most antient in *Europe*) his Successor quitted that noble Title in 878, under the Reign of *Louis the Stoterer*, King of *France*, to take the Quality of Earls. Afterwards they were made Dukes and Peers of *France* in 1250. and became very powerful by their great Alliances; there have been ten Dukes which have possessed it from that Time to the Year 1488, in which died the last Duke *Francis* II. leaving only a Daughter, *Anne* of *Britain*, which having been married, first to *Charles* VIII. then to *Louis* XII. Kings of *France*, that Dutchy in the Year 1532. was annex'd to the Crown by the Marriage of Madame *Claudia* of *France*, her eldest Daughter, with *Francis* I. who had for Issue *Henry* II. who, properly speaking, was the first Duke of *Britain* among the Kings of *France*.

BRITAIN, was called antiently *Aremorica*, from the *British* Word *Armor*, Sea, the Province being situated upon the Sea. Some pretend that its new Name of *Britain* was given to it by some People of *Great Britain*, which came to settle in it; but it is a gross Mistake, since it is certain that it was called *Britain*, even in the Time of the first Emperors, as *Pliny* witnesses it in his Description of the *Gauls*: And if we believe the *Venerable Bede*, born in *England*, who flourished in *Pepin*'s Time, he assures us that the Isle of *Great Britain*, before called ALBION, was since called *Britain* by the *Gauls Britons*, who had render'd themselves Masters of it, long before *Julius Cæsar*; and being afterwards expelled from *Great Britain* by the *Saxons*, returned into their native Country.

The *Province of* BRITAIN may have about 60 Leagues from East to West, from beyond *Vitrey*, to the Point of *Conquet*: And 40 from South to North, from the Island *Boüin*, to the Mouth of the River *Coüenon*, towards *Mont St. Michael*.

It confines Eastward with *Anjou* and *Maine*, advancing towards the West, as a Peninsula into the Ocean, which confines it on the other Sides.

Its Soil abounds in excellent Pastures and Cattle, which gives delicious Butter, which is sent as far as *Paris*, and sold there at a dear Rate. It produces Corn of all Sorts, Line and Fruits in great Quantity, and but little Wine. A vast Abundance of Salt is made on the Coasts, where there are fished Plenty of excellent Fish. This Province is provided with the best Ports of the whole Kingdom of *France*: And the *Britons* carry on a great Commerce of Butter, Linnens of all Sorts (some of which equal in Beauty and Goodness the best Hollands) Brandy, Ropes, Salt, &c.

The principal Rivers *Britain* is bathed with are, the *Loire*, the *Villaine*, which receives the *Ouste*, *Blavet*, *Aufeen*, *Trieux*, and *Rance*; these two last are considerable but at their Mouth.

Note, That the BRITONS have always been a very warlike Nation, and have atchieved several great Feats of War, both against the *Goths* and against the *French*. They are very sincere, hospitable and courteous to Foreigners; love Mirth, Pleasure, and good Chear. The Nobility live in an elegant and splendid Manner: The *Britons* are very jealous of their Liberty, though they have lost it ever since the Reunion of the Province to the Crown of *France*; and the several Efforts they have made from Time to Time to recover it, have always proved vain. It is true, to keep the Remembrance that they were once a free People, they are permitted to act once in two Years, a *certain Farce*, which they are pleased to call the Assembly of the States of the Province, and which is in fact, a Shadow of their antient Government, which was the same as the *English* Government. There the Nobility, Clergy, and Commons, are supposed to meet to consult the Good of the Province; and there every Nobleman has a deliberative Vote, and can put a Negative upon any Thing that's transacted; but it is not much to his Advantage to do it, on Things proposed in favour of the Court; for though that Assembly is supposed to be free, and not at all over-awed by a superior Power, the King is as absolute there, as he is at *Versailles*; and if any Nobleman has the Temerity to oppose his Will, he is soon sent to change Air. Notwithstanding which the *Britons* are very loyal Subjects, and are never better pleased but when the Occasion offers to expose their Lives, and spend their Fortune in the King's Service; though they were not beloved by the late King *Loüis* XIV. who was always very backward in promoting them to any considerable Posts in the Army, or rewarding them for their Services. No Province in the Kingdom can produce so antient a Nobility as *Britain* can; of which the *Britons* are not a little proud. Our Parliament, for the noble Extraction of its Members, their personal Merit, large Fortune, &c. is the most illustrious of the whole Kingdom. Our Enemies accuse us of being addicted to love Wine to Excess, but that scandalous Reflection is without Foundation, since there is no Parts of the Kingdom of *France* where that Vice is less prevailing than among us; though we are not without Imperfection; for we are obstinate, violent, and too quarrelsome.

The *Government of* BRITAIN is confined to the sole Province, which is divided into *High* and *Low*, one towards the East, and the other towards the West. It is particularly divided into nine *Bishopricks*, or *Receipts*, which are, *Rennes*, *Dol*, *St. Malo*, *St. Brieu*, *Treguier*, *St. Paul de Leon*, *Quimper Corantin*, otherwise *Cornoüaille*, *Rennes*, and *Nantes*. The first six are found in this Order, going from East to West on the *British* Sea; and the three others Southward of these situated also of the Sea of *Gascony*, returning from West towards the East.

RENNES, on the River *Villaine*, is the Capital of *Britain*, it has an Episcopal See, a Parliament, and a Mint.

NANTES, on the *Loire*, is a very celebrated and antient City, adorned with a Bishop's See, a Chamber of Accompts, a Bureau of Finances, a Mint, and a University.

St. MALO, a very strong Sea Port, is an Episcopal See. There are a great Number of other very considerable Cities and Towns in *Britain*, viz. *Dinan*, *St. Brieu*, *Guingamp*, *Lanion*, *Pontivi*, *Landernean*, *Morlaix*, *Brest*, *Quimper Corantin*, *Quimperle*, *Auray*, *Guerande*, *Le Croisic*, *Vannes*, *Malestroit*, *Ploermel*, *Vitrey*, *Maschcoul*, &c.

The *Government of* BRITAIN is divided in the following Manner.

HIGHER BRITAIN.

The *Bishoprick of* RENNES, contains *Rennes*, *Vitrey*, *Fougeres*, *Antrim*.

The

The *Bishoprick of* NANTES, contains *Nantes, Antenis, Chateau-Briant, Guerande Machecou, Clisson, Roche-Bernard.*

The *Bishoprick of* ST. MALO, contains *St. Malo, Dinan, Jochelin, Montfort.*

The *Bishoprick of* DOLE, contains *Dole* only.

The *Bishoprick of* ST. BRIEU, contains *St. Brieu, Pontrieu, Quintin, Jugon, Lamballe.*

LOWER BRITAIN.

The *Bishoprick of* TREGUIER, contains *Treguier, Morlaix, Guingamp, Lannion, Garlesquin.*

The *Bishoprick of* ST. POL DE LEON, contains *St. Pol de Leon, Lesneven, Landerneau, Brest, Porsal, Isle D'Oüissant.*

The *Bishoprick of* QUIMPER CORANTIN, contains *Quimper Corantin, Concarneau, Quimperlay, Douarnenes, Chateaulin.*

The *Bishoprick of* VANNES, contains *Vannes, Port-Louis, Hennebon, Auray, Malestroit, Belle Isle* Island.

Note, That there is found in the Sea of *Gascony*, in the 17th Degree of Latitude, the Isle call'd *Belle-Isle*, which is seven Leagues in Length, and three in Breadth, and about eighteen in Circuit. It was strongly fortify'd by the famous M. *Fouquet*, Lord of the Place, and Superintendent of the Finances, under the late King *Louis* XIV. which caused such a Jealousy to that Prince, for fear M. *Fouquet* should have a Design to put that Place in the Hands of the *English*, that he caused him to be arrested at *Nantes*, and carried to the *Bastille*. The King to be sure that his Orders on that Subject were punctually executed, came himself to *Nantes*, at that Time, and was in the City when M. *Fouquet* was seized. From this M. *Fouquet* is descended the present Marescal *de Belle-Isle*. —The other *Isles*, nearer the Coast, as *Rouen, Oüessant, Bass*, &c. are smaller.

Note also, that we speak two Sorts of Languages in *Britain*; for in the Bishopricks of *Dol, Rennes*, and *St. Malo*, they speak *French*; in those of *Nantes, Vannes*, and *St. Brieu*, both *French* and *Briton*, which is a Kind of *Welsh*; and in those of *Treguier, Quimper-Corentin*, and *St. Pol de Leon*, nothing but *Briton*.

Note, again, That before the Revocation of the Edict of *Nantes*, there was a vast Number of *Calvinists* in *Britain*, especially in the Bishopricks of *Rennes*, and *Nantes*, even of the most illustrious Houses of the Province: But ever since that Revocation, they have insensibly dwindled away; and, at present, all the *Britons* profess, with a great deal of Zeal, the Catholick Religion.

The ORLEANNOIS is the next Government, and the most extended of all, since it includes fourteen or fifteen Provinces: It is call'd *Orleannois*, because *Orleans* is the most remarkable among its Cities.

The *Orleannois* extends near 100 Leagues from East to West; from beyond the *Chateau Chinon*, in the *Nivernois*, as far as the Extremity of *Poitou*: And near 68 from South to North, from *Monbrun* in *Angoumois*, to *Nonancourt* in *Normandy*.

It confines Eastward with *Burgundy* and *Champagne*; Northward with the *Isle de France* and *Normandy*; Westward with *Bretagne*, and the Sea; and Southward with *Saintonge*, the *Perigord*, the *Marche*, and the *Bourbonnois*.

Its Soil is very fertile in Corn, Wines, Fruits, Cattle, Games, in short in all that can be desired for an agreeable and commodious Life. In it is the Forest of *Orleans*, containing 70,000 Acres of Land; and it is said that in the Time of *Francis* I. it contained a hundred and ten thousand Acres. There is no Country in *France*, where there are found so many paved Roads as in this.

Several Rivers run through this Government, among which the *Loire* is the Principal. The *Indre*, the *Cher*, the *Vienne*, swelled with the Waters of the *Creuse*, come to disembogue into it between *Mont-soreau* and *Langest* in *Tourraine*. The *Sarte*, after it has received the *Loire* and the *Mayenne*, above *Angiers* disambogues likewise into it, below that City. The *Charante* springs from it in the *Augoumois*, which it bathes with part of its Course, after it has passed in one Corner of the *Poitou*.

This Government contains thirteen or fourteen principal Provinces, four of which are situated this side the *Loire*, in the following Order, in going from West to East, *viz.* the *Maine*, the *Perche*, the *Higher Beausse*, or *Païs Chartrain*, and part of the *Gatinois*; five on the *Loire*, in following its Course, *viz.* the *Nivernois, Orleannois, Lower Beausse, Blaisois, Touraine*, and *Anjou*; four on the other Side the *Loire*, viz. the *Berry, Poitou*, with the *Païs D'Aunis*, and the *Angoumois*, which is still farther advanced towards the South.

ORLEANS, situated on the River *Loire*, is the first City of this Government, and may be esteemed the Capital. It is a beautiful City, and was antiently the Capital of a Kingdom of its Name. It is, at present, a Dutchy, and the Appennage of the second Sons of *France*.

The NIVERNOIS, is the most eastern Country of this Government, and is esteemed one of the most fertile of all *France*: The *Loire* runs through it towards the West, and the *Jonne* springs from it towards the East.

NEVERS, on the *Loire*, is the Capital, and was erected into a Dutchy Pairie, by *Francis* II.

The BLAISOIS, is agreeable for Hunting. The City of BLOIS, built on the *Loire*, is the Capital thereof, and was made a Bishop's See by *Louis* XIV. for one of the Favourites of Madame *Maintenon*.—The Royal Castle of *Chambor* will be famous throughout all Ages for the Massacre of that celebrated Hero the Duke of *Guise*. It is situated on the River *Cousson*.

The TOURAINE, is recommended for its excellent Melons; it is bathed by the Rivers *Loire, Cher, Loir, Judle*, &c.—TOURS, on the *Loire*, is Capital of this Province, and is honoured with an Archiepiscopal See: The Inhabitants carry on a great Commerce of Silks.

The *Province of* ANJOU, is very agreeable, and very fertile in Wines, Pasture, and Hemp: It abounds with Fowl, Cattle, and Game of all Sorts. Quarries of Slates are so common in it, that the Country People cover their Houses with it. It is bathed by the Rivers *Loire, Sarte, Mayne*, and *Loir*. It is a Dutchy which the Kings of *France* give for Appennage to their Third Sons.

The Capital is ANGIERS, situated on the *Sarte*: It has a Bishop, an University, and an Academy.

The *Province of* MAYNE, is very fertile in Corn, Wine and Hemp. It has very good Pasture which feed a vast Number of Cattle. It abounds with Game, which is very good. Mines of Iron are found in it; and the River *Mayne* runs through it towards the West.

The MANS is the Capital, and a Bishop's See. It is a very antient City, situated on the *Sarte*. *Cæsar* calls its Inhabitants *Cænomani*.

The PERCHE is one of the smallest Provinces of the Government *Orleannois*; but its Soil is fertile in Corn, Pastures and Forests. It is divided into *Higher* and *Lower*.

NOGENT-LE ROTROU is esteemed the Capital, tho' it be but a Borough; and MORTAIGNE is more considerable, because it is the ordinary Residence of the *Bailly*.

The *Higher* and *Middle Beausse*, which includes the *Chartrain*, and the *Vaudanois* is also a very agreeable Country.

CHARTRES, on the River *Eure*, is the Capital of the *Chartrain*. It is said that it was built a little after the Flood; and that it was there the *Druides* used to assemble. Its Cathedral, which is an Episcopal See, is one of the most antient of Christendom.

DREUX, on the River *Blaise*, disputes for Antiquity, with *Chartres*. It is imagined that it is from *Dreux* the antient *Druides* borrowed their Name.

VENDOSME on the *Loire*, is the Capital of the *Vendomois*: It bears the Title of *Dutchy Pairie*.

That Part of the *Gatanois* included in this Government, has nothing considerable but the *Canal of Briare*, made to join the Rivers *Loire* and *Loing*.

BERRY is the Heart of *France*, and produces Abundance of Corn, Wine, Pasture and Game. It is bathed with a great Quantity of Brooks, which all disembogue into the *Cher*, the *Indre*, and the *Eure*.

BOURGES is the Capital of this Province; *Cæsar* speaks of it as of a very antient City, under the Name *Avaricum*; it is honoured with an Archbishoprick, and an University, which is not the most famous of the Kingdom.

POITOU is the largest Province of this Government; its Soil is very fertile: The *Vienne* is the greatest of its Rivers; the *Cher*, which springs from it, and passes at *Poictiers*, comes to disembogue into it below *Chatellerau*. The *Seure Niortoise*, and the *Nantoise*, have also their Source in it.

POICTIERS on the River *Clain*, is the Capital of this Province: There are seen in it several Marks of Antiquity; it is adorn'd with an Episcopal See, a Generality, and an University.

LUSIGNAN is a small Town, which has the Glory to have given Kings to *Jerusalem* and *Cyprus*. Its Castle, which was once one of the strongest Bulwarks of *France*, was built, as it is said, by the famous *Melusine*.

CHATELLERAU, on the *Vienne*, is famous for its Cutlery; it was erected in *Dutchy Pairie*, in 1514.

VIVONNE, once a Viscounty, has been since erected into a Dutchy, in favour of the brave Marechal of *Vivonne*, of the illustrious House of *Roche-chouare*.

Note, That the *Abbey of Fontevraut*, in this Province, is one of the most illustrious of *France*, among the Abbeys of Nuns. It has always been, ever since its Foundation, the pious Refuge of a great Number of Princesses, and of Ladies of the first Quality. There are reckoned among its Abbesses, several Princesses of the Royal Blood of *France*, and of the august Name of *Bourbon*.

The Country of AUNIS has nothing recommendable but *Rochelle*, which is the Capital: This City is very strong of Situation, and fortified with several good Bastions and Out-works. It was often besieged, taken and retaken by the *English* and *French*; but the most memorable Siege was that of the Year 1627. where the great Cardinal *Richelieu* caused that famous Dyke to be erected in the Sea, which has been the Admiration of the whole Earth.

ANGOUMOIS is but a small Country, which notwithstanding is esteem'd for the Mildness of its Climate, and its Fertility in all Things, particularly in excellent Corn, Saffron, Hemp and Meadows: There are found in it Iron Mines, and Abundance of very good medicinal Herbs of all Sorts.

It is bathed by the *Charente*, which springs from it, and which the *Tardouere* swells up with its Water near *Mausle*.

ANGOULEME on the *Charente* is the Capital: This City must be very antient, since it is said that its Walls fell down of Age, at the Approaches of the great *Clovis*. *Francis* I. erected it into a *Dutchy Pairie* for his third Son; this King himself was Earl of *Angoulême* when he came to the Crown.

The GOVERNMENT OF ORLEANNOIS is divided in the following Manner.

ORLEANNOIS contains *Orleans*, *Baugency*, *Lorris*, *Sully*, *Gergeau*, and *Pluviers*.

NIVERNOIS contains *Nevers*, *Charity*, *St. Pierre le Montier*, *Decise*, *Donzy*, *Clamecy*.

BLAISOIS contains *Blois*, *Vandosme*, *Châteaudun*, *Mer*, *Remorantin*.

TOURRAINE, contains *Tours*, *Amboise*, *Loches*, *Chinon*, *Longez*, *Isle-Bouchard*.

MAYENNE, contains *Mans*, *Mayenne*, *Laval*, *Ferté-Bernard*, *Sablé*, *Beaumont le vic*. *Château du Loir*.

PERCHE, contains *Nogent le Rotrou*, *Mortaigne*, *Bellême*, *Perriere*, *Fuillet*.

BEAUSSE, contains *Chartres*, Bishop. *Nogent le Roy*, *Dreux*, *Galliardon*, *Bonneval*.

GATINOIS, contains *Montargis*, *Etampes*, *S. Fargeau*, *Gien*, *Milly*, *Château-Regnard*.

ANJOU, contains *Angiers*, Bishop. *Saumur*, *La Fleche*, *Lude*, *Château-Gontier*, *Brissac*, *Craon*, *Segree*, *Baugey*, *Monsereau*.

POITOU, contains *Poictiers*, Bishop. *Lucon*, Bishop. *Chastellerault*, *Maillesais*, *Lusignan*, *Loudun*, *Richelieu*, *Niort*, *Roche-Chouart*, *Vivonne*, *Fontevraut Abbey*.

The ISLES of *Oleron*, *Ré* and *Oye*, *Nermoutier*, *Armot*.

AUNIS, contains *Rochelle*, Bishop. *Marans*, *Surgeres*, *Nuaillé*.

BERRY, contains *Bourges*, Arch. *Chateau-Roux*, *Issoudun*, *Le Blanc*, *Argenton*, *St. Aignan*, *Dun le Roy*, *Sancerre*, *Monfaucon*, *Henrichemont*, *Valençay*.

ANGOUMOIS, contains *Angoulême*, *Cognac*, *Mausle*, *Rochefoucaut*, *Jarnac*, *Bouteville*, *Ruffec*, *Chateauneuf*, *Marthorn*.

The GOVERNMENT OF BURGUNDY, is but an eighth Part of the antient Kingdom of *Burgundy*; for that Kingdom included *Savoy*, *Switzerland*, the Dutchy of *Zeringhen*, *Provence*, *Dauphiné*, *Lyonnois*, and the Dutchy and Earldom of *Burgundy*, known under the Name of *Franche Comte*: The three first of those Provinces composed the *Transjurana Burgundy*, i. e. the *Burgundy* beyond *Montjura*, at present *Mont St. Claude*, and the five last made up the *Cesjurane Burgundy*, i. e. this Side the Mount. This was again divided into higher and lower; one included *Provence* and *Dauphiné*, and the other the Dutchy of *Burgundy*, of this Time. The *Lyonnois* was sometimes of one, and sometimes of the other *Burgundy*.

It is of this Dutchy, and of the *Bress* which has been join'd to it, I intend to speak in this Place. Its antient Dukes have been very powerful, and capable to maintain long and bloody Wars against their Neighbours. They possessed this Province, during very near 600 Years. The last was killed before *Nancy* in 1477. and left but a Daughter, who was married with *Maximilian* Archduke of *Austria*, afterwards Emperor. Therefore *Louis* XI. King of *France*, reunited it to his Crown, as a Masculine Fief.

It extends from East to West more than 30 Leagues, from beyond *Fontaine Francoise* towards *Franche-Comte*, as far as the *Ouaine*, in the *Auxerrois*; and about 45 from South to North, from *Semeur* in *Briennois*, to *Château-Villain* in *Champagne*, without including the *Bresse*, which advances still ten Leagues more towards the South.

It confines Northward with *Champagne*, Eastward with *Franche Comte*, Southward with *Dauphiné*, and the *Lyonnois*, and Westward with the *Bourbonnois* and *Nivernois*.

Its Fertility is well enough known by the great Quantity of excellent Wines, and the good Corn and delicious Fruits it produces. There are found in it several Forests, and other Woods, which abounds with Game of all Sorts; and its fat Pastures feed a vast Number of Cattle.

The largest of its Rivers is the *Saone*; the *Jone* passes in it at *Auxerre*; the *Ain* in the *Bresse*; the *Seine*, the *Armencon*, the *Araux*, and several others spring from it.

In it are distinguished nine small Countries, *viz. Dijonnois*, situated towards the Middle of it, with *Chalonnois* in the Neighbourhood of *Saone*, and the *Autunois*: The Country of *Montagne*, *Auxois*, *Auxerrois*, towards the North: *Charollois* and *Briennois*, with the *Maconnois*, on the *Saone*, towards the South. The *Bresse* is yet more Southward.

DIJON, on the River *Acche*, is the Capital: It is a very antient City, adorn'd with a Parliament, a Generality, and a Mint; but it has no Bishop, and depends of that of *Langres* in *Bassigny*, for the Spiritual.

AUTUN, on the *Arroux*, is an Episcopal City, and very antient, and that of all *France* which has the most beautiful Remains of Antiquity.

BRESSE, to which I'll add the Balliwick of *Gex*, is situated between the *Rhône* and the *Saone*; and divided into two by the River *Ain*, which makes one Part thereof Eastern, and the other Western. In the first are distinguished, towards the South, the *Bugei*; and towards the North, the *Valrourei*; which has the Bailliwick of *Gex* at the East, between the Lake of *Geneva*, and *Mont St. Claude*. The other Part, which is of a lesser Extent, contains the City of *Bourg*, which is the Capital of the Province, and of the Diocese of *Lyon*. *Bellay*, Capital of *Bugei*, has a Bishop who stiles himself Prince of the Empire.

The PRINCIPALITY OF DOMBES is enclayed in the *Bresse*.

The GOVERNMENT OF BURGUNDY is divided in the following Manner, *viz.*

DIJONNOIS, contains *Dijon*, *Aussone*, *Beaune*, *St. Jean de l'Aune*, *Citeaux*, Abbey.

AUTUNOIS, contains *Autun*, Bishop. *Bourbon-Lanci*, *Brandons*.

CHALONNOIS, contains *Chalons*, Bishop. *Verdun*, *Bellegarde*.

MONTAGNE, contains *Chatillon*, *Bar-Sur-Seine*, *Aignei-le-Duck*.

AUXOIS, contains *Semeur*, *Avalon*, *Arnay-le-Duck*.

AUXERROIS, contains *Auxerre*, Bishop. *Coulange*, *Crevant*, *Seignelay*.

CHAROLLOIS, contains *Charrolles*, *Paroy-le-Monial*, *Toulon*, *Mont St. Vincent*.

BRINNOIS, contains *Semeur*, *Ansy-le-Duck*.

MASCONNOIS, contains *Mascon*, Bishop. *Tornus*, Abbey. *Chegny*, Abbey.

BRESSE, contains *Bourg*, *Pont d'Ain*, *Pont de vaux*, *Varanben*, *Bugei*, *Bellay*, *Valramei*, *St. Rambert*, *Seissel*, *Gex*.

PRINCIPALITY OF DANBES, contains *Trevoux*, *Thoissei*, *Chalamont*.

The GOVERNMENT OF LYONNOIS is the most considerable Part of the antient *Celtick Gaul*. In it are included the *Lyonnois*, *Beaujolois*, *Forez*, *Auvergne*, *Marche*, and *Bourbonnois*.

It extends from East to West about 70 Leagues, from *Lyons* as far as beyond the River *Vienne*, at the Extremity of the *Marche*: And more than 50 from South to North, from the Extremity of *Nivernois*, as far as *Neron de la Guierche*, towards *Berry*.

It confines Northward with the *Berry*, and the *Nevernois*; Eastward with the *Bresse* and *Dauphiné*; Southward with the *Cevennes*, and the *Rourgue*; and Westward with the *Quercy*, *Limosin*, and *Angoumois*.

The Soil is not generally fertile every where alike, because of the great Number of Mountains and Forests found in some of its Provinces.

The *Rhône*, the *Saone*, the *Loire*, and the *Allier*, are the most considerable among the Rivers which water the Extent of this Government.

The *Lyonnois* is one of the most agreeable Countries of *France*, being diversified with beautiful Plains, and delicious Hills, which produce very good Corn, excellent Wines, and a vast Quantity of Fruits.

The City of LYONS is the Capital, not only of this Country in particular, but likewise of the whole Government *Lyonnois*, it is situated at the Confluent of the *Rhône* and *Saone*; and is esteemed one of the most antient, most trading, and most beautiful Cities of *Europe*. It has an Archbishop, who stiles himself *Primate of the Gauls*; it has a Generality, and a Mint.

The BEAUJOLOIS is situated Northward of the *Lyonnois*, and inclosed between the *Saonne* and the *Loire*: Its Soil is very full of Mountains, and consequently less fertile. The flat Country produces Corn, Wine, Fruit, Hemp and Meadows.

BEAUJEU, on the *Ardiere*, is the Capital, which has nothing remarkable but a very antient *Bas-Relievo*, which represents the Sacrifice of a Hog, a Sheep, and a Bull, which is seen over the Porch of the principal Church. The *Romans* called those Sacrifices *Suovetauralia*.

The FOREZ is as spacious as the *Lyonnois* and *Beaujolois* put together, and confines with them both Eastward. The *Loire* runs through it from South to North: Its Soil is fertile enough in Corn and Fruit, but it produces little Wine; what it has the most remarkable is the Coal-Pits found in the Neighbourhood of the City of St. *Stephen*, where is fabricated an almost incredible Quantity of hard Wares, there are large Meadows which feed a vast Number of Cattle.

The *Lignon*, and the small River *Donzy*, which disembogue into the *Loire* below *Feurs*, divide it into higher and lower, one Southward and the other Northward.

MONT-BRISON, on the *Verise*, passes for the Capital of the Province, but it borrows its Name from *Feurs* on the *Loire*, which is at present very inconsiderable.

The City of ST. STEPHEN is famous for its great Commerce of Cannons, Muskets, Pistols, Swords, Anvils, Files, and all Sorts of Tools.

AUVERGNE, has retain'd the Name of its antient People *Arverni*, of whose Power *Strabo* and *Cæsar* speak, in the Time of their King *Bituitus*, and *Vecingentorix*, who commanded them.

It confines Eastward with the *Forez*; Northward with the *Bourbonnois*; Westward with the *Marche*, *Limosin*, and *Quercy*; and Southward with *Rouergue* and *Gevaudan*.

It is divided into higher and lower, one Southward, and the other Northward; in the first the Soil is very full of Mountains, and less fertile in Corn and Wine, but abounds with Pasture and Cattle. In the Mountains are kept Studs of Horses and Mules, which are sold in *Italy*, *Spain*, and elsewhere. In the last the Soil is fertile in Corn, Wine, Hemp, and Fruit. It abounds with Springs of Mineral Waters; and there is seen a very deep Lake near the *Mont d'Or*, into which if a Stone be thrown, it excites Lightning, Thunder, and Hail. The higher *Auvergne* has no considerable Rivers; the lower is ran thro' from South to North by the *Allier*.

CLERMONT, is not only the Capital of the lower *Auvergne*, but likewise of the whole Province. It is situated on a little Hill between the Rivers *Artier* and *Bedat*. It is an Episcopal See, has a Court of *Aides*, and a Presidial.

RION, is the Capital of the Dutchy of *Auvergne*, it's adorn'd with a Mint, a Generality, and a Presidial.

ST. FLOUR, is the Capital of the higher *Auvergne*, and has an Episcopal See.

MARCHE, is the most western Country of the Government of *Lyonnois*, it borrows this Name from its being an ordinary Passage to the neighbouring Provinces.

It has *Berry* at the North, *Poitou* at the West, *Limosin* at the South, and Eastward it is separated from the *Auvergne* by the small Countries of *Canbrailles* and *Franc-Aleu*, which are properly two of its Members.

The Soil is fertile in nothing else but Grass and Cattle, and produces nothing but Rye and Oats. The Inhabitants carry on a large Commerce of Horses, Oxen, Sheep, and Hogs.

The most considerable of its Rivers are the *Creuse*, the *Gartampe*, and the *Vienne*, which parts it from the *Limosin*.

Marche is divided into higher and lower, one at the South by East, and the other at the North by West.

GUERET, is the Capital of the higher *Marche*, and DORAT is the Capital of the lower.

BOURBONNOIS, has been the Fief and Appennage of the antient and august House of *Bourbon*. It is situated between *Burgundy* and *Berry*, with which it confines, one at the East, and the other at the West; with the *Auvergne* at the South, and the *Novernois* at the North.

Its

Its Soil is fertile in Rye, Fruit, and Pulse; it abounds in Pastures, Forests, Cattle, and Game. It has very celebrated Mineral Waters.

The *Loire* divides it from *Burgundy* Eastward; the *Allier* and *Cher* run through it from South to North; one towards the Middle, and the other towards the West.

MOULINS, on the *Allier*, is the Capital of the Province, it is adorn'd with a Presidial, and a Generality, and very famous for its Cutlery.

The GOVERNMENT OF LYONNOIS is divided in the following Manner:

LYONNOIS, contains *Lyons*, Arch. *Neuville*, *St. Chaumont*, *Condiece*.

BEAUJOLOIS, contains *Beaujeu*, *Ville-Franche*, *Belleville*.

FOREZ, contains *Mont-brisson*, *Feurs*, *St. Estienne*, *Roannes*.

The HIGHER AUVERGNE, contains *St. Flour*, Bishop. *Aurillac*, *Murat*, *Roquebrac*.

The LOWER AUVERGNE, contains *Clermont*, Bishop. *Rion*, *Thiers*, *Clopiere*, *Monpensier*, *Issoire*, *Brioude*.

The HIGHER MARCHE, contains *Gueret*, *Feletin*, *Jarnage*, *Aubusson*, *Dunaise*, *Genouillac*, *Gramont*, Abbey.

The LOWER MARCHE, contains *Dorat*, *Belac*, *Maignac*, *St. Jemien*, *Confoulens*, *Lassac*.

BOURBONNOIS, contains *Moulins*, *Bourbon l'Archambault*, *Savigny*, *St. Amand*, *Mont Luçon*, *Varennes*, *Vichy*, *Ainay le vieux*, *Ainay le chastel*, *St. Geran*.

The GOVERNMENT OF GUIENNE, was antiently called the Kingdom of *Aquitaine*; *Eleonor*, Heiress of this Province, Wife of *Louis the Younger*, King of *France*, having been repudiated, married *Henry* King of *England*, to whom she carried for Dowry *Guienne*, which *Louis* had restored to her. This was a Firebrand which lighted between those two Crowns, a War which lasted near three hundred Years, and ended in 1453. after the *French* expelled the *English* from it.

Note, That *Guienne* has given to *France* very great Captains, and several Men of Letters; most of its Inhabitants are ingenious, proud, courageous, very dexterous, and very happy in succeeding in what they undertake.

The GOVERNMENT OF GUIENNE, is as spacious as *Orleannois*, since it extends from East to West more than 80 Leagues, from St. *Jean de Bruil*, *Frontiere* of *Languedoc*, to the Sea; and from South to North more than 75 Leagues, from the Port of *Albe* in the *Cominge*, near to *Niort* in *Poitou*.

It confines Northward with *Poitou*, *Angainois*, and *Marche*; Eastward with *Auvergne*, and *Languedoc*; Southward with the *Pyrenean* Mountains, which parts it from *Spain*; and Westward with the Ocean.

The Air in *Guienne* is generally very mild; the Soil fertile enough in Corn, Wine, and Fruits, except towards the *Costes*, and the *Pyrenean* Mountains. There are found in it, almost every where, Springs of hot Mineral Waters.

It is bathed with a great Number of Rivers, the most considerable of which are, the *Garonne*, the *Lot*, the *Dordonne*, *Adour*, and the *Charaut*.

It is divided into two principal Parts, one towards the North which retains the Name of *Guienne*; the other towards the South called in general *Gascony*.

GUIENNE, is distinguished into eight small Countries, *viz.* *Guienne* itself, and the *Bazadois* in the Neighbourhood of *Garonne*; *Agenois*, *Quercy*, and *Roüergue*, found on the *Lot* in reascending towards its Source; Northward the *Limosin*, at the North of *Dordonne*; *Perigord* in the Neighbourhood of the same River; lastly, *Saintonge* in the Neighbourhood of *Charents*, and on the Coasts of the Ocean.

GASCONY, is likewise divided into several small Countries, *viz.* in the Middle is found *Armagnac*, which extends as far as the *Pyrenean* Mountains; towards the North the *Condommois*, and the *Downs*; Westward the same *Downs*, and the *Land of Labourd*, or Country of the *Basques*; Southward along the *Pyrenean* Mountains, the *lower Navarre*, with the *Viscounty of Soule*, the *Béarn* and *Bigorre*; and Eastward *Cominge*, to which is joined the *Conserans*.

BOURDEAUX, on the *Garonne*, is the Capital of the Government of *Guyenne*: It is very antient, large, beautiful, and a very trading City because of its Port. It is the See of an Archbishop, who stiles himself *Primate of Aquitaine*; has a Parliament, a Generality, a Mint, and an University.

The particular *Guyenne*, or *Bourdelois*, is less fertile in Corn than in Wines. The Soil is not equal towards the Countries of *Medoc* and *Buch*, where are found Meadows and Forests of Pines.

BAZADOIS, is fertile enough in Corn, Wine, and Fruit; so that it borrows nothing from its Neighbours.

BAZAS, on the *Vassane*, is the Capital of the Country; and is an Episcopal See.

AGENOIS, is the most fertile Country of *Guyenne*. It furnishes several Provinces with Corn and Wine, and produces a great Quantity of Walnuts; there are but few Meadows in it, but Wood is very common, and at a very low Price.

AGEN, on the *Garonne*, is the Capital, and an Episcopal See.

QUERRCY, is divided into higher and lower, one Northward of the *Lot*, and the other Southward. It produces Corn, Wine, Pastures, Fruits, and Saffron.

CAHORS, on the *Lot*, is the Capital, which is a very antient City, and an Episcopal See. It has a Presidial, and a famous University.

The City of MONTAUBAN, is properly in the *Quercy*, but because the greatest Part of its Diocese is in *Languedoc*, it is commonly included in its Government.

ROUERGUE, is divided into three Parts, *viz.* the *County*, the *high*, and *low Marche*: The first is in the Middle, the second Eastward, and the third Westward. This Country is full of Mountains; it produces Rye, very little Wheat, and Wine; but Abundance of Fruits: *Roquefort*, is noted for its Cheese.

RHODES, on the *Aveyron*, is receiv'd for the Capital of the Country, and of the whole Province: It has an Episcopal See, and a Presidial.

The *higher* MARCHE has *Milhau* for Capital; and also *Vabres*, which is an Episcopal See.

The *lower* MARCHE, has *Ville-Franche* on the *Aveyron* for Capital, which has a Senechalsey and a Presidial.

PERIGORD, is divided into high and low, call'd also *black* and *white*, one Eastward, and the other Westward. Near *Marsac* there is a Brook which ebbs and flows like the Sea.

PERIGUEUX, on the River *Isle*, is the Capital: It is a very antient City, as it appears by the Remains of an Amphitheatre, and other Monuments of Antiquity: It is adorned with an Episcopal See, and a Presidial.

SAR, Capital of the *lower Perigord*, situated between the *Dordona* and the *Vezere*, is also an Episcopal City.

LIMOSIN, is divided into high and low; one at North by West of the *Vezere*, and the other at its South by East. The first produces but little Wheat and Wine; but it abounds in Rye, Barley, and Chesnuts: The other is more fertile, and produces, in some Places, Wheat and Wine; and abounds in Fruit.

LIMOGES, on the *Vienne*, is the Capital; it is an Episcopal See, and has a Presidial.

TULLES, on the *Coureze*, is the Capital of the *lower Limosin*: It is also a Bishop's See, a Senechalsey, and a Presidial.

The *Viscounty of* TURENNE, is known there, as well as throughout the whole Kingdom of *France*, by the Name of one of the greatest Heroes that was ever seen in *Mars*'s Field.

SAINTONGE abounds in Corn, Wine, and Salt, which is transported into *Spain*, *England*, and other

Places: It produces Fruits, Pasture, and Saffron; and is provided with good Sea-Ports.

SAINTES, on the *Charente*, is the Capital of the Province. The Remains of an Amphitheatre, and some other Monuments of Antiquity, prove it to be a very antient City: It has a Bishop, and a Presidial.

The ARMAGNAC, in general, is fertile in Corn, and excellent Wines; and abounds with Cattle, Fowl, and Game.

AUCHS, on the *Giers*, is the Capital: It has an Archbishoprick, which is worth near 6000 *l.* Sterling a Year.

LEYTOURE, on the same River, is an Episcopal City, and has a Presidial.

CHALOSSE, which the *French* Maps mark for *Gascony*, in particular, is a Country which produces but Rye, Millet, and Pastures.

ST. SEVERT, on the *Adour*, is the Capital; and AYRE, on the same River, is an Episcopal See.

The CONDOMMOIS, produces every Thing necessary for Life, and borrows nothing from its Neighbours.

CONDOM, situated at the Confluent of the Rivers *Baise* and *Gile*, is the Capital, and had once for Bishop the celebrated M. *Benigne de Bossuet*, Tutor of the present King of *France*, Grandfather, *Monsigneur*, only Son of *Louis* XIV.

The DOWNS are in general very sterile; and produce in some Places but Briars, and Pastures: In some others, where they use Marle, they produce Corn, especially Rye.

DAX, or rather ACQS, *ab Aquis*, because that City, and its Neighbourhood, abounds with Water, is the Capital of the *Downs:* It is honour'd with an Episcopal See, a Senechalsey, and a Præsidial.

The Country of LABOURD produces but little Wheat, and Wine, but it abounds with Fruits, of which the Inhabitants make excellent Cyder: It has also several Springs of Mineral Waters.

BAYONNE, on the *Adour*, is the Capital, and is an Episcopal See. Near this City there is a Mountain, from whence there are discover'd four Kingdoms, *viz. France*, *Spain*, *Arragon*, and *Navarre*.

BEARN, has the Glory of having seen born in its Bosom, *Henry the Great*, King of *France* and *Navarre*. This Country is full of Mountains, and in general very sterile: There are some Places, where they gather Wheat, and very good Wine; but those Places are not of a large Extent.

PAU, on the River call'd *Gave Bearnais*, is the Capital of the Province. It is adorned with a Parliament, a Chamber of Accounts, and a Mint.

OLERON, situated at the Confluent of the *Gaves* of *Oleron*, and *Accons*, is an Episcopal City.

L'ESCAR, on *Gave Bearnois*, has likewise its Bishop. MORLAS is a City, which has the Privilege to coin Money.

The *Lower* NAVARRE, is very full of Mountains, which produces but very little Wine and Corn; but it abounds with Cattle, and Game.

ST. PALAIS, on the *Bedouze*, passes for the Capital of the Province.

The *Viscounty of* SOULE, which must be included in the *Lower Navarre*, has but the City of *Mauleon*.

BIGORRE, is very near the same Climate as the *Bearn*, and produces scarce any Thing but Rye, and Millet. There is found in it Abundance of red Partridges; Mines of several Metals, and Minerals; Springs of hot Mineral Waters, among which those of *Bagnieres* claim the Pre-eminence.

TARBE, on the *Adour*, is the Capital of the Province: It is adorned with an Episcopal See, and a Senechalsey.

COMINGE, in which is included the *Couserans*, is a Country fertile enough in Wheat, Millet, Oats, Wines, Fruits, and Pastures.

ST. BERTRAND, near the *Garonne*, is the Capital: It has a Bishop, who has his Seat in the States of *Languedoc*, because Part of its Diocese is in that Government.

LOMBES, on the *Save*, is likewise an Episcopal City.

ST. LIZER, on the River *Salat*, is the Capital of the *Couserans*.

The GOVERNMENT OF GUYENNE, is divided in the following Manner:

GUYENNE, contains *Bourdeaux*, Arch. *Libourne*, *Blaye*, *Esparre*, *Cadillou*, *St. Andreas*.

BAZADOIS, contains *Bazas*, Bishop. *Monsegur*, *Castel-Gelou*, *Alengon*.

AGENOIS, contains *Agen*, Bishop. *Villeneuve*, *Aiguillon*, *Tonneins*, *Foy*.

QUERCY, contains *Cahors*, Bishop. *Gourdon*, *Moissac*, *Figeac*, *Lauserte*, *Cadenac*, *Souillac*.

ROUERGUE, contains *Rhodez*, Bishop. *Vabres*, Bishop. *Milhau*, *Ville Franche*, *St. Antonin*, *St. Just*.

LIMOSIN, contains *Limoges*, Bishop. *Tulles*, Bishop. *Brive*, *Turenne*, *Userche*.

PERIGORD, contains *Perigueux*, Bishop. *Sarlat*, Bishop. *Beaumont*, *Bergerac*, *Roche-Chalais*, *Montignac*.

SAINTONGE, contains *Saintes*, Bishop. *Pons*, *St. Jean d'Angely*, *Broüage*, *Barbesieux*, *Aubeterre*.

ARMAGNAC, contains *Auchs*, Arch. *Leytoure*, Bishop. *Vic. d'Armagnac*, *Eause*, *Jegun*, *Naugaro*, *Mirande*, *Verdun*, *Bastide*.

CHALOSSE, contains *St. Sever*, *Ayre*, Bishop. *Gabaret*, *Mugron*, *Arsac*.

CONDOMMOIS, contains *Condom*, Bishop. *Caumont*, *Mont-Real*, *Mont de Marsan*, *Damaran*.

LONDES, contains *Dax*, Bishop. *Tartas*, *Albret*, *Peyrourade*.

The LAND of LABOURD, contains *Bayonne*, Bishop. *St. Jean de Luz*, *Bedasche*, *Guische*.

The *Lower* NAVARRE, contains *St. Palais*, *St. Jean Pied de Porte*, *Soule*, *Mauhon*.

BEARN, contains *Oleron*, Bishop. *Lescar*, Bishop. *Ortez*, *Navarreins*.

BIGORRE, contains *Tarbe*, Bishop. *Vic. de Bigorre*, *Loarde*.

COMMINGE, contains *St. Bertrand*, Bishop. *Lombez*, Bishop. *Muret*.

COUSERANS, contains *St. Lizer*, Bishop. *Cazeres*.

The GOVERNMENT OF LANGUEDOC, including the *Cevennes*, extends from East to West, about 70 Leagues, from *Villeneuve les Avignon*, to beyond *Rieux* near *Comminge*; and very near 80 Leagues from South to North by East, from *Ax* in the County of *Foix*, to beyond *Annonay* towards the *Lyonnois*; taking up, besides, about 50 Leagues of the Course of the *Rhône*, from North to South.

The RHÔNE separates it, Eastward, from *Dauphiné* and *Provence:* It confines, Northward, with *Auvergne*, *Roüergue*, and *Quercy*; Eastward with *Armagnac* and *Comminge*; and Southward with *Catalonia*, and the *Mediterranean* Sea.

LANGUEDOC, passes for the most agreeable and fertile Province of *France:* The Air is very good, the Soil produces excellent Corn, abounds with delicious Wines, and Fruits are so common, that they grow in the Fields and Hedges: It produces also Saffron, Honey, Wax, and Silk. The Oils of the *lower Languedoc* are very much esteem'd; there is a vast Quantity of Salt made there; Mutton, with which it abounds, is delicious, because Sheep, almost, feed on nothing else but odoriferous Herbs, as Thyme, Lavender, Marjoram, *&c.* The *high Languedoc* feeds Oxen and Cows, and wants neither Fowls nor Game. There are found every where Mines of Metals, and Minerals; Quarries of Marble, Alabaster, and other Stones of that Nature; Springs of Mineral Waters, *&c.* Gold and Silver Sand is gather'd in some of its Rivers: In a Word, every Thing that can be wish'd for a pleasant Life, is found in that Province.

The CEVENNES have not the same Qualities; the Soil is very hilly and uncultivated in several Places; in others it produces Wine, Millet, and Fruits; its greatest Fertility is in Pasture, which makes it abound with Cattle, especially Sheep and Mules; Birds of Prey are very common there.

The most remarkable Rivers which water *Languedoc*, are, besides the *Rhône* already mention'd, the *Tarn*, which passes at *Montauban*, and mixes its Waters

ers with those of the *Garonne*, beyond *Moissac*; the *Roir*, which also resorts thither, below *Toulouse*; the *Aude*, which passes at *Carcassone*, and into which the *Fresquel* disembogues, which has been join'd by a Canal, with the *little Lers*, which disembogues into the *Garonne*.

LANGUEDOC, is divided into *high* and *low*, one Westward, the other Eastward on the Mediterranean. The first includes *Toulousin*, *Albigeois*, *Lauragais*, and the County of *Foix*: The other is distinguished into three Quarters, *viz. Narbonne*, *Beziers*, and *Nismes*, which are found in going from West to East.

The CEVENNES, which are Northward of the *low Languedoc*, are distinguished likewise into three Countries, *viz. Gevaudan*, *Vivarais*, and *Vellay*. The first is Westward, the second Eastward along the *Rhône*, and the last Northward of the two others.

The TOULOUSIN, contains the Diocese of *Toulouse*, *Montauban*, and *Lavaur*.

The ALBIGEOIS, extends in those of *Alby* and *Castres*.

The LAURAGAIS, has but that of *St. Papoul*, and some Cities of the others.

In the *County of* FOIX, are those of *Mirepoix*, *Rieux*, and *Pamiers*.

The *County of* NARBONNE, contains the Diocese of *Narbonne*, *Alet*, *Carcassone*, and of *St. Pons de Taniers*.

The *Quarter of* BEZIERS, extends in those of *Beziers*, *Agde* and *Lodeve*.

And the *Quarter of* NISMES, contains those of *Nismes* and *Montpellier*.

The GEVAUDAN, extends in the Diocese of *Mende*.

The VIVARAIS, contains those of *Viviers* and *Usez*.

And the VELLAY has but that of *Puy*.

TOULOUSE, on the *Garonne*, is the Capital of this Government. It passes for one of the most antient, and most beautiful Cities of *France*. It was the Seat of the antient *Tectosagi*, who made so many Conquests in *Asia* and *Greece*. It was one of the *Roman* Colonies, and was afterwards the Capital of the Kingdom of the *Wisigoths*; then of that of *Aquitaine*, and lastly, a very powerful particular County. It is at present an Archiepiscopal See, has a Parliament, a Senechalsy, a Bureau of Finances, a Mint, and an University. It possesses several Monuments of Antiquity, *viz*, a Capitol, an Amphitheatre, Aquæducts, antient Temples, *&c.*

ALBY, on the *Tarn*, is the Capital of *Albigois*; it has a Bishop who is temporal Lord of the City.

CASTELNAUDRY, is the Capital of *Lauragais*.

Note, That near this Place was fought that Battle, where the Duke of *Montmorency*, then Governor of *Languedoc*, who commanded the Forces of Monsieur *Gaston*, *Jean Baptiste*, against those of the King, was unhappily defeated, and taken Prisoner; and from his Prison carried on a Scaffold where he lost his Head; though Monsieur gave him his Word of a Prince, he would never listen to any Proposal of Peace, unless he was included in it, but did not accomplish his Promise.

ST. PAPOUL, in the same Province, is a small City which has no other Advantage than that of being an Episcopal See.

FOIX, on the *Ariege*, is the Capital of the County of the same Name.

NARBONNE, is a very antient City, where was established the first *Roman* Colony. It had antiently a Capitol and an Amphitheatre; the Remains thereof are yet seen. It is an Archiepiscopal and Primatial See.

BEZIERS, at the Confluent of the *Orb* and *Liron*, is also a very antient City, the Seat of the seventh *Roman* Colony, which gave the Name of *Septimany* to the Province. There are seen yet in it, Remains of a Capitol, and an Amphitheatre. It is honoured with an Episcopal See, and passes for one of the most agreeable Cities of *France*.

NISMES, is likewise an antient City, much beloved by the *Roman* Emperors. It had a *Roman* Colony, who adorn'd it with a Capitol; there is yet seen in it an Amphitheatre almost whole, and other Monuments of Antiquity. It is at present an Episcopal See.

MONTPELLIER, was almost nothing 700 Years ago, but at present 'tis one of the fairest Cities of *France*. It is honoured with an Episcopal See, a Senechalsy, a Presidial, and a celebrated University, where the *Medicine* is the most famous Faculty.

MENDE, near the River *Lot*, is the Capital of the *Gevaudan*, and an Episcopal See.

VIVIERS, on the *Achasse*, near the *Rhône*, is Capital of the *Vivarais*. Its Bishop stiles himself Earl of *Viviers*.

PUY, is the greatest City of *Languedoc*, after *Toulouse*. Its Bishop, who stiles himself Count of *Vellay*, of which *Puy* is the Capital, depends immediately of the Pope, and is Suffragan of none of the *French* Archbishops.

ROUSILLON, may very well be placed here; it has about 20 or 25 Leagues from East to West, and very near 20 from North to South. It is situated Southward of *Languedoc*, having the Mediterranean Sea at the East, and *Catalonia* at the South and West.

It is a Country full of Mountains, little fertile in Corn and Wine, but abounding with Pastures.

The most remarkable of its Rivers are, the *Tet*, *Tech*, and *Egly*.

PERPIGNAN, on the *Tet*, is the Capital. It was built of the Ruins of *Roussillon*, which was a *Roman* Colony. It is at present a very fine City, well fortified, and commanded by a strong Citadel. It is an Episcopal See.

The GOVERNMENT OF LANGUEDOC is divided in the following Manner.

The TOULOUSAN, containing *Toulouse*, Arch. *Montauban*, Bishop. *Lavaur*, Bishop. *Castel-Sarrasin*, *Villemur*, *Grisolles*, *Buset*, *Carmaing*.

ALBIGEOIS, containing *Alby*, Bishop. *Castres*, Bishop. *Realmont*, *Gailhac*, *Rabestens*, *Girossens*, *Valence*, *Cordes*, *Florentin*.

The LAURAGAIS, containing *Castelnaudry*, *St. Papoul*, Bishop. *Avignonnet*, *Ville-Pinte*, *Laurnac le Duc*, *Faujaux*, *Ville-Franche*.

The *County of* FOIX, containing *Foix*, *Mirepoix*, Bishop. *Pamiez*, Bishop. *Rieux*, Bishop. *Acqs*, *Mazeres*, *Tarascon*, *Saverdun*, *Maz-d'Azil*, *Mallegonde*, *Hauterive*, *Lerat*, *Puech*.

ROUSILLON, containing *Perpignan*, Bishop. *Elna*, *Salses*, *Collioure*, *Ville-Franche*, *Sello*, *Rivesaltes*, *Stagall*, *Volo*, *Margevol*.

The *Quarter of* NARBONNE, containing *Narbonne*, *Areb*, *Carcassone*, Bishop. *Alet*, Bishop. *Limoux*, *S. Pons de Tan*, Bishop. *Leucate*, *Lusignan*, *Capestang*.

The *Quarter of* BEZIERS, containing *Beziers*, Bishop. *Agde*, Bishop. *Pezenas*, *Lodeve*, Bishop. *Clermont*, *Montagnac*, *Port S. Louis*.

The *Quarter of* NISMES, containing *Nismes*, Bish. *Montpellier*, Bishop. *Baucaire* (famous for its Fair) *Allais*, *Montferrand*, *Aigues-Mortes*, *St. Gilles*, *Bellegarde*, *St. Laurent*.

CEVENNES, containing *Givaudan*, *Mende*, Bishop. *Marvejos*, *Florac*, *Bagnols*, *Chirac*, *La Canourgue*.

VIVARAIS, containing *Viviers*, Bishop. *Tournon*, *Annonay*, *Aubenas*, *Privat*, *Joyeuse*, *Usez*, Bishop. *Villeneuve lez-Avignon*, *Argentiere*.

VELLAY, containing *Puy*, Bishop. *Montfaucon*, *St. Didier*, *St. Paulian*, *Solignac*, *Alegre*.

The GOVERNMENT OF DAUPHINE, extends from East to West about 43 Leagues, from *Pignerol* to *Valence*; and 37 from North to South, from *Lanieu*, on the *Rhône* in *Bresse*, as far as beyond the *Buis* in the *Baronnies*.

Note, That *Dauphine*, which made Part of the antient *Allobroges*, was afterwards comprised in the Kingdom of *Burgundy*, which *Charlemagne* joined to the other Members of the *French* Monarchy. The Emperor *Henry* IV. having quarrelled with Pope *Gregory* VII. was so persecuted by his own Children, that several Lords taking Advantage of their Divi-

visions, laid hold of each their Part of that Kingdom. *Otho* Earl of *Flanders*, had *Franche-Comte*; *Beraldus* of *Saxony* invaded *Savoy*; *Provence* remain'd to *Berenger*; and *Dauphiné* fell to *Guigue the Fat*, who gave it that Name, because of the Dauphin Earl of *Viennois*, whose Daughter was married to his Son.

IMBERT, or *Humbert*, the last Earl *Dauphin of Viennois*, having lost his Son in the Battle of *Crecy*, and unfortunately let fall his last, yet an Infant, through a Window, of which Fall he died; seeing himself insulted by *Amadeus* Earl of *Savoy*, his irreconcileable Enemy; and not finding himself strong enough to resist him, resolved to give him a more powerful Neighbour; therefore he offered his Country to *Philip* of *Valois*, King of *France*, and to his Successors, provided the eldest Son of *France* should be called *Dauphin*, which was accepted by the King; therefore *Charles* V. *Philip*'s Grandson, was the first who took the Name of *Dauphin*, in the Year 1350.

DAUPHINE, confines Northward with *Bresse* and *Savoy*, Eastward with *Piedmont*; and Westward the *Rhône* separates it from *Languedoc* and *Lyonnois*.

The Soil, though full of Mountains, produces excellent Wines, and good Wheat in some Places, *viz.* in the Neighbourhood of *Grenoble*, of *Die*, and along the *Rhône*; but generally it produces Rye, Oats, and Barley. It abounds with Truffles and Cattle, especially Sheep, Goats, Hogs, and Mules. The Mountains and Forests are full of Harts, Deers, Chamas, and Marmotes. The Hares, Pheasants, red and white Partridges, and other Game, are very common in *Dauphiné*. There are several Mines of Iron and other Metals. One of the Wonders of the Country is the *Fountain of Vif*, near *Grenoble*, which is always seen boiling, and covered with Flames, without the Water being the least hot.

Its largest Rivers are the *Iser*, which receives the *Drac* below *Grenoble*; and the *Durance*, which springs from it, and runs towards *Provence*.

DAUPHINE, is divided into *high* and *low*; the first, which is Eastward, includes *Gresivaudan*, *Diois*, the *Baronnies*, *Garencois*, *Embrunois*, and *Brianconnois*. The other which extends Westward along the *Rhône*, includes *Viennois*, *Valentinois*, and *Triastin*.

The Capital of the whole Country is *Grenoble*, on the *Isere*, in *Gresivaudan*. It is a very antient City, embellish'd by the Emperor *Gratian*, who gave it his Name. It is honoured with an Episcopal See, ever since above twelve hundred Years ago; and adorn'd with a Parliament, and a Mint.

DIE, on the *Draune*, is an antient Colony of the *Romans*, and was antiently the See of a particular Bishop; but is at present united with that of *Valence*.

BUIS, on the *Aurese*, is the principal City of the *Baronneis*.

GAP, Capital of *Gapencois*, is adorn'd with an Episcopal See: It has a strong Citadel.

EMBRUN, is the Capital of the *Embrunois*: It is very strong, being situated on a very high Rock: It has an Archbishop, who is at present the famous Cardinal *de Tencin*.

BRIANÇON, Capital of *Brianconnois*, is situated on a very high Mountain, and is an Episcopal City.

VIENNE, on the *Rhône*, is a very famous City, and very antient, as appears by several Monuments of Antiquity, of which there are still some Remains seen. It is an Archbishoprick.

VALENCE, on the Borders of the *Rhône*, is the Capital of the *Valentinnois*: Its Bishoprick is joined with that of *Die*.

ST. POL TROIS CHATEAUX, is the Capital of *Triastin*. It is a Bishop's See, who stiles himself Earl.

The GOVERNMENT OF DAUPHINE is divided in the following Manner.

GRESIVAUDAN, containing *Grenoble*, Bishop. *Mens*, *Lesdiguires*, the *Great Chartreuse*, Prior.

DIOIS, containing *Die*, Bishop. *Crest*, *Saillans*.

BARONNIES, containing *Buis*, *Nions*, *Merindol*, *Piles*.

GAPENÇOIS, containing *Gap*, Bishop. *Aspres*, *Ventavon*.

EMBRUNOIS, containing *Embrun*, Arch. *Seyne*, *Guillestre*.

BRIANÇONNOIS, containing *Briancon*, Bishop. *Exilles*, *Pignerol*, *Perouse*.

VIENNOIS, containing *Vienne*, Arch. *St. Vallier*, *Romans*, *St. Antoine*, Abbey. *Serre*, *Beaurepaire*, *Tuylins*, *Tour du Pin*, *Puzignan*, *Vulpilliere*, *Cremieu*, *St. Jean de Bournay*.

VALENTINOIS, containing *Valence*, Bishop. *Chabeuil*, *St. Marcellin*, *Montelimar*, *Estoille*, *Livron*.

TRICASTIN, containing *St. Paul trois Chateaux*, Bishop. *Saze*, *Pierrelatte*, *Donzere*, *Grignan*.

The GOVERNMENT OF PROVENCE, extends from East to West more than 50 Leagues, from the Mouth of the *Var* to the *Rhône*; and from South to North near 40, from *Cape Cerchiez* near *Toulon*, as far as the *Durance*, three Leagues below *Embrun*.

It confines Northward with *Dauphiné*, Eastward, Part with *Piedmont*, from which it is separated by the *Alps*, and the River *Var*, and Part with the Mediterranean Sea; and Westward with the *Rhône*, which parts it from *Languedoc*.

The Air and Soil are not equal every where, for towards the North, that's to say, the higher *Provence*, the Air is cold, as in *Dauphiné*, because of the frequent Mountains always covered with Snow: It produces Corn, but very little Wine. There are some Fruits, as Apples, Pears, Prunes, Almonds, *&c.* Its greatest Fertility is in Pastures, and Cattle. In the *lower Provence*, which is towards the Coasts, the Air is mild, and sometimes excessively hot. The Soil abounds in Corn, delicious Wines, and excellent Fruits; as Olives, Lemons, Oranges, Apricocks, Melons, Figs, Prunes, Almonds, *&c.* In the *lower Provence* is made the best Oil in the Kingdom, and very good Salt. Between the Arms of the *Rhône*, towards the Sea, is found a very fat Soil which feeds a great Number of Oxen. There is from Time to Time seen towards the Coasts, so great a Quantity of Quails, that it is almost incredible, unless one had seen it.

Besides the *Rhône*, *Provence* has for its principal Rivers, the *Durance* which receives the *Verdon*, and the *Hubaye*; the *Argens*, *Var*, and *Arc*, which all three spring from it. There are several Gulphs, as that of *Marseille*, *Hyeres*, *Grimaut*, *Lerins*, &c. between the *Crau* and *Durance* are found five Lakes.

Note, That there are found on the Coasts of *Provence*, the Isles *Martegue*, *Panegue*, *Hyeres*, or *Stœcades*, and *Lerins*, which the famous Count *de Harcourt* conquered with a Handful of Soldiers.

I'll divide PROVENCE by its Dioceses; beginning by the Middle, where are found the Diocese of *Aix*, *Riez*, *Senez*, and *Digne*; the first in the Neighbourhood of *Durance*, three others in that of *Verdon*, reascending towards its Source which is in the last. On the Coasts, the Diocese of *Arles*, *Marseilles*, *Toulon*, *Frejus*, *Grace*, and *Vence*; which are found in this same Order in going from West to East. The Diocese of *Glandeve*, is in the Neighbourhood of *Var*. Northward the Dioceses of *Sisteron*, and *Apt*, with the County *Venaissain*, which environs the Principality of *Orange*.

AIX, on the River *Arc*, is the Capital of *Provence*, and a very antient City, where *Cajus Sextus* brought a *Roman* Colony. It is at present the See of an Archbishop, adorn'd with a Parliament, Chamber of Accompts, and a Mint.

ARLES, on the *Rhône*, is a very antient City, where the *Romans* established their sixth Colony; and has yet the Remains of an Amphitheatre, which is called the *Arenes*, and of several other Monuments. It has an Archbishop, an Academy of the *Belles Lettres*, associated with that of *Paris*.

MAR-

MARSEILLE, is a very antient City, which flourish'd in *Cæsar*'s Time. It was a Kind of Commonwealth, and it had a famous Academy. It is at present an Episcopal See; its Port is esteem'd one of the most secure of the Mediterranean; there the *French* Galleys are kept, and is a very trading Place for the *Levant*.

TOULON, is also an Episcopal City, which has one of the best Sea-Ports on the Mediterranean; where the King of *France* keeps several Men of War.

SALON, is a small City, which has the Honour to have produced *Nostrodamus*, famous for his *Centuries*.

The County VENESSAIN, depends of the Holy See, ever since the Year 1228. Pope *Clement* IV. having transferred the Pontifical Chair to *Avignon*, in 1305. *Clement* VI. bought that City 38 Years afterwards. And his Successors resided peacably there, till the Year 1380, and during the Schism till the Council of *Constance*, in 1554.

AVIGNON, on the *Rhône*, which is the Capital, is the ordinary Seat of the Vice-Legate of the Pope, of an Archbishop, of an Inquisition, of an University, and of a Mint to coin the Pope's Money.

ORANGE, with the Title of Principality, is a very antient City, where there was a second *Roman* Colony. There are seen yet the Remains of a Circus, and of a Triumphal Arch. It is the See of a Bishop, Suffragan of *Arles*, of a Parliament, of a Mint, and of an University; it belonged formerly to the most illustrious House of *Nassau*, from whom the late King of *France* bought it.

The GOVERNMENT OF PROVENCE is divided in the following Manner.

The *Diocese of* AIX, containing *Aix*, Arch. *St. Maximin*, *Brignolle*, *Barjols*, *Peyrols*, *St. Paul*, *Alençon*.

The *Diocese of* RIEZ, containing *Riez*, Bishop. *Valençole*, *Orésson*, *Palu*, *Mont-pesat*.

The *Diocese of* SENEZ, containing *Senez*, Bishop. *Castellane*, *Baremme*, *Colmars*, *Mevoiles*.

The *Diocese of* DIGNE, containing *Digne*, Bishop. *Mirabel*, *Brusquet*, *Collobrioux*, *Verdache*.

The *Diocese of* ARLES, containing *Arles*, Arch. *Dormet*, *Salon*, *Berre*, *Les Braux*.

The *Diocese of* MARSEILLE, containing *Marseille*, Bishop. *Aubagnes*, *Oreols*, *Sainte Baume*, *Cioutat*, *Cassis*, *Olliols*.

The *Diocese of* TOULON, containing *Toulon*, Bish. *Hycres*, *Lomary*, *Pierrefuec*, *Bormes*, *Sifours*.

The *Diocese of* FREJUS, containing *Frejus*, Bishop. *St. Tropés*, *Draguignan*, *Acelps*.

The *Diocese of* GRACE, containing *Grace*, Bishop. *Antibes*, *Canes*, *Cipiere*, *Bart*.

The *Diocese of* VENCE, containing *Vence*, Bishop. *St. Paul*, *St. Laurens*, *Brec*.

The *Diocese of* GLANDEVE, containing *Glandeve*, Bishop. *Guilleumes*, *Annot*, *Pene*.

The *Diocese of* SISTERON, containing *Sisteron*, Bishop. *Forcalquier*, *Manosque*, *Brelhane*.

The *Diocese of* APT, containing *Apt*, Bishop. *Gordes*, *St. Savanin*, *Saut*, *Simiane*.

The *County* VENAISSAIN, containing *Avignon*, Arch. *Cavaillon*, Bishop. *Carpentras*, Bishop. *Vaison*, Bishop. *Isle*, *Miolans*, *Pont de Sorgue*.

The *Principality of* ORANGE, containing *Orange*, Bishop. *Courtezon*, *Jonquieres*, *Gigondas*.

ISLES of *Martegue*, *Pomegue*, *Paulet*, *Passon*.

ISLES STECADES, *Ribandon*, *Ribandas*, I. of *Titan*, I. *Porqueyrols*, I. *Porteros*.

ISLES OF LERINS, *St. Marguerite*, *St. Honorat*.

Note, That these two last Isles serve for Prisons for Prisoners of State.

Note also, That before I pass to the Description of *Germany*, it is proper I should speak of the Provinces which serve of common Limits to it and *France*, being situated between those two powerful States. Those Provinces are *Lorrain*, *Franche Comté* and *Savoy*; which are found in this Order coming from the North towards the South.

LORRAIN, extends from the 27 Deg. 30 Min. of Longitude, to the 29; and from the 47. 30 Min. of Latitude, as far as 49. 30 Min. so that it may have from East to West 40 Leagues from beyond *Biché*, as far as the River *Aixne*, beyond *Sainte Menehou*; and more than 48 from South to North, from the Sources of the *Moselle*, as far as beyond *Saint Vandel*.

Note, That *Lorrain* was the Southern Part of the Kingdom of *Austrasy*, of which it bore the Name, and which *Lotharius* caused to be changed into that of *Lother-Rich*, whence comes the Word *Lorrain*. *Charles* his younger Son fearing he would not give him an honest Part of his Dominions, threw himself into the Arms of the Emperor *Otho*, who protected him against *Lotharius*, and gave him the Investiture of *Lorrain*, with the Title of Dutchy, on Condition it should releave of the Empire. Thus *Charles* made himself a *German*, and renounced *France*; against which he proceeded with so much Animosity, that the States of the Kingdom considering him not only as a Foreigner, but likewise as an odious Enemy, excluded him from the Crown at the Death of *Louis the Feneant*, his Nephew; and elected in his Place *Hugh Capet*, *Mair du Palais*, and Earl of *Paris*, Chief of the Race of the present Kings of *France*.

LORRAIN, confines Northward with the Diocese of *Treves* and *Luxembourg*, Eastward with the *Palatinate of the Rhine* and *Alsace*, Southward with *Franche Comte*, and Westward with *Champagne*.

The Air is temperate enough, and the Soil fertile enough in Corn, Wine, Hemp, and Pasture. There is found in it a great Quantity of Iron Mines, and some Silver and Copper ones: It abounds with Cattle, and Game. The Rivers are full of Fishes, especially Trout; it has several Forests.

The most considerable of its Rivers are the *Meuse*, *Moselle*, *Sare*, *Meurte*, and the *Saone* which springs from it.

This Province is divided into two Dutchies, *viz.* LORRAIN and BAR. The first towards the East, in the Neighbourhood of the *Moselle*, of the *Sar*, and of the *Meurte*. The other is towards the West, in the Neighbourhood of the *Meuse*.

The *Dutchy of* LORRAIN, is subdivided into three Balliwicks, *viz.* of *Nancy*, of *Vauge*, and of *Vaudrevange*; and into three Bishopricks, which are *Metz*, *Toul*, and *Verdun*, which are not properly of *Lorrain*, but are inclosed in it on all Sides.

NANCY, near the *Meurte*, is the Capital of the Province, it has a Chamber of Accompts, and a Senechalsey. It is divided into old and new City; both are very well fortified in the modern Manner. It has no Bishop, but it has a Primate, who has a Right to wear the Mitre.

METS, TOUL, and VERDUN, are Episcopal Sees, and antiently Imperial Towns of *Germany*, whose Bishops are still Suffragans of the Archbishoprick of *Triers*.

METZ, is a very antient City, situated at the Confluent of the *Moselle*, and of the *Scille*, well enough fortified, and commanded by a good Citadel; it was antiently the Capital of the Kingdom of *Austrasia*, and is only at present the Capital of the *Pais Messin*, an Episcopal See, adorn'd with a Parliament, and a Balliwick, established by King *Louis* XIII.

BAR-LE-DUC, is the Capital of the *Barrois*, has a Balliwick, a Senechalsey, and a Chamber of Accompts. The Parliament of the *Barrois* is at St. *Michel*, on the *Meuse*, in the same Province.

Note, That the *Lorrains* are not very ingenious in general, though some of them have been very great Artists in the mechanical Arts, they are parcimonious, presumptuous, and very affectionate to their Prince, which they exalt to the *Apotheose*. It is said that they were tractable enough before the Reduction

of their Country, but ever since they are mistrustful and crafty; and have furnished *France* with a vast Number of Highwaymen.

Lorrain, till of late, has always been govern'd sovereignly by its Dukes, who have been great Captains, and very zealous for the Catholick Religion. The Kings of *France* have been from Time to Time entirely possessed of it; and at present by an Act of Renunciation, made in Favour of that Christian Hero, and true Philosopher, *Stanislaus*, King of *Poland*.—The *Lorrains*, like their Princes, have always been zealous *Roman* Catholicks.

LORRAIN is divided in the following Manner:

The *Balliwick of* NANCY, contains *Nancy*, *St. Nicolas*, *Vaudemont*, *Vezalize*, *St. Diey*, *Luneville*, *Gerbervilliers*, *Blancmont*, *Estival*, *Marsal*, *vic. Moyenvic*, *Salens*, *Naufman*, *Phaltsburg*.

The *Balliwick of* VAUGE, contains *Mirecour*, *Neufchatel*, *Espinal*, *Remiremont*, *Charmes*, *Bruyeres*, *Dompaire*, *Plombieres*, *Fontenoy*, *Darney*.

The *Balliwick of* VAUDREVANGE, contains *Vaudrevange*, *Sirk*, *Sarbruk*, *Dieuze*, *Saralb*, *Putlange*.

The BISHOPRICKS, contain *Metz*, Bishop. *Nomeny*, *Pont-a-Mousson*, *Toul*, Bishop. and County, *Clermont*.

The BARROIS, contains *Bar-le-Duc*, *St. Michel*, *Signy*, *Commarcey*, *Vaucouleurs*, *La Mothe*, *Dammarie*, *Châtelet*, *Longvy*, *Villers*.

FRANCHE COMTE, is situated between the 46 and 48 Degree of Latitude; and extends from the 26. 20. Minutes of Longitude, as far as 28. 20. Minutes. So that it may have, from South to North, 40 Leagues, from *Chavannes*, as far as *Mont St. Anne* near *Saonne*; and near 30. from East to West, from the River *Dou*, near *Franquemont*, in the Bishoprick of *Basil*, as far as *Fontaine Françoise* in *Burgundy*.

Note, That this Province is, as I have already observed, Part of the antient *Cisjurane Burgundy*, which center'd in the Dependencies of the House of *Austria*, by Means of *Mary* Heiress of *Burgundy*, and Wife of the Emperor *Maximilian*. The late King of *France*, who had Pretences on that Province, as on all the Lands which had been alienated from the Crown, took it twice, and restored it once, in Favour of Peace; but has kept it since, both as his Estate, and his Conquest.

Franche Comté confines Northward with *Lorrain*, Eastward with *Switzerland*, Southward with *Bresse*, and Westward with *Burgundy* and *Champagne*.

It is very well peopled, very fertile in Corn, excellent Wines, Woods, Game, and Cattle; it has, like *Lorrain*, very good *Salins*, whence one of its Cities borrows its Name: There are found in it several Quarries of black Marble, and Alabaster.

The most considerable of its Rivers, and large Brooks, are, the *Saonne*, the *Dou*, the *Lougnon*, and the *Louve*, which abounds with excellent Fish.

The Province is divided into three Balliwicks; that of *Vesoul* is in the higher Part, that of *Dole* in the Middle, and that of *Poligny* in the Lower.

DOLE, on the *Dou*, is the Capital; is a very antient City, which *Charles* V. caused to be well fortified, after it had been almost entirely newly rebuilt: It was the Seat of a Parliament, of a Chamber of Accompts; and is still of a Bailliwick, and of an University.

BEZANÇON, on the same River, is also a very antient City, which heretofore was ranked among the Imperial Cities of *Germany*: It is the See of an Archbishop, who stiles himself Prince of the Empire; and is adorned with a Parliament.

Note, That the *Franc-Comtois* are a very good Sort of People; and differ from the *French*, in that they are not so sincere, nor so well polished: They are likewise very zealous *Roman* Catholicks.

FRANCHE-COMTE, is divided in the following Manner:

The *Balliwick of* DOLE, contains *Dole*, *Bezançon*, Arch. *Ornans*, *Quingey*, *Verceil*, *Loye*, *Rochefort*.

The *Balliwick of* AMONT, contains *Vesoul*, *Grey*, *Baume-les-Nonnes*, *Luxueil*, *Rey*, *Jussey*, *Cromarcy*, *Rougemont*, *Lure*, ab Imper. *Mont-Belliard*, Principality.

The *Balliwick of* AVAL, contains *Poligny*, *Leon-Lesaunier*, *Salins*, *Chastel-Chalon*, *Arley-Bleterans*, *St. Claude*, Abbey. *Champignole*, *Orgelet*, *Pontarlier*, *Noseavy*, *Jougne*, *Aranten*, *Mortau*, *Mommoret*, *Sorlin*, *Ruffey*, *Arbois*.

SAVOY, is situated between the 27 and 29 Degree of Longitude, and extends from the 44 Deg. 43 Min. of Latitude, as far as the 46 Deg. 8 Min. Therefore it has about 26 Leagues from East to West, from the Neck of *Cogni*, to *St. Genie of Hoste*, on the *Rhône*; and more than 28 from the Lake of *Geneva* to the Mountains, which separate it from *Dauphiné*.

Note, That this Province is that Country, whose Inhabitants *Cæsar* calls *Allobroges*, *Centrens*, *Lotabriges*, &c. it made Part of the *Narbonnoise* and *Celtick Gaul*; and was since one of those which composed the Kingdom of *Burgundy*. It is at present a sovereign Dutchy, whose Dukes, who are of the antient House of *Saxony*, stile themselves Kings of *Cyprus*, ever since *Louis* of *Savoy*, who was married to the only Daughter of *John* King of *Cyprus*: They have also the Title of *Perpetual Vicars* of the Holy Empire in *Italy*, ever since *Amé the Great*.

Savoy confines Northward with the *Rhône*, and the Lake of *Geneva*, Eastward with *Switzerland* and *Piedmont*, Southward with *Dauphiné*, and Westward with the *Rhône*, which parts it from *Burgundy* and the *Bresse*.

The Air is very cold, because of the frequent Mountains, always cover'd with Snow. The Soil produces some Corn, Wine in the Valleys, and on the Hills; but the Mountains have nothing but Pastures, which feed a vast Number of Cattle of all Sorts. It abounds with Game, as wild Boars, Harts, Deer, Marmotes, white Hares and others, white Partridges, Pheasants, and other Fowls. The Lakes furnish fine Trouts, good Pikes, and other Fish. It has several Forests full of Walnut Trees.

Its principal Rivers are, the *Isere*, *Arche*, and *Arve*. It has two Lakes, *viz.* those of *Bourget*, and of *Annecy*, three or four Leagues long, and one or two broad.

SAVOY is divided into six Parts; three towards the South, *viz.* what is properly called *Savoy*, *Maurienne*, and the *Tarentaise*: And three others towards the North, *viz.* the *Genevois*, *Faulsigny*, and *Chablais*.

CHAMBERY, situated on the Confluent of the small Rivers *Laisse* and *Albane*, is the Capital of *Savoy*; and is adorned with a Parliament or Senate, a Chamber of Accompts, a Bureau of Finances, and a Balliwick. It depends for the spiritual, of the Bishoprick of *Grenoble*.

Note, That the *Savoyards* are not very great Wits, nor very dextrous; but they are very good, meek, courteous to Foreigners, affable, sincere, and have so advantageous an Opinion of their Duke, that they believe him the greatest Prince upon Earth. The Gentlemen have something very great and noble; but the common People are cringing, and do not love War, though they are very capble to support all Sorts of Fatigues: They are in general very parcimonious, and very sober.

Their Duke is, as I have observed before, a Prince of the illustrious House of *Saxony*, who is stiled Royal Highness; at present King of *Sardinia*; he keeps a Governor at *Chambery*, because himself keeps his Court at *Turin* in *Piedmont*, being Prince thereof. He is a zealous Professor of the Catholick Religion, though in the Neighbourhood of Countries, where *Calvinism* is strongly established. He has an Archbishop in the City of *Monstiers*, in the *Tarentaise*, a Bishop at *St. John de Maurienne*, and the

the Bishop of *Geneva* who presides at *Annecy*.

SAVOY is divided in the following Manner.

The *Proper* SAVOY contains, *Chambery*, *Montmellian*, *Beaufort*, *Aix*, *Rumilly*, *Echelles*, *Ugine*, *Conflans*, *Aiguebelle*, *Miolans*, *Chatelar*, *Rochette*.

In BUGEI, *St. Genis D'Hoste*, *Montaleon*, *Jenne*.

MAURIENNE contains, *St. John de Maurienne*, Bishop. *La Cambre*, *St. Michel*, *St. Julian*, *St. Andre*, *Modane*, *Lanebourg*, *Braman*, *Usse*.

The GENEVOIS contains, *Annecy*, *Alby*, *Roche*, *Tonnes*, *Faverge*, *Manigo*, *Talloir*, *Clairmont*, *Mont St. Martin*.

The TARENTAISE, contains *Monstiers*, Arch. *St. Jacque-Eme*, *St. Maurice*, *Briançon*.

The FAUSSIGNY, contains *Cluse*, *Salanche*, *Bonneville*, *Taninge*, *St. Gervaise*.

The CHABLAIS, contains *Tonnon*, *Ripaille*, *Evian*, *Armoy*, *St. John de Lux*.

Note, That I'll conclude this Article of *France*, and of its Frontiers, by observing that there is but one Religion professed publickly throughout that vast Kingdom, which is the Catholick; that the *French* Monarchs, ever since the Conversion of *Clovis* I. to Christianity, have professed no other; having always been zealous Protectors and Defenders of the *Roman* Church, for which they have merited from the Popes, who have always had Recourse to them in their greatest Distresses, the glorious Title of MOST CHRITIAN KING.

Note also, That the King of *France* provides in his Dominions (the Conquests excluded) to eighteen *Archbishopricks*, a hundred and ten *Bishopricks*, to seven hundred and fifty *Abbeys of Monks*, without reckoning those who have been re-united to other Commonalties or Benefices; and to more than two hundred *Abbeys of Nuns*.

The *Eighteen* ARCHBISHOPRICKS, are, *Aix*, *Alby*, *Ambrun*, *Arles*, *Auch*, *Besançon*, *Bourdeaux*, *Bourges*, *Cambray*, *Lyons*, *Narbonne*, *Paris*, *Rheims*, *Rouen*, *Sens*, *Toulouse*, *Tours*, *Vienne*.

The *Hundred and Ten* BISHOPRICKS, are, AGDE, *Agen*, *Air*, *Alet*, *Amiens*, *Angiers*, *Angoulême*, *Apt*, *Arras*, *Avranche*, *Autun*, *Auxerre*; BAYEUX, *Bayonne*, *Bazas*, *Beauvois*, *Bellay*, *Bethléem*, *Beziers*, *Blois*, *Boulogne*, *St. Bricu*; CAHORS, *Carcassone*, *Castres*, *Châalons*, *Chalons*, *Chartres*, *Cisteron*, *Clermont*, *Cominges*, *Condom*, *Cornoüaille*, *Conserans*, *Coutance*; DAX, *Die*, *Digne*, *Dole*; EVREUX; S. FLOUR, *Frejus*; GAP, *Geneve*, *Glandeve*, *Grace*, *Grenoble*; KEBEC; LAITOUR, *Langres*, *Lâon*, *Lavaur*, *Leon*, *Lescar*, *Limoges*, *Lisieux*, *Lodève*, *Lombes*, *Luçon*; MAACON, S. *Malo*, *Mande*, *Mans*, *Marseille*, *Meaux*, *Metz*, *Mirepoix*, *Montauban*, *Montpellier*; NANTES, *Nevers*, *Nice*, *Nîmes*, *Noyon*; OLERON, S. *Omer*, *Orange*, *Orleans*; PAMIERS, S. *Papoul*, S. *Paul trois Chateaux*, *Perigueux*, *Perpignan*, *Poictiers*, S. *Pol de Leon*, S. *Pons*, *de Tanieres*, *Puy*; RENNES, *Rieux*, *Riez*, *Rochelle*, *Rodez*; SAINTES, *Sais*, *Sarlat*, *Senez*, *Senlis*, *Soissons*, *Strasbourg*; TARBES, *Toul*, *Toulon*, *Tournay*, *Trequier*, *Troyes*, *Tulles*; VABRES, *Valence*, *Vannes*, *Vence*, *Verdun*, *Viviers*, *Usaiz*.

Besides these, there are also in the Kingdom of *France*, several Dignities of the ORDER of MALTA, as *Grand Priors*, *Commanders*, and *Knights*, who are all of the Body of the Clergy; and that most noble, and illustrious Order, being divided into eight Nations, the Kingdom of *France* has the Advantage to have the three first, *viz.*

PROVENCE, whose Chief is *Grand Commander* of the Order.

AUVERONE, whose Chief is *Grand Marescbal* of the Order.

FRANCE, whose Chief is *Grand Hospitalier* of the Order.

GERMANY.

From *France* I'll pass into GERMANY, which is situated in the Middle of *Europe*, between the 24 and 41 Deg. 30 Min. of Longitude, extending from 45 Deg. 30 Min. of Latitude to 55; so that it may have 240 Leagues from East to West, from beyond the Source of the *Vistulæ*, to *Beauzains* in *Artois*; and near 200 from South to North, from the Lake of *Locarne*, near the *Milanese*, to the *Baltick*.

Its Limits, Northward, are the *Ocean*, *Denmark*, and the *Baltick*; Eastward, *Poland* and *Hungary*; Southward, *Italy*; Westward, *Savoy*, *Franche Comté*, and *Lorrain*, which parts it from *France*.

GERMANY is very fertile in all Things, particularly towards the South, in the Neighbourhood of the *Danube*; where the Air is as temperate as it is in *France*; but northward the Climate is very cold, and the Soil less fertile; which, notwithstanding, there are found every where, beautiful and large Cities well inhabited, and very trading.

It has six principal Rivers, *viz.* the *Danube*, the *Rhine*, the *Meuse*, the *Weser*, the *Elbe*, and the *Oder*: With some others less considerable, as the *Drave*, the *Save*, the *Inn*, the *Mein*, the *Sprée*, the *Muer*, &c.

GERMANY has always been divided into *High* and *Low*. The first is Southward, and contains *Austria*, and its Dependencies, *Bavaria*, *Suabia*, *Switzerland*, *Alsace*, the *Low Palatinate*, with the fourthern Part of *Franconia*.—The other, which is Northwards, contains *Bohemia* and its Dependencies, the other Part of *Franconia*, *Hesse*, the high and low *Saxony*, *Westphalia*, the *Electoral Archbishopricks*, the Succession of *Cleves* and *Juliers*, and the *Low Countries*: Some add to it formerly *Prussia* and *Livonia*; which I'll mention in the Article of *Sweden*.

It is again divided politically into ten Circles: The first is that of *Franconia*; the second of *Bavaria*; the third of *Austria*, to which might be added, *Bohemia* and its Dependencies, to avoid dividing the Dominions of the House of *Austria*; the fourth of *Suabia*; the fifth of *Alsace*, or rather of the high *Rhine*, containing the Landgravate of *Hesse*, *Alsace*, the Dutchies of *Deux Ponts*, and *Fimmeren*, the States of the Bishops of *Wormes*, *Spire*, and *Basile*; the Duchy of *Savoy*, included in it at present, but improperly; the sixth that of the low *Rhine* or Electoral, containing the Dominions of the Elector *Palatine*, and of the Electoral Archbishops; the seventh, that of *Westphalia*; containing, with that Province, the Dioceses of *Cambray*, *Liege*, *Ferden*, with the Succession of *Cleves* and *Juliers*; the eighth, is called the high Circle of *Saxony*; which contains with the *high Saxony*, and its Dependencies, the Dominions of *Brandebourg* and *Pomerania*; the ninth, is called the low Circle of *Saxony*; which contains all the *low Saxony*.

For my Part, I'll divide *Germany* into eighteen principal Parts; four whereof are found Southward, viz. *Austria* and its Dependancies, *Bavaria*, *Suabia*, and *Tyrol*; the three first are situated in the Neighbourhood of the *Danube*, the last is Southward of *Bavaria*, and *Suabia*; in the Middle are found *Franconia*, *Hesse*, *Bohemia*, with its Dependencies, and *high Saxony*; Northward, are found *Brandebourg*, *Pomerania*, *low Saxony*, and *Westphalia*; Westward, on the *Rhine*, beginning at its Mouth, or rather where it ends, and re-ascending always towards its Source, are first the *Low-Countries*, then the Succession of *Cleves* and *Juliers*, with the *Electoral Archbishopricks*, the *low Palatinate*, *Alsace*, and *Switzerland*.

VIENNA, in *Austria*, situated on the *Danube*, is reputed the Capital of *Germany*, because the Emperors of that illustrious House used to keep their Court there. It has a Bishop Suffragan of *Saltzbourg*, and an University. It is a very strong City, which the *Turks* have often besieged in vain, though once with an Army of 300,000 Men, commanded by one of their greatest Heroes, *Soliman* the Magnificent.

RATISBON, an Episcopal City also, situated on the *Danube* in *Bavaria*, is the Place where the Diets of the Empire are kept.

FRANCFORT on the *Mein*, in *Franconia*, is the Place where the Emperor is elected.

Aix la Chapelle, in the Dutchy of *Juliers*, is the Place of his Coronation.

Note, That the *Germans* are not ſuppoſed to be furniſhed with a vaſt deal of Wit (though I have found the contrary) but they are very good Artiſts, liberal, noble, brave, good, ſincere, and very ſociable; they are for the generality very handſome, and of a ſtrong Conſtitution. They love naturally War, and good Cheer; but they are not eſteemed the beſt civilized People in *Europe*; which is but a very inſignificant Imperfection, when compared with their excellent Perfections.

Note alſo, that the Empire of *Germany* is compoſed of five Sorts of Powers, *viz.* the Emperor, who is Chief, but not Maſter, ſince he can diſpoſe of nothing but his own: The Electors to the Number of nine, *viz.* the Archbiſhop of *Mentz*, High Chancellor of the Empire in *Germany:* The Archbiſhop of *Triers*, High Chancellor of the Empire in *Gaul:* The Archbiſhop of *Cologne*, High Chancellor of the Empire in *Italy*: The King of *Bohemia*, Great Cup-Bearer: The Duke of *Bavaria*, High Steward: The Duke of *Saxony*, Grand Mareſchal: The Marquis of *Brandebourg*, Grand Chamberlain: The Count *Palatine* of the *Rhine*, High Treaſurer: The Duke of *Hanover*; call'd likewiſe High Treaſurer: The eccleſiaſtick Princes; the ſecular Princes; the Free-Towns, which are as many Republicks; ſome of thoſe Towns, or Cities, are call'd Imperial, and appear at the Aſſemblies, or Dyets, on the Benches of *Suabia* and of the *Rhine:* Others are call'd *Hanſe* Towns, and appear under four Colleges, whoſe Seats are *Lubeck*, *Cologne*, *Brunſwick*, and *Dantzick:* Theſe Towns have receiv'd the Name *Hanſe*, from the *German* Words, *An zee Stette*, i. e. Cities ſituated on the Sea; becauſe the firſt which began the Confederacy were all ſituated on the Sea, or at leaſt on ſome conſiderable Rivers: They formed this Confederacy, to maintain themſelves mutually in Trade; and they had once Compting-Houſes in common, *viz.* one at *London*, in *England*; one at *Bruges*, in *Flanders*, and afterwards at *Antverp*; one at *Novogrod* in *Muſcovy*, then at *Revel* in *Livonia*, and afterwards at *Narva*; and the other at *Bergen* in *Norway*.

The *German* Powers depend no otherwiſe of the Emperor, than by doing Homage to him; otherwiſe, they can make War, Alliances, and Confederacies with foreign Princes, provided they do not prove prejudicial to the Empire.

Note, beſides, That there are three Religions profeſſed publickly in *Germany:* The firſt is the *Catholick*, profeſſed by the Emperor himſelf, at preſent by all the Electors except two, (who are thoſe of *Brandebourg*, and of *Hanover*) and by a great Number of Princes: The others are the *Lutherans*, and the *Calviniſts*. There are alſo found in ſome Places, *Zuinglians*, *Anabaptiſts*, and *Jews*.

I'll begin my Diviſion of *Germany*, by the Deſcription of the Provinces belonging to the Houſe of *Auſtria*, which compoſe thoſe Dominions, commonly call'd *Auſtriche*, or *Auſtria*.

Austriche, or Austria.

The Provinces known under that general Name, are the particular *Auſtria*, *Carinthia*, *Stiria*, and *Carniole:* The firſt is ſituated in the Neighbourhood of the *Danube*; the ſecond, and third, are Southward of it, in the Neighbourhood of the *Drave*, one Weſtward, and the other Eaſtward; and the laſt, is ſtill further advanced than theſe, towards the South, in the Neighbourhood of the *Save*.

They have for Bounds, Northward, the Mountains of *Bohemia*, and the River *Teya*; Eaſtward, *Hungary*; Southward, *Italy*; and Weſtward, *Tyrol* and *Bavaria*.

The particular *Auſtria*, is the ſole Archdutchy of *Europe*, which has about 52 Leagues from Eaſt to Weſt, and 25 from South to North.

Its Air is mild, and wholeſome; it is extremely fertile in Wine; and produces likewiſe Wheat, Saffron, and Wood.

Carinthia, *Stiria*, and *Carniole*, may contain together 65 Leagues, in Length from Eaſt to Weſt, and 48 from South to North.

Though the Soil, in theſe Provinces, be full of Mountains, it notwithſtanding produces Corn enough, and very little Wine, but it is delicious: There are found in them Mines of ſeveral Metals; and they abound with Cattle.

Beſides the *Danube*, which runs thro' *Auſtria* from Weſt to Eaſt, there is but the River *Ens*, which is a little conſiderable in that Province; where it comes to diſembogue, after it has paſſed thro' a City which borrows its Name. The Rivers *Drave*, and *Muer*, ſpring from *Carinthia*, paſſes into *Stiria*, and croſſes them both from Weſt to Eaſt. The *Save*, which takes its Source in *Carniole*, divides it into two Parts, by its Courſe on the ſame Side. Theſe Rivers are ſo rapid, that they dim the Sight of thoſe who look at them too earneſtly. In the Southern Part of *Carniole*, called *Seiche*, is found the Lake *Czirknickz*, environed with Mountains and Foreſts, which is full of Water about the latter End of Autumn, and dry in the Spring; ſo that thoſe who live in the Neighbourhood of that Lake, hunt, ſow, and reap in it, before the Waters return into it from certain ſubterraneous Sources.

Austria is divided into *higher* and *lower*, one Weſtward, the other Eaſtward. *Carniole*, beſides its Diviſion into two Parts, contains the Marquiſat of *Windes*, and the County of *Cilley*.

Vienna, on the *Danube*, is the Capital of the Archdutchy of *Auſtria*.

The *City of* St. Weit, ſituated on the Confluent of the Rivers *Glan* and *Williez*, is the Capital of *Carinthia*.

Gratz, on the *Muer*, is the Capital of *Stiria*.

Laubach, ſituated on the River of the ſame Name, is the Capital of *Carniole*.

Metling is the Capital of the Marquiſat of *Windes*, commonly called *Wineiſmarck*. The City of *Cillei* is the Capital of its County.

Note, That the *Houſe of Auſtria*, on which all theſe Dominions depend, is very antient, and has given an Emperor to *Europe*, more than 400 Years ago. For *Rodolphus* I. who is the Source thereof, was raiſed to that ſupreme Dignity in 1273. It ſeems as if the Empire had been hereditary in that illuſtrious Houſe, for more than 200 Years. But that dearly beloved Prince *Charles* VI. the late Emperor, dying without Iſſue Male, that Empire has been transferred with the free and unanimous Conſent of all the Electors, into that of *Bavaria*.

The Catholick Religion is profeſſed with a great deal of Zeal (the Princes themſelves giving the Example) in all the Dominions depending of the Houſe of *Auſtria*, and the Inquiſition baniſhes from it all new Doctrines.

Note alſo, That as *Tyrol* is alſo of the Dependencies of the Houſe of *Auſtria*, it is proper to make here the Deſcription thereof, without deviating from my Subject; it being beſides more Southern than the two others which precede it in the Diviſion of *Germany*.

Tyrol is the greateſt County in *Europe*; for it has very near 25 Leagues from South to North; and near 44 from Eaſt to Weſt.

It confines Northward with *Suabia* and *Bavaria*; Eaſtward with *Carinthia*; Southward with *Italy*, and the *Griſons*; and Weſtward with *Switzerland*.

Its Climate is not equally temperate every where, nor its Soil generally fertile, becauſe of the frequent Mountains which are almoſt always covered with Snow. It produces very good Corn, and very good Wine, but in a little Quantity. Its greateſt Fertility is in Paſtures. There are found in it Mines of Silver, Copper,

Copper, and Iron, and Mineral and ſalt Waters.

The River *Inn* runs through it from South to North by Eaſt; and the *Adige* which paſſes in the Territories of *Venice*, ſprings from it.

Inſpruck on the *Inn*, is the Capital; the Archdukes have choſe it ſometimes for their Reſidence, and have even been called *Archdukes* of *Inſpruck*.

To acquire a more particular, or circumſtantial Knowledge of the Eſtates belonging to the Houſe of *Auſtria*, we muſt enter into the following Detail:

AUSTRIA, contains *Vienna*, Biſhop. *Newſtat*, *Leichenſtein*, *Thurn*, County. *Melk*, *Loſenſtein*, County. *Ens*, *Steyr*, *Krems*, *Horn*, *Harduck*, County.

TYROL, contains *Inſpruck*, *Briten*, Biſhop. *Tirolo*, County. *Miran*, County. *Bolzan*, *Landuck*, *Kuſtain*, *Hall*, *Bregentz*, *Pfanemberg*, County. *Montfort*, County. *Pludentz*, *Hohen-Ems*, Lordſhip.

CARINTHIA, contains *S. Weit*, *Clagenfart*, *Villach*, *Arnoſtein*, *Ortemburg*, *Draburg*, *Gurk*, Biſhop. *Muraw*, *Lavemund*, Biſhop.

STIRIA, contains *Gretz*, *Rakelſburg*, *Waraſdin*, *Pettaw*, *Marckepurg*, *Judemburg*, *Pruk*.

CARNIOLE, contains *Laubach*, *Billigracz*, *Crainburg*, *Czirknikz*.

WINDISMARCK, contains *Metling*, *Rudolfwert*, *Cilley*, County.

BAVARIA.

Some Authors pretend, that *Bavaria* was antiently a Kingdom, before *Charlemagne* had reunited it to his Crown: But, however, it is very true, that *Louis*, Son of *Louis the Gentle*, Emperor and King of *France*, was the firſt of the *Carlian* Race ſtiled King of *Bavaria*, which was afterwards changed into that of King of *Germany*, under the Reign of *Charles the Gros*, Emperor; that is to ſay, 65 Years afterwards: Therefore it was inſenſibly alienated from the Crown of *France*, and reduced into a Dutchy, which has given Emperors to the Weſt; as it does at this preſent Time.

BAVARIA, has about 42 Leagues in Length, from Eaſt to Weſt; and 62 from South to North.

It confines Eaſtward with *Bohemia*, and *Auſtria*; Southward with *Carinthia*, and *Tyrol*; Weſtward with *Suabia*, and *Franconia*; and Northward touches *high Saxony*.

The Climate of *Bavaria* is very wholeſome; and though the Soil be full of Foreſts and Mountains, it produces a great Quantity of Wheat, and but very little Wine: There are found in it Mines of Gold, Silver, Copper, *&c.* and it abounds in Cattle and Game.

Beſides the *Danube*, which runs through it from Weſt to Eaſt, the moſt conſiderable Rivers are the *Lech*, which parts it from *Suabia*; the *Amber*, *Iſſer*, *Inn*, and the *Saltz*; which with the Lakes of *Amberzee*, and *Chiernzee*, bathe the Dutchy: The *Altmul*, *Nab*, and *Regen*, run into the *Palatinate*.

I had forgot to obſerve, that the *Danube* running through the Middle of *Bavaria*, divides it into two Parts; one whereof, which is Southward, is call'd *Dutchy*; and the other, which is Northward, *Palatinate*; with the Sirname of *high*, to diſtinguiſh it from that of the *Rhine*, which is called the *low Palatinate*.

MUNICH, on the *Iſſer*, is the Capital of the Dutchy, and where the Elector keeps his Court.

RATISBON, on the *Danube*, includes ſix Principalies: Firſt the City, which is Imperial; the Biſhops; the Abbots of *St. Emeron*, and of *St. Cornelis*; and the Abbeſſes of the *high* and *low Montier*.

The Duke of *Bavaria* is not ſole Sovereign in this Province; there are with him particular Lords, and free Cities. This Prince was made an Elector in the room of the Elector *Palatine* of the *Rhine*, put to the Ban of the Empire, for the Affair of *Bohemia*, as I'll relate in its proper Place.

Note, That the *Catholick* is the reigning Religion in *Bavaria*, though *Lutherans* and *Calviniſts* are found in ſome Places.

SUABIA.

This Province which makes Part of the Country of the antient *Sueves*, is a Dutchy which has given Emperors to the Weſt: It may have 45 Leagues in its greateſt Extent from Eaſt to Weſt; and 41 from South to North.

It has for Bounds, Eaſtward *Bavaria*; Southward *Tyrol*, and *Switzerland*; Weſtward, *Alſace*; and Northward, the *Palatinate of the Rhine*, and *Franconia*.

Its Climate is very near like that of *Bavaria*; except that it is more fertile in Wine.

The *Danube* ſprings from it, and runs through it from South by Weſt, to North by Eaſt. Its other Rivers are the *Iſſer*, the *Nekar*, &c.

There is no Country which contains ſo many Sovereignties as this does; for in the ſingle City of *Augſbourg* there are four Principalities, *viz.* the City which is imperial; the Biſhop who reſides at *Delling*; and the Abbots of *St. Ulrick*, and of *St. Aſre*; beſides theſe, there are the Abbots of *Coire* and *Conſtance*; ſixteen Abbots; five Abbeſſes; three ſecular Princes, who are the Dukes of *Wittemberg*, *Stutgard*, and *Montbelliard*; the Marquis of *Baden*, and *Durlach*; eight Counts; five Barons; the Grand Prior of *Malta*; the Provoſt of *Vetenhauſen*; and thirty-four imperial Cities.

AUGSBOURG, on the *Lech*, is the Capital. It has a Biſhop who reſides at *Dilleng*. It is famous for the Profeſſion of Faith of the *Lutherans*, who are very numerous at *Augſbourg*.

A more particular Detail of *Bavaria*, and *Suabia*, is as follows.

The *Dutchy of* BAVARIA, contains *Munich*, *Saltzbourg*, Arch. *Paſſaw*, Biſhop. *Ratiſbon*, Biſhop. *Freyſinge*, Biſhop. *Bertogaden*, Prevoſty. *Hag*, County. *Ortembourg*, County. *Caſtel*, County. *Ingolſtadt*, *Kelheim*, *Landſhut*, *Landſperg*, *Furſtanfeld*, *Burchauſen*, *Chiemzee*, Biſhop. *Straubing*, *Maſprug*.

The *Palatinate of* BAVARIA, contains *Amberg*, Prefect. *Richſtet*, Biſhop. *Newbourg*, D. *Sultzbach*, Lordſhip. *Luchtemberg*, Landgr. *Chamb*, County. *Newmarck*.

SUABIA, contains *Augſbourg*, Biſhop. *Conſtance*, Biſhop. *Kempten*, Abb. *Reichenaw*, Abb. *Zolleren*, *Wirtemberg*, D. *Stutgard*, Dutchy. *Tubingen*, County. *Furſtemberg*, Princip. *Burgaw*, M. *Pappenheim*, B.

IMPERIAL CITIES:—*Ulm*, *Donawert*, *Weiſſemburg*, *Nortlingen*, *Gemund*, *Hall*, *Roteveil*, *Retling*, *Hailbrun*, *Eſling*, *Lindaw*.

FOREST CITIES:—*Rheinfeld*, *Sekingen*, *Lauffemberg*, *Waldſhut*.

FRANCONIA.

Moſt Authors are of Opinion, that this Province was the antient Habitation of the *French*, in the Time of *Pharamond* their firſt King, who was born in it; and ſay, that the Salick Law obſerved in *France* with reſpect to the Succeſſion to the Throne, was made near the River *Sala*, whence it borrows its Name.

FRANCONIA, may have 50 Leagues from Eaſt to Weſt; and 37 from South to North.

It is ſituated in ſuch a Manner, that it is bounded by *high Saxony* at North by Eaſt; the *Palatinate* and *Bavaria* at the Eaſt; *Suabia* at the South; the *Palatinate* of the *Rhine* at the Weſt; and the *Heſſe* at North by Weſt.

This Country is environed with Foreſts, and Mountains, rocky, and uncultivated: But in the Middle it is agreeable and very fertile in Corn, Wine, and Paſtures.

The moſt conſiderable of its Rivers, are the *Mein*, the *Tauber*, the *Regnitz*, and thoſe of *Pegnitz*, and *Sala*.

Note, That the Emperor *Charlemagne* had formed the Deſign to join the Ocean and the Black Sea, by a Canal he had began near *Anſpach*, from the River *Redgnitz* which falls in the *Mein*, to the *Altmul*, which

which disembogues in the *Danube*; but the pressing Affairs which called him to *Italy*, and the continual Rains which happen'd at that Time, hinder'd the Execution.

Note also, That the Bishop of *Wirtzbourg*, stiles himself Duke of *Franconia*, though he has not a greater Part of it than several Sovereigns among whom it is divided. Several Archbishops of *Mentz*, have been successively Bishops of *Wirtzbourg*, and stiled themselves Dukes of *Franconia*.

The City of WIRTZBOURG, on the *Mein*, might pass for the Capital of *Franconia*, because of the Quality of its Bishop.

NUREMBERG, on the River *Pignitz*, is very famous for the Fairs kept there; and for its great Commerce.

Note, That the Diversity of Sovereigns, causes in *Franconia* a Diversity of Religion; for there are found in it *Catholicks*, *Lutherans*, *Calvinists*, and *Jews*, who are in great Numbers at *Francfort* on the *Mein*, which is likewise a City famous for its Fairs.

HESSE.

The Country we know under the Name of *Hesse*, does not contain only the Landgraviate of *Hesse*, but likewise several Principalities and Lordships; as the *Wæteran*, *Westerwald*, the Counties of *Nassau*, of *Hanau*, of *Solms*; of *Isembourg*, of *Waldeck*, &c.

Its greatest Extent, from East to West, is of about 40 Leagues, and from South to North of 34.

It confines Eastward with *high Saxony*; Southward with *Franconia*, and the Archbishoprick of *Mayence*; Westward with those of *Triers*, and *Cologne*, and the Dutchy of *Bergue*; lastly, Northward with *Westphalia*.

The Climate is wholesome, the Waters very good, and the Soil, though full of Mountains and Forests, produces Corn, and Wine, near the *Rhine*, and the River *Loen*.

The particular HESSE is divided into two Landgraviates; one in the Neighbourhood of the Rivers *Eder* and *Loen*; the other in the Neighbourhood of the *Werre* and *Fulde*.

MARPURG, on the *Loen*, is the Capital of the first, and was once the Place of Residence of the Landgrave of the same Name.

CASSEL, on the *Fuld*, is the Capital of the last, and of the Landgrave of the same Name.

Note, That the Inhabitants are *Lutherans*; and the Subjects of the Landgrave of *Hesse Cassel*, *Calvinists*; and thus of all the others, each in Imitation of their respective Sovereign.

A more particular Description of *Franconia* and *Hesse*, is as follows..

FRANCONIA, contains *Wirtzberg*, Bishop. *Francfort*, Imper. *Aschaffenberg*, *Lor*, County. *Schwinfort*, I. *Hamelburg*, *Konigshoven*, *Henneberg*, County. *Smakalden*, *Coburg*, Dutch. *Cullembach*, M. *Staffelstein*, *Peguitz*, *Bamberg*, Bishop. *Forcheim*, *Nuremberg*, I. *Anspach*, M. *Rotemberg*, I. *Weikersheim*, *Winsheim*, I. *Mariendal*, *Sensheim*, County. *Erpach*, *Mariemberg*, *Castel*, County. *Breit*.

HESSE, contains *Marpurg*, Landg. *Wetzlar*, I. *Glenhausen*, I. *Ortemberg*, *Fridberg*, I. *Nassaw*, County. *Catznelbogm*. *Weilburg*, *Hanaw*, County. *Hadamar*, County. *Wielde*, County. *Sigen*, County. *Salens*, County. *Witgentrin*. County. *Battemberg*, B. *Cassel*, Landg. *Hirsfield*, Ab. *Fuld*, Ab. *Fristard*, Lordship. *Valestein*, Lordship. *Zigenheim*, *Waldeck*, County. *Carbach*, *Rodemburg*, *Allendorf*, *Eschwege*, *Grebenstein*, *Witzenhausen*.

BOHEMIA.

I understand by the Name of BOHEMIA, not only the particular Kingdom of *Bohemia*, but likewise the Marquisate of *Moravia*, and the Dutchy of *Silesia*, which together make up the most spacious Part of *Germany*, having more than 94 Leagues from East to West, and near 72 from South to North.

It confines with *Poland* Eastward, with *Hungary* and *Austria* Southward, with the Palatinate of *Bavaria* South by West, and with *High Saxony* at North by West.

The Climate is generally very unwholsome, and subject to the Plague, though it be cold. Its Soil is fertile in Wheat, Pasture, and Saffron; but produces no Wine. Its Mountains, which are in great Number, have Mines of Gold, Silver, Copper, and Lead: Its Rivers are full of Fish.

Note, That the *Bohemians* are very crafty, and of a strong Constitution: They are great Epicures, and great Dunkards, talk much, bold, and so great Thieves, that it is not safe to walk the Streets of *Prague* in the Night-Time; those Streets being then lin'd with Thieves. The Country is as dangerous for Travellers, unless they travel in Companies of twenty or thirty; I except from this Number the Nobility, which I know by Experience, that, far from being addicted to any of those scandalous Vices, possess on the contrary, in an eminent Manner, all the Virtues and Perfections opposite to them.

Note also, That the House of *Austria*, had rendered all those Countries hereditary to herself, and was in Possession of them all, at the Death of the late Emperor, except some of the most northern Territories in *Silesia*, which belong to the Elector of *Brandebourg*, and to another Marquiss of the same Name; but at present there are several Claims which are not adjusted.

The *Catholick* Religion, is the reigning one in the Kingdom of *Prague*, and its Dependencies. Before the Battle of *Prague*, there were about twelve Sorts of different Opinions professed in the Kingdom, all contrary to the *Roman* Church, but ever since that Time, the Emperor has almost entirely extirpated them. There are yet *Jews* in *Prague*, who have the free Exercise of their Religion, and some other Privileges, which they have bought at a dear Rate.

The most remarkable of its Rivers, are the *Elbe*, the *Sarawe*, the *Wultaw*, the *Moldau*, the *Miza*, and the *Eger*, &c.

The Kingdom is divided into seventeen Prefectures, which are *Prague*, *Schan*, *Podebrad*, *Wultaw*, *Caurzin*, *Leimtometriz*, *Saltz*, *Pilsen*, *Prachen*, *Bechin*, *Czaslaw*, *Chradim*, *Hradetz*, *Glatz*, *Elnbogen*, and *Egra*. — The first is in the Middle, the four next following, are adhering round it; the nine which follow make a Circle round these; and of the three last, one is towards the Point, which looks to the East, and the two others towards that which looks to the West.

PRAGUE, on the *Wultaw*, is the Capital of the Kingdom; it is a great City, and honoured with an Archbishoprick, and an University; rendered famous by the Battle given near it, between the Forces of the Emperor, and those of the Elector Palatine of the *Rhine*, who had caused himself to be elected King of *Bohemia*, which Battle was a decisive one, since it put an End to his Royalty, and divested him besides of his Electorate: And as famous by the late Siege, sustained by the *French*; who had to encounter at once with a great Army, the Famine, and if we credit publick Reports, the Disaffection of the Inhabitants.

MORAVIA.

This is the antient Country of the *Marcomans*, which bore the Title of a Kingdom, afterwards of a Dutchy, and lastly of a Marquisate, of which the Kings of *Bohemia* bear the Title. It has borrowed its present Name from one of its Rivers.

MORAVIA has the Form of a Triangle, and may have 49 Leagues in its greatest Extent from East to West, and 30 from South to North.

The Climate and Soil is the same as in *Bohemia*, except

except that it produces pretty good Wine towards the River *Teya*, which parts it from *Austria*. The Mountains which part it from *Hungary*, have Springs of hot Mineral Waters.

Its principal Rivers are the *Morave*, from which it borrows its Name, and which runs through it from North to South; the *Swarte*, the *Igle*, and the *Teya*.

BRINN, on the *Swarte*, is the Capital of the Province, where the general Assemblies are held, ever since it opposed so strongly the *Swedes*; the Emperor having deprived *Olmutz* on the *Morave*, of that Honour, because it surrender'd then with little or no Resistance.

A more particular Division of the Kingdom of *Bohemia* is as follows.

The *Prefecture of* PRAGUE, containing *Prague* only.

The *Prefecture of* CHALY, containing *Chaly*, *Rakomick*.

The *Prefecture of* PODEBRAD, containing *Bereum*, *Carlstein*.

The *Prefecture of* WULTAW, containing *Sedlezany*, *Tloskout*.

The *Prefecture of* KAUZZIM, containing *Kauzzim*, *Brandeiss*, *Bohenisshbroda*.

The *Prefecture of* LEITANERITZ, containing *Leitaneritz*, *Usig*, *Dietzin*, *Melnick*.

The *Prefecture of* SALTZ, containing *Saltz*, *Bruck*, *Launy*, *Kadan*, *Commora*.

The *Prefecture of* PILSEN, containing *Pilsen*, *Meifs*, *Tayess*, *Klataw*, *Kokisan*.

The *Prefecture of* PRACHEN, containing *Prachatitz*, *Piseck*, *Suschitz*.

The *Prefecture of* BECHIN, containing *Bechin*, *Tabor*, *Pelzrimau*, *Tein*, *Budweiss*.

The *Prefecture of* CZASLAW, containing *Czaslaw*, *Cuttemberg*, *Deutsch-broda*.

The *Prefecture of* CHRUDIN, containing *Chrudin*, *Pardubitz*, *Bamberg*, *Hohemauth*, *Poliesska*, *Leutomissel*.

The *Prefecture of* HADRETZ, containing *Konigingratz*, *Jaromitz*, *Bidscoff*, *Konigshoff*, *Freiland*.

The *Prefecture of* BOLESLAW, containing *Jungbunizel*, *Nimberg*, *Dauba*, *Hitzenberg*.

Frontier PREFECTURES.

The *Prefecture of* GLATZ, containing *Glatz*, *Haberswed*.

The *Prefecture of* ELUBOGEN, containing *Elubogen*, *Carlesbaden*, *Joachimstal*.

The *Prefecture of* EGRA, containing *Egra*, *Nehenitz*.

The *Marquisate of* MORAVIA, contains *Breux*, *Olmutz*, *Newstat*, *Ingervitz*, *Scanberg*, *Cremsir*, *Bernstein*, *Hiadish*, *Pisnou*, *Brod*, *Posoritz*, *Golding*, *Austerlitz*, *Nemeritz*, *Auspitz*, *Iglaw*, *Telsch*, *Polna*, *Sluwonicz*, *Mezericz*, *Frating*, *Trebicz*, *Nametz*, *Znaim*, *Nicklasburg*, *Ostra*, *Britcsch*, *Jamnitz*, *Fulneck*, *Kaunitz*.

SILESIA.

This Country made once Part of *Poland*, to which it is contiguous; it is of the Dependencies of *Bohemia*, whose Kings stile themselves Dukes of *Silesia*.

It has more than 80 Leagues in its greatest Extent, from South by East; and about 25 in Breadth to North by West.

Its Climate is not so bad as in the rest of *Bohemia*, but the Soil is very near the same, the Forests and Fields are full of wild, and domestick Beasts, and the Rivers abound with excellent Fish.

The most remarkable of its Rivers, are the *Oder*, which springs from it, and runs quite through it from South to North by West; the *Vistule*, which also springs from it; the *Neifs*; the *Westritz*; the *Zatzbach*; the *Bartsch*; the *Bober*; and several others which all disembogue into the *Oder*.

This Province contains 17 Dutchies, which are met with in following the Course of the *Oder*, in the Order mark'd hereafter; and four free Baronies, which are contiguous to *Poland*. Some of the Lords are Sovereigns, others depend on the Crown of *Bohemia*.

BRESLAW, on the *Oder*, is the Capital; which is honour'd with an Episcopal See, and govern'd by a Senate of Patricians, eleven of whom are noble, or of an honourable Family, and four chosen among Brewers, Mercers, Clothiers, and Butchers.

Note, That at the Death of the late Emperor, the King of *Prussia* enter'd this Province at the Head of an Army, in Virtue of some old Pretences he had upon it, and beating the *Austrians* in several Encounters, rendered himself Master of several considerable Places, particularly of *Breslaw*; and by a separate Treaty he made afterwards with the Queen of *Hungary*, without the Knowledge of his Allies (as pretended) has obtained from her the Cession of the greatest Part of that Province.

A more particular Description of the *Dutchy of* SILESIA, is as follows:

The *Dutchy of* TESCHEN, contains *Teschen*, *Jablunka*, *Biletz*, *Freistat*, *Frideck*.

The *Barony of* PLEISS, contains *Pleiss*, *Berown*, *Mislowitz*, *Mikolow*.

The *Dutchy of* RATIBOR, contains *Ratibor*, *Oderberg*, *Rubenick*, *Sora*.

The *Dutchy of* TROPAW, contains *Tropaw*, *Beneschow*, *Engelsberg*, *Witkow*.

The *Dutchy of* JEGGERNDORF, contains *Jeggerndorf*, *Bendschin*, *Zanditz*, *Lubs*, *Mitz*, *Fulstein*.

The *Dutchy of* OPPELEN, contains *Oppelen*, *Briunitka*, *Beuthen*, *Klein-glogaw*.

The *Dutchy of* NEISS, contains *Neiss*, *Grotkaw*, *Jawernick*, *Zuckmantel*, *Warte*.

The *Dutchy of* MUNSTERBERG, contains *Munsterberg*, *Kamentz*, *Silberberg*, *Frankstein*.

The *Dutchy of* BRIEG, contains *Brieg*, *Olnaw*, *Crutzburf*, *Ritschen*.

The *Dutchy of* SCHWEIDNITZ, contains *Schweidnitz*, *Freyberg*, *Landshutt*, *Rheichenbach*, *Furstenstein*.

The *Dutchy of* BRESLAW, contains *Breslaw*, Bishop. *Cantz*, *Newmark*, *Reichstal*, *Kosteplotz*.

The *Dutchy of* OLSSE, contains *Olsse*, *Bernstad*, *Festemberg*, *Trebnetz*.

The *Barony of* WARTEMBERG, contains *Wartemberg*, *Bralin*, *Goschatz*.

The *Dutchy of* JAWER, contains *Jawer*, *Schonaw*, *Schmitberg*, *Greiffemberg*, *Buntzlaw*.

The *Dutchy of* LIGNITZ, contains *Lignitz*, *Parchwitz*, *Luben*, *Gradisberg*, *Wolstat*.

The *Barony of* MILITSCH, contains *Militsch*, *Freyhein*.

The *Barony of* TRACHEMBERG, contains *Trachemberg* only.

The *Dutchy of* WOLAW, contains *Wolaw*, *Leubust*, *Wintzig*, *Hernstad*.

The *Dutchy of* GLACAW, contains *Glacaw*, *Grumberg*, *Sprottaw*, *Wartemberg*, *Bolkowitz*.

The *Dutchy of* SAGAN, contains *Sagan*, *Naumberg*, *Prybus*, *Freystad*.

The *Dutchy of* CROSSEN, contains *Crossen*, *Robersberg*, *Summersfeld*, *Drehmow*, *Guben*.

High SAXONY.

All the Countries included at present, under the Name of *High* SAXONY, have near 70 Leagues from East to West, including *Lusatia*, and about 45 from South to North.

They confine Eastward with *Silesia*, Southward with the Kingdom of *Bohemia* and *Franconia*, Westward with *Hesse*, and the Dutchy of *Brunswick*, and Northward with the Dioceses of *Magdebourg*, *Halberstat*, and the Territories of *Brandebourg*.

The Climate is very good, though a little Cold: The Soil is fertile enough in Wheat and Pasture, but it seldom produces Wine; and very little Wood, particularly in the northern Part. Mines of Silver and Lead are found towards the East.

The *Elbe* runs through it, and receives the *Mulde*, and the *Sale*, swelled with the Waters of the *Elster*, and *Unstrut*, which spring from it, except the first. There are also found in it the *Sprae*, and the *Neiss*, which run through *Lusatia* from South to North.

High Saxony, is distinguished from the particular Dutchy of *Saxe Wittemberg*, and the Marquisate of *Misnie*, which

which are in the Middle, one Northward, and the other Southward; the Landgraviate of *Turinge*, Westward; and the Marquisate of *Lusatia*, Eastward.

WITTEMBERG, on the *Elbe*, is the Capital of the Dutchy of *Saxony*, and is a great and famous City.

DRESDEN, on the same River, is the Capital of *Misnei*: The Electors of *Saxony* keep their Court there. The Castle is strong and very magnificent, full of Rarities, and a great Number of precious Things, especially antique Medals.

ERFORD, on the *Gere*, is the Capital of *Turinge*; it is a very famous City, whose Jurisdiction belongs to the Archbishop of *Mayence*.

BAUTZEN, on the *Spree*, is the Capital of *Lusatia*.

The *Dutchy of* SAXONY, has given six Emperors to *Germany*; as may be seen in my *Chronology*. The Race of its Dukes, is one of the most antient of *Europe*, and has produced several great Princes and Heroes; but none greater than the late King of *Poland*, and Elector of *Saxony*, *Augustus* II. that excellent Prince, the Idol of his natural Subjects, and the Admiration of the whole Earth, was an Assemblage of all Royal Perfections, whose Radiancy had eclipsed that of *Augustus*, and of *Titus*, had he liv'd in their Time. For he was brave of his Person, liberal, magnificent, affable, a consummate Politician, and an experienc'd General; though sometimes unfortunate.

The Princes Electors of *Saxony*, are not absolute Masters of the whole Country, but several Sovereigns possess each a Part thereof.

Note, That the *Saxons* have always been very good Soldiers, and great Drunkards. They all followed the Doctrine of *Luther*, till the late Elector, and King of *Poland*, *Augustus* II. abjured *Lutheranism*, and embraced the Catholick Religion, in which his Son the present Elector, and also King of *Poland*, was educated.

Here follows a more particular Description of *high Saxony*.

The *Dutchy of* SAXONY, contains *Wittemberg*, *Dessaw*, *Zerbst*, *Bernburg*, *Acker*, *Belzig*, *Torgaw*, *Ealemburg*, *Schwelnitz*, *Hezberg*, *Elsterward*.

The *Marquisate of* MISNIE, contains *Dresden*, *Misnie*, Bishop. *Leipzick*, *Perin*, *Lutzen*, *Merspurg*, Bish. *Naumburg*, Bishop. *Zeitz*, *Altemberg*, D. *Hall*, *Zuitkaw*, *Chemnitz*, *Plawen*, B. *Sneberg*, P.

The *Landgraviate of* TURINGE, contains *Erfort*, *Scheidengen*, *Tenstat*, *Mulhausen*, Imp. *Northausen*, Imp. *Schwarsemburg*, *Weimar*, D. *Gotha*, D. *Alstat*, *Jene*, *Eisenach*, D. *Mansfeld*, County. *Stolberg*, County. *Eisleben*.

The *Marquisate of* LUSATIA, contains *Bautzen*, *Gorlits*, *Camens*, *Liebaw*, *Zittaw*, *Guben*, *Corbutz*, *Spræemberg*, *Forst*, *Soraw*, *Fridland*.

BRANDEBOURG.

This Country which is placed in the Circle of higher *Saxony*, has received its Name from the City of *Brandebourg*, which was once the Capital; and depends of the Marquiss of the same Name, who is Elector of the Empire, and King of *Prussia*, ever since the Peace of *Utrecht*.

It may have 75 Leagues in Length from East to West, 30 in its greatest Width from North to South, and 10 in its lesser.

It confines Eastward with *Poland*; Southward with *Silesia*, and *high Saxony*; Westward with *low Saxony*; and Northward with the Dutchy of *Mecklenbourg*, and *Pomerania*.

Its Climate is extremely cold, and the Winter very long, notwithstanding which the Soil produces all that's necessary for Life, even some Wine near *Francfort* on the *Oder*. It has large Forests, several Lakes, and Marshes, fine Pasture along the Rivers, with a great Number of Cattle.

Its most remarkable Rivers are the *Elbe*, and *Havel*, both join'd by a Canal; the *Sprae*, which passes at *Berlin*, and disembogues into the *Havel*, at *Spandaw*; the *Warte*, which disembogues into the *Oder*, at *Kustrein*, &c.

This Province is divided into three Marches, distinguished by the Names of old, middle, and new. The first is Westward of the *Elbe*; between that River and the *Oder*, is found the second, with the Lordships of *Pregnatz*, *Rappin*, and *Uker-Mark*, towards the North; Eastward of the *Oder*, is found the last, with the Lordship of *Sterneberg*.

BERLIN, on the *Sprae*, is at present Capital of the Province, and the Place of Residence of the Elector of *Brandebourg* and King of *Prussia*.

Note, That the Elector of *Brandebourg*, has at present the largest Territories of all the Sovereigns of *Germany*, except the King of *Bohemia*; which are divided here and there; for besides his Marquisate, we mention, he is possessed in *Westphalia* of the Principality of *Meinden*, of the Dutchy of *Cleves*, of the Counties of *La Mark*, of *Revensperg*, and of the Lordship of *Ravenstein* in the *Brabant*. He holds in *low Saxony*, the Principalities of *Magdebourg*, and of *Alberstad*: The ulterior *Pomerania*, and the Ducal *Prussia*; also was declar'd legitimate Heir of *Neuchatell*, and *Velangin*, to the Exclusion of the other Pretenders, who had a better Right to it than he, and lastly almost all *Silesia*.

Note also, That his Subjects are almost all *Lutherans*, or *Calvinists*.

Here follows a more particular Description of *Brandebourg*.

The *Middle* MARCHE, contains *Berlin*, *Brandebourg*, Bishop. *Coln*, *Spandaw*, *Oranienberg*, *Ratmaw*, *Trebin*, *Francfort*, *Nacke*, *Lebus*, *Milo*, *Bellitz*.

The *Lordship of* PREGNITZ, contains *Hawelberg*, Bish. *Newstat*, *Wistoch*, *Dalmin*.

The *Lordship of* RAPPIN, contains *Wester-haus*, *Lindow*, *Uker-Murk*, *Premslow*, *Templin*, *Himmelpat*, *Lochenitz*, *Wulfshagen*.

The *Old* MARCHE, contains *Stendel*, *Tangermund*, *Gardlesben*, *Osterburg*, *Sechausen*, *Werben*, *Soltwedel*, *Kalbefleck*.

The *New* MARCHE, contains *Kustrin*, *Landsperg*, *Berwald*, *Tietre*, *Soldin*, *Diesm*, *Arenswald*, *Retz*, *Dam*, *Kalis*, *Iramberg*, *Schifelbein*.

The *Lordship of* STERNEBERG, contains *Sterneberg*, *Sonnenberg*, *Meziritz*, *Reys*, *Zige*.

POMERANIA.

The *Dutchy of* POMERANIA, which made once Part of the Country of the antient *Vandals*, is also of the Circle of *high Saxony*. Some Geographers have called it *ulterior Pomerania*, to distinguish it from *Prussia*, which is the *citerior Pomerania*.

It is situated on the *Baltick* Sea, of which it occupies near 80 Leagues of Coast, from East to West; and its greatest Extent from South to North, does not exceed 20 Leagues.

It confines Northward with the *Baltick*; Eastward with *Prussia*; Southward with lower *Poland*, and the Marquisate of *Brandebourg*; and Westward with the Dutchy of *Mecklembourg*.

Its Climate, which is extremely cold, does not hinder the Soil from being fertile in Corn, Fruit, and Pasture.

It has several small Lakes, the most considerable whereof are, the *Oder*, which divides it into two Parts; the *Pene*, the *Rega*, the *Persante*, the *Wipper*, the *Stolpe*, and the *Lebe*, which may be called Rivers; since they all run to the *Baltick*, except the *Pene*, which disembogues in the *Oder*.

It is divided into two Parts, that which is quite Eastward of the *Oder*, is called *higher Pomerania*; and the other Westward of it, is called the *lower*. This is subdivided into four other Parts, which are found in the following Order, going from East to West on the *Baltick* Sea, *viz.* the antient Dutchies of *Pomerania*, *Cassubia*, *Wandalia*, and *Pomerellia*, which contains the Counties of *Lawembourg*, and of *Butow*.

STETTIN, on the *Oder*, is the Capital of the whole Province, and the first of the *Hanse* Towns of the College of *Lubeck*.

The *higher Pomerania* is in the Power of the King of *Sweden* ever since the Peace of *Munster* in 1648. It has suffer'd a great deal from Time to Time, by the Irruption of the *Germans*, *Danes*, *Dutch*, the Elector of *Brandebourg*, &c.

The *lower Pomerania*, is possessed by the Elector of *Brandebourg*.

Note, That they are all *Lutherans* in *Pomerania*: The Bishops are all married; and the Bishoprick of *Cammin* was secularised for that Subject by the Peace of *Munster*.

A more particular Description of *Pomerania*, is as follows:

High POMERANIA, contains *Stetin*, Dutchy. *Gartz*, *Ukermund*, *Anklum*, *Treptow*, *Gutzkow*, County. *Rentzin*, *Loitz*, *Demmin*, *Lassan*, *Wolgast*, D. *Gripswald*, Hanse-Town. *Ludwisberg*, *Bardt*, D. *Stralsund*, Imp. *Damgarten*, *Fransborg*, *Tribbesas*.

The ISLE of RUGEN, contains *Berghen*, *Butbus*, *Wick*, *Sagard*.

The ISLES of WOLLIN and USEDON.

Low POMERANIA.

The *antient* DUTCHY, contains *Cammin*, Bishop. *New Treptow*, *Quarkemborg*, *Golnaw*, Hans. *Stargard*, Hans. *Saltzig*, *Barnstein*.

CASSUBIA, contains *Colberg*, *Coslin*, *Belgart*, *Bublitz*, *Regenwolde*.

WANDALIA, contains *Stolp*, *Rugenwald*, *Slage*, *Rumelsborg*, *Plotzke*.

POMERELLIA, contains *Lewemborg*, Lordship. *Lebe*, *Smollin*, *Buttow*, Lordsh. *Luppow*.

Low SAXONY.

This was the Country of the antient *Saxons*, who settled in *England* after they had conquered the Kingdom, and expelled the antient *Britons* from it, who had called them to their Succour.

This Country is situated Southward of *Denmark*, and may have 80 Leagues in its greatest Extent from East to West; and 70 from South to North, the Dutchy of *Holstein* included.

It confines Northward with the *Germannick* Ocean, *Denmark*, and the *Baltick*; having Eastward *Pomerania*, and the low *Brandebourg*; Southward the *Hesse*, and *high Saxony*; Westward, it is separated from *Westphalia* by the *Weser*.

Though the Climate be extremely cold, the Soil produces Wheat, but no Wine: Its greatest Fertility is in Pastures; and there are found in it several Forests.

It is divided into eight or nine Principalities: First, the Dutchies of *Saxony*, *Lunebourg*, and *Lawenbourg*, are in the Middle; the Dutchy of *Brunswick*, with the Dioceses of *Hildesheim*, *Magdebourg*, and *Halberstat*, are Southward; Northward, the Dutchies of *Bremen* and *Verden*; and the Dutchy of *Holstein*, which is the most Northward, depends at present of *Denmark*.

Besides these Principalities, there are found in *low Saxony* several Sovereignties of a lesser Extent; as the Counties of *Hanover*, of *Gotingen*, of *Grubenhagen*, the Cities of *Hambourg*, of *Lubeck*, &c.

Its most considerable Rivers are the *Elbe*, *Weser*, *Aller*, and *Hamma*, which comes to disembogue in it; the *Ilmenon*, *Leine*, *Oder*, *Elde*, &c.

Each of these Principalities is govern'd by its Prince, who bears the Name of it; except the Dutchies of *Bremen* and *Verden*, which belong to the King of *England*, as Elector of *Hanover*: The Principalities of *Magdebourg* and *Halberstadt*, which depend of the Elector of *Brandebourg*; and the Cities of *Hambourg* and *Lubeck*, which are Free.

Note, That they all follow throughout *low Saxony* the Doctrine of *Luther*; Princes, Prelates, even the Abbess of *Quedelimbourg*, make Profession of it: The sole Bishop of *Hidelsheim*, the Prince of *Mecklembourg Swerin*, the Abbots and Abbesses, and some Prevosts are yet Catholicks.

LUNEBOURG, on the *Immenow*; LAWEMBOURG, on the *Elbe*; BRUNSWICK, on the *Oker*; HIDELSHEIM, on its River; MAGDEBOURG, on the *Elbe*; HALBERSTAT; BREMEN, on the *Elbe*; VERDEN, on the *Aller*; ROSTOCK, in *Mecklembourg*, are the Capital of this Country.

Here follows a more particular Description of *low Saxony*:

The *Dutchy of* LUNEBOURG, contains *Lunebourg*, *Harburg*, *Zell*, Dutchy. *Gisorn*, *Ultzen*, *Bardewick*, *Walsrode*, *Retheim*, *Borchdorff*.

The *Dutchy of* LAWEMBOURG, contains *Lawembourg*, *Ratremburg*, *Nachburg*, *Weningen*, *Horn*, *Dalemburg*.

The *Dutchy of* HOLSTEIN, contains *Hambourg*, I. and Hans. LUBECK, I. and Hans. *Glucdstad*, *Kiell*, *Phoen*, *Rendspurg*, *Segelberg*, *Oldelhoe*, *Krempe*.

The *Dutchy of* BRUNSWICK, contains *Brunswick*, *Wolfenbutel*, *Goslur*, I. Hans. *Halemstad*, *Wolfburg*, *Gandersheim*, *Hannover*, D. *Spigelberg*, *Hamelen*, Hans. *Callemberg*, *Newstadt*, *Burgdorff*, *Grubenhagen*, D. *Eimbeck*, Hans. *Lauterberg*, *Osterode*, *Altena*, *Gottingen*, Dutch. *Munden*, *Duderstad*.

The *Bishoprick of* HIDELSHEIM, contains *Hidelsheim*, *Peina*, *Bruggen*, *Ericburg*.

The *Dutchy of* MAGDEBOURG, contains *Magdebourg*, *Borch*, *Jerikow*, *Wolmerstet*, *Muckeren*, *Draksted*.

The *Principality of* HALBERSTAT, contains *Halberstat*, *Quedelimburg*, Abbey.

The *Dutchy of* BREMEN, contains *Bremen*, *Staden*, Hans. *Boxtchude*, Hans. *Carlstadt*, *Bremefurt*, *Friburg*, *Statel*, *Blomendal*, *Aterendop*, *Hadler*.

The *Dutchy of* VERDEN, contains *Verden*, *Rodemburg*, *Rainsola*, *Langeviet*, *Newkirk*.

The *Dutchy of* MECKLEMBOURG, contains *Rostock*, Lordsh. *Ribnitz*, *Warnemund*, *Tessin*, *Sulte*, *Mecklembourg*, *Wismar*, Hans. *Ratzeburg*, *Kropelin*, *Renen*, *Severin*, Lordsh. *Wittemberg*, *Hagenaw*, *Bruel*, *Gustrow*, Lordsh. *Plawen*, Lordsh. *Waren*, *Parchim*, *Niedstat*, *Malchow*, *Lubitz*, *Strelitz*, *New-Brandeburg*, *Stutgard*, Lordsh. *Arensberg*, *Rebel*.

WESTPHALIA.

This Province was once Part of the Country of the antient *Saxons*, has receiv'd its Name from *Phalen*, which in old *Saxon* signifies a Colt, because antiently borne in their Coats of Arms, and of *West*, because it was Westward. —It has 64 Leagues in its greatest Extent from South to North, and 42 from East to West, without reckoning the Dutchies of *Cleves*, and *Juliers*, which are in its Circle.

It confines Northward with the Ocean; Eastward with *low Saxony*; Southward with *Hesse*; Westward with the Territories of the Succession of *Cleves* and *Juliers*, &c. which are of its Circle.

The Climate is very cold; the Soil very marshy, abounding in Pastures, and producing notwithstanding Corn enough; its Fruits are good for nothing else than to feed Hogs, who are seen there in great Numbers. The Inhabitants carry on a great Commerce of Bacon, especially Hams, which are carried to be sold at *Mayence*, and which are as much valu'd for their Goodness, as known by the Name of *Westphalia Hams*, and in *France*, *Jambons de Mayence*.

Its principal Rivers are the *Weser*, *Elms*, and *Lippe*, which spring from the Bishoprick of *Paderborn*; the first runs through that of *Munster* from South to North; the other parts it from the County of *la Marck*, by its Course from East to West; the *Ruer*, which runs thro' the Counties of *Arnsberg*, and *la Marck*.

It contains seventeen Parts, or principal Sovereignties: First there are found, following the Course, and in the Neighbourhood of the *Ems*, the Bishoprick of *Munster*, the Counties of *Benthem*, and *Lingen*, with the Principality of *East-Friseland*; between the *Ems* and the *Weser*, the Bishoprick of *Osnabrug*, with the Counties of *Lemgow*, *Ravensperg*, *Techelemberg*, and *Diepholt*. In the Neighbourhood of the *Weser*, re-ascending towards its Source, are found the Counties of *Oldemburg* and *Hoye*; the Principality of *Minden*, and County of *Schaumberg*; Southward of the *Lippe*, the County of *la Marck*, the Bishoprick of *Paderborn*, the Dutchy of *Westphalia*, and that of *Bergue*, which I have placed in the Dependencies

cies of the Succeſſion of *Cleves* and *Juliers*.

It cannot be ſaid that there is a Capital in *Weſtphalia*; but it may be ſaid that the City of *Munſter* is the moſt conſiderable of the Province, it being the Seat of a very powerful Biſhop.

Weſtphalia is poſſeſſed by ſeveral Sovereigns, Eccleſiaſtick as well as Secular, whoſe Territories I have named in the Diviſion; the Biſhop of *Munſter* poſſeſſes the beſt Part of it, and can ſet on Foot, and maintain an Army of 15 or 20,000 Men; which ſhews that the Apoſtles Succeſſors have more than two Swords, which are not always drawn in Defence of their divine Maſter.

The other Sovereigns are *Catholicks* and *Lutherans*; and their Subjects follow in that Point the Example of their Sovereigns; for it muſt be obſerv'd, that the *Germans* are not very ſcrupulous in Matters of Religion.

Here follows a more particular Diviſion of *Weſtphalia*:

WESTPHALIA, contains *Munſter*, Biſhop. *Rechem*, *Halteren*, *Casfeldt*, Hans. *Dulmen*, *Cloppenburg*, *Benthem*, County. *Northorn*, *Steinfart*, *Lingen*, County. *Embden*, Princip. *Aurick*, *Norden*, *Oldendorp*, *Oſnabrug*, Biſhop. *Iborg*, *Hunteborg*, *Teklemburg*, Count. *Lingerick*, *Brochterberg*, *Ravenſperg*, Count. *Herwoden*, Imp. *Bilewelt*, Imp. *Diephol*, Count. *Leworden*, *Bollagen*, *Wilhaſen*, *Lemgow*, *Pirmond*, *Dietmelle*, *Oldemburg*, Count. *Delmenſhort*, *Frudemberg*, *Hoye*, Count. *Niewburg*, *Staltnaw*, *Minden*, Princip. *Peterſhagen*, *Rentoln*, *Baremburg*, *Schaumberg*, Count. *Rintelen*, *Saxenhagen*, *Paderborn*, Biſhop. *Brackel*, Imp. *Warpurg*, Imp. *Corvey*, Abbey. *La Marcke*, County. *Ham*, Hans. *Unna*, Hans, *Durtmund*, I. Hans. *Zoeſt*, Imp. Hans. *Arenſberg*, Count. *Lippe*, Count.

LOW-COUNTRIES.

Theſe Provinces, call'd *Low-Countries*, becauſe near the Sea, towards which the Rivers tend, have been call'd by ſome *inferior Germany*, though improperly, becauſe they are but Part of it, no more than *Weſtphalia*, *low Saxony*, &c.

After they had had ſeveral particular Sovereigns, they came under the Domination of the Dukes of *Burgundy* in the Year 1426 to 1478; at which Time *Mary*, only Daughter of the Duke of that Name, kill'd before *Nancy*, was married to *Maximilian* Archduke of *Auſtria*, who was afterwards Emperor, and Grandfather of *Charles* V. to whom ſhe brought for Dowry the *Low-Countries* and *Franche Comte*. Thus thoſe Provinces being come to the Power of the Kings of *Spain*, they poſſeſſed them all till 1581; when the northern Part thereof revolted againſt *Philip* II. becauſe his Governors treated the Inhabitants with too much Severity. The Prince of *Orange*, and ſome other malecontent Lords declared themſelves Chief of the Rebellion; and ſince that Time both Parts have ſeldom been without War; one becauſe of its Rebellion, and the other for the juſt Pretences the Kings of *France* had upon it.

They are ſituated toward the Extremity of the *Rhine*, extending from 49 Degrees 30 Min. of Latitude, to 53 Deg. 40 Min. and from the 23 Deg. 20 Min. of Longitude, as far as 28 Deg. 40 Min. ſo that they may have 66 Leagues from Eaſt to Weſt, *i. e.* from *Keyel*, on the Confines of *Luxembourg* to *Beauzains* in *Artois*; and from South to North, from *Thionville* in *Luxembourg* to the Coaſt of *Groningen*.

They have *France* Southward; *Germany* Eaſtward; and the *Ocean* Northward, and Weſtward.

The Climate is cold; the Soil marſhy, in ſeveral Places, and croſs'd by a great Number of Rivers, Canals, and Foreſts, ſo that it does not produce much Corn; it has no Vineyards; it feeds a vaſt Number of large Cattle, which is the Cauſe why thoſe Provinces abound with Butter, Cheeſe, and Leather.

The moſt remarkable Rivers of thoſe Countries, are the *Rhine*, the *Meuſe*, the *Eſcaut*; the *Iſſel*, which has been join'd to the *Rhine* by a Canal below *Arnheim*; the *Moſelle*, the *Lis*, the *Gumbre*, the *Scarpe*, &c.

They are diſtinguiſhed into two Parts, one Southward, and the other Northward: The firſt is known by the Name of *Catholick Provinces*, or *Flanders*; and the other by that of the *United Provinces*, commonly call'd *Holland*, of the Name of one of the Provinces, which is firſt in Rank.

The Catholick LOW-COUNTRIES.

Theſe Countries are called *Catholick*, becauſe of the Religion they profeſs, and to diſtinguiſh them from the others who are *Calviniſts*.

They were once Members of the Kingdom of *France*, and ſeveral Sovereigns who have poſſeſſed them ſince have done Homage for them to the Moſt Chriſtian Kings. They came afterwards in the Power of the Dukes of *Burgundy*, and of the Kings of *Spain*, as already mention'd. *Charles* V. who was one of the greateſt Politicians of his Time, conſcious that the King of *France* had always a legitimate Pretence on thoſe Provinces, obliged *Francis* I. while Priſoner at *Madrid*, after the Battle of *Pavia*, to renounce his Right. But as a King of *France* cannot by the fundamental Laws of his Kingdom, alienate the Territories thereof, his Succeſſors have often attempted to recover by Force, what has been wreſted from them by the Fineſs, and Chicanery of a violent Politick.

Theſe Countries take up the Southern Part of all the *Low-Countries*, and extend from Eaſt to Weſt, 66 Leagues; and from South to North, they advance as far as *Ravenſtein*, on the *Meuſe*, including in it that Part of *Brabant*, poſſeſſed by the *Dutch*: Therefore they may have about 47 Leagues from *Thionville* thither; otherwiſe they'll have 6 or 7 Leagues leſs.

Their Bounds are not different from the general, except that Northward, they confine with the United Provinces.

They are reckon'd nine in Number, *viz.* three Dutchies, which are *Brabant*, *Luxembourg*, and *Limbourg*; four Countries, that's to ſay, *Flanders*, *Artois*, *Hainault*, and *Namur*. The Marquiſate of the holy Empire, including the City and Neighbourhood of *Antwerp*; the Lordſhip of *Malines*, which with the City, and its *Banlicües*, includes the Borough of *Heiſt*; the Biſhoprick of *Liege*, and the Archbiſhoprick of *Cambray*, as Fiefs of the Empire, are added to thoſe nine Sovereignties.

In the Middle of the Country, are found *Brabant*, *Hainault*, and *Cambreſis*; in the Neighbourhood of the *Meuſe*, the County of *Namur*, and the Country of *Liege*; Eaſtward the Dutchies of *Limbourg*, and of *Luxembourg*; Weſtward the Counties of *Flanders*, and *Artois*; the Marquiſate of the holy Empire, and the Lordſhip of *Malines*, are incloſed in *Brabant*.

The particular FLANDERS, is divided into *Teutonick*, *Wallone*, *Imperial*, and *Dutch*. The firſt is incloſed between the Sea and the *Lis*; the ſecond between the *Lis* and the *Eſcaut*; the third between the two others and *Brabant*; and the laſt is Northward of the two firſt.

BRABANT, is diſtinguiſhed into *Spaniſh Brabant*, and *Dutch Brabant*; one Southward, and the other Northward.

BRUXELLES, on the *Senne*, which is a rich, large, and trading City, is the Capital of all the *Spaniſh Low-Countries*; and is ordinarily the Place of Reſidence of the Governor, and of the Council of State.

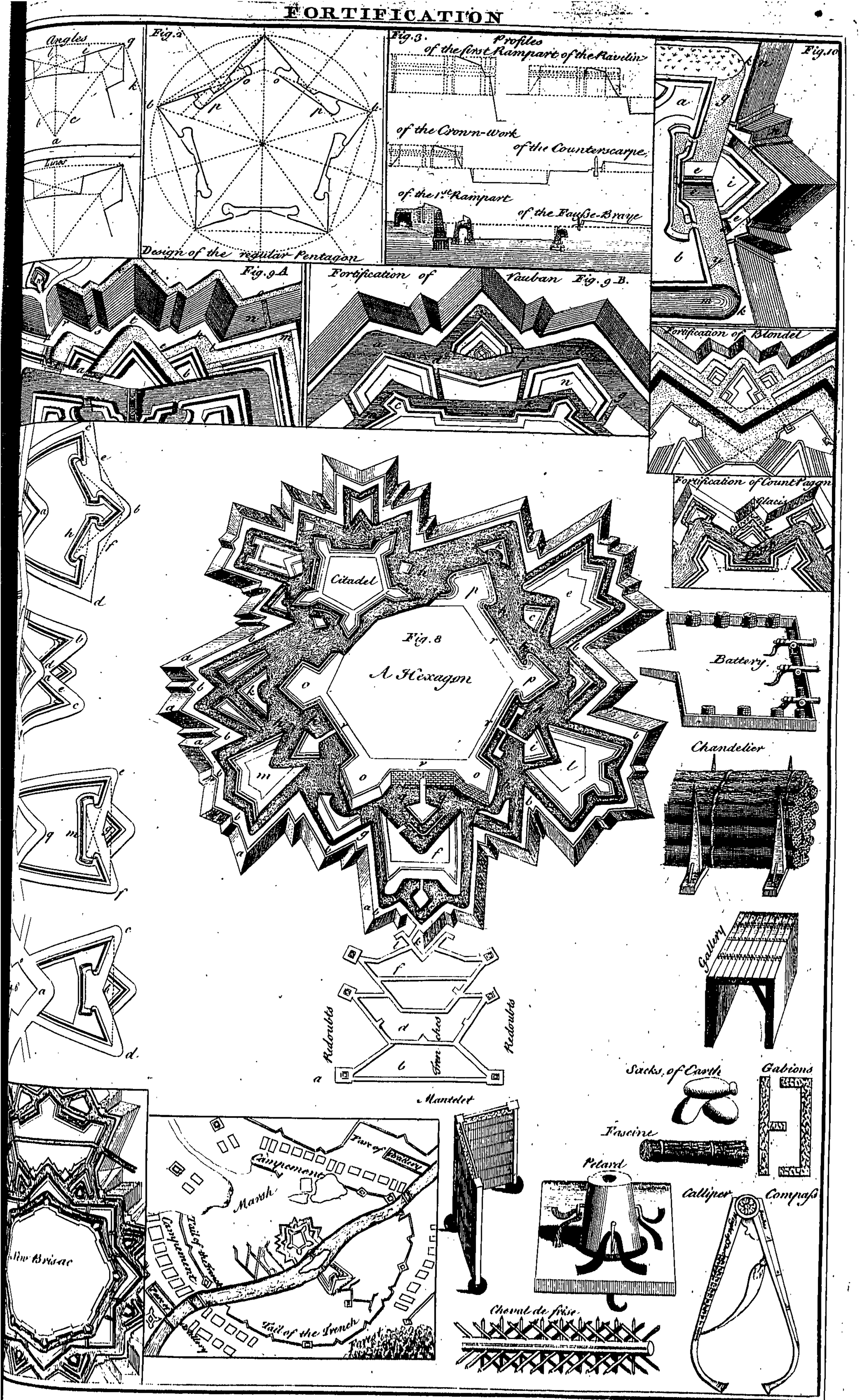
MALINES, on the *Dyle*, and CAMBRAY, on the *Eſcaut*, are Capitals of their Countries, have each their Archbiſhop, that of *Cambray* ſtiling himſelf Prince of the Holy Empire.

ANTWERP, and GHENT, on the *Eſcaut*, are two very ſpacious Epiſcopal Cities. The firſt is the moſt trading one of all the *Spaniſh Low-Countries*, eſpecially in Linen-Clothes.

TOURNAY, on the ſame River, is a Biſhoprick, of which my Uncle *Louis Mercellus de Coetlogon*, was Biſhop, when it was taken by the Duke of *Marlborough*; and I could wiſh the Nephew was as much in the Dutcheſs's Favour, as the Uncle was reſpected by the Duke. *Louis* XIV. honoured *Tournay* with a Parliament, in 1669.

IPRES, on the River of the ſame Name, BRUGES, on its Canal, are Epiſcopal Cities, ſituated in the *Teutonick Flanders*.

FORTIFICATION



ARRAS, on the *Scarpe*, and ST. OMER, on the *Aa*, in *Artois*, are very strong Cities, rendered famous by the great Sieges they have sustain'd; they have each their Bishop.

LIEGE and NAMUR, on the *Meuse*, are Episcopal Cities, Capital of their Country: The first has the most *honourable Chapter* of *Christendom*, which reckons Cardinals, several Princes, and Lords among its Prebends.

BOSLEDUC, a very strong City on the *Dammel*, in the *Dutch Brabant*; has also its Bishop.

LOUVAIN, on the *Dyle*, in the *Spanish Brabant*, is famous for its University.

Note, That the Inhabitants of these Provinces are not very ingenious, nor crafty; but they are brave, good Soldiers, and used to the Exercises and Fatigues of War. They are very sincere and affable, take Pleasure in Feasting their Friends, and have their Heart on their Lips; so that the Word of a *Fleming*, is better than the Bond of certain People.

These Countries are most of them, at least at present, under the Domination of the Queen of *Hungary*; but how long they'll continue so, some great Event in *Germany*, or a Treaty of Peace, is capable to determine; the King of *France* possesses also the *Artois*, and several Places in *Flanders*, *Hainault*, &c. The *Dutch* have that Part of *Brabant*, called *Dutch Brabant*, and that Part of *Flanders*, called also *Dutch Flanders*; besides the Barrier Towns.

Note also, That none but the Catholick Religion is permitted in the Dependencies of *France*, and of the Queen of *Hungary*; and that *Calvinism* reigns in the *Dutch* Territories.

A more particular Description of the *Catholick Low Countries*, is as follows:

The *Spanish* BRABANT, contains *Bruxelles*, *Louvain*, *Arschot*, *Liere*, *Diest*, *Vilvorden*, *Tillemont*, *Judoigne*, *Hirentals*, *Gemblours*, *Nivelle*.

The *Marquisate of* ANTWERP, contains *Antwerp*, only.

The *Lordship of* MALINES, contains *Malines*, Arch. *Heist*.

The *Dutch* BRABANT, contains *Bosleduc*, Bishop. *Breda*, *Bergopsom*, *Grave*, *Helmont*, *Eyndenhoven*, *St. Uliet*, *Megem*, *Ravestein*.

The HAINAULT, contains *Mons*, *Valenciennes*, *Bouchain*, *Ath*, *Brainc le-Comte*, *St. Guislain*, *Conde*, *Enguein*, *Bavay*, *Beinche*, *Halle*, *Maubeuge*, *Quesnoy*, *Avesnes*, *Landrecies*, *Philippeville*, *Mariembourg*.

The *Archbishoprick of* CAMBRAY, contains *Cambray*, Arch. *Chateau-Cambresis*.

The *County of* NAMUR, contains *Namur*, Bishop. *Bovines*, *Charleroy*, *Charlemont*. *Til-le-Chastreau*.

The *County of* LIEGE, contains *Liege*, Bishop. *Mastreicht*, (at present in the Hands of the *Dutch*.) *Tongres*, *Huy*, *Dinant*, *Buikon*, D. *Fumay*, *Thuin*, *Rochefort*, *S. Hubert*.

The *Dutchy of* LIMBOURG, contains *Limbourg*, *Dalem*, *Fauquemaut*, *Rolduc*, *Stephanswert*, *Roermund*, Bishop.

The *Dutchy of* LUXEMBOURG, contains *Luxembourg*, *Arlon*, *Bastogne*, *Marche en Famine*, *La Roche*, *Dudersdorf*, *Thionville*, *Montmedy*.

The *County of* FLANDERS, contains *Ghent*, Bishop. *Bruges*, Bishop. *Ypres*, Bishop. *Berg S. Vinox*, *Ostend*, *Nieuport*, *Dendermond*, *Oloft*, *Ninove*, *Helvoetsluys*, *Dunkirk*, *Gravelines*, *Lisle*, *Armentieres*, *Doüay*, *Tournay*, *Oudenarde*, *Orchies*.

The *County of* ARTOIS, contains *Arras*, Bishop. *Bapaumes*, *Hesdin*, *Bethune*, *St. Venant*, *Aire*, *St. Omer*, Bishop.

UNITED PROVINCES.

This is that Part of the *Low-Countries*, whose Inhabitants shook off the *Spanish* Yoke, after they had been for a long Time tormented by the Cruelties of the Duke *d'Alva*, their Governor. That Tyrant rendered himself so odious to those People, naturally meek and tractable, that when they want, even to this Day, to express a cruel Man, they say that he is a Duke *d'Alva*.

The Union they made at *Utrecht*, where they oblig'd themselves by a mutual Oath to succour each other, and to preserve their Liberty, made them be called *United Provinces*.

They have very near 50 Leagues Extent from North to South, from the Coasts of *Groninguen*, to *Ruremund* on the *Meuse*; and 35 from East to West, from the Territories of the Bishop of *Munster*, to the Ocean.

There is found in them a great Number of Rivers, Canals, and Marshes; but none of them considerable except the *Rhine*, the *Meuse*, and the *Issel*. Between the Dutchies of *Guelderland*, and *Cleves*, the *Rhine* divides itself at the Fort *Schencx* into two Arms; the most meridional thereof, called the *Wahal*, throws itself into the *Meuse*, and both form the Isle of *Bommel*: The other, which retains the Name of *Rhine*, divides itself again into two Arms, near *Wick de Duerstede*; the most northern of the two retains its first Name, and goes to lose it with its Waters in the Sand beyond *Leiden*; the other called *Leck*, disembogues likewise into the *Meuse*, three Leagues below *Rotterdam*.

Those Provinces are eight in Number, reduced to seven Chiefs, because the County of *Zutphen* is included in the Dutchy of *Guelderland*. They keep the following Situation. First, Westward on the *Germanick* Ocean, are found the Counties of *Holland*, and *Zeland*; Northward on the same Ocean, the Lordships of *Friseland*, and *Groninguen*; Eastward the Lordship of *Overissel*, and the Dutchy of *Guelderland*; and between that Dutchy, and the County of *Holland*, the Lordship of *Utrecht*. In the Middle of these Provinces, is the *Zuerdezzee*, which is a great Gulph, pretty large at Bottom; towards the Mouth thereof is the *Isle Texel*, which has a very fine Sea-Port, where the largest Ships come to unload their Merchandizes, which are transported aftewards in small Barks, throughout all *Holland*.

The Capital is AMSTERDAM, situated near the *Zuidezee*, on the River *Hamstel*, whence it borrows its Name. It is reputed the most trading City in *Europe*; is beautiful, large, and accommodated with a very good Sea-Port.

DORDRECHT, has the first Rank in their Assemblies, and is the Place where the Money is coin'd.

ROTTERDAM, was the Country of *Erasmus*, whose rare Genius gain'd the Esteem of the greatest Princes of *Europe*.

LEYDEN, on the *Rhine*, has an University, which has lost for several Years past, very much of its Reputation and Lustre.

UTRECHT, on the *Rhine*, is the Place where the Deputies of the Provinces met for their Union; and also where that famous Treaty of Peace was concluded between *France*, and those who called themselves the high Allies; and against which the puny Stomachs of some of our Cooks in Politicks, nauseate much, tho' they have put it since to several different Sauces.

Note, That the Inhabitants of these Provinces, have a vast deal of Wit and Ingenuity, understand Commerce and Maritime Affairs very well: Their Capacity and Dexterity have render'd them formidable at Sea, and have made them make fine Conquests in the *East-Indies*, where they are the most powerful of all the *European* Nations who trade in those Climates. They possess several Places in the Isles of the *Sonde*, and in the *Molucca's*, and the Coasts of *Malabar* and *Coromandel*; and on other Coasts of *Asia*, *Africa*, and *America*. They are the only ones at present who are receiv'd in the Empire of *Japan*, for the Commerce of Gold and Silver, and the only ones who carry on the Commerce of Spices in the *Molucca's*. They are Masters of the Coasts of the Isle of *Ceylon*, and of several other Isles in the Eastern Ocean.

Note also, That the Government of these Provinces is democratical; and they may be consider'd as so many Republicks, which notwithstanding compose but one, called *The States General of the United Provinces*. The Assembly of these States meet at the *Hague*, in the

County of *Holland*, which nevertheless has but the Title of a Village, tho' it be larger, and better built than some famous Cities.

The Protestant Religion is the most followed in *Holland*, but all other Sects are tolerated; so that it is almost impossible to reckon the different Sects establish'd at *Amsterdam* only.

Here follows a more particular Description of the *United Provinces*:

The *County of* HOLLAND, contains *Amsterdam*, *Haerlem*, *Leyden*, *Hague*, *Deft*, *Goude*, *Dordrecht*, *Rotterdam*, *Gravesande*, *Warden*, *Gorlum*, *Huesden*, *Briel*, *Reyerlandt*, *Gocræe*, Isle. *Gertrudemberg*, *Schonhowen*, *Oudewater*, *Woerden*.

WEST-FRISELAND, contains *Alekmaer*, *Beverwick*, *Medemblick*, *Enchuysen*, *Horn*, *Edam*.

The *County of* ZELAND, contains *Walcheren*, Isle. *Middleburg*, *Flessingue*, *Armuiden*, *Campfer*, *Viere*, *Ramekins*, *Werendick*, *Schowen*, Isle. *Zierierae*, *Browersharen*, *Rommene*, *Duyreland*, *Zuid-berenlad*, Isle. *Goes*, *Romerswael*, *Tolen*, Isle. *Martendick*, *Over-Flackace*, Isle. *Somerdick*, *Stadt*, *New-Tonge*, the Isles of *Nort-Bereland*, *S. Martin*.

The *Lordship of* FRISELAND, contains *Lewarden*, *Dorkum*, *Staveren*, *Harlingen*, *Franeiker*, *Bolswart*, *Workum*, *Ilst*, *Sneeck*.

The *Lordship of* GRONINGEN, contains *Groningen*, Hans. *Dam*, *Delfzeel*, *Winschoten*.

The *Lordship of* OVER-ISSEL, contains *Deventer*, Hans. *Campen*, Hans. *Zuoll*, Hans. *Coevorden*, *Oldenzeel*, *Wolhenhoven*, *Hasselt*, *Steenwick*, *Blockzyl*, *Ootmersum*.

The *Dutchy of* GUELDERLAND, contains *Gueldre*, Bishop. *Venlo*, Bishop. *Wachtendonck*, Bishop. *Arnheim*, *Nimeguen*, *Tiel*, *Bomnel*, *Batonborg*, *Harderwick*, Hans. *Eiburg*, *Hattem*, *Wageningen*, Fort of *Skenck*.

The *County of* ZUTPHEN, contains *Zutphen*, Hans. *Doesburg*, *Lothem*, *Groll*, *Brewoordt*, *Dotekum*.

The *Lordship of* UTRECHT, contains *Utrecht*, Arch. *Amersfort*, *Rhenen*, *Montfort*, *Wickte-Duerstede*.

The SUCCESSION *of* CLEVES *and* JULIERS *and the* ELECTORAL ARCHBISHOPRICKS.

These Countries, as I have already observed, are situated in the Neighbourhood of the *Rhine*, are so embarrassed one in another, that it would be almost impossible to mark the Extent of each in particular; therefore I'll mark it in general for the one and the other.

They extend from South to North more than 50 Leagues, from the Balliwick of *Vandrevauge*, in *Lorrain*, as far as to the Canal of *Issel*, near *Arnheim*; but their Extent, Eastward, cannot be precisely fixed, because the Archbishopricks have Territories in several neighbouring Provinces; though it is known that they confine Eastward with *Westphalia* and *Hesse*; Southward with the Palatinate of the *Rhine*, and *Lorrain*; Westward with the *Low-Countries*; and Northward with only the *United Provinces*.

Though the Climate be cold, the Soil produces a considerable Quantity of Corn, and even Wine, but not equally every where; in some Places it is marshy, and abounds in Pasture; there are found in it several Springs of hot Mineral Waters.

The principal Rivers which run thro' them, besides the *Rhine*, are the *Moselle*, the *Roer*, and the *Lippe*, which disembogue in the *Rhine*; the first at *Coblentz*, the second at *Duysbourg*, and the third at *Wesel*; with several Canals for the Communication between them.

The *Succession of* CLEVES and JULIERS, has been an Apple of Discord, which has thrown *Germany* and the *Low-Countries* into Confusion for several Years, and at several Times; the greatest was at the Death of the Duke *John William*, who left no legitimate Children. The Pretenders to that Succession were *John Sigismund*, Elector Marquis of *Brandebourg*, his Nephew on his Mother's Side *Mary Eleonore*; *Philip* Duke of *Newbourg*, his Brother-in-Law, on the Side of his Wife *Anne*, younger Sister of *Mary*; *John* II. Duke of *Deux-Ponts*, also his Brother-in-Law, by his Wife *Magdelaine*, younger Sister of *Anne*; *Charles* Archduke of *Austria*, likewise his Brother-in-Law, by his Wife *Sibille*, youngest of all the three Sisters; *Charles* of *Gonzague* and *Cleves*, Duke of *Nevers*, founded on that he was Cousin on his Mother's Side. But of all these Pretenders, none bur the Elector of *Brandebourg*, and the Duke of *Newbourg*, attempted to dispute it by Arms; the first with the Succours of the *United Provinces*, and the other with that of *Spain*: They agreed at last that the Dutchies of *Juliers* and *Bergue* should remain to the Duke of *Newbourg*; and the Elector of *Brandebourg* should have for his Part the Dutchy of *Cleves*, the County of *La Marcke*, that of *Ravenspurg*, inclosed in *Westphalia*, and the Lordship of *Ravenstein* on the *Meuse*, inclosed in the *Dutch Brabant*, and which he has kept ever since: But the Duke of *Deux-Ponts* dying likewise without Issue, who was the last possess'd of the Dutchies of *Bergue* and *Juliers*, this Part of the Succession has occasion'd a fresh Dispute between a great Number of powerful Pretenders, which has been decided at last in favour of the Prince of *Sultzbach*, supported by the King of *France* in his Pretensions.

The *Archbishop of* MAYENCE, besides the Extent of his Diocese, possesses several Places in *Franconia*, in *Hesse*, and in *Turinge*.

The *Archbishop of* TREVES, possesses nothing beyond the Extent of his Diocese.

The *Archbishop of* COLOGNE, is Master, or Protector of several Cities in *Westphalia*.

MAYENCE, on the *Rhine*, is the Capital of its Diocese, and a very large City.

TREVES, or TRIERS, on the *Moselle*, is a very large City of no Strength, and has an University of no Reputation.

COLOGNE, on the *Rhine*, is a beautiful City, famous for its University, and Types for Printing.

CLEVES, Capital of its Dutchy, is situated on a little River, pretty near Fort *Skenck*.—JULIERS, Capital of its Dutchy, is situated on the *Roer*.

Note, That the *Catholick* Religion is the most followed in these Countries.

A more particular Description of these Territories, is as follows:

SUCCESSION *of* CLEVES *and* JULIERS.

The *Dutchy of* CLEVES, contains *Cleves*, *Emmerich*, *Ruz*, *Wesel*, *Burich*, *Orsoy*, *Callar*, *Goch*, *Duysbourg*, Imp. *Ringenberg*, *Santen*, *Dinslaken*, *Genep*.

The *County of* LA MARCK, contains *Dortmund*, Imp. *Luynen*, *Unna*, Hans. *Rucklinthusen*, *Essen*, Abbey. *Werden*, Abb. *Ooest*, Hans. *Rhinberg*, Marq. *Alpen*, *Mæurs*, County. *Ravenspurg*, C. and *Ravenstein*, Lordsh.

The *Dutchy of* JULIERS, contains *Juliers*, *Duren*, *Linnen*, *Aix la Chapelle*, *Aldenhoven*, *Zulpich*, *Heyasberg*, *Kerpen*, *Grevembruck*, *Bredebent*, *Erkelms*, *Dalen*, *Bruggen*.

The *Dutchy of* BERGUE, contains *Dusseldorp*, *Folingen*, *Everweld*, *Mulheim*, *Blankemberg*, *Seigberg*, *Schelsburch*, *Wildemberg*, *Hardemberg*, *Winderfuid*, *Ratingen*, *Lennep*.

ELECTORAL ARCHBISHOPRICKS.

The *Archbishoprick of* MAYENCE, contains *Mayence*, Arch. *Bringen*.

In HESSE, it has *Wisbaden*, *Konigstein*, *Friedburg*, *Fritzlar*.

In FRANCONIA, it has *Chattemburg*, *Biscofthein*, *Lor*, County.

In TURINGE, it possesses *Erfurt*, *Heiligenstad*, *Dudestad*.

The *Archbishoprick of* TREVES, contains *Treves*, Arch. *Sarburg*, *Grimberg*, *Weldentz*, *Witlich*, *Kerpen*, *Manderscheit*, County. *Pruein*, Abbey. *Gerolstein*, *Coblents*, *Kilberg*, *Ulmen*, *Hunostein*, *Numagen*, *Freudemberg*.

The *Archbishoprick of* COLOGN, includes *Cologn*, *Bonn*, *Keisseweard*, *Nuiss*, *Zonsk*, *Bruill*, *Kempem*, *Bruggen*, *Arderuach*, *Woring*, *Nurenburg*.

In WESTPHALIA, *Arensberg*, County. *Hertzberg*, *Nuin*, *Balve*, *Freidberg*, *Alteuvied*, *Boer*, *Bonover*, *Hornberg*, *Dorsten*.

Low PALATINATE.

This Country is call'd the *Palatinate* of the *Rhine*, because situated in the Neighbourhood of that River; and *low Palatinate*, to distinguish it from the *high*, which is that of *Bavaria*, situated towards the *Danube*.

Frede-

Frederick V. Count *Palatine* of the *Rhine*, was one of the seven Electors of the Empire, and was crowned King of *Bohemia* by the *Hussites*, and *Protestants*, who had drawn him into their Revolt. Emperor *Ferdinand* II. looking upon that Action as an Attempt against his Rights, summon'd him to appear at the Diet of *Ratisbon*, and put him to the Ban of the Empire: But seeing that the Elector little minded his Menaces, he pursued him with a great Army; the Battle was fought near *Prague* in 1620. the *Palatine* lost it, his Army was routed, his *Palatinate* given to the Duke of *Bavaria*, with the best Part of his Country; and the rest divided among several particular Princes: But at the Instances of the Kings of *France*, and *Sweden*, the *low Palatinate* was restored to him by the Peace of *Munster*, and the Emperor created, in his Favour, an eighth Elector.

The greatest Extent of that Country is of about 25 Leagues, from East to West, and of 22 from South to North.

It confines Eastward with *Franconia*, and *Suabia*; Southward with *Alsace*; Westward with *Lorrain*, and the Archbishoprick of *Triers*; and Northward with that of *Mentz*.

The Climate is a little Cold; notwithstanding which, the Soil is very fertile in Corn, excellent Wine, and Pasture.

The *Rhine* receives there the *Neckar*, and the *Lauter*, one near *Manheim*, and the other near *Bingen*.

Besides the particular Territories of the Count *Palatine*, there are found in it those of the Bishops of *Spire* and *Worms*, of the Dukes of *Deux-Ponts* and *Simmeren*, of the *Palatine* of *Birkenfeld*, and of some other Princes less powerful.

The Capital of the *Palatine* is *Heidelberg* on the *Neckar*: It had once one of the fairest Libraries of *Europe*; but Count *Tilly*, General of the Emperor, sent it to the Pope, after he had taken the City in 1622. It has a famous University.

Each Prince is Sovereign in his Territories, and tho' the Count *Palatine* be the most powerful, none of the others depend of him.

Calvinism was once the reigning Religion in the *low Palatinate*; but ever since the *Dauphin*, Grandfather of the present King of *France*, burnt that Country, and thereby forced most of its Inhabitants to fly into *England*, and other Protestant Countries, that Party has been much weakened: There is a great Number of *Jews* in *Worms*, where they have a Synagogue.

ALSACE.

This was the Country of the antient *Tribotes*, which is call'd *Elsass* by the *Germans*, and was erected into a Landgraviate by the Emperor *Otho* III.

Alsace, properly speaking, is entirely Westward of the *Rhine*, tho' commonly is understood by the Name *Alsace*, a Tract of Land taken in *Suabia*, which extends as much Eastward as Westward of the *Rhine*; so that all the whole Country known under the Name *Alsace*, may extend 34 Leagues from South to North, and 18 or 20 from East to West.

It confines Northward with the Palatinate of the *Rhine*; Eastward with *Suabia*; Southward with *Switzerland*; and Westward with *Lorrain*, and the County of *Montbelliard*.

This Country is extremely fertile in Corn and Wine, Saffron, and Pastures which feed a great Number of Cattle: It has Mines of Silver, Lead, and Copper; and Quarries of beautiful Marble.

Besides the *Rhine*, which runs thro' it from South to North, there is no other considerable River but the *Ill*.

Particular *Alsace* is divided into *high* and *low*: The *high Alsace* contains also the *Sundgow*, with the Counties of *Ferrette*, and *Altkirk*; the *low* includes the Prevosty of *Weissemburg*.

The Country, Eastward of the *Rhine*, is divided into three Parts: The most Southward is the *Brisgow*; that of the Middle is the *Mortnaw*; and the most Northward is the Marquisate of *Baden*.

The most considerable City, and which may be call'd the most considerable of the whole Country, is *Strasbourg* on the *Ill*, distant from the *Rhine* of a Cannon-Shot: It is an Imperial City, whose Bishop is Prince of the Empire.

ENSISHEIM, on the *Ill*, is the Capital of the Landgraviate; *Suverne*, *Haguenau*, *Schelestat*, are Cities which the *French* have fortified.

Here follows a more particular Description of all those Countries.

The Low PALATINATE, contains *Heydelberg*, *Frankendal*, *Manheim*, *Oppenheim*, *Landaw*, Imp. *Spire*, Imp. *Philisbourg*, *Wormes*, Imp. Bishop. *Darmstat*, Landg. *Deux Ponts*, Dutch. *Keyserstuther*, *Lauterech*, D. *Ulm*, *Simmeren*, Dutch. *Birkenfeld*, D. *Erpach*, D.

The BRISGOW, contains *Brisach*, *Fribourg*, *Newemburg*.

MORTNAW, contains *Offemberg*, *Gengenbach*, *Oberkirk*, *Baden*, Marq. *Stolhofen*, *Durlach*, Marq. *Pforstein*.

High ALSACE, contains *Ensisheim*, Landg. *Colmar*, *Keiserperg*, *Munster*, Greg. *Murbach*, *Rufeck*.

SEMDGOW, contains *Ferrette*, C. *Altkirk*, *Beffort*, *Tann*, *Mulhausen*, Imp.

Low ALSACE, contains *Strasbourg*, Bishop, *Molsheim*, *Rosheim*, *Oberhenheim*, *Schelestat*, *Saverne*, *Haguenau*, *Werdt*, *Seltz*, *Benheim*, *Andlaw*, *Inguiller*, *Weissemburg*, *Luterburg*.

SWITZERS CANTONS, *their* ALLIES, *and* SUBJECTS.

The whole Country known under the Name of SWITZERLAND, including their Allies, and Subjects, has 66 Leagues in its greatest Extent from East to West, from the County of *Bormio*, to *Mont St. Claude*; and 47 from South to North, from the Balliwick of *Mendisi*, to the Frontiers of *Suabia*.

It confines Northward with *Alsace*, and *Suabia*; Eastward with *Tyrol*; Southward with *Lombardy*, and the Lake of *Geneva*; and Westward with *Franche Comté*.

Note, That this Country, whose Inhabitants *Cæsar* calls *Helvetians*, has received its Name from the Canton of *Schwitz*, one of the three first who took up Arms to shake off the Yoke of the House of *Austria*, which was insupportable to them. The Emperor *Albert* seeing the Revolt of those People who were his Subjects, enter'd their Country Sword in Hand, to bring them back to their Duty; but he was killed in the Attempt. His Children to revenge the Death of their Father, carried into *Switzerland* an Army of 20000 Men, who were defeated by an 100 Men of that Canton of *Schwitz*; so that the *Germans* hearing nothing every where but that Word *Schwitz*, called by that Name, not only those first Rebels, but likewise all those of the other Cantons, who imitated them in their Revolt, so that it has been left to them ever since.

The Climate of *Switzerland* is wholesome, and very subtile; the Soil very unequal, and full of Mountains, particularly Southward; but it is so carefully cultivated, that it produces every Thing necessary, except Wine, which is found but in some Places, where there are Vineyards. Though most of the Mountains be covered with Snow, there are found upon some of them very good Pasture, and fine Fountains; in the Valleys are several Lakes; the most remarkable being those of *Geneva*, of *Constance*, of *Eell*, of *Newchatel*, of *Beill*, of *Morat*, of *Thum*, of *Brientz*, of *Lucerne*, of *Zurich*, of *Zug*, of *Locarne*, and of *Riva*.

Several great Rivers spring from it, as the *Rhine* which forms itself at the Bottom of *Mont St. Gothard*, in the *Grey Ligue*, springing from three Sources, two of which, after they have run separately for the Space of 12 or 13 *French* Leagues, join together 3 Leagues below *Coire*; then after they have parted the *Rheintal* from the County of *Tyrol*, and passed through the Lake of *Constance*, through *Schaffousen*, through the four *Forest Towns* of *Suabia*, and through *Basil*, enters at last into *Alsace*. The *Aar* which springs from it, and carries its Waters into the Canton, and City of *Berne*, to disembogue afterwards into the *Rhine*. The *Rhône*, the *Ruk*, and the *Tesin*, which springs from the same Mountain, in the Canton of *Avy*; the first crosses the *Vallais*, and passes through the Lake and City of *Geneva*.

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SWITZERLAND, is divided into 13 Cantons, which are so many Republicks. In these 13 Cantons are included several Territories and Republicks, their Allies; and several Countries subject to them, either by Convention, or Right of Arms.

BASIL, on the *Rhine*, near *Alsace*, is the Capital of its Canton, and the most considerable of *Switzerland*; it has the Title of Bishoprick, but the Bishop makes his Residence at *Porentru*.

SOLEURE, on the *Aar*, is also Capital of its Canton, and one of the most famous Cities of *Switzerland*; it is there the Ambassadors from *France* commonly make their Residence.

GENEVA, situated at the Extremity of its Lake on the *Rhône*, is a very strong City, govern'd in Form of a Republick, and allied of *Switzerland*. It was once a Bishop's See; but *Calvinism* having been established there with an absolute Power, the Priests and Prelates have been expelled from it, and the Exercise of the *Catholick* Religion entirely abolished. The Bishop makes his Residence at *Annecy* in *Savoy*.

SCHAFFOUSE, on the *Rhine*; LUCERNE, on the *Russ*; BERN, on the *Aar*; ZURICH, on its *Lake*; are fair and large Cities, but which have nothing considerable, or particular, but that of being Capital of their Cantons.

Note, That the *Switzers* are generally of a strong Constitution, have a great deal of Sense, Dexterity of Hand, and Industry, but not much Politeness. They love War, but not in their own Country, and do not care for whom, or against whom they fight, provided they are paid for it; for without Money they will not stir. Their Infantry is very good, especially to sustain a Shock.

Their Government is entirely democratical, and they have no other particular Chiefs, but Captains and Magistrates chosen among the People, by the Deputies of each Canton.

They follow the *Catholick* Religion, and the *Calvinism*, with Liberty, though formerly they have gone to War against one another, for the Interest of Religion. There are seven *Catholick* Cantons, which I'll mark in the following particular Description of those Countries, with a C. four *Protestants*, which will be mark'd with a P. and two mix'd with *Catholicks* and *Protestants*, which I'll distinguish by C P.

A more particular Description of SWITZERLAND, is as follows.

The *Canton of* ZURICH, P. contains *Zurich*, *Kyburg*, County. *Grueningen*, *Andelfingen*, *Griffensee*, *Klingemar*, *Eglisow*, *Regenspurg*, *Rutty*, *Wadisehvill*, *Lauffen*.

The *Canton of* BERN, P. contains *Bern*, *Them*, *Arberg*, *Brintz*, *Sana*, *Lauzanne*, *Aubonne*, *Nion*, *La Serre*, *Erlach*, *Aaraw*, *Bruck*, *Lentsberg*, County. *Vangen*.

The *Canton of* LUCERNE, C. contains *Lucerne*, *Sempach*, *Willissow*, *Sursee*, *Wicklen*, *Volhusen*.

The *Canton of* URI, C. contains *Uri*, *Altorf*, *Attinghusen*, *Ariola*, *Gesanen*, *Jornico*.

The *Canton of* SCHWITZ, C. contains *Schwitz*, *Kusnach*, *Einselden*, *Wag*, *Grinow*.

The *Canton of* UNDERWALDEN, C. contains, *Stantz*, *Engelberg*, *Sarnen*, *Lungeren*, *Bekenrict*, *Stanstat*, *Krientz*.

The *Canton of* ZUG, C. contains *Zug*, *Cham*, *Bar*, *Egen*, *Rischt*, *Oberwyl*.

The *Canton of* GLARIS. C P. contains *Glaris*, *Wesen*, *Urnen*, *Quart*, *Elm*, *Nestel*.

The *Canton of* BASIL, P. contains *Basil*, *Augst*, *Leichstall*, *Munchsteim*, *Walnemburg*, *Hamburg*, *Wildenstein*, *Bottingen*, *Dornach*, *Grolingen*, *Dermenach*, *Dugst*.

The *Canton of* FRIBOURG, C. contains *Fribourg*, *Romont*, County. *Favernach*, *Corbars*, *Montenach*, *Griers*, County. *Peterlingen*, *Ruë*, *Plattey*, *Joun*, *Bersisch*.

The *Canton of* SOLEURE, C. contains *Soleur*, County. *Olten*, *Balistein*, *Thirstein*, County. *Flumenthal*, *Leingen*.

The *Canton of* SCHAFFOUZE, P. contains *Schaffouze*, *Newkilch*, *Herkingen*.

The *Canton of* APPENZEL, C P. contains *Appenzel*, *Wrnoschen*, *Gonten*.

ALLIES OF SWITZERLAND.

The GREY LIGUE, contains *Ilantz*, *Tront*, *Disentiff*, *Flintz*, *Splugen*.

The CAS-DEE, contains *Casaccia*, *Vespran*, *Teuffencastel*, *Tinesont*, *Chiavenue*, County. *Riva*.

The TEN COMMONALITIES, contain *Davos*, *Alfenow*, *S. Pieter*, *Majenfeld*.

The VALTELINE, contains *Tirano*, *Sondrio*, *Teglio*, *Morbegno*, *Bormio*, County.

The REPUBLICK, and ABBEY OF ST. GALL, contain *St. Gall*, *Leichstenteg*.

The *Bishoprick of* CONSTANCE, contains *Constance*, Bishop. *Merspurg*, *Meinaw*.

The *Bishoprick of* BASIL, contains *Porentru*, *Franquemont*, *Dalsperg*.

In ALSACE, *Malhausen*.

In SUABIA, *Rotweil*.

The *Prevosty* and *County of* NEUCHASTEL, contain *Neuchatel*, *Vallangin*, *Biel*, Republick. *Geneva*, Republick.

The VALLAIS, contains *Sion*, Bishop. *Martinach*, *S. Moritz*, *Leuch*, *Natters*, *Visp*.

The *Bishoprick of* COIRE, contains *Coire*, Bishop. *Haldenstein*.

SUBJECTS OF SWITZERLAND.

The *County of* BADEN, contains *Baden*, *Keiserseal*, *Klingenaw*, *Zurzach*.

The FREE PROVINCES, contain *Mejemberg*, *Richenzee*, *Ergow*, *Rapersswill*.

The *Balliwicks of* MELLINGEN, *Bremgarten*, *Morat*, *Gransou*, *Orbe*, *Schwarfemburg*, *Gasteren*, *Ulsnach*, *Quart*.

TURGOW, contains *Biscofzell*, *Frawansec*, *Pfin*, *Arbon*, *Rheinow*, *Diessenoffen*, *Werdemberg*, Count. *Halt-Sax*, Baron. *Sarngans*, Count. *Vallemstat*.

RHEINTAL, contains *Rheineck*, *Alstretten*.

The GOVERNMENT OF ITALY, contains *Logan*, *Locarne*, *Mendrisi*, *Val-Madia*, *Bellenzone*.

Since I am so near HUNGARIA, and that Kingdom is also of the Dependencies of the House of *Austria*, at least in Part, and the Theatre of a Scene, at present, which attracts the Eyes of all *Europe*, it would be injudiciously done by me, to run throughout the rest of *Europe*, and come back afterwards to this Kingdom, since by that Time the Idea of the Government and Neighbourhood of the Territories of that august House might be lost.

Note, That *Hungary* is an elective Kingdom, called by the Antients *Low Pannonia*. The House of *Austria*, has almost render'd it hereditary to herself, having possessed it without Interval, ever since the Year 1527, in which *Ferdinand*, Brother of the Emperor *Charles* V. was elected King, after *Louis*, who was found dead in a Marsh. This imprudent young Prince, was smothered in a Marsh, at the Defeat of 22000 *Hungarians*, cut to Pieces by a formidable Army of *Turks*, commanded by *Solyman the Magnificent*, in Person.

HUNGARY, is situated between the 39 and 47 Degrees of Longitude, and extends from about the 45 of Latitude, to the 49. So that it may have very near 100 Leagues in its greatest Length, and 80 in Breadth.

It confines Westward with the Territories of *Austria*; Northward with the States of *Bohemia*, and of *Poland*; Eastward with *Transilvania*; and Southward with *Servia* and *Bosnia*; from which it is separated by the *Danube* and the *Save*, because *Esclavonia* must be included in it, which is between that River and the *Drave*.

The Climate of the Country is very unwholesome, its Waters bad and stinking, except those of the *Danube*; which notwithstanding, the Soil is very fertile in Corn,

Corn, Wine, Fruits, and Paſtures. It abounds extraordinarily in horned Cattle, in wild Beaſts and Game, and very good Horſes are brought from thence. Mines of Gold, Silver, Copper, and Salt, are found in its Mountains.

Its principal Rivers, after the *Danube*, are the *Drave*; the *Save*; the *Teik* or *Tibiſc*; the *Mariſch*; the *Raab*, which forms an Iſle of the ſame Name; the *Vag*; the *Gran*; and the *Sarwibze*, which flows from the Lake *Balaton*; beſides this Lake, there are found thoſe of *Newſidler*, of *Beizherk*, and ſome others leſs conſiderable.

Hungary has been divided in ſeveral Manners; but I find not a more natural Diviſion of it, than by making one Part of it *Royal*, or *Chriſtian*, and the other *Turkiſh*, or *Mahometan*.

The Capital is PRESBOURG, in the *Hungarian* Language POSON, ſituated on the *Danube*. The ſtrongeſt, and moſt important Place is *Javarin*, or *Raab*, ſituated on the River of the ſame Name; which was taken by the *Turks* in 1594. but retaken by M. *Vaubecourt*, a *French* Gentleman, in 1598. with a Handful of Soldiers of his Nation.

Note, That the *Hungarians* are bold and courageous, but cruel and wild. They are inconſtant and vindictive, hate a foreign Yoke, and ſympathize very little with the *Germans*; they are all very great Epicures, and very dirty in their Houſes. The Perſons of Quality are as much magnificent, as the common People are lazy. They wear long Gowns much like the *Armenians*.

The Queen of *Hungary* poſſeſſes the *Chriſtian Hungary*, that is to ſay, the moſt northern Part of that Kingdom, which extends towards the South as far as *Moche* on the *Danube*, beyond the Iſle of *Schut*, and as far as the City of *Banhalan*, between *Auſtria* and *Tranſilvania*; and the moſt Weſtern Part, which extends Eaſtward as far as the ſame Iſle *Schut*, and the Lake *Bálaton*, between the *Danube* and the *Save*.

She poſſeſſes beſides the moſt Weſtern Part of *Eſclavonia*, of *Croatia*, and of *Morlakia*; one is, as already obſerved, included between the Rivers *Drave* and *Save*. The other between the laſt River and the Gulph of *Venice*; and extends from the Frontiers of *Carniole* about 20 Leagues Eaſtward.

The *Turks* poſſeſs the moſt Eaſtern Part of it, which is almoſt three Times as big as the other; but I'll defer ſpeaking of it, as well as of the *Turkiſh Hungary*, till I come to deſcribe *Turky* in *Europe*.

Note, The *Catholick* Religion is yet preſerv'd in *Hungary*, among ſome noble antient Families, but moſt of the others are *Calviniſts*, and the common People are *Lutherans*; there are alſo found among them *Arians*, *Trinitarians*, ſome *Anabaptiſts*, and a great Number of *Jews*.

Here follows a more particular Deſcription of the *Chriſtian Hungary*.

HIGH HUNGARY, contains *Preſburg*, *Durn*, *Schinta*, *Holitz*, *Freiſtat*, *Lednich*, *Tranſchin*, *Arua*, *Inder Arua*, *Leutſch*, *Eperies*, *Scharos*, *Unghwar*, *Zemblin*, *Perigia*, *Ugogh*, *Namin*, *Samos*, *Zatmar*, *Delreczen*, *Naghkalo*, *Echud*, *Banhalan*, *S. George*, *Cheghe*, *Friedt*.

BERG-STET, contains *Konigſbog*, *Schemnis*, *Templis*, *Creus*, *Biſtriez*, *Altſtoll*, *Newſhol*, *Kremnis*.

Part of the *Government of* NEWSHOUSEL, contains *Filleck*, *Setſchin*, *Holock*, *Burack*, *Palanka*, *Tugel*, *Leiva*, *Bars*.

The *Government of* CASSOVY, contains *Caſſovy*, *Tornaw*, *Budnock*, *Borſania*, *Dyos*, *Onoth*, *Takay*, famous for its Wines.

LOW HUNGARY, contains *Komore*, *Altemburg*, *Newſidl*, *Edunburg*, *Schtaping*, *Gunez*, *Sabaria*, *Schazavar*.

The *Government of* JAVARIN, contains *Javarin*, *Geſtes*, *S. Martin*, *Zonanza*, *Meriges*, *Pappa*, *Eſchneck*, *Weſprim*, *Waſan*.

Part of the *Government of* CANISE, contains *Kirment*, *Mairoſt*, *Egerſeg*, *Georgewar*, *Zalewar*, *F. of Serin*.

The CHRISTIAN ESCLAVONIA, contains *Agram*, *Kopranitza*, *S. George*, *S. Pierre*, *Zum-Creutz*, *Waraſdin*, *Kraping*, *Grabonitza*, *Welika*, *Kolantz*, *Zagrab*.

The CHRISTIAN CROATIA, contains *Sigeg*, *Mokiſh*, *Petrina*, *Curlſtad*, *Kerſtina*.

MORLAKIA, contains *Zegna*, *Modruſch*, *Otozas*, *Fiume*, *Jablonitza*, *Sixa*, *Ougliu*.

Note, That the late Emperors have almoſt found Means to join *Tranſilvania* to their Dominions, a Province, which when govern'd by its own natural Sovereigns, has been ſometimes tributary to the *Turks*, and ſometimes under the Protection of the Emperors of *Germany*.

TRANSILVANIA, has almoſt the Figure of a Lozange, and may have about 68 Leagues in its greateſt Extent from Eaſt and Weſt, and 62 from South to North.

It confines Weſtward with *Hungary*; Northward with *Poland*; Eaſtward with *Moldavia*, and *Valachia*; and Southward with this laſt Province and *Hungary*.

The Climate is extremely temperate, and the Soil very fertile in Corn, delicious Wines, Fruit, and Pulſe; but the Water is very unwholeſome. Its Mountains, which are in great Number, have Mines of Gold, Silver, Lead, and Quick-Silver; full of wild Beaſts, and Game of all Sorts, ſo that it is a very good Country.

Its moſt conſiderable Rivers are, the *Mariſh*, and the *Chryſe*, which ſpring from it.

Note, That there are three Sorts of People found in this Province, who differ a little in Laws and Maxims, *viz.* the *Ciculi*, who are the moſt antient; the *Hungarians* and the *Saxons*, who poſſeſs more than three Quarters of the Country. All theſe People were formerly govern'd by one Chief, called *Vaivode*, or Prince of *Tranſilvania*.

The Capital is HERMANSTAT, or ZEBEN, the *Vaviode*'s Seat. That of *Waſferheli*, is the Place where the *Siculi* hold their Aſſemblies.

Note, That the *Tranſilvanians* are much divided in Matter of Religion; the *Siculi*, and *Hungarians*, are moſt of them *Calviniſts* or *Arians*; the *Saxons* are almoſt all *Lutherans*. There are alſo found among them, *Catholicks*, *Greeks*, *Arians*, and *Anabaptiſts*, &c.

A more particular Deſcription of *Tranſilvania*, is as follows:

TRANSILVANIA, contains *Hermanſtadt*, *Fogoras*, *Braſſaw*, *Bieſtriz*, *Segeſtwar*, *Waſſerheli*, *Megies*, *Coloſwar*, *Zekelheid*, *Albe-Julia*, *Zabeſen*, *Hemiad*.

POLAND.

This Kingdom which made once Part of the antient *Sarmatia*, is at preſent one of the moſt ſpacious of *Europe*.

Its greateſt Longitude is from the 38 Degree to the 58½; and its greateſt Latitude from the 47½ to the 58½, without including the Dutchy of *Courland*, which extends as far as towards the 59; ſo that it may have 270 Leagues in its greateſt Length from Eaſt to Weſt, from the Frontiers of the *Little Tartary*, to thoſe of *Brandebourg*; and near 200 from South to North, from the Mountains of *Tranſilvania*, to the Dutchy of *Courland*.

It confines Northward with the *Baltick* Sea, *Livonia*, and *Muſcovy*; Eaſtward with the ſame Eſtate, and the *Little Tartary*; Southward with *Moldavia*, *Tranſilvania*, and *Hungary*, from which it is ſeparated by the *Neiſter*, and the Mountains *Krapatz*; laſtly, Weſtward with *Germany*.

The Climate of the Country is as different as its Soil is unequal; for in the Weſtern Provinces, the Climate is cold, but pure. The Soil produces ſo great Abundance of Corn and Fruits, that they are tranſported into foreign Parts; particularly Northward, where are found Champagne Countries of a vaſt Extent; Southward the Soil is full of Mountains, enriched with Mines of Silver, Copper, Iron, Lead, Minerals, and Salt. In the Eaſtern Provinces, as in *Lithuania*, the Climate is alſo very cold, but unwholeſome. The Country is full of Foreſts, Marſhes, Lakes, and Rivers, whoſe Waters are

neva. The second passes through the Lake and City of *Lucerne*, and disembogues in the *Aar*. The last takes its Course towards the Dutchy of *Milan*, and passes into the Lake of *Locarne*.

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The *Canton of* BERN, P. contains *Bern*, *Them*, *Arberg*, *Brintz*, *Sana*, *Lauzanne*, *Aubonne*, *Nion*, *La Serre*, *Erlach*, *Aaraw*, *Bruck*, *Lentsberg*, County. *Vangen*.

The *Canton of* LUCERNE, C. contains *Lucerne*, *Sempach*, *Willissow*, *Sursee*, *Wicklen*, *Volhusen*.

The *Canton of* URI, C. contains *Uri*, *Altorf*, *Attinghusen*, *Ariola*, *Gesanen*, *Jornico*.

The *Canton of* SCHWITZ, C. contains *Schwitz*, *Kusnach*, *Einselden*, *Wag*, *Grinow*.

The *Canton of* UNDERWALDEN, C. contains, *Stantz*, *Engelberg*, *Sarnen*, *Lungeren*, *Bekenriet*, *Stanstat*, *Krientz*.

The *Canton of* ZUG, C. contains *Zug*, *Cham*, *Bar*, *Egen*, *Rischt*, *Oberwyl*.

The *Canton of* GLARIS. C P. contains *Glaris*, *Wesen*, *Urnen*, *Quart*, *Elm*, *Nestel*.

The *Canton of* BASIL, P. contains *Basil*, *Augst*, *Leichstall*, *Munchsteim*, *Walnemburg*, *Hamburg*, *Wildenstein*, *Bottingen*, *Dornach*, *Grolingen*, *Dermenach*, *Dugst*.

The *Canton of* FRIBOURG, C. contains *Fribourg*, *Romont*, County. *Favernach*, *Corbars*, *Montenach*, *Griers*, County. *Peterlingen*, *Ruë*, *Plattey*, *Joun*, *Bersisch*.

The *Canton of* SOLEURE, C. contains *Soleur*, County. *Olten*, *Balistein*, *Thirstein*, County. *Flumenthal*, *Leingen*.

The *Canton of* SCHAFFOUZE, P. contains *Schaffouze*, *Newkilch*, *Herkingen*.

The *Canton of* APPENZEL, C P. contains *Appenzel*, *Wrnoschen*, *Gonten*.

ALLIES OF SWITZERLAND.

The GREY LIGUE, contains *Ilantz*, *Tront*, *Disentiss*, *Flintz*, *Splugen*.

The CAS-DEE, contains *Casaccia*, *Vespran*, *Teuffencastel*, *Tinesont*, *Chiavenue*, County. *Riva*.

The TEN COMMONALITIES, contain *Davos*, *Alfenow*, *S. Pieter*, *Majenfeld*.

The VALTELINE, contains *Tirano*, *Sondrio*, *Teglio*, *Morbegno*, *Bormio*, County.

The REPUBLICK, and ABBEY OF ST. GALL, contain *St. Gall*, *Leichstenteg*.

The *Bishoprick of* CONSTANCE, contains *Constance*, Bishop. *Merspurg*, *Meinaw*.

The *Bishoprick of* BASIL, contains *Porentru*, *Franquemont*, *Dalsperg*.

In ALSACE, *Malhausen*.

In SUABIA, *Rotweil*.

The *Prevosty* and *County of* NEUCHASTEL, contain *Neuchatel*, *Vallangin*, *Biel*, Republick. *Geneva*, Republick.

The VALLAIS, contains *Sion*, Bishop. *Martinach*, *S. Moritz*, *Leuch*, *Natters*, *Visp*.

The *Bishoprick of* COIRE, contains *Coire*, Bishop. *Haldenstein*.

SUBJECTS OF SWITZERLAND.

The *County of* BADEN, contains *Baden*, *Keiserseal*, *Klingenaw*, *Zurzach*.

The FREE PROVINCES, contain *Mejemberg*, *Richenzee*, *Ergow*, *Raperswill*.

The *Balliwicks of* MELLINGEN, *Bremgarten*, *Morat*, *Gransou*, *Orbe*, *Schwarfemburg*, *Gasteren*, *Ulsnach*, *Quart*.

TURGOW, contains *Biscofzell*, *Frawansec*, *Pfin*, *Arbon*, *Rheinow*, *Diessenoffen*, *Werdemberg*, Count. *Halt-Sax*, Baron. *Sarngans*, Count. *Vallemstat*.

RHEINTAL, contains *Rheineck*, *Alstretten*.

The GOVERNMENT OF ITALY, contains *Logan*, *Locarne*, *Mendrisi*, *Val-Madia*, *Bellenzone*.

Since I am so near HUNGARIA, and that Kingdom is also of the Dependencies of the House of *Austria*, at least in Part, and the Theatre of a Scene, at present, which attracts the Eyes of all *Europe*, it would be injudiciously done by me, to run throughout the rest of *Europe*, and come back afterwards to this Kingdom, since by that Time the Idea of the Government and Neighbourhood of the Territories of that august House might be lost.

Note, That *Hungary* is an elective Kingdom, called by the Antients *Low Pannonia*. The House of *Austria*, has almost render'd it hereditary to herself, having possessed it without Interval, ever since the Year 1527, in which *Ferdinand*, Brother of the Emperor *Charles* V. was elected King, after *Louis*, who was found dead in a Marsh. This imprudent young Prince, was smothered in a Marsh, at the Defeat of 22000 *Hungarians*, cut to Pieces by a formidable Army of *Turks*, commanded by *Solyman the Magnificent*, in Person.

HUNGARY, is situated between the 39 and 47 Degrees of Longitude, and extends from about the 45 of Latitude, to the 49. So that it may have very near 100 Leagues in its greatest Length, and 80 in Breadth.

It confines Westward with the Territories of *Austria*; Northward with the States of *Bohemia*, and of *Poland*; Eastward with *Transilvania*; and Southward with *Servia* and *Bosnia*; from which it is separated by the *Danube* and the *Save*, because *Esclavonia* must be included in it, which is between that River and the *Drave*.

The Climate of the Country is very unwholesome, its Waters bad and stinking, except those of the *Danube*; which notwithstanding, the Soil is very fertile in Corn,

Corn, Wine, Fruits, and Paſtures. It abounds extraordinarily in horned Cattle, in wild Beaſts and Game, and very good Horſes are brought from thence. Mines of Gold, Silver, Copper, and Salt, are found in its Mountains.

Its principal Rivers, after the *Danube*, are the *Drave*; the *Save*; the *Teik* or *Tibiſc*; the *Mariſch*; the *Raab*, which forms an Iſle of the ſame Name; the *Vag*; the *Gran*; and the *Sarwihze*, which flows from the Lake *Balaton*; beſides this Lake, there are found thoſe of *Newſidler*, of *Beizherk*, and ſome others leſs conſiderable.

Hungary has been divided in ſeveral Manners; but I find not a more natural Diviſion of it, than by making one Part of it *Royal*, or *Chriſtian*, and the other *Turkiſh*, or *Mahometan*.

The Capital is PRESBOURG, in the *Hungarian* Language POSON, ſituated on the *Danube*. The ſtrongeſt, and moſt important Place is *Javarin*, or *Raab*, ſituated on the River of the ſame Name; which was taken by the *Turks* in 1594. but retaken by M. *Vaubecourt*, a *French* Gentleman, in 1598. with a Handful of Soldiers of his Nation.

Note, That the *Hungarians* are bold and courageous, but cruel and wild. They are inconſtant and vindictive, hate a foreign Yoke, and ſympathize very little with the *Germans*; they are all very great Epicures, and very dirty in their Houſes. The Perſons of Quality are as much magnificent, as the common People are lazy. They wear long Gowns much like the *Armenians*.

The Queen of *Hungary* poſſeſſes the *Chriſtian Hungary*, that is to ſay, the moſt northern Part of that Kingdom, which extends towards the South as far as *Moche* on the *Danube*, beyond the Iſle of *Schut*, and as far as the City of *Banhalan*, between *Auſtria* and *Tranſilvania*; and the moſt Weſtern Part, which extends Eaſtward as far as the ſame Iſle *Schut*, and the Lake *Bálaton*, between the *Danube* and the *Save*.

She poſſeſſes beſides the moſt Weſtern Part of *Eſclavonia*, of *Croatia*, and of *Morlakia*; one is, as already obſerved, included between the Rivers *Drave* and *Save*. The other between the laſt River and the Gulph of *Venice*; and extends from the Frontiers of *Carniole* about 20 Leagues Eaſtward.

The *Turks* poſſeſs the moſt Eaſtern Part of it, which is almoſt three Times as big as the other; but I'll defer ſpeaking of it, as well as of the *Turkiſh Hungary*, till I come to deſcribe *Turky* in *Europe*.

Note, The *Catholick* Religion is yet preſerv'd in *Hungary*, among ſome noble antient Families, but moſt of the others are *Calviniſts*, and the common People are *Lutherans*; there are alſo found among them *Arians*, *Trinitarians*, ſome *Anabaptiſts*, and a great Number of *Jews*.

Here follows a more particular Deſcription of the *Chriſtian Hungary*.

HIGH HUNGARY, contains *Preſburg*, *Durn*, *Schinta*, *Holitz*, *Fretſtat*, *Lednich*, *Tranſchin*, *Arua*, *Inder Arua*, *Leutſch*, *Eperies*, *Scharos*, *Unghwar*, *Zemblin*, *Perigia*, *Ugogh*, *Namin*, *Samos*, *Zatmar*, *Delreczen*, *Naghkalo*, *Echud*, *Banhalan*, *S. George*, *Cheghe*, *Friedt*.

BERG-STET, contains *Konigſbog*, *Schemnis*, *Templis*, *Creus*, *Biſtriez*, *Altſtoll*, *Newſhol*, *Kremnis*.

Part of the *Government of* NEWSHOUSEL, contains *Filleck*, *Setſchin*, *Holock*, *Burack*, *Palanka*, *Tugel*, *Leiva*, *Bars*.

The *Government of* CASSOVY, contains *Caſſovy*, *Tornaw*, *Budnock*, *Borſania*, *Dyos*, *Onoth*, *Takay*, famous for its Wines.

LOW HUNGARY, contains *Komore*, *Altemburg*, *Newſidl*, *Edunburg*, *Schtaping*, *Gunez*, *Sabaria*, *Schazavar*.

The *Government of* JAVARIN, contains *Javarin*, *Geſtes*, *S. Martin*, *Zonanza*, *Meriges*, *Pappa*, *Eſchneck*, *Weſprim*, *Waſan*.

Part of the *Government of* CANISE, contains *Kirment*, *Mairoſt*, *Egerſeg*, *Georgewar*, *Zalewar*, *F. of Serin*.

The CHRISTIAN ESCLAVONIA, contains *Agram*, *Kopranitza*, *S. George*, *S. Pierre*, *Zum-Creutz*, *Waraſdin*, *Kraping*, *Grabonitza*, *Welika*, *Kolantz*, *Zagrab*.

The CHRISTIAN CROATIA, contains *Sigeg*, *Mokiſh*, *Petrina*, *Curlſtad*, *Kerſtina*.

MORLAKIA, contains *Zegna*, *Modruſch*, *Otozas*, *Fiume*, *Jablonitza*, *Sixa*, *Ougliu*.

Note, That the late Emperors have almoſt found Means to join *Tranſilvania* to their Dominions, a Province, which when govern'd by its own natural Sovereigns, has been ſometimes tributary to the *Turks*, and ſometimes under the Protection of the Emperors of *Germany*.

TRANSILVANIA, has almoſt the Figure of a Lozange, and may have about 68 Leagues in its greateſt Extent from Eaſt and Weſt, and 62 from South to North.

It confines Weſtward with *Hungary*; Northward with *Poland*; Eaſtward with *Moldavia*, and *Valachia*; and Southward with this laſt Province and *Hungary*.

The Climate is extremely temperate, and the Soil very fertile in Corn, delicious Wines, Fruit, and Pulſe; but the Water is very unwholeſome. Its Mountains, which are in great Number, have Mines of Gold, Silver, Lead, and Quick-Silver; full of wild Beaſts, and Game of all Sorts, ſo that it is a very good Country.

Its moſt conſiderable Rivers are, the *Mariſh*, and the *Chryſe*, which ſpring from it.

Note, That there are three Sorts of People found in this Province, who differ a little in Laws and Maxims, *viz.* the *Ciculi*, who are the moſt antient; the *Hungarians* and the *Saxons*, who poſſeſs more than three Quarters of the Country. All theſe People were formerly govern'd by one Chief, called *Vaivode*, or Prince of *Tranſilvania*.

The Capital is HERMANSTAT, or ZEBEN, the *Vaviode*'s Seat. That of *Waſferheli*, is the Place where the *Siculi* hold their Aſſemblies.

Note, That the *Tranſilvanians* are much divided in Matter of Religion; the *Siculi*, and *Hungarians*, are moſt of them *Calviniſts* or *Arians*; the *Saxons* are almoſt all *Lutherans*. There are alſo found among them, *Catholicks*, *Greeks*, *Arians*, and *Anabaptiſts*, &c.

A more particular Deſcription of *Tranſilvania*, is as follows:

TRANSILVANIA, contains *Hermanſtadt*, *Fogoras*, *Braſſaw*, *Bieſtriz*, *Segeſtwar*, *Waſſerheli*, *Megies*, *Coloſwar*, *Zekelheid*, *Albe-Julia*, *Zabeſen*, *Hemiad*.

POLAND.

This Kingdom which made once Part of the antient *Sarmatia*, is at preſent one of the moſt ſpacious of *Europe*.

Its greateſt Longitude is from the 38 Degree to the 58½; and its greateſt Latitude from the 47½ to the 58½, without including the Dutchy of *Courland*, which extends as far as towards the 59; ſo that it may have 270 Leagues in its greateſt Length from Eaſt to Weſt, from the Frontiers of the *Little Tartary*, to thoſe of *Brandebourg*; and near 200 from South to North, from the Mountains of *Tranſilvania*, to the Dutchy of *Courland*.

It confines Northward with the *Baltick* Sea, *Livonia*, and *Muſcovy*; Eaſtward with the ſame Eſtate, and the *Little Tartary*; Southward with *Moldavia*, *Tranſilvania*, and *Hungary*, from which it is ſeparated by the *Neiſter*, and the Mountains *Krapatz*; laſtly, Weſtward with *Germany*.

The Climate of the Country is as different as its Soil is unequal; for in the Weſtern Provinces, the Climate is cold, but pure. The Soil produces ſo great Abundance of Corn and Fruits, that they are tranſported into foreign Parts; particularly Northward, where are found Champagne Countries of a vaſt Extent; Southward the Soil is full of Mountains, enriched with Mines of Silver, Copper, Iron, Lead, Minerals, and Salt. In the Eaſtern Provinces, as in *Lithuania*, the Climate is alſo very cold, but unwholeſome. The Country is full of Foreſts, Marſhes, Lakes, and Rivers, whoſe Waters

are not wholsome to drink; the Wheat cannot be brought in it to Maturity. Lastly, it is so disagreeable, that those who will travel are forced to wait for the Winter, which lasts two Thirds of the Year, and during which there is Ice strong enough to bear Carts loaded.

The principal Rivers of this Kingdom, are, the *Vistula*, which passes at *Cracow*, *Sendomir*, *Warsaw*, *Uladislaw*, *Thorn*, *Culm*, and *Dantzick*, which is the most considerable City of *Royal Prussia*; very famous for its Commerce, and one of the four Capitals of the Hanse-Towns of *Germany*: The *Warte*, which after having passed at *Siradia*, and *Posna*, goes to disembogue into the *Oder*: The *Bog*, which passes at *Bressici*, and disembogues into the *Vistula*: The *Duna*, which passes at *Vitespuz*, and *Polotez*, and disembogues into the Gulph of *Riga*: The *Niemen*, or *Borysthenes*, which after it has passed at *Smolensko*, runs through one End of *Lithuania*; then having received the Waters of the *Pripeez*, in *Volhinia*, passes at *Kiow*, and having traversed all *Ukrania*, disembogues into the *Pont-Euxine*: Lastly, the *Niester* and the *Bog*, one whereof passes at *Kaminieck*, and continue both their Courses, from West to East, as far as the *Black Sea*.

This Kingdom is divided into eleven principal Parts, which are again subdivided into *Palatinates*. Westward are the *high* and *low Poland*, with *Prussia*: Northward, the Dutchy of *Lithuania*, with that of *Courland*, which was once under the Protection of *Poland*, and at present under that of *Russia*: Eastward the Dutchy of *Lithuania*, and *Volhinia*: Southward, *Podolia*, and *Black Russia*: Lastly, in the Middle, *Moravia*, *Polakia*, and *Polæsia*.

Note, That the *Polanders* have advantageously preserv'd the Right of Electing their King. They are brave Soldiers, particularly their Cavalry, is one of the best of the whole World, being mostly composed of the Nobility of the Kingdom: They love Magnificence and good Chear: They are entire in their Sentiments, and seek with Passion after Revenge, and Independency: The Nobility treats the Peasants like Slaves, particularly in *Lithuania*, and have commonly a Troop of Bravoes in their Retinue, whom they employ to maltreat those poor People.

Note also, That it may be said, that the Government of *Poland* is *Monarchical*, because they have a King; *Aristocratical*, because the King cannot determine any State Affairs, without the Consent of the Senators; and *Democratical*, because of the Power the Noblemen have in the Diets which the King causes to be convoked.

Note, again, that tho' the *Polanders*, in general, be very zealous *Catholicks*, there are found among them *Lutherans*, *Calvinists*, *Socinians*, *Jews*, and several other Sects, even Idolaters, in *Samogatia*.

PRUSSIA.

PRUSSIA, situated on the *Baltick*, is divided into *Royal* and *Ducal*; the first is South by West of the other, and are in Part embarrassed, towards the Middle, the one in the other. The *Royal Prussia* is in the Power of the King of *Poland*; *Dantzick*, I have already mentioned, being the most considerable among its Cities; and the *Ducal Prussia*, is of the Dependencies of the Elector of *Brandebourg*. Its Capital is *Konisberg*, or *Royalmont*, on the River *Pregel*, which disembogues in the *Hab*, which is a Lake joined to the Sea, 15 Leagues long, and 2 Leagues broad. A little higher is found another Lake of the same Name, with the Sirname of *Curon*; it is as long as the first, and twice as large.

The *Dutchy of* COURLAND, is Southward of the Gulph of *Riga*, and of the *Duna*, which parts it from *Livonia*. It has its particular Duke, who, when in *Courland*, resides at *Mittaw*, Capital of his Dominions, on the River *Bulderaw*.

A more particular Description of the Kingdom of *Poland*, is as follows:

High POLAND.

The *Palatinate of* CRACOW, contains *Cracow*, Bishop. *Zator*, D. *Ozwieczen*, D. *Vounitz*, *Czentochow*, *Sandeck*, *Byecz*.

The *Palatinate of* SENDOMIR, contains *Sendomir*, *Zavichost*, *Polaniecz*, *Sechow*, *Kzerszow*, *Vislicza*, *Malogoser*, *Radom*.

The *Palatinate of* LUBLIN, contains *Lublin*, *Kasimir*, *Vizendow*, *Parkow*, *Lakow*.

PRUSSIA.

Royal PRUSSIA.

The *Palatinate of* MARIEMBURG, contains *Mariemburg*, *Dirschaw*, *Mewa*.

The *Palatinate of* DANTZICK, contains *Dantzick*, and *Pautz*.

The *Palatinate of* ELBING, contains *Elbing*, *Frawemberg*, *Braunsberg*, *Heisperg*.

The *Palatinate of* CULM, contains *Culm*, *Thorn*, *Gaudentz*, *Golaw*.

The *Ducal* PRUSSIA, contains *Konigsberg*, *Pilaw*, *Velaw*, *Johansberg*, *Marienveder*, *Tilsa*, *Memel*.

Low POLAND.

The *Palatinate of* SIRADIA, contains *Siradia*, *Vielun*, *Krzepice*, *Piotzkow*.

The *Palatinate of* LANCICI, contains *Lancici*, *Uniezow*, *Bresini*, *Inouclocz*.

The *Palatinate of* KALISH, contains *Kalish*, *Gnesna*, Arch. *Kamin*, *Lauda*, *Nackel*, *Pisizi*.

The *Palatinate of* POSNA, contains *Posna*, Bishop. *Srzoda*, *Prinen*, *Mezeritz*, *Zandak*, *Ragozno*.

The *Palatinate of* RAVA, contains *Rava*, *Lowicz*, *Gostinin*, *Sosanzow*.

The *Palatinate of* WLADISLAW, contains *Wladislaw*, *Bidgostid*, *Biechow*.

The *Palatinate of* BRZESTYE, contains *Brzestye*, *Krwswick*, *Cowale*, *Wisinow*.

The *Palatinate of* PLOCZKO, contains *Ploczko*, *Plunske*, *Radzanow*, *Rasunt*, *Siepez*.

The *Palatinate of* DORBZIN, contains *Dorbzin*, *Slonko*, *Rippina*.

Dutchy of LITHUANIA.

The *Palatinate of* WILNA, contains *Wilna*, *Wilkomiers*, *Ossmiuna*, *Dusiaty*.

The *Palatinate of* TROKI, contains *Troki*, *Kowno*, *Grodno*, *Lida*, *Meruz*.

The *Palatinate of* NOVOGROD, contains *Novogrod*, *Wolkowiska*, *Lakowicz*, *Mir*, *Sloncin*.

The *Palatinate of* MINSKI, contains *Minski*, *Borissow*, *Zuisloez*.

The *Dutchy of* ZLUCZ, contains *Zlucz*, *Dorobi*, *Laban*, *Krodano*, *Petrilow*.

The *Principality of* MSCISLAW, contains *Mscislaw*, *Mohilow*, *Bickow*, *Orssa*, *Rohaczow*, *Breczica*, *Mazy*, *Bobroisko*.

The *Palatinate of* WITEPSK, contains *Witepsk*, *Suraſs*, *Kzusnislaw*, *Woronocz*, *Sussa*, *Ulna*.

The *Palatinate of* POLOCZK, contains *Poloczk*, *Usacza*, *Drusna*, *Drissa*, *Drina*, *Koscan*.

The *Palatinate of* BRESLAW, contains *Breslaw*, *Madzial*, *Narocz*.

WOLHINIA.

HIGH.

The *Palatinate of* LUZUCK, contains *Luzuck*, *Waldzimierz*, *Beresticko*, *Kzemieniec*, *Constantinow*, *Zaslow*, D. *Ostrog*. D. *Alexandria*, *Baranowka*, *Zitomierz*, *Berdikzow*.

LOW.

The *Palatinate of* KIOW, containing *Kiow*, *Bialogrodko*, *Rodomisel*, *Czernobel*, *Lotouwogrod*, *Obalow*, *Pereslaw*, *Kaniow*, *Bialacerkiow*, *Kzirkassi*, *Dassain*.

PODOLIA.

HIGH.

The *Palatinate of* KAMINIECK, containing *Kaminieck*, Bishop. *Zwanieck*, *Oucze*, *Tarnapole*, *Zbazas*, D. *Usiatin*, *Bar*, *Cheniebruick*, *Ladow*, *Kalus*.

LOW.

The *Palatinate of* BRAKLAW, containing *Braklaw*, *Brailow*, *Winnicza*, *Kalnick*, *Humone*, *Targowice*, *Chryckiesni*, *Koniecpol*, *Orihow*, *Rakow*.

Black RUSSIA.

The *Palatinate of* LWOW, contains *Lwow*, Arch. *Busck*, *Olesko*, *Zborow*, D. *Halicz*, *Snyatin*, *Colomei*, *Zedaczow*,

datzow, *Premiſka*, *Przoworſk*, *Jareſlaw*, *Sanock*, *Labazow*, *Zamoſki*, *Grobowice*.

The *Palatinate of* BELZ, contains *Belz*, *Sokal*, *Moſty*, *Magierow*, *Tiſkoweze*, *Oborkow*, *Herodlow*.

The *Palatinate of* CHELM, contains *Chelm*, *Winnice*, *Ratno*, *Lubanke*, *Turiſck*, *Dubna*, *Kraſnoſtaw*.

MAZOVIA.

The *Palatinate of* CZERSK, contains *Czerſk*, *Warſaw*, *Lew*, *Leirno*, *Serotzeck*, *Zakerotzin*, *Wiſcherod*, *Ciechanow*, *Wiſna*, *Lumſa*, *Nur*, *Slubow*, *Noroduor*, *Kaminieck*.

The SAMOGITIA, contains *Roſienie*, *Medniki*, *Kieydanii*, *Ponieviess*, *Vielona*, *Villeja*, *Eragola*, *Pattagen*, *Kroze*, *Birza*, D. *Sarlatt*, *Schwnden*, *Swicta*.

COURLAND, contains *Mittaw*, *Doblin*, *Golding*, *Libe*, *Wnidaw*, *Grubin*, *Argermund*, *Ezwalen*, *Dalen*, *Selburg*, *Bauſke*, *Radziviliſki*.

The POLAKIA, contains the *Palatinate* of *Bielſk*; and,

The *Palatinate of* BIELSK, contains *Bielſk*, *Branſk*, *Saras*, *Tikoczin*, *Kaiſſin*, *Waſſilow*, *Auguſtow*, *Milnick*, *Droghiſzin*, *Loſicze*, *Grodeck*.

The POLESIA, contains the *Palatinate* of *Breſſici*; and,

The *Palatinate of* BRESSICI, contains *Breſſici*, *Kaminieck*, *Koden*, *Pinſk*, *Motol*, *Pohoſt*, *Zunia*, *Davidow*, *Horodak*, *Tarow*, *Kobua*, *Dubrowica*.

MUSCOVY.

Note, That though I have placed this Empire but the Sixth in Order in my general Diviſion of *Europe*, I will place it here, not to loſe the Idea we have of its Confines with *Poland*; and this is, in my Opinion, more *à propos*, than if I was going to ſeek previouſly to it, the Iſles of *Great-Britain*, which being ſeparated from all the other Parts of it, are alſo to be placed apart.

MUSCOVY, or *White* RUSSIA, is a Part of the antient *Sarmatia*; and the moſt Eaſtern, as well as moſt extended of all *Europe*: It has borrow'd its Name from its Capital City, rather than from the River *Moſka*, which runs through it.

Its greateſt Latitude is from the 50th Degree to the 70th; and its Longitude extends from the 51ſt to the 93d, which is the Extremity of *Europe*: But if we will include in it that Part of *Tartary* in *Aſia*, which is in the Power of the Empreſs of *Ruſſia*, it will extend as far as the 115 Degree, between the 49½, and the 72d of Longitude.

The Climate is extremely cold, particularly Northward, where the Snow and Ice are ſeen during three Quarters of the Year; notwithſtanding which the Summer's Heats are ſometimes exceſſive for ſix Weeks.

It confines Northward with the Icy Sea; Eaſtward with *Great Tartary*; Southward with the *Don* or *Tanais*, and *Little Tartary*; Weſt with the Kingdoms of *Poland*, *Sweden* and *Norway*.

The Plains are marſhy, and much croſſed, Northward with Lakes, and vaſt Foreſts. The ſmall Quantity of Corn ſowed in them never comes to Maturity: The Soil is much leſs ſterile towards *Poland*, where it produces a great Quantity of Flax and Corn, but no Wine. It abounds with Honey, even in the Foreſts; with wild Beaſts and Game; the Lakes and Rivers with Fiſh; but its moſt rare Commodities are the fine and rich Furs, in which conſiſts the greateſt Riches of its Inhabitants.

This Country is ill peopled, becauſe full of uninhabitable Marſhes, of vaſt Foreſts and Deſarts; Rivers of a prodigious long Courſe, as the *Wolga*, which ſprings from it in the Country of *Twer*, and after it has croſſed it from Weſt to Eaſt, as far as the Kingdom of *Cazan*, turns towards the South; where after it has run through the Kingdoms of *Bulgar* and of *Aſtracan*, divides itſelf into ſeveral Arms, the moſt Weſtern, which waters the capital City of this laſt Kingdom, forming ſeveral Iſles before it diſembogues into the *Caſpian* Sea, where it has ſeveral Mouths. The *Don*, or *Tanais*, which flows from the great Lake *Ivanow Oſero* in the Foreſt of *Epiphanow*, near *Rezan*, and continues its ſinuous Courſe from Eaſt to Weſt, then bends again towards its Source, and runs always ſerpentwiſe, to diſembogue into the *Palus Mæotides*, or Sea of *Zeebache*. The *Dwina* takes its Source pretty near the Lake *Biel Oſoro*, and after it has paſſed through the moſt trading Cities of *Muſcovy*, it diſembogues through ſeveral Mouths into the *White Sea*, or *Gulph St. Nicolas*. The *Oby* in *Aſia*, which traverſes the deſerted *Tartary*, from South to North by Weſt, and diſembogues into the *Icy Sea*. The *Jenei*, which traverſes the *Lapponia* in the ſame *Tartary*, and runs of a Courſe moſt parallel to the *Obey*. Beſides theſe great Rivers, there are ſome others leſs, though the Courſe of the leſſer of them all, has more than an hundred Leagues, as *Petzora*, which paſſes in the Monts *Riphæan*, or *Stolp*, and diſembogues into the *Icy Sea*. The *Waima*, which paſſes in the ſame Monts, and running from North to South, comes to mix its Waters with thoſe of the *Dwina*, below *Ouſtioug*. *Kama*, which after it has received the *Wiatka*, in the Kingdom of *Cazan*, diſembogues into the *Wolga*, between *Cazan* and *Bulgar*. The *Little Don*, or *Donieck*, which glides between the two different Courſes of the *Tanais*. The *Occa* which ſprings from the Frontiers of *Little Tartary*, very near the Source of the *Donieck*, and running from South to North diſembogues into the *Wolga* at *Niſi-Novogrod*. The *Onega*, which forms the Lake of *Kargapol*, gives its Name to a Province which it traverſes, and diſembogues into the *White Sea*.

Its moſt renowned Lakes are Weſtward. The *Ladoga* and *Onega*, which confines with *Finland*, are the moſt renowned of *Europe*. The firſt may have 55 Leagues in Length, 25 in Breadth, and 140 in Circuit. The other is 50 Leagues long, 18 broad, and 120 in Circuit. The Lake *Bieloſero*, which gives its Name to a Province, may have 20 Leagues in Length, 10 in Breadth, and 50 of Circuit. The Lake *Ilment*, near the great *Novogrod*, is leſs than the laſt by near a Quarter.

It would be very difficult to divide diſtinctly *Muſcovy* in *Europe*, without the Aſſiſtance of its Rivers; therefore I have took Notice of a great Number of them.

The *Province of* Moscow, which is the Capital of the Empire, is between the *Occa* and the *Wolga*. In the Neighbourhood, and following the Courſe of that great River, are found the Provinces of *Rſchow*, *Twer*, *Roſtow*, *Joraſlow*, *Suſdal*, and *Niſi-Novogrod*. Southward of the ſame River, the *Czeremiſſi-Nagornoi*, the *Mardouati*, and the People who inhabit the Frontiers of the *Little Tartary*; and who have moſt of their Cities in the Neighbourhood of the *Don*. Following the Courſe, and in the Neighbourhood of the *Occa*, the Provinces of *Worotin*, *Rezan*, and of *Wolodimir*. Joining *Lithuania*, thoſe of *Sewiera*, of *Smolenſko*, and of *Bielſki*, in the Neighbourhood of the Source of the *Duna*. Between the firſt Courſe of the *Wolga*, from South to North, and the Territories of *Sweden*, *Novogrodweliki*, and *Pleſkow*. Northward of the ſame River, going from Weſt to Eaſt, are found the Provinces of *Bickolero*, *Vologda*, *Ouſtioug*, the *Czeremiſſi-Lagowoi*, *Wiatka*, and *Permſki*, which is ſtill more advanced to the North. On the *Northern Ocean*, or Sea of *Muſcovy*, are found, in going from Eaſt to Weſt, the Provinces of *Petzora*, *Juhora*, *Condora*, and *Dwina*, of *Kargapol* on the *White Sea*, with the *Muſcovite Lappony*.

The Capital City of the whole Empire is *Moſcow*, in the Province of the ſame Name, and on the River *Moſka*, from which the whole Country borrows its Name; and where the Emperors uſed to keep their Court, till *Peter the Great* transferr'd it to *Peterſbourg*, the great *Novogrod*, *Suſtal*, and *Roſtow*, are Archiepiſcopal Cities, and Capital of their Provinces.

The Countries which the *Muſcovites* have appropriated to themſelves, or rendered Tributaries in *Tartary*, may be conſider'd in two principal Parts, one whereof is Southward, in the Neighbourhood of the *Wolga*; and the other Northward in the Neighbourhood of the *Oby*. In the firſt, following the Courſe of the firſt of thoſe two Rivers, are found, Weſtward, the Kingdoms of *Cazan*, *Burgard*, and *Aſtracan*, with the People call'd *Vachines*; Eaſtward the *Hordes* of *Zavolha*, and *Nogaye*, to whom ſome join the *Coſſacks* and *Seibantks*. In the other are found, at the Left of the *Oby*, the *Horde* of *Pega*, the

Provinces

Provinces of *Siberia* and *Obdora* at the Right, the *Lucomoria*, *Loppia*, the *Samoyedi* and the *Tingensi*. All the Inhabitants of these Provinces have several different Names, but they are so little known, that I prefer passing them by under Silence, than to mention them impertinently, as several Authors have done.

Note, That the *Muscovites* were very unpolite and wild, and ignorant, before the Reign of *Peter the Great*. They love Wine to excess, are mistrustful, treacherous, cruel, and addicted to all Sorts of Vices, and Brutalities even the most criminal. Falshood and Deceit in Trade, passes among them for Wit and Dexterity.

Note also, That this vast Country is governed by a Prince, who till *Peter* I. used to take the Title of *Czar* or *Knes of Muscovy*. The Monarchy is hereditary, and if the Emperor die without Issue, his nearest Relation is placed on the Throne. His Government is despotick, because he has an entire Power of Life and Death over his Subjects, who take it for an Honour to stile themselves his Slaves. Even the greatest Lords subscribe their Letters and Requests with a diminutive Name, as *Jeannot*, *Pierrot*, &c. to mark their Submission. He is the most absolute Monarch in *Europe*, after the *great Turk*.

Note again, That the true *Muscovites* profess the Religion of the *Greeks*, but disguised with a vast Number of Pagan Superstitions. They do not acknowledge the Patriarch of *Constantinople*, but have a Metropolitan at *Moscow*. They hate extreamly the *Catholicks*, and the *Jews*, and suffer *Lutherans* and *Calvinists*; towards *Tartary*, they are most of them Idolaters, or *Mahometans*.

A more particular Description of *Muscovy*, is as follows:

The *Province of* Moscow, contains *Moscow*, *Caluma*, *Mosaiski*, *Pecski*.

The *Province of* Rschow, contains *Rschow*, *Wolosczk*.

The *Province of* Twer, contains *Twer*, *Tersach*, *Mitrow*.

The *Province of* Rostow, contains *Rostow*, Arch. *Perestaw*, *Uglitz*.

The *Province of* Jaroslow, contains *Jaroslow*, *Roma Nova*, *Ribiena*.

The *Province of* Susdal, contains *Susdal*, Arch. *Castromow*, *Jorgowitz*.

The *Province of* Novogrod, contains *Novogrod*, *Vasiligrod*, *Baligna*.

The *Province of* Worotin, contains *Worotin*, *Arool*, *Croom*.

The *Province of* Rezan, contains *Rezan*, *Preslaw*, *Tula*, *Donkagorod*.

The Wolodimeria, contains *Wolodimir*, *Murom*, *Cassimogorod*.

The Sewiera, contains *Novogroduck*, *Branskow*, *Czernishaw*.

The *Province of* Smolensko, contains *Smolensko*, *Drogobusc*, *Niewielz*.

The *Province of* Bielski, contains *Bielha*.

The *Province of* Novogrod-wel, contains *Novogrod-Weliki*, *Stara-Russa*, *Ladoga*, *Soltza*.

The *Province of* Pleskow, contains *Pleskow*, *Ostrow*, *Opolsko*.

The *Province of* Bielosero, contains *Grodseko*, *Glebowa*.

The *Province of* Wologda, contains *Wologda*, *Soosia*, *Strelitz*.

The *Province of* Oustrioug, contains *Oustrioug*, *Kollas*, *Dobrina*, *Cotzenga*.

The *Province of* Wiatka, contains *Wiatka*, *Orloff*, *Chlinoff*, *Slaboda*.

The *Province of* Permski, contains *Permaweliki*, *Soihumza*, *Ousgi*.

The *Province of* Petzora, contains *Petzora*, *Papinongorod*.

The *Province of* Juhorski, contains *Juhora*, *Kolgoy*, Isle.

The *Province of* Condora, contains *Wergaturia*, *Rocounitza*, *Seregowa*, *Ouscoma*.

The *Province of* Dwina, contains *St. Michel-Archangel*, *St. Nicolas*, *Lampas*, *Korela*, *Diwna*.

The *Province of* Kargapol, contains *Kargapol*.

The Lapponia, contains *Mouremaskoi*, *Kola*, *Sumekele*.

The *Province of* Terskoi, contains *Jokena*, *Polinosero*.

The *Province of* Bellamorskoi, contains *Kandalax*, *Ombay*, *Kemi*, *Soma*.

The *Kingdom of* Nagaiski, contains *Karmanian*, *Kagalink*, *Michacoff*.

The *Province of* Vachines, contains *Camenifort*, *Perwologfort*.

The *Kingdom of* Astracan, contains *Astracan*, *Ichkebre*, *Zaniza*, *Saratoff*, *Polooyfort*.

The *Kingdom of* Cazan, contains *Cazan*, *Sara*, *Allatur*, *Belater*, *Malmisch*, *Kackschaga*.

The *Kingdom of* Bulgal, contains *Bulgal*, *Simber-Kogora*.

The Zavolha-hord, contains *Weliki Perm*, *Pascati*.

Siberia, contains *Tobolk*, *Tumen*, *Japhanim*, *Poyassa*, *Bereserva*, *Narmskoya*, *Polliu*.

The *Province of* Obdora, contains *Pohem*, *Pidaritza*, *Olscoigoud*.

The *Province of* Lucanaria, contains *Cangoscoia*, *Solseo-gorod*.

The *Province of* Loppia, contains *Besowia*, *Toana*, *Tasofcoigorod*, *Zergolta*.

Note, That the different Sort of People who inhabit *Russia*, are called *Samoyedes*, *Tingoeses*, *Scribanski*, *Giustiki*, *Calami*, *Huguitski*, *Vogulici*, &c.

Scandinavia.

Note, That though *Scandinavia* be but that great Peninsula, which extends itself between the Ocean and the *Baltick*, and whose Isthmus is between the Sea of *Muscovy*, and the Bottom of the Gulph of *Bothnia*; to render the Division more natural, and more easy, I'll bring under that Name all the Dominions of *Sweden* and *Denmark*, i. e. the Provinces Frontier of *Muscovy*, the Peninsula of *Jutland*, and the Isles depending thereof.

That Part of *Europe* extends from the 53½ Degree of Latitude to the 72; and from the 26 of Longitude, to the 63. Its Situation, being Part in the temperate Zone, and Part in the frigid, lets us know that Cold must be excessive there, and last long; that the Quantity of Lakes, Forests, and Mountains it is cover'd with, is the Cause why the Soil produces but very little Corn, which never comes to a perfect Maturity, particularly in the frigid Zone. Its greatest Fertility is in Wood, and Mines of Copper.

Scandinavia, was once under the Domination of a sole Sovereign; at present it is divided into three Kingdoms, *viz. Sweden*, *Norway*, and *Denmark*. The Sea parts the last from the two others, which are also divided from one another by a long Ridge of Mountains, which run from South to North.

The King of *Sweden* possesses the Middle of the Country, the most eastern Parts round the *Baltick*, and the Gulphs of *Bothnia* and *Finland*.

The King of *Denmark* is Master of the most western and northern Parts, *viz.* of the Kingdoms of *Denmark* and *Norway*.

The Dominions *of the* King of Sweden.

This Kingdom was the last Retreat of the antient *Goths*, who render'd themselves Masters of *Italy*, *Spain*, and Part of *France*, and were formidable to all the rest of *Europe*, in the Time of the Decline of the *Roman* Empire.

It extends from the 56 Degree of Latitude, to the 69; and from the 33 of Longitude, to as far as beyond the Lake *Onega*, under the 63; so that it may have 280 Leagues in its greatest Length, and 200 in its greatest Breadth.

It confines Northward with the *Danish* and *Muscovite Lapponia*; Southward with *Muscovy*, again, by the *Bologne*, and the *Baltick*; and Westward with the Sea, which

which parts it from *Denmark*, and a long Ridge of Mountains which divide it from *Norway*.

The Climate of this Country is extreamly cold, but very pure; and so wholesome, that the Inhabitants who do not shorten their Days by Debauchery, which is very common in *Sweden*, live commonly 120 and 130 Years.

Though Ice is seen there from *October* to *April*, the Soil produces notwithstanding, in some Places which are not marshy, a pretty good Quantity of Corn and Fruit. Near the Marshes, the Air is heavy and unwholsome; the Soil produces but little Corn, but it abounds in Pasture and Wood. The Forests are full of wild Beasts, particularly Harts, Fallow Deer, Hermines, and several other Animals. Among the great Number of Mountains, several are enriched with Mines of Iron and Copper, and some of Tin and Silver. Sea-Calves, Salmons, and Herrings are fish'd on its Coasts, and exported to all Parts of *Europe*.

There is found in *Sweden* an almost innumerable Number of Lakes, but most of them are not navigable; the most remarkable are *Ladoga*, and *Onega*, on the Confines of *Finland*; *Ula* and *Pegend* in the same Dutchy; *Wener* and *Weter*, in *Gothia*; and *Meler* in *Sweden*.

The Kingdom of *Sweden* is divided into six principal Parts, *viz. Gothy*, *Sweden*, *Lapponia*, *Finland*, *Livonia*, and *Ingria*. The three first are Westward of the *Baltick*, and of the Gulph of *Bothnia*; and the others are Eastward of the same Place.

STOCKHOLM, situated between the *Baltick* and the Lake *Meler*, is the Capital of the Kingdom, where the King keeps his Court. Its Situation is very irregular, though its Port is esteemed the best, and most secure of *Europe*.

Note, That the *Swedes* are the best civilized People of the North; the Nobility imitate as much as they can, the *French* Manners. They are of a strong Constitution, excellent Soldiers, very hospitable, and simple in their Manners, but of an excellent and quick Understanding for all Arts and Sciences.

Note also, That the *Swedish* Government, tho' monarchical, participates a little of the aristocratick, since the Senate has a great Share in it. This Kingdom which was once elective, was rendered hereditary in the Person of *Gustavus* I. who introduced *Lutheranism* in his Dominions, where it has gain'd so much Ground ever since, that the Catholick Religion is not only entirely destroy'd in *Sweden*, but even so much abhorred, that *Sigismond* King of *Poland* lost the Crown of that Kingdom, because he had been instructed in it, and had shewed some Aversion for the new Doctrine which had spread over *Germany*.

GOTHY, *or* GOTLAND.

This Province which the Natives call *Gotland*, i. e. the Country of the *Goths*, is the most meridional of the Kingdom of *Sweden*; Westward it is divided by the Lake *Weter*, and the River *Lega*, into *Ostrogotland* and *Westrogotland*, i. e. Eastern and Western *Gothy*. The first includes four small Territories, *viz. Ostrogotland*, *Smaland*, *Bleking*, and *Schonen*, or *Scany*, which are found in this Order, descending from North, to South by West. The other includes also four others, *viz. Westrogotland*, *Halland*, *Dalia*, and *Wermeland*. The two first are between the Sea, and the Lakes *Weter* and *Wener*; the two others are, one Westward, the other Northward of the last of these Lakes.

SWEDEN.

The Province properly called *Sweden*, is Northward of *Gothy*, and Southward of *Lappony*, between *Norway* and the Gulph of *Bothnia*. It is divided into ten other small Provinces, situated according to the Order of my particular Description of these Dominions, ascending from the South towards the North. First, there are found four of them between *Gothy* and the River *Dalecarle*, viz. *Upland*, *Sudermania*, *Westmania*, and *Neticy*; the two first are on the *Baltick*, one Northward, the other South by West of the Lake *Meler*; the two others are Westward of those Places. The *Gestricia*, with the *Dalecarlia*, *Helsingia*, *Medalpadia*, and *Angermania*, take up the whole Length of the Country. The *Bothnia*, has but near 15 or 20 Leagues in Breadth, round its Gulph, from the River *Uma*, to beyond that of *Ula* in the *Cajany*, being confin'd by the *Lappony* Westward and Northward. Therefore the Part which is Westward of the Gulph is called *Western Bothnia*, and that Eastward, *Eastern Bothnia*.

SWEDISH LAPPONY.

This Province is the most northern of the Kingdom of *Sweden*; it is divided into five Marks, or Countries, which borrow their Names, from five Rivers along which there are certain Cantons where the Inhabitants build their Houses with Pieces of Wood and Skins of Beasts. They transport those Houses where they think fit, and have very few inclosed Cities. Those Places inhabited by the *Lappons*, resemble well enough a Camp.

The most remarkable Rivers of *Lapponia*, are *Uma*, *Pitha*, *Lula*, *Thorn*, and *Kimi*; and of their Names have been composed those of the Cantons of the *Lappons*, viz. *Umalapmark*, *Pithalapmark*, &c.

Note, That the *Lappons* are very low of Stature, but courageous and strong. Care is taken while yet in their Infancy, to inure them to cold, which is excessive in their Country, by making them go quite naked. They use the Skins of Animals for their common Cloaths.

FINLAND.

This Dutchy which has been lately the Theatre of a War, in the *newest Mode of Fighting*, was once the Appennage of the Kings of *Sweden*'s Brothers. It is situated between the Gulph of *Bothnia*, and *Muscovy*, confining Northward with *Lapponia*, and Southward with the Gulph of *Finland*. There are included in the Dutchy of *Finland*, six Provinces, which are united to it, and keep the following Order. First *Cajeny* and *Finland*, on the Gulph of *Bothnia*; *Niland* and *Carelia*, on that of *Finland*; *Kexholm*, towards the Lakes *Ladoga* and *Onega*; *Savolax* and *Tavasthus* in the Middle.

INGRIA.

This Province is inclosed between the Territories of *Muscovy*, the Lake of *Onega*, and the Gulph of *Finland*. The River *Nerva* which passes thro' it, is like a large Canal, which joins that Lake and the Gulph together. It made once Part of *Muscovy*, from which it was separated in 1617. by a Treaty of Peace between the two Crowns. It is not of a great Extent, but it is considerable for the Abundance of Game found in it.

LIVONIA.

This Province has been several Times disputed between the Kings of *Sweden*, *Poland*, and *Muscovy*, who have been Masters of it one after another. *Poland* relinquished it to *Sweden* by the Peace of 1669, and it is become since hereditary to that Crown.

It is situated, Southward of the Gulph of *Finland*, and confines Northward with the Canal of *Nerva*, the Lake *Pibas*, and *Muscovy*; Southward with the *Duna*, which parts it from the Dutchy of *Courland*; and Westward with the *Baltick*. It is divided into two Parts, called *Estonia*, and *Lettonia*, one Northward, the other Southward.

Separated PROVINCES.

The King of *Sweden* possessed once, besides, some Provinces on the *Germanick* Ocean, and on the *Baltick*. On the first, the Emperor relinquished to him by the Peace of *Munster*, the Dutchies of *Bremen* and *Verden*, which were afterwards invaded by the King of *Denmark*, and mortgaged by him to *George* I. King of *Great-Britain*, while yet but Elector of *Hanover*, for the Sum of 19000 Ducats; and which are yet in Possession of his Son and Successor *George* II. the present King of *Great-Britain*, and Elector of *Hanover*. On the last, the Lordship, City, and Port of *Wismar* in *Mecklenbourg*: The high *Pomerania*, with Part of the lower: The Isle and Princi-

Principality of *Rugen*, the Isles and Mouths of the *Oder*. His *Swedish* Majesty kept besides the Isle of *Oedland*, towards the Coasts of *Smaland*; the Isle of *Gotland*, more advanced into the Sea; the Isles *Oesel* and *Dage*, near the Coasts of *Livonia*; and the Isle *Aland*, with several others at the Mouth, and in the Gulphs of *Bothnia* and *Finland*. But after the unhappy Catastrophe of *Charles* XII. at *Pultowa*, and during his Flight in *Turky*, the Enemies of *Sweden* dismembered most of those Provinces from it.

Here follows a more particular Description and Division of *Scandinavia*.

SWEDEN.

The *Province of* UPLAND, contains *Stockholm*, *Upsal*, Arch. *Sigtun*, *Enkœping*, *Oregrund*.

SUDERMANIA, contains *Nikœping*, *Strengenes*, Bish. *Torsilia*, *Telge*, *Trosa*.

WESTMANIA, contains *Westeras*, Bishop. *Kœping*, *Arboga*, *Bisberg*, *Bolskit*.

NERICIA, contains *Œrebro*, *Corelskog*, *Linnesberg*.

GASTRICIA, contains *Gevalia*, *Coperberg*, *Folker*, *Scogskirk*, *Hamorang*.

DALECARLIA, contains *Idra*, *Lima*, *Ventan*, *Serna*, *Funesdalh*.

HELSINGIA, contains *Hudwiskwald*, *Dilsbo*, *Sueegh*, *Heeda*.

MEDALPADY, contains *Indal*, *Fors*, *Ovikin*, *Ressund*.

ANGERMANIA, contains *Nortmaling*, *Hermœsand*, *Arnes*, *Nora*, *Torsaker*.

BOTHNIA, contains *Torn*, *Kimi*, *Lula*, *Pitha*, *Uma*.

GOTHY.

OSTROGOTHY, contains *Nortkœping*, *Sunderkœping*, *Lindkœping*, Bishop. *Schening*, *Wadsteing*, *Askesund*, *Norbia*.

SMALAND, contains *Calmar*, *Vexive*, Bishop. *Jænekeping*, *Westerwiik*, *Ekesioe*, *Alem*.

BLEKING, contains *Cristianstad*, *Rotembia*, *Cristianopel*, *Trelborg*, *Elebelne*, *Usted*.

SCONEN, contains *Landen*, Bishop. *Malmoe*, *Helsinborg*, *Landskron*, *Engelholm*.

WESTROGOTHY, contains *Gotteborg*, Bishop. *Falekœping*, *Lidekœping*, *Hio*, *Bretta*, *Scara*, *Mariestad*, *Bogesund*.

HALLAND, contains *Helmstad*, *Falkemborg*, *Waerborg*, *Laholm*, *Limberga*.

DALY, contains *Daleborg*, *Tweta*, *Killen*, *Holm*, *Millesiwick*.

WERMELAND, contains *Carolstad*, *Kyla*, *Rada*, *Kollen*, *Lisiwick*.

LAPPONIA.

UMALAPMARK, contains *Loisbi*, *Semisierfi*.

PITHALAPMARK, contains *Anierfui*, *Lochari*.

LULALAPMARK, contains *Torpajaar*, *Iokomaka*.

TORNLAPMARK, contains *Tingwara*, *Swoncavara*, *Segwara*, *Kitilabi*.

KIMILAPMARK, contains *Kolajerfui*, *Sodenkile*, *Kierfui*.

FINLAND.

The *Province of* CAJANY, contains *Coyoneborg*, *Jo*, *Ula*, *Limingo*, *Wassa*.

FINLAND, contains *Burnborg*, *Abo*, *Raumo*, *Nystad*, *Raseborg*, *Wesilax*.

NILAND, contains *Helsingfors*, *Borga*, *Perno*, *Elima*.

CARELIA, contains *Wybourg*, *Mala*, *Wehelax*.

SAVOLAX, contains *Nisiot*, *Pexama*, *Roxclax*, *Rumala*.

TAVASTHUS, contains *Tavasthus*, *Jamse*, *Pizkala*.

KEXHOLM, contains *Kexholm*, *Lexa*, *Taipal*, *Porensa*.

LIVONIA.

ESTONIA, contains *Nerva*, *Revel*, *Hapsel*, *Pernaw*, *Derpt*.

LETTONIA, contains *Riga*, *Duenemund*, *Mariemburg*, *Cruetsbourg*.

INGRIA, contains *Nutborg*, *Juanogorod*, *Caporia*, *Jamagorod*.

POMERANIA, contains *Stralsund*, *Bardt*, *Wolgast*, *Anklam*, *Stetin*, *Gertz*, *Dam*.

The *Dutchy of* BREMEN, contains *Bremen*, *Staden*, *Carlstad*, *Boxtehude*. —— VERDEN, Dutch. *Wildhusen*.

The *Lordship of* WISMAR, contains *Wisinar*, only.

ISLES.

RUGEN, contains *Berghen*, *Newschans*.

OELAND, contains *Borkholm*, *Ottembi*.

GOTLAND, contains *Wisby*, *Norwick*.

OESEL, contains *Arnsberg*, *Sonneberg*.

DAGO, contains *Dageroot*.

ALAND, contains *Castelholm*, *Usedom*, Isle. *Grollin*, Isle.

DENMARK.

This Kingdom was once the Country of the antient *Cimbres*, or *Cimbri*, whose Name has been rendered famous in *Europe* by their Conquests, and who gave the Name to the *Cimmerian Bosphorus*, between *Europe* and *Asia*, and to the *Cimbrick Chersonesus*.

It has receiv'd its last Name from the first of his Kings, called *Dan*, of which has been composed the Name of *Denmark*, i. e. *Country of Dan*.

It extends from about 54 Deg. 50 Min. of Latitude, to the 58. 20 Min. and from the 29. 15 Min. of Longitude, to the 34. 45 Min. Therefore it may have about 90 Leagues in its greatest Extent from South to North, and 50 from East to West; from *Copenhagen* to the western Coast of the Diocese of *Rippen*.

It confines Northward and Eastward with the Sea, which parts it from *Norway* and *Sweden*, and with the *Baltick*; Southward with *Germany*; and Westward with the Ocean.

The Climate of the Country is extreamly cold, notwithstanding which it is very fertile in Corn and Pastures. It feeds a great Number of Horses and Oxen, which are exported into *Germany*. A great Quantity of Fish is fish'd on its Coasts, particularly Herrings; and it abounds with Game of all Sorts.

It has no very considerable Rivers, but only a Lake in the North of *Jutland*, which is pretty spacious.

This Kingdom may be divided into two principal Parts, which are the Peninsula of *Jutland*, and the Isles Northward of it.

JUTLAND, is a Peninsula, called antiently, *Cimbrick Chersonesus*; it is divided into *South-jutland*, and *North-jutland*, one Southward, the other Northward, as express'd by their Names.

SOUTH-JUTLAND, includes the Dutchies of *Holstein*, and of *Sleswick*. The first contains four small Provinces, *viz.* *Holstein*, *Ditmarsen*, *Stormaren*, and *Wagheren*.

NORTH-JUTLAND, is subdivided into four Dioceses, *viz.* *Rypen*, *Arhusen*, *Wybourg*, and *Albourg*. The first is Southward, the second and third in the Middle, and the fourth Northward.

Among the Isles of *Denmark*, there are nine of a pretty considerable Extent, since the least of them has more than 60 Leagues in Circuit. Those Isles are, *Zeland*, *Fuinen*, *Langeland*, *Laland*, *Falster*, *Mone*, *Alsen*, *Femeren*, and *Bornholm*.

ZELAND, has near 60 Leagues of Circuit, 18 in Length, and 15 in Breadth. *Fuinen* may have 45 Leagues of Circuit, 15 long, and 13 broad. The others are a great deal less. Besides these, *Denmark* has those of *Lesso*, Eastward of the Diocese of *Alborg*; *Anhout*, between that of *Wybourg*, and the Country of *Halland*; *Hesclo*, Northward of *Zeland*; *Samse*, Northward of *Fuinem*; *Azzoë*, Southward of it, and the Isle of *Wen*, in the Streight of the *Sund*, where is seen the Castle of *Uranibourg*, famous for the Observations of *Tycho Brahe*.

Between the Isles of *Zeland*, and the Province of *Schonen* in *Sweden*, is found the famous Streight of the *Sound*: Between the same Island, and that of *Fuinen*, is that they call *Belt*; and between this last Isle, and *Jutland*, is found that of *Middelfat*, or *Little Belt*; this Word *Belt*, signifies *Streight*, in the antient *Danish* Language.

Note, That there are several Cities in *Denmark*, as well as in *Sweden*, which terminate in *Keping*, which signifies a Market Place.

The Capital of *Denmark*, is *Copenhagen*, in the Isle of

of *Zeland*, on the Coast which looks towards *Sweden*; Its Name signifies *Harbour of Merchants*. It is famous for the Coronation of its Kings, for their Residence there, and its great Commerce.

Note, That the *Danes* differ very little in Manners from the *Swedes* and *Germans*, except that they are more proud and more cunning. They are industrious and parsimonious, and love the Arts and Sciences, but love Wine far better.

Note also, That the Kingdom of *Denmark* was elective, till the *Danes* render'd it hereditary in the House of *Frederick* III. The Nobility has a great Share in the Government, which notwithstanding is entirely monarchical; the *Danes* in general are very loyal Subjects, and very affectionate to their King.

Note, again, That the Catholick Religion had been followed in *Denmark*, during more than 500 Years, till *Frederick* I. Duke of *Holstein*, having been elected King in 1525, after the Degradation of *Christian* II. his Nephew, introduced *Lutheranism* in his Dominions, to gain thereby the Protection of the Princes of *Germany*, who follow'd the new Doctrine; and ever since the Kings of *Denmark* would suffer no other Religion to be publickly professed in their Dominions; though the Clergy retain yet the Titles, Ornaments, and Ceremonies of the *Romish* Church, having Archbishops, Bishops, Prebends, *&c.* who officiate with the Surplice, the Stole, *&c.*

NORWAY.

This Country is call'd *Norway*, as if one would say northern Road, because it is the Part of *Europe* which extends most towards the North. It had antiently its particular Kings, till *Waldemar* II. who dying left an only Daughter, who was married to *Haguin* King of *Denmark*; thus the two Kingdoms were united; and ever since the Kings of *Denmark* have stiled themselves Kings of *Denmark* and *Norway*.

It has almost the Form of an extended Fish, along *Sweden*; taking up, in Latitude, from the 58 Degree, to the 71 ½; and in Longitude from the 26 to the 54 Degree; but so that it has more than 300 Leagues in Length from South to North, from the Point which looks towards *Jutland*, to *Wardhus* in *Lapponia*; its greatest Breadth scarce exceeding 70 Leagues, and its lesser 10 or 12.

It confines Northward, Westward, and Southward, with the Ocean; Eastward with the River *Glama*, and a long Ridge of Mountains which part it from *Sweden*.

The Climate is so cold, particularly Northward, that the Soil has scarce Strength enough to produce any Thing; it being, besides, full of Rocks which render it sterile. There is found, Eastward, a great Quantity of Mountains; and Westward, several Gulphs. None but the *Glama*, of all its Rivers, can carry Boats of any considerable Bigness: There is one seen near *Drontheim*, whose Waters never freeze, let the Cold be ever so excessive.

NORWAY is divided into five Governments, found in the following Order, going from South to North; first that of *Bahus*, situated along the River *Glama*, and on the Coast which looks to the Point of *Schaw*, in *North-Jutland*; that of *Aggerhus*, of *Bergenhus*, of *Drontheimhus*, and of *Wardhus*, which includes the *Danish Lapponia*.

Along the Western Coast is found a very great Number of Isles; among which the most considerable are those of *Maghero*, which is the most Northern; then, descending, *Suro*, *Samen*, *Trammes*, *Stegen*, *Loffoten*, *Hiteron*, &c. Near this last there is a Whirlpool of Water, which the *Danes* call *Maelstrom*, in which they say Ships are lost, as in an Abyss.

The City of *Drontheim* was once the Capital of *Norway*, but at present *Berghen* is reputed for such; and the Viceroy, or principal Governor of the whole Country, resides there.

Note, That the *Norwegians* are simple enough; but they have an excellent Quality, which is that of being hospitable, and very kind to Foreigners: There are very few Thieves among them, perhaps because there is little or nothing to steal, the Country being sterile, and little frequented.

Note, also, That besides the Viceroy, or principal Governor, whom the King of *Denmark* keeps in *Norway*, there are five general Governors, who reside in the Castles from whence their Governments borrow their Names, viz. *Bahus*, *Berghenhus*, &c.

Note, again, That the *Norwegians* follow the same Religion which is professed in *Denmark*; and there are found yet in *Lapponia*, People who adore the Sun, the Fire, the Forests, Serpents, *&c.*

A more particular Description of *Denmark*, is as follows:

JUTLAND.

SOUTH-JUTLAND.

HOLSTEIN, contains *Kiel*, *Rensborg*, *Newmonser*, *Wilstet*.

DITMARSEN, contains *Lunden*, Arch. *Weislinburgen*, *Heiden*.

STERMAREN, contains *Glukstad*, *Krempe*, *Pinnemberg*, *Bramstedt*.

WAGHEREN, contains *Segelberg*, *Oldembourg*, *Lutkembourg*, *Ploen*.

SLESWICK, contains *Sleswick*, Bishop. *Gottorpstad*, *Frederiker*, *Toningen*, *Flensbourg*, *Tunderen*, *Haderfleben*.

NORTH JUTLAND.

The *Diocese of* RYPEN, contains *Rypen*, Bishop. *Colding*, *Frederikcode*, *Weel*, *Rinkoping*.

The *Diocese of* ARHUSEN, contains *Arhusen*, Bishop. *Underup*, *Ebelto*, *Grinnu*, *Mariaker*, *Hobro*.

The *Diocese of* WYBOURG, contains *Wybourg*, Bishop. *Lemwick*, *Hostebro*, *Wegerby*, *Seby*.

The *Diocese of* ALBORG, contains *Alborg*, Bish. *Huls*, *Nikæping*, *Huggerby*, *Scawen*, *Hirring*, *Tystad*.

ISLES.

ZELAND, contains *Copenhagen*, *Elsineur*, *Frederiksborg*, *Roskild*, Bishop. *Nikæping*, *Kallemborg*, *Korsar*, *Warborg*, *Prestoë*.

FUINEN, contains *Odensae*, Bishop. *Niborg*, *Woborg*, *Sevenborg*, *Middlefart*.

LANGELAND, contains *Rudkæping*, *Tanker*.

LALAND, contains *Naskow*, *Maribo*, *Rodby*, *Nistadt*.

FALSTER, contains *Nikæping*, *Stubckæping*.

MONE, contains *Steka*.

ALSEN, contains *Northburg*.—ARRÆ, *Kæping*.

FEMEREN, contains *Burg*, *Tassen*, *Ketrop*.

BORNHOLM, contains *Rotteemby*, *Nex*.

AMAG, *Amag*.—WEN, *Uranibourg*.—SAMSOE, *Samsoë*.—ENDELO, *Endelo*.—LESLO, *Haes*.—SYLT, *Fyredrop*.—NORTHSTAND, *Pelworm*.

NORWAY,

The *Government of* DRONTHEIMHUS, contains *Drontheim*, *Wisk*, *Ostraford*, *Malager*, *Alenby*, *Evenes*, *Wardal*, *Melus*, *Mellang*, *Asfenk*, *Store*, *Opdael*, *Schordael*.

The *Government of* BERGHENHUS, contains *Berghen*, *Hulno*, *Staffanger*, *Soyde*, *Arnedal*, *Northolm*, *Lund*, *Helmelandt*, *Jelso*, *Eide*.

The *Government of* AGGERHUS, contains *Obslo*, *Scken*, *Moss*, *Holen*, *Tronsberg*, *Tolen*, *Hammer*, *Gustall*, *Dosre*, *Frederikshal*, where the brave *Charles* XII. King of *Sweden* was unfortunately ———.

The *Government of* BAHUS, contains *Bahus*, *Oddevalla*, *Berg*, *Esberg*, *Aremark*, *Feet*.

The *Government of* WARDHUS, contains *Wardhus*, *Ulzicki*, *Hoop*, *Waranger*, *Tannebay*.

GREAT-BRITAIN.

Authors are extremely divided on the Origin of the Name of BRITAIN: Some derive it from the Word *Pryd*, which in the old Language of the Country signifies *Beauty*: Others will have the Name to have been form'd from another old Word *Brit*, which signifies *Paint*; because the antient Inhabitants of some of those Isles used to paint their Bodies; which is the Reason why they were call'd by the *Romans*, *Picts*: The one pretends that the *Britons*, expell'd from what is call'd at present *Great-Britain*, by the *Saxons* and *English*, whom they

they had call'd to their Succour, croſs'd over into *France*, and ſettled in one of the *Armorick* Provinces, to which they gave their Name; and the Traductor of *Bede* ſays, that this Iſle was call'd *Albion*, till the *Britons*, People from *France*, gave it their Name, at their firſt ſettling in the Country. *Chamberlayne* ſays, that *England*, the better Part of the beſt Iſland in the whole World, antiently with *Scotland*, call'd *Britain*, and ſometimes *Albion*, was about 800 Years after the Incarnation of *Chriſt*, (by ſpecial Edict of King *Egbert*, deſcended from the *Angles*, a People of the *Lower Saxony*, in whoſe Poſſeſſion the greateſt Part of this Country then was) nam'd *Angle*, or *England*.

The *Britiſh* Iſles are Northward of *France*, from which they are ſeparated by the *Britiſh* Channel: They extend from the 50½ Degree of Latitude to the 59; and from about the 9½ of Longitude to the 22½.

The firſt and greateſt of thoſe Iſles, call'd *Great-Britain*, contains the Kingdom of *England* and *Scotland*; that Weſtward of it is call'd *Ireland*. The other Iſles, which are great deal leſſer, are found moſt of them Northward of theſe: The moſt conſiderable of them are the *Orcades*, &c. which are Dependencies of the Kingdom of *Scotland*.

Theſe Kingdoms are under the Domination of the King of *Great-Britain*, commonly call'd King of *England*, ever ſince the Year 1607; when *James* VI. King of *Scotland*, and firſt of that Name of *England*, united theſe three Kingdoms, and took the Title of King of *Great-Britain*, to avoid giving Preference to either of them. *Elizabeth*, Queen of *England*, dying, declar'd him her Succeſſor, with the Conſent of her Parliament, tho' ſhe had inhumanly cauſed *Mary Stuart* his Mother, and Widow of *Francis* II. King of *France*, to be brought upon a Scaffold, and beheaded, after ſhe had detained her 18 Years in Priſon; violating thereby the Laws of Hoſpitality, which are the moſt ſacred among Mankind; ſacrilegiouſly uſurping a Power which the King of Kings has reſerved to himſelf alone, of puniſhing Sovereigns for the Crimes they may be guilty of; inſulting to the Royal Majeſty, and giving a very bad Example to her Subjects, which perhaps encouraged them to perpetrate the ſame on the ſacred Perſon of their Royal Sovereign *Charles* I.

Note, That *Ireland* loſt the Title of Kingdom in 1172; and that ever ſince that Time, the *Iriſh* having call'd *Henry* II. King of *England* to their Succour againſt the *Norwegians*, and deferred to him all the Authority, he and his Succeſſors contented themſelves with the Quality of *Lords of Ireland*, till *Henry* VIII. This King at the Solicitation of ſome Factious, to whom the Name of Lordſhip ſeem'd deſpicable, cauſed himſelf to be call'd King of *England*, and of *Ireland*; which was confirm'd by Pope *Paul* IV. in 1555, for Queen *Mary*, Daughter of *Henry*.

The Kingdom of England.

This Kingdom is the greateſt of the three I have mention'd: The *Engliſh*, People of *Lower Saxony*, who were call'd into it, as I have already obſerv'd, by the Natives, gave it their Name.

It is ſituated in the ſouthern Part of the Iſle of *Great Britain*, and extends in Latitude from the 50½ Degree to the 66, and in Longitude from the 14 to the 22¼; ſo that it may have more than 100 Leagues in its greateſt Extent from South to North; and 110, 90, 40, and 30 from Eaſt to Weſt.

It has for Bounds, and is ſeparated from *Scotland* by the River *Solway*, the Mountain *Cheviot*, and the River *Tweed*; Half whereof, on the Side of its Source, is in *Scotland*, and the other Half makes juſtly the Separation; Eaſtward it has the *Germanick* Ocean; Southward it is ſeparated from *France* by the Channel; and Weſtward the *Iriſh* Sea ſerves for common Bounds to both Kingdoms.

The Winter is longer in *England*, but leſs cold than in *France*; and the Summer is neither ſo long nor ſo hot, becauſe of the frequent Rain and Fogs; which notwithſtanding, the Climate had been accounted very wholſome, and little ſubject to Maladies, till of late Years.

The Soil is extremely fertile in Corn of all Sorts, and Fruits; and though it produces little or no Wine, the excellent Beer made in *England* ſupplies abundantly that Want. The Hills and Valleys are cover'd with almoſt an infinite Number of Sheep, whoſe Wool is the beſt in the whole World. No Wolves are ſeen in it, and but very few Aſſes and Mules. It abounds with Mines of Copper, Iron, Tin, Lead, Sea-Coals, and other Minerals. Beef and Pork is there better taſted, than in any other Parts of *Europe*.

There are very few Lakes in *England*; but it has ſeveral Rivers, and ſome of them very conſiderable, as the *Thames*, which is one of the moſt famous of the Univerſe, and ſprings from the County of *Glocester*, paſſes at *Oxford* and *London*, and diſembogues into the Sea; the *Severn*, which has its Source in *North-Wales*, paſſes at *Shrewſbury*, *Worceſter*, and *Glocester*; the *Humber*, which is but an Arm of the Sea, into which diſembogue the Rivers *Derwent*, *Trent*, *Arc*, *Worf*, &c.

The *Engliſh*, and *Saxons*, after they had expelled the Natives, divided it into ſeven Kingdoms, which Diviſion was call'd *Heptarchy*; and which was kept in that State, till King *Egbert* re-united them all into one; and as that Diviſion ſeems to me very eaſy and natural, I'll make uſe of it in the following Order: Firſt, Eaſtward are found on the Coaſt, the Kingdoms of *Eſſex*, *Eaſt-Anglia*, and *Kent*; the firſt in the Middle, the ſecond Northward, and the third Northward of this; ſeparated from one another by the *Thames*.—Southward are found on the Channel, the Kingdoms of *Suſſex* and *Weſſex*, one Eaſtward, and the other, which is ſix Times as large, Weſtward.—Weſtward, on the *Iriſh* Sea, is found the Principality of *Wales*.—The Kingdom of *Northumberland* is Northward, contiguous with *Scotland*, between the *German* and the *Iriſh* Seas. Laſtly, the Kingdom of *Mercia* in the Middle of all theſe.

This Kingdom contains 52 Counties, called in the Language of the Country, *Shires*; which will be found in Order in my particular Diviſion of it.

The antient Kingdom of *Eſſex*, contains three Counties, the firſt and biggeſt thereof, is called by the ſame Name, and is ſituated on the Sea; the two others, *viz.* *Middleſex*, and *Hertford*, are found Weſtward of it, one towards the South, and the other towards the North; but becauſe the City of *London*, Capital of the whole Kingdom, is in the County of *Middleſex*, I'll give it the firſt Rank, and that with ſome Juſtice.

East-Anglia, includes the Counties of *Suffolk* and *Norfolk*, on the Sea; and that of *Cambridge*, ſituated Weſtward of them.—The City of *Cambridge* is famous for its Univerſity.

The antient Kingdom of Kent, admits of no Subdiviſion, and contains but the County of the ſame Name: It is the Country of the whole Kingdom neareſt *France*.—The City of *Canterbury*, which is the Capital thereof, is an Archiepiſcopal See; the Archbiſhop thereof ſtiles himſelf *Primate of all* England.

The Country of Sussex, contains two Counties; the firſt, which bears the ſame Name, is on the Channel, over-againſt *Normandy*; and the other, call'd *Surry*, is between that of *Suſſex* and the *Thames*.

In the Kingdom of Wessex, are found ſeven Counties, going from Eaſt to Weſt; firſt on the Channel, *Hampſhire*, *Dorſet*, *Devon*, and *Cornwal*; *Berks*, *Wilts*, and *Somerſet*, which are Northward of the two firſt.

The Principality of Wales, which is the Appennage of the Eldeſt Son of the King of *England*, was once divided into ſeveral ſmall Kingdoms, till *Roderick the Great*, who made himſelf King of the whole Country. It is divided, at the River *Dowey*, into *North-Wales* and *South-Wales*; and each Diviſion contains ſix Counties: In the firſt are found ſix, round the Coaſts, in the following Order, beginning towards *Northumberland*; firſt *Flint*, afterwards *Denbigh*, *Carnarvon*, *Angleſey* Iſland, *Merioneth*, and *Montgomery*, which is the moſt inland County of the ſix.—In the ſecond are found four, likewiſe round the Coaſt, and following always the ſame Road, viz. *Cardigan*, *Pembroke*, *Carmarthen*, and *Glamorgan*, at the Mouth of the *Severn*; *Brecknock* and *Radnor* are more advanced towards *Mercia*: Some place it in the Dutchy

Dutchy of *Monmouth*, but the best *Geographers* leave it in the Kingdom of *Mercia*.

Note, That the *Welsh* have always equall'd (not only in my Opinion, but even in that of the best and most impartial Historians of all Nations and Ages) in Courage and Bravery, the most warlike Nations of *Europe*, and have been rivall'd by none: They have gain'd several signal Advantages against the formidable Power of their Enemies, and have never been thoroughly conquered: They are free, sincere, liberal, and extremely affable to Foreigners; Hospitality being a Virtue much practised among them: Within their Mountains there are yet several noble Families which could challenge the most illustrious Houses of *Europe* for Antiquity: They have a very good Understanding, and sound Wit.

The Kingdom of NORTHUMBERLAND, is more extended than any of those I have mention'd: and is divided into six Counties; three of which are found on the *Germanick* Ocean, viz. *York*, *Durham*, and *Northumberland*; thus in Order, in going from South to North: The three others, viz. *Lancaster*, *Westmoreland*, and *Cumberland*, are found in the same Order, on the *Irish* Sea; and following the same Road.

The County, or Dutchy of YORK, is the greatest Province of *England*, and the Appenage of the King's Brother. Its Capital, *York*, is an Archiepiscopal See, whose Archbishop stiles himself, *Primate of England*; and is situated on the River *Ouse*.

The County of LANCASTER, is also very renown'd in History for the long Wars between the two Royal Houses of *York* and *Lancaster*, under the Denomination of the *white* and *red Rose*. Some Authors have observed, that thirty Battles had been fought during those Wars, and that there had been kill'd in them three Kings of *England*, one Prince of *Wales*, twelve Dukes, one Marquis, nineteen Earls, twenty-three Barons, and a vast Number of several other Persons of Quality. Its Capital, which bears the same Name, is situated on the River *Lon*.

MERCIA, which is in the Heart of *England*, was the largest Kingdom of all those abovemention'd: It contains eighteen Counties, seven of which are found Eastward, thus in Order, going from South to North, *viz. Oxford*, *Buckingham*, *Bedford*, *Northampton*, *Huntington*, *Rutland*, and *Lincoln*: Six in the Middle, following the same Road, viz. *Glocester*, *Warwick*, *Leicester*, *Stafford*, *Derby*, and *Nottingham*: The five others are Westward, and Frontiers of *Wales*, viz. *Monmouth*, which is toward the Mouth of the *Severn*, *Hereford*, *Worcester*, *Salop*, and *Chester*.

The City of OXFORD, situated on the *Thames*, has a very celebrated University, and the second in *Europe* for Antiquity: It is also an Episcopal See.

The *Isles* depending on the Kingdom of *England*, are the Isles of *Man*, and *Anglesey*, in the *Irish* Sea, which bear the Title of Counties; the first of the two having bore that of Kingdom for 200 Years successively, or more: The Isle of *Wight*, in the Channel, near the Coast of *Southampton*: *Jersey* and *Guernsey*, near those of *Normandy*: The *Sorlingues*, Westward of *Cornwall*, which are 145 in Number, among which there are 12 principal, which have all Tin Mines.

The Capital of *England* is LONDON, situated on the *Thames*, in the County of *Middlesex*: It is one of the largest, fairest, and most trading Cities of the whole World; the Place of Residence of the King, and Parliament, and an Episcopal See.

Note, That the Divine Providence seems to have taken as much Pleasure in adorning the Inhabitants of this terrestrial Paradise, with her most precious Gifts, as she has in enriching their Soil with Fertility, and Plenty of all Things; for the *English* are extremely witty, dexterous, brave, well made, and most of them handsome; so that the Nobility, Gentry, and the most sensible Part of the Nation, have received from Heaven and Nature all that it was in their Power to give. Besides the above-mention'd Perfections, the antient *English* Nobility and Gentry are liberal, hospitable, and affable, encourage the Arts and Sciences; and are easily mov'd to Compassion: They are free from those national Prejudices, and insupportable Presumption, Foreigners reproach the *English* Nation with, which are Vices found no where in *England* but among the most despicable Rabble, that nothing is good, and nothing great, but in their own Country; that Courage, Wit, Wisdom, Learning, *&c.* are to be found no where else; since the *English*, I mean those who have the least Education, are always inclin'd to render Justice to Merit, wherever they find it, without Distinction of Person, or Country; of which I can speak pertinently, since I have studied them long enough, to be convinced, that the Supposition that the *English* Nation is inhospitable, and treat Foreigners in a barbarous Manner, is false and scandalous; it is true, that the Vulgar are not very courteous, when they are in a Body, but take even every one of them apart, you'll find that their Brutality is not natural in them; but, that on the contrary, they have true Sentiments of Justice and Humanity; for if in their tumultuous Assemblies they appear so ready to insult Foreigners, when, by themselves, they are as ready to help, or assist them: All the *English* can be reproached of, with some Appearance of Justice and Reason, is of being a little too litigious.

Note, also, That tho' the Kingdom of *Great-Britain* be hereditary, and even to Females, for Want of Issue Male, the Government is as much Aristocratical, and Democratical, as Monarchical, because of the Power of the Parliament, composed of two Houses; the first call'd the higher House, because composed of the Lords both Spiritual and Temporal of the Kingdom, where the King presides; and the other the lower House, or of the Commons, composed of the Deputies of the Cities, Towns, Boroughs, and Sea-Ports of the Kingdom, which have Right of sending to that august Assembly: This Right, though not quite so antient as the first Establishment of the *English* Monarchy, since granted by the Kings themselves, the *English* are very jealous of, and have made from Time to Time several courageous and bold Stands to preserve it in the Purity of its first Establishment, against those who have attempted to invade it; which has often been consider'd by those who are ignorant, or will be ignorant of the Constitution of the Kingdom, as an Effect of their Inconstancy and Disloyalty; but which proceeded, in Fact, from that natural Inclination all Men have for Freedom and Liberty: Tho' there have been found Factious in *England*, as well as in other Places, who, utter Strangers to their own Happiness, could not be persuaded to be ever easy under the most mild Government; but imagine, falsely, that a King incroaches on their Privileges and Liberties, when he has not the ridiculous Complaisance of being entirely govern'd by them, or refuses to follow blindly the Impetuousity of their extravagant Imagination.

Note, again, That *Calvinism* has been for a long Time, since the Reformation, the reigning Religion in *England*; but the *English* Church has relinquish'd several of those desperate Dogma's with Regard to Grace, Merit, Free-Will, *&c.* which she has found incompatible with the infinite Mercy of God, and his Justice: Notwithstanding which, all Sorts of Religions are tolerated in *England* except the *Catholicks*; for there are found in it *Zuinglians*, *Hussites*, *Calvinists*, *Lutherans*, *Anabaptists*, *Jews*, &c. who have all the free Exercise of their Religion.

Here follows a more particular Description, and Division of the Kingdom of *England*.

ENGLAND.

ESSEX.

The *County of* MIDDLESEX, contains *London*, Bishop. *Staines*, *Uxbridge*.

The *County of* HERTFORD, contains *Hertford*, *Ware*, *St. Albans*, *Barkway*.

The *County of* ESSEX, contains *Colchester*, *Malden*, *Walden*, *Witham*, *Tilbury*, *Barking*, *Harwich*.

The *County of* KENT, contains *Canterbury*, Arch. *Rochester*, Bishop. *Dover*, *Tunbridge*, *Hythe*, *Sandwich*, *Gravesend*, *Greenwich*.

EAST-ANGLIA.

The *County of* SUFFOLK, contains *Ipswich*, *Bury*, *Midnal*, *Orford*.

The *County of* NORFOLK, contains *Norwich*, Bish. *Yarmouth*, *Lynn-Regis*, *Cromer*, *Thetford*.

The *County of* CAMBRIDGE, contains *Cambridge*, Univers. *Ely*, Bishop. *Wisbich*, *Royston*.

The *County of* SUSSEX, contains *Chichester*, Bishop. *Hastings*, *Rye*, *Lewes*, *Arundel*.

The *County of* SURREY, contains *Kingston*, *Guilford*, *Newark*.

WESSEX.

The *County of* SOUTHAMPTON, contains *Southampton*, *Winchester*, Bishop. *Stockbridge*, *Hurst*, *Ringwood*, *Portsmouth*.

The *County of* DORSET, contains *Dorchester*, *Lime*, *Sherborn*, *Winborn*.

The *County of* DEVON, contains *Exeter*, Bishop. *Sydmouth*, *Plymouth*, *Totnes*, *Barnstable*, *Biddeford*, *Haterley*.

The *County of* CORNWAL, contains *Bodmyn*, *Launceston*, *Low*, *St. Ives*, *Padstow*, *Helston*.

The *Couney of* BERKS, contains *Windsor*, *Abingdon*, *Newbury*, *Reading*, *Okingham*.

The *County of* WILTS, contains *Salisbury*, Bishop, *Wilton*, *Amesbury*, *Malmesbury*, *Blandford*, *Calne*.

The *County of* SOMERSET, contains *Bath*, Bishop. *Bristol*, Bishop. *Glastenbury*, *Wells*, *Bridgwater*.

The *Isle of* WIGHT, contains *Newport*.

The *Isle of* JERSEY, contains *St. Hilary*, *St. Aubin*.

The *Isle of* GUERNSEY, contains *St. Peter*.

The *Isles of* SORLINGUES, contain *St. Mary*.

PRINCIPALITY OF WALES.

NORTH-WALES.

The *County of* FLINT, contains *Flint*, *St. Asaph*, Bish. *Cayerwis*.

The *County of* DENBIGH, contains *Denbigh*, *Ruthin*, *Wrexham*, *Abercon*.

The *County of* CAERNARVON, contains *Caernarvon*, *Bangor*, Bishop.

The *Isle of* ANGLESEY, contains *Beaumaris*, *Newburg*, *Aberfraw*.

The *County of* MERIONETH, contains *Harlech*, *Bala*, *Barmouth*, *Dolgelhe*, *Aberdony*.

The *County of* MONTGOMERY, contains *Montgomery*, *Llanwilling*, *Lluidlos*.

SOUTH-WALES.

The *County of* CARDIGAN, contains *Aber-ystwyth*, *Llanbeder*.

The *County of* PEMBROKE, contains *Pembroke*, *St. David*, Bishop. *Newport*, *Haverford*.

The *County of* CAERMARTHEN, contains *Caermarthen*, *Kydwilley*, *Abermals*.

The *County of* GLAMORGAN, contains *Cardiff*, *Landaff*, Bishop. *Aber-avon*, *Swansey*.

The *County of* BRECKNOCK, contains *Brecknock*, *Bealt*, *Hay*.

The *County of* RADNOR, contains *Radnor*, *Knighton*, *Presteigne*.

NORTHUMBERLAND.

The *County of* YORK, contains *York*, Arch. *Hull*, *Richmond*, *Doncaster*.

The *County of* DURHAM, contains *Durham*, Bishop. *Darlington*, *Harlepool*.

The *County of* NORTHUMBERLAND, contains *Newcastle*, *Berwick*, *Alnwick*.

The *County of* OXFORD, contains *Oxford*, Bishop. *Bambury*, *Tame*.

The *County of* BUCKINGHAM, contains *Buckingham*, *Colebrook*, *High-Wickham*, *Amersham*.

The *County of* BEDFORD, contains *Bedford*, *Dunstable*, *Shefford*.

MERCIA.

The *County of* LANCASTER, contains *Lancaster*, *Manchester*, *Preston*, *Blackburn*.

The *County of* WESTMORELAND, contains *Kendal*, *Kirkby*, *Appleby*.

The *County of* CUMBERLAND, contains *Carlisle*, Bish. *Penrith*, *Egremont*.

The *County of* NORTHAMPTON, contains *Northampton*, *Berkley*, *Daventry*.

The *County of* HUNTINGDON, contains *Huntingdon*, *St. Ives*, *Kimbolton*.

The *County of* RUTLAND, contains *Ockham*, *Uppingham*.

The *Isle of* MAN, contains *Douglas*.

The *County of* LINCOLN, contains *Lincoln*, Bishop. *Grantham*, *Barton*, *Boston*, *Stamford*.

The *County of* GLOCESTER, contains *Glocester*, Bish. *Berkley*, *Tewksbury*, *Cirencester*.

The *County of* WARWICK, contains *Warwick*, *Coventry*, Bishop. *Rugby*.

The *County of* LEICESTER, contains *Leicester*, *Dunington*, *Lutterworth*.

The *County of* STAFFORD, contains *Stafford*, *Litchfield*, *Burton*.

The *County of* DARBY, contains *Darby*, *Bankevel*, *Chesterfield*.

The *County of* NOTTINGHAM, contains *Nottingham*, *Newark*, *Blith*, *Workshop*.

The *County of* MONMOUTH, contains *Monmouth*, *Abergavenny*, *Chepstow*, *Newport*.

The *County of* HEREFORD, contains *Hereford*, Bish. *Leominster*, *Rosse*, *Pembridge*.

The *County of* WORCESTER, contains *Worcester*, Bishop. *Bewdley*, *Upton*.

The *County of* SALOP, contains *Shrewsbury*, *Bridgenorth*.

The *County of* CHESTER, contains *Chester*, Bishop. *Alfringham*, *Condate*.

SCOTLAND.

This Country, which the Antients called *Calædonia*, and those of the Country call at present *Albany*, is one of the most antient Monarchies in the World; though there was an Interregnum of 41 Years, after the Death of *Eugenius* I. to *Fergus* II. who restor'd the *Scottish* Monarchy in 422.

It is situated at the North of *England*, to which it is contiguous, taking up the northern Part of the Isle of *Great-Britain*. It extends from the 55 Degree of Latitude, to the 59; and from the 14½ of Longitude, to the 19½; without including the Isles depending of it. Some of which begin Westward of it, from the 12 Degree of Longitude, and the others advancing towards the North, as far as beyond the 61 Degree of Latitude; so that it has about 72 Leagues in its greatest Extent from South to North, I mean the main Land; and 60 from East to West.

The Climate is colder than in *England*, and the Soil not near so fertile in Corn, for it produces no other than Rye, Barley, and Oats, of which the Inhabitants make pretty good Bread. It abounds with Sheep, Oxen, and formerly with wild Beasts, particularly Wolves of a monstrous Bigness. There is a great Plenty of Fish on the Coasts, especially Salmon, Herrings, and Oysters which bear Pearls, among which there are found sometimes very fine ones. Its Mountains, which are in great Number, have Mines of Iron, Lead, Sulphur, and Azure. Iron, Lead, Leather, and Fish, are the chief Commodities of the Country, and the whole Commerce of the Inhabitants.

The most remarkable of its Rivers are, the *Tay*, *Twede*, *Nitle*, *Clyd*, *Spey*, *Dee*, and *Don*. It has several Gulphs, among which those of *Edinburgh* and *Dumbriton* are the most famous; and in the great Number of its Lakes, those of *Ness*, *Lomund*, *Loss*, and *Louth*, are the most remarkable. It is pretended that the first never freezes, no more than its River, let the Cold be ever so severe; in the second is seen a floating Island among several others.

The River *Tay* divides *Scotland* into two Parts, one Southern, which was once the Kingdom of the *Picts*; the other Northern, which was that of the *Scotch*. I'll place the Isles belonging to it for a third Part.

In the southern Part, if we begin at the Coast on the *Germanick* Ocean, we'll find, first five Counties in the following Order, round the Gulph of *Edinburgh*, beginning at the southern Coast of its Mouth, *viz. Lothian*,

thian, *Sterling*, *Montieth*, *Strathern*, and *Fife*. Secondly, in following the Road from East to West, are found the Marches of *England*, the Province of *Tweedale*, in which is included the small Country of *Lauderdale*: Those of *Teviotdale*, and *Liddesdale*, which are Frontiers of *England*; then those of *Exdal* and *Eusdal*, which have no Cities, *Anandale*, *Nithesdale*, and *Galloway* on the Sea of *Ireland*. Lastly, round the Gulph of *Dumbriton*, are found the Counties of *Karrick*, *Kyle*, *Cunningham*, *Lenox*, and *Argyle*, in which are included the Countries of *Knapdal*, *Lorn*, and *Cantar*. The Isle of *Arran*, and that of *Bute*, which contain the Castle and Dutchy of *Rotsay*, which was once the Title of the eldest Son of the Kings of *Scotland*. Towards the Middle of all these Provinces is that of *Cledsdal*, in the Neighbourhood of the River *Cled*, from which it borrows its Name.

In the northern Part there are thirteen Counties, or Provinces, eight of which are found Eastward of the Lakes *Lancend* and *Ness*, viz. *Brod-albain*, *Athol*, *Perth*, (in which the small Countries of *Strathmund* and *Goure* are included) and the Province of *Angus*, which is on the Coast: These four Counties follow one another in this Order, according to the Course of the River *Tay*. Northward of them is found *Murray*, which includes the small Provinces of *Badzenoth*, and *Strathspey*, *Marr*, *Mernis*, and *Buchan*, to which I'll join the small Provinces of *Ainzey*, *Boene*, and *Sthratbolgy*. The small Counties of *Gaeoth*, *Strathyle*, *Frendracby*, *Balven*, *Strathdone*, and others, which have nothing remarkable. And at North by West of these 8 Provinces, are found the 5 others in the Order following; in going from South towards the North, *Locquabeir*, *Rosse*, which includes the small Country of *Aemanoch*, full of high Mountains, *Sutherland*, *Strathnavern*, and *Cathnes*.

Note, That besides the Isles heretofore mention'd, there are several others which are Dependencies of *Scotland*, viz. the *Hebrides*, which are Westward of it, and had antiently their particular King; and the *Orcades* which are Northward of it, and bear the Title of *County*: The Moderns reckon as far as 300 *Hebrides*, of which great Number, there are but 6 or 7 I mention in my particular Description inhabited. There are reckon'd 32 *Orcades*, 13 of which are inhabited; the greatest is *Mainland*, which may have 10 Leagues in Length, and 3 in Breadth. There are also the *Shetlandick* Isles, which are 30 or 40 in Number. The greatest are called *Shetland*, and *Mainland*, which some imagine to be the *Thulæ* of the Antients: It is situated under the 6 Degree of Latitude, and the 19 of Longitude; 20 Leagues long from South to North, and 5 or 6 Leagues broad.

The capital City of *Scotland* is EDINBURGH, near the Gulph of the same Name, in the County of *Lothian*. It is a very trading City, which has a strong Castle.

Note, That the *Scotch* are brave, generous, sober, very hospitable, and affable to Foreigners, and so very religious Observers of their Word, that even Thieves of that Nation keep it. Their Fidelity was so well known to the Kings of *France*, that *Charles* VII. chose them for the Guard of his Royal Person, in 1414. which his Successors have always observed, till of late; for though the first Troop of the King's Life-Guards, retains yet the Name of the *Scotch Troop*, there are few or no *Scotchmen* in it; because, perhaps, since the Reformation, few of the *Scotch* Nobility care to enter into the King of *France*'s Service, who admits of none but *Catholicks* near his sacred Person.

Note also, That the Government of *Scotland*, which before the Union under Queen *Anne* of glorious Memory, was like that of *England*, is since the Union the same with that of *England*, i. e. that the two Kingdoms of *England* and *Scotland*, make at present but a political One, called *Great-Britain*. The *Scotch* Nobility chuse among them a certain Number of Lords, who have their Seats in the Parliament of *Great-Britain*; and the *Scotch* Gentry and Commonality do the same for their Representatives in the House of Commons.

Note again, That *Lesley* says, that the Faith of *Jesus Christ*, was receiv'd in *Sotland* in the Year of Grace 203, under the Reign of *Donaldus* V. to whom Pope *Victor* I. sent Missionaries to preach the Gospel in his Kingdom, and that in less than ten Years, Idolatry was entirely extirpated. The Purity of the *Catholick* Religion was maintain'd in that Kingdom, ever since that Time, till the Reign of *James* V. during which the new Opinions were secretly introduced into it, by Means of *English* Ministers; after that King's Death, the Mind of *James* VI. his Grandson, yet an Infant, was easily turn'd that Way, who was instructed in the Doctrine, which is at present the prevailing one in *Scotland*, so that there remains in it but very few Catholicks.

A more particular Description, and Division of the Kingdom of *Scotland*, is as follows:

SOUTHERN PART.

The *County of* LOTHIAN, contains *Edinburgh*, *Leith*, *Litquo*, *Dunbar*, *Haddington*, *Aberborn*, *Seton*, *Bathwick*.

The *County of* STERLING, contains *Sterling*, *Callendar*, *Cumbernald*, *Elphingston*.

The *County of* MONTEITH, contains *Dumblain*, *Kirkbird*, *Kinkardin*.

The *County of* STRATHERN, contains *Abernethy*, *Tulibardin*, *Duphim*, *Invermeth*, *Drimen*.

The *County of* FIFE, contains *St. Andrew*, *Coupri*, *Falkland*, *Kinghorn*, *Kirkald*, *Lundoris*.

The MARCHES, contain *Coldingham*, *Douglas*, *Duns*, *Langton*.

The *County of* TWEEDALE, contains *Selkirk*, *Peblis*, *Lauderdale*, *Eclise*.

The *County of* TEVIOTDALE, contains *Tidbourg*, *Roxbourg*.

The *County of* LIDISDALE; contains *Harlay*, *Barkensey*, *Exdal*.

The *County of* ANANDALE, contains *Anan*, *Longmaban*.

The *County of* NITHISDALE, contains *Dumfreis*, *Solway*, *Caelaverock*, *Morton*.

The *County of* GALLOWAY, contains *Withorn*, *Kirkoubright*, *Wigton*, *Cardinesfort*.

The *County of* KARRICK, contains *Bargeny*, *Blagham*, *Carilarcy*.

The *County of* KYLE, contains *Aire*, *Wehilte*.

The *County of* CUNNINGHAM, contains *Irwin*, *Largeis*, *Kilmarnock*, *Eglington*.

The *County of* LENOX, contains *Dumbriton*.

The *County of* ARGYLE, contains *Encanel*, *Glenurghart*.

The *County of* LORN, contains *Dumstafag*, *Tarbar*, *Esil*, *Bergonam*.

The *County of* CANTYR, contains *Dunwert*, *Swin*, *Sandel*.

The *Isle of* ARRAN, contains *Arran*.

The *Isle of* BUTE, contains *Rotsay*.

The *County of* CLIDESDALE, contains *Glasgow*, *Hamilton*, *Bothwell*, *Reinfraw*, *Palsay*, *Cruikston*.

NORTHERN PART.

The *County of* BROD-ALBAIN, contains *Inverlothea*.

The *County of* ATHOL, contains *Blair*.

The *County of* PERTH, contains *St. Johnstown*, *Dunchelden*, *Arrol*.

The *County of* ANGUS, contains *Dundee*, *Brechin*, *Mont-Rose*, *Forfar*.

The *County of* BUCHAN, contains *Ugye*, *Bamf*, *Rothemgen*, *Finlater*.

The *County of* LOCHABAR, contains *Quabeir*, *Kintail*.

The *County of* ROSS, contains *Chanonty*, *Lowet*, *Cromarty*, *Rosmarky*.

The *County of* MURRAY, contains *Elgin*, *Invernefs*, *Rothes*, *Bean*, *Narden*.

The *County of* MARRIS, contains *Aberdeen*, *New-Aberdeen*.

The *County of* MERNIS, contains *Dunotyr*, *Forden*, *Coily*, *Berry*.

The

The *County of* SUTHERLAND, contains *Dornoch*, *Dunrokin*, *Innerskyn*.

The *County of* STRATHNAVERN, contains *Glenick*, *Far*, *Laxfard*, *Fors*.

The *County of* CAITHNESS, contains *Caithnes*, *Wick*, *Dunbeith*.

ISLES HEBRIDES.

Isle LEWIS, contains *Stornway*, *Durna*, *St. Clement*.

Isle VIST, contains *St. Mary*, *St. Peter*, *St. Columban*, *Eskin*.

Isle SKIE, contains *Tranternes*, *Treford*.

Isle MULL, contains *Arrois*, *Dowart*.

Isle ILA, contains *Kilmony*, *Dunweg*, *Crume*.

Isle S. COLUMB, contains *Sodor*.

Isle JURA, contains the Isles *Ronan*, *Rum*, *Barray*, *Egg*, *Terrey*, *Collen*, *Shent*, *Rona*.

ISLES ORCADE, or ORKNEY.

The *Isle* MAINLAND, contains *Kirkewold*, the Isle *Hoye*, the Isle *Sotrowassa*. — Isle *Schap*. Isle *Rosa*. — Isle *Pappa*. — Isle *Stromsa*.

ISLES SCHETLAND.

The *Isle* SCHETLAND, contains *Burgh*. — Isle *Zeal*. — Isle *Waste*. — Isle *Fortlare*. — Isle *Linge*. — Isle *Orne*.

IRELAND.

This Isle was antiently named *Hibernia*, and *Little Britain*, or *Western Britain*, because situated Westward of the *Great*, from which it is separated by the Sea which bears its Name.

It extends from 51 Deg. 20 Min. of Latitude, to 55. 40; and from 9 ½ of Longitude to the 14 ½: So that it may have 110 *French* Leagues in Length, from South to North; 50 in Breadth, and 260 in Circuit; without reckoning those round its Gulphs, and its Lakes, which are towards the Coasts.

The Climate of *Ireland* is sometimes temperate, and is never excessively cold, nor excessively hot, the Sun having never much Power there, because of the Humidity of the Air, and of the frequent Rains and Fogs: That Air, though coarse, causes no Maladies to the Natives; who are seldom ill but for Death, and seldom eight Days successively, since they dye commonly of old Age, so that there is no Medium between a perfect Health and Death.

Its marshy Soil, interspersed with Lakes, Mountains, and Forests, is not very proper for Corn, which grows lean, and never comes to a true Maturity. It produces no Wine, but the Herbs are delicious for the Cattle; it produces a great Quantity of Saffron; its Mountains and Meadows are cover'd with Sheep and Oxen; its Forests full of Deer, and formerly of wild Boars, Wolves, *&c.* which were in their Species much smaller than those of *England*; Birds of Prey are found in it, especially true Falcons; it abounds with Bees, which are so common, that the hollow Trees are sometimes full of them; but the most singular Thing is, that it breeds no venemous Beasts of any Kind whatever.

Most of its Rivers are full of excellent Fish; particularly Salmons, Trouts, *&c.* the most remarkable of them are the *Shannon*, which forms four Lakes in its Course, and a Gulph pretty large at its Mouth; the *Sewer*, which passes at *Cashel*; the *Broodwater*, at *Lismore*, in *Munster*; the *Barrow*, at *Caterlough*, in *Leinster*; the *Boyne*, at *Trim* in *Meath*; the River and Lake *Earn*, and *Ean*, which comes out of the Lake *Eaug* in *Ulster*; and several other Lakes less than these. In the Part which looks towards the South by West, are found the Gulphs of *Bantro*, *Baltimore*, and of *Dingle*, which are very considerable for the Fishery of Cod.

This Kingdom is divided into five Provinces, which have antiently bore the Title of Kingdoms; and are in the following Situation: First, *Leinster* is Eastward, *Ulster* Northward, *Connaught* Westward, *Munster* Southward, and *Meath* in the Middle drawing Eastward.

LEINSTER, contains seven Counties, viz. *Dublin*, *Catherlough*, and *Wexford*, which are situated towards the Coast; *Kilkenny*, *Queen's County*, and *King's County*, which are Eastward; and *Kildare* in the Middle.

ULSTER, is the greatest Province of *Ireland*, and contains ten Counties, found in the following Order, beginning at South by East, and turning round the Coast: First *Louth*, *Down*, *Antrim*, *Colerain*, *Tyrconnel*, with the Isle *Derry*, or *In-owen*: Returning toward the Middle, in the Neighbourhood of the Lake *Earn*, the County of *Fermanagh*, then *Cavan*, *Monagham*, *Armagh*, and *Trim*: In this Province are found the Lakes *Earn*, and *Eaugh*, in which there are several Isles; the first is thirteen or fourteen Leagues long, and six broad; the second is ten Leagues long, and seven broad. In a small Island, situated towards the Middle of a Lake made by the *Liffer*, is placed the Hole of St. *Patrick*; the Wonders thereof Children are entertained with by old Women.

CONNAUGHT, contains six Counties, which are found in this Order; beginning Northward, and descending along the Coasts, first *Slego*, *Mayo*, *Gallway*, *Clare*; then going back, *Roscommon*, and *Letrim*; there are six great Lakes in this Province, and a pretty considerable Gulph.

MUNSTER, contains six Counties, found in the following Order, going from South to North by East, *viz.* *Desmond*, *Cork*, and *Waterford*, situated along the Coast, are opposite the Point of *Cornwall*; *Kerry*, *Limerick*, and *Tipperary*, situated between these and the River *Shannon*.

Though MEATH be but a very little Province, it is divided into Eastern and Western, call'd *East-Meath*, and *West-Meath*; the last is subdivided into *West-Meath*, and the County of *Longford*, which some have placed in *Connaught*.

The Capital of *Ireland* is DUBLIN, situated on the Eastern Coast of the Island, in the Province of *Leinster* Southward, and near the River *Liffe*. The Viceroy, or Lord-Lieutenant, keeps his Court there; and it is the Seat of the Parliament.

Note, That the *Irish* are most of them handsome, well-made, strong, extremely brave, ingenious, and very courteous to Foreigners, whom they receive with all the good Manners imaginable: They are extreme in their Passions, either entirely good, or quite bad: The Nobility love Hunting and Musick, and can rival all the Nations of *Europe* for Politeness, Generosity and good Manners: The Vulgar are accused of Laziness, and of being inclined to other Vices, which I pass by under Silence, because I know nothing of it but by Report, which is a very partial Historian.

Note, also, That the Laws of *England* are observ'd in *Ireland*, where the King sends his Viceroy, to whom he gives full Power, as of creating and deposing Magistrates, of punishing or forgiving Crimes, except those of High Treason: The Viceroy convokes also the Parliament, according to the Orders he receives from the King of *England*.

Note again, That before the Reformation, *Ireland* was called by the *Christian* World, the *Nursery of Saints*, because the *Catholick* Religion was professed there in all its Purity; but as the reform'd Religion, which is at present the reigning one in *Ireland*, dislodg'd all those Saints from Heaven, there is no farther Need of such a Nursery.

Here follows a more particular Description of *Ireland*:

LEINSTER.

The *County of* DUBLIN, contains *Dublin*, *Glandelough*, *Newcastle*, *Wicklow*.

The *County of* CATERLAGH, contains *Caterlagh*, *Laghlin*, *Arkloe*, *Tulo*.

The *County of* WEXFORD, contains *Wexford*, *Ferues*, *Ross*.

The *County of* KILKENNY, contains *Kilkenny*, *Thomastown*, *Juistog*.

The QUEEN'S-COUNTY, contains *Queen's-Town*.

The KING'S-COUNTY, contains *King's-Town*.

The *County of* KILDARE, contains *Kildare*, *Carbre*, *Naass*.

ULSTER.

The *County of* LOUTH, contains *Dordrach*, *Dundalke*.

The *County of* DOUN, contains *Doun*, *Newry*.

The *County of* ANTRIM, contains *Antrim*, *Knockfergus*.

The *County of* COLERAIN, contains *Colerain.*
The *County of* TYRCONNEL, contains *Dongall.*
The *County of* FERMANAGH, contains *Belterſhert.*
The *County of* CAVAN, contains *Cavan, Kilmore.*
The *County of* MONAGHAM, contains *Monagham.*
The *County of* ARMAGH, contains *Armagh, Mont-Norris.*
The *County of* TIROEN, contains *Dunganon, Strabane.*

CONNAUGHT.

The *County of* SLEGO, contains *Slego.*
The *County of* MAYO, contains *Mayo, Moore.*
The *County of* GALLOWAY, contains *Galloway, Agerro.*
The *County of* CLARE, contains *Clare, Tuman, Killinerah, Kellaloe.*
The *County of* ROSCOMMON, contains *Roſcommon, Athon, Balintubar, Boile.*
The *County of* LETRIM, contains *Letrim, Athonry.*

MUNSTER.

The *County of* DESMOND, contains *Doneboy, Donekine.*
The *County of* CORK, contains *Cork, Youghall, Kinſale.*
The *County of* WATERFORD, contains *Waterford, Dungarvan, Liſmore, Kerry, Dingle, Ardart.*
The *County of* LIMERICK, contains *Limerick, Kilmallock.*
The *County of* TIPPERARY, contains *Emely, Holycroſs, Caſhell.*

MEATH.

The *County of* WESTMEATH, contains *Molingur.*
The *County of* LONGFORD, contains *Longford, Ardragh.*
The *County of* EASTMEATH, contains *Trim, Aboy, Navant, Killes.*

SPAIN.

This Kingdom which is the moſt weſtern of *Europe*, was once, for that Reaſon, called *Heſperia* by the *Greeks.* The *Romans* called it *Iberia*, from the *Ebre* one of its Rivers. The *Chaldeans*, and ſeveral others, gave it that of *Spania*, i. e. *Scarce*, becauſe it was not well inhabited.

It extends from the 9 Degree of Longitude, to the 24; and from the 36 of Latitude, to about the 44; ſo that it may have in Length 220 great *French* Leagues, from Cape *Finiſter* in *Galicia*, to that of *Crecus* in *Catalonia*; and 170 in Breadth, from the Streights of *Gibraltar*, to the Cape of *Las Pennas* in *Aſturia.* Its greateſt Length from South by Weſt, to North by Eaſt, contains 260 Leagues from Cape St. *Vincent* in *Algarve*, to *Collioure* in *Catalonia.*

It confines Eaſtward with the *Mediterranean*; Southward with the ſame Sea, and the Streights of *Gibraltar*; Weſtward with the Ocean; and Northward with the ſame Ocean, and the *Pyrenean* Mountains.

Its Climate is generally good and wholeſome, but a little hot, which renders the Soil dry, and very improper to bear good Corn; but if it does not produce Abundance of Corn, it is extremely fertile in delicious Wines and Fruits. It has ſeveral Mines of Silver, Iron, Copper, Cinnabar, and ſome of Gold. It abounds in Cattle, eſpecially Sheep, whoſe Wool, mix'd with that of *England*, makes the beſt Cloth in the World; and in Horſes very much eſteem'd.

The moſt remarkable of its Rivers is the *Ebre*, whoſe Source is in the Mountains of *Old Caſtille*, near *Aſturia.* It paſſes in a Corner of *Navarre*, runs through *Arragon*, and its capital City, then after it has paſſed thro' *Tortoſa* in *Catalonia*, diſembogues into the *Mediterranean* Sea. The *Quadalquiver*, (i. e. in *Mooriſh* Language, *Great River*) which paſſing at *Cordoua*, and *Seville*, traverſes all *Andaluſia.* The *Guadiana*, which traverſes almoſt all *New Caſtille*, Part of *Portugal*, and ſeparates the ſmall Kingdom of *Algarve* from *Andaluſia.* The *Tagus*, which paſſing thro' *Toledo*, traverſes all *New Caſtille* and *Portugal.* Laſtly, the *Minho*, which is leſs than all the others, and traverſes *Galicia* from North to South by Weſt: Theſe five laſt Rivers have their Courſe from Eaſt to Weſt, and diſembogue into the Ocean. The *Guadiana* hides itſelf four or five Leagues under Ground, between its Source and *Calatrava* in *New Caſtille.*

SPAIN, is divided into 15 principal Parts, which have almoſt all bore the Title of Kingdom. The *New* and *Old Caſtille*, with *Leon*, are in the Middle of the Country. *Gallicia*, *Aſturia*, and *Biſcay*, are found on the Coaſt of the Ocean, Northward, going from Weſt, Eaſtward. *Navarre*, *Arragon*, and *Catalonia*, are found in this Order, along the *Pyrenean* Mountains, going from North to South by Eaſt. Then following the Coaſt of the *Mediterranean* from *Catalonia*, which takes up more than 80 Leagues of it, to beyond the Streight, are found *Valencia*, the little Kingdom of *Murcia*, *Grenada*, and *Andaluſia*, ſituated on the Ocean, and in the Neighbourhood of the *Quadalquivir*, occupying the Coaſts of the Streight, and 6 or 7 Leagues on the *Mediterranean* Sea. Laſtly, Weſtward is ſeen on the Coaſts of the Ocean, the Kingdom of *Portugal*, of which I'll give a particular Deſcription.

Ever ſince the Kings of *Spain* have fix'd their Court at MADRID, that City has acquired a very great Reputation, and is eſteemed at preſent, the principal of *Spain*, having raviſh'd the Name of Capital from *Toledo.*

MADRID, is in the *New Caſtille*, ſituated on the little River *Manzavares*, and has nothing conſiderable but the King's Palace, the Church of our Lady, and ſome others, beſides this it is large, and very dirty.

It muſt be obſerved that a great Difference is made in *Spain*, between Cities and Towns; for there are no Cities but Archbiſhopricks and Biſhopricks, except a few, which by a ſpecial Favour, bear the Name of Cities, tho' they have no Biſhop, and which I'll mark in my particular Deſcription, with *. Each City has ſeveral Towns in its Juriſdiction, and Corregidores in its Government, which Towns have not.

Note, That the *Spaniards* are accuſed of being very proud and lazy, but very patient in Trouble, and Adverſity; ſober in their eating, tedious in taking a Reſolution, but very obſtinate in purſuing their Deſigns, and in oppoſing the Efforts of their Enemies; and in fact they are very good Soldiers, when led to the Field by a General of Reputation, of which Hiſtory furniſhes us with an infinite Number of Examples. The *Spaniſh* Infantry is very much eſteemed in the Field, but it is never very numerous, and there has never been ſeen an Army of 8000 native *Spaniards*, becauſe the *Spaniſh* Women are not very fœcund. They are very circumſpect, myſterious, and ſecret, and love honourable Titles. They are grave, and very ſerious, and their Politicks ſurpaſs thoſe of all the Courts of *Europe.*

Note alſo, That this Kingdom has been for ſeveral Centuries, in Prey to *Barbarian* Nations, whoſe Names, and the Diverſity of their Government, would be too tedious to particularize here; at preſent it is poſſeſſed by a King, who has large Dominions in the two Hemiſpheres: For he poſſeſſes yet in *Europe* the whole *Spaniſh* Monarchy; and the greateſt and richeſt Part of *America*; *Oran* on the Coaſt of *Africa*; the Iſles *Canaries*, Weſtward of *Bildulgerid*, &c.

Note, again, That none but the Catholick Religion is profeſſed throughout the whole *Spaniſh* Dominions, either in *Europe*, *America*, *Africa*, or *Aſia*: That the *Moors* were entirely expell'd from *Spain*, in 1610, to the Number of 600,000; according to others 900,000; who refuſed to receive Baptiſm.

Here follows a more particular Deſcription and Diviſion of the Kingdom of *Spain.*

The *Province of* NEW-CASTILLE, contains *Madrid* *, *Toledo*, Arch. *Alcala* of *Hen* *, *Siguenſa*, Biſhop. *Calatrava*, *Hueſca*, D. *Conſuega*, *Cuenſa*, Biſhop.

The *Province of* ESTRAMADURA, contains *Badajox*, Biſhop.

Bishop. *Alcantara*, *Merida*, *Albukerque*, D.

The *Province of* OLD CASTILLE, contains *Burgos*, Arch. *Valladolid*, Bishop. *Frias*, D. *Calahorra*, Bishop. *Lerma*, D. *Soria*, *. *Osma*, Bishop. *Segovia*, Bishop. *Avila*, Bishop. *Placentia*, Bishop. *Coria*, Bishop.

The *Kingdom of* LEON, contains *Leon*, Bishop. *Astorga*, Bishop. *Palencia*, Bishop. *Benavente*, *Camora*, *Toro*, Bishop. *Tordesillas*, *Medina del Campo*, *Salamanca*, Bishop. *Alva*, *Ciutad-Rodigo*, Bishop.

The *Kingdom of* GALICIA, contains *Compostella*, Arch. *Lugo*, Bishop. *Mondonedo*, Bishop. *Ferreol*, *Corunna*, Bishop. *Bayone*, Bishop. *Morgia*, *Finisterre*, *El Padron*, *Tuy*, Bishop. *Riba d'Avia*, *Oronte*, Bishop. *Montrey*, *Viana*.

The *Kingdom of* ASTURIAS, contains *Oviedo*, Bishop. *Villa-Viciosa*, *Aviles*, Bishop. *Benavente*, *Riba de Silla*, *Santillana*, Bishop. *St. André*, *Llanes*.

The *Province of* BISCAY, contains *Bilboa*, *Durango*, *Vermeo*, *Laredo*, *Vittoria*, *Salvatierra*, *Tolosa*, *St. Sebastian*, *Fontarabia*, *Placentia*.

The *Kingdom of* NAVARRE, contains *Pampelona*, Bishop. *Estella*, *Tadela*, *Olitte*, *Sanguesse*, *Lerin*, County.

The *Kingdom of* ARRAGON, contains *Saragossa*, Arch. *Taracone*, Bishop. *Huesca*, Bishop. *Jacca*, Bishop. *Venasque*, *Balbastro*, Bishop. *Calatajub*, *Ixar*, Dutchy. *Albarazin*, Bishop. *Tervel*, Bishop.

The *Province of* CATALONIA, contains *Barcelona*, Bishop. *Tarragone*, Arch. *Tortosa*, Bishop. *Lerida*, Bishop. *Solsone*, Bishop. *Cardone*, Dutchy. *Vich*, Bishop. *Girone*, Bishop. *La Seu d'Urgel*, *. *Puycerda*.

The *County of* ROUSSILLON, contains *Perpignan*, Bishop. *Colliere*, *Salses*, *Elna*, Bishop.

The *Kingdom of* VALENCE, contains *Valence*, Arch. *Segorbe*, Bishop. *Villa Hermosa*, *St. Matheo*, *Benicarlo*, *Morvedro*, *Alzira*, *Xativa*, Bishop. *Biar*, *Montesa*, *Alicant*, *Elche*, *Orivellon*, Bishop.

The *Kingdom of* GRENADE, contains *Grenade*, Arch. *Guadia*, *Almeria*, Bishop. *Alhama*, *. *Adra*, *Salobrenna*, *Loxa*, *. *Malaga*, Bishop. *Ronda*, *. *Antequera*, *Baca*, *. *Santa fe*, *.

The *Kingdom of* MARCIA, contains *Marcia*, Bishop. *Cartagena*, Bishop. *Almacaren*, *Lorca*, *Caravaca*.

The *Island of* MAJORCA, contains *Majorca*, Bishop. *Aleudia*, *Solari*.

The *Isle of* MINORCA, belonging at present to *England*, contains *Citadella*, *Port-Mahon*.

The *Isle of* IVICA, contains *Ivica*, only.

The *Kingdom of* ANDALUSIA, contain *Seville*, Arch. *St. Lucar*, *Xeres de la Frontera*, *Cadiz*, Bishop. *Medina Sidonia*, *Ecija*, *. *Cordua*, Bishop. *Montemajor*, *Anduxar*, *. *Jaen*, Bishop. *Bacsa*, *. *Gibraltar*, *. belonging at present to *England*.

PORTUGAL.

This Kingdom which includes all the antient *Lusitania*, the Country of the *Bracares*, and some other antient People, is situated on the western Coast of *Spain*, of which it made once a Part.

It extends from the 36 Deg. 30 Min. of Latitude, to the 42, between the 9 and 13 of Longitude; so that it has in its greatest Length from South to North 110 great *French* Leagues, 50 in its greatest Breadth, and 135 of Coasts.

It confines Northward with *Galicia*; Eastward with the Kingdom of *Leon*, the two *Castilles*, and *Andalusia*; Southward and Westward with the Ocean.

The Climate is mild, wholesome, and temperate: The Soil is generally hilly, and produces a great Quantity of Wine, delicious Fruits, *viz.* Oranges, Lemons, Almonds, Olives, *&c.* It feeds a great Number of Silk-Worms, and Bees, which prove very beneficial to the Kingdom, there are also found Mines of Gold, Silver, Lead, Iron, Tin, and Allum: Crystal, Species of Rubies, Emeralds, and Hyacinths, and Quarries of beautiful Marble. The most sterile Places, as the Mountains, Downs, *&c.* are covered with very fat Cattle, as Oxen, Sheep, Goats, and Hogs; there is found in it a great Number of Partridges, and Hares. The Horses of *Portugal* are so swift, that the Antients have imagin'd the Mares conceived from the Wind. Abundance of Salt is made on the Coasts, and the Rivers are full of excellent Fish.

The TAGUS, the *Guadiana*, the *Douro*, the *Minho*, the *Lima*, the *Mondago*, the *Cadavo*, and several other Rivers, bathe *Portugal* with their Waters, and render it, in Proportion, much more fertile than *Spain*. The most famous Ports are those of *Lisbon* and of *Oporto*.

The Kingdom is divided into six Parts; which are the *Estramadura*, *Beira*, *Tralosmontes*, between *Douro* and *Minho*, *Aletenjo*, and the little Kingdom of *Algarves*. The two first are found in the Middle, one Southward the other Northward; the two following are Northward, one Eastward the other Westward; the two last are Southward, so that the *Aletenjo* is between *Estramadura*, and the little Kingdom of *Algarves*, which is the most Southward of all.

The Capital is LISBON, on the *Tagus*, towards its Mouth in the Ocean. It passes for one of the fairest, most trading, and best inhabited Cities of *Europe*. It is honoured with an Archiepiscopal See, who stiles himself Patriarch of *Portugal*, and of the *Indies*.

Note, That the *Portuguese* are extremely well affected to their King, whom they esteem above all the Monarchs of the World. They are accused of an insupportable Pride, of a ridiculous Presumption of their own Merit, and of an incredible Scorn for all other Nations. They are very sober in their Manner of Living, decent in their Cloaths, and extremely parsimonious in their Expences; tho' the Nobility are very liberal and magnificent, they are enterprising, courageous, and excellent and experienced Soldiers, at Sea, witness the great Conquests they have made in foreign Parts. They were once more powerful in the *Indies* than they are at present, but the *Dutch* have render'd themselves Masters of the best Places in those Parts, as *Malucca*, *Cochin*, *Negapatan*, &c.

Note also, That since the Death of the King *Don Sebastian*, who was killed, or lost in *Africa*, in 1578, there were several Pretenders to the Throne. *Henry*, Cardinal and great Uncle of that unfortunate King, was crown'd in an extreme old Age, and died in 1580. *Anthony*, Prior of *Crato*, was declared King by the States of the Kingdom; but sometime afterwards, that is to say, in the Year 1590. *Philip* II. King of *Spain* having expelled him from *Portugal*, usurped the Kingdom from the Dukes of *Bragança*, who were legitimate Heirs. His Successors possessed it till the Year 1640, in which the *Portuguese*, fatigued with the *Spanish* Government, shook off the Yoke, and obliged *John* VI. Duke of *Bragança*, to accept the Crown of *Portugal*, whom they declar'd King, and maintain'd so well in that august Dignity, that all the Efforts of *Philip* IV. King of *Spain*, to re-unite that Kingdom to his Dominions, proved vain. It may be said with very just Reason, that the God of the Armies, maintain'd on that Occasion, the Cause of the Righteous, with the *French* Arms, which came to the Succour of his *Portuguese* Majesty; since it was impossible so small a Number of Men could have resisted all the Force of *Spain*, if the Almighty had not stood on their Side.

The King of *Portugal* is powerful by Sea and Land, because he possesses several large foreign Territories, as the *Brasil* in *America*, the Isles of *Cape-Verd*, of *Madeira*, and of the *Azores* in the *Atlantick* Ocean, several Forts and Fortresses in *Africa*; in *Asia* he is Master of *Goa*, *Diu*, *Daman*, *Macao*, &c.

Note besides, That the Catholick Religion is professed in all its Purity, in the Kingdom of *Portugal*. The new Christians, *i. e.* those who are of *Jewish* Extraction, cannot possess any Employment in the Judicature, but by a special Favour from the King, or for some signal Services rendered to the State.

A more particular Description of the Kingdom of *Portugal*, is as follows.

The *Province of* ESTRAMADURA, contains *Lisbon*, Arch.

Arch. *Almada*, *Setuval*, *Camora*, *Alanguer*, *Santaren*, *Tanar*, *Torres novas*, Dutchy. *Leira*, Bishop. *Abrantes*, *Assarcellas*, *Penela*.

The *Province of* TRALOSMONTES, contains *Braganza**, D. *Miranda*, Bish. *Castle-Rodrigo*, *Villa-Real*, D. *Chaues*, *Cunha*, *Montalegre*.

Between the DOURO and MINHO, are *Braga*, Arch. *Porto*, Bishop. *Viana*, *Caminha*.

The *Province of* BEIRA, contains *Coimbre*, Bishop. *Aveira*, D. *Afeira*, *Lamego*, Bishop. *Viscu*, Bishop. *Guarda*, Bishop. *Salvaterra*, *Castel-Branco*, *Monsanto*, *Linhares*, *Sabugal*, *Mello*.

The *Province of* ALENTEJO, contains *Evora*, Arch. *Elvas*, Bishop. *Portalegre*, Bishop. *Villa-Vitiosa*, *Beja*, D. *Olivenza**.

The *Kingdom of* ALGARVES, contains *Silves* *, *Lagos*, *Faro*, Bishop. *Tavila*, *Sagres*.

ITALY.

This Part of *Europe* was once call'd *Saturnia*, from the Name of its Kings; *Ausonia*, *Œnotria*, and *Hesperia*, from those of three Princes, or Captains who brought Colonies into it. The Origin of that it bears at present, is very uncertain; for some Authors say, that it comes from a certain King *Italus*; and others pretend, that it has been given to it, because of the Oxen it fed once in Abundance, and which the antient *Greeks* call'd *Itali*.

Its greatest Longitude is from the *Lauset*, in the Principality of *Barcelonetta*, under the 28 Degree, as far as *Otrante*, about the 42 Deg. 30 Min. and its greatest Latitude from the Cape *Arms* in *Calabria*, under 37 Deg. 30 Min. to the Source of *Piave* in the *Frioul*, under the 46 Deg. 30 Min. so that its greatest Length from the *Col Major*, towards the Frontiers of *Savoy*, drawing towards South by East, as far as Cape *Delle Colonne*, in the ulterior *Calabria*, contains 240 Leagues: As for its Breadth it is so very irregular that I'll say nothing of it.

It advances, towards the South by East as a Peninsula, in the Form of a Boot, into the *Mediterranean*, which receives various Names according to the different Coasts it bathes. Nothward it is called the *Adriatick Sea*, or *Gulph of Venice*; South by West, the *Tyrrenian Sea*, or of *Tuscany*; and that Part which bathes the Sole of the Boot, *Ionian Sea*. These are its Bounds Northward and Southward: Northward it confines with the *Alps*, which part it from the Territories depending on the House of *Austria* in *Germany*, and from *Switzerland*: Westward with the same Mountains, and the River *Vare*, which divide it from *France* and *Savoy*.

The Climate is generally wholsome and temperate, except in the Ecclesiastical State, where the Air is very coarse and unwholsome; its Soil, which is watered with a great Number of Rivers, furnishes Corn, excellent Wines, beautiful Fruits, as Oranges, Citrons, Lemons, Olives, *&c.* and excellent Oil. The Kingdom of *Naples*, is fertile in Sugar, Cotton, Almonds, *&c.* it has a vast Number of Mulberry-Trees, whose Leaves feed a prodigious Quantity of Silk-Worms: There are found in it large and agreeable Meadows, covered with all Sorts of Cattle, and vast Forests, almost always green, and wild Beasts, and Game. Its Mountains have Mines of several Metals, and it abounds with Quarries of beautiful Marble. Therefore *Italy* is called the Garden of *Europe*.

Its principal Rivers are the *Po*, which takes its Source from Mont *Viso* in *Piedmont*, which it traverses with the Dutchies of *Monferrat*, and *Milan*, which it parts from that of *Parma*; it runs likewise through the Dutchies of *Mantua*, and *Ferrara*: Passing through the Cities of *Turin*, *Trin*, *Casal*, *Valencia*, *Placentia*, *Cremona*, and *Ferrara*, then disembogues into the Gulph of *Venice*, through several Mouths. The *Adige*, whose Source is in the County of *Tirol*, and which runs through the Bishoprick and City of *Trent*, the State of *Venice* in passing at *Verona*, and *Rotigle*, which it separates from the *Padouan*. The *Adde* which comes from the County of *Chiavenne*, passes in the Lake *Cano*, through *Lody*, and disembogues into the *Po*, between *Cremona*, and *Placentia*. The *Tesin*, whose Source in the Mont *St. Gothard*, in the Canton of *Uri*, which passes into the Lake *Major*, at *Pavia*, then disembogues likewise into the *Po*. The *Arno*, which traverses *Tuscany*, passes through the Cities of *Florence* and *Pisa*, then throws itself into the Sea. The *Tyber* which passes at *Rome*, &c.

Besides the Lakes above-mentioned, are those of *Garda* and *Isseo*, in the State of *Venice*. The Lake of *Celano*, in the ulterior *Abrusso*: Those of *Andori*, of *Varan*, and of *Lesina*, in the *Capitanate*: That of *Perusia*, antiently *Trasimene*, famous for the Defeat of the *Romans* by *Hannibal*; and that of *Bossana*, in St. *Peter's Patrimony*.

I have already observed that *Italy* has the Figure of a *Boot*, which seems to push *Sicily* into the Sea with the End of the Foot: That Form will serve us to divide it into three Parts; the first forms the big Part of the Leg, and contains the *Ecclesiastical State*, and *Tuscany* which makes the Knee; the second, which makes the lower Part of the Leg, and the Foot, contains the Kingdom of *Naples*; and the third, which forms the Top of the Boot, contains the antient *Lombardy*.

ROME, is the Capital of *Italy*; it is situated on the *Tyber*, in a little Province of the Ecclesiastical State, call'd *Campania di Roma*: This City has been accounted for 2000 Years the most famous of the World; but whatever Effort has been made, to preserve to it some Remains of its antient Splendor, it is not at present what it was antiently. It is in vain to search *Rome* in *Rome*, for it can be found there no more; and if it was once to be deserted by the Popes, who keep their Court there, *Rome* would soon have a Fate semblable to that of its Empire.

Note, That the *Italians* are ingenious, prudent, polite, eloquent, courteous, and promise always four Times more than they design to perform. They are accused of Dissimulation, Poltroonery, Laziness, and Jealousy, even to Extravagancy. For my Part, tho' I have lived among them for very near two Years, I have seen no Signs of those Vices laid to their Charge; it is true, that I have had no Intrigues with the Wives, nor Quarrels with the Husbands, who have always treated me in a genteel and polite Manner. *Italy* however, has produced several great Captains, as *Andrew Doria* at Sea, the Duke of *Parma*, the Count *Montecuculi*, in the last Century, and several others.

Note also, That *Italy* was governed from the Foundation of *Rome*, during the Space of 245 Years by Kings, *Tarquinus the Proud* having been the last of them. He had rendered, by his insupportable Pride, the Name of King, so odious to the *Roman* People, that they hated him even in his Allies. There was formed afterwards, that famous *Republick*, which acquired an immortal Glory, by her Victories, Politicks, and the eminent Virtues of her Consuls and Senators. It lasted till *Julius Cæsar*, proclaimed Emperor in 706, he extended his Empire in the three Parts of the known World, and rendered Tributaries, the most powerful Sovereigns; but that Empire being arrived to the highest Pitch of its Period, declined by degrees thro' the Inaction and Cowardice of its Emperors. At last, to give us a memorable Example of the precarious State of the Grandeur of this World, GOD permitted, to humble the *Roman* Pride, that it should fall into a Decline, and be dismembered under the Reign of *Honorius*, who died in the Year of Grace 423, that's to say, the 1176th of the Foundation of *Rome*.

Italy came afterwards in the Power of the Emperors of *Constantinople*, who used to send Viceroys, or Governors into it, to maintain their Interests and Authority. Those Governors were called *Exarchs*, and resided at *Ravenna*, for long before that Time, the Popes had already their Seat at *Rome*. The first of those *Exarchs* was *Longinus*, who came to *Ravenna* in 568, sent by *Justinus the Younger*. But that *Exarchate* lasted but 184 Years; and *Astolphus*, King of the *Lombards*, took that City in 752, and expelled *Eutyches*, who was the last *Exarch*. *Italy* was afterwards divided between the Eastern and Western Emperors.

All the Princes who have Territories in *Italy*, govern their Dominions each according to his own Politick,

tick, and Will: I'll say something of it in the particular Discourse of each of those States.

Note, again, That the *Catholick* Religion is almost the only one profess'd in *Italy*.

Ecclesiastical State.

This *State* is the whole Extent of the Territories which depend of the Holy See. The Air, as I have already observed, is very coarse and unwholsome towards *Rome*, because of the Marshes, and the Humidity of the Soil; which notwithstanding is fertile enough in Corn, Wines, Fruits, and Pasture.

It is divided into twelve small Provinces, which are the *Campania di Roma*, St. *Peter's Patrimony*, the *Dutchy of Castro*, the *Ombria*, the *Territory of Sabine*, the *Dutchy of Urbino*, the *Marche of Ancona*, and the *Romagna*, which contains the *Ferrarese* and *Boulonese*: The three first are on the Sea of *Tuscany*, and the four which follow them on the Gulph of *Venice*. The Pope, who stiles himself Chief of the *Catholick*, *Apostolical*, and *Roman* Church, is the first Sovereign of *Italy*; that State call'd *Ecclesiastical State*, depends of him, and the Governors of the Provinces and Cities are sent by his Holiness. The Holy Father ordinarily resides, and keeps his Pontifical See in *Rome*, Capital of his Dominions, and of all *Italy*. The Bishopricks are so numerous in the *Ecclesiastical State*, that I cannot but put the greatest Part of them in my particular Description of it.

Tuscany.

Tuscany, has been a Kingdom, which the Antients call'd *Hetruria*, *Tuscia*, and the Greeks *Thyrrenia*.

It includes the *Florentine*, the *Pisan*, and the *Siennois*, which were heretofore all three governed in Form of a Republick, before *Cosmo* of *Medicis* made first Duke of it by the Emperor *Charles* V. he was call'd *Grand Duke of Tuscany*; and his Successors have always preserved the same Title: They reside at *Florence*, Capital of their Dominions.

This City is situated on the *Arno*, and is esteemed one of the fairest of *Italy*; it is an Archiepiscopal See; and the *Italians* call it *Fiorenza la Bella*. *Pisa*, and *Sienna*, Capitals of their Countries, preserve still a Shadow of Aristocracy in their Government.

A more particular Description of the *Ecclesiastical State* is as follows:

The Campania di Roma, contains *Rome*, *Tivoli*, *Frascati*, *Ostia*, *Palestrina*, *Anagni*, *Signi*, *Veletri*, *Terracina*.

St. Peter's Patrimony, contains *Viterbo*, *Monte-Fiascone*, *Orta*, *Nepi*, *Sutri*, *Bracciano*, D. *Civetta-Vecchia*.

The *Dutchy of* Castro, contains *Castro*, *Farnese*, *Rareiglione*, *Pitigliano*.

The *Province of* Orvieto, contains *Orvieto*, *Aquapendente*, *Onano*, D.

The Perugino, contains *Perusa*, *Fratta*.

The *Province of* Umbria, contains *Spoleto*, D. *Fuligno*, *Noura*, *Assisi*, *Todi*, *Amelia*, *Terni*, *Ricti*.

The *Territory of* Sabina, contains *Narni*, *Otricoli*, *Magliano*, *Vicovaro*.

The *Marche of* Ancona, contains *Ancona*, *Recanati*, *Loretto*, *Osimo*, *Jesi*, *S. Severino*, *Telentino*, *Macerata*, *Ascoli*.

The *Dutchy of* Urbino, contains *Urbino*, *Pesaro*, *Fossombrone*, *Sinigaglia*, *Cagli*, *St. Leo*, *St. Marino*, Repub.

The Romagna, contains *Ravenna*, *Faenza*, *Imola*, *Forli*, *Cesna*, *Rimini*, *Sarsina*.

The Ferrarese, contains *Ferrara*, D. *Commachio*, *Cento*, *Lagocento*, *Buondeno*.

The Bolognese, contains *Bologna*, Repub. *Bentivoglio*, *Vergato*, *St. Pietro*.

Tuscany.

The Florentin, contains *Florence*, Arch. *Pistoya*, *Prato*, *Scarpaja*, *S. Sepolchro*, *Arezzo*, *Cortona*, *Empoli*, *Pontremoli*.

The Pisan, contains *Pisa*, Arch. *Livorno*, *Campiglia*, *Volterra*.

The Siennois, contains *Sienna*, Arch. *Pienza*, *Montalcino*, *Piumbino*, Principality. *Orbitello*, Princip. *Porto-Hercole*, *Grosseto*, *Massa*.

The *Island of* Elbe, contains *Porto-Longone*, *Porto-Feraio*.

Naples.

This Kingdom, antiently called *Sicily*, this Side the *Var*, passes for the most agreeable and delightful, not of *Italy* only, but even of all *Europe*.

The Climate is always mild and temperate; the Soil abounds in all that can be desired, and the Country enjoys a perpetual Spring.

It is divided into twelve small Provinces, which are the *Terra di Lavauro*; the *ulterior*, and *citerior Abrusso*; the County of *Molisa*; the *Capitanate*, the *ulterior*, and *citerior Principality*; the *Basilicate*, the Land of *Bari*; the Land of *Otranto*, and the *citerior* and *ulterior Calabria*: The first seven, form the lower Part of the Leg of the Boot, and the five others make up the Foot.

The Kingdom of *Naples* fell in the Power of the Emperors of the East, after the Decay of the *Roman* Empire, it was desolated by *Alarick* King of the *Goths*, *Genseric* King of the *Vandals*, and *Odoane* King of the *Herules*; *Theodoric*, and *Totila*, Kings of the same *Goths*, rendered themselves entirely Masters of it, in Spite of all the Efforts of the *Greeks*. Afterwards *Narses*, General of the Emperor *Justinian*, having defeated *Tejas*, also King of the *Goths*, re-conquered all *Italy*. The *Lombards* possessed it, at least the greatest Part of it, more than 200 Years. *Pepin*, *Charlemagne*'s Son, defeated them, and took from them all they possessed of that Kingdom; afterwards it was divided between that Emperor, *Nicephor*, Emperor of the East, and *Grimald* of *Benevento*, born a *Lombard*. The *Romans*, the *Greeks*, and the Duke endeavoured to preserve each his Part. But at last the *Normans* usurped the whole Kingdom. The *Suabes*, the *French*, the *Aragonois*, and the *Spaniards*, have governed it every one of them by Turns, and always held it from the Pope as a Fief of the Church; and the King of *Naples* pays every Year to the holy See, for Acknowledgment of the Homage 6000 Ducats, and a *white Haukeney*, which his Embassador at *Rome* caused to be conducted with great Magnificence, when he goes to present it to his Holiness. It must be observed that this Homage is made for *Naples* and *Sicily*, and that those who possessed the two Kingdoms, stiled themselves Kings of the *Two Sicilies*; as his present *Neapolitan* Majesty, a Prince of an extraordinary Merit, does. *Alphonsus* I. King of *Aragon*, was the first called King of *Naples*.

The King resides chiefly at *Naples*, Capital of the Kingdom; and situated on the Coasts of *Terra di Lavauro*, at the Bottom of a small Gulph. It has an Archiepiscopal See, and passes for one of the largest and most agreeable Cities of *Europe*, because of the great Number of Persons of Quality who reside there.

Bishopricks are so frequent and so numerous in this Kingdom, that I cannot place them all in the particular Description of it; since there are reckon'd 127 Bishopricks, and 24 Archbishopricks.

Here follows a more particular Description of the Kingdom of *Naples*.

The Terra di Lavauro, contains *Naples*, Arch. *Nola*, *Sorento*, *Massa*, *Averso*, *Vico*, *Capua*, Arch. *Cajazzo*, *Alifi*, *Calvi*, *Tiano*, *Venafri*, *Monte-Cassini*, *Sora*, *Aquino*, *Gaeta*.

The Citerior Abrusso, contains *Chietti*, Arch. *Lanciano*, Arch. *Salmone*, *Ortona*.

The Ulterior Abrusso, contains *Aquila*, *Atri*, *Campli*, *Teramo*.

The *County of* Molise, contains *Bojano*, *Isernia*, *Trivento*.

The Ulterior Principality, contains *Benevento*, Bishop. *Couza*, *Ariano*, *Avellino*, *Bisaccia*, *Cedonia*, *Monte Marano*, *Monte Verde*, *Nusco*, *St. Agathe*, *Trevico*.

The Citerior Principality, contains *Salerna*, Arch. *Omalfi*, Arch. *Acerno*, *Campagna*, *Capaccia*, *Caggiano*, *Minuri*, *Nocera*, *Policastro*, *Scala*.

The Capitanate, contains *M. S. Angelo*, Arch. *Manfredonia*, *Vieste*, *Forenzuola*, *Volturata*, *Lucera*, *Troya*, *Ascoli*.

The BASILICATE, contains *Acerenza*, Arch. *Rappolla*, *Melfi*, *Lavello*, *Venosa*, *Tricarico*, *Muro*.

The TERRI DI BARA, contains *Bari*, Arch. *Trani*, Arch. *Andria*, *Bitonto*, *Conversano*, *Monopoli*, *Polignano*, *Molfetta*, *Ruvo*.

The TERRA DI OTRANTO, contains *Otranto*, Arch. *Brondes*, Arch. *Tarente*, Arch. *Matera*, *Gallipoli*, *Lecce*.

The CITERIOR CALABRIA, contains *Cosenza*, Arch. *Rossano*, Arch. *Amantea*, *Martorano*, *Bisignano*, *Cariati*, *Umbriatico*, *Cassano*, *Strongoli*.

The ULTERIOR CALABRIA, contains *Reggio*, Arch. *St. Severino*, Arch. *Belcastro*, *Crotone*, *Taverno*, *Nicastro*, *Squilace*, *Monte-Leone*, *Melito*.

Antient LOMBARDY.

This third Part of *Italy*, which was antiently a Kingdom, is a little less fertile than the two others; particularly in the *Alps*, where the Soil is pretty sterile, except in Pastures; but in the Neighbourhood of its Rivers, which are in great Number, it is very little less fertile than *Naples*.

This Country is divided into several Sovereignties; the most remarkable of which are, the *Principality of Piedmont*; the *Dutchy of Montferrat*; the *Dutchy of Milan*; the Territories of the *Republick of Venice*; the *Bishoprick of Trent*; the *Dutchies of Mantua*, *Modena*, and *Parma*; the *Republicks of Genoa* and *Lucca*.

The first five make the Border of the Boot, and are found in the Order they are placed here, going from South by West, to North by East; the five others make that Part under the Knee, so that the Dutchy of *Mantua* is the furthermost towards the State of *Venice*; the two others are nearer the Sea of *Genoa*, and the two Republicks are situated on the Coast, taking up the Extent from the Principality of *Monaco* to the *Pisan*.

Besides these Sovereigns, there are reckon'd eighteen or twenty others, either Princes, Dukes, Marquisses, or Counts. As the Duke of *Mirandola*, between the *Modeneze* and the *Mantuan*; those of *Sabionetta*, *Bozzuolo*, and of *Guastalla*; the Count of *Nuolara*, and Marquis *Castiglione delle Stivære*; in the *Mantuan*, the Prince of *Masse*, and the Marquis of *Malespine*, between the Territories of *Genoa* and *Lucca*; the Prince of *Corregio*, in the *Modenese*; the Marquis of *Messaron* in *Piedmont*; the Count of *Novara* in the *Milanese*; the Marquis of *Torriglia*, in the Territories of *Genoa*; the Prince of *Monaco* on the Coasts; the Marquis of *Mendola* in the *Romagna*; the Republick of *St. Marino*, in the Dutchy of *Urbino*; the Prince of *Piombino*, in the *Sienois*; the Duke of *Bracciano*, in St. *Peter's Patrimony*; *Porto-Longone*, in the Island of *Elbe*; and *Final*, on the Coasts of *Genoa*, near *Montferrat*; these two little Territories, with those of the Prince of *Corregio*, of the Lordships of *Piombino* and *Orbitello*, call'd *Stato delli Presidi*, are under the Protection of the King of *Spain*: All the others depend of their natural Princes.

The Queen of *Hungary* is Mistress of the County of *Goritz*, in the *Frioul*; of the Cities of *Pedena*, *Trieste*, &c. In *Istria*, which may be ranked among the Members of *Italy*, the *Switzers* are possessed of the Balliwicks, called of *Italy*, which I have mark'd in their Territories; and the *Grisons* their Allies are possessed of the *Valteline*.

The STATE OF VENICE.

We call the State of *Venice*, all that Tract of Land the Republick possesses in *Italy*, which makes Part of the lower *Lombardy*.

This Republick is governed, ever since the Year 697, by a Duke, whom the *Venetians* call *Doge*. He is elected every three Years, by the Suffrages of the Nobles assembled, with extraordinary Precautions, and Circumstances; which it would take too much Room to be inserted here. It is said, that Pope *Alexander* III. being persecuted by the Emperor *Frederick Barberousse*, retired to *Venice*, that the Doge, *Sebastian Ziani*, undertook his Defence, defeated, and took Prisoner *Otho* the Emperor's Son; and that in Gratitude for so signal a Service, the Pope put a Ring on his Finger, made him Superior of the Sea, and order'd that the *Doges*, his Successors, should marry the Sea every Year with the same Ring; insinuating thereby, that they had the same Power over it, as a Husband has over his Wife: That Ceremony is practised every Year, on *Ascension-Day*, with much Magnificence, and a great Solemnity; the *Doge*, accompanied with the Nobles, and the Council, ascend the Vessel call'd *Bucentaure*, at the Noise of the Artillery; and advancing a little into the Gulph, throws the Ring into the Sea, after some Prayers; then it is taken out, when the Ceremony is ended, because it is tied at the End of a String.

The State of the Republick of *Venice* is divided into several small Territories: First all the Coast, which extends from the Mouth of the *Po delle Fornace* to *Marano*, including likewise all the Isles which are in that Extent; even that of *Grado*, is call'd *Il Dogado*, i. e. the *Dutchy*, or *Country of the Doge*. Joining this little State, is found, Northward, the *Frioul*; at its North by West the Marche *Trevisan*, which includes the *Trevisan*, the *Feltrin*, the *Bellunese*, and the *Cadorin*; Westward of it, the *Paduan*, and the *Vicentin*, which is between this and the Bishoprick of *Trent*; Southward of the *Adige*, the *Polesine* of *Rouigo*, separated from the *Paduan* by that River. Between these two last Territories, and the Lake *Garda*, is found the *Veronese* in the Neighbourhood of the *Adige*; between that Lake and the River *Oglio*, the *Bressan*: Lastly, between that River and the *Adde*, the *Bergamasco*, and the *Cremasco*.

VENICE, Capital of this State, is honoured with a Patriarchal See, ever since the Year 1350. It is situated at the Bottom of its Gulph, and divided into 72 Isles, in which it is built. *Venice* is one of the best built, and most flourishing Cities of *Europe*; the *Italians* call it *Venetia la Ricca*. In Fact, it passes for one of the most trading, and richest Cities of the World: It contains a great Number of Rarities of great Value; and the Palace of the *Doge* is a noble Edifice.

The *Republick* possesses besides in *Istria*, which is a Peninsula southward of *Carniole*, all the *Isles* which are in the Gulph, towards the Coasts of *Morlakia* and *Dalmatia*, with that Part of the Province which is towards the Sea, including all the Coasts; and likewise the Places which are round the Gulph of *Cataro*, with *Budua*, on the Coasts of *Albania*; *Butrinto*, *Laperga*, and the Isles of *Corfu*, *Cefalonica*, *Zante*, *Paxu*, *Antipaxu*, and others on the Western Coasts of *Greece*, and some in the *Archipelago*.

The *Isle of* CORFU, is situated on the Coasts of *Epirus*, under the 38½ Degree of Latitude, and the 44½ of Longitude. It may have 20 Leagues in Length, from South to North by West; 7 or 8 in Breadth, and 45 Round. Its Capital, which bears the same Name, is an Archiepiscopal See.

The *Isle of* CEFALONICA, which is the antient *Samos*, is situated at the Entrance of the Gulph of *Patras*, under the 37 Degree of Latitude, and the 46 of Longitude. It has about 18 Leagues in Length from South to North by West, 12 in Breadth, and 50 in Circuit: Its Capital, which bears the same Name, with the Title of Bishoprick, is the Seat of the Governor, or Proveditor, who is always a noble *Venetian*.

The *Isle of* ZANTE, which is Southward of this, is not half so large; though it has two Bishops, one *Latin*, and the other *Greek*.

A more particular Description of the *State of Venice*, is as follows:

The DOGADO, contains *Venice*, Patriarch. *Grado*, *Torcello*, *Caorle*, *Castel-nouvo*, *Marano*, *Chiosa*, *Leo*, *Bebbe*, *Loredo*.

POLESINE *of* ROUIGO, contains *Rouigo*, Bishop. *Adria*, *Lenderana*, *Labadia*.

The PADUAN, contains *Padua*, Bishop. *Este*, *Montagnana*, *Castel-Baldo*, *Monselice*, *Citadella*, *Mirano*, *Campo S. Pietro*, *Oriago*, *Piove di Sacco*.

The VERONESE, contains *Verona*, Bishop. *Pesciera*, *Malsesene*, *Garda*, *Chiusa*, *St. Bonifacio*, *Leguano*, *Sirmian*.

The BRESSAN, contains *Bressia*, Bishop. *Monte-Chiaro*, *Osola*, *Ponte-Vigo*, *Ozzi-nuovi*, *Ozza-vecchii*, *Rocca d'anso*, *Isseo*, *Salo*.

The

The BERGAMASCO, contains *Bergama*, Bishop. *Martinengo*, *Romano*, *Clusion*, *Calepio*.

The CREMASCO, contains *Crema*, Bishop.

The FRIOUL, contains *Aquilæa*, ruinated. *Udina*, *Patriarch*, *Marano*, *Palma-nuova*, *Ciuta di Friuli*, Bishop. *Venzone*.

The TREVISAN MARCH, contains *Trevisa*, Bishop. *Ceneda*, Bishop. *Conegliano*, *Serravalla*, *Odezzo*, *La Motta*, *Cadore*, Bishop. *Beluna*, Bishop. *Feltre*, Bishop.

The VICENTINE, contains *Vicenza*, Bishop. *Marestica*, *Orgnano*, *Lonigo*.

ISTRIA, contains *Capo d'Istria*, *Cita-nuova*, Bishop. *Parenzo*, *Puola*.

In DALMATIA, *Zara*, Arch. *Nona*, *Novigrod*, *Scardone*, *St. Nicolas*, *Zebenico*, *Spalatro*, Arch. *Clissa*, *Salone*, *Almissa*, *Starigrad*, *Vesicchio*, *Cataro*, *Budua*.

ISLES, *La grande*, *Incoronadro*, *Solta*, *La Brazza*, *Carzola*, *Torta*, *Ossero*, Bishop. *Cherso*, *Vegia*, *Arbe*, *Paga*.

BISHOPRICK OF TRENT.

This Bishoprick is all environ'd with the Territories of the State of *Venice*, except Northward, where it has for Bounds the Country of *Tyrol*. The Bishop is Lord Temporal and Spiritual of the greatest Part of it. The Country is pretty rich, because it is one of the greatest Thoroughfares, from *Italy* into *Germany*.

The City of TRENT, which is the Capital thereof, is situated on the *Adige*, in an agreeable Valley, environ'd with high Mountains. The Bishop is elected from among the Prebendaries of the Cathedral Church, who are all Noblemen. He may have 50,000 Florins Revenue, and his Church, called St. *Vigilius*, is marvellous for its Architecture.

The DUTCHY OF MILAN.

This State depends at present of the Queen of *Hungary*, where she keeps a Governor.

The City of *Milan*, which is the Capital, passes for one of the greatest of *Europe*. It is situated between the *Add* and the *Tesin*, whence have been drawn two Canals, by Means thereof, all Sorts of Commodities are brought to *Milan*, which renders it a very trading City. It is very well fortified, has a strong Citadel, and has been from Time to Time the Theatre of the War, between the *French*, *Spaniards*, *Germans*, and *Italians*. It has been besieged above 40 times, and taken 23. It has an Archiepiscopal See, and a Senate composed of a President, and 12 Senators.

PIEDMONT.

The Principality of *Piedmont*, is in the Power of the King of *Sardinia*, as Duke of *Savoy*, who keeps his Court at *Turin*, Capital of this State. This Prince possesses besides Part of the Dutchy of *Montferrat*.

The City of TURIN, is situated on the *Po*. The Dukes of *Savoy* have spar'd nothing to render it an accomplish'd City. Their Court is the most splendid of *Europe*, after that of the King of *France*; the Chamber of Accounts, the Archiepiscopal See, and the University, are no small Ornaments to it. Its fine Fortifications, and strong Citadel, shelter it against the Insults of its Neighbours.

CASAL, an Episcopal City on the *Po*, is the Capital of *Montferrat*. It is in that Part of the Dutchy, in the Possession of the House of *Austria*; and has acquir'd a great Reputation by the famous Sieges it has maintain'd, by its Fortifications, and its strong Citadel.

Here follows a more particular Description of these Territories.

The PIEDMONT, contains *Turin*, Arch. *Susa*, *Asti*, Bishop. *Veillane*, *Ville-Franche*, *Ivrée*, Bishop. *Masseran*, Princip. *Aoust*, Bishop. *Castiglione*, *Pignerol*, *Saluces*, Bishop. *Tende*, County. *Barcelonetta*, Princip. *Verceil*, Bishop. *Nisse*, County, Bishop. *Beüil*, County. *Fossano*, Bishop. *Mondovi*, Bishop. *Oneglia*, Bishop.

The Part of *Montferrat*, contains *Albe*, Bishop. *Trin*, *Livorno*, *Bianza*, *Salugia*, *Virenlego*.

The *Bishoprick of* TRENT, contains *Trent*, Bishop. *Personaro*, *Roveredo*, *Riva*, *Lodrone*, *Madruzzo*, *Bolzano*.

The *Dutchy of* MILAN, contains *Milan*, Arch. *Pavia*, Bishop. *Como*, Bishop. *Novare*, Bishop. *Loddi*, Bish. *Bobbio*, Bishop. *Alexandria de la Paille*, Bishop. *Vigevano*, Bishop. *Cremona*, Bishop. *Tortone*, Bishop. *Cazal-Major*, *Voghera*, *Anghiera*, *Ugogna*, *Marignan*, *Mortare*, *Carravaggio*, *Lecco*.

MANTUAN.

This Dutchy was once govern'd by its own Dukes, of the House of *Gonzague*, who stiled themselves Dukes of *Mantua*, *Montferrat*, and *Nevers*, perpetual Vicar of the Holy *Roman* Empire. But the House of *Austria*, under some Pretensions or other, which *Louis* XIII. King of *France*, proved in 1629, *Ratione ultimâ Regum*, to be without Foundation, as they were in Fact, has took Possession of it. It was erected into a Dutchy by *Charles* V. being but a Marquisate before.

The City of MANTUA, which is the Capital, is situated in the Middle of its Lake. It is fair, large, and adorn'd with an Episcopal See, which depends immediately of the Pope. It has the Glory of having been the Country of *Virgil*, Prince of the *Latin* Poets, and of *Tasso*, the *Virgil* of the *Italians*.

MODENESE.

The Estate of the Duke of *Modena*, contains besides its Dutchy, that of *Reggio*, one Eastward of the River *Secchia*, the other Westward. This Duke is of the House of *Est*, and depends of the Emperor, to whom he pays 4000 Crowns yearly, in Acknowledgment for the *fæodal Homage*; for he holds in Fief *Modena*, *Reggio*, *Carpi*, *Frignano*, and *Carafagnane*.

The City of *Modena*, situated between the Rivers *Secchia* and *Panaro*, is the Capital, and an Episcopal See. In this City *Brutus* sustain'd all the Efforts of *Mark Antony*, after *Julius Cæsar*'s Death: In the Year of the Foundation of *Rome* 710.

The PARMESAN.

This State underwent several Revolutions, ever since the Decay of the *Roman* Empire; till the Church being possess'd of it, the Pope, *Paul* III. called before his Exaltation to the Pontifical See, *Alexander Farnese*, made *Peter Louis* his Son, Duke of *Parma*, in 1545. This Duke was kill'd three Years afterwards by the *Palavicini*, and other his Enemies, sollicited to it by the Emperor *Charles* V. *Octavio Farnese* was disturb'd by the same Emperor, but was powerfully protected by the *French*, and secured that Dutchy in his House, by his Marriage with *Margarette* of *Austria*, *Charles*'s natural Daughter.

It contains the Dutchies of *Parma* and *Placentia*, and the Territories of *Busseto*, and *Val di Turo*. Its Duke is Vassal of the Church, *i. e.* of the Holy See, to whom he pays 10000 Crowns of annual Tribute.

The City of PARMA, which is the Capital, is situated on the River of the same Name; it is an Episcopal See, and has an University.

A more particular Description of these different Territories is as follows:

The *Dutchy of* MANTUA, contains *Mantua*, Bishop. *Giato*, *Solfarino*, *Castiglione delle Stivere*, Princip. *Canetto*, *Ustiano*, *Bozzuolo*, Princip. *S. Martino*, *Sabionette*, Princip. *Guastalla*, *Newlate*, *Viadana*, *Borgo-forte*, *Gonzaga*, *Luzzara*, *Rever*, *Sermedo*.

The *Part of* MONTFERRAT, contains *Cazal*, Bishop. *Acimiano*, *Balzola*, *Acqui*, Bishop. *Ripalta*, *Spinola*.

The *Dutchy of* MODENA, contains *Modena*, Bishop. *Carpi*, Princip. *Final*, *Mirandola*, Dutch. *Concordia*, *Coregio*, Princip. *Spilimbergo*, *Sassuolo*, *Gaya*, *Scandiano*, *Vignola*, *Frignano*, *Sestola*, *S. Andreto*, *Reggio*, Dutch. *Bersiko*, *Montecchio*, *Canossa*, *Castil-nuovo di Carafagnone*, *Terrezano*, *Gualtieri*, *Carpenette*.

The REPUBLICK OF GENOA.

The State of this Republick, called Coast or River of *Genoa*, is the antient *Liguria*. It has been under the Domination of so many different Masters, that they could scarce be enumerated in a whole Treatise of them. It has had Counts, Consuls, Podestats, Captains, Governors, Rectors of the People, Abbots of the People, Reformators, and

and lastly, popular Dukes and Nobles, who govern at present the Republick. The *Genoese* have suffer'd by their Inconstancy, 12 Sorts of Governments in less than 34 Years. They have rendered themselves by their Infidelity and Treasons, so odious to all Sovereigns, that none would take them under their Protection. Once the Ambassadors of *Genoa* came into *France*, to offer their City to King *Louis* XI. telling him, that it gave itself to him to have his Protection: The King answer'd them, and I give it to its Inhabitants, who are more dangerous Masters than I am.

Note, That the *Genoese* are very good Sailors; they took antiently the Isles of *Corsica*, *Sardinia*, and *Cyprus*, and others from the *Saracens*: They are yet Masters of the first. It is said in common Proverb, speaking of the Coast of *Genoa*, *Gente senza fide*, *Mare senza pisce*, *Alberi senza frutto*, *Monte senza legno*; and *Donne senza vergogna*, i. e. "A Nation 'without Faith, a Sea without Fish, Trees without 'Fruit, Mountains without Wood, and Ladies without Shame.

The Archiepiscopal City of GENOA, is the Capital of the Country. It is situated in the Middle of the Coast, and is magnificently built: It maintains several beautiful Manufactures, and carries on a very great Commerce of Silks, and Soap. The *Italians* call it *Genua la superba*.

The REPUBLICK OF LUCCA.

The small Territory of the Republick of *Lucca*, which is almost all inclosed within those of *Tuscany*, was sold and sold over-again several Times, to divers Sovereigns. Afterwards it had a Democratical Government; at present it is govern'd by a *Gonfalonier*, who is elected every two Months among the Nobles. That *Gonfalonier* is assisted by nine Elders, who are stiled *Excellentissime*, and are changed like the *Gonfalonier*, six Times every Year. It is under the Protection of the Emperor.

The City of LUCCA, which is the Capital, is situated on one Arm of the River *Serchio*. It has a Bishop who wears the Cross and Pallium, like an Archbishop: The Prebends of the Cathedral Church wear white Mitres, like the Cardinals. It is fortified with eleven regular Bastions, with their Courtins; the whole lin'd with Brick, and very deep Ditches, ever since the Year 1620. The City is very rich by Reason of the great Commerce of Silks it carries on.

The other Petti-Princes of *Italy*, govern each their Territories, under the Protection of some supreme Power, as the Pope, the Emperor, the King of *Spain*, &c.

The little Republick of *S. Marino*, maintains always its Liberty under the Pope's Protection, in whose Territories it is enclosed. It keeps always its Gravity with the other Republicks, and when it writes to that of *Venice*, it stiles it *Charissima Sorella*.

The City of *S. Marino*, is situated on the Top of a high Mountain. It has two or three Castles, and some small Boroughs; the whole in the Extent of the Dutchy of *Urbino*.

Here follows a more particular Description of all those different Territories.

The *Dutchy of* PARMA, contains *Parma*, Bishop. *Borgo S. Dodino*, *B. val di Taro*, *Chiesa di Taro*, *Zanaterella*, *Busseto*, *Rossena*, *Fornoua*, *Cornigliano*, *Cholorno*, *St. Secondo*, *Soragna*.

The *Dutchy of* PLACENTIA, contains *Placentia*, *St. Stefano*, *Masse*, Princip. *Carrara*, *Malispina*, Princip. *Fordinuovo*, *Filaterra*, *Gragnua*.

The *Republick of* GENOA, contains *Genoa*, Arch. *Ripallo*, *Laoagna*, *Spezza*, *Sazzana*, *Brugnetto*, *Torreglia*, Princip. *Savona*, *Noli*, *Final*, *Arbenga*, *Oneglia*, *Ventimiglia*, *Monaco*, Princip.

The *Republick of* LUCCA, contains *Lucca*, *Camajore*, *Montignoso*, *Minucciano*, *Castiglione*.

SICILY.

The Isle and Kingdom of SICILY, once the Country of the *Cyclops*, and *Lestrigons*, was also called the *Island of the Sun*, and *Trinacria* because of its three Caps. Its Form which is triangular, is disposed in such a Manner with Regard to the Heavens, that one of its Points, which the Antients called *Polorum Promontorium*, at present *Capo di Faro*, is at the North by East: That which they called *Pachynum Promontorium*, at present *Capo Passaro*, is at the South by East; and that which bore the Name of *Lilibæum Promontorium*, at present *Capo di Coco*, is Westward.

It is situated in the *Mediterranean*, between the 36 and 40 Degree of Longitude, extending from the 35. 30 Min. of Latitude, as far as beyond the 38; having 70 Leagues in its greatest Length from West to North by East, *i. e.* from *Marsala* to *Capo Faro*, near *Calabria*; 55 in its Length from East to West, *i. e.* from *Augusta* to *Trepani*; 50 in its greatest Breadth from the Point of Port *Pilo*, which is the most Meridional of the Island, as far as to Cape *Rasocalmo*, beyond the *Far*; and 190 of Coasts, or of Circuit; that is to say, without reckoning the Curvity of the Gulphs of *Catania*, *Putti*, *Termini*, *Castel á mare*, &c.

The Climate is very good, and the Soil so very fertile in Corn, Wine, and all Sorts of Fruits, that it was called antiently the *Granary of* Italy. It produces a great Quantity of Wax, Honey, Sugar, Oil, Saffron, and several medicinal Plants. It feeds a vast Number of Silk-Worms; it has Mines of Gold, Silver, Iron, and other Metals, as well as of Salt, Agaths, Emeralds, Jasper, Porphiry, and other precious Stones; very beautiful Coral is fish'd on the Coasts, particularly towards *Trapani*. It has Forests, and very good Pasture which feed a great Number of Cattle; there are seen in it wild Boars, Deer, Partridges, and other Game.

Its principal Rivers are, first *Salso* and *Dataino*, which take their Source towards the Middle of the Isle, and run one Southward and the other Eastward: *Termini*, *Belice*, and *Platani*, in the western Part of the Isle; running one to the Northward, and the other Southward; *Traina* and *Cantara*, in the Northern Part, which runs one to the Northward, and the other Eastward. There are several others which are full as large.

Among the great Number of its Mountains, Mount *Ætna*, otherwise Mount *Gibel*, is very remarkable. It is extraordinarily high, the Top of it always cover'd with Snow, and from the Middle thereof issues out Flames as from a Furnace. This frightful Vulcano throws out Ashes with such Violence, that they often damage the neighbouring Places a League round it. But when those Ashes are in a small Quantity, they only serve to fatten the Land. The City of *Catania*, has often been burnt by that Fire.

The Rivers of *Salso*, *Dataino*, and Part of that of *Termini*, with some Mountains, divide *Sicily* into three Parts, called *Valleis*. The first which is Westward of the two others, is called *Val di Mazara*, because of a City of the same Name which is on its meridional Coast. The two others are Eastward, one called *Val di Demona*, is Northward; and the other called *Val di Noto*, because of a City of the same Name advances Southward.

PALERMO, passes for the Capital of this Kingdom, though *Messina* claims that Honour. It was the usual Place of Residence of the Kings of *Sicily*, and is still at present that of the Viceroy's, and of an Archbishop. It is a large, agreeable, and very rich City; has a fine Port, with a Mole fortified with a very strong Castle.

MESSINA, is also an Archiepiscopal City, situated near the Vale of the same Name. It has a very fine Port, and the best Families of *Sicily* live in it.

SYRACUSA, an Episcopal City, is situated on the Eastern Coast of the *Val di Noto*. It has been famous for its antient Republick, and for having been the Country of the famous *Archimedes*.

Note, That the *Sicilians* are subtle, cunning, eloquent, and merry. They love Novelty, and are malicious, inconstant, and vindictive. They are mistrustful, Dissemblers, and Enemies of Trouble and Labour.

Note also, That *Sicily* was once the Theatre of the War, between the *Romans* and *Carthaginians*; ever since it had several Sovereigns, and in 1282, the *French*, who were there, were all assassinated by the Treason of the *Spaniards*, during the Vespers of *Easter-Sunday*, and it is what is called the *Sicilian Vespers*: Ever since that Cruelty

Cruelty it had remained under the Domination of the Kings of *Spain*, till the Treaty of *Utrecht*, when it was given to the Duke of *Savoy*, who chang'd it afterwards with the Emperor for *Sardinia*, which whole Kingdom is not worth the single City of *Messina*.

Note again, That the *Catholick* Religion is follow'd in this Kingdom, tho' there be in it a great Number of Christian *Greeks*, particularly at *Messina*, where they have their own Churches.

A more particular Description of *Sicily* is as follows:

The VAL' DI MAZARA, contains *Palermo*, Arch. *Mont-Real*, Arch. *Paligmita*, *Castel á mare*, *Calatasimi*, *S. Vito*, *Trapani*, *Marsalla*, *Mazara*, Bishop. *Xacca*, *Pintia*, ruinated, *Gergenti*, Bishop. *Miranda*, *Salemi*, *Bivona*, *Castel-Vetrano*.

The VAL' DI DEMONA, contains *Messina*, Arch. *Melazzo*, *Patti*, Bishop. *S. Marco*, Bishop. *Cefaledi*, Bishop. *Termini*, *Polizzi*, *Capizzi*, *Mistretta*, *Troina*, *Ali*, *Schizone*, *Catania*, Bishop. *Randazzo*, *Nicosia*, *Centaervi*.

The VAL' DI NOTO, contains *Noto*, *Motya*, *Syracusa*, Bishop. *Agusta*, *Leontini*, *Jarratana*, *Castrogiovanni*, *Calata-sibetta*, *Xieli*, *Catala-girone*, *Buteria*, *Alicata*, *Platio-nuovo*, *Terra-nuova*, *Camarana*, *Modica*.

SARDINIA.

This Island which has borrow'd its Name, as it is said from one *Sardus*, is also a Kingdom. The *Greeks* have called it *Sandaliotis*, because it has the Figure of the Sole of a Shoe.

It is situated on the *Mediterranean*, between the 37 and 40 Deg. of Latitude, extending from the 31. 10 Min. of Longitude, as far as to the 33. 15 Min. so that it may have 56 Leagues in its greatest Extent from South to North; 30 from East to West; between *Cagliari* and *Oristagni*, only 15; and about 150 in Circuit.

The Climate is very bad, and corrupted in Part, because of the great Number of *Mafalo's* kill'd there, whose Carcases remain in the Fields. The Soil though full of Mountains, is fertile enough in Wheat, excellent white Wines and Oils. It has Mines of Silver, Sulphur, and Allum; it feeds a great Quantity of Cattle and Game, and has no other venomous Beast but a Kind of Spider, or Ant, they call *Solifugi*, which are found in the Mines of Silver, and whose Sting is mortal. Abundance of Salt is made on the Coasts, and red Coral fish'd along them, but the Fish is not good.

There are but few Rivers in this Island, and those have very bad Water; so that the Inhabitants are obliged to keep Rain-Water, which falls but seldom.

It is divided into two Parts: Tht first which is Southward, is called *Capo di Cagliari*; and the other which is Northward, *Capo di Lugodori*.

The City of CAGLIARI, situated on the eastern Coast, is the Capital, and an Archiepiscopal See, the usual Place of Residence of the Viceroy. *Aristagni*, and *Sassari*, on the western Coast, are also Archiepiscopal Sees.

Note, That the *Sardinians* were naturally strong, inured to Fatigue, and courteous to Foreigners; but the *Spaniards* have render'd them unkind, lazy, and prodigal, minding very little else but Dancing and Drinking.

Note also, That this Island, like *Sicily*, was once the Theatre of the War between the *Romans* and *Carthaginians*. The first remain'd peaceable Possessors of it till the *Saracens* expell'd them; then the *Pisans* and *Genoese*, ravish'd it from these, and divided it among them. But to avoid the Differences which arose in that Division, the Pope gave it to *James* King of *Aragon*, whence it came in the Power of the King of *Spain*, and at the Peace of *Utrecht*, in that of the Emperor; and lastly in that of the Duke of *Savoy*, at present Styl'd King of *Sardinia*.

Note, again, That none but the *Catholick* Religion is professed publickly in the Isle of *Sardinia*.

CORSICA.

This Island is Northward of *Sardinia*, from which it is separated but by a Traject of an Hour's Sail.

It is situated between the 40 and 42 Degree of Latitude; extending from the 31 Deg. 30 Min. of Longit. as far as to the 30 Deg. 40 Min. so that its greatest Extent from South to North, is of about 38 Leagues; from East to West, of about 17; and it may have about 90 Leagues in Circuit.

The Climate is bad, and unwholesome; its Soil stony, sandy, and full of Forests, so that nothing grows in it, but with a great deal of Care: It produces Wheat in the Valleys, pretty good Wines and Fruits: There are found in it Pheasants, Harts, Deers, *&c.* and all Sorts of Cattle.

There is seen in the Middle of the Island the Mount *Goradaccio*, on which are found the Lakes of *Crena* and *Ivo*, very near one another. From the first run the Rivers *Liamon* and *Tavignan*, one running Westward, and the other Eastward. From the Lake *Ivo* runs that of *Guolo*, which waters the County of *Mariana*: These three Rivers are the only considerable Ones in *Corsica*.

The Natives of the Island divide it into four Parts, according to the four principal Points of the World: They call the Eastern Part, *Banda di Dentro*; the Western, *Banda di Fuore*; the Southern, *Di là Monti*; and the Northern, *Di quà Monti*.

There is no remarkable City in *Corsica* except *Bastia*, which is the Capital. It is situated on the Eastern Coast *Di qua Monti*; the Governor of the Island resides there, as well as the Bishops of *Mariana*, and *Aleria*, whose Cities are ruinated.

Note, That the *Corsicans* are uncivil, rough in their Manners, quarrelsome, and vindictive; but they are brave and very good Soldiers.

Note, also, That this *Island* has been in the Power of the *Genoese* more than 800 Years; but the *Corsicans* attempted to shake off their insupportable Yoke, encouraged to it by a *German* of a bold, courageous, and enterprising Genius, whom I saw in *Italy* in 1726, and with whom I have din'd several Times: He was proclaim'd King of *Corsica* by his Partisans, and had kept longer his Royal Dignity, if the Succours sent to him had been as powerful, as his Courage was great.

Note, again, That the *Catholick* Religion is the only one practised publickly in *Corsica*: It has five Bishopricks, viz. *Sagona*, *Aleria*, and *Adjazzo*, Suffragants of *Pisa*; *Mariana* and *Nebbio*, Suffragans of *Genoa*.

MALTA.

The Isle of MALTA was called by the *Greeks Ogygia*, and *Hiperia*; the *Latins* call it *Melita*.

It is situated Southward of *Sicily*, under the 34 Deg. 40 Min. of Latitude, and 38 Deg. 45 Min. of Longitude: It may have seven Leagues in Length, four in Breadth, and twenty of Circuit, because of the Curvity of its Shore.

The Climate is pretty wholsome, though a little hot; but it is temperated by the Winds in the Afternoon. The Soil produces a small Quantity of Wheat and Barley, excellent and very large Grapes, Citrons, Olives, Figs, and all the Fruits which grow in *Italy*: Its greatest Fertility is in Cotton and Honey; it feeds Horses and other Cattle; there are found in it excellent Falcons, and other Birds of Prey; Hares, Partridges, Quails, and other Game. Wood is so scarce there, that it is sold by the Pound; and the Dung of Animals, or Thistles, is the ordinary Fuel: It is said, that it breeds no Serpents; or, at least, that they have no Venom, ever since the Naufrage of St. *Paul*.

This Island is in the Power of the *Knights* of the *Order of St. John of Jerusalem*, call'd KNIGHTS OF MALTA, ever since the Year 1530, when *Charles* V. gave it them, seeing they had no fix'd Habitation ever since they had lost *Rhodes*, in 1522. Every Body knows what Esteem the Christian World has for this antient and most illustrious Order; and what Rank the *Grand Master*

Master of it keeps among the Christian Princes.

Note, That the Inhabitants are a Mixture of *Latin* and *Greek* Christians: Their Language is a corrupted *Arabick*, very much like the *Lingua Franca*, on the Port of *Constantinople*: They are ingenious, patient, and courageous; but mistrustful, jealous, perfidious, and vindictive: The Women are as witty as they are cunning, and inclinable to Gallantry: Several Ladies of Pleasure resort thither from all Parts, for the *secret Services of the Knights*.

The capital City of this Island, is at present divided into four Parts; which are *La Cita Valetta*, the *Borough*, the *City of St. Michel*, and the *Cita Cottonæza*: The first is found at the Entrance of the Port, built on a Rock, which advances towards the North by West, where the *Grand Master* resides. There is seen on the Point, the Castle *St. Elmo*, against which the *Turks* fired 78,000 Cannon Shot, during the Siege in 1565. The Port on the right Hand is call'd *Mar Mucetto*; and that on the Left only *Marza*, or the great Port. The Borough, call'd *Cita Vittosa*, ever since the same Siege, and the City of *St. Michel*, or the *Isle of the Sangle*, are also built on two narrow Pieces of Land, which advances towards the Flank of *La Valette*, on the Side of the Port. These two Cities are between the Port of the *Sangle*, and that of *La Renelle*, separated by the Port of the Galleys. The Castle *St. Angelo*, is built at the Point of the Borough, on a Rock. The *Cita Cotonæra*, is a new City, whose Circuit, which makes almost an oval, is fortified with nine double Bastions, and two half Bastions, which terminate one at the Head of the Borough, the other at the Island of *La Sangle*; the Courtins are cover'd with eight good Ravelins, the whole cut in a Rock; therefore that Circuit incloses the Borough of *La Bormelu*, and the whole Fortifications of *St. Marguerite*. To enter the Port, one must pass between the Fort *St. Elmo*, and the Point of *Orsa*, where is built a Fort called *Ricazzoli*. In the *Murza Mucetto* there is a small Island, where the *Lazaretto* is, and where a little Fort is built to defend the Entrance thereof: Therefore this Place passes for the strongest of the whole World, because there is no Ground for 500 Paces round about it: It is the See of a Bishop suffragant of *Palermo*.

A more particular Description of all these Isles, is as follows:

SARDINIA.

The CAPO DI CAGLIARI, contains *Cagliari*, Arch. *Villa d'Iglesia*, Bishop. *Oristagni*, Archbish. *Tor-Alba*, *Mont-Real*, *St. Pietro*, *Galtelle*, *Lode*.

CAPO DI LUGODORI, contains *Fassari*, Archbish. *Castel-Aragonese*, Bishop. *Terra nuovo*, *Carignano*, *Bosa*, Bishop. *Algheri*, Bishop.

The *Isle of* CORSICA, contains *Bastia*, *St. Fiorenzo*, *Nebio*, ruinat. Bishop. *Ostrione*, ruinat. Bishop. *Mariana*, ruinat. Bishop. *Calvi*, *Aecia*, ruinat. *Corte*, *Aleria*, ruinat. Bishop. *Sagona*, ruin. Bishop. *Adjazzo*, Bishop.

The *Island of* MALTA, contains *La Valetta*, *Il Borgo*, *St. Michel*, *Medina*.

The *Isle of* LIPARI, contains *Lipari*, Bishop. *Volcano*, *Palmeria*, *Alcudia*, *Ustica*, *Saline*, *Pantaria*, *Strongoli*.

The *Isles* towards SARDINIA, are, *St. Pietro*, *S. Antiocho*, *Tavolara*, *Asinara*, *Di Toro*, *Di Vacca*.

TURKY in EUROPE.

We call TURKY in *Europe*, all the Tract of Land which the *Turks* possess in that Part of the World.

It extends in Latitude from Cape *Matapan*, towards the 35 Degree, as far as beyond the River *Niester*, towards the 49th; and in Longitude, from *Kanise* in *Hungary*, about the 40 Degree, to the Mouth of the *Nieper*, towards the 57 or 75; adding to it the *Little Tartary*, which is only under the Protection of the *Grand Signior*; so that without including the *Little Tartary*, and the Island of *Candia*, which is likewise of that Empire, the greatest Extent of that Country, from South to North, is of about 290 Leagues; from East to West of 250; at least in the Northern Part, for in the Southern it is very irregular.

It confines, Northward, with the Territories of *Poland*, and the *Christian Hungary*; Eastward with the Sea *Delle Zabache*, or *Palus Mæotides*, the *Black Sea*, that of *Marmara*, and the *Archipelago*; Southward with the *Mediterranean*; and Westward with the Gulph of *Venice*.

The Climate is very mild and temperate, and the Soil, tho' various, generally very fertile in all Things necessary for Life. I'll particularize its Qualities, in the particular Description of each Province.

Its principal Rivers are the *Danube*, which traverses *Hungary*, passing at *Strigonia*, *Buda*, and *Belgrade*, then separating that Kingdom from *Valachia*, *Moldavia*, *Servia*, and *Bulgaria*, it divides itself into seven or eight Branches, to disembogue into the *Black Sea*. The *Teisk*, or *Tibisc*, which has its Source, and its whole Course in *Hungary*, then disembogues into the *Danube*. This great River receives likewise the *Drave*, and the *Save*, between which *Esclavonia* is enclosed, separated from *Hungary* by the first, and from *Bosnia* by the last. The *Maziza*, whose Source and Course is in *Romania*, where it goes to disembogue into the *Archipelago*, after it has passed through the Cities of *Philippopoli*, *Adrianople*, and *Trajanapoli*. The Rivers which are Southward are not so considerable, but there are found on that Side several large Gulphs, as those of *Caridia*, *Contessa*, *Monte Santo*, *Ajomana*, *Salonichi*, *Armiro*, *Angia*, *Napoli*, *Coron*, *Arcadia*, and the Gulph of *Lepanthe*, famous for the signal Victory, the *Christians* under the Conduct of Don *John* of *Austria*, gain'd over the *Turks*, who lost 180 Galleys, 15000 Men, besides 4000 Prisoners, and 12000 *Christian* Slaves released from their Slavery, in 1571.

TURKY *in Europe*, is divided into twelve principal Parts, *viz.* two Southward, which are *Romania* and *Greece*; four in the Middle, Southward of the *Danube*, and of the *Drave*, which are *Bulgaria*, *Servia*, *Bosnia*, almost all *Esclavonia*, with Part of *Croatia* and *Dalmatia*. The *Venetians* have been Masters of almost all the Coasts thereof, and of the Isles; without reckoning the Territories of the Republick of *Ragusa*, which is only tributary of the *Turk*; four Northward of the same Rivers, *viz.* Part of *Hungary*, *Valachia*, *Moldavia*, which are only tributary. I'll add to it the *Little Tartary*, which is under his Protection, and the Isle of *Candia*, with those in the *Archipelago*, which are under his Domination.

The City of *Constantinople*, which is thought to be the antient *Bizantium*, and which the *Turks* call *Stambol*, is the Capital of the whole *Ottoman Empire*. It is situated on the Streight of the same Name, called antiently the *Bosphorus of Thracia*, which joins the Sea of *Marmara*, with the *Black Sea*. The Emperor resides there, and the first Patriarch of the *Greek* Church, and that of the *Armenians* keep there their Patriarchal See.

Note, That the *Turks* are naturally ambitious, though rough, and lazy to Excess. They are great Epicures, slovenly and brutish in their Amours; they are very good Soldiers, and expose themselves freely to Danger, because they believe Predestination; tho' their Behaviour smells much of Slavery; they are very courteous to Strangers, and very charitable to Foreigners and Travellers, for whose Conveniency some of them cause to be built *Kans*, or *Karavenseras*, which are like Hospitals, for their Reception. They are so compassionate, and good-natur'd, even towards Animals, that some of them, at their Death, leave Legacies to their Horses, Dogs, *&c.* that they may have enough for their Subsistence without Working. Though the Use of Wine be forbidden, several of them get themselves drunk in the Night-time. I happen'd in the Year 1727, to be at *Chalons* on the *Soane*, in *Burgundy*, with an Aga of the Janissaries, who made a Scruple to eat of the Fowls serv'd at Table, because they were larded with Bacon, but made nothing of drinking four Bottles of *Burgundy* at Supper; and when I objected to him that Wine was equally forbid by the Alcoran, he answer'd not on a Journey, or when they are indispos'd; tho' I have found no such

Exception in that Book of *Mahomet*'s Dreams. The same Alcoran allows them as many Wives as they can maintain, but they keep those Wives very close, and have them serv'd by none but Eunuchs.

Note also, That *Turky* in *Europe* contains very near the whole Eastern Empire, where the *Greek* Emperors reign'd, ever since *Nicephor*, created in the Year 802, to *Constantine* XV. who was killed in the Plunder of *Constantinople*, when that City was taken by *Mahomet* II. Emperor of the *Turks*, in the Year 1453; ever since the Empire has been govern'd by the *Ottomans*, who have conquer'd it, and extended the Limits thereof with an incredible Celerity.

The Sovereign of this vast Empire, is commonly called the *Great Turk*, or *Grand Seignior*; he keeps in most of the Provinces, *Beglierbegs*, i. e. General Governors, who have under them several *Sangiacks*, or particular Governors. We reckon in *Turky* in *Europe*, eight *Beglierbegs*'s, otherwise called *Bashaws*. The first and most considerable is that of *Rumelia*, or *Greece*, who resides at *Sophia*, in *Bulgaria*. The second is that of *Gallipoli*, called *Capitan Bashaw*, or General of the Sea. The third is that of *Buda* in *Hungary*, where there are likewise those of *Kanise*, *Agria*, and *Temeswar*. The two others are those of *Bosnia*, and *Caffa*; the first resides at *Bagnaluka*, and the last at *Caffa*, in the *Turkish Chersonesus*.

Note again, That the People subject, or tributary to the Grand Seignior, are divided into three different Opinions, in Matter of Religion. The greatest Part follows the Schism of the *Greek* Church: The other profess the *Catholick* Religion, without making the least Mention of *Lutherans* or *Protestants*: And those particularly devoted to the Grand Seignior, follow the Doctrine of *Mahomet*. There is also found among them a great Number of *Jews*, particularly at *Constantinople*, and *Adrianople*. Before the Kings of *France* had made an Alliance with the *Turk*, the Catholicks were cruelly persecuted in his Empire, and none but the Christian *Greeks* allow'd to profess publickly their Religion, in paying a Tribute. But ever since that Alliance, so advantageous to the *Roman* Church, for whose Interest the Most Christian Kings keep it so religiously, more than 100,000 *Catholicks* live in Liberty of Conscience, in the Middle of the Dominions of the *Turk*, as if they were in *France*; have three Churches at *Constantinople*, eight at *Galata*, and more than four hundred others in several Places; with eight or nine Bishops at the Pope's Nomination.

ROMANIA.

This Part of *Turky*, once the Kingdom of *Thracia*, has been called *Romania*, ever since the Emperors of the East fix'd the Seat of their Empire in it, and *Constantinople* was called at the same Time, and for the same Reason, the *New Rome*.

It extends from the 49 Deg. 40 Min. of Longitude, to the 56. 30 Min. and from the 41. 10 Min. of Latitude, to the 44. 30 Min. so that it may have 100 Leagues in its greatest Extent from East to West, and 68 from South to North.

It confines Eastward with the *Black Sea*, the *Bosphorus*, the Sea of *Marmara*, and the Streight of *Gallipoli*, antiently *Helespontus*; Southward with the *Archipelago*; Westward, Part with *Macedonia*, and Part with *Bulgaria*; lastly, Northward with the *Mont Dervent*, antiently *Haemus*, which parts it from *Bulgaria*.

Though it be in the Middle of the temperate Zone, the northern Winds which blow on the Side of the *Black Sea*, renders the Climate sometimes very cold. The Soil is fertile enough in Corn, Fruit, and Pasture; but Wine is pretty scarce in some Places. Some of its Mountains have Mines of Silver, Lead, and Allum, which are very considerable.

It has but one remarkable River, which is the *Mizza*; it takes its Source at the Foot of *Mont Rodope*, towards *Macedonia*, whence running from West to East, as far as *Adrianople*, it bends Southward, passing through *Trajanopoli*, and disembogues into the *Archipelago*. Five Leagues off the Coast, is found the Lake *Bistogna*, which has near 25 Leagues of Circuit.

CONSTANTINOPLE, Capital of the whole Empire, is Capital of *Romania* in particular. —— ADRIANOPLE, on the *Mezza*, is also very considerable.

Note, That the Inhabitants of *Romania*, are very much inclin'd to Hospitality.

Note also, That *Romania* is included in the Government of the *Beglerbeg* of *Rumelia*; and his sublime Highness keeps only *Cadis* for the Administration of Justice, in the principal Cities, as *Constantinople*, *Adrianople*, *Vizza*, &c.

Note again, That the Religion of the *Greeks* is the most profess'd in *Romania*, though they have Trouble enough to maintain themselves against the Persecution of the *Mahometans*, who are the strongest. The *Jews* have likewise more Liberty there than in any other Part of *Europe*.

GREECE.

GREECE, which is called by the Natives *Hillas*, and *Rumelia* by the *Turks*, was once the most flourishing Country of the whole Earth. It offers to us, as in Perspective, the Inconstancy of all created Beings: For that Country which was once a Nursery of Heroes, Politicians, Philosophers, &c. is at present the Country of Bondage and Slavery: Those famous Cities, where all Nations came to be civilized and instructed, where Arts and Sciences had been carried to a supreme Degree of Knowledge and Perfection, are at present so many Seats where Ignorance reigns with so absolute an Empire, that the Sovereigns themselves make of it a Maxim of State.

This Part of *Turky* extends between the 43 and 52 Degree of Longitude, and from the 34. 40 Min. of Latitude, to the 43. 20 Min. so that it may have in its greatest Extent from North to South, about 180 Leagues; from East to West near 125; sometimes 60, 40, &c. being very irregular.

Northward it is separated from the other Parts by a long Ridge of Mountains; on the three other Sides, it is all environed with Seas, *viz.* Eastward with the *White Sea*, or *Archipelago*; Southward with the *Mediterranean*; and Westward with the same Sea, the *Ionian*, and the *Adriatick*, or Gulph of *Venice*, as far as beyond the Gulph of *Cataro*.

Its Climate is very temperate, and much more wholesome than that of *Romania*: Its Soil is very fertile in Corn, delicious Wines, and Fruits. It abounds in Cattle and Game, in a Word, in all Things necessary for Life.

It has a great Number of Rivers, which are no otherwise considerable than by their Names in antient History, and Fable; but it has several large Gulphs, which I have mention'd in my general Description of *Turky*.

The Mount *Œta* divides it almost into two equal Parts, from North to South, throwing here and there several Arms, which have different Names. But to make a more particular Division of it, it must be observ'd that there are six principal Parts in *Greece*, which had all, not only every one their King, but some of them contained even several Kingdoms; as *Achaia*, *Peloponnesus*, &c. The greatest and first of those Parts is *Macedonia*, then *Thessalia*, both situated on the *White Sea*; afterwards *Albania* and *Epirus*, one on the Gulph of *Venice*, and the other on the *Ionian Sea*. *Achaia*, which is Southward of *Epirus*, and of *Thessalia*, is between this last Sea, and the *Archipelago*; and the *Peloponnesus*, or *Morea*, which is Southward of *Achaia*, from which it is separated by the Gulphs of *Lepanthe*, and *Angia*, is situated between the *Archipelago* and the *Mediterranean*.

MACEDONIA, the native Country of *Alexander the Great*, and once his hereditary Kingdom, is the greatest Province of *Greece*; what it has the most remarkable at present is, the Mount *Athos*, commonly called *Monte Santo*, which advances as a Peninsula into the Sea, and on which there are 23 Monasteries of *Caloyers*, or *Greek*

Greek Monks, who cultivate the Land, and live of their Labours.

The most considerable City is *Thessalonica*, situated at the Bottom of its Gulph, and which is the Seat of a *Sangiac*.

ALBANIA, which once made Part of *Macedonia*, was the Country of the great *Scanderbeg*, who gain'd twenty-two Battles against the *Turks*. There is a Thing practised worthy our Notice, in that Province: When a military Man dies, he is extended on a Carpet, his Arms near him; then all his Friends come to ask him, why he has left them, and suffer'd himself to die, since he knew so well how to fight: If he be a private Gentleman, he is ask'd why he died, since he had enough to live upon, and a Family who loved him so much.

ALESIO, at the Mouth of the *Drin*, passes for the most considerable City of *Albania*.

THESSALY, was the Country of *Achilles* and *Jason*. *Hercules* burnt himself there on the Mount *Œta*. *Cæsar* defeated *Pompey*, near *Pharsalia*, in this Province; and in the same Fields, *Augustus* vanquished *Cassius* and *Brutus*. It is said, that the *Thessalians* invented the Gold and Silver Coin; and were the first who put Bits to Horses, to make use of them in Battle; which has given Occasion to the Fable of the *Centaurs*, who are figur'd half Men, and half Horses.

The most considerable City of *Thessalia*, is *Larissa*, the native Place of *Achilles*, situated on the River *Penæa*, by the *Turks* called *Asaba*, towards the Gulph of *Thessalonica*.

EPIRUS, contain'd antiently the *Chaonia*, *Acarnania*, the Countries of the *Molessi*, *Dolopes*, *Hellopes*, *Dryopes*, *Selsi*, *Amphilocians*, and of several other People known in the antient Histories, and in the Fable. It was antiently famous for the Oracle of *Dodonea*, render'd by two Doves perched on an Oak, near the Temple of *Jupiter*. It was in *Epirus*, near *Actium*, *Augustus* vanquish'd *Mark Antony*.

The City of LAORTA, on the Gulph of the same Name, antiently call'd *Ambracia*, is the most considerable of *Epirus*, and the Kings have often resided there.

ACHAIA, which was call'd particularly *Greece*, is likewise nam'd *Livadia* by the Moderns. It includes Eastward, the *Bœtia*, *Mægarida*, and *Attica*, which is the Dutchy of *Athens*; in the Middle, the *Dorida*, and *Phocida*, in which was the famous Oracle of *Delphos*, the Mount *Helicon*, and the *Parnassus*, where the *Muses* used to assemble; Westward, the *Etolia* and *Locrides*, *Ajax*'s Country.

The most famous Cities of that Province are *Athens*, at present *Setines*, Capital of *Attica*, so well known in History for its Republick, and famous Academy; *Thebes*, at present *Stives*, Capital of *Bœtia*, in which *Bacchus*, *Hercules*, and *Pindarus* were born; *Mægara*, Capital of *Mægarida*, the native Place of the ingenious *Euclid*, Inventor of the Elements of Mathematicks.

The MORÆA, or *Peloponnesus*, is a Peninsula, which has almost the Figure of a Vine-Leaf; join'd to *Achaia* by an Isthmus only two Leagues broad: In this Peninsula is the River *Styx*, whose Water is mortal; which has given Room to Poets to say, that it was one of the Rivers which one was oblig'd to be ferry'd over to go into Hell; and that when one had once drank of that Water, he forgot all he had done in his Life-time.

The most considerable Cities, or rather the most famous, are *Corinth*, *Argos*, *Lacedæmon*, &c. *Corinth* had Inhabitants who were the most learned of all *Greece*, in Architecture and Sculpture: It had a Temple dedicated to *Venus*, in which lived more than 1000 Ladies of Pleasure, extremely handsome, who were consecrated to the Service of the Temple; but as no Body could divert himself with those Ladies without vast Expence, hence came the Proverb, *Every Body is not allow'd to go to Corinth*. *Argos*, was the Capital of the Kingdom of *Agamemnon*, Chief of the other Kings of *Greece*, who went to the Siege of *Troy*. *Lacedæmon*, or *Sparta*, at present *Misistra*, is famous for its antient Republick, which subjugated almost all *Greece*. *Pisa*, on the River *Alphare*, is not known under that Name, but is famous by that of *Olympia*, because of the Temple of *Jupiter Olympian*.

MODIN, situated toward one of the Extremities of *Morea*, is the Seat of a *Sangiac*, which is call'd *Morabegi*, and the first in Rank among the *Sangiacs* of *Europe*.

Note, That tho' I most commonly give the whole Description of a Country, before I speak of the Isles: I judge it more proper to place here that of *Candia*, and of the other Isles which depend of *Turky* in *Europe*, in the *Archipelago*, since they are ordinarily in the same Chart, rather than defer it till after the Description of the other Parts which are Northward.

CANDIA.

The ISLE of CANDIA, antiently call'd the Kingdom of *Crete*, is famous under that Name in the Fable, for having been the Habitation of *Jupiter*; he brought *Europa* thither, whom he had stolen in *Phœnicia*, and that Charmer married afterward *Astorius* King of the Island.

It is situated under the 34 Degree of Latitude, and the 53 of Longitude, and may have 75 Leagues in its greatest Extent from East to West; 25 in its greatest Breadth from South to North; 7 towards *Sfachia*; and only 4 in its lesser, which makes an Isthmus between two Gulphs; and it may have about 170 Leagues of Circuit.

Its Climate is extremely wholesome and temperate, and the Soil very fertile in Corn, Wines, Fruits, and Pastures: If the Inhabitants were not lazy, they could make in several Places two Harvests of Corn every Year; they are, otherwise, more addicted to the Culture of the Vine, which produces delicious Wines, red and white; they gather a great Quantity of Figs, Pomegranates, Oranges, and Citrons, some of which are as big as the Head of a Man; Laurels, and Myrtle-Trees, are as common in the Fields as Briars here. The Inhabitants make very good Oil, and very fine Salt: The Pastures are always cover'd with innumerable Flocks of Oxen and Sheep; among which there are Rams which have their Horns strait. Neither Harts, Wolves, Foxes, nor venemous Beasts are seen there, except a Kind of Spiders, call'd *Phalangium*, whose Sting is mortal.

There are no navigable Rivers in *Candia*, but only large Brooks, as the *Almiro* and the *Istonia*; along which is found the Tree *Leandro*, the Wood and Leaves thereof is a Poison, which renders the Water very dangerous in Summer.

Among its Mountains is seen that of *Psiloriti*, call'd antiently Mount *Ida*, like that of *Troades*.

Note, That the *Candiots* are very unpolish'd, lazy, and Epicures to Excess: They are brutish in their Passions, imitating *Jupiter* their antient King, who left all the fair Ladies to keep near him his *Ganimedes*.

Note also, That the Island of *Candia* had antiently its particular Kings; then was govern'd in Form of a Republick, which was the best civiliz'd of its Time. *Quintus Metellus*, *Pompey*'s Lieutenant, conquer'd it for the *Romans*; afterwards it came into the Power of the Emperors of the East; then it was given to the Duke of *Montferrat*, who sold it to the *Venetians* in 1494; who possess'd it, till the *Turks* made themselves Masters of it in taking the City of *Candia*, its Capital, after a very long Siege. It is a Place very well fortified, situated on the northern Coast, and the Grand Seignior keeps in it a *Sangiac*, for the Government of the Island.

Note again, That ever since the *Venetians* have lost this Island, there are few others but *Christian Greeks*, and *Mahometans* found in it.

NEGREPONT.

The Island of NEGREPONT, call'd also *Euboæa*, and *Egripos*, by the *Turks*, was antiently call'd *Hellopia*, of the Name of its People; *Chalcis*, of that of its capital City; and *Macra*, because it is long and narrow. It was antiently a Peninsula, which made Part of *Bœtia*, to which it was join'd by a very narrow Isthmus, which was broken by the Violence of the Ebbing and Flowing of the Sea, which happens there seven Times in twenty-four

four Hours; for which no pertinent Reason could be given yet. This Prodigy serv'd a long while for Subject of Meditation to *Aristotle*, and accelerated his Death, according to the Sentiment of some Authors; but not by precipitating himself into it, as falsly imagin'd by others.

This Isle is situated in the *Archipelago*, at North by East of *Achaia*, from which it is separated by a Streight call'd *Euripe*. It is contained between the 49 and 52 Deg. of Longitude, under 38 Deg. 30 Min. of Latitude, and extends from South by East to North by West, about 50 Leagues; having 10 or 12 in Breadth, and about 120 of Circuit.

Though it be very subject to Earthquakes, it is notwithstanding fertile enough in Corn, Wine, and Oil.

Note, That this Island was for a considerable Time in the Power of the Emperors of the East; then the *Venetians* possess'd it till *Mahomet* II. conquer'd it in 1470, causing all the Males above twelve Years of Age to be put to Death.

Note also, That before the Coming of the *Turks* in this Island, the Inhabitants were part *Roman* Catholicks, and part *Greeks*; but ever since that Time, the last are the only *Christians* to be met with in it.

The City of *Negrepont*, antiently call'd *Chalcis*, is the Capital of the Isle. It is situated on the Coast over-against *Bœtia*, with which it has Communication by means of a Bridge, made in the same Place where the Isthmus was.

Note, That I'll content myself with inserting, in my particular Description, the other Isles in the *Archipelago*, of the Dependencies of *Greece*, because they have nothing deserving our Notice. Their antient Names, which are famous in History, and in the *Metamorphoses*, being at present so much chang'd, or at least disfigur'd, that they are hardly known.

A more particular Description of *Turky* in *Europe*, is as follows:

ROMANIA, or THRACE, contains *Constantinople*, *Galata*, *Selioræa*, *Chiourli*, *Bergas*, *Adrianople*, *Philippopoli*, *Zarnis*, *Bra*, *Nicopoli*, *Maximianopoli*, *Bistogna*, *Marogna*, *Abdera*, *Enos*, *Trajanopoli*, *Caridia*, *Gallipoli*, *Sestos*, *Mecha-nova*, *Rudisto*, *Malatia*, *Stagnata*, *Sisopoli*.

The *Island of* CANDIA, contains *Candia*, *Canæa*, *Rettimo*, *Sitia*, *Suda*, *Spina-longa*, *Paleo-Castro*, *Schino*.

The *Island of* NEGREPONT, contains *Negrepont*, *Protamo*, *Gerelto*, *Caristo*.

Isles of STALIMENE, *Tasso*, *Seyro*, *Dromo*, *Andro*, *Nicsia*, *Paro*, *Morgo*, *Stampalia*, *Sifano*, *Milo*, *Cerigo*.

GREECE.

MACEDONIA, contains *Thessalonica*, *Zucaria*, *Empoli*, *Liba-nova*, *Cavalla*, *Philippi*, *Siderocapsa*, *Ajomana*, *Berræa*.

THESSALIA, contains *Larissa*, *Coniga*, *Tricala*, *Demetrinda*, *Armiro*, *Pharsalia*.

ACHAIA, contains *Seuines*, *Stivis*, *Aulis*, *Marathon*, *Megara*, *Delphos*, *Lepanthe*, *Galato*, *Santa-Maura*.

ALBANIA, contains *Aleosio*, *Scutari*, *Croya*, *Antivari*, *Thermidava*, *Locrida*, *Albanopoli*, *Valona*, *Avostoma*.

EPIRUS, contains *Larta*, *Previza*, *Bastia*, *Orchimo*, *Argiro*, *Elatria*.

The MORÆA, contains *Modon*, *Corinth*, *Patras*, *Misistra*, *Argos*, *Coron*, *Arcadia*, *Pisa*, *Tornese*.

BULGARIA, and SERVIA.

These two Provinces contain the Country anciently call'd *Mœsia*, except that it advances less towards the *Levant*; but the Country of the *Tartares Dobruse*, being join'd to the first, makes it to extend as far as the *Black Sea*; so that these two Provinces take up a Space which has near 180 Leagues of Extent from East to West, from the Coasts of that Sea to the River *Drine*, which separates *Servia* from *Bosnia*; and extends in Breadth between the *Danube*, with which they confine Northward, and the Mountains which separate them Southward from *Romania*, and *Greece*, sometimes of 25 Leagues of 30, and even of 50, towards the *Nissawa*, which runs in *Servia*.

The Climate is very temperate, the Soil agreeable enough, being diversified with Mountains and Plains: It is very fertile, but it remains very often uncultivated, because the *Turks* ravish from the poor Country People, the Fruit of their Labour and Industry: Notwithstanding which one may live very cheap in that Country, because they have Abundance of Cattle and Fowls; but the Bread is very disagreeable, because often bak'd under the Ashes.

The most remarkable Rivers of those Provinces are the *Save*, which receives the *Drine*; the *Morave*, which receives the *Nissawa*; the *Iska*, &c. which all disembogue into the *Danube*, which serve for Bounds to the whole Country Northward.

Note, That the People, particularly the *Servians*, are cruel, Thieves, and Drunkards; they steal Children, whom they sell impudently to the *Turks*, for infamous Uses: The *Bulgarians* are more human; and both are very courageous.

Note also, That these Provinces had once their Kings, or particular Princes, who were very powerful: Those of *Servia* were call'd *Despote*, and the last was *Stephen*, who was also *Despote*, or King of *Bosnia*. *Mahomet* II. after he had debauched his Wife, surprized him, and had him put to Death: By that Means the *Barbarian* Emperor became Master of those Provinces, which depend at present of the *Beglerbeg* of *Rumelia*.

The City of SOPHY, is the Capital of *Bulgaria*: It is situated in a large Plain, on the Road from *Constantinople* to *Vienna*.

SAMANDRIA, was once the Capital of *Servia*, but it is at present half ruinated; and BELGRADE, on the *Danube*, passes for the Capital of that Province.

Note, That the Inhabitants of the Cities follow most of them the Religion of the *Greeks*: The *Mahometans*, who are in a very small Number, live in the Boroughs and Villages: The *Catholicks*, who may be to the Number of 25 or 30,000, are very miserable: And the *Jews*, who ingross to themselves the whole Commerce of the Country, have several Synagogues in it.

A more particular Description of *Bulgaria*, and *Servia*, is as follows:

BULGARIA, contains *Sophia*, *Dragoman*, *Jetiman*, *Biltz*, *Silistry*, *Nigeboli*, *Tirnova*, *Rasgrod*, *Rossi*, *Pasargia*, *Tatracan*, *Dorostero*, *Axiopoli*, *Dionisiopoli*, *Provas*, *Mesembria*, *Varne*, *Cavarne*, *Momgalia*, *Minstenge*, *Tomi*, *Drimago*, *Crosone*.

SERVIA, contains *Belgrade*, *Sabatz*, *Orach*, *Belina*, *Zenobicz*, *Fochia*, *Janisabar*, *Pristino*, *Novobardo*, *Siabrino*, *Stratoria*, *Santosaba*, *Nice*, *Precopia*, *Crattovo*, *Yagodna*, *Semandria*, *Colubas*, *Novigrad*, *Festlan*, *Viddina*, *Chiprovax*, *Bercoviza*, *Pirot*.

BOSNIA, ESCLAVONIA, CROATIA, and DALMATIA.

These Provinces was antiently comprised under the sole Name of *Illyria*, call'd since *Sclavonia*.

They take up the Extent of Country which is from the Frontiers of *Carniole*, towards 38 Deg. 30 Min. of Longitude, as far as to 44 Deg. and from the 42 Deg. 40 Min. of Latitude, to 46 Deg. 40 Min. has in its greatest Length, from East to West, about 80 Leagues; and 65 from South to North.

They confine Northward with *Hungary*; Eastward with *Servia*, and *Albania*; Southward with the Gulph of *Venice*; Westward with *Carniole*, and the County of *Cilley*.

The Climate is mild, and temperate; the Soil, tho' full of Mountains, very fertile in Corn, Wine, Fruits, and Pasture, where is fed a great Number of Cattle, but those very lean. Mines of Gold, Silver, and other Metals, are found in them.

The most considerable Rivers of these Provinces are the *Drave*, the *Save*, the *Drine*, the *Bossena*, or *Bosna*, the *Unna*, and the *Kulp*.

Though Authors have spoke variously of the Division of these Provinces; to follow the most modern Opinion, I'll say that *Bosnia* is Eastward, or rather in the Middle, in

in the Neighbourhood of the River *Bossina*, between the *Save* and *Dalmatia*; *Esclavonia* is Northward between the *Drave* and the *Save*; *Croatia* is Westward, in the Neigbourhood of the *Unne* and *Kulp*; and *Dalmatia* is Southward along the Gulph of *Venice*, containing in its Extent the Territories of the Republick of *Ragusa*.

When *Bosnia* had its own particular Kings, *Jayla* was their Place of Residence; but at present the Capital of that Province is *Bosne-Serayo*, situated on the River of the same Name, tho' the *Beglierbeg* resides commonly at *Bagnaluca*, Frontier of *Dalmatia*.

POSEGA, is the most considerable of the Cities, the Grand Seignior is Master of in *Esclavonia*, and is the Capital of a County.

WIHITZ, or BIGIHON, is the Capital of those he holds in *Croatia*; and *Scardona* was the most remarkable of those he holds in *Dalmatia*, but it is at present almost ruinated.

RAGUSA, an Archiepiscopal City, is the Capital of its Republick; the *Turks* call it *Dobronissa*, and it passes for the richest, most trading, and best peopled of those Parts.

Note, That all the People of those Provinces, are naturally warlike; but most of them are addicted to Thieving and Drinking.

Note also, That *Bosnia*, as I have already observ'd, had antiently its own Kings, or *Despotes*, besides the *Beglerbeg* of *Bosnia*, and the *Sangiacks*, who govern all the Grand Seignior possess in those Parts; the *Venetians*, who are Masters of almost all the Coasts of *Dalmatia*, keep in it a general Proveditor, and other Officers. The Republick of *Ragusa*, which is tributary of the *Turk*, is govern'd by its Rector, who is changed every Month.

Note again, That the *Catholick* Religion is the most followed in those Provinces. The *Greeks* and *Mahometans* have also their Partisans, and there is a Liberty of Conscience for every Body.

A more particular Description of those Provinces is as follows:

BOSNIA, contains *Bosnia-Serayo*, *Zunick*, *Jadra*, *Quornick*, *Uranduck*, *Bragnaluca*, *Jaicza*, *Tinina*, *Zelinaza*, *Verbosania*, *Cernirza*, *Ternovizza*.

The *Turkish* ESCLAVONIA, contains *Posega*, *Dowabacz*, *Geradiskia*, *Jassenocz*, *Sopplonka*, *Soppia*, *Zanko*, *Valkowar*, *Ponmonster*, *Petrovitha*, *Ratcha*.

The *Turkish* CROATIA, contains *Wihits*, *Castonovitz*, *Uduina*, *Lira*, *Dublicza*, *Nowogradeck*, *Dobranim*, *Kamengrad*, *Sternizza*, *Obroazo*, *Suonigrad*.

The *Turkish* DALMATIA, contains *Scardone*, *Sdrigna*, *La Uragna*, *Sfiigna*, *Mostar*, *Narenza*, *Antivari*, *Trebigna*, *Dulcigno*.

The *Republick of* RAGUSA, contains *Regusa*, Arch. *Stagno*, *Sabioncello*.

Turkish HUNGARY.

This Part of *Hungary*, which I call *Turkish* or *Mahometan*, is the whole Extent the Grand Seignior possesses in that Kingdom, which includes almost all that's called *Lower Hungary*, except the most western Part, which belongs to the Queen of *Hungary*.

It extends at present from the Confluent of the *Save* with the *Danube*, about the 45 Deg. 20 Min. of Latitude, to the 48. Its greatest Length is from *Kanise*, under the 39 Deg. 30 Min. of Longitude, to the 46. 30 Min. toward *Valachia*; so that this Part, which is the Heart of *Hungary*, has very near 110 Leagues in its greatest Extent from East to West; and more than 50 from South to North.

It confines Eastward with *Transilvania*; Southward with *Servia*, and *Esclavonia*; Westward with the *Christian Hungary*, by a Line drawn from the Lake *Balaton*, to *Newhausel*; and again Northward by another Line drawn from the same City to *Agria*, and from thence to *Waradin* in *Transilvania*.

I have observed already that the Climate of *Hungary* is unwholsome, particularly in this Part. The Waters are very bad to drink, so that Foreigners never fail falling sick, and be presently full of a Vermin peculiar to that Country.

The Soil is very fertile in Wheat, delicious Wines, and Pasture. It abounds in Cattle, especially Oxen. Harts, wild Boars, Hares, Pheasants, Partridges, and all Sorts of Game, are so common there, that the Peasants make their common Meals of it. It has so great a Plenty of Fish, particularly in the *Teiss*, that 1000 Carps are sold for a Ducat, which is about four Shillings of *English* Money; and sometimes the Fishermen are forc'd to throw them back into the Water, or to give them to Hogs which are fatten'd with them. Mines of Gold, Silver, Copper, Iron, Antimony, *&c.* are found in it; in a Word, it is one of the most fertile Countries of *Europe*.

The most remarkable of its Rivers are the *Danube*, the *Save*, the *Marish*, *Teiss*, or *Tibisc*, *Sawisch*, *Temes*, &c.

The *Turkish Hungary*, is divided into four *Beglierbywicks*: The first is that of *Buda*, which is the biggest: The second that of *Temeswar*, Eastward: The others are of a still lesser Extent than this, which are that of *Kanise*, Westward; and that of *Agria*, Northward.

BUDA, or OFFEN, on the *Danube*; TEMESWAR, on the *Temes*; KANISE, near the *Sale*; and AGRIA, on the *Eger*, are the Capitals of their *Beglierbywicks*.

Note, That besides the *Beglierbegs*, appointed for the Government of these Provinces, there are *Moulacadis* in the great Cities, and *Cadis* in the lesser, who are above the *Sangiacks* for the Administration of Justice. There is besides a *Tefftadar* in each Province, who is like a *Custos Rotulorum* in *England*. These Officers, and some others of the same Sort, compose the *Divan*, or Council, in which are determin'd all the Affairs of the Province, where the *Beglerberg* presides.

Note also, That the *Catholick* Religion is profess'd publickly in the *Turkish Hungary*, and that but very few *Greeks* are found in it; but there are *Lutherans* and *Calvinists* who pass among the *Catholicks* under the Name of *Christians*, most of those in the Government, and all the Soldiers are *Mahometans*. The *Jews* have also some Synagogues, particularly in the Royal Cities.

The Countries tributary of the Turk.

The Countries included between the *Danube* and the *Niester*, from the Kingdom of *Hungary* to the *Black Sea*, were known antiently under the Name of *Dacia*; therefore it included *Transilvania*, *Valachia*, *Moldavia*, and *Bessarabia*.

These Provinces were a long while subject to the Kings of *Hungary*, and to those of *Poland*, who used to send thither, *Vaivodes*, i. e. Governors, or Viceroys. But these *Vaivodes* having revolted against their Sovereigns, and being not strong enough to maintain a War against them, were forced to put themselves under the Protection of the *Turk*, and become his tributary; so that at present he uses them as he pleases.

VALACHIA.

This Province was antiently called *Flaccia*, of the Name of *Flaccus*, sent into it by the Emperor *Trajan*, with a Colony of 30,000 Men to till the Ground. It used to furnish the *Roman* Army with a great Quantity of Provision, during the War against the *Scythians* and *Sarmatians*.

It extends from East to West more than 90 Leagues, and from South to North more than 50; but not every where, because its Figure is very near that of a spherical Triangle.

It confines Northward with *Moldavia*; Southward and Eastward with the *Danube*; and Westward with *Transilvania*.

The Climate is very temperate; the Soil abounds in Corn, Wine, Fruit, and all that's necessary for Life. It has in several Parts very thick Forests; it feeds a great Quantity of fine Horses, Oxen, and Sheep, which are sent in great Flocks to most Parts of *Europe*. It has Mines of all Sorts of Metals; and the Inhabitants

carry on a great Commerce of Leather with *Muscovy*, and *Poland*.

Its principal Rivers are the *Aluta*, *Telesch*, *Jalonicza*, and *Missovo*, which run of a Course almost parallel, to disembogue afterwards into the *Danubs*.

Note, That the *Valachians* are govern'd by a *Vaivode*, whom the Grand Seignior chuses, or accepts, if he pleases him; but whom he deposes when he suspects him.

The City of *Tergowisk*, situated on the River *Jalonikza*, is the Capital of the Province, and the Seat of the *Vaivode*.

Note, That the Inhabitants profess the *Greek* Religion, and acknowledge the Patriarch of *Constantinople*.

MOLDAVIA.

This Province borrows its Name from one of its Rivers. It extends from East to West more than 90 Leagues, and from South to North about 70.

It confines Northward with the *Niester*, which parts it from *Podolia*; Eastward with the *Black Sea*, and the *Danube*; Southward with the same River, and the *Serith*, or *Missovo*; and Westward with *Valachia* and *Transilvania*, from which it is separated by the Mount *Hæmus*.

The Climate is very wholsome, and the Soil fertile in all that one can desire. It feeds the finest and best Horses of *Europe*; its Plains are diversified with Mountains, Valleys, and Rivers, which render the Province very agreeable. The Soil of *Bessarabia* is very marshy, tho' very well inhabited.

The most remarkable of its Rivers are the *Pruth*, the *Missovo* which receives the *Bardalach*, and disembogues like the first into the *Danube*, which confines with that Province at South by East, and passes in *Bessarabia*, where are all its Mouths.

MOLDAVIA is divided into two Parts, the most considerable thereof, which is Westward, retains the same Name; and the other, which is not a Quarter so large, is called *Bessarabia*.

Note, That *Moldavia* is govern'd by a *Vaivode*, who is tributary of the *Turk*; *Bessarabia*, inhabited by the *Tartars* of *Bugiac*, are entirely under his Domination.

The City of SOCKOW, is the Capital of this Province, and the Seat of the *Vaivode*, who stiles himself Lord of *Moldavia*. It is situated Northward on the River *Sereth*.

Note, That the *Moldavians* are like the *Valachians*, *Christians* after the Manner of the *Greeks*.

LITTLE TARTARY.

This Country called *Little Tartary*, contains what was antiently called *Little Scythia*, which was inhabited by the *Tauro Scythians*, the *Nomades*, *Tanaites*, and several other People. It is called *Little Tartary* to distinguish it from the *Great*, which is in *Asia*, whence came the People who inhabit it at present.

It extends between the 57 and 75 Deg. of Longitude, from the 47 Deg. of Latitude (the Peninsula of *Crimæa* included) to the 53; so that it has more than 300 Leagues from South by West, to North by East; 40 or 50 from North to South, without including the *Crim*, which may have 48 Leagues besides on the same Side, and about 70 from East to West.

It is comprised between the *Nieper*, and little *Don*, which separates it in Part from *Muscovy*, with which it confines Northward and Eastward; Southward with the *Tanais*, or *Great Don*, the Sea *Delle Zabach*, and the *Black Sea*; and Westward with the *Nieper*, and the Mountains, which part it from *Poland*.

The Climate of this Country, tho' temperate enough, is not very wholsome. The Soil is very extraordinary in its Qualities, considering its small Extent; for in some Places it is fertile in Corn, Millet, Wine, and Fruit; in others very marshy, and full of Pastures, which feed a great Number of Cattle; and in others it is uncultivated, and full of Sand. Wood is very scarce, except in the Peninsula, where are found fine Forests, full of Deers, wild Boars, Hares, and other Game. Its Mountains have Mines of Gold, Silver, and Iron: Its Rivers full of delicious Fish, tho' the Waters are bitter, and not good to drink.

The most considerable of its Rivers, are the *Nieper*, or *Boristhenes*, and the *Great* and *Little Don*.

This Country is divided, as I have already observed, into two Parts, one whereof is Northward, between the *Nieper*, and the *Little Don*; the other is the Peninsula, called *Krimæa*. The first is almost desart, being inhabited but by the *Tartars Nagais*, who build their Houses, or Huts, in the Places which they judge most commodious; so that very few Cities are found in it, except towards the Coasts of the *Black Sea*, and that of *Della Jabache*. The *Krimæa*, called antiently *Taurick Chersonesus*, is far better inhabited, and contains several pretty large Cities. The Inhabitants dug once a very deep Ditch on the Isthmus, which joins it to the Main Land, whence it was called *Præcop*, in the Language of the Country.

Note, That the Inhabitants of this Country are very strong, and capable to support Hunger, Thirst, and all Sorts of Fatigues. They are free, and sincere among themselves; but thievish, and cruel towards Foreigners, particularly their Enemies: They are jealous to Extravagancy, and lewd to Excess. They eat commonly Horse Flesh, half raw, and often to bake it in their Manner, they put it by Pieces under the Saddle of their Horses, which they spur on till they be all in a Sweat, then they leave it for some Time to stew, after the Horse is stopp'd, they take it out and eat it. They also drink the Blood of their Horses, and the Milk of their Mares. They are very courageous, and love nothing more than War.

Note also, That the *Little Tartary* is govern'd by an Emperor, commonly called *Cham*. He is under the Protection of the Grand Seignior, who sends him a Standard for a Mark of his Sovereignty. During the Reign of a Cham, his sublime Highness keeps, as in Hostage, him who is to succeed, whom they call *Galga*, and who is commonly the Son, or Brother of the Cham. The *Turk* possesses Part of the *Krimæa*, where he keeps a Beglerbeg, in the City of *Caffa*, which is the most important Place of that Province. He holds, besides, that Part of *Podolia*, or *Ukrania*, which is between the *Bessarabia*, and *Boristhenes*, and inhabited by the *Tartars* of *Oczakow*. He is Master of the City of *Azoph*, or *Tane*, situated in an Island made by the *Don*, near its Mouth; and that of *Thamin*, situated in *Asia* on the Streight of *Caffa*. These two Cities are of great Importance, and have each a Sangiack, depending of the Beglerbeg of *Caffa*.

The Capital of *Little Tartary*, is CRIM, from which the Peninsula in which it is situated, borrows its Name. The Cham resides either there, or at *Bacca-Serayo*, situated in the Middle of the *Krimæc*. *Caffa*, where the Beglerbeg resides, is situated on the eastern Coast, bathed by the *Black Sea*.

Note, That most of the *Little Tartars* follow the Dreams of *Mahomet*. There are found among them several *Greek Christians*, and *Armenians*, who have their Metropolitan, and particular Churches; also a great Number of *Catholicks*, who are of *Italian* Origin.

A more particular Description of all these Provinces, is as follows:

The *Turkish* HUNGARY, (between the *Danube*, and the *Drave*) contains *Buda*, Beg. *Vicegrad*, *Strigonia*, *Albe Royal*, *Vazzon*, *Kapusk*, *Kanise*, Beg. *Zerdabet*, *Zigeth*, *Ozora*, *Cinq Eglises*, *Mohacz*.

Between the DANUBE and the TIBISC, *Agria*, Beg. *Nana*, *Novigrad*, *Newhousel*, *Vacia*, *Katha*, *Zolnock*, *Colocza*, *Bathmunster*, *Seged*, *Batha*, *Pesth*.

Between the TIBISC and the MARISCH, *Czongrad*, *Beckim*, *Turtur*, *S. André*, *Giula*, *Warsan*, *S. Job*, *Naz*, *Danbchaz*, *Silmos*, *Ostroido*.

Between the MARISCH and the DANUBE, *Temeswaer*, Beg.

Beg. *Gala, Chonad, Sarad, Lippa, Sidowar, Mogsanit, Haran, Karansebes, Mesosanlo, Ersanlo, Zeverin, Butozin, Beczkerk.*

WALACHIA, contains *Tergowisk, Braskow, Brailow, Olten, Jalonicza, Dembronitza, Arsim, Orsova.*

The LITTLE TARTARY, contains *Asoph, Manitz, Monaster, Stekoluk, Sternitza, Oczakow, Korkuby.*

The CRIMEA, contains *Crim, Bacca-Sarayo, Precop, Manseup, Kercy, Caffa,* Beg. *Balaclava.*

In ASIA, *Thaman, Temroch.*

Note, That from *Europe*, I'll pass into *Asia*, which is the most Eastern, and the most extended of the Parts the antient World, or our Continent, is compos'd of; chosen by a special Favour, by the Author of Nature, for the Creation of the first Man. It has been the Laboratory (if I may use that Expression) where he has formed all his other Works: It has the Advantage of having served as a sacred Temple, where the Almighty has pronounced his Oracles: It has furnish'd the Matter on, which he himself printed the sacred Characters of his divine Commandments, to give them to *Moses*: And it had the Glory to witness the Birth of the Saviour of the World; to have possessed his divine Presence during the whole Course of his mortal Life; having been as a new Temple, where he has accomplish'd the Mysteries of our Redemption, after he had instituted those of the true Religion.

I'll say more, that it is from *Asia* all the Colonies which have peopled the other Parts of the World have been taken; that it has been the Seat of the most antient and most powerful Monarchies of the Earth: For after the Deluge, it saw the Beginning of the Empire of the *Assyrians* by *Belus*, or *Ninus*, which continued as far as *Sardanapalus*: It passed afterwards to the *Medes* by *Arbaces*, as far as *Astyages*; to the *Persians* by *Cyrus*, as far as *Darius*; and to the *Greeks* by *Alexander the Great*. The *Parthians* established there likewise a very flourishing Empire, which ended under *Alexander Severus*, and passed to the *Persians*, till it was swallow'd by the *Turks* and *Saracens*.

Note also, That *Christianity*, *Mahometanism*, and *Paganism*, are the three reigning Religions in *Asia*.—*Christianity*, is divided into eleven Sects, which the Catholick Church call *Schismatical*; viz. 1. Of the *Greeks*; 2. Of the *Russians*; 3. Of the *Georgians*; 4. Of the *Syrians*; 5. Of the *Jacobites*; 6. Of the *Armenians*; 7. Of the *Nestorians*; 8. Of the *Cophts*, or *Egyptians*; 9. Of the *Abyssines*, or *Abyssinians*; 10. Of the *Maronites*; and 11. Of St. *Thomas*: These two last acknowledge, at present, the *Roman* Church.—The *Greek*, is the Religion of the Natives of Part of *Turky* in *Asia*, whose Patriarch is that of *Constantinople*.—The *Russian*, is professed in the Dependencies of that Empire, whose Patriarch resides at *Moscow*.—The *Georgian*, is the Religion of the People of *Mingrelia*, who have their own Patriarch.—The *Syrian*, extends in *Syria*, or *Seristan*, which is a Province of *Turky* in *Asia*, whose Patriarch is that of *Antioch*, residing at *Damascus*.—That of the *Jacobites* is in the *Diarbeck*, or *Mesopotamia*, and in the *Holy Land*, under two Patriarchs; one residing at *Caracmid*, who stiles himself Patriarch of *Antioch*; and the other at *Jerusalem*, for the *Holy Land*.—That of the *Armenians*, is professed in both *Armenia's*, under two Patriarchs, one for the *great*, and the other for the *little Armenia*.—That of the *Cophts*, is in *Egypt*, whose Patriarch is that of *Alexandria*, residing at *Cairo*.—That of the *Abyssines*, is that of the Dependencies of the Empire of the same Name.—That of the *Nestorians*, extends in the *Erzerum*, or *Assyria*, in the *Diarbeck*, the *Gerack*, or antient *Chaldæa*, and in some Provinces of *Persia*, under the Patriarch of *Mosul*, which is the antient *Niniveh*; this Sect was once the most extended. Among all these Schismatical Sects, there are but the *Russian*, *Abyssinian*, and *Georgian*, which are professed by Sovereign Princes; the others being most of them subject to the *Mahometan* Princes, in whose Dominions they are professed.

The *Mahometanism* in *Asia*, is almost the sole Religion of *Arabia*; and is the reigning one of *Turky* in *Asia*, of *Persia*, of the *Mogul*, of the western Parts of the *great Tartary*, of the northern Part of the Peninsula of *India*, this Side the River *Ganges*, of the *Maldive Islands*, and of most of the *Isles of Sunda*, and of the *Molucca's*.

Among the *Pagan* Sects, that of the *Parsis* was antiently the reigning Religion of *Persia*; but ever since *Mahometanism* has gain'd the Ascendancy, there are but few of the Natives who profess it, some of whom have settled on the Coasts of the *Mogul*, near *Persia*, and in some Places of the Peninsula of *India*, this Side the River *Ganges*.—The Religion of the *Brachmans*, was once the only one of all *Indostan*, and of the Peninsula, this Side the River *Ganges*; and since *Mahometanism* has been established in those Countries, it is yet the most followed Religion, and most general of the Natives of the Dominions of the *Mogul*, and of the *Mahometan* States of the Peninsula of *India*, this Side *Ganges*; is the reigning one in the other Dominions of the same Peninsula, and in those of the *Rayas* of *Indostan*, who have maintain'd themselves against the *Mogul*.—The Religion of *Jukaio*, is the particular Religion of Men of Letters in *China*, and that of the Court.—The Religion of the *Laura*, is also professed no where but in *China*.—That of the *Lamas*, which has some Remains of Christianity, is the Religion of all the Regions of *Tartary*, near *China*, as of the *Thibet*, of *Tangu*, *Kin*, and has been introduced in *China* by the Conquest the *Tartars* have made of that Country.—*Judaism* is also professed throughout all *Asia*, but is subject to the three others abovementioned.

Note again, That *Asia* has six *general Languages*, and five *particular Ones*.

Among the *general Languages*, three are natural to it, *viz.* the *Arabick*, *Tartarian*, and *Chinese*; and three foreign, which it borrows from *Europe*, *viz.* the *Greek*, *Latin*, and *Teutonick*.

The five *particular Languages*, are the *Japanese*, the *Armenian*, the *Guzarate*, *Malabar*, and *Malayan*.—The *Japanese* is the only one of the Inhabitants of *Japan*, without any Mixture of foreign Languages.—The *Armenian*, is very much in Use for the Commerce in *Turky*, and *Persia*.—The *Guzarate*, *Malabar*, and *Malayan*, have their Course on the Coasts of *India*, and in the neighbouring Islands; particularly the *Malayan*, which is esteemed the most beautiful and elegant of the *East-India*.

ASIA.

ASIA, extends from the 64 Degree of Longitude, at the Isthmus of *Suez*, as far as the 184, or 194, according to the modern *Geographers*; and from the first Degree of Latitude, to the 7½, without including the Isles depending thereof; and which extends, Southward, as far as to the 11 Degree of meridional Latitude; so that it has, from East to West, 2120 Leagues; and in its greatest Extent, from South to North, about 1400 Leagues: Whereby it is seen, that it takes up a great Part of the *Torrid Zone*, all the *Northern Temperate*, and advances five Degrees in the *Frigid*.

It confines Northward with the *Northern Ocean*; Eastward with the Sea of the *Kaimachites*, and that of *China*; Southward with the *Indian*, and *Arabian Sea*; and Westward with the *Red Sea*, the Isthmus of *Suez*, the *Archipelago*, the Sea of *Marmara*, the *Black Sea*, the Sea of *Delle Zabach*, with Part of the *Don*, and a Line drawn from its most eastern Curvature to the Gulph, which is between the Mouth of the River *Oby*, and the Streight of *Weigatz*, in the *Icy Sea*.

I'll divide *Asia* into six principal Parts, which are *Turky* in *Asia*, *Persia*, *India*, *China*, *Great Tartary*, and the *Isles* depending thereof: The first four are found Southward, in this Order, going from West to East; the fifth is situated Northward of them; and the *Isles* are dispersed in the Ocean, into five principal Cantons, *viz.* the Isles of *Japan*, the *Philippine* Isles, the *Molucca's*,

Iucca's, the Isles of *Sunda*, and the *Maldives*; to which I'll add the Isle of *Ceylon*.

Turky in Asia.

This State contains the whole Tract of Land, which the Grand Seignior possesses in that Part of the World.

It extends from 12 Deg. 30 Min. of Latitude, to the 45; and from 55 of Longitude, to the 95: So that it takes up about 325 Leagues from South to North; and more than 450 in its greatest Extent from East to West, either in the Northern or Southern Part.

It confines Northward with the *Black Sea*, and *Georgia*; Eastward with *Persia*, and the Gulph of *Ormus*; Southward with the *Arabian Sea*, and the Streight of *Babelmandel*; and Westward with the *Red Sea*, the Isthmus of *Suæs*, the *Mediterranean*, the *Archipelago*, and the Sea of *Marmara*.

Neither the Climate, nor the Soil, are of an equal Temperature; for in the northern Part, which contains *Natolia*, *Souria*, *Diarbekit*, *Armenia*, or *Turcomania*, and some Part of *Georgia*; the Climate is very temperate, and the Soil produces all that's necessary for Life, as Wheat, Barley, Fruits, Cotton, and in some Places excellent Wines, and Saffron in Abundance. It has very fine Pastures, which feed a great Number of Horses, and white Goats, whose Hairs are as soft as Silk. Mines of Silver, Copper, Iron, and Allum, are found in it; also Crystal, Orpiment, and the Loadstone, from which the City of *Magnesia* has borrow'd its Name. In its southern Part (including the two *Arabia's*, though the *Turk* possesses but a small Part of them) the Climate is sometimes so excessive hot, that if it was not for the Dew, which falls every Night, and temperates the Heat, it would be almost insupportable: The greatest Part of the Soil is sandy, uncultivated, and that which produces enough to supply the Wants of the Inhabitants, except in the Neighbourhood of Rivers which are very scarce, and towards the Sea, where it is less sterile, it produces Barley, Oranges, Lemons, Pears, Apples, *&c.* It abounds with Honey and Wax, with Palm-Trees which bear Dates, and others which produce Cassia, Cinnamon, Olibanum, Myrrh, and other Aromaticks; very good Horses are found in it, and large Sheep, whose Tail often weighs 25 Pounds; beautiful oriental Pearls are fished on the Coasts of the Gulph of *Balfora*, particularly in the Neighbourhood of the Island *Bahurin*, and Coral in several Places. It is supposed to have Mines of Gold, because the *Magi* came to offer some to *Jesus Christ*, a little after his Birth.

The most remarkable of its Rivers are the *Tygris*, and *Euphrates*, so famous in the sacred Scripture, which are both in the Mount *Ararat* in *Armenia*; the last runs first from East to West; then after it has passed through the City of *Erzerum*, turns its Course Southward, parting *Natolia* from *Armenia*, and *Souria* from *Diarbeck*, after it has join'd the *Tygris* below *Bagdad*; then having ran together 40 or 50 Leagues, they must part, according to the Description given in the sacred Text, which places the Garden of *Eden* Eastward of the common Canal of those two Rivers.

Note, That the Inhabitants of the northern Part are rough, ignorant, and lazy; loving nothing but good Chear, and sensual Pleasures, which they search among both Sexes indifferently; they are extremely jealous of their Wives, and cruel to their Slaves: The *Arabians* are ingenious, industrious, and crafty; they cultivate the Land, and feed a great Number of Cattle and Camels, but they are great Thieves; and Travellers are obliged to march always in a numerous Company for fear of being plunder'd.

Note also, That the Grand Seignior governs the greatest Part of these Countries, by Means of his Beglerbegs, who have under them several Sangiacks, and Timariots. Some Princes in *Georgia*, and *Arabia*, are tributary to him; others have maintain'd their Liberty, in Spite of his formidable Power.

Note again, That Part of these People follow the Dreams of *Mahomet*, and the other is divided into several Sorts of Religions; for there are found among them *Jews*, and *Greek Christians* of different Sects, the principal whereof are those of the *Melchites*, *Nestorians*, *Dioscorians*, *Armenians*, *Jacobites*, and *Maronites*.—The first, who are in greater Number than any of the others, have three Patriarchs besides that of *Constantinople*, *viz.* that of *Alexandria*, that of *Antioch*, who resides at *Damascus*, and that of *Bethlehem*.—The *Armenians* have two, one residing in the Convent of *Ecmeasin* in *Georgia*, and the other at *Sis*, in *Aladulia*.—The *Jacobites* have one, who resides at *Caracmit* in the *Diarbeck*.

Natolia.

Natolia, called antiently *Lesser Asia*, is a great Peninsula, which advances between the *Mediterranean* and the *Black Sea*, as far as the *Archipelago*, and the Sea of *Marmara*.

It was once divided into several Kingdoms, or Provinces; *Cappadocia*, *Galatia*, *Licaonia*, and *Pisidia*, were placed towards the Middle; *Bythinia*, *Paphlagonia*, and the Kingdom of *Pontus*, towards the *Black Sea*; the *lesser Armenia*, Westward of the *Euphrates*; *Cilicia*, *Pamphilia*, *Carbalia*, *Isauria*, and *Lysia*, towards the *Mediterranean*; *Caria*, *Dorida*, *Lydia*, *Ionia*, *Æolida*, the *greater* and *lesser Phrygia*, the *greater* and *lesser Mysia* and *Troades*, on the *Archipelago*: All these Kingdoms, or Provinces are again divided into several others, which are distinguished in the Charts of the antient *Geography*; what I say of it, is only for the Intelligence of those Charts, and of the antient Authors.

At present it is divided into four principal Parts, the most Western whereof, and the greater, retains still the Name of *Natolia*; the three others are *Caramania*, *Amasia*, and *Aladulia*.

The particular *Natolia* takes up almost half of the Peninsulas extending from the River *Casalmach*, on the *Black Sea*, on the Sea of *Marmara*, on the *Archipelago*, and on the *Mediterranean*, as far as the Coast which is between the Island of *Rhodes* and *Xanthe*; whence drawing a Line at the Mouth of the *Casalmach*, we'll part it from *Caramania* and *Amasia*; *Aladulia* is Eastward, between the *Euphrates* and *Caramania*.

The most remarkable of its Rivers, are the *Mæander*, at present *Madre*; *Ayala*, otherwise *Sangar*; and *Otmagiuth*, or *Œly*.

The City of Chiutage, situated on the River *Ayala*, is the Capital of this Province, and the Seat of a Beglerbeg. *Bursa*, which is Westward of it, was the Seat of the *Turkish* Emperors before they had taken *Constantinople*. From thence drawing towards the *Archipelago*, are found the Ruins of the antient *Troy*, antiently so famous, and so often celebrated by *Homer* and *Virgil* in their Verses. Following the Coast, Southward, is found *Smyrna*, at present *Ismir*, a very famous City for the Resort of Merchants who trade in the *Levant*. Advancing still farther, is seen the antient City of *Ephesus*, so well known by the Epistles of St. *Paul*; and in Antiquity, for the famous Temple of *Diana*, which was burnt by the extravagant *Erostrates*, to perpetuate his Memory to Posterity.

Caramania, takes up almost all the Coasts of the *Mediterranean*, between *Natolia*, and *Aladulia*: It is traversed from West to East by Mount *Taurus*, which begins in it.

Its Rivers, Southward, are the *Cedne*, the *Satalia*, and the *Xanthe*; that of *Cogni* in the Middle, where it disembogues into a Lake; and Northward *Gensui*, which passes afterwards into *Aladulia*.

The City of Cogni, situated in the Middle of the Country on the River of its Name, is the Capital of the Province, and the Residence of a Beglerbeg.

Amasia, and Adulia, take up what was antiently call'd *Lesser Armenia*, with a Part of *Cilicia*: The Mount, call'd *Anti-Taurus*, parts *Amasia* from *Aladulia*, and *Caramania*.

Besides the *Euphrates*, which serves them of Bounds Eastward, the Rivers *Casalmach* and *Pornon*, are found in the first; and in the second those of *Jensui*, *Cidne*, or *Carasu*, and *Malmistra*.

CYPRUS, *and other* ISLES.

Note, That it is not improper to speak here of the *Isle of Cyprus*, and of the others of the *Archipelago*, which are in the Power of the *Turks*, since they are plac'd in the same Chart, and in the Neighbourhood of *Natolia*.

CYPRUS, is one of the greatest Islands of the *Mediterranean*; it having 60 Leagues in Length, 20 or 25 in Breadth, and more than 130 of Circuit: It was antiently call'd *Paphia*, *Salamina*, &c.

It is situated Westward of *Syria*, between the 64 and 68 Degree of Longitude, under the 35½ of Latitude; distant from the main Land about 20 Leagues.

The Climate is very unwholsome, and the Air often loaded with Vapours: The Soil, which was once covered with Wood, is at present very fertile in Wheat, delicious Wine, and excellent Fruits; as Oranges, Lemons, Citrons, *&c.* It produces Saffron, Rhubarb, and other medicinal Drugs; it feeds a great Quantity of Cattle; and Camblets are made there with Goat's Hairs, which are very fine; it has Mines of Metals, especially a great Quantity of Copper.

The Island of *Cyprus* has no Rivers but only large Brooks and Ponds, which when they grow dry, expose the Inhabitants to great Inconveniencies.

Note, That this Island has always been a Kingdom; and *Pliny* assures us, that it was once divided into nine. After the Decline of the *Roman* Empire, it fell under the Domination of the *Greeks*; afterwards it passed to the Lords of *Lusignan*, of *French* Extraction; and the last Daughter of that illustrious House, call'd *Charlotta*, marrying *Louis of Savoy*, the Dukes of *Savoy*, his Descendants, style themselves still *Kings of Cyprus*. One *James*, natural Son of the last King, assisted by the Soldan of *Egypt*, render'd himself Master of it; then marry'd *Catherine*, Daughter of *Marcus Cornaro*, a noble *Venetian*: This Queen remain'd a Widow, and with Child of a Son, who liv'd but two Years; after whose Death, she gave the Kingdom of *Cyprus* to the *Venetians*, and *Charlotta* claimed it in vain. Since that Time it remain'd in the Power of the *Venetians* till the Year 1571, when *Piali* and *Mustapha* made themselves Masters of it, under the Empire, and in the Name of *Selim* II. Emperor of the *Turks*.

It is at present govern'd by a Beglerbeg, who resides at *Nicosia*, Capital of that Island, where the late Kings used to keep their Court. This Governor comes also sometimes to *Famagosta*, which is a very good Port: The *Knights of Malta* have made this Island their fourth Residence at *Limosso*.

The *Island of* RHODES, is situated in the *Mediterranean*, Southward of *Natolia*, under the 58½ Degree of Longitude, and the 36½ Degree of Latitude: It may have 16 Leagues in Length, 8 in Breadth, and 36 of Circuit, distant from the main Land about 5 or 6 Leagues.

The Climate is temperate, and the Soil very fertile in Meadows and Fruits. It was once famous for the prodigious *Colossus* of the Sun, which was at the Entrance of the Port; it was placed in such a Manner, that the largest Ships could pass between his Legs: It was 70 Cubits high, and was esteemed one of the Wonders of the World.

Note, That the *Knights of St. John of Jerusalem*, called at present *Knights of Malta*, took this Island from the *Saracens* in 1309, after they had lost *Limosso* in *Cyprus*, and kept it till the Year 1522, therefore it was their fifth Residence; and *Solyman the Magnificent* took it by the Treason of the Chancellor of the Order.

Its Capital, which is also call'd *Rhodes*, has a very fine Port, and is the Seat of a Sangiack, depending of the Beglierbewick of *Cyprus*.

The *Island of* METELIN, called antiently *Lesbos*, is situated in the *Archipelago*, under the 40 Degree of Latitude, and the 55½ of Longitude: It may have 50 Leagues of Circuit, and was once in the Power of the *Venetians*; but ever since *Mahomet* II. it has been under the Domination of the *Turks*: Its Capital bears the same Name.

The *Island of* SCIO, is a little more Southward than that of *Metelin*; it has about 30 Leagues of Circuit, and produces a great Quantity of Mastich: The *Genoese* possess'd it during 220 Years; but Bashaw *Piali* conquer'd it, under the Empire of *Solyman* II. who died a few Days afterwards.

The *Island of* SAMOS, is at the South by East of this; its Circuit is of about 24 Leagues: It was once famous for having produced the Sybill *Herophil*, or *Samian*, and several great Men. *Aulus Gellius* says, that the *Samians* invented the Earthen Ware; seeing that their Earth was very proper for those Sorts of Works.

The *Island of* COS, at present *Lango*, is Southward of *Samos*, and contains about 30 Leagues in Circuit: The antient Temple of *Esculapius*, the Birth of *Hippocrates*, and *Apelles*, render'd it very famous in Antiquity; and it is pretended, that the Manner of making use of Silk-Worms, was invented by a Girl of that Island.

The *Island of* PATMOS, at present *Palmose*, tho' less than the preceding ones, is mention'd in the Holy Scripture, as having been the Place of Exile of St. *John the Evangelist*.

Note, That I'll content myself with inserting the Names of the other *Isles*, in my particular Description, because they have nothing remarkable.

SOURIA, *or* SYRIA.

The Province call'd at present SOURIA, or SORISTAN, is situated on the *Mediterranean*, which confines it Westward; Southward it has for Bounds the *Stony Arabia*; and the Desart Eastward; and Northward it confines with the *Euphrates*, which parts it from the *Diarbeck*.

It has more than 180 Leagues in its greatest Extent from South by West, to North by East; and about 90 in its greatest Breadth, from South by East to North by West.

The Climate is very wholsome, and the Soil fertile enough, except on the Side of *Arabia*: It produces Wheat, Barley, and Wine; Olive-Trees, Palm-Trees, Lemon-Trees, Orange-Trees, Fig-Trees, and several Aromaticks; it abounds with Game, and the Country would be very good, if the Land was well cultivated.

It has no other remarkable Rivers, besides the *Jordan*, and *Orontes*, or *Forfar*; the first springs from the Mountains of *Galilee*, and loses itself in the *Dead Sea*; the other springs, and rolls its Waters through the Middle of the Country, and after it has pass'd through *Antioch*, disembogues into the *Mediterranean*.

It is divided, at present, into three principal Parts; the most Northern, and extended thereof, keeps the Name of *Syria*; that which is at its South by West, is call'd *Phœnicia*; and the most Southern, *Palestine* or *Judæa*.

Note, That this Province had antiently its own particular Kings, who reigned in that Quality the Space of 246 Years, from *Seleucus Nicanor*, who was the first, to *Antiochus* XIII. whom *Pompey* oblig'd to quit the Throne, for having hid himself during the War; therefore that Kingdom was reduc'd into a Province under the Domination of the *Romans*. Since that Time the *Saracens*, the Christians under *Godfrey of Boüillon*, &c. and the Soldans of *Egypt* possessed it in Part, one after another; at last *Selim* I. render'd himself entirely Master of it in 1516, and his Successors have kept it ever since. The Grand Seignior has three Beglerbegs in this Province; the first resides at *Aleppo*, a very trading City, and where one of the greatest Commerces of the World is carried on between the *Europeans* and the People of the *Levant*: It passes, at present, for the Capital of the whole Province. The second has his Seat at *Damascus*, in *Phœnicia*, which was a long while esteemed the Capital of all *Syria*, and antiently famous for the Conversion of St. *Paul*; and at present for its good Sword Blades, and excellent Fruits. The third resides at *Tripoly*, call'd of *Syria*, to distinguish it from *Tripoli* of *Barbary*:

bary: This City is situated on the *Mediterranean*, toward the Middle of all the Coasts.

The particular *Syria*, is situated at South by West of the River *Euphrates*, and contains twice as much Land as the two others taken together. In this Province are found *Aleppo*, which is the Capital, and *Antioch* on the *Orontes*, where St. *Peter* founded the third Church of the World, which he governed for the Space of seven Years as a Bishop: The Christians have always a Patriarch there.

PHOENICIA, is on the *Mediterranean*, between *Syria* and *Palestine*. There are found in it *Damascus*, which is the Capital, in which the *Greek* Christians have a Patriarch. *Tyre* and *Sidon*, famous in the Old Testament, but which offer to the Sight nothing, at present, but old Ruins, no more than *Margal*, *Actia*, or *Ptolemaides*, which were the second and third Residence of the *Knights of St. John of Jerusalem*, after they had lost the City of *Jerusalem*.

Note, That it is pretended the Inhabitants were antiently very industrious, and the first who invented Boats, by Means whereof they made great Conquests on the Sea; and likewise Writing, according to *Lucan*, who, in his Third Book of his *Pharsalia*, speaks thus:

Phœnices primi, famæ si creditur, ausi,
Mensuram rudibus vocem signare figuris.

PALESTINE, once *Judæa*, known under the Name of *Holy Land*, is that Land of *Canaan*, or Promise, which was the Object of the most ardent Desires of the People of *Israel*, at their Coming from the Captivity of *Egypt*.

This Land would be fertile enough if it was well cultivated; but the *Turks* take from the poor Country People the whole Product of their Labour.

The JORDAN, which runs through it from North to South, passes through the Lake of *Senechonitis*, and that of *Genesareth*, and goes to disembogue into the *Dead Sea*. This River is famous in Scripture for the Passage of the *Israelites*, and the Baptism of *Jesus Christ*.

This Country, which was once divided into twelve Tribes, is at present divided into two principal Parts by the River *Jordan*: That which is between that River and the *Mediterranean*, is subdivided into four others, the most Southern whereof is the Government of *Jerusalem*, which contains the antient Kingdom of *Judah*, or rather the Tribes of *Judah*, *Benjamin*, *Dan*, and *Simeon*. In the Middle, on the Sea-side, is the Principality of the *Hemir* of *Cesair*, and on the *Jordan*'s Side the Government of *Naplouse*, which is the antient *Samaria*: These two Provinces contain the Tribes of *Issachar*, *Ephraim*, and Part of that of *Manasses*. Northward is the *Hemir* of *Saïda*, which is the antient *Galilee*, and which contains the Tribes of *Zabulon*, *Nephtali*, and *Asher*. The other Part, which is Eastward of the *Jordan*, is a Part of the Kingdom of the *Arabs*; it is divided into six others, the most Southern whereof, towards the *Dead Sea*, is the Country of the *Arabian* Shepherds, antiently *Moabites*, and of the *Nomades*, which contains the Tribe of *Reuben*. Towards the Middle are found Part of the Country of the *Beduin Arabs*, or of the antient *Peræa*, and the Country of the *Ammonites*: The Province of *Bathar*, antiently *Trachonites*, and that of *Mathanan*, antiently *Bathanæa*, or *Basan*. Northward are found the Province of *Auran*, and the *Sturæa*; these five Provinces contain the Tribe of *Gad*, and the other Part of that of *Manasseh*.

The Capital of *Palestine* is *Jerusalem*, call'd the *Holy City*, because it has been sanctified by the Presence of the Son of God.

Note, That it was particularly over *Palestine*, the last Kings I have mentioned in *Syria*, reign'd: They were call'd only Kings of *Jerusalem*; and *Godfrey* of *Boüillon* was the first of these Kings, after he had taken *Jerusalem* in 1099: His Successors maintain'd themselves in it as well as they could, till about 1310; so that *Henry* II. of *Lusignan*, who died in 1317, was the last who received the Crown in that Kingdom, *i. e.* at *Ptolemaides* in *Phœnicia*: His Successors kept the Name, but were crown'd at *Famagosta* in *Cyprus*, of which they were Kings likewise.

DIARBEKIR.

This Province contains almost all the antient *Assyria*; the greatest Part whereof, which is between the *Euphrates* and *Tygris*, is call'd *Mesopotamia*; the other, which is Eastward of that River, is still call'd *Assyria*, or *Erzerum*; and the third, which is the most Southern, was call'd *Chaldæa*, at present *Yerach*.

Besides the *Tygris* and *Euphrates*, are found among its Rivers the *Alchabar*, the *Soaid*, and the great and little *Zab*; but altho' those which were call'd antiently *Lycus*, and *Caper*, are not so large, they are notwithstanding very remarkable, because of the Defeat of *Darius* by *Alexander*, whose Armies were encamped between these two Rivers when they engaged.

Note, That according to the Opinion of the most learned Interpreters of the Old Testament, it was in *Chaldæa*, Eastward of the *Tygris*, God placed the *Garden of Eden*, where he form'd the first Man; and it was in the same Province, that began the first Empire of the World under *Nembroth*, or *Belus*, Father of *Ninus*, or *Assur*, from whose Name it was call'd the Empire of the *Assyrians*, which subsisted very near 1300 Years.

Note also, That there are six Beglerbegs in the *Diarbeck*, the first resides at *Caraetmit*, on the River *Soaïde*; therefore we may put that City for the Capital of the Province; *Orfa*, on the *Alchabar*, is also Capital of a Beglerbewick; the Baron *de Beauvau* places one at *Schehereful* in *Assyria*, Frontier of *Persia*; others one at *Mosul*, on the *Tygris*, in the same Province. *Bagdad*, on the same River, is the Capital of the *Yerach*, and the Seat of a Beglerbeg; there is one besides at *Balsora*, a very trading City, situated at the Mouth of that River.

A more particular Description of *Turky* in *Asia*, is as follows:

NATOLIA, contains *Chiutaye*, *Bursa*, *Angouri*, *Bolli*, *Chiangare*, *Smyrna*, *Ephesus*.

CARAMANIA, contains *Cogni*, *Tiagna*, *Scalemure*, *Satalia*, *Charachizar*.

AMASIA, contains *Amasia*, *Toccat*, *Suvas*, *Trebisond*, *Arsinga*, *Charaisar*.

ALADULIA, contains *Maraz*, *Sis*, *Sarmusada*, *Lajazzo*, *Adena*.

SOURIA, or SYRIA, contains *Aleppo*, *Antioch*, *Alexandretta*, *Hamach*, *Hemz*, *Fayd*.

PHOENICIA, contains *Damascus*, *Tripoli*, *Actia*, *Balbec*.

PALESTINE, contains *Jerusalem*, *Naplouse*, *Tiberias*, *Joppa*, *Gaza*.

DIARBEKIR, contains *Caraëmit*, *Mosul*, *Orpha*, *Schialasur*, *Alchabar*, *Bagdad*, *Balsora*, *Waset*.

TURCOMANIA.

This Province, which contains almost all the antient *Armenia*, is Eastward of the *Euphrates*, between *Diarbeck* and *Georgia*.

The Mountains *Ararat* are found in the Middle of it; upon one of which, it is pretended that *Noah*'s Ark rested after the Flood. Some Authors are of Opinion, that the terrestrial Paradise was somewhere in the Neighbourhood of these Mountains, because of the four Rivers which spring from them, *viz.* the *Euphrates*, *Tygris*, *Araxes*, and *Fazzo*. In the Country of the *Curdes*, is found likewise the great Lake *Astamar*; which Country takes up the most Eastern Part, which is Southward.

ERZERUM, on the *Euphrates*, is the most considerable City of *Turcomania*, and the Seat of a Beglerbeg; therefore I'll place it for the Capital. *Cars*, or *Chigeri*, had the same Advantage. *Van* and *Schildir*, or *Achlat*, on the Lake *Astamar*, in the Country of the *Curdes*, are also the Capitals of Beglerbewicks.

GEORGIA, or GURGISTAN, is situated between the *Black* and *Caspian Sea*; embracing on the first all the antient *Colchid*, at present *Mingrelia*, with the *Avagasia*; on the last, *Albania*, at present *Zuiria*; and Southward Part

Part of the *Armenia*. Northward is found the Country inhabited by the *Circassian Tartars*, at present called *Comania*. It was antiently the Country of the *Amazons*, whose Courage is so vaunted in History; and who have maintain'd tedious Wars against powerful Kings.

Note, Most of the Inhabitants of these Countries are independant: The others are tributary either of the *Turk*, or of the *Muscovite*. They live commonly under Tents, like the other *Tartars*; they are very cruel, and so addicted to Theft, that they follow no other Business than that of robbing Passengers, or going to War, sometimes for one and sometimes for the other, in the Manner of the *Switzers*.

ARABIA.

ARABIA is the most southern Region of *Turky*; it has Northward, *Souria*, or *Syria*, the *Euphrates*, and *Mesopotamia*; Eastward the Gulphs of *Balsera*, *Ormus*, and the *Indian* Sea; Southward it confines with the same Sea; and Westward it is separated from *Africa* by the Red Sea, and the Isthmus of *Suæs*.

It has very near 500 Leagues of Extent from East to West, from Cape *Razalgate* to the Coast of the Red Sea, between *Medina* and *Mecca*; more than 420 from South to North, from the Streight of *Babelmandel* to the *Euphrates*; more than 400 of Coasts on the Red Sea. as much on the Ocean, and near 350 on the Gulph of *Balsora*.

Note, That besides the Beglerbegs the Grand Seignior keeps in this Country, there are Kings, Xerifs, or Princes, and some People who have preserved their Liberty against the *Turks*, particularly in the Middle of the Country, which is difficult of Access, because of the Quantity of Mountains which run thro' it.

Among those Kings or Sultans, those of *Faltach*, *Amanzirifdim*, and *Massa*, are the most considerable. Among the Xerifs, that of *Mecca* is not only Friend of the *Turks*, of the *Persians*, and of all the *Mahometan* Princes, but is even very much respected by them, because he is of the Family of *Mahomet*.

Among the People, the *Bengæbri*, and the *Beduini*, are the most powerful. Most of them follow no other Profession than that of Thieving; especially the *Beduini*, who are always about *Mecca*, waiting for the Caravans, on Purpose to rob the Pilgrims.

Note also, That it is from *Arabia* those People came, commonly called *Arabs*, *Moors*, *Saracens*, and *Turks*, who made so many Conquests in *Asia*, *Africa*, and *Europe*. Those who have not followed the War, and have applied themselves to Study, have very well succeeded in it, especially in the Mathematicks.

Arabia is divided into three Parts, distinguished by the Names of *Felix*, or happy, *Stony*, and *Desart*.

The *Arabia Felix*, which the *Turks* called *Haiman*, is three Times larger than the two others taken together, and advances as a Peninsula into the Red Sea, and the Gulph of *Balsora*.

Note, That the Xerif of *Mecca*, is one of the most powerful Princes of that Country, and possesses a Tract of Land about 40 or 50 Leagues in Breadth, from the *Stony Arabia*, to near *Zibith*; and of more than 260 in Length. The Grand Seignior keeps there three Beglerbegs, one of whom resides at *Aden*, a very strong City, situated one the Meridional Coast, towards the Mouth of the *Arabick* Gulph: The other at *Zibith*, on the River of the same Name, over-against the Island *Camaran*, in the Red Sea. These two Cities were once the Capitals of two Kingdoms, the Kings thereof, the Grand Seignior caused to be put to Death, after he had conquered their Country. The last Beglerbeg resides at *Lassach*, near the Country of *Bahrein*; the People who have preserved their Liberty, are either govern'd by their natural Princes, or in form of a Republick.

The City of MECCA may pass for the Capital, or the most considerable of this Country. It is very famous among the *Turks*, because their false Prophet *Mahomet*, for a very considerable Time lived in it.

The City of MEDINA, *Talnabi*, i. e. the City of the Prophet, is also in Veneration among them, because the Impostor is buried there.

The *Desart Arabia*, called *Cedar* by the *Hebrews*, is known in *Asia* by the Name of *Arden*, or *Bæriara*. It is situated between the *Euphrates* and the *Arabia Felix*, confining Eastward with *Chaldæa*, and Westward with *Syria*, and the *Stony Arabia*.

It is very sterile, and little inhabited; has very few Cities, that of *Anna*, situated on the *Euphrates*, being the Capital of the whole Province.

Note, That this Province depends in Part of the Beglerbywick of *Balsora*, and in Part of some Princes, whom the *Turks* have left undisturbed in those Desarts, where it is very difficult to conduct an Army.

The *Stony Arabia*, called *Barraab*, is Westward of the Desart, between the *Happy*, and *Syria*. It is like the other, very sterile, and has nothing remarkable among the great Number of its Mountains, but the Mount *Sinai*, on which God gave *Moses* the Table of the Decalogue; and the Mount *Horeb*, where the same Prophet struck the Rock with his Rod, whence flowed a Stream; and near which God spoke to him in the burning Bush.

The City of *Hærac*, antiently *Pætra*, is the Capital of that Province. That of *Mædava* is taken for the antient *Moab*, Capital of the *Moabites*, so often mention'd in the Scripure.

A more particular Description of these last Provinces of *Turky* in *Asia*, is as follows:

TURCOMANIA, contains *Erzerum*, *Cars*, *Teflis*, *Erivan*, *Berdau*, *Aschlat*, *Wan*, *Bitlis*, *Manaschate*, *Samiscahac*.

The *Island of* CYPRUS, contains *Nicosia*, *Famagosta*, *Baffo*.

The *Isles of* RHODES, *Scarpanto*, *Lango*, *Lera*, *Pathmos*, *Nicaria*, *Samos*, *Scio*, *Metelin*, *Paelocastro*.

ARABIA FELIX, contains *Mecca*, *Medina*, *Suada*, *Sanaa*, *Zibith*, *Mocca*, *Aden*, *Fartach*, *Amanzirifdin*, *Maschate*, *Lassach*, *Bahrein*, *El-catif*, *Jamama*.

DESART ARABIA, contains *Anna*, *Tangia*, *Thaulabia*, *Rahabath*, *Mexat Aly*, *Anah*.

STONY ARABIA, contains *Herach*, *Eilan*, *Havarra*, *Madian*.

PERSIA.

This Kingdom, tho' very spacious, is but a Part of the vast Empire which the Kings of *Persia*, *Darius*'s Predecessors, have antiently possessed in *Asia*.

It extends from the 24 Deg. 30 Min. of Latitude, to the 43; and from the 79 of Longitude, to the 109; so that it may have about 500 Leagues in its greatest Extent from East to West, and more than 300 from South to North.

It confines Eastward with the Territories of the Grand Mogul, and *Tartary*; Northward with the River *Gehun*, antiently *Oxus*, which parts it from *Great Tartary*, and the *Caspian* Sea; Westward with *Turky*; and Southward with the Gulph of *Balsora*, and the *Persian* and *Indian* Sea.

The Climate is very temperate, Northward, this Side Mount *Taurus*; but much more hot, Southward, beyond the same Mount, which divides that Country into almost two equal Parts. The Soil is very fertile in all Sorts of Corn, except Rye; and produces every where Bushes which bear Cotton. The Provinces of the northern Parts have whole Forests of Mulberry-Trees, which feed a great Quantity of Silk-Worms; therefore the Commerce of Silk, which is very considerable, makes one of the greatest Revenues of the Kingdom; which abounds with Grapes and Fruits, and feeds a great Number of Camels and Horses, which are found by Droves of 5 or 6000 each. The King is at the Expence of those Stews, which furnish him with Horses for his Guards. Its Mountains have Mines of Gold, Silver, and Iron; but the *Persians* do not work at the first, for Want of Wood, which is very scarce in that

Country. It has, likewise, several Sources of *Napthe*.

Its principal Rivers are *Tiritiri*, and *Sirt*, in the Province of *Chalistan*; *Bendimir*, and *Drut*, in that of *Farsi*; *Tissindon*, and *Bassiri*, in the *Kerman*; the *great* and *little Ilmen*, which join together in the *Makheran*, the first of which bathes the *Sisistan*; *Pulimoilon*, which disembogues into the Lake of *Burgian*, in the *Chorasin*; that which passes at *Gorgian*; *Abissirvi*, which passes at *Ghilan*, and the *Araxes*, which passes in the *Scirvan*, and in *Georgia*. The Lake *Marraga*, which may have 60 Leagues of Circuit, is found in the Province of *Aderbejan*.

PERSIA is divided into 15 principal Parts or Provinces, five of which are Eastward, *viz.* *Airach* in the Middle; *Chusistan*, on the Gulph of *Balsora*; *Aderbaan*, *Irvan*, and *Scirvan*, on the *Caspian* Sea, which contains very near the antient *Media*, and Part of *Armenia*; there is besides a Part of *Georgia* on that Sea, which depends of *Persia*; along the Gulph of *Balsora*, and *Ormus*, are found the Provinces of *Farsi*, *Kherman*, and *Makheran*; Eastward, *Send*, *Sesistan*, or *Sistan*, *Sablustan*, and *Candahar*, in Part, which are Frontiers of the Great Mogul, and of *Tartary*. Lastly, going from East to West on the Coasts of the *Caspian* Sea, are found those of *Chorasan*, *Mazanderan*, or *Tabristan*, and *Ghilan*.

Note, That the *Persians* are the most tractable People of all *Asia*, and could challenge several Nations of *Europe* for Wit and Politeness. It is a marvellous and exemplary Thing, to see the sincere Love they have for one another in a Family, and the great Respect a younger Brother has for his eldest. They value Nobility and Virtue. They are extremely passionate in their Amours, and though they have very handsome Women, with whom they may divert themselves with Safety, since they let them be seen by no Body, they have, besides, little Seraglio's of Children, whom they maintain.

Note also, That the Government of *Persia* is entirely Monarchical, and even Despotick, so that the Will of the Prince is the strongest Law of the State. The Crown is hereditary, not only for the legitimate Children, but likewise for the natural; and the Subjects, till of late Years, had so great a Veneration for their Kings, that they never spoke of him but with the greatest Respect. —— This Kingdom began under *Cyrus*, 560 Years before the Birth of *Christ*. It lasted 220 Years under 13 Kings, *Darius*, defeated by *Alexander the Great*, having been the last of them. The *Greeks*, *Romans*, and *Parthians*, possessed it by Turn, till the Year of Grace 227; when *Artaxerxes* revolted against the last, and began the second *Persian* Monarchy, which lasted till *Hormisdas* II. was dethron'd by the *Saracens*, who render'd themselves Masters of *Persia*, in 632, and kept it till 1051. Since that Time it has been under several Sovereigns, till *Ismael*, Sophy, having placed himself on the Throne, re-conquer'd by his Valour, what his Predecessors had lost. After him *Scha Abas the Great*, aggrandized it much in the last Century, and it continued afterwards in a flourishing State, till the Revolt of the Usurper *Mereweis*, who, and his Successor *Esreff*, render'd it the Theatre of the most hideous and barbarous Scene, which Revolt and Treason against a legitimate Sovereign could act. I have wrote the Adventures of the unhappy Son of the dethron'd and murder'd Sophy, in Imitation, and in the Stile of *Telemachus*, which is full of Instructions for a young Prince how to govern his Dominions, so as to be ador'd by his Subjects, respected by his Allies, and dreaded by his Enemies; and would have it printed, if I could flatter myself to meet with Encouragement. The famous *Kouli Kan*, the present King of *Persia*, has by his Valour, dispers'd all the Clouds which had eclipsed the Lustre of the *Persian* Diadem, and restored to it its former Radiancy.

The King of *Persia* resides at *Ispahan*, Capital of his Dominions. It is situated on the River *Senderut*, in the Province *Airach*; it passes for one of the largest, fairest, and richest Cities of the World. The *Christians* have a free Exercise of their Religion, in the Suburbs, where they have their Churches.

In the Province of *Irvan*, is seen the City *Nacchiavan*, which the Learned of the Country esteem the most antient City of the World, since the Flood, because its Name signifies the first who came down from the Ark; whereby it may be conjectured it was built by *Noah*, or by his Orders.

Note, That antiently the *Persians* ador'd the Sun, Moon, Fire, *&c.* at present most of them follow the Dreams of *Mahomet*, according to the Explication and Commentaries of *Haly*, whom they Name *Coadjutor*, or *Lieutenant of God*. There are found among them *Greek Christians*, and some *Catholicks*.

A more particular Description of *Persia*, is as follows:

The *Province of* AIRCK, contains *Ispahan*, *Kulpajan*, *Scaherresur*, *Hemedan*. *Casvin*, *Sawa*, *Khæm*, *Kascham*, *Hyest*.

The *Province of* FARFI, contains *Schiras*, *Kasiron*, *Giäneuba*, *Nagira*, *Siraf*, *Lar*, *Rudhan*, *Jarcoya*.

The *Province of* SISTAN, contains *Sistan*, *Huma*, *Araba*, *Musnib*, *Mazurgian*, *Fardan*, *Chaluck*, *Harra*, *Corra*, *Sirum*.

The *Province of* SGHOUSISTAN, contains *Schouster*, or *Sus*, *Hawecz*, *Ardgan*, *Siapour*, *Saurac*, *Astar-Mokran*.

The *Province of* KHEIRMAN, contains *Kheirman*, *Bermasir*, *Bendasir*, *Salein*, *Chabis*, *Jardesir*, *Gionain*, *Ormus*, *Banderkanrou*.

The *Province of* SABLUSTAN, contains *Bust*, *Sarvan*, *Sarentz*, *Memend*, *Ramel-Emir*, *Grees*, *Becsabath*.

The *Province of* CANDAHAR, contains *Candahar*, *Curvan*, *Cushecanna*, *Scawa*.

The *Province of* ADERBEJAN, contains *Tauris*, *Ardevil*, *Merrayne*, *Uruna*, *Salma*, *Trois*.

The *Province of* SCIRVAN, *Servan*, *Zachan*, *Schamachi*, *Bachu*, *Bakæra*.

The *Province of* MACKHERAN, contains *Mackheran*, *Titz*, *Kambele*, *Bilguri*, *Darei*, *Rasec*, *Jasques*.

The *Province of* KARASIN, contains *Herat*, *Chorasan*, *Tuleskileki*, *Turschis*, *Nisabur*, *Sarachas*, *Merverud*, *Gurgion*.

The *Province of* ERIVAN, contains *Erivan*, *Karosbag*, *Bilagan*, *Kars*, *Nakschiavan*.

In GEORGIA, *Derbent*, *Exechia*, *Teflis*, *Gori*.

The *Province of* SEND, contains *Mansurach*, *Ferabath*, *Oskum*, *Funkabun*, *Sarijah*, *Asterabath*, *Bijar*.

The *Province of* GHILAN, contains *Ghilan*, *Keiker*, *Resch*, *Layon*, *Mosun*.

INDIA.

Note, That several Persons understand by the Name *Indies*, all the eastern Parts of *Asia*, including *China*, and all the Isles Eastward of it, as those of *Japan*, *Philippine*, *Molucca's*, *Sonde*, &c. even indifferently all the Countries which produce Gold; and the same Error has bestow'd the Name of *West-Indies* to *America*. But we must observe, that the most licentious Geographers, have never extended that Country beyond the Mounts *Damasian*, which serve for Bounds to *China*, Westward. I even say further, that if we believe the Relation of M. *Marcara*, who liv'd for a considerable Time at *Surat*, and at *Golconda*, as soon as one has passed the *Ganges*, he is out of *India*; and that Part we have always known under the Name of *India beyond the Ganges*, is called by the *Indians* themselves, *Eirbad*, i. e. a Country opposite to the Wind.

INDIA, borrows its Name from the River *Indus*, which springs from it, and bathes it thro' all its Course, towards its Extremities, Westward. The Natives call it *Indostan*.

This Country in general, is situated Part in the Temperate Zone, and Part in the Torrid; for it extends from the 7 Deg. 30 Min. of Latitude, as far as the 41; and

and from the 106 of Longitude, to the 150, or 155, if we include in it the Kingdoms of *Tunquin*, and *Cochinchina*, which are Tributaries of the Emperor of *China*, tho' separated from it.

It confines Northward with the Territories of the Great Cham of *Tartary*, from which it is separated by the Mount *Caucasus*; Eastward with the Mounts *Damasian*, which part it from *China*; Southward with the *Indian* Ocean, into which the two Peninsula's advance; and Westward with *Persia*, from which it is separated by a great Number of high Mountains.

The Climate is different according to the different Situation of the Country. The Soil is generally fertile in Rice, Millet, Spices, and Fruits, as Oranges, Lemons, Pomegranates, Figs, Cocoa-Nuts, *&c.* It abounds with Mines of Copper, Iron, and Lead; it feeds a vast Number of Elephants, Dromedaries, Horses, and Cattle, and has a great Quantity of Monkeys and Parrots.

The most considerable of its Rivers are the GANGES, and the INDUS, from which it borrows its Name. Both have their Source in Mount *Caucasus*, and run throughout the whole main Land, from North to South. It has several more Rivers, of which I'll speak in particular.

Before the Great Mogul had extended his Empire beyond the *Ganges*, *India* was divided into two Parts by that River, the most western whereof was called *India* beyond the *Ganges*, and tho' these common Limits are changed at present, I'll make use of the Terms only, without Prejudice to the Territories which belong to the Great Mogul, beyond the *Ganges*; and say that the first of those Parts is subdivided into the main Land, which is the Empire of the Mogul, and the Peninsula this Side *Ganges*, which includes the Kingdoms of *Golconda*, and of *Visapur*, with the Countries of some Naicks, or particular Princes. The other is likewise subdivided into three principal Parts, the most northern whereof contains the Territories of the Kings of *Ava*, *Pegu*, &c. the most southern embraces the Peninsula beyond the *Ganges*, with the other Dominions of the King of *Siam*. And the latter, which is Eastward, contains the Kingdoms of *Cochinchina*, and of *Tunquin*, tho' they be Tributaries of *China*.

Therefore *India* being divided between so many Sovereigns, has different Governments, according to the different Maxims of the Places. The *Portuguese* and the *Dutch*, have Governors with strong Garrrisons, in the Places they are Masters of on the Coasts.

Note, That the *Indians* are Idolaters, particularly those who inhabit the southern Parts. The one adore a sovereign God, the other offer their Vows to the Devil, in Hopes thereby, to avoid, or at least mitigate the Punishments they deserve. Some adore the Planets; some the Rivers; some the Elements; and some a Kind of high Pyramids, they erect themselves. There is a certain Sect of them who believe the Metempsychosis, and have a great Veneration for Oxen and Cows, of which they never eat. They are afraid of killing any Animal whatever, even the Vermin which are troublesome to them, lest the Soul of some of those Beasts should have once animated the Body of a Man. The greatest Part of the Moguls are *Mahometans*; the rest is a Mixture of both, and every where are found *Jews* and *Christians*, ever since the *Portuguese* have entered those Countries.

Note also, That these People are very ignorant, and great Epicures: They are lazy, and leave the whole Care of their Affairs to their Slaves: They love Women to Excess, and are very brutish in their Amours. Some pretend, that a Bridegroom does not touch his Bride the first Night, but leaves her to be deflowered by a *Christian*, or a white Man, whom they call *Mogol*. If it be a Queen, it is one of their *Bramins*, or Priests, who must do that *Drudgery*; after which, if a Woman be convicted of Adultery, she is punished with Death. In several Places, when a Man is dead, and his Body is burnt, according to the Custom of the Country, his Wife would lose her Reputation, and be despised if she was not to burn herself likewise: There are even affectionate Servants, who burn themselves thro' an Excess of Love, especially if it be a great Man. But however, let it happen as it will, a Woman is never married twice, which would be consider'd as a very great Punishment by our *European* Ladies. The Subjects of the Great Mogul are cloth'd like the *Turks*; and those who inhabit the Peninsula, go most of them naked, wearing only a Piece of Cotton-Cloth from their Waist down to their Knees; to hide what Modesty forbids exposing to publick Sight.

The Dominions of the GREAT MOGUL.

The *Indians* call *Moguls*, or *Mogors*, the white People, or at least those who are not quite so black as the Inhabitants of the Peninsula; so that they give that Name to the People of the main Land, who are under the Domination of the Great Mogul.

This Empire extends from the 106 Deg. of Longitude, to the 143, or 148; between the 18 and 40 of Latitude; so that it may have 650 Leagues in its greatest Extent from East to West, and 440 from South to North.

It confines Northward with *Tartary*; Eastward with the Territories of the King of *Ava*; Southward with the River *Gunga*, and some Mountains which part it from the Peninsula this Side *Ganges*; and Westward with *Persia*.

The Climate is very temperate, and the Soil very fertile in Cotton, Rice, and Millet, and produces a great Quantity of Silk, except Northward.

The *Ganges* and *Indus* run through the whole Country, from North to South. The first receives in its Course the Rivers *Conda*, *Perseli*, *Semena*, and *Triotza*, after which it disembogues into the Gulph of *Bengal*, through several Mouths, and forms several Isles. The other, before it surrenders to the Sea, swells its Waters with the Rivers *Nibal*, *Behat*, *Ravèa*, *Nach*, *Oder*, and *Cant*, then disembogues into its Gulph through several Mouths. Besides these two great Rivers, there are four found towards the southern Part, which are lesser, *viz. Guenga*, *Narver*, *Tapte*, and *Padder*; the first which runs from West to East, has its Mouth near that of the *Ganges*; the two others have theirs in the Gulph of *Cambaya*; and the last has its Mouth in that of the *Indus*.

To divide all the Kingdoms which compose that vast Empire, I'll begin by the Middle, that I may take Notice of those of *Agra* and *Delly*, in the Neighbourhood of the River *Semena*, because the Emperor resides commonly in their Capitals. I find afterwards *Gaaleor*, Southward of *Agra*; *Bando*, Westward of it; *Jeselmere*, Westward of *Bando*; both in the Neighbourhood of the *Pader*: *Hendouns*, Northward of them, and Westward of *Delly*; and *Jenupar* Northward of it, both in the Neighbourhood of the River *Caul*. Advancing still more towards the Frontiers of *Tartary*, are found *Pengab*, *Naugracut*, and *Bankisch*, in the Neighbourhood of the River *Ravæa*: Then descending along the *Indus*, are found *Attoch*, *Multan*, with *Hayacan* Westward of it; then *Buckor* and *Tutta*, which take up the Mouth of that River. Southward, the small Province of *Soret* is situated on the Gulph of the *Indus*; then after that River is passed, one enters the large Kingdom of *Guzarate*, or of *Cambaya*, situated round its Gulph; and advancing likewise Eastward, are found *Chitor*, with the *Raja Ranas*; then *Malvay*, with *Candis* and *Berar*, Southward of it: Afterwards one enters the large Kingdom of *Bengal*, which takes up all the Mouths of the *Ganges*, and in which I'll include *Prurop* Westward, *Patan* Eastward, and *Elabas* Northward. Then reascending along that great River, are found Westward *Narvar*, *Sambal*, *Bakar*, *Jambä*, and *Sibä*; Eastward, *Mevat*, with *Jesual*, and *Udessa*, which are Northward of it; then *Patna* and *Pitan*. Lastly are found, along Mount *Caucasus*, going from East to West, the following Kingdoms, situated one after another, in this Order; first *Kanduana* and *Gor*, in the Neighbourhood of *Pitan*: Then *Kakares*, *Kachemir*, *Cabal*, and Part of *Candahar*. The Great Mogul has also conquered the Kingdom of *Orina*, Southward of *Guengua* on the Kingdom

dom of *Golcond*, and Part of *Decan*, on that of *Visapour*.

AGRA, and DELLY, are the most considerable Cities of that Empire, and the first passes for the Capital, because the Emperor keeps his Court there; though he has sometimes resided at *Labor* Capital of *Pemba*.

Note, That besides the Emperor, who governs almost all that vast Empire by his Governors; there are some Kings who are only tributary to him, particularly those they call *Rajas*, as the *Raja Ranas*, between *Chitor* and *Bando*; the *Raja* of *Camperga* in the Kingdom of *Jamba*; the *Raja Mansa*, his Neighbour; and several others. There are likewise some free People, as the *Rebusti*, in the Kingdom of *Cambaya*, who are Idolaters, and descend from several noble Families, who retreated antiently into the Mountains, where they have preserved their Liberty: The *Portuguese* have several Places on the Gulph of *Cambaya*.

Note also, That most of these People follow the Dreams of *Mahomet*, according to the Commentaries of *Haly*; the others are still Idolaters, except the *Jews* and some *Christians* settled there for Commerce; for the Great Mogul gives Liberty of Conscience.

Note again, That several of the Subjects of the Mogul are Merchants, some apply themselves to Sortileges; and they all, in general, love Women to Excess, and are very impudent in their Caresses: Some say, that they never eat Flesh, but only Fruits and Legumes.

A more particular Description of the Dominions of the Great Mogul, is as follows:

The *Kingdom of* AGRA, contains *Agra*, *Anadipor*, *Secandra*.

The *Kingdom of* DELLY, contains *Delly* only.

The *Kingdom of* GUALEOR, contains *Gualeor* only.

The *Kingdom of* BANDO, contains *Bando*, *Asmere*.

The *Kingdom of* JESELMER, contains *Jeselmer*, *Radimpor*.

The *Kingdom of* HENDOWNS, contains *Hendowns*, *Mearta*.

The *Kingdom of* JENUPAR, contains *Jenupar*, *Necundar*.

The *Kingdom of* PENG-AB, contains *Labor*, *Bember*, *Fetipor*.

The *Kingdom of* NAUGRACUT, contains *Naugracut*, *Callama*.

The *Kingdom of* BANKISK, contains *Bankisk*, *Eis-bar*.

The *Kingdom of* ATTOCK, contains *Attock*, *Puckow*.

The *Kingdom of* MULTAN, contains *Multan* only.

The *Kingdom of* HAYACAN, contains *Chutzan*, *Uche*.

The *Kingdom of* BUCKAR, contains *Buckar*, *Sackay*.

The *Kingdom of* TATTA, contains *Tatta*, *Laurebandet*, *Diul*.

The *Kingdom of* GUZARAT, contains *Cambaya*, *Surate*, *Diu*, *Bacaim*.

The *Kingdom of* SORET, contains *Janagar*, *Pacho*.

The *Kingdom of* CHITOR, contains *Chitor*, *Chitipor*.

The *Kingdom of* RAJA RANAS, contains *Gurchitto*, *Canderu*.

The *Kingdom of* MALVAY, contains *Rantipore*, *Sarampore*, *Ougel*.

The *Kingdom of* KANDIS, contains *Nourangabad*, *Mandoa*, *Assere*.

The *Kingdom of* BERAR, contains *Shapor* only.

The *Kingdom of* BENGAL, contains *Xatigan*, *Bander*, *Tanda*, *Elabas*, *Ougeli*.

The *Kingdom of* NARVAR, contains *Gebud*, *Ouden*.

The *Kingdom of* SAMBALL, contains *Samball*, *Menepou*.

The *Kingdom of* BAKAR, contains *Bicaner* only.

The *Kingdom of* JAMBA, contains *Jamba*, *Calseri*.

The *Kingdom of* SIBA, contains *Serenegar*, *Hord-ware*.

The *Kingdom of* MEVAT, contains *Narval* only.

The *Kingdom of* JESUAL, contains *Rajapore* only.

The *Kingdom of* UDESSA, contains *Jebanac* only.

The *Kingdom of* PATNA, contains *Patna* only.

The *Kingdom of* PITAN, contains *Pitan*, *Camojo*.

The *Kingdom of* KANDUANA, contains *Karakatauka* only.

The *Kingdom of* GOR, contains *Gor* only.

The *Kingdom of* KAKARES, contains *Dankeler*, *Puthola*.

The *Kingdom of* KACHEMIRE, contains *Kachemire* only.

The *Kingdom of* CABUL, contains *Cabul*, *Parna*.

The *Kingdom of* ORIXA, contains *Orixa*, *Pipilipatan*.

The *Kingdom of* DECAN, contains *Kerky*, *Dalvatabad*, *Chaül*.

Note, That Poligamy being permitted in the Empire of the Great Mogul, he can bring from all these Kingdoms, a Million of Men into the Field; notwithstanding which the famous Usurper of the Throne of *Persia*, *Kouli Kan*, in his Expedition into that Country has defeated his numerous Armies, conquered Part of his Dominions, taken him Prisoner, and forced him to buy a shameful Peace, at a very dear Rate; though Victories of that Nature are not so glorious as could be imagin'd, since the Emperor, his Generals and Soldiers, are fitter for a Curtain Lecture than for a Military Expedition, being all enervated by Luxury and Effeminacy, and very little instructed in the military Art. For ever since the Great *Oranzeb*, we have not heard that an Emperor of the Mogul has made the least Figure at the Head of an Army.

The PENINSULA *this Side* GANGES.

This PENINSULA, as I have already observed, advances into the *Indian* Sea, between the 114 and the 134 Degrees of Longitude, as far as to the 8 of Latitude; beginning at the Extremity of the Kingdom of *Golcond*, between the Gulph of *Cambaye*, and the Mouth of the River *Guenga*, where that River parts it from the Territories of the Great Mogul; so that it may have 260 Leagues from South to North; and from East to West 350.

The Climate is so hot, that the People go naked: The Soil is very fertile in all Things necessary for Life, and furnishes a great Quantity of Diamonds: There are likewise Pearls fished on the Coasts of *Coromandel*, particularly towards the Streights of *Manar*.

I have said already, that this Peninsula was divided between two principal Sovereigns, *viz.* the King of *Golcond*, and that of *Visapur*, call'd *Idalkan*. Besides these two Kings, there are some *Naikes*, or Princes, who are tributary to them; others who are free still, as those of *Samorin* and *Cochin*; and some People, who keep several Places on the Coast, as the *French*, *English*, *Portuguese*, *Dutch*, and even *Indians*.

The Kingdom of *Golconda* is situated on the Eastern Coast of the Peninsula, Southward of the River *Guenga*. What is the most considerable in this Country, is the great Quantity of Diamonds it produces; as also Salt, which makes one of the greatest Revenues of the Kingdom: The King of *Golconda* possesses besides the western Part of the Kingdom of *Bisnagar*, and the most northern Part of the Coast of *Coromandel*, as far as *Coloran*.

The Capital of the Kingdom is *Heider-Abab*, founded by King *Heider-Scha*. It is situated Northward at the Bottom of a Mountain, on which is built the Fortress of *Golconde*, to be thereby always Master of the City, which is very large, rich, and very magnificent.

That of *Bisnagar*, once *Chandegri*, Capital of its Kingdom, is situated near the Mountains of *Gate*, which divides the Kingdom between the two Kings of *Golconde*, and of *Visapur*. It is comprised in the Portion of the first, as well as *Narsingue*; which was once the King's Seat.

On the Coasts of *Coromandel* is found *Maliapur*, called also *St. Thomé*, or *Thomas*, because it is pretended, that *that* Apostle having preach'd the Gospel in those Parts, was martyr'd and buried there, according to the Tradition of the Country. The *Portuguese* say, that at their first Arrival they found antient Christians called of St. *Thomas*, but much corrupted by heretical Opinions.

The Kingdom of *Visapur*, or of *Decan*, is situated on the Western Coast of the Peninsula, separated by that of *Golconda*, Eastward by the Mountains of *Gate*.

The King of *Visapur*, called also *Idalkan*, possesses the most Western Part of the Kingdom of *Bisnagar*, viz. the

the Province or *Canara*, as far as the Coast of *Malabar*, Part in proper, and Part as tributary. The Province of *Gingi* is also in his Dependencies.

That Part of the Peninsula which advances Southward, from the River *Velar*, on the Coast of *Coromandel*, and the River *Cargerecora*, where begins the Coast of *Malabar*, is divided between several Sovereigns. First toward the Coast of *Coromandel*, Southward of the Province of *Gingi*, is found the Naike of *Tangaür*, farther Southward that of *Madure*, which extends as far as Cape *Camorin*; from that Cape, following always the Coast of *Malabar*, and re-ascending Northward, are found the Kingdoms of *Coulan*, *Cochin*, *Calicut*, &c. and on the western Coasts of *Bisnagar*, the Cities of *Mangelor*, *Barcelor*, *Onor*, and others.

The City of *Goa*, situated in an Island at the Mouth of the River *Mondoüi*, in the Kingdom of *Visapur*, is one of the Principal of the *Indies*, and is possessed by the *Portuguese*; where the Viceroy of the King of *Portugal* in the *Indies* resides; and is also an Archiepiscopal See. *Alphonsus* of *Albuquerque* took it from the *Indians* in 1510. Since that Time it has been enlarged and embellished; and what's the most remarkable in it is an Hospital, which passes for one of the finest in the World. The *Indians* have revolted lately against the *Portuguese*, who, we are inform'd by the last Relations receiv'd from thence, have reduc'd them once more to Reason.

A more particular Description of the Peninsula this Side the *Ganges*, is as follows:

The *Kingdom of* GOLCONDA, contains *Heider-Abad*, *Golconda*, *Condapoli*, *Narsingapatan*, *Masulipatan*.

The *Kingdom of* BISNAGAR, contains *Bisnagar*, *Ceringapatan*, *Pentaproli*, *Narsinga*, *Maliapur*, *Paliacate*.

The *Kingdom of* DECAN, contains *Visapur*, *Solapur*, *Bider*, *Paranda*, *Dabul*, *Centapur*, *Carapatan*, *Goa*.

The *Principality of* CANARA, contains *Onor*, *Barcelor*, *Mangalor*, *Gorcopa*, *Bacanor*.

COASTS of COROMANDEL.

The *Province of* GINGI, contains *Gingi*, *Candabaran*, *Coleran*.

The *Principality of* TANJAUR, contain *Tanjaur*, *Negapatan*, *Trangabar*.

The *Principality of* MADURE, contains *Madure*, *Manancor*, *Tutocori*.

The *Coasts of* MALABAR, contains *Calicut*, *Cananor*, *Manigate*, *Tanor*, *Cranganor*, *Cochim*, *Calecoulan*, *Angamale*, *Coulan*, *Travancor*, *Cotate*.

INDIA *beyond the* GANGES.

I find this Country is comprised between the 1 and the 33 Degree of Latitude, and therefore should be 640 Leagues in Length from South to North; but it extends, sometimes, in the Maps from the 136 of Longitude, to 152½; and sometimes from the 131½ to 149½; having in its greatest Extent from East to West, sometimes 240 Leagues, and sometimes 320; though, according to the best Relations, it extends as far as the 158; that's to say, more than 500 Leagues beyond.

I have already observ'd, that this Country is divided into three principal Parts; the first whereof, and the greatest, which is Northward, contains all the Territories of the Kings of *Ava*, *Pegu*, &c. The other, which is Southward, contains those of the King of *Siam*, which extends as far as the Peninsula of *Malacca*; and the last, which is more East, embraces the Kingdoms of *Cochinchina*, and *Tunquin*.

The DOMINIONS *of the* KING *of* AVA, PEGU, *&c.*

The King of *Ava* is one of the most powerful Princes of the *Indies*; because his Empire contains, with his Kingdom of *Ava*, those of *Pegu*, and of *Arracan*, the antient Kingdom of the *Bramins*, or *Brachmans*, and several Nations which are Westward of *China*, as the *Timocoües*, the *Guyes*, those of *Ciocangue*, the *Layes*, &c.

These Dominions take up about 340 Leagues from South to North, and 180 from East to West.

They confine Northward with *Tartary*; Eastward with *China*, and the Kingdom of *Tunquin*; Southward with the Kingdom of *Siam*; and Westward with the Gulph of *Bengal*, and the Territories of the Great Mogul.

The Climate is very temperate considering its Situation, and the Soil very fertile in Rice, Millet, and excellent Grapes. It produces a great Quantity of fine Fruits, and feeds a vast Number of tame, as well as wild Beasts, *viz.* Elephants, Camels, Horses, Sheep, Civets, Hermines, *&c.* There is found in it a great Quantity of Rubies, the finest of all the West, of Saphires, Emeralds, Turquoise, and other precious Stones. It produces likewise Benzoin, Bezoard, *&c.* the Calemba, Aloes, and Canes as big as a Hogshead.

This Country is as agreeable as it is fertile, is watered by several great Rivers, among which there are four remarkable ones, which flowing from the Lake *Chiamay*, traverse it entirely from North to South. The greatest and most Eastern is called *Menan*, which bathes the Cities of *Prom*, *Tavay*, *Brema*, *Tanju*, and several others which were once Capitals of Kingdoms; then enters that of *Siam*, passing through *Odia*, which is the Capital, when it forms two Isles, then disembogues into the Gulph of *Siam*. The second is that of *Caypumo*, or of *Pegu*, which waters the Cities of *Melintay*, *Ava*, *Canarana* and *Pegu*, also Capitals of Kingdoms. The third is called *Cosmin*, which passes in the *Bengal*, then disembogues into its Gulph. The last is that of *Caor*, which disembogues towards the same Gulph into one of the Mouths of the *Ganges*. Between the Rivers of *Pegu* and *Cosmin*, there is a very considerable one, which seems to receive its Waters from two Arms of this, which join near the City *Cassubi*; then entering the Kingdom of *Arracan*, divides itself into two Branches, the most Southern whereof passes through the Capital: It must be observ'd, that these Rivers overflow their Banks like the *Nile*, and thereby fertilize the Country.

The Kingdom of *Ava* takes up three Times as much Land, as those of *Pegu* and *Aracan* taken together. It is situated Northward of these, and contains several Kingdoms of the *Brachmans*; that of *Pegu* is the most Southern, and confines with that of *Siam* Southward, including those of *Tangu* and *Marsin*. The Kingdom of *Arracan* is between both, situated on the Gulph of *Bengal*.

The City of *Ava*, situated on the River *Caypumo*, or of *Pegu*, is the Capital, not only of its particular Kingdom, but likewise of all those Territories. The King resides in it.

The other Kingdoms tributary or subject, have also their Capitals, from which they borrow their Names, as *Pegu*, *Arracan*, *Brema*, *Comarane*, &c.

KINGDOM *of* SIAM.

The Empire of the King of *Siam*, extends not only in the Peninsula beyond *Ganges*, as far as Cape *Sincapura*, but contains besides the Kingdom of *Martuban*, which is on the Gulph of *Pegu*, that of *Zangima*, and that of *Camboya* on the Gulph of *Siam*; to which some add *Chiampa*, as Part of *Camboya*, but which others place in *Cochinchina*.

These Dominions are all situated on the Sea, except *Jangoma*, and may contain 160 Leagues from South to North, and about 200 in its greatest Extent from East to West, above the Peninsula.

It confines with the *Indian* Sea on all Sides, except Northward, and a little Eastward, where it confines with the Kingdoms of *Pegu* and of *Cochinchina*.

The Climate is very temperate, considering that it is so near the Line; because perhaps of the Narrowness of the Country, which is refreshed by the Winds and Dews. The Soil is fat, and very fertile in Rice, Barley, and Fruits. It produces a great Quantity of Pepper, Benzoin, Musk, and Aloes. There are found in it Mines of Gold, Silver, Copper, Tin, and other Metals. It feeds a great Number of Elephants and Horses; it has large Forests towards *Cochinchina*, which serve for Retreat to Tygers, Lyons, and other ferocious Beasts. In the Peninsula of *Malacca*, there is a Species of Swallows, who make their Nests with a certain bituminous Matter, and whose Nests are carefully gathered, to be pounded and used in Sauces, in Lieu of Spices.

The River *Menan* traverses the particular Kingdom of *Siam*, passing thro' the City *Odia*, its Capital, (as already observ'd)

observed) forming two Isles, and disembogues afterwards into its Gulph. The *Mecon* separates it from *Cochinchina*, then crosses the Kingdom of *Camboya*, at the Extremity whereof it divides itself into three Branches, the most Eastern of them passing thro' the Capital.

These Dominions may be divided into four or five Parts; that above the Peninsula in the Middle of the others, is the particular Kingdom of *Siam*; Westward of it is that of *Martaban*; Eastward that of *Camboya*; that of *Campa*, which is Eastward of this; and the Peninsula of *Malacca*, which advances Southward. This Peninsula, contain'd antiently several Kingdoms, at present reduced into Provinces; the Princes whereof are subject and tributary of the King of *Siam*; the sole City of *Malacca* being exempt of Tribute. It is situated on a Streight of the same Name, over-against the Island of *Sumatra*. The great Concourse of Merchants from all Parts, renders it very trading, and well inhabited, though the Air be very unwholsome. It is in the Power of the *Dutch*, who took it from the *Portuguese* in 1641, who had kept it 130 Years.

The Capital of all these Territories is *Odia*; the other Kingdoms have also their Capital Cities, which will be found in my particular Description.

COCHINCHINA.

It is said that the *Portuguese* gave the Name of *Cochinchina* to this Kingdom, because of its Resemblance with the Province of *Cochim*, in the *Malabar*, as if they would say, the *Cochim of China*; others say, that it signifies *western China*.

It is situated on the Gulph of the same Name, between the 11 and 17 Deg. of Latitude; so that it may have 150 Leagues of Coasts, and about 70 in Breadth, including the People *Kemi*, who occupy more than half of it.

It has for Bounds, Northward, the Kingdom of *Tunquin*; Eastward the Sea; Southward the Province, or Kingdom of *Chiampa*, which some include in it; and Westward that of *Camboya*.

Its Climate is very temperate and wholesome, though in the Torrid Zone; and there is no Country in this Zone, where the Seasons are better distinguished than in this. The Soil is extremely fertile in Rice, Fruits, and several Sorts of Herbs. It produces Cinnamon, Pepper, Calemba, Benzoin, *&c.* also affords Gold, Silver, Silk, and Cotton. Among the great Quantity of different Animals seen in it, are the Rhinoceros, Fefe, and Elephant, and there are some of these last so large, that one of their Feet has measur'd 18 Inches Diameter, and their *Brunchia*, or Trunks 14 or 15 Foot in Length. These Animals are so docile, and if I may use the Expression, so intelligent, when they are instructed, that when they set out on a Journey, the *Nair*, who governs them, has but to tell them the Road they must follow, they never fail doing it exactly. —— Among Birds of a thousand different Species, is seen a great Number of those Swallows heretofore mention'd. The Sea abounds with excellent Fish, so that it is the most delightful Country of all the *Indies* for its Bigness.

There are no considerable Rivers in it, but it has 50 or 60 fine Sea-Ports; and what is the most remarkable is, the Inundation which happens in *Autumn* every fifteenth Day, lasts three Days each Time, and renders the Land so fertile, that three Harvests may be made in one Year.

CACCION, is the Capital of the Kingdom, and the Residence of the King; where a great Commerce is carried on between the *Chinese* and the *Japanese*; to whom the King of *Cochinchina* has permitted to build the City, and Fortress of *Fiaso*, for the Commodity and Security of the Commerce.

Note, That this Kingdom made once Part of *China*; but a Prince of the Family of *Ly*, rendered it free; in Consideration of a Tribute which he consented to pay, and his Successors pay still to the Emperor of *China*. This Separation of *Cochinchina*, happen'd about the Year 1428, under the Empire of *Siventius*.

Note, That the People are almost all Idolaters, there are still some *Christians* among them, but not in great Number, because the last Kings have cruelly persecuted them. The Fathers *Jesuit* say, that they are very docile, and courteous to Foreigners, faithful in Commerce, courageous, and understand very well how to use Fire, and other Arms.

TUNQUIN.

This Kingdom, which the eastern Nations call ANNAM, *i. e.* western Country, is called *Tunquin* by the *Chinese*, because situated Westward of them.

It is situated round the Gulph of *Cochinchina*, between the 140 and the 150, or 155 Deg. of Longitude, the 17 and the 22½ of Latitude; so that it may have 170 Leagues from East to West, 100 thereof is in Coasts, and 120 from South to North.

It confines Eastward with the Province of *Quantung*; Southward with the Gulph and Kingdom of *Cochinchina*; Westward with a long Ridge of Mountains, which separates it from the *Layes*, and other People in the Neighbourhood of *Pegu*; and Northward with the Provinces of *Junnan*, and of *Quamsi*.

Its Climate is almost equal to that of *Cochinchina*; and the Soil, tho' it produces neither Corn or Wine, is very fertile in Rice, which is gathered twice a Year, and of which the Inhabitants make their Bread and Wine. It produces excellent Fruits, particularly Oranges of an extraordinary Bigness. Among the Animals, is seen a great Number of Rhinoceros, Elephants, and Horses. It has also a great Quantity of Fowls, Pigeons, Turtles, and other Volatiles. They catch on the Coasts a great Abundance of delicious Fish.

This Kingdom is traversed by three or four very considerable Rivers, which come from the Province of *Junnan*, and fall into the Gulph of *Cochinchina*.

Its Capital is KECCIO, situated in the Middle of the Country, on the lesser of the three Rivers, and where the King resides.

Note, That the King of *Tunquin* has several Princes among his Subjects, and several others who are tributary to him; tho' himself pays Tribute to the Emperor of *China*, to whom he sends every six Years, two Golden Statues, and two Silver Ones, of the Value of 400 *l.* Sterling.

Note also, That the People are all Idolaters, except 300,000 *Christians*, or more, who may be found among them: They are free, and very affable,

A more particular Description of *India beyond the Ganges*, is as follows:

The *Kingdom of* AVA, contains *Ava*, *Prom*, *Tolema*, *Melintoy*, *Totay*, *Boldia*, *Transtana*, *Canarana*, *Muantay*, *Cassubi*, *Camotay*, *Brema*.

The *Kingdom of* PEGU, contains *Pegu*, *Marsin*, *Tanju*, *Ledoa*, *Siriacon*, Island.

The *Kingdom of* ARRACAN, contains *Arracan*, *Cadoïasan*, *Sore*.

The *Kingdom of* COCHINCHINA, contains *Cacciam*, *Haifo*, *Queboa*, *Benda*. •

The *Kingdom of* SIAM, contains *Odia*, *Sacotay*, *Bankock*, *Moro*, *Lugor*, *Tanacerim*, *Ligor*, *Juncalaon*, *ordelong*, *Patana*, *Queda*, *Pahang*, *Ihor*, *Malacca*.

The *Kingdom of* MARTABAN, contains *Martaban*, *Tuquala*, *Macaon*.

The *Kingdom of* CAMBOYA, contains *Camboya*, *Ravecca*, *Tarvana*, *Carol*.

The *Kingdom of* CHIAMPA, contains *Polucaccim*, only.

The *Kingdom of* TUNQUIN, contains *Keccio*, only, as I know of.

CHINA.

This Empire has been called by different Names, by the neighbouring Nations. The Name of *China*, it bears at present, comes from one of its Kings, called *Cina*, who reign'd 46 Years before the Coming of *Christ*.

The *French* Maps mark its Extent from the 20 Deg. of Latitude, to the 43; and from the 140 of Longitude, to the 173 only; so that it should have but 400 Leagues from South to North, and 450 from East to West; tho' some

ſome give it 560 Leagues in Length.

It has for Bounds, Northward, a ſtrong Wall, 3 or 400 Leagues long, 45 Foot high, and 18 or 20 in Thickneſs, which ſeparates it from the Kingdoms of *Tanju*, and *Neuche*; Eaſtward the *Eaſtern Ocean*; Southward the ſame Ocean, and the Kingdom of *Tunquin*; and Weſtward the *Damaſian Mountains*, which ſeparate it from ſeveral Nations, Subjects or Neighbours of the Kingdom of *Ava*.

The Climate is very cold, Northward, conſidering its Situation, becauſe of the great Number of high Mountains always cover'd with Snow; and very temperate Southward. The Soil is fat, and very fertile in Corn, Wine, Barley, Maize, Millet, Cotton, and all Sorts of delicious Fruits. There are found in it ſome Paſtures all cover'd with Flocks. The Foreſts abound with Game, the Sea and Rivers with Fiſh. It has Mines of Gold and Silver, Rubies, Topazes, and Load-ſtones. The China-Ware, Silk, Line, Cotton, and the rich Stuffs made of them, make one of the principal Revenues of the Country. It affords Salt, Sugar, Muſk, Ambergreaſe, and all Sorts of Spices. In ſhort, it is one of the moſt delightful Countries of the World.

The moſt remarkable of its Rivers are the *Kiang*, and the *Hoang*. The firſt, which is the greateſt, is called by the *Chineſe*, the *Son of the Sea*, it takes its Source in the Province of *Junnan*, Frontier of *Tunquin*. Its Courſe in general, is from Eaſt to Weſt, though it makes from Time to Time ſeveral large Plaits, ſometimes on one Side, and ſometimes on another; then it paſſes through the Lake *Tungting*, in the Province of *Huguang*, and through the Province and City of *Nanquing*, it diſembogues into its Gulph. The other, called commonly the *Yellow River*, ſprings from a great Lake, which is Eaſtward of the *Damaſian* Mounts, in the Country of the *Guyes*, then having glided for the Space of about 100 Leagues, turns towards the North by Weſt, in the Length of 50; then returns towards the North by Eaſt, in the Space of 200; and touches in its Courſe the Extremity of that famous Wall above-mention'd; afterwards it makes a Plait Southward, and comes to paſs that Wall; after it has rolled thus its Waters more than 100 Leagues, it conducts them Eaſtward 200 more, then diſembogues into the Gulph of *Nanquin*.

CHINA is divided into 17 principal Provinces. Firſt are found round the Gulph of *Nanquin*, thoſe of *Pequin*, *Leaotung*, with the Peninſula of *Corea*; Eaſtward thoſe of *Xantung*, and *Nanquin*. Then following Southward, the Coaſts of the Ocean, the Provinces of *Chequiano*, *Fokien*, and *Cantung*. In the Middle, re-aſcending from the South towards the North, are found in this Order, thoſe of *Kiangſi*, *Quiangſi*, *Queichieu*, *Huquang*, *Honan*, and *Xamſi*. Weſtward, deſcending from North to South, thoſe of *Xenſi*, *Suchuen*, and *Junnan*.

Peking, is at preſent the Capital of *China*. Its Name ſignifies the *Capital City Northward*; and *Nanking*, which had once that Advantage, ſignifies the *Capital City Southward*. The City of *Peking* is very ſtrong, and ſituated at the Extremity of *China*, 30 Leagues from the great Wall, in an uncultivated Place; though it abounds with every Thing from all Parts. Its Streets are not paved, and the Inhabitants and others are obliged to wear during the Summer, a Veil, not to be blinded by the Duſt. It is the Cuſtom there, to ride thro' the City on Horſeback, particularly in Winter, becauſe of the Dirt; and one may have a Horſe for a whole Day for the Value of Two-pence *Engliſh* Money.

Note, That this Country has been Time out of Mind, govern'd by a King or Emperor, called by his Subjects the *Son of Heaven*, and to whom they render a Sort of Adoration. He reſides at preſent at *Peking*. Its Government is not much changed, tho' it was conquered at the Beginning of the laſt Century, by the Great Cham of *Tartary*. There are always in the Imperial City of *Peking*, ſix principal ſovereign Courts: The firſt is the *Council of State*, whoſe Members have the Nomination of all the Magiſtrates and Judges of the Provinces. The ſecond is a *Board of Finances*, to receive the King's Revenues. The third is to take Care of the Temples, Prieſts, Sacrifices, Ceremonies, Embaſſies, publick Feaſts, Marriages, and of all that concerns Religion. The fourth takes Care of the War, has the Intendency of Poſts and Employments, and of all that depends of it. The fifth takes Care of the publick Buildings, as Bridges, Dykes, Walls of Cities, Palaces, Ships, and of the Penſions of the Princes of the Blood. The laſt is eſtabliſhed for Criminal Affairs. There are in the Capital of each Province, the ſame Courts, but ſubaltern to theſe, whoſe Magiſtrates, called *Mandarins*, give an Account of their Adminiſtration, each according to his Office, to thoſe of the Sovereign Courts at *Peking*. Beſides theſe, others are ſent by the Emperor, who are commonly Grandees of the Empire; one call'd *Tutung*, is like a *Triennial Viceroy*, who commands all the other *Mandarins*. The other called *Ciayven*, is like a general Commiſſary, appointed to examine the Deportments, not only of the *Mandarins*, but of the *Tutung* himſelf: This is changed every Year.

Note alſo, That the *Chineſe* are all Idolaters, and extremely ſuperſtitious; which, notwithſtanding, they have always acknowledged a ſupreme and only God, whom they call *King of Heaven*. Among them are found Monks who lead a very ſtrict Life; and alſo *Mahometans* and *Jews*. The Fathers Jeſuits are ſuppoſed to have at preſent in that Country, under their Direction, above 300,000 *Chriſtians*. The *Chineſe* love Sciences, as it appears from the great Credit and Reputation the Fathers Jeſuits have acquired among them, thro' that Means; they are ingenious, politick, and induſtrious. They have a large Face, little and long Eyes, a flat and ſhort Noſe, ſhort Hair, and walk very upright. They ſay, that they had the Uſe of Artillery, and of Printing long before us. Children ſhew a great deal of Reſpect to their Parents, and Parents keep among them a very ſtrict Amity, and are very courteous to one another. They are very jealous of their Wives, whom they keep ſhut up with a great deal of Care. They eat in a very ſlovenly Manner, and are as ſlovenly ſerv'd. It is ſaid, that a Man of Quality to do honour to a Lady, ſpits in her Hand, which in my Opinion, is a very uncivil Civility. When a young Man has attain'd the Age of 25 Years, he muſt either marry, or become a Monk. A certain Day is fix'd, in which all the young Men and Maids to be married meet. The young Men, let their Faculties be known (I mean as to their Fortune) then they are divided into three Claſſes, the firſt is that of the Rich, the other are thoſe of a middling Circumſtance, and the laſt of the poorer Sort. The ſame is obſerved with Regard to the Maids, ſeparating the handſomeſt from thoſe of an indifferent Beauty, and from the ugly. The handſomeſt are given to the Rich, who give to the Board a certain Sum of Money to have them, thoſe who are but indifferent in their Perſon, are for thoſe who are alſo but in indifferent Circumſtances, and the ugly are for the Poor, to whom is diſtributed the Money given by the Rich. This Policy is very judicious, but a little too perplexing.

A more particular Deſcription of *China*, is as follows:

The *Province of* PEKING, contains *Peking*, *Paoting*, *Jenegping*, *Chinting*, *Xunte*.

The *Province of* LEAOTUNG, contains *Leoyang*, *Kincheu*, *Ningyven*.

The *Province of* COREA, contains *Pinggan*, *Sior*, *Chentio*, *Sogſiang*.

The *Province of* XANTUNG, contains *Chinan*, *Yenchen*, *Tunkchang*, *Caiechcu*, *Tingcheu*.

The *Province of* NANKING, contains *Nanking*, *Hoaigan*, *Yencheu*, *Lucheu*, *Canking*, *Chicheu*, *Hocichu*, *Kiating*.

The *Province of* CHEKIANO, contains *Hangcheu*, *Hucheu*, *Nimcheu*, *Chucheu*, *Citencheu*.

The *Province of* FOKIEN, contains *Focheu*, *Changcheu*, *Yeuping*, *Tingcheu*, *Xaow*.

The *Province of* QUANTUNG, contains *Quangcheu*, *Caocheu*, *Xaocheu*, *Hoeicheu*, *Mocao*, Iſland.

The *Province of* KIANOSI, contains *Nanchan*, *Kimchang*,

chang, *Kiegan*, *Cancheu*, *Nangan*.

The *Province of* QUANGSI, contains *Queilin*, *Guchou*, *Tiencheu*, *Nancring*, *Cincheu*.

The *Province of* QUICHEU, contains *Quacyang*, *Sucheu*, *Sunan*, *Liping*, *Chinyven*, *Tucho*.

The *Province of* HUQUANG, contains *Huchang*, *Changxa*, *Pokiag*, *Kangcheu*, *Siangiang*, *Chiatim*, *Jungcheu*, *Hoangcheu*.

The *Province of* HONAN, contains *Ciafung*, *Queite*, *Changte*, *Gueihoei*, *Hoaiking*, *Honang*, *Nanyang*.

The *Province of* XANSI, contains *Taiyven*, *Pingyang*, *Taitung*, *Fuencheu*, *Lugan*.

The *Province of* XENSI, contains, *Sigan*, *Fungciang*, *Hanchung*, *Pinglean*, *Cunchang*, *Linyao*.

The *Province of* SUCHUEN, contains *Chingtu*, *Paoning*, *Xungking*, *Chungking*, *Quicheu*, *Lunggan*, *Mahu*.

The *Province of* JUNNAN, contains *Junnan*, *Tali*, *Lingvn*, *Chingkiang*, *Quangnan*, *Chinyven*.

The *Province of* HAINAN, contains *Cheu*, *Kuncheu*, *Yay*.

The *Isles* are *Formosa*, *Cheuxan*, *Changpæ*.

GREAT TARTARY.

Note, That before I proceed on the Description of this vast Country, I must confess freely, that the Relations we have of it are very uncertain, even perhaps imaginary, and founded only on Conjecture; for it is certain, that *that* Country is almost as little known to us, as the *Terra Australis*, except towards *Persia*; not only because of its great Distance from us by Sea as well as by Land; but because likewise of the high Mountains and frightful Desarts it is environ'd with, on the Land Side, which render it inaccessible; and of the Rocks and Sand Banks found on its Coasts, Eastward, and of the continual Ice which bounds it Northward, which hinders the *Europeans* from trading thither, and consequently from giving us faithful Relations of it. Notwithstanding which I must speak of it, but I'll content myself with relating what has been said the most problable of that Country.

The Name of *Tartary* derives from the River *Tartarus*, found in it Northward; and it is called *Great*, to distinguish it from the *Little Tartary*, which is in *Europe*. Our Ancestors have known it under the Name of *Scythia*, at least in part.

The modern *Geographers* makes its Extent to be from the 88 Degrees of Longitude, to the 190, without including what the *Muscovites* possess Westward; and from the 34 of Latitude, to the 71½, so that it might have 1500 Leagues in its greatest Extent from East to West; and about 180 from South to North.

It has for Bounds Eastward the Sea of the *Kaimachites*, and the Streight of *Jesso*: Southward *China*, the *Indies*, and *Persia*: Westward the *Caspian Sea*, and the Territories of the Empress of *Muscovy*: And Northward the northern Ocean.

The Climate of the Country is various, because of its great Extent; but is generally very cold, and even very hard Northward, where the Wind is sometimes so violent, that it throws down Men, Walls, and tears up the Trees by the Root. The Soil is like the Climate; for on that Side it is steril, full of Marshes and uncultivated Mountains. Southward it produces Rice, Hemp, and Rhubarb in Abundance; and also Silk, Cotton, Wool, and Musk. It feeds every where a great Quantity of Horses and Camels; and Northward are found white Bears, black Foxes, Ermines, and several other Animals, whose rich Furs make the principal Commerce of the Country. There are found in it several high Mountains, large Forests, and vast Desarts, full of Sands and Marshes, which render Part of the Country uninhabitable.

The most remarkable of its Rivers are the *Ghammas*, which springs in the Middle of the Country, from the Mountains of *Bengiar*, and running from West to East for the Space of about 600 Leagues, passes through the City of *Chacan-Kaimack*, and disembogues into the Sea of the *Kaimachites*. The *Tartar*, the *Oby*, and the *Jenesia*, disembogue into the Northern or Glacial Ocean, one Eastward, the two others Westward. The *Jaik*, *Rudha*, and *Gihun* disembogue into the *Caspian Sea*. In the Middle of the Country are found the great Lake *Carantia*, antiently *Kitay*, which may have 300 Leagues of Circuit; that of *Bervan*, towards Mount *Caucasus*; that of *Cahama* towards Mount *Farvan*, under the 55 Degree of Latitude, and the 122 of Longitude; that of *Izejora*, towards the *Muscovite Lucomaria*, and several others which have no Name.

Tartary has always been divided into five principal Parts, the most Southern thereof are the *Kathay*, Eastward, the *Turchessan* in the Middle, and the *Lagathay Usbeck* Westward; the two most Northern are the proper or true *Tartary* Eastward, and the Desart Westward. The *Arabs* divide this Country in another Manner. First Northward, they give the Name of *Moal* to the Country which we include Part in the true *Tartary*, and Part in the northern Part of the Desart. They call *Kaimash* or *Naiman*, the Middle of that vast Empire, which is in the Neighbourhood of the great River *Ghammas*; and the western Part is distinguished under four principal Names, viz. *Chaulach*, or *Karakatay*, and *Kalmuki-Buckar*, which contains the other Part of the *Desart Tartary*: *Chalsag* or *Kashgar*, and *Mawaraluhara*, which very near contain the *Usbeck*. Southward, going from West to East, are found the Countries of *Tabbat*, or *Thibet*, *Thokive*, or *Tanju*, *Niuche*, *Niulhom*, and *Yapie*.

The Capital of *Tartary* is *Cambula*, situated in the *Kathay*, on the River *Tangi*. The Cities of *Thibet* and *Kasghar*, are the Capitals of their Countries; to which they have given their Names. *Samarkand*, in the *Usbeck* or *Mawaraluhara*, was the Country of the great *Tamerlane*.

Note, That the *Tartarians* are brutish, treacherous, and cruel, especially in War; where they slaughter their Prisoners, drink their Blood, and often eat their Flesh. Their Brutality is not satiated in the Enjoyment of several Wives, but they seek besides the other Sex: Their common Drink is made with Rice and Mare's Milk. When the *Cham* dies, they kill several of his Officers to go to serve him in the other World, and give him something to eat and drink on the Road.

Note also, That this Empire is governed by several Kings or Princes, who are subject or tributary of a Sovereign they call *Cham*. The Life and Fortune of his Subjects are in his Power, and can deprive them of both when he pleases, without any other Formality. They call him *Son of God*, *Soul of God*, and *the Shadow of God*. They never speak to him Face to Face. Even Embassadors observe this Custom, and speak to him by an Interpreter.

Note again, That the *Tartars* are either Idolaters or *Mahometans*, and there are found still among them a few antient *Jews*, and few heretick Christians who follow the Errors of *Nestorius*. The Idolaters believe two supreme Gods, one of Heaven, and the other of Earth: They ask the first for Wit and Health; and pray the last to send them a great Abundance of Cattle and Fruit. They are superstitious, adore the Sun, the Moon, Stars, the Elements, and believe the *Metempsychosis*.

A more particular Description of *Great Tartary* is as follows.

KAIMACH, contains *Chacankaimach*, *Monastah*, *Buragh*, *Sitiam*, *Astur*, *Benjar*, *Giarda*, *Chanaves*, *Chaican*, *Carantia*.

MOAL, contains *Mongul*, *Tartar*.

KASHGAR, contains *Kashgar*, *Acsu*, *Lop*, *Damortah*, *Habiacu*, *Rudhom*, *Taraz*.

MAWARALNALIZA, contains *Samarkand*, *Kath*, *Kardau*, *Bochara*, *Sagamjan*, *Belch*, *Badascan*, *Banghir*, *Thalecan*, *Aderkan*, *Bahrenc*, *Marvasian*, *Choyandah*, *Alshath*, *Tonia*, *Ilack*, *Munkishlack*, *Jand*.

KARAKATAY, contains *Sabadrug*, *Arzd*, *Dadeni*, *Chauran*, *Marzan*, *Chartan*, *Dambaha*, *Lochman*.

The THIBET, contains *Thibet*, *Cucia*, *Cialis*, *Bervan*, *Ug*.

NICUCHE, contains *Achbaluch*, *Serra*, *Guengan*, *Tudin*.

The KALMUKI.

BUCHAR, contains *Daranda*, *Darcu*, *Marghan*, *Giaghan*, *Hian*, *Sarabic*, *Nabia*.

The TANJU, contains *Tanju*, *Xama*, *Pucian*, *Suchur*, *Erzina*.

The YUPI, contains *Sinnadre*, *Cantehouri*, *Brema*, *Tinzu*.

ISLES of ASIA.

Note, That I have placed for a sixth Part of *Asia* all the Isles Eastward and Southward of it. The first, and nearest *Tartary*, are the Isles of *Japan*. The others are the *Philippines*, *Molucca's*, those of the *Sonde*, the *Maldives*, the Isle of *Ceylon*, and several others which are in the *Indian* Sea. To which I'll add the Isles of the *Larrons*, which are farther advanc'd Eastward.

ISLES of JAPAN.

Note, That the antient *Geographers* have not known this Name of *Japan*; and *Ptolemy* speaks, in its Place, of a certain Island abounding in Gold, which he places Eastward of *China*, and which he calls *Japadyinsula*, or Isle of *Barley*; which the most learned *Geographers* take to be the Isle *Niphon*, the greatest of those of *Japan*.

These Isles are situated Eastward of *China*, between the 31 and 40 Degrees of Latitude; and extend from the 171 of Longitude, as far as the 188.

The Climate is very temperate, and wholsome; the Soil, though hilly, is very fertile in Barley, Rice, Millet, and several Sorts of Fruits; but it produces neither Wheat nor Wine. Its greatest Fertility is in Gold and Silver, which are there in such great Quantities, that some have imagined, that the whole Soil was of those two precious Metals: It has Elephants, Camels, Horses, and Abundance of Game.

There are several Rivers and Canals, which traverse those Isles in such a Manner, that they divide them into several Parts; which have besides some Lakes, several Gulphs, and very good Sea-Ports.

Among those Isles, which are in great Number, there are three remarkable ones: The first is called by the Inhabitants *Nephon*, i. e. Source of Light: The second in Bigness *Ximo* or *Saycock*, i. e. nine Kingdoms; and the other *Tokoôti*, or *Xicock*, i. e. four Kingdoms.

The Island *Niphon* is four Times bigger than the two others taken together, having at least 220 Leagues in its greatest Extent from East to West, 75 in its greatest Breadth, 30 in its lesser, and near 600 of Circuit: There is seen in it a Mountain which throws up Flames like the *Ætna*.

It contained once 53 Kingdoms; at present it is divided into five principal Parts; which are *Jamaysoit*, *Jetsengo*, *Jetsegen*, *Quanto* and *Ochio*, which are found in this Order, going from East to West, and which are again subdivided into several Provinces.

The Island *Ximo* is situated at the South by West of *Niphon*, under the 31 Degrees of Latitude, and 172 of Longitude, and may have 60 Leagues in its greatest Extent from North to South, 25 or 30 from East to West, and 160 of Circuit, the Gulphs excluded.

The Island *Xicock* is situated Southward of *Nephon*, under the 175 Degree of Longitude, and the 32 Deg. 30 Minutes of Latitude, having about 45 Leagues in Length, 15 in Breadth, and 120 of Circuit: It is less cross'd with Rivers and Canals, and less divided.

The other Isles which are in the Neighbourhood are not comparable to these; though some of them have had antiently their own Kings, and have still their Lords or Princes.

The City of *Macao*, situated towards the Middle of the Island *Niphon*, was once very large, rich, and magnificent, because the antient *Dayri*, who reigned alone in those Isles, resided there; but it was almost entirely destroy'd by Fire, during the Civil Wars of *Japan*. Since that Time a new Emperor, having appeased the intestine Divisions, by conquering all the petty Kings, or rather Tyrants, who had built their Thrones on the Ruins of that of the *Dayri*; he chose the City of *Jendo* for his Residence, and it passes at present for the Capital, and the most sumptuous City of *Japan*; for not only the Palace of the Emperor is cover'd over with Plates of Gold, but also those in the Neighbourhood, belonging to several Princes.

Note, That the *Japanese* are quite different from us in their Manners: Tho' they be very patient, they are so wild, and so cruel, that a Foreigner dares not lift up his Eyes to look a single Soldier in the Face, without being in Danger of his Life: They are so mistrustful, that they will permit no foreign Ships, except the *Dutch*, to approach the Shore. When a *Dutch* Ship arrives in the Port, Commissaries come into it to examine every Sailor, and other Persons on board, apart, about News from *Europe*, the *Indies*, &c. and if any one be found a Liar, he runs a great Risque of being severely punished. Afterwards those Commissaries cause all the Munitions, and Merchandises, brought by the Ship to be carried away; then having examined their Value, they have the same Ship loaded with Gold and Silver to the Equivalent of those Effects, and as they think fit: And it may be observed, that one has not the Liberty to chuse the Species of Metal, but is obliged to take what is given him, and set sail as soon as they order them, without asking the Reason why: But however, the *Japanese* are faithful, and never deceive in Trade.

Note also, That the *Japanese* are govern'd by several Kings and Princes, who acknowledge a sovereign One, whom they call *Cube*, i. e. Commander or Emperor. The People have so great a Veneration for that Sovereign, that they dare not look him in the Face, and adore him as a God. He is never to be spoken to, but the Face prostrated against the Ground; and his natural Pride joined to his Magnificence, keeps them in that profound Respect. Their Government is despotick and very rigorous. The Lords have a Right of Life and Death over their Subjects; and for the least Fault, they make them feel the Effects of their brutish and wild Humour.

Note again, That the *Japanese* have always been Idolaters; but the *Portuguese* having discovered their Country in 1542. St. *Francis Xavier*, passed into it to preach the Gospel, and succeeded with so much Glory, that since that Time the Catholick Religion had made an almost incredible Progress in *Japan*; and notwithstanding the Persecution it had suffered from some of the Emperors, there was Hope, that all those People would increase the Number of the Faithful; if the Devil, Enemy of God's Glory, had not insinuated in the Mind of a certain *Flemish*, the Means to destroy in a very short Time the Church, which so many Martyrs had built by their Predications, and cemented with their Blood. This Emissary from Hell was born at *Brussels*; some say, that from a Scullion, or Marmiton, he was become Intendant of Commerce for the *Dutch* in *Japan*: Jealous, perhaps, of the *Portuguese*, who managed well their Affairs in those Parts, and considering them as an Obstacle to the Advancement of his own, he forged a Letter, which he pretended to have intercepted from on board one of their Ships, and which he shew'd the Emperor of *Japan*, that these *Portuguese* had conspired to render themselves Masters of his Country, by Means of the great Number of Catholicks who were in it. That Prince, as much inclin'd to Cruelty, as he was versed in Politicks, without examining the Accusation farther, gave secret Orders that all Christians in his Dominions, without Exception to Sex or Age, should be massacred, which was barbarously executed; so that the Catholick Religion is not only extinct in *Japan*, but this Letter has render'd the Name of *Portuguese* so odious to the People, that they have pull'd up all the Trees, Vines, and other Plants, these had brought from *Europe*; to keep nothing of a Nation which they believe perfidious. He who had been the Cause of so fatal an Accident, having been discover'd fraudulous, and without Faith in his Ministry, was deprived of his Commission, sent to *Holland*, and interdicted from Trading: But sometime afterwards he enter'd into the Service of the King of *France*, and

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was the Cause that 25 Ships were either lost, or taken at the Island of *Ceylon*, and at St. *Thomé*, or *Maliaput*, on the Coast of *Coromandel*, where it is well enough known how he deceived the King: Afterwards returning towards *France*, and being afraid to appear there with the Riches he brought from *India*, and wanting to unload himself of some of his Jewels at *Lisbon*, he perished with them, and his Ship, on the Coasts of the Kingdom of *Portugal*.

A more particular Description of *Japan* is as follows:

The *Island* of *Niphon*, contains *Jendo*, *Meaco*, *Buomi*, *Ximano*, *Jechigue*, *Suranga*, *Boary*, *Sengomy*, *Aima*, *Bitçou*, *Bingo*, *Mimasaca*, *Hixumi*, *Hinami*, *Amangui*, *Hietchu*, *Hienchengo*, *Findaqui*, *Temba*, *Noto*, *Musaki*, *Simovesa*, *Fitachi*, *Villoxu*.

The *Island of* XIMO, contains *Satçuma*, *Arima*, *Chicugo*, *Nangasaki*, *Burgo*, *Finga*, *Figen*.

The *Island of* XICOKO, contains *Tonsa*, *Hyo*, *Ava*, *Samuchi*.

The other ISLES are, *Firando*, *Cexima*, *Goro*, *Tanaxuma*, the *Seven Isles*, *Gisima*, *Toy*, *Sando*, *Sisima*, *Bacasa*, *Woqui*.

The PHILIPPINE ISLES.

These Isles, called by the Eastern Nations, Isles of *Luçon*, of the Name of the greatest and most considerable of them all have been called *Philippine*, by the *Spaniards*, of the Name of *Philip* II. King of *Spain*, under whose Reign they were discovered by *Magellan* in 1520.

They are situated between the *Molucca's*, and the Kingdom of *China*, and extend from the 5 Degree of Latitude to the 19, between the 151 and 167 Degree of Longitude.

Though they are very far advanced in the Torrid Zone, the Climate is not very hot, because of the long Nights, and of the Wind, which blows hard there very often: The Soil is extremely fertile in all Things; it produces Wheat, Barley, Rice, Millet, and excellent Wine; likewise Pepper, Ginger, Cinnamon, Saffron, Sugar, Honey, Wax, and several Sorts of Fruit. It has Mines of Gold, and of Iron; and they fish Pearls on the Coasts: It feeds all Sorts of Cattle and Fowls, as well as several Sorts of wild Beasts and Game: Crocodiles and Tortoises, whose Shells are the most esteemed of all the East for their Beauty.

Among these Isles there are three which are the principal and greatest, *viz. Luçon* or *Manilla*, *Mindanao*, and *Paragoya*, or *Calamianes*. The others which are lesser, and almost all comprised among these, are *Mindora*, *Kapul*, *Panajotton*, *Masbate*, *Abajo*, *Achan*, or *Tendaye*, *San-Juan*, *Matan*, *Cebu*, *Negoa*, and several others.

The Island of *Luçon*, which is the largest of all, is situated under the 159 Degree of Longitude, and the 15 of Latitude: It has more than 100 Leagues in its greatest Extent from South to North; almost as much from East to West, and more than 400 of Circuit, without including the Gulphs.

The Island *Mindanao*, which is the most Southern, is situated under the 163 Degree of Longitude, and the 7 of Latitude. It may have 120 Leagues in Length, 80 in Breadth, and 340 in Circuit without the Gulphs.

The Island *Paragoya*, called also *Puloan*, is the most western, the most fertile, and the best inhabited. It is situated under the 154 Degree of Longitude, and the 10 of Latitude, so that it may have more than 100 Leagues in Extent from South by West to the North by East, 18 or 20 in Breadth, and 200 of Circuit.

The Island *Mindora* is situated under the 158 Degree of Longitude, and the 13 of Latitude, and may have 45 Leagues in Length from South by East, to North by West, about 20 in Breadth, and 100 of Circuit.

The Island *Tendaye*, is Northward of *Mindanao*, under the 164 Degree of Longitude, and the 12 of Latitude: It has about 50 Leagues from South by East to North by West; 30 in Breadth, 140 of Circuit, without including its Gulph. It was the first *Magellan* boarded, and passes for one of the most fertile.

The others which I have marked are situated between these, and though they be smaller, they are not less considerable for their Fertility, and other Advantages.

Note, That the Inhabitants, native of these Islands, are not so wild as that of *Japan*, and trade with the *Chinese* and *Europeans*, without that insupportable Mistrust, with which the *Japanese* treat Foreigners; but they hate mortally the *Spaniards*.

The City of *Manilla*, is the Capital of those Islands which are in the Power of the King of *Spain*; it is situated in the Bottom of a Gulph in the Middle of the Island of *Luçon*: The Viceroy with the Consul resides there, and it is an Archiepiscopal See.

The City of *Mindanao*, otherwise *Tapone*, is the Capital of its Isle, to which it has given its Name: The most powerful of the Kings of those Countries reside there.

Note, That the *Catholick* Religion is professed in all the Places depending of the King of *Spain*. The Natives are either *Mahometans*, or Pagans; there are few of them Christians, who have been converted by the *Spaniards*.

Here follows a Catalogue of all the *Philippine Isles*.

The Isles of *Luçon*, *Manilla*, *Cagacon*, *Vigas*, *Aquarina*, *Panganfiran*, *Panevasion*, *Cacæces*, *P. de Mandato*.

The Isle *Paragoya*, or *Calamianes*, or *Pulvan*.

The Isles of *Mindora*, *Kapul*, *Panajoton*, *Negoa*, *Musbate*, *Rebujan*, *Tindaye*, *Abujo*, *Cebu*, *Matau*, *S. Juan*, *Banton*, *Luban*, *das Palmas*, *Tagyma*, *Candagari*, *Damucan*, *Bankingle*, *Pondaim*, *Paracalla*, *Babayones*.

MOLUCCA ISLES.

These Isles, known under the Name of *Molucca's*, bear it improperly, because that Name has never been given to any other Isles, but to *Ternate*, *Tidor*, *Motir*, *Machian*, and *Bachian*, situated towards the western Coast of *Gilolo*, and which are nothing in Comparison of those generally called *Molucca's*.

They are situated Southward of the *Philippines*, and Eastward of *Borneo*, extending in our Maps from the 3 Degree of Northern Latitude, to 11 of the Southern; between the 155 and 180 of Longitude, the Land of the *Popous* included.

The Climate is hotter than in the *Philippines*, and they are not so fertile. They produce but little Corn, unless it be Rice, of which the Inhabitants make their Bread, and a sort of Wine: Their greatest Fertility is in Spices, as Ginger, Cinnamon, and particularly Cloves, which grow in great Quantity in the true *Molucca's*. The great ones have some Golden Mines, produce Cotton, and a great Quantity of Sanders.

Among the great Number of Isles called *Molucca's*, there are two of a great Extent, *viz. Celebes* and the Land of the *Papous*. There are several others lesser, among which are those of *Gilolo*, *Ceiram*, *Timor*, *Flores*, *Bouro*, *Banda*, *Marotay*, *Baton*, *Solayo*, &c. and others still lesser, among which are *Ternate*, *Tidoré*, *Motir*, *Machian*, and *Bachian*, which are the true *Molucca's*, which are found in this Order, coming from the North toward the South; the greatest of which has but 13 Leagues of Circuit, and the lesser 4 or 5.

The Island *Celebes*, is the largest and most western of the *Molucca's*: It is situated under the 2d Degree of Southern Latitude, and the 158 of Longitude. It may have about 150 Leagues in Length, 90 or 100 in Breadth, and 4 or 500 of Circuit, because of a great Gulph which is Southward. This Isle had once six Kingdoms, which since have been reduced to two. The first and most flourishing is that of *Celebes*, the other that of *Macasar*.

The Island *Gilolo*, is situated under the Equator, at the 165 Degree of Longitude. It is of an irregular Form, advancing four Slits of Land, one Northward, one towards the North by East, another Eastward, and the last towards the South by East. The largest of these Slits has not 20 Leagues in Breadth, and the longest has about 50 Leagues in Length from the Middle of the Isle to one of its Extremities.

The Island *Ceiram*, is situated under the 3d Degree, 30 Min. of Southern Latitude, and the 167 of Longitude. It may have 80 Leagues in Length, and 18 in Breadth.

The Island *Timor*, is situated under the 9 Degree, 30 Min. of Southern Latitude, and the 161 of Longitude. It may have 60 Leagues in Length, 20 in Breadth, and 130 of Circuit. Golden Mines are found in it, a great Quantity of Pepper, and the Sander-Tree.

The Isles *Flores*, *Solor*, *Terasta*, *Banda*, *Amboina*, &c. have very near the Qualities of those above-mentioned. One has its particular King, and the others are in the Power of the *Portuguese*, or of the *Dutch*: They will be seen in my particular Description.

Note, That most of the Inhabitants of these Isles are brutish and wild, particularly those who inhabit the Middle of the Land, and have no Commerce with the *Europeans*. But the Inhabitants of the Coasts are very different from them, and much more tractable.

Note also, That the *Molucca's* were discovered by *Magellan*. The *Spaniards* were the first who settled in them, but were expelled by the *Portuguese*, who were supplanted in their Turn by the *Dutch*, who are at present Masters of Part of them; and have so well managed the Kings of those Isles, that they are entire Masters of the Commerce of Cloves.

Note again, That the Natives are either Idolaters or *Mahometans*, few of them are baptized, and the *Dutch* and *Portuguese* follow each their Religion.

A more particular Description of the *Molucca's* is as follows:

The *Island* CELEBES, contains *Celebes*, *Durate*, *Bohol*, *Gaydeyca*, *Tetoli*, *Taninæe*, *Gapæ*, *Tobuco*, *Buta*, *Supar*, *Ciaon*, *Mandor*, *Macasar*, *Bantachaia*, *Tabon*, *Tello*.

The *Island* GILOLO, contains *Gilolo*, *Moro*, *Cuma*, *Tolo*, *Jaffago*.

The *Land of the* PAPOUS.

The *Isle of* CEIRAM, contains *Ceiram*, *Cambello*, *Loæ*.

The *True* MOLUCCA'S are *Ternate*, *Tidore*, *Motir*, *Machian*, *Bouchian*.

The *Isles of* MOROTAY, *Ouby*, *Bilato*, *Xulla*, *Bouro*, *Banda*, *Baton*, *Gabona*, *Solayo*, *Flores*, *Timor*, *Ambo*, *Teralta*, *Aru*.

ISLES OF THE SONDE.

We do not know, for certain, the Origin of the Name of these Isles, and I am of Opinion, that it is taken from the Port of *Bantam*, called *the Sonde*.

They are situated round the Equator, Westward of the *Molucca's*, and very near the *Indian* Peninsula beyond the *Ganges*; and extend between the 8 Deg. of northern Latitude, and the 8 of the southern Latitude, between the 13 and 134 of Longitude.

The Climate is temperate enough, considering they are situated in the Middle of the Torrid Zone; and the Soil is very fertile in Metals and Spices.

Among the Isles known by the Name of *Sonde*, there are three principal ones, *viz. Sumatra*, *Java*, and *Borneo*.

Note, That the Natives of these Isles are not very sociable, particularly in the Middle of the Land; for those on the Coasts are tractable enough.

Note also, That they are govern'd by different Kings or Princes: The *Dutch* are Masters of several Places on the Coast, and likewise of the whole Commerce of those Isles.

Note again, That these Kings, and their Subjects, are either Idolaters or *Mahometans*; and the few *Christians* found among them are all *Europeans*.

The *Island* SUMATRA is the most western of the three, separated from *Molucca* by the Streight of the same Name. It extends from the 5 Deg. 30 Min. of northern Latitude, to the 5. 30 Min. of southern: So that the Equator passes just in the Middle; and it may have 300 Leagues in Length, 40 or 50 in Breadth, and about 600 of Circuit.

Though this Island be under the Line, the Climate is not excessively hot; either because the Nights are equal to the Days, or for the fresh Gales which blow from all Parts. The Soil produces a great Quantity of Pepper, Ginger, Cinnamon, and Rice which the Natives eat instead of Bread; and likewise Sugar and Benzoin. It has in its Mountains several Mines of Gold, Silver, Lead, Iron, and Sulphur.

This Island was once divided into several Kingdoms; at present it has but five, *viz. Achem*, *Campfer*, *Jambi*, *Palymban*, and *Menancabo*. The two first are Northward, and the three others Southward. The Kingdom of *Achem* is the largest, and most Northern of all. The *Dutch* possess several Places on the Coasts, with Part of the Mines.

The City of ACHEM, Capital of its Kingdom, is the most considerable of the whole Island, and situated towards the most northern Point.

The *Island* JAVA, called the *Great*, is at the South by East of *Sumatra*, from which it is separated by the Streight of the *Sonde*. It is situated under the 7 Degree of southern Latitude, between the 140 and 150 Deg. of Longitude; so that it has more than 200 Leagues in Length, 40 in Breadth, and 450 of Circuit.

The Climate is the same as at *Sumatra*, for the Reasons above-mentioned. The Soil produces several Sorts of Fruits, Pepper, Benzoin, Sugar, and Rice, which the *Javans* eat instead of Bread. It has likewise Mines of Gold and Copper.

It was antiently divided into nine Kingdoms, which have been since reduced to two. The first and most powerful is that of *Materan*, the King whereof is called Emperor of *Java*, to whom all the other Princes are tributary; and the second is that of *Bantam*.

The City of MATARAN is the Capital of the Island, and the Place of the King's Residence. It is situated on the southern Coast.

The *Dutch* have built BATAVIA on that Coast, in the Manner of the Cities of *Europe*. It is one of the Rarities of the Country, because all the Houses of the other Towns are but of Wood, cover'd with Leaves of Palm-Trees. Here resides the General, kept by the *Dutch* in these Isles, and for the *Indies*. They have besides a Fortress on the same Spot of Ground, where was before the City of *Jacatza*.

Note, That before this Fortress was built, the *Dutch* were disturbed in their Establishment by the Natives supported by the *English*; but they defended themselves so well, by Means of a Fort they built with Bale Goods, that they repulsed their Enemies, and afterwards built this Fortress, composed of four Bastions, to which they gave the Names of precious Stones, *viz.* of the *Diamond*, *Ruby*, *Saphir*, and *Pearl*, in Allusion to the Goods they had built their first Fort with.

The *Island* BORNEO, is situated under the Equator, Eastward of *Molucca* and *Sumatra*, and Northward of *Java*. It extends as far as to the 7 Deg. 30 Min. of northern Latitude, and as far as to the 4 of southern; having about 220 Leagues in Length, 200 in Breadth, and 650 in Circuit.

The Climate is temperate enough, but unwholsome, because of the Marshes which exhale bad Vapours. It has Mines of Gold, Tin, and Iron in its Mountains; Wax, Honey, Cassia, and Cotton in its Forests, which are very large, and pretty frequent.

There are Southward, and Westward, four pretty large Rivers, the most remarkable of which is, that of *Succadano*, which traverses three Quarters of the Island, from North to South, and in which it is said are found Diamonds.

Note, That this Island is govern'd by a *Mahometan* King, to whom no Body dares to speak Face to Face. The Natives are most of them Idolaters, and some follow the

the Religion of the Prince. The *Dutch* keep some Places on the Coasts, where they profess their own Religion.

BORNEO, is the Capital of the whole Island, from which it has borrow'd its Name. It is situated at the Bottom of a small Gulph, towards the Coasts which looks North by West; and is the King's Residence.

Here follows a more particular Description of the *Isles of Sonde.*

SUMATRA, contains *Achem, Pedir, Pacem, Tamonbura, Souzon, Baras, Terra d'Aru, Bathan, Camper, Potemban, Priamam, Gudabiri, Jawbi, Baros, Palimban, Menancabo, Judapera.*

JAVA, contains *Batavia, Bantam, Materan, Seraboy, Japara, Grece.*

BORNEO, contains *Borneo, Cancerao, Marudo, Matanò, Puchavaraon, Tamenacerin, Tamanatos, Soucelouban, Hormata, Succadano, Lave, Bendarmassin, Taniamparo, Calandua, Caburo.*

The *Isles of* BANCA, *Madura, Baly, Nassaw, Gade fortuin, Nays, P. Gavia, Cocos.*

The Island CEYLAN, *or* ZEYLON.

The *Island* CEYLAN, to which has been given the Figure of a Pear, is the *Taprobanes* of the Antients, and that which the *Indians* call *Tenarisin.*

It is situated Eastward of Cape *Comorin*, under the 122 Degree of Longitude, and the 8 of Latitude, and may have 80 Leagues in its greatest Extent from South to North, about 55 from East to West, and 230 of Circuit.

It is separated from the Coast of *Coromandel*, by the Streight of *Manar* or *Chilao*, which borrows its Name from one or other of these two Isles, which are along its western Coast.

The Climate is very temperate, though so near the Equator; and the Soil very fertile in all Things necessary for Life. It produces a great Quantity of Nutmegs, and other Spices: The best Cinnamon grows there in Abundance, since there are seen whole Forests of it. Some say that it has Mines of Gold and Silver, though there is no Commerce made of it; but a great Quantity of fine Pearls are fished in the Streight.

It has but few Rivers, and the two most remarkable are, those of *Trinquemale*, and of *Colombo*, which have their Source towards the Middle of the Island, five or six Leagues distant from one another. They run contrarywise, one to the North by East, the other to the South by West. The first which passes at *Candea*, and is the greatest, has not 40 Leagues in Length.

This Island was once divided into eight or ten Kingdoms, which are at present all re-united under the Domination of a Sovereign, called King of *Ceylan*, who resides at *Candea*, Capital of his Dominions. That City is situated towards the Middle of the Island, on the River *Trinquemale.*

The King of *Ceylan* has several Princes his tributary; the *Dutch* are Masters of all the Coasts of this Island, and consequently of the whole Commerce. Most of the Places on the Coasts have been built by the *Portuguese*, who had settled there; but it is pretended that they committed so many Cruelties, that their Name became odious to the Natives; which being come to the Knowledge of the *Dutch*, they made a League with the King of *Ceylan*, beat the *Portuguese* in several Encounters, and at last expelled them entirely from the Island, after they had made *Gaspar Figbero* their Chief, Prisoner, whom they confin'd in a Dungeon.

Note, That the King, Princes, and most of their Subjects are *Mahometans*, and but few of them Idolaters. The *Dutch* profess their own Religion.

ISLES MALDIVE.

These ISLES borrow their Name from *Male*, which is the greatest, and Capital of them all; and from *Dive* an *Arabick* Word, which signifies *Isle*, as if one would say the *Isles of Male.*

They are situated towards the Middle of the Torrid Zone, so that they advance from South by East, to North by West, on an almost strait Line, between the 3 Degree of southern Latitude, and the 7 of northern, taking up in Length about 240 Leagues, and 15 or 20 in Breadth.

The Climate is not too hot, though under the Line, because of the long Nights, during which a Dew falls which temperates the Heat of the Day. The Soil produces but little Corn, except it be Millet. But it abounds in Fruit, as Oranges, Lemons, Figs, and a great Quantity of Cocoa-Nuts. There are brought over from these Islands, the finest Tortoise-Shells of all the *Indies*, black Coral and Ambergrease.

These Isles are divided into thirteen or fourteen Cantons, if we reckon the most meridional for two, because it is divided into two by a Brook; all the other Cantons are separated from one another by very dangerous Channels, three, six, or ten Leagues broad; and the last is twenty Leagues broad. Each of these Cantons is environ'd with Banks of Stone, which stop the Impetuosity of the Sea; so that those Isles enjoy a great Tranquility, even during the most furious Tempest. The greatest Canton has but 50 Leagues of Circumference, round-wise, or oval-wise; notwithstanding which it contains an innumerable Number of small Isles, the most extended whereof has but 2 Leagues of Circuit. Round each Canton there are four Apertures or Conducts, through which one may pass from one to the other, in pretty reasonable Ships.

The greatest of these Isles is MALE, which is the Capital of all: It is situated in the sixth Canton, which is found in descending from North by West, to South by East; The King of these Isles resides there.

ISLES OF THE LARRONS.

These Isles are called of the *Larrons*, because their Inhabitants are addicted to Thieving.

They are situated between the 7 and 21 Deg. of Latitude, and confin'd between the 184 and the 188 of Longitude, in a Place of the Eastern Ocean, called the *Archipelago of St. Lazare.*

It is said that they are sterile, and the Inhabitants very poor.

Here follows a more particular Description of all these Isles.

The *Island* CEYLAN, contains *Candea, Colanbo, Gallo, Baticale, Trinquemale, Jafomapatan, Chilao, Jala, Ceitavaca, Manar*, Isle.

The *Isles* MALDIVE, are *Tilladou-Matos, Milladoüe-Madoüe, Paindoüe, Pouladou, Malos-Madou, Ari-Atollon, Pouliddou, Moluque, Nillondoux, Collomadoux, Adowmatis, Souadou, Addou, Poüe-Moluque.*

The *Isles* LADRONES, are *Gregua, Chemocoa, Manao, Englese, Malabrigo, Disierta, Oramagan, Agan, Bacim, Botaba, Volid, Sepan, Mata, Chereguan, Natan, Guguan.*

The other *Isles* in those Parts are, *I. of the Senators, I. of the Martirs, I. of Birds, Pulovilau, De los Arecifos, De los Matelotes.*

AFRICA.

This Part of the antient World is the most southern of all those it is composed of, and the greatest Peninsula of the Universe. Most Authors differ in Sentiment on the Origin of its Name; some borrow it from *Afer*, Son or Companion of *Hercules* the *Libian*; others derive it from the Name of a King of *Arabia*, called *Melec Ifiriqui*, which Foreigners have corrupted, changing the *I* into *A*. *Josephus* assures us, that the Word *Africa* comes from *Afer*, *Abraham*'s Grandson. There are several other Opinions, which would be too tedious to relate, and are as dubious as these.

It extends from the 35 Deg. of northern Latitude, to the 35 of southern Latitude; and from the 3 Deg. of Longitude, to the 83; so that it may have 1600 Leagues in Length, at the Altitude of the River *Niger*, about

about half under the Equator, and always diminishing as one goes Southward: It has very near 1400 Leagues in Breadth, towards the Lake *Zaire*, and about 600 in *Guinea*; therefore it is believ'd to have more than 5000 Leagues of Coasts.

It confines Northward with the *Mediterranean*; Eastward with the Isthmus of *Suæs*, the *Red Sea*, and the Eastern Ocean; Southward with the Sea of *Ethiopia*; and Westward with the *Atlantick*.

Its Situation shews us, that the Equator passes justly in the Middle, and that two Thirds thereof are in the torrid Zone, which renders the Climate extremely hot: Add to this, that the Middle of the Country is full of shining Sand, which reflects the Rays of the Sun with a burning and insupportable Heat. All this sandy Land is uncultivated, and very little inhabited, either for its Sterility, or its Scarcity of Water, or because it abounds with ferocious Beasts, and several Monsters of various Forms, which devour human Creatures: Among these Animals are found the Lion, the Leopard, the Panther, the Elephant, the Monkey, the wild Horse and Ass, the Sea-Ox and Horse, the Camel, and several others unknown, the Sheep, Oxen, *&c.* are very good, and extraordinary large and fat. The Soil produces delicious Fruit, and medicinal Plants: It has in several Places Mines of Gold and Silver, and some of Salt.

Its most considerable Rivers are the *Nile* and the *Niger*; the first springs from the Lake *Zaire*, or from a small River which enters into it in *Abyssinia*, which it traverses from South to North by East; as it does *Nubia* and *Egypt* from South to North. It disembogues into the *Mediterranean* through several Mouths, after it has divided itself into several Branches, which form a Triangle, call'd the *Delta* of *Egypt*, because it has very near the Form of that *Greek* Letter. The *Niger* takes its Source from a Lake of the same Name in *Abyssinia*, runs from South to North between that Empire and the Kingdom of *Congo*; then entering the Kingdom of *Borno*, loses itself in the Mountains, then appears again near the Lake *Borno*, through which it passes, and traverses afterwards all *Nigritia* from East to West, forming the Island which the *Arabs* call *Nub*, between *Gangara* and *Zanfara*, and the Lake *Guarda*, in the Kingdom of the *Agades*; then, before it disembogues into the Ocean, it divides itself into several Branches, the most considerable whereof are *Rio Grande* Southward, *Gambia* in the Middle, and *Senega* Northward: The most southern Point of the Island, formed by these two last, is what we call the *Cape Verd*.

Africa may be divided into eight principal Parts, which are *Egypt*, *Barbary*, the *Bildulgerid*, *Zaara*, or the *Desart*, *Nigritia*, *Guinea*, *Ethiopia*, and *Nukia*; to which may be added, for a ninth Part, the Isle depending thereof.

Note, That though this Country seems to produce but Barbarians and Monsters, it has notwithstanding given Birth to the greatest Lights of the Church, and most strenuous Defenders of it, as *Tertullian*, St. *Cyprian*, St. *Augustin*, and several others; and also several great Captains, as *Hannibal*, &c. The Inhabitants are a Mixture of native *Africans*, and of *Arabs*: They are in general of a wild and cruel Temper, and very strong: They do not all live in Cities, but a great Number dwell in the Desarts, under Huts; and some are always Vagabonds.

Note also, That ever since the Children of *Noah*, *Africa* has had several Kings and Princes. The *Romans* render'd themselves Masters of a Part of it; and after they had destroyed *Carthage*, and expell'd the Kings, they sent Colonies into it; till *Genserick*, King of the *Vandals*, expell'd them, and render'd himself absolute Sovereign there. He maintain'd his Empire, he and his Successors, for the Space of about 130 Years, till *Bellisarius*, General of the Army of the Emperor *Justinian*, reconquer'd that northern Part from *Gilimer*, whom he carried away Prisoner, after the Reduction of *Carthage*. The *Arabs* and *Saracens* invaded it in their Turn, under the Empire of *Honorius*; during which the *Roman* Affairs began to decline. Since that Time, the *Turks* have conquered some Kingdoms in it, Part whereof is subject or tributary to them. Other Kings, or Sovereigns, possess the best Part of it; and the Kings of *Spain* and *Portugal* have some Places on the Coasts.

Note again, That the *Africans* were always Idolaters, and adored the Stars, the Fire, *&c.* The Queen of *Sheba*, who visited *Solomon*, instructed them in the *Jewish* Religion; and they received afterward the Light of the Gospel from the Eunuch of Queen *Candace*, who was baptized by the Apostle St. *Philip*. At present there are found in it Mahometans, Idolaters, Castes, *Jews*, and two Sorts of Christians: For most of the *Abyssinians*, and other *Ethiopians*, are *Greek* Schismaticks; and the Subjects of the Kings of *Spain* and *Portugal* are *Roman* Catholicks.

Egypt.

This Kingdom has received its Name, according to the most common Tradition, from a Son of *Belus*, *Danaüs*'s Grandson, who was called *Egyptus*.

It extends from the 60 Degree of Longitude to 67, and from the 22 of Latitude to 31, 30 Min. so that it may have near 100 Leagues of Extent from East to West, and 180 from South to North.

It confines Eastward with the *Red Sea*, and the Isthmus of *Suæs*; Northward with the *Mediterranean*; Westward with *Barbary* and the Desart of *Barca*; and Southward with *Nubia*, and the *Abyssinians*.

The Climate of *Egypt* is unwholsome, because of the excessive Heats, and the Waters of the *Nile*; for the Water which remains on the Earth after the overflowing of that River, generates a prodigious Quantity of Insects of different Species, which infect the Air. But in Recompence, all the Cattle becomes more fecund by those Waters; the Sheep bear twice a Year, even several Lambs at once. The Women are commonly delivered of two Children at a Birth, and often more. Some Authors believe that the Fecundity of the Women of *Israel*, during their Captivity, proceeded from the Water of the *Nile* they used to drink. The Trees are almost always covered with Fruit; and if the Inhabitants were not so lazy, and would till and sow their Land after Harvest, they could make two in a Year.

The famous River *Nile* is the only one considerable in *Egypt*. It abounds with Fish; but it likewise produces a great Number of Crocodiles, which are very dangerous to Men and Beast, whom they devour when they can surprize them: It traverses the whole Kingdom from South to North, forming several Isles, and passing through the most considerable Cities, as *Girgio*, *Saida*, *Manfelont*, *Benesuef*, *Fium* and *Cairo*. Afterwards it divides itself in two Arms, which subdivide themselves in several others, which have all different Names, and form the *Delta*.

Westward of the *Nile*, under the 29 Degree of Latitude, is found the Lake *Mœris*, which may have 160 Leagues of Circuit; and another a little higher, which is about 20 or 25 Leagues round. The Isthmus of *Suæs*, which parts the *Red Sea* from the *Mediterranean*, is 30 or 35 Leagues broad. Several Kings of *Egypt* have attempted in vain to cut it, to join the two Seas together. This Enterprize has render'd it famous in History, and has given Room for the Proverb, *Fodere Isthmum*, to a difficult Undertaking.

Four Leagues off *Cairo*, are seen the three famous Pyramids, which have passed for one of the Seven Wonders of the World: The greatest of these Pyramids has 86 Fathoms, 4 Feet in Length; each Side of its Base has 113 Fathoms, 4 Feet; and each Face of its Pedestal is 270 Fathoms, 5 Feet long. The Mummies found in the Neighbourhood of these Pyramids, and which have been the Subject of so many Romances, are nothing but embalmed Corpses, hardned by Succession of Time.

Egypt is divided into higher, middle, and lower, and more particularly into twelve *Calliwicks* or Prefectures, which are found situated in the following Manner.— First, between the *Nile* and the *Red Sea*, are inclosed the Government of *Cairo*, and the *Calliwicks* of *Cossir* and *Cher-*

Cherſteffle: The Country called *Saida* extends Southward, and contains Weſtward the *Calliwick* of *Girgio*, and Eaſtward that of *Minio*, thoſe of *Monfelont*, *Beneſuef*, *Fium*, and *Geza*, which are alſo Weſtward of it. The Government of *Alexandria*, the *Calliwicks* of *Calliconbich*, of *Menoufæ*, and of *Garbia*, are on the *Mediterranean*, taking up the whole Extent of the *Delta:* Laſtly, that of *Manſoura* is on the Iſthmus of *Suæs*.

In the Time of *Ptolomeus*, the City of *Alexandria* was the Capital of *Egypt*; but *Cairo* poſſeſſes at preſent that Advantage. This City is ſituated on the Border of the *Nile*, over-againſt the Ruins of the antient *Memphis*, which was on the other Side, and incloſes within its Circuit the antient *Babiba* of *Egypt*, according to *Burchard*'s Sentiment: It is the Seat of a Baſhaw, ſent thither by the *Porte*.

Note, That the *Egyptians* are witty, and dextrous, but very lazy, and great Epicures. The Invention of Arithmetick, Geometry, Aſtronomy, and ſeveral other Arts, is attributed to them. It is certain that they have cultivated the Sciences more than any other People in the World. They invented Geometry, to remedy the Diſorders cauſed by the Inundation of the *Nile*, which carried away, or defaced the Bounds which diſtinguiſhed the Eſtates of each particular Perſon: So that by Means of this Art, the Extent of every one's Poſſeſſions was reſtored to him, when the Waters were retired.

Note alſo, That this Kingdom was a long Time governed by Kings. The firſt were of the Race of the *Pharaoh*'s; *Cambyſes*, King of *Perſia*, conquer'd it; and after him *Alexander the Great*. Afterwards it became the Portion of the *Ptolemy's*, till the *Romans* render'd themſelves Maſters of it, at *Cleopatra*'s Death. They poſſeſſed it till *Omar*, ſecond Calif of the Succeſſors of *Mahomet*. *Saladin* eſtabliſhed it in the Empire of the *Mamalukes*, which laſted till 1516, when *Selim* Emperor of the *Turks* conquered it, and killed the laſt Soldan: Ever ſince that Time it has remained in their Poſſeſſion, and is governed by a Baſhaw, who reſides at *Cairo*.

Note again, They were always ſo over-religious, that they became at laſt ſuperſtitious: At firſt they were Idolaters; afterwards they received the Light of the Goſpel in the Apoſtles Time, and St. *Mark* was the firſt Biſhop of *Alexandria:* They ſuffer'd afterwards, through their natural Inconſtancy, that their Faith ſhould be corrupted by Hereſies, and moſt of them are at preſent *Mahometans*; and the few *Greek* and *Latin* Chriſtians, found among them, are very much corrupted.

A more particular Deſcription of *Egypt* is as follows:

The *Government of* CAIRO, contains *Cairo*, *Suæs*, *Larnabula*, *Emelcocena*.

The *Calliwick of* COSSIR, contains *Coſſir*, *Zebith*, *Buge*, *Libelezaita*.

The *Calliwick of* CHERKEFFI, contains *Cherkeſſi*, *Almona*, *Antheum*.

The *Calliwick of* GIRGIO, contains *Girgio*, *Saida*, *Barbanda*, *Aſna*.

The *Calliwick of* MINIO, contains *Minio*, *Jehmina*, *Chana*, *Aſſuana*.

The *Calliwick of* BENESUEF, contains *Beneſuef*, *Memia*.

The *Calliwick of* MANFELOATA, contains *Manfeloata*, *Aziokia*.

The *Calliwick of* FIUM, contains *Fium* only.

The *Calliwick of* GEZA, contains *Geza*.

The *Government of* ALEXANDRIA, contains *Alexandria*, *Roſeta*, *Bochira*, *Turamania*.

The *Calliwick of* CALLICOUBIEH, contains *Callicoubich*, *Turbota*, *Juga*.

The *Calliwick of* MANOUFIA, contains *Manoufia* only.

The *Calliwick of* GARBIA, contains *Garbia*, *Damieta*, *Beltina*, *El-mala*.

The *Calliwick of* MANSOURA, contains *Manſoura*, *Faranuda*, *Sabidum*.

BARBARY.

Without amuſing myſelf to give here the Origin of the Name of *Barbary*, which is as dubious as that of *Africa*, I'll only ſay, that it is the moſt northern Part thereof.

It extends along the *Mediterranean*, from the 9 Degree 30 Min. of Longitude, to the 60; and from the 27 of Latitude, to the 35, 30 Min. ſo that it may have very near 900 Leagues in Length, and only 80 in its greateſt Breadth.

It confines Eaſtward with *Egypt*, Northward with the *Mediterranean*, Weſtward with the *Atlantick* Ocean, and Southward with the *Biledulgerid*.

It is eſteemed the moſt conſiderable and moſt illuſtrious Part of *Africa*, and is likewiſe the beſt inhabited. The Climate is temperate enough: The Soil produces Corn, Maiz, and excellent Fruit. It feeds beautiful Horſes and Cattle, whoſe Leather is much eſteemed; and a great Quantity of Coral is fiſhed on the Coaſts.

It is divided at preſent into ſix Kingdoms, called of *Barca*, of *Tripoli*, of *Tunis*, of *Algier*, of *Fez*, and of *Morocco*; which are found in this Order going from Eaſt to Weſt, on the Coaſts of the *Mediterranean*, except the laſt, which is on the Ocean, at the South by Weſt of that of *Fez*.

The Kingdom or Country of *Barca*, is ſituated between *Egypt* and the great *Syrtes*, called *Seiches of Barbary*, and contains about 30 Leagues of Coaſts, and 30 or 40 in Breadth.

This Country is very ſterile and full of Rocks: It is bathed by the Rivers *Nachel*, *Docra*, and *Melela*, which ſpring from the Mount *Mæyes* in the Deſart. The firſt divides the Kingdom in two Parts, and the two others are in the weſtern Part, which is leſs wild, and in which there are ſeveral Cities, as *Barca*, which has given its Name to the Country, and is the Capital; *Cairoan*, antiently the Capital of a Kingdom, *Camera*, &c. in the Eaſtern Part called *Bachera* are ſeveral Ports, but there is no conſiderable City but that of *Alberton*.

Note, That this Kingdom depends of the Grand Seignor, who keeps a Sangiack at *Barca*. He does not draw a great Revenue from it, becauſe the Land is ſterile: The Inhabitants are *Mahometans*.

The Kingdom of *Tripoli* is ſituated between that of *Tunis*, and the Country of *Barca*, extending about 250 Leagues on the Coaſt, from the Mouth of the ſmall River of the *Salins*, in the *great Syrtes*, or Gulph of *Sydra*, as far as to that of the *Capes*, or *little Syrtes:* Its Breadth is very irregular, of 15, of 25, and of 40 Leagues.

This Country is divided in two by the River of *Tripoli*, on which is the City of the ſame Name, which is the Capital. This City is the Seat of a Baſhaw who has no ſovereign Authority, becauſe it is governed in form of a Republick, which is only under the Grand Seignor's Protection. It ſerves alſo for a Retreat to ſeveral Pyrates, who have no other Profeſſion than to ſcour the Sea, living on Rapine, making a publick Commerce of their Theft, and of the Slaves they make in the Ships they take.

In the eaſtern Part, which is almoſt deſerted, except the Coaſts, are found theſe four Rivers, *viz.* the *Teſſura*, *Macer*, *Miſtrata*, and that of *Salins*; and though the Bottom of the Gulph of *Sydra*, be at leaſt 60 Leagues broad, none of them falls into it. In the weſtern Part, beſides the River of *Tripoli*, are found thoſe of *Raſamalbaſa*, of *Portera*, and of *Caſarnacara*. Theſe, as well as the firſt, ſpring from Mount *Atlas*, in the *Biledulgerid*. There is found in it likewiſe the Mount *Nufuſe*, between the River *Portera*, and that of the Capes; and ſeveral large Foreſts.

The Kingdom of *Tunis*, is ſituated between that of *Algier* and the little *Syrtes*. Its greateſt Length from Eaſt to Weſt is of about 70 Leagues, and its greateſt Breadth 90.

The *Guadalbarbar*, bathes its moſt weſtern Part, ſpringing from the *Bilgedulgerid*; after it has divided itſelf

ſelf into two Arms, the moſt weſtern thereof runs ſo Serpent-like, that in the Extent of a ſtrait Line of about 25 Leagues, one would make more than 90, if one would follow its Shore. The other Arm is called *Magrida*. The other Rivers are *Magerada*, *Capallia*, &c. which ſpring from it.

The City of TUNIS, Capital of this Kingdom, is at preſent like *Tripoli*, the Retreat of ſeveral Pyrates: Its Port is advantageouſly ſituated, at the Bottom of a Gulph. Its Entrance, which is narrow, is defended by the Fort *La Goulette*. It is alſo govern'd in Form of a Republick, under the Protection of the Grand Seignior.

The Iſles *Galata*, *Panthalarea*, *Lampeduſa*, *Limoſa*, *Cherchara*, *Gamelera*, and ſome others, are Dependencies of this Kingdom.

The *Kingdom of* ALGIER, is ſituated between that of *Tunis*, and that of *Fez*. Its greateſt Length is of about 220 Leagues, and its Breadth of 80 or 90.

This Country is full of high Mountains, particularly Southward, where it is confined by a Part of Mount *Atlas*.

Among its Rivers are found the great one, which ſprings from the Lake *Mezzal* in the *Biledulgerid*, and traverſes Mount *Atlas*; the others, which comes from that Mount, are the *Titnes*, *Seſliſas*, *Miromus*, *Sefaya*, &c.

This Kingdom is divided into five Provinces: Firſt that of *Algier* is in the Middle; that of *Bugick* Eaſtward of it; that of *Conſtantine* is likewiſe Eaſtward of this; that of *Teneſe* is Weſtward of *Algier*; and that of *Tremeſin*, or *Tellenſin*, is the moſt Eaſtern.

The City of ALGIER, which is the Capital, is alſo govern'd in Form of a Republick, under the Protection of the Grand Seignior, who has not the leaſt Authority in it. It ſerves likewiſe for a Retreat to Pyrates, among whom the famous *Barbarouſſa* alarm'd the *Mediterranean* during the Reign of the Emperor *Charles* V.

The other Cities are ſituated on the Coaſts, except *Tremiſcen*, which is 6 or 7 Leagues more advanced in the Country, and *Conſtantine*, which is an Iſland made by a River towards the Middle of its Province. The King of *Spain* keeps *Marſalquivir*, and *Oran* on the Coaſt.

The Kingdom of FEZ, which is Part of the antient *Tingitana Mauritiania*, is ſituated between that of *Algier* and the Ocean. Its greateſt Length is of about 120 Leagues, and its Breadth, as far as to the Streight of *Gibraltar*, of 90.

It is ſeparated from the Kingdom of *Algier*, Eaſtward, by the River *Mulvia*; at South by Weſt the *Ommiraby* parts it from *Morocco*; and Southward, Mount *Atlas* divides it from the *Segelakeſſe*.

This Country is the beſt cultivated, and moſt inhabited of all *Barbary*; and though it be full of Mountains, ſeveral pretty large Cities are found in it towards the Middle.

This Kingdom is divided into ſeven Provinces, ſituated thus, firſt *Fez*, *Aſgar*, and *Temeſne*, are on the Ocean; *Habat* on the Streight; *Errif* and *Garet*, on the *Mediterranean*; and *Chaus*, which contains almoſt half the Country, is farther in the Land.

FEZ is the Capital, and is ſituated in the Middle of the Kingdom, on the ſmall River *Union*, between *Suba*, and *Bunaſar*. This City paſſes for one of the faireſt of the whole World, and for the Ornament of all *Africa*.

Note, That this Kingdom is govern'd by a King, who ſtiles himſelf Emperor of *Africa*, King of *Morocco*, *Fez*, *Sus*, and *Tafilet*, Lord of *Gago*, *Dare*, and *Guinea*, Grand Xerif of *Mahomet*, &c.

The King of *Spain* keeps ſome Places on the Coaſts, as *Ceuta*, *Pennon de Velez*; the *Portugueſe* are Maſters of *Cazar Ezaghir*, and the *Engliſh* were once poſſeſſed of *Tangier*.

The Kingdom of MOROCCO, which is the other Part of the *Tangitana Mauritania*, is ſituated at the South by Weſt of that of *Fez*, between the *Segelweſſe* and the *Atlantick Ocean*.

Its greateſt Length is of about 120 Leagues, from Cape *Non* to the Mountains which part it from the *Sigelmeke*; and its greateſt Breadth is of about 110, along the Coaſts of the Ocean, from the ſame Cape to the Mouth of the *Ommirabi*.

Its Rivers are the *Ommirabi*, *Tenſif*, *Sus*, *Cuadelhabi*, which diſembogue into the *Ommirabi*, and the *Aſſimeal*, which runs to the *Tenſif*.

The Soil is fertile in Corn, Fruit, Oil, and Sugar; delicious Grapes, whoſe Grains are as big as Pigeons Eggs, are found in ſome of its Mountains; and it has Mines of Gold, Silver, and Copper.

This Kingdom is divided into ſeven principal Provinces, which are *Morocco*, *Haſcora*, *Tedles*, *Duocalia*, *Hea*, *Sus*, and *Guzalu*. In the Middle are found thoſe of *Morocco*, and of *Haſcora*, ſeparated by the River *Tenſif*, leaving the firſt at South by Weſt, and the other at North by Eaſt; that of *Tedles* is Eaſtward. In following the Coaſts from North to South by Weſt, are found in this Order thoſe of *Doccala*, *Hea*, and *Sus*.

The City of *Morocco*, ſituated near the River *Tenſif*, is the Capital of this Kingdom, and was once the Seat of the antient Xerifs, whoſe Empire contain'd the *Tingitania Mauritania*, i. e. the Kingdoms of *Fez* and *Morocco*, with their Dependencies.

Theſe two Kingdoms are under the Domination of the ſame King.

Note, That the Kings, Princes, and People of *Barbary*, are all *Mahometans*.

A more particular Deſcription of all theſe different Kingdoms, is as follows:

The *Kingdom of* MOROCCO.

MOROCCO, contains *Morocco*, *Tefraſta*, *Delgumuha*, *Temmella*, *Imegiagen*, *Elgiumba*, *Tumeglaſta*.

HASCORA, contains *Helmadina*, *Tagodaſt*, *Elgiumuha*, *Bro*.

TEDLES, contains *Tefza*, *Tedza*, *Efza*, *Cithiteba*, *Eithiad*.

DUCCALA, contains *Azafia*, *Azamor*, *El Medina*, *Mazagan*, *Temeracoſta*.

HEA, contains *Tediuſt*, *Teculeth*, *Hadequis*, *Tejeuth*, *Tegteſſe*, *Culejat*, *Tefethna*.

SUS, contains *Tarodant*, *Meſſa*, *Tejuſta*, *Tagavaſt*, *Tedſa*, *Guargeſſea*.

YDAUSQUERIT, contains *Aytiacoli*, *Ydeunadag*, *Ydiauſan*, *Samotama*, *Deufeniz*.

EXTUCCA, contains *Ydaubagul*, *Hilela*.

GUZULA.

The *Kingdom of* FEZ.

FEZ, contains *Fez*, *Mechneſe*, *Sala*, *Mahmora*, *Tefelta*, *Fanzara*, *Javia*.

ASGAR, contains *Elgiumba*, *Caſar-Elcabir*, *Lorache*.

TEMESNA, contains *Rabat*, *Almanſor*, *Hainelchalla*, *Anfa*, *Beniz*, *Adendum*, *Tegagita*.

HABAT, contains *Arzille*, *Tangier*, *Cazar-Ezzaghir*, *Ceuta*.

ERRIF, contains *Gomer*, *Terga*, *Bedis*, *Mezemma*, *Pennon de velez*, *Tegazza*, *Cherſera*, *Guaſcvala*.

GARET, contains *Melela*, *Chaſaſa*, *Jaffarine*, *Futis*, *Tarfogarel*, *Aleudia*.

CHAUS, contains *Tezza*, *Temrint*, *Dubdu*, *Garſis*, *Hadaggia*, *Gherſelvin*, *Sofroa*, *Berubachlula*.

The *Kingdom of* ALGIER, contains *Algier*, Prov. *Miroma*, *Mazura*, *Teddeles*, *Carbona*, *Bugie*, Prov. *Steffa*, *Gigeri*, *Choll*, *Labez*, *Conſtantine*, Prov. *Tebeſſa*, *Bona*, *Tabarca*, *Stora*, *Teneſa*, Prov. *Muſtagan*, *Briſcha*, *Sargel*, *Meliana*, *Teleuſin*, Prov. *Hunain*, *Marſal-quibir*, *Oran*, Biſhop. *Mazagran*.

The *Kingdom of* TUNIS, contains *Tunis*, *Goulette*, *Carthage*, ruinat. *Biſerte*, *Raſimilara*, *Beija*, *Muſti*, *Marmagen*, *Urbs Camuda*, *Souſa*, *Hamametha*, *El-Media*, *Cayroan*, *Meſchiani*, *Baghani*, *Caſſa*, *Naſta*.

ISLES, *Panthalarea*, *Limoſa*, *Lampedoſa*, *Chercara*, *Gamelera*, *Galata*.

The *Kingdom of* TRIPOLI, contains *Tripoli*, *Tripolivechio*, *El-hamma*, *Capes*, *Joara*, *Portata*, *Raſelmubeſa*, *Sarmana*, *Horoz*, *Teſſuta*, *Ragamitura*, *Lepeda*, *Brate*, *Subeoco*, *Naicna*, *Arcudia*.

Isles *Gerbes*, *Sidra*, *Barda*.

The *Kingdom of* Barca, contains *Barca*, *Cairoan*, *Zadra*, *Taochara*, *Berſebena*, *Bernich*, *Tolomata*, *Melela*, *Carcora*, *Salinæ*, *Bon-André*, *Patriarche*, *Docra*, *Traboch*, *Meſulomara*, *Salona*, *Alberton*, *Roxa*, *Rives-Blanches*, *Raibba*.

The Biledulgerid.

This Country, which contains very near the antient *Numidia*, is call'd *Biledulgerid* by the *Arabs*, becauſe of the great Number of Dates it produces.

If the Deſart of *Barca* be included in it, it extends from the 5 Degree of Longitude to the 60, and from the 22 of Latitude to the 32, ſo that its greateſt Extent is about 1000 Leagues; and its Breadth which is very irregular, is from 30 to 160 in ſome Places.

It confines Eaſtward with *Egypt*, Northward with *Barbary*; Weſtward with the Ocean, and Southward with the *Zaara*, or Deſart.

The Climate is very hot, and notwithſtanding very wholſome. The Soil is ſandy, uncultivated, and very little inhabited in ſeveral Places: In other Places it produces Barley and Anis-ſeed, and a little Wheat; but its Fertility conſiſts in the great Quantity of Dates it produces, and in its Camels.

Among the Rivers which run through it, the moſt remarkable are the great River, that of *Salina*, the *Quadilbarbar*, the *Tegorarin*, *Ghiz*, *Ziz*, and others, which all ſpring from ſome Lake or Fountain.

It is divided into eight principal Provinces, reckoning the Deſart of *Barca*, which make the moſt Eaſtern Part thereof. The ſeven others are ſituated in the following Order, going from Eaſt to Weſt: Firſt, that of the *Biledulgerid*, which has given its Name to the whole Country: Afterwards thoſe of *Techort*, *Zeb*, *Tegorarin*, *Segelmeſſe*, *Darha*, and *Teſſet*; in which is included the Province of *Sus*, which is towards the South by Weſt.

No capital City can be aſſigned to it, but each Province has its particular Name, as we'll ſee in the particular Deſcription of it.

Note, That this Country is inhabited by the Natives, and the *Arabs*: The firſt are brutiſh, laſcivious, and very great Thieves; the others have more Humanity, but in general all theſe People are violent, and it is dangerous falling into their Hands.

Note alſo, That it is in part governed by ſome petty Kings or Lords, who are moſt of them tributary of the *Turks* of *Algier*, of *Tunis*, or of *Tripoli*; in part by ſome Republicks; and in ſome Places thoſe People live without Laws or Policy, as ſome Bands of *Arabs* who live in the Deſarts, and put ſeveral Cities under Contribution.

Note again, That all thoſe Princes and the People are *Mahometans*. The reſt follow the *Jewiſh* Religion, and have their Synagogues in moſt of the greateſt Cities, where they are all Merchants.

A more particular Deſcription of *Biledulgerid*, is as follows:

The *Deſart of* Barca, contains *Ammon*, *Eleocath*, *Elquechet*, *Augela*, *Gorham*.

The Biledulgerid, contains *Teuſara*, *Tuzer*, *Gademes*, *Fezzen*, *Teorregu*.

The *Province of* Techort, contains *Techort*, *Seluba*, *Necau*, the *Deſart* of *Guergela*.

The *Province of* Zeb, contains *Teolocha*, *Nefta*, *Peſcara*, *Borgiu*.

The *Province of* Mezzab, contains *Mezzab* only.

The *Province of* Tegorarin, contains *Tegorarin*, *Teſebit*, *Tuat*, *Benigorai*.

The *Province of* Segelmesse, contains *Segelmeſſe*, *Chuſaira*, *Feghiga*, *Tebelbetta*, *Tamaracroſt*.

The *Province of* Tafilet, contains *Tafilet* only.

The *Province of* Darha, contains *Darha*, *Tamaguerut*, *Beniſabih*.

The *Province of* Tisset, contains *Tiſſet*, *Ifrena*, *Archa*, *Guaden*.

The *Province of* Sus, contains *Tarquez*, *Nun*.

The Zaara, or Desart.

This Country is call'd *Zaara* by the *Arabs*, i. e. *Deſart*, becauſe ſo little inhabited. It made once Part of the antient *Lybia*, and of the Country of the *Gætuli* and *Garamantes*.

It is ſituated under the Tropick of Cancer, between the 12 and 27 Degree of Latitude, and extends from the 4 of Longitude to the 56; ſo that it may have more than 950 Leagues in Length, and 40, 60, 100, even as far as 250 in Breadth, according to the different Places.

It confines Northward with the *Biledulgerid*, Eaſtward with *Nubia*, Southward with *Nigritia*, and Weſtward with the Ocean.

It is ſtill leſs cultivated, and leſs inhabited, than the *Biledulgerid*; notwithſtanding which, it enjoys a very wholſome Climate, tho' very hot. All its Riches conſiſt in Camels; and one may travel a hundred Leagues in it, without finding a Drop of Water: Wells are made on the Roads, but they are ſo few, that very often People dye of Thirſt.

There are but three conſiderable Rivers found in it, *viz.* that of *Nubia*, which after it has paſs'd in the Deſarts of *Lempta*, and *Borno*, hides itſelf under Ground, for the Space of ſeven or eight Leagues, then appears anew in *Nubia*; that of *Ghir*, which paſſes in the Deſart of *Zuenziga*; and that of the *Horſes*, which ſprings, and continues its whole Courſe in the Deſarts of *Zuenhaga*, where it throws itſelf into the Ocean, after it has divided itſelf into two Arms: In the Deſart of *Borno* is found the Lake of the ſame Name, and ſeveral others leſſer.

This Country is divided into ſeven principal Provinces or Deſarts, which bear the Name of ſome of their moſt conſiderable Cities. Eaſtward are found *Borno*, *Garga*, and *Berdoa*, which had antiently the Title of Kingdoms. *Lempta*, *Targa*, *Zuenziga*, and *Zanhaga*, are found in this Order, going from Eaſt to Weſt: They are all ſubdivided into other Deſarts, which have each their particular Name.

Theſe Provinces or Deſarts have each their capital City, from which they borrow their Name.

Note, That the Inhabitants are brutiſh, wild, and great Thieves. Part of them live in Cities with a little more Humanity; but the others are Vagabonds in Fields, where they keep their Flocks or ſeek Fortune, and thoſe have neither Laws nor Policy.

Note alſo, That they have Kings, or particular Lords, whom they call *Zeques*. Some live Libertines in Independency, particularly the *Arabs*.

Note again, That ſeveral follow the Doctrine of *Mahomet*; the others have neither Faith nor Religion.

Nigritia.

This Part of *Africa*, call'd *Nigritia*, has borrow'd its Name according to ſome from the River *Niger*, which runs through it; and according to others, this River receives its Name from the Country, and that of the Country comes from the Colour or Hue of its Inhabitants.

It extends between the 8 and 23 Degree of Latitude, from the 3 Deg. of Longitude to the 44; and may have 800 Leagues in Length, near 300 in its greateſt Breadth, and 140 in its leſſer.

It confines Northward and Eaſtward with the *Zaara*; Southward with *Guinea*; and Weſtward with the *Atlantick Ocean*.

The Climate is very hot, but ſo wholſome, that of itſelf it cures Maladies. The Soil produces Rice, Flax, and Cotton. It has Mines of Gold, and Copper; Ambergreaſe, and ſome Fruit-Trees. The Natives are ſo lazy, and ſo ignorant, that they do not know how to make any Uſe of all thoſe Advantages, preferring Copper to Gold, *&c.* The Soil in this Country is more fertile than in any other Part of *Africa*; a great Part of it is very little inhabited, becauſe of its exceſſive Heat, and its Scarcity of Water; for beſides the River *Niger*, which traverſes it from Eaſt to Weſt, and wa-

ters it for the Space of more than 800 Leagues; there are no considerable ones, except Westward, where that River divides itself into five or six Branches, which all have different Names, as *Senega*, *Gambia*, *Rio San Domingo*, and *Rio Grande*.

This Country is divided into sixteen principal Kingdoms, found along the *Niger*, re-ascending towards its Source in the following Order. First, Northward of this River, *Genehoa*, and *Galate*, which are on the Ocean; then *Tanbut*, *Agades*, *Cano*, *Casseua*, and *Gangara*, in which the *Niger* forms an Island, 100 Leagues long, and 50 broad. Between the Rivers *Senega* and *Gambia*, are inclosed the Kingdoms of the same Name, the People whereof are called *Jaloffi*; between *Gambia* and *Rio San Domingo*, are the Kingdoms of the *Cassangas*; between *San Domingo* and *Rio Grande*, those of the *Bijagos*; Southward of the great River, are found following one another, the Kingdoms of the *Biaffari*, *Melli*, *Sousos*, *Mandiga*, *Guber*, *Gago*, *Zegazeg*, and *Zanfara*, which ends at the Lake *Borno*. Most of these Kingdoms are subdivided into several others lesser, which have all their Capital Cities of the same Name; that of *Tanbut* being more considerable and larger, than those of *Mandigues* and *Cano*.

Note, That the Negroes are less wild than the People of *Barbary*, and of the *Biledulgerid*; but they are not less brutish in their Amours. They are ignorant, and very lazy, admiring a Man who has the least Knowledge, and cherishing Foreigners. Most of them carry on the Commerce of Slaves, whom they take from their Neighbours. Men are even seen there that sell their Wives, Children, Fathers, and Mothers to the *Europeans*.

Note also, That all the Kings of this Country are very absolute in their respective Dominions; notwithstanding which most of them are Tributaries of that of *Tombut*, who is the most powerful of them all.

Note again, That they are all *Mahometans*, or Idolaters, and great Enemies of the *Jews*. Those of the Desarts live without Religion. There are a few *Christians* among them, but much corrupted.

Here follows a more particular Description of all those vast Territories.

The ZAARA, *or* DESART.

The *Kingdom of* BORNO, contains *Borno*, *Kaugha*, *Amasen*.

The *Kingdom of* GOAGA.

The *Kingdom of* BERDOA.

The *Desart of* LEMPTA, contains *Lempta*, *Digir*, *Agades*.

The *Desart of* TARGA, contains *Terga*, *Zaghara*, *Hair*.

The *Desart of* ZUENZIGA, contains *Zuenziga*, *Ziz*, *Ghir*.

The *Desart of* ZANHAGA, contains *Zanhaga*, *Tegassa*, *Alhamara*.

NIGRITIA.

The *Kingdom of* GENEHOA, contains *Genehoa*, *Patesau*, *Sambalamech*, *Brack*, *Joudejabe*.

The *Kingdom of* GUALATA, contains *Gandia*, *Fulli*, *Hoden*, *Hebedefex*.

The *Kingdom of* JALAFI, contains *Senega*, *Budomel*, *Solul*, *Vlil*, *Gambea*.

The *Kingdom of* CASANGAS, contains *Casamansa*, *Jarem*.

The *Kingdom of the* BIJAGOS, contains *Catcheo*.

The *Kingdom of* TANBUT, contains *Tanbut*, *Salla*, *Berissa*, *Gocgueve*, *Caragoli*, *Cassali*.

The *Kingdom of* AGADES, contains *Agades*, *Deghir*, *Mura*, *Mayme*, *Cutumbo*.

The *Kingdom of* CANO, conntains *Cano*, *Germa*, *Tassava*.

The *Kingdom of* CASSENA, contains *Cassena*, *Tirca*, *Nebrina*.

The *Kingdom of* GANGARA, contains *Gangara*, *Marasa*, *Semegda*.

The *Kingdom of the* BIAFARI, contains *Guiiala*, *Bigula*.

The *Kingdom of* MELLI, contains *Melli*, *Beria*.

The *Kingdom of the* SOUSOS, contains *Bena*.

The *Kingdom of* MANDINGA, contains *Mandinga*, *Tocrur*, *Cantory*.

The *Kingdom of* GAGO, contains *Gago*, *Dau*, *Tanby*.

The *Kingdom of* GUBER, contains *Guber*, *Malet*.

The *Kingdom of* ZEGZEG, contains *Zegzeg*, *Chanana*.

The *Kingdom of* ZANFARA, contains *Zanfara*, *Reghebil*.

GUINEA.

This Country has always made Part of that of the Negroes. It is not half so large as the other Part I have called *Nigritia*; but it is in Proportion much better inhabited, because it has more Coasts.

The *French* discover'd it about the Year 1346, and settled in some Places of it; but during the Civil Wars under the Reigns of *Charles* VI. and *Charles* VII. they deserted it; and the *Portuguese*, *English*, *Dutch*, *Swedes*, and *Danes*, have settled there since, and built Forts.

It extends between the 4 and 12 Deg. of Latitude, from the 9 of Longitude to the 38; so that it may have 550 Leagues in Length, 140 in its greatest Breadth, and about 60 in its lesser, at the Mouth of the River *Benin*.

It confines Eastward with the Kingdom of *Biafara*; Northward with *Nigritia*; Westward with *Sierra Leona*; and Southward with the Sea of the same Name.

Its Situation lets us know that the Climate is excessively hot. The Land is low, fat, and very fertile, watered by several small Brooks, and the frequent Rains which render the Air so bad, that few Strangers travel in it, without falling sick. The Soil produces Pepper, Sugar-Canes, Cotton, Rice, Millet, Barley, and several other Sorts of Corn, and Fruit. It has several golden Mines, and feeds a vast Number of Elephants, Peacocks, Monkeys, Tygers, Leopards, *&c.* and the Inhabitants carry on a great Commerce of Ivory. A great Quantity of excellent Fish is taken on the Coasts, among which are the *Dorade*, the *Bonite*, &c.

The most remarkable of its Rivers are the *Sweira da Costa*, those of *Da volta*, *Lago*, *Calabri*, *Del Rey*, *Benin*, and *Dos Camarones*, which parts it from *Biafara*.

GUINEA is divided into three principal Parts, which are the the particular Kingdom of *Guinea*, situated in the Middle; Eastward of this the Kingdom of *Benin*; and the Province of *Malaguette*, or *Maniguate*, Westward. These Kingdoms, and this Province, is again subdivided into several others very considerable, as *Sabou*, *Fætu*, *Accaria*, *Arda*, &c. but as we have very little Knowledge of them, I'll content myself with saying that the particular Coast of *Guinea* is distinguished by three different Names. The most extended and most eastern, is called the *Golden Coast*, because of the Quantity of Gold carried away from thence: The most western is called the *Ivory Coast*, for the same Reason; and this is again subdivided into two Parts, the most eastern whereof is called the Coasts of *Good People*; and the most western the Coast of *Bad People*.

Note, That the People of *Guinea* are witty, dextrous, and understand Commerce very well. They are proud, and Thieves to Excess. Tho' they be of a strong Constitution, they are lazy, and Cowards. They have their Skin black, go commonly quite naked, without any Shame, and carry a naked Knife in their Hand, to be always ready to take Revenge of their Enemies. They often eat their Meat quite raw; and even Animals, and Fowls with their Guts. The Women are extremely inclin'd to Lubricity, and love Foreigners.

Note also, That *Guinea* is govern'd by several Kings, among whom that called Emperor of *Guinea* is most powerful, having several other Kings and Princes for tributary, and subject. That of *Benin* is likewise very powerful, having several Kingdoms in his Dominions. The Province of *Malaguette* is possessed by a great Number of Princes and People towards the Mountains.

Some

Some place it in the Kingdom of *Sierra Leona:* The *French*, *English*, *Dutch*, *Portuguese*, &c. have each their Factories on the Coasts of *Guinea*.

Note again, That the People are still Idolaters; there are found a few *Christians* among them, and we learn from certain Relations, that some of their Kings are Catholick.

A more particular Description of *Guinea*, is as follows:

The *Kingdom of* GUINEA, contains *St. George de las Minas*, *Moure*, *Tabcorara*, *Fæta*, *Semsæe*, *Camani*, *Sabou*, *Mambereby*, *S. Laurenço*, *Catamanu*, *Acanes-Grandes*, *Acanes Pequenos*, *Dauma*, *Aceara*, *Labada*, *Caures*, *Axem*, *Assina*, *Buma*, *Alderrada*, *Jamo*, *Xabanda*, *Wetoe*, *Tabo*.

The *Kingdom of* BENIN, contains *Benin*, *Arebon*, *Averre*, *Labo*, *Curamo*, *Ody*, *Daroera*, *Joyo*, *Jackeyn*, *Foulaen*, *Popou*, *Calabari*, *Boni*, *Bodi*.

The *Province of* MALAGUETTE, contains *Timaa*, *Bugos*, *Bagga*, *Quinamora*, *Maffati*, *Faly*, *Hamaya*, *Swyme*, *Fettere*, *Grawaly*.

ETHIOPIA.

All the rest of the Continent of *Africa*, is commonly known under the Name of *Ethiopia*, which is divided into *inward* and *outward*.

The *inward Ethiopia*, contains *Abyssinia*, or the Empire of the *Abyssinians*, and *Nubia*, Northward of it.

The *outward*, or *exterior Ethiopia*, contains the Kingdoms of *Biafora*, and of *Congo*; the Coasts or Country of the *Cafres*; the Empire of *Monomotapa*, and of *Monoemogi*; the Coasts of *Zanguebar*, *Ajan*, and *Abex*, which are properly of *Abyssinia*, tho' they be at present in the Power of the *Turks*.

ABYSSINIA.

This Empire, which the *Arabs* call *El-Abashi*, or *Abassi*, is the State of the *Grand Negus*, known among us under the Name of *Prester John*.

It extends from the 48 Deg. of Longitude, to about the 74; and from the 20 Deg. of northern Latitude, to the 14 of southern Latitude; so that it may have very near 700 Leagues in its greatest Extent from North to South, and about 500 from East to West.

It confines Northward with *Nubia*; Westward with the Coasts of *Abex*, *Ajan*, and *Zanguebar*; Southward with the Empire of *Monoemugi*; and Westward with the People subject of *Congo*, and of *Biafara*, and the *Gales*, who are very powerful.

The Climate is very temperate, with Regard to its Situation, particularly on the Mountains, and in the flat Country, but in the Valleys it is excessively hot. The Soil is various; for in some Places are found great Rocks, with deep Caves, where grows nothing good to eat; but in the Plains, and the Neighbourhood, it is very fertile in Barley, Millet, Maiz, and several other Sorts of Corn unknown to us, as the *Tefet*, or *Tafo*, *Agousta*, and *Machella*, of which they make Bread and Beer. It produces all Sorts of Gums, Ginger, Sugar, Honey, and Wax, which serves to make Candles, Cotton, and Line. Mines of Gold, Silver, Tin, Copper, Iron, and Sulphur are found in that Empire almost every where. There are seen in it several Species of ferocious Animals, wild, and domestick, as Elephants, Tygers, Lions, Panthers, Rhinocero's, Giraffi, Monkeys, Wild-Boars, Harts, Deers, Hares, Civets, Goats, wild Oxen, Camels, Horses, Asses, Cows, and Sheep; in a Word, all Sorts of Game and Fowls we have in *Europe*, and several others unknown to us. There are also found in the Rivers, Crocodiles, *Hippopetams*, or wild Horses.

The most considerable Rivers which water this vast Country are, the *Nile*, to which the Learned give two Sources in the Mountains of the Moon; the first, and most certain, is the most western, from which that River flowing, passes through the Lake *Zair*, from whence continuing its Course for the Space of more than 400 Leagues, it comes to form the Island *Meroe*, at present *Guegere*, 90 Leagues long, and 50 broad. Then it enters *Nubia*, and from thence *Egypt*; the other Source flowing from the same Mountains, comes to pass in the Lake *Zaflan*; then continuing its Course for the Space of about 170 Leagues towards the North by West, comes to disembogue into the first Current, under the second Degree of Latitude. The Rivers *Abanhi*, and *Tacassi*, the first whereof passes at *Angote*, and comes to disembogue into the great River, below the Island *Guegere*; those of *Marabo* and *Cocor*, whose Course is from East to West, resort also thither in the most eastern Arm of the two, which form the Island. There is also seen Westward the River *Niger*, with its Lake, and its Source. The Lake *Zaire* has more than 150 Leagues in Length from South to North, about 80 in Breadth, and more than 350 of Circuit. The Lake *Zaflan* has 140 Leagues in Length from South to Northward, 60 in its greatest Breadth, and more than 300 of Circuit, without reckoning the Lake *Fungi*, which seems to make Part of it. There are in this Lake several Isles of 30, 40, and 50 Leagues round. The Lake *Niger* may have 70 Leagues in Length from South to North, 30 in its greatest Breadth, and about 160 of Circuit.

To give some Order to the different Kingdoms or Provinces of *Abyssinia*, I'll say, that in the modern Maps are found, between *Nubia* and the *Red Sea*, the *Bargomasse*, i. e. the Kingdom of the Sea, and *Tigremahon*, whose Coasts are call'd the Coasts of *Abex*. *Sabaim*, the Country of the Queen of *Sheba*, who came to visit *Solomon*; *Angote*, *Xoa*, *Fatigara*, *Gora*, *Gamo*, *Dobas*, and *Dangali*, are between the River *Abanhi*, and the Kingdom of the exterior *Ethiopia*, adjacent to the Coast of *Ajan*. Between that same River, the Coast of *Zanguebar* and the *Nile*, are found *Bagamedri*; along the streight Shore of the River, *Sora*, *Belleguanze*, *Armara*, *Ambiam*, *Goyam*, *Agag*, *Cafates*, *Fungi*, *Nova*, *Quara*, *Zet*, *Gani*, *Guzabella*, *Tirut*, *Gorga*, and *Gemen*. Westward of the *Nile* are found *Ximenche*, *Ambiancantiva*, *Dambea*, *Vangue*, *Zamut*, and *Malemba*, which is Westward of the Lake *Zair:* These Kingdoms are again subdivided into several Provinces.

Note, That these People are ingenious enough, and disciplinable, so that they learn easily what they are taught. They read often the Scripture, and have a great Respect for the Sacraments, and their Church, which they never enter but barefoot; they are charitable to Foreigners, and of good Humour, but lazy and very careless; they are Black, but some more than others, according as they are nearer the Line; their Cloaths are commonly of Silk, or Cotton, according to their Rank or Quality, some of them having no other Cloathing but the Skins of Animals; they eat their Meat half done, and sometimes raw: All the Priests and Monks carry a Cross in their Hands when they go abroad; among these Priests some are married, but never but once.

Note also, That *Abyssinia* is governed by a Prince call'd *Articlabassi* by the *Arabs*, and *Negus* by the *Abyssinians*; we call him *Prester John*, though improperly. That Emperor pretends to be descended from the Race of *David*; he has no fix'd Habitation, but stops sometimes in one Place, sometimes in another, causing always 6000 Tents to be carried along with him, as well for himself, as for all his Retinue. In the Fortress of *Amara* there is an Academy, where his Children are educated, till the Prince dying, a Successor is given him from amongst them: The Kings or Lords I have mentioned, are all subject or tributary to him; and in the Provinces which belong to him in proper, he keeps Vice-roys or Governors. *Marmol* says, that the Island *Guagere*, or *Meroe*, is in the Power of three Kings, who are always at War; one is *Mahometan*, one *Idolater*, and the other *Christian*, and subject to *Prester John:* The greatest Part of the Coast of *Abex* are in the Power of the Grand Seignior.

Note again, That the *Abyssinians* pretend to be descended from the first Christians, and to have been first instructed in the *Jewish* Religion by the Queen of *Sheba*, who went to visit King *Solomon*, by whom, they

they ſay, ſhe had a Son called *Melilech*, who governed them after his Mother's Death, and that they received the Light of the Goſpel by means of Queen *Candace*, whoſe Eunuch was baptized by St. *Philip*, and afterwards by St. *Thomas*, St. *Matthew*, and St. *Bartholomew*. Ever ſince that Time they have preſerved the Name of *Chriſtians*, but they have been corrupted by the Errors of *Eutyches* and *Dioſcorus*: They have a Patriarch whom they call *Abuna*, inferior to that of the Cophti, who reſides at *Alexandria* in *Egypt*, by whom he muſt be confirmed. They circumciſe their Children, afterwards baptize them, *viz.* the Males forty Days after their Birth, and the Females ſixty; which is always done on *Saturday* and *Sunday*, becauſe they ſay Maſs on thoſe Days: After Maſs the Prieſt gives the Sacrament to thoſe Children, and immediately after the Mother gives them the Breaſt to help them to ſwallow it. The *Grand Negus*, and ſeveral Princes had been converted to the Faith of the *Roman* Church by the Jeſuits, from among whom the Patriarch was choſen; but ſome Time afterwards they renounced that Faith, and followed their antient Errors.

Here follows a more particular Deſcription of *Abyſſinia*:

The *Kingdom of* TIGREE, contains *Chaxumo*, *Agro*, *Arugna*, *Corcora*, *Sabain*, Kingdom. *Bacineta*.

The *Kingdom of* BARNAGAS, contains *Barva*, *Zama*, *Lama*, *Emœcen*.

The *Kingdom of* ANGOTE, contains *Angote*, *Imbra*, *Ceniſtos*, *Barmaria*, *Buguana*, *S. Croce*, *Jugabella*, *Olabi*.

The *Kingdom of* FATIGARA, contains *Nundiné*, *Dobos*.

The *Kingdom of* XOA.

The *Kingdom of* BAGAMEDRI, contains *Ambadara*, *Therva*, *Sova*, *Baza*, *Ermita*, *Azuga*, *Machada*.

The *Kingdom of* AMARA, contains *Amara*, *Azzel*, *Fungi*, *Barcena*, *Beleguanze*, *Agola*, *Coſla*, *Dara*, *Gemen*, *Zaſlen*, *Gorga*, *Bara*, *Orgabra*, *Loſa*, *Ogue*, *Azuga*.

The *Kingdom of* NARCA, contains *Gavi*, *Reth*, *Gazabela*, *Tirut*, *Falacia*, *Gaſat*, *Hiero*.

The *Kingdom of* MALEMBA, contains *Zair*, *Meti*, *Dangar*, *Debſan*.

The *Kingdom of* GOYAM, contains *Agag*, *Marauma*, *Quara*, *Caſates*, *Fiengo*, *Nova*, *Gorava*, *Gearva*, *Ambiam*, *Seſila*, *Girat*.

The *Kingdom of* DAMUT, contains *Damut*, *Harode*, *Legula*, *Catla*, *Gaga*.

The *Kingdom of* BAMBEA, contains *Dambea*, *Chedaſlan*, *Vangue*, *Maitagazi*, *Ambiancantiva*, *Cemenia*, *Ambiani*.

The *Kingdom of* XIMENCHE, contains *Amaſen*, *Syre*.

The *Iſland of* GUEGUERE, contains *Saraboes*, *Eſire*.

NUBIA.

This Kingdom is called by the Antients the Country of the *Nubi*, *Nubeans*, or *Nobadi*; by ſome, *Little Egypt*, but moſt commonly *Nubia*.

It is repreſented very near like the Sole of the Foot, ſituated in ſuch a Manner between the 10 and 23 Degree of Latitude, and extending from the 48 of Longitude, to the 65 Deg. 30 Min. that it may have about 370 Leagues in its greateſt Extent from South by Weſt to North by Eaſt, and 190 in its greateſt Breadth.

It confines Northward with the Deſart of *Barca*, and *Egypt*; Eaſtward with the Kingdom of *Barnagas*, and the Iſland *Guegere*; Southward with the *Deſarts*, which are of the Empire of the *Abyſſinians*; and Weſtward with the Deſarts of *Borno* and *Gaoga*.

The Climate is exceſſive hot every where; but the Soil is not of an equal Temperature. In the Neighbourhood of the *Nile* it is very fertile in all Things, becauſe of the Inundation of that River. It produces a great Quantity of Sugar-Canes, but the Inhabitants have not the Secret of purifying it, but leave the Sugar in its Blackneſs: It has beſides Mines of Gold, Sanders-Wood, Civet, and Abundance of Ivory: Eaſtward the Land is uncultivated, and Deſart.

Note, That the Natives are courageous and cunning; they apply themſelves to Commerce and Huſbandry: They are extremely black, and cloath themſelves with Cotton Cloth.

Note alſo, That *Nubia* is governed by a powerful King, ſince it is related that ſome of them have brought an Army of 100,000 Horſe into the Field, againſt the Governor of *Egypt*, who perſecuted the Chriſtians.

Note again, That ſome Authors pretend, that the *Nubians* are neither *Chriſtians*, *Jews*, *Mahometans*, nor Idolaters; and ſay, that having wanted Biſhops and Prieſts, the Religion is almoſt entirely deſtroy'd, with their Churches which they have neglected.

NUBIA, contains *Nuabia*, *Sula*, *Jalac*, *Dancala*, *Cuſa*, *Zaghaira*, *Sabatra*, *Mathan*, *Sanina*, *Bugia*, *Gorham*, *Salout*, *Demba*, *Tormalena*, *Dagra*, *Zamacla*, *Jadie*, *Zigide*, *Tagua*, *Gualva*.

The Country of BIAFARA.

Between *Negritia* and *Congo*, are found ſeveral Kingdoms, which ſome place between the Countries of the Negroes, like *Guinea*; but which others put, with more Reaſon, between the Countries of the exterior *Æthiopia*. The Principals of theſe Kingdoms are *Biafara*, *Gabon*, *Pongo*, *Macoco*, *Giringromba*, *Medla*, and *Mujac*: The three firſt are Weſtward, the three following Eaſtward, and the laſt in the Middle: I'll not diſtinguiſh them, becauſe I believe they don't differ from one another, and we know very little of them.

The Country which contains theſe Kingdoms in general, is ſituated between the 34 and 48 Degree of Longitude, and extends from the 13 Degree of Northern Latitude, to the 2 of the Southern: So that it takes up near 300 Leagues in its greateſt Extent, from North to South, and 280 from Eaſt to Weſt.

It confines Eaſtward with the River and Lake *Niger*, and ſome Mountains which part it from *Abyſſinia*, and the *Glaqui*, People of *Congo*; Northward with the Kingdoms of *Congo*, and *Zanfara*; Weſtward with that of *Benin*, and the Ocean; and Southward with the Territories of *Congo*.

The Climate is extremely hot at all Times: Winter is not diſtinguiſhed but by long and violent Rains, which fall from the Month of *April* to that of *Auguſt*; their Summer begins in *September*, and it is pretended that the Heat is not ſo violent then as in Winter.

Note, That each of theſe Kingdoms has its capital City of the ſame Name, where moſt commonly the King reſides.

Note alſo, That the Inhabitants are wild, Cheats, and Thieves: They are guilty of the moſt infamous Actions, laying together without Diſtinction, the Father and the Daughter, the Mother and the Son, Brothers and Siſters, all Things being in common among them; and it is ſaid that the Women think themſelves much honoured to lay with an *European*. They paint their Bodies with various Colours, and adorn it with ſmall Toys, as Rings, little Shells, *&c.* The Kings rub their Faces and Hands with Chalk to appear more beautiful.

Note again, That they are all Idolaters, adore the Devil, Sun, Moon, the Trees, and the Earth, for which they have ſo great a Reſpect, that they will not permit one ſhould ſpit upon it, becauſe it produces the Things neceſſary for their Subſiſtance.

The Countries of CONGO.

I ſpeak here in general of the Kingdoms of *Congo*, though I know perfectly well that they are divided between ſeveral Kings, Lords, and People: But as they have all very near the ſame Qualities, and their Government is very near the ſame, I have put them together for Brevity ſake.

The Country I ſpeak of here, is ſituated on the Weſtern Coaſt of *Æthiopia*, between the 35 and 49 Degree of Longitude, extending from the 2 of Northern Latitude to 14, 30 Min. of the Southern, ſo that it has very near 300 Leagues in its greateſt Extent from North to South, and 260 in Breadth.

Some place it in the Kingdom of *Sierra Leona*: The *French*, *English*, *Dutch*, *Portuguese*, &c. have each their Factories on the Coasts of *Guinea*.

Note again, That the People are still Idolaters; there are found a few *Christians* among them, and we learn from certain Relations, that some of their Kings are Catholick.

A more particular Description of *Guinea*, is as follows:

The *Kingdom of* GUINEA, contains *St. George de las Minas*, *Moure*, *Tabcorara*, *Fæta*, *Semsæe*, *Camani*, *Sabou*, *Mambereby*, *S. Laurenço*, *Catamanu*, *Acanes-Grandes*, *Acanes Pequenos*, *Dauma*, *Aceara*, *Labada*, *Caures*, *Axem*, *Assina*, *Buma*, *Alderrada*, *Jamo*, *Xabanda*, *Wetoe*, *Tabo*.

The *Kingdom of* BENIN, contains *Benin*, *Arobon*, *Averre*, *Labo*, *Curamo*, *Ody*, *Daroera*, *Jojo*, *Jackeyn*, *Foulaen*, *Popou*, *Calabari*, *Boni*, *Bodi*.

The *Province of* MALAGUETTE, contains *Timaa*, *Bugos*, *Bagga*, *Quinamora*, *Maffati*, *Faly*, *Hamaya*, *Swyme*, *Fettere*, *Grawaly*.

ETHIOPIA.

All the rest of the Continent of *Africa*, is commonly known under the Name of *Ethiopia*, which is divided into *inward* and *outward*.

The *inward Ethiopia*, contains *Abyssinia*, or the Empire of the *Abyssinians*, and *Nubia*, Northward of it.

The *outward*, or *exterior Ethiopia*, contains the Kingdoms of *Biafora*, and of *Congo*; the Coasts or Country of the *Cafres*; the Empire of *Monomotapa*, and of *Monoemogi*; the Coasts of *Zanguebar*, *Ajan*, and *Abex*, which are properly of *Abyssinia*, tho' they be at present in the Power of the *Turks*.

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This Empire, which the *Arabs* call *El-Abashi*, or *Abassi*, is the State of the *Grand Negus*, known among us under the Name of *Prester John*.

It extends from the 48 Deg. of Longitude, to about the 74; and from the 20 Deg. of northern Latitude, to the 14 of southern Latitude; so that it may have very near 700 Leagues in its greatest Extent from North to South, and about 500 from East to West.

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The Climate is very temperate, with Regard to its Situation, particularly on the Mountains, and in the flat Country, but in the Valleys it is excessively hot. The Soil is various; for in some Places are found great Rocks, with deep Caves, where grows nothing good to eat; but in the Plains, and the Neighbourhood, it is very fertile in Barley, Millet, Maiz, and several other Sorts of Corn unknown to us, as the *Tefet*, or *Tafo*, *Agousta*, and *Machella*, of which they make Bread and Beer. It produces all Sorts of Gums, Ginger, Sugar, Honey, and Wax, which serves to make Candles, Cotton, and Line. Mines of Gold, Silver, Tin, Copper, Iron, and Sulphur are found in that Empire almost every where. There are seen in it several Species of ferocious Animals, wild, and domestick, as Elephants, Tygers, Lions, Panthers, Rhinocero's, Giraffi, Monkeys, Wild-Boars, Harts, Deers, Hares, Civets, Goats, wild Oxen, Camels, Horses, Asses, Cows, and Sheep; in a Word, all Sorts of Game and Fowls we have in *Europe*, and several others unknown to us. There are also found in the Rivers, Crocodiles, *Hippopetams*, or wild Horses.

The most considerable Rivers which water this vast Country are, the *Nile*, to which the Learned give two Sources in the Mountains of the Moon; the first, and most certain, is the most western, from which that River flowing, passes through the Lake *Zair*, from whence continuing its Course for the Space of more than 400 Leagues, it comes to form the Island *Meroe*, at present *Guegere*, 90 Leagues long, and 50 broad. Then it enters *Nubia*, and from thence *Egypt*; the other Source flowing from the same Mountains, comes to pass in the Lake *Zaflan*; then continuing its Course for the Space of about 170 Leagues towards the North by West, comes to disembogue into the first Current, under the second Degree of Latitude. The Rivers *Abanhi*, and *Tacassi*, the first whereof passes at *Angote*, and comes to disembogue into the great River, below the Island *Guegere*; those of *Marabo* and *Cocor*, whose Course is from East to West, resort also thither in the most eastern Arm of the two, which form the Island. There is also seen Westward the River *Niger*, with its Lake, and its Source. The Lake *Zaire* has more than 150 Leagues in Length from South to North, about 80 in Breadth, and more than 350 of Circuit. The Lake *Zaflan* has 140 Leagues in Length from South to Northward, 60 in its greatest Breadth, and more than 300 of Circuit, without reckoning the Lake *Fungi*, which seems to make Part of it. There are in this Lake several Isles of 30, 40, and 50 Leagues round. The Lake *Niger* may have 70 Leagues in Length from South to North, 30 in its greatest Breadth, and about 160 of Circuit.

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Note, That these People are ingenious enough, and disciplinable, so that they learn easily what they are taught. They read often the Scripture, and have a great Respect for the Sacraments, and their Church, which they never enter but barefoot; they are charitable to Foreigners, and of good Humour, but lazy and very careless; they are Black, but some more than others, according as they are nearer the Line; their Cloaths are commonly of Silk, or Cotton, according to their Rank or Quality, some of them having no other Cloathing but the Skins of Animals; they eat their Meat half done, and sometimes raw: All the Priests and Monks carry a Cross in their Hands when they go abroad; among these Priests some are married, but never but once.

Note also, That *Abyssinia* is governed by a Prince call'd *Articlabassi* by the *Arabs*, and *Negus* by the *Abyssinians*; we call him *Prester John*, though improperly. That Emperor pretends to be descended from the Race of *David*; he has no fix'd Habitation, but stops sometimes in one Place, sometimes in another, causing always 6000 Tents to be carried along with him, as well for himself, as for all his Retinue. In the Fortress of *Amara* there is an Academy, where his Children are educated, till the Prince dying, a Successor is given him from amongst them: The Kings or Lords I have mentioned, are all subject or tributary to him; and in the Provinces which belong to him in proper, he keeps Vice-roys or Governors. *Marmol* says, that the Island *Guagere*, or *Meroe*, is in the Power of three Kings, who are always at War; one is *Mahometan*, one *Idolater*, and the other *Christian*, and subject to *Prester John*: The greatest Part of the Coast of *Abex* are in the Power of the Grand Seignior.

Note again, That the *Abyssinians* pretend to be descended from the first Christians, and to have been first instructed in the *Jewish* Religion by the Queen of *Sheba*, who went to visit King *Solomon*, by whom, they

they say, she had a Son called *Melilech*, who governed them after his Mother's Death, and that they received the Light of the Gospel by means of Queen *Candace*, whose Eunuch was baptized by St. *Philip*, and afterwards by St. *Thomas*, St. *Matthew*, and St. *Bartholomew*. Ever since that Time they have preserved the Name of *Christians*, but they have been corrupted by the Errors of *Eutyches* and *Dioscorus*: They have a Patriarch whom they call *Abuna*, inferior to that of the Cophti, who resides at *Alexandria* in *Egypt*, by whom he must be confirmed. They circumcise their Children, afterwards baptize them, *viz.* the Males forty Days after their Birth, and the Females sixty; which is always done on *Saturday* and *Sunday*, because they say Mass on those Days: After Mass the Priest gives the Sacrament to those Children, and immediately after the Mother gives them the Breast to help them to swallow it. The *Grand Negus*, and several Princes had been converted to the Faith of the *Roman* Church by the Jesuits, from among whom the Patriarch was chosen; but some Time afterwards they renounced that Faith, and followed their antient Errors.

Here follows a more particular Description of *Abyssinia*:

The *Kingdom of* TIGREE, contains *Chaxumo*, *Agro*, *Arugna*, *Corcora*, *Sabain*, Kingdom. *Bacineta*.

The *Kingdom of* BARNAGAS, contains *Barva*, *Zama*, *Lama*, *Emæcen*.

The *Kingdom of* ANGOTE, contains *Angote*, *Imbra*, *Cenistos*, *Barmaria*, *Buguana*, *S. Croce*, *Jugabella*, *Olabi*.

The *Kingdom of* FATIGARA, contains *Nundiné*, *Dobos*.

The *Kingdom of* XOA.

The *Kingdom of* BAGAMEDRI, contains *Ambadara*, *Therva*, *Sova*, *Baza*, *Ermita*, *Azuga*, *Machada*.

The *Kingdom of* AMARA, contains *Amara*, *Azzel*, *Fungi*, *Barcena*, *Beleguanze*, *Agola*, *Cofla*, *Dara*, *Gemen*, *Zaflan*, *Gorga*, *Bara*, *Orgabra*, *Losa*, *Ogue*, *Azuga*.

The *Kingdom of* NARCA, contains *Gavi*, *Reth*, *Gazabela*, *Tirut*, *Falacia*, *Gafat*, *Hiero*.

The *Kingdom of* MALEMBA, contains *Zair*, *Meti*, *Dangar*, *Debsan*.

The *Kingdom of* GOYAM, contains *Agag*, *Marauma*, *Quara*, *Casates*, *Fiengo*, *Nova*, *Gorava*, *Gearva*, *Ambiam*, *Sesila*, *Girat*.

The *Kingdom of* DAMUT, contains *Damut*, *Harode*, *Legula*, *Catla*, *Gaga*.

The *Kingdom of* BAMBEA, contains *Dambea*, *Chedaflan*, *Vangue*, *Maitagazi*, *Ambiancantiva*, *Cemenia*, *Ambiani*.

The *Kingdom of* XIMENCHE, contains *Amasen*, *Syre*.

The *Island of* GUEGUERE, contains *Saraboes*, *Esire*.

NUBIA.

This Kingdom is called by the Antients the Country of the *Nubi*, *Nubeans*, or *Nobadi*; by some, *Little Egypt*, but most commonly *Nubia*.

It is represented very near like the Sole of the Foot, situated in such a Manner between the 10 and 23 Degree of Latitude, and extending from the 48 of Longitude, to the 65 Deg. 30 Min. that it may have about 370 Leagues in its greatest Extent from South by West to North by East, and 190 in its greatest Breadth.

It confines Northward with the Desart of *Barca*, and *Egypt*; Eastward with the Kingdom of *Barnagas*, and the Island *Guegere*; Southward with the *Desarts*, which are of the Empire of the *Abyssinians*; and Westward with the Desarts of *Borno* and *Gaoga*.

The Climate is excessive hot every where; but the Soil is not of an equal Temperature. In the Neighbourhood of the *Nile* it is very fertile in all Things, because of the Inundation of that River. It produces a great Quantity of Sugar-Canes, but the Inhabitants have not the Secret of purifying it, but leave the Sugar in its Blackness: It has besides Mines of Gold, Sanders-Wood, Civet, and Abundance of Ivory: Eastward the Land is uncultivated, and Desart.

Note, That the Natives are courageous and cunning; they apply themselves to Commerce and Husbandry: They are extremely black, and cloath themselves with Cotton Cloth.

Note also, That *Nubia* is governed by a powerful King, since it is related that some of them have brought an Army of 100,000 Horse into the Field, against the Governor of *Egypt*, who persecuted the Christians.

Note again, That some Authors pretend, that the *Nubians* are neither *Christians*, *Jews*, *Mahometans*, nor Idolaters; and say, that having wanted Bishops and Priests, the Religion is almost entirely destroy'd, with their Churches which they have neglected.

NUBIA, contains *Nuabia*, *Sula*, *Jalac*, *Dancala*, *Cusa*, *Zaghaira*, *Sabatra*, *Mathan*, *Sanina*, *Bugia*, *Gorham*, *Salout*, *Demba*, *Tormalena*, *Dagra*, *Zamacla*, *Jadie*, *Zigide*, *Tagua*, *Gualva*.

The Country of BIAFARA.

Between *Negritia* and *Congo*, are found several Kingdoms, which some place between the Countries of the Negroes, like *Guinea*; but which others put, with more Reason, between the Countries of the exterior *Æthiopia*. The Principals of these Kingdoms are *Biafara*, *Gabon*, *Pongo*, *Macoco*, *Giringromba*, *Medla*, and *Mujac*: The three first are Westward, the three following Eastward, and the last in the Middle: I'll not distinguish them, because I believe they don't differ from one another, and we know very little of them.

The Country which contains these Kingdoms in general, is situated between the 34 and 48 Degree of Longitude, and extends from the 13 Degree of Northern Latitude, to the 2 of the Southern: So that it takes up near 300 Leagues in its greatest Extent, from North to South, and 280 from East to West.

It confines Eastward with the River and Lake *Niger*, and some Mountains which part it from *Abyssinia*, and the *Glaqui*, People of *Congo*; Northward with the Kingdoms of *Congo*, and *Zanfara*; Westward with that of *Benin*, and the Ocean; and Southward with the Territories of *Congo*.

The Climate is extremely hot at all Times: Winter is not distinguished but by long and violent Rains, which fall from the Month of *April* to that of *August*; their Summer begins in *September*, and it is pretended that the Heat is not so violent then as in Winter.

Note, That each of these Kingdoms has its capital City of the same Name, where most commonly the King resides.

Note also, That the Inhabitants are wild, Cheats, and Thieves: They are guilty of the most infamous Actions, laying together without Distinction, the Father and the Daughter, the Mother and the Son, Brothers and Sisters, all Things being in common among them; and it is said that the Women think themselves much honoured to lay with an *European*. They paint their Bodies with various Colours, and adorn it with small Toys, as Rings, little Shells, *&c.* The Kings rub their Faces and Hands with Chalk to appear more beautiful.

Note again, That they are all Idolaters, adore the Devil, Sun, Moon, the Trees, and the Earth, for which they have so great a Respect, that they will not permit one should spit upon it, because it produces the Things necessary for their Subsistance.

The Countries of CONGO.

I speak here in general of the Kingdoms of *Congo*, though I know perfectly well that they are divided between several Kings, Lords, and People: But as they have all very near the same Qualities, and their Government is very near the same, I have put them together for Brevity sake.

The Country I speak of here, is situated on the Western Coast of *Æthiopia*, between the 35 and 49 Degree of Longitude, extending from the 2 of Northern Latitude to 14, 30 Min. of the Southern, so that it has very near 300 Leagues in its greatest Extent from North to South, and 260 in Breadth.

It confines Northward with the Kingdoms of *Gabon* and *Macoco*, whose King is called by some, Prince or King of the *Anzicans*, Eastward with the Kingdom of *Damut*, and the Lake *Zair*; Southward with the Kingdoms of *Malemba* and *Mataman*, and Westward with the Ocean, called the Sea of *Congo*.

The Climate is excessive hot, when it is fair Weather, but often temperated by the North by West Winds, and the great Rains which fall commonly in the Afternoon, during the Months of *April*, *May*, *June*, *August*, and make their Winter; but in the Forenoon it is as hot as in the Summer: It is thought that those Rains cause the Inundations of the *Nile*, of the *Niger*, of the *Zair*, and of other Rivers which water the Soil, and render it fertile in all Things necessary for Life. It produces Abundance of Rice, Maize, white Millet, and another small Sort of Corn, call'd *Luco* by the Inhabitants, and of which they make very good Bread: There are seen in it Fruit-Trees of several Species, as Orange-Trees, Lemon-Trees, and Palm-Trees of three Sorts. It feeds Oxen, Cows, Hogs, Goats, and Sheep, which bear three or four Times a Year; and also Elephants, Tygers, Monkeys, Civets, and other Animals unknown to us, as the *Zebra*, which resembles a Mule; the *Daut*, and the *Empalariga*, which have almost the Figure of a Heifer. Pelicans, Peacocks, Pheasants, Partridges, and several other Species of Volatiles: There are found in it large Serpents, and very venemous Vipers. It has Mines of Silver, Copper, and Crystal; but Iron is very rare, and much valued.

Besides the River *Zair*, which flows from the Lake of the same Name, and traverses the whole Country, are found in it the *Loango*, *Lelunda*, *Loanza*, and several others which flow from the Lake *Aquilanda*.

This Country is divided into several Kingdoms, and different People, the most remarkable of which are the Kingdom of *Congo* in the Middle; that of *Loango*, with the People *Anzican*, Northward; that of *Angola*, Southward; and Eastward the People called *Giaqui*, who inhabit the Mountains of the Sun towards the Dominions of the *Grand Negus*. The particular Kingdom of *Congo* is divided into six principal Provinces, which are *Bamba*, *Songo*, *Sundo*, *Pango*, *Batta* and *Pemba*, subdivided again into others which could not be easily particularized.

The City of *Congo* was once called *Baza* by the Natives; at present the *Portuguese* call it *St. Salvador*. It is situated on the River *Lelunda*, 50 Leagues distant from the Sea, and inhabited in Part by the *Congolans*, and in Part by the *Portuguese*, separated from the first in a particular Quarter of the City.

The Capital of *Loango* bears the same Name. It is situated on the Coast at the Southern Extremity of the Kingdom, in an Island made by a small River.

The Capital of *Angola* is *Longo*, or *Engaze*, situated on the River *Loango*, at the Northern Extremity of the Kingdom, 70 Leagues distant from the Sea.

Note, That the People are very ignorant, but easy and tractable, particularly towards the Sea; they are extremely strong. The *Giaqui* are great Thieves, and Antropophages like the *Anzicans*. I was intimately acquainted once with one of my Countrymen, who was sent Missionary into those Parts, and lived 15 Years among those poor People, before the King of *Portugal* expelled all the *French* from those Parts, who told me that he found it as difficult to dissuade them from eating human Flesh, as to instruct them in the Principles of the Christian Religion; but that after much Fatigue he succeeded in both: That he had gained so great an Ascendancy over them, which he attributed in Part to their natural Docility, that they did not dare to return to their vomiting for Fear he should know it; though at the same Time he perceived very well that their depraved Appetite craved after it; and when he suspected that some of them had fed themselves with that unnatural Food, he used to chide them very severely for it; and they thought then, that they could have Recourse to no better Means to appease his Anger, than to their Tears and great Demonstrations of a sincere Repentance. They are all very black, except the *Portuguese* Children, who are only brown.

Note also, That these Kingdoms are governed each by its King, called *Mani* by his Subjects. There are also Governors in each Province for the Administration of Justice, to whom they give likewise the Name of *Mani*, which signifies Lord, with the Sirname of the Province he is Governor of, as *Mani-Laonda*, *Mani-Coanza*, &c.

The King of *Congo* is the most powerful; and his People have so great a Veneration for him, that they never speak to him but kneeling. The Kingdom is hereditary in his Family, and only the Male Children can pretend to the Crown to the Exclusion of the Female. The Governor of *Batta* is the most considerable of the Kingdom, and his Court is very little less numerous than that of the King.

The King of *Loango* is also very much respected by his Subjects: That of *Angola* is almost as powerful as that of *Congo*, though he pays a Sort of Tribute to him; the Governors he keeps in each Province are called *Sobas*.

Note again, That some Relations inform us, that these three Kings have received the Light of the Gospel, and that there is even a Bishop at *Loanda*; but the People are mixed, the one being baptized, and the other Idolaters still.

A more particular Description of all these Countries is as follows.

BIAFARA.

The *Kingdom of* BIAFARA, contains *Biafara*, *Borca*.

The *Kingdom of* GABON, contains *Gabon*, *Corisco*, *Maceira*.

The *Kindom of* PONGO.

The *Kingdom of* MEDRA, contains *Medra*, *Median*, *Tebeldera*, *Guidan*.

The *Kingdom of* MACOCO.

The *Kingdom of* MUJAC.

CONGO.

The *Kingdom of* CONGO, contains *Pemba*, Province. *S. Salvador*, *Lelunda*, *Bamba*, Provin. *Motolo*, *Laonda*, *Batta*, Prov. *Agisymba*, *Gangac*, *Sunda*, Prov. *Betequa*, *Pango*, Prov. *Cundi*, *Angote*, *Songo*, Prov. *Malemba*, *Bommo*.

The *Kingdom of* ANGOLA, contains *Engaze*, *Massirgan*, *Mochima*, *Quicongo*, *Ronguela*, *Coyla*.

The *Kingdom of* LOANGO, contains *Loango*, *Sette*, *Mayumbe*, *Katte*, *Sollage*.

The *Country of the* GIAQUI, contains *Zair*, *Dagar*, *Vamba*.

EMPIRE *of* MONOMOTAPA.

This Country is called by some the Empire of *Monomotapa*, by others *Benomotapa*, and *Benomotaxa*.

Most Authors contradict one another, on the Extent of this Empire, particularly Northward; but without taking Part in their Differences, I'll follow blindly the most modern Maps, and say that it extends from the 13 Deg. 30 Min. of northern Latitude to the 31; and from the 43 Deg. 30 Min. of Longitude, to 57 Deg. 30 Min. so that it must have 350 Leagues in its greatest Extent from North to South, and 150 in its greatest Breadth.

It confines Northward with the Mountains of the Moon, which part it from the Empire of the *Monoemugi*, and from the Kingdom of *Malemba*; on the three other Sides it is environed with the *Cafrery*.

The Climate is temperate; the Soil very fat, and fertile in Rice, Sugar-Canes, which grow in it without being cultivated, Fruit-Trees, and Meadows so large, and so frequent, that they render some Places uninhabitable. A great Quantity of Gold is found in it, not only in the Mines, but likewise in the Rocks and Rivers; in which, and Ivory, consists the Commerce of the Country.

The most considerable of its Rivers are the *Zair*, which springs Southward, and running Northward traverses the whole Country: Then, after it has passed through the Lake *Zachaf*, continues its Course Serpentwise toward the South by East, after which it divides itself

itself into two Arms, the most Northern whereof retains the same Name, till it enters the Country of the *Cafres*, where it takes that of *Cuama*. The other, which passes through the capital City, is called by the *Portuguese*, *Rio de Spiritu Santo*. The River *Cumissa*, or of the *Child*, is found toward the South by West.

Note, That the People are witty enough, and very courageous, but inconstant, and subject to Revolts: They have a very great Respect for the Women, some of whom fight valiantly. It is even pretended that those Amazons have a particular Country Northward.

Note also, That this Country is under the Denomination of an Emperor, commonly called *Monomotapa*, to whom all the other Kings or Princes are subject or tributary. This Sovereign is much beloved and respected by his Subjects, and dreaded by his Enemies and the Wicked; for he is a very religious Observer of Justice, and punishes severely all Sorts of Crimes. He resides at *Monomotapa*, Capital of its Empire, situated on the *Rio de Spiritu Santo*: He has a Country Palace called *Zimbaos*, situated toward the Western Coast of the *Cafres*, which passes for one of the Wonders of the Country, being built of large Free-Stone; which is extraordinary, since all the other Houses of the Country are only built of Wood.

Note again, That it is pretended that all those People are Christians, and were baptized about 170 Years ago.

Empire of the MONOEMUGI.

This Empire, whose Situation and Extent are not exactly known, confines Northward with *Abyssinia*, Eastward with the Coasts of *Zanguebar*, Southward with *Monomotapa*, and Westward with the Kingdom of *Malemba*, and the Lake *Zambre*.

It has very near the Qualities of the Empire of *Monomotapa*, except that it is fuller of Mountains, including those of the Moon: The River *Cuama*, or *Zambre*, traverses it from East to West; by Means whereof a Commerce is carried on with those of *Quiloa*.

Note, That I presume that these People are not very different from the Subjects of *Monomopata*: They don't much care for the Gold which grows among them.

Note also, That the Country is in the Power of a King, call'd *Monvemugi*, to whom all the other petty Kings are subject, or tributary: Part of the *Giaqui* are under his Domination.

Note again, That Idolatry still reigns in this Empire.

Here follows a more particular Description of these Countries:

EMPIRE of MONOMOTAPA.

The *Kingdom of* MONOMOTAPA, contains *Monomotapa*, *Zedaya*, *Euggi*, *Mogar*, *Agrasede*, *Meach*, *Lotaya*, *Zimbro*, *Tialso*, *Adia*, *Garma*, *Cumissa*, *Samot*, *Vigiti Magna*, *Mosate*, *Jouros*, *Vallonte*, *Belegura*.

The *Kingdom of* BUTUA, contains *Butua*, *Gebaghe*, *Castro-Portugal*, *Quitievij*, *Degir*, *Gicra*, *Rueved*, *Amara*, *Derosara*, *Hagala*, *Ilure*, *Mairagasi*, *Armeta*, *Bera*, *Zet*, *Dobdel*, *Gallila*, *Carma*.

The *Empire of* MONOEMUGI, contains *Agag*, *Gamba*, *Astagoa*, *Leuma*, *Camur*, *Beif*, *Bagametro*, *Zembre*.

The Countries, or Coasts of the CAFRES.

This Country, which some call *Cafrery*, has very near the Figure of a Horse-Shoe, which environs the Empire of *Monomotapa*, Eastward, Southward, and Westward. Some confine it, on either Side, at the Height of the Tropick, and others make it to extend along the Coast from *Angra de Negro*, on the western Shore of *Ethiopia*, under the 14 Deg. 30 Min. of southern Latitude, to *Punto do Sal*, on the eastern Shore, about the 18 Degree of the same Latitude, including the famous Cape of *Good Hope*: So that its Coasts have more than 1000 Leagues of Circuit: Its Extent in Breadth is very irregular; for in some Places it is more than 100 Leagues broad, and in others not 50.

It confines, outward, with the Ocean; and inward, with the high Mountains, call'd the *Mountains of the Moon*; and with those by the *Portuguese* call'd *Montes Fragosos*, which part it from *Monomotapa*.

The Climate is very temperate, except towards the Cape of *Good Hope*, where sometimes an excessive Cold is felt, because of the violent Winds, and of the Snow those high Mountains are almost always cover'd with. The Soil is almost every where uncultivated, and sterile in all Things except Pasture and Flowers, with which most of the Vallies are cover'd. Cattle are numerous enough there but lean, and the Sheep have Hairs instead of Wool; Southward, Travellers say, that it is the poorest Country of the World; Eastward, towards *Sofala*, there is Gold, not only in the Mines, but likewise in the Rivers.

It is water'd with a great Number of Rivers, among which the most considerable are those of the *Zambre*, *de Spiritu Santo*, of *Cumissa*, of St. *Blaise*, of St. *Ambrose*, the *Green River*, and that of St. *Mary*.

The City of *Sophala* is very advantageously situated in an Island, which is in the Middle of a little Gulph, into which falls a little River called *Sophola*; it is situated on the Eastern Coast, about the 20 Degree of Latitude, near the Coast of *Zanguebar*.

Note, That the *Cafres* are wild, brutish and cruel: They live in Mountains and Caves like Beasts; those who inhabit the temperate Zone are less black than the others; they eat Rice, Flesh and Fish. There is very little Commerce carried on in this Country, except *Sophola*, where the People are more tractable. This Commerce consists in Gold and Ivory, which the Natives change for Stuffs, *&c.*

Note also, That as to the Government, this Country is in Part subject to *Monomotapa*, and in Part to the King of *Mataman*, the third Part is under the Domination of the King of *Sophola*, who is *Portuguese*, or tributary of the *Portuguese*, who are Masters of the Capital, because they have built a Fortress which commands the Port. Among the People, who are more advanced Southward, some have their particular Princes, or chuse Lords to govern them; the others live without King, without Faith, and without Law.

Note again, That most of these People have no Religion; those who inhabit the Kingdom of *Sophola*, and some Part of the western Coasts are *Mahometans*: There are also some Catholicks among the *Portuguese*.

Coasts of ZANGUEBAR.

We know under the Name of *Coasts of Zanguebar*, the whole Extent of the Country, called by the Antients *Barbaria Regia*; which contains the Kingdoms of *Mongalle* or *Angoche*, of *Mozambick*, of *Quiloa*, of *Mombaze*, of *Melind*, and the Territories of some petty Kings, as *Lamon*, *Pata*, &c. situated in this Order ascending from South to North.

This Country extends from the Equator, to the 18 Degree of Southern Latitude, may have 450 Leagues of Coasts, and 60, 80, or 100 in Breadth.

It confines Northward with the Coasts of *Ajan*; Eastward with the Ocean; Southward with the *Cafrery*; Westward with the Territories of *Prester John*.

The Climate in general is unwholsome, and particularly in the Kingdom of *Quiloa*. The Land is low and marshy, and does not produce sufficiently what is necessary for Life; and if it was not for the great Commerce of Gold and Ivory carried on there, I believe the Country would not be so much frequented as it is. It notwithstanding produces Millet, Rice, Pulses, Oranges, and Lemons: It feeds Oxen, Goats, and Sheep, which are so big and so fat, that one of their Tails weighs as much as 30 Pounds: There are found in it wild Beasts, Fowls, and a vast Number of Elephants; and it has Mines of Gold, Silver, and other Metals.

The River *Quilmanca* is the most considerable among those which bathe that Country; the others are those of *Melind*, of *Mombaze*, of *Quiloa*, *Del Gado*, of *Mozambick*, and of *Cuama*.

Note, That the People of this Country are much more tractable than the *Cafres*, becauſe of the Frequentation of the *Europeans*. They are black, and feed themſelves with the Fleſh of wild Beaſts, with Milk, and with Pulſes, and wild Fruits. They carry on a great Commerce of Gold and Ivory.

Note alſo, That the Kingdoms I have marked, and others which are ſo inconſiderable, that they do not deſerve to be particularly mentioned, have all each their King, by whom they are governed, and who are almoſt all Tributaries of the *Portugueſe*.

Note again, That the Natives are either *Idolaters*, or *Mahometans*, according to the Doctrine of a certain Zaid, *Haly*'s Nephew; ſo that the *Turks* believe them Hereticks in their Faith.

The King of *Angoſcia*, or *Mongalle*, is ſuppoſed Tributary of the *Monœmugi* and a *Mahometan*. He reſides in the City of *Angos*, Capital of his Dominions.

The King of *Mozambick* is alſo a *Mahomotan*; but ſeveral petty Kings and Lords live in that Kingdom without Religion. The *Portugueſe* are Maſters of the Capital, and of the Iſland in which it is built.

Though this Iſland be pretty ſterile, it is notwithſtanding very well inhabited, becauſe of its great Commerce.

Inchot ſays, That the King of *Quiloa* is tributary of the *Monoemugi*; he is of the Sect of the *Mahometans Ezemoraides*; his Subjects follow his Belief, or are Idolaters. The Iſland *Quiloa*, where he reſides, is very agreeable and fertile, but the Climate is unwholſome. The City is adorn'd with fine Houſes built by the *Arabs*. The *Portugueſe* plundered it once, and ever ſince the King pays them a Tribute of 1500 Marks of Gold.

The King of *Monbaze* is extremely dreaded, and reſpected by his Subjects. He believes himſelf one of the moſt powerful Princes of the Earth, and promiſes to himſelf no leſs than the Conqueſt of the whole World; notwithſtanding which a Handful of *Portugueſe* routed all his Subjects. He is a *Mahometan*, and a great Enemy of the *Chriſtians*; his Subjects are either of the ſame Sect, or Idolaters.

The King of *Melinde* is ſo much reſpected by his Subjects, that when he appears in publick, the Ladies ſing his Praiſes before him, and make a Kind of Simphony in ſtriking Braſs Baſons with Ivory Sticks. He is a very great Friend of the *Portugueſe*, with whom his Subjects trade in all Liberty, and with a great deal of Honeſty. He reſides at *Melinde*, Capital of his Kingdom, and ſituated on the Sea-Shore, with a very fine Port, where the *Portugueſe* have built a Fortreſs which commands it entirely; and eighteen or twenty Churches in the City; which ſhews that the *Catholick* Religion is profeſſed there, tho' the King be a *Mahometan*, and his Subjects a Mixture of *Mahometans* and Idolaters.

The other petty Kings are *Mahometans*, except ſome Princes, whom ſome Relations make *Catholicks*. They reſide in the Capital Cities of their Kingdoms, which are not ſtrong.

Here follows a more particular Deſcription of all theſe different Countries.

The CAFRERY, contains *Sofala*, *Bucone*, *Maracone*, *Deger*, *Mataca*, *Sena*, *Buro*, *Zimbaos*, *Inhaqua*, *Davagul*, *Cortada*.

COASTS *of* ZANGUEBAR.

The *Kingdom of* MONGALLE, contains *Mongalle*, *Agache*, *Quiloane*, *Monia*, *Dud*.

The *Kingdom of* MOZAMBICK, contains *Mozambick*, *Pinda*, *Sdrincapa*, *Querimba*.

The *Kingdom of* QUILOA, contains *Quiloa*, *Camu*, *Simis*, *Sabia*, *Xango*.

The *Kingdom of* MONBASSE, contains *Monbazze*, *Oygna*, *Butaapa*.

The *Kingdom of* MELINDE, contains *Melinde*, *Gazze*, *Oya*, *Lamon*, *Pata*, *Chelicia*, *Amarmochdy*, *Padragnum*, N. D. *Monaſterium*.

COASTS *of* AJAN.

This Country, which the Antients called *Azania Regia*, is called by the *Arabs*, the Country of *Ajan*, and *New Arabia*; we commonly call it the Coaſts of *Ajan*.

It extends from the Equator to the 12 Deg. of Latitude, between the 63 and 70 of Longitude; ſo that it may have 300 Leagues of Coaſts on the Ocean, as far as Cape *Gardafay*; and 140 from that Cape to the Streight of *Bebelmandel*. Its greateſt Breadth is of about 150 Leagues, and its leſſer of 60.

It confines Northward with the Kingdom of *Dancali*, and the Streight of *Bebelmandel*; Eaſtward with the Ocean; Southward with the River *Quilmanca*, which parts it from *Zanguabar*; and Weſtward with the Dominions of *Preſter John*.

It is fertile in Wheat, Millet, Barley, and various Sorts of Fruits and Paſtures; and therefore feeds a great Quantity of Cattle, as Horſes, Cows, Goats, and Sheep. It alſo produces Honey, Wax, Gold, and Ivory.

Among its Rivers the moſt remarkable are the *Quilmanca*, *Magadoxo*, and *Zeila*: Weſtward of the City *Magadoxo* is found the Lake of the Monks, with an Iſland, and a City in the Middle of it, which bears the ſame Name.

This Country is divided into four principal States, *viz.* the Kingdom of *Adel*, which is the largeſt, and the moſt Northern; that of *Adea*, which is in the Middle; and that of *Magadoxo*, with the Republick of *Brava*, which is the moſt Southern.

Note, That the Inhabitants of this Country are of three Sorts: Some are white towards the Coaſts, ſome black towards *Abyſſinia*, and others called *Beduini*, of *Arabian* Extraction, who are Vagabonds, live without Laws, without Care, and are all Thieves.

The King of *Adel* is in great Eſteem among the *Mahometan* Princes, becauſe he is always at War with the *Great Negus*, on whom he makes ſometimes Priſoners, and whom he ſends to thoſe Princes for Slaves. The King and his Subjects are *Mahometans*, and great Enemies of the *Chriſtians*: He reſides in the City of *Adel*, Capital of his Dominions, ſituated on a River in the Middle of the Kingdom.

The King of *Adea* is Tributary of the *Negus*, and a *Mahometan*, as well as all his Subjects. It is believed that he reſides at *Baraboa*, a City ſituated on an Arm of the River *Quilmanca*; in the Province of *Granza*, theſe People are a Mixture of Idolaters and Chriſtians.

The King of *Magadoxo* is alſo a *Mahometan*, and all his Subjects by his Example, being all of *Arabian* Extraction. He reſides in the City *Magadoxo*, ſituated on the Coaſt, and in a very commodious Place for the Commerce of the *Indies*.

The Republick of *Brava* is the only one known in *Africa*. The City which is ſituated on the Coaſt, between *Baraboa* and *Magadoxo*, is governed by twelve Xequi, choſen among the moſt antient of the Families of the ſeven Brothers, by whom it was founded. It is Tributary of the *Portugueſe*, and the Inhabitants carry on a great Commerce of Gold, Silver, Ivory, Ambergreaſe, Wax, *&c.*

COASTS *of* ABEX.

All Authors have given to this Country a different Extent, and various Limits; but without eſpouſing any of their Opinions, I'll ſay that what we know at preſent under the Name of Coaſts of *Abex*, made once Part of the *Trogloditick Arabia*, and ſince Part of the Kingdoms of *Barnagas* and *Trigrumahon*, depending of *Preſter John*.

This Country extends from the Streight of *Bebelmandel* to the Mountains which part it from *Egypt*, about the 22 Degree of Latitude; ſo that it takes up more than 350 Leagues of Coaſts on the Red Sea; and has not 50 in its greateſt Breadth, and 20 in its leſſer. It is almoſt all deſart and uncultivated, becauſe of its exceſſive Heat and Want of Water. The Climate is burning and unwholſome; the Soil ſandy, and ſterile, particularly Northward.

It is divided into two Parts; the most southern contains the Kingdoms of *Dancali*, which is much less uncultivated than the other Part, and depends yet of the *Negus*. Its People, notwithstanding, are almost all *Mahometans*, through Contagion, having no other for their Neighbours.

The northern Part is in the Power of the Grand Seignior, who keeps a Beglerbeg in the City of *Suaquen*, situated on the Coast of the Red Sea; he is called at the Porte, the *Beglierbeg Bashaw of Abassia*.

The City of *Ercoco*, on the same Coast, and the Island *Masua* over-against it, are of this Government. All the Inhabitants follow the Doctrine of *Mahomet*, even the Subjects of the *Grand Negus*.

A more particular Description of these Countries, is as follows:

Coasts of AJAN.

The *Kingdom of* ADEA, contains *Magadoxo*, *Bandel*, *Migiate*, *Zochet*, *Island of the Monks*, *Orgabra*, *Barramaa*, *Quilmanca*, *Barraboa*, *Brava*, Rep.

The *Kingdom of* ADEL, contains *Adel*, *Ara*, *Zeila*, *Barbora*, *Meta*, *Bardara*, *Asuma*, *Bandel-Dagoa*, *Camura*, *Velha*.

Coasts of ABEX.

The *Kingdom of* DANGALI, contains *Degibeldara*, *Degibelcora*, *Vella*, *Suaquen*, *Ercocco*, *Mezua*.

ISLES OF AFRICA.

Island ZOCOTRA.

Eastward of Cape *Gardafuy*, is found under the 86 Deg. of Longitude, the Island *Zocotra*, which may have 45, or 50 Leagues of Circuit.

The Climate is very hot, the Soil dry and pretty sterile, having nothing recommendable but Aloes, called of its Name *Zocotrina*, and *Sanguis Draconis*, which it produces in Abundance.

Note, That this Island is in the Power of the King of *Fartach*, in *Arabia*, who keeps in it a *Xequi*, or Governor. The Inhabitants are Idolaters, and adore the Moon; notwithstanding which they have a great Respect for the Cross, which they place honourably in their Temples, though they have no Knowledge of *Jesus Christ*; they say only, that their Ancestors have learned them that Practice.

Note also, That these People are ignorant, lazy, cowardly, and mistrustful, but above all, great Enemies of the *Turks*.

The Island MADAGASCAR.

This Island is one of the greatest and richest of the whole World. The Natives give it the Name *Madagascar*, i. e. the *Island of the Moon*. That of *St. Laurent* was given to it, because discovered on that Saint's Day; and the *French* call it *Isle Dauphine*.

It is situated Eastward of the Coasts of *Zanguebar*, and of the *Cafrery*, between the 11 and 16 Deg. of southern Latitude; and extends from the 72 Deg. of Longitude, to the 81; so that it may have about 350 Leagues in its greatest Extent from North to South, *i. e.* from Cape *Natal*, to Cape *St. Mary*; 120 in its greatest Breadth; and 900 of Circuit.

The Climate is wholsome enough and temperate: The Soil very fertile in Fruits, as Oranges, Lemons, *&c.* and in Pulses. It produces Rice, Cotton, Sugar, Ginger, Saffron, the Igname, and other very good Roots; and also Wax and Honey. It has Mines of Gold and Silver; and several Trees grow there which are very rare among us, as Ebony, Brasil-Wood, red, yellow, and white Sanders. Lions, Elephants, Camels, and several other Animals are so common in it, that sometimes a Sheep has been given for a Sheet of Paper, and four Cows for a poor Jacket.

The Middle of this Island is full of Forests and Mountains, from which flow several Rivers, the greatest of which are, *Janibarou*, *Maroucou*, and *Macabarou*.

It has several very commodious Ports, *viz.* *Antongil*, *Vingagora*, *St. Andrew*, *St. Augustin*, *Antipera*, the Port of the Galeons, *&c.*

It is said that this Island is divided into five or six Kingdoms; but we know but very little of them.

Note, That those who inhabit the Middle of the Island, are brutish, wild, and without Faith, like the *Cafres*; they go quite naked, and dwell in very low Huts. Those towards the Coasts are a little more tractable, and all love Pleasure to Excess: They are witty enough, strong, and courageous. Their Women are not very sparing of their Caresses, and the Husbands are extremely well pleas'd, when an *European* do them the Honour to lie with their Wives.

Note also, That some are Idolaters, or without the least Shadow of Religion, and those towards the Coasts, *Mahometans*.

The Isles COMORRA, *&c.*

Between the western Coast of *Madagascar*, and those of *Zanguebar*, are found the Isles of *Comorra*, and several others less considerable, as those of *Querimba*, *Anisa*, *Juan*, *Nuova*, which will be found in my particular Description.

The Isles of *Comorra* are situated between the 11 and 13 Deg. of Latitude, towards the 72 and 73 of Longitude.

They produce Rice, Banana's, Cocoa-Nuts, Oranges, Lemons; and feed Cows, Goats, Sheep, Pigeons, Hens, *&c.*

Note, That the Inhabitants of these Isles are tractable enough, and trade freely with the *Portuguese* of *Mozambick*.

Note also, That they have each a King, which every Ship at its Arrival, is oblig'd to acknowledge with a Present. And none but the King wears Cloaths and Shoes, all his Subjects going naked, except that they hide what Modesty forbids to expose to publick View.

Note again, That they are almost all *Mahometans*; the rest are Idolaters, and live without Faith, and without Laws, like Beasts, in Caves, particularly towards the Middle of the Land.

Towards the Coasts of *Zanguebar*, is found under the 6 Deg. of southern Latitude, the Island *Zanzibar*, from which the whole Country has borrow'd its Name. It may have about 90 Leagues of Circuit. The Island *Pemba*, situated under the 4 Degree, has more than 110 Leagues of Circuit; that of *Monsia* has 50.

These Isles produce Rice, Millet, Lemons, Oranges, and Sugar-Canes, but the Inhabitants have not the Wit to purify the Sugar. They feed a great Quantity of Cattle, in which consists their Commerce with those of the main Land.

Note, That each of these Isles has its particular King, who are made tributary of the King of *Portugal*. These Kings, and their Subjects, are all *Mahometans*.

Note also, That the Natives of these Isles are lean, puny, Enemies of War, applying themselves to Agriculture and Commerce. Their Women love to be adorn'd with Chains, Bracelets, Ear-Rings, and other Jewels.

The Island ST. THOMAS.

At 50 Leagues Distance from the main Land of the Kingdom of *Biafara*, is found the Island *St. Thomas*, which has given Name to the Gulph in which it is situated under the Equator.

Its Figure is almost round, and some say that it may have 45, and others 60 Leagues of Circuit.

The Climate is unwholsome for Foreigners, but not for the Natives: The Soil produces all that's necessary for the Life of the Negroes, but not of the *Europeans*; for it has neither Corn nor Wine, but Maiz, Palm-Trees, Potatoes, and a great Quantity of Sugar.

Note, That the *Dutch* conquer'd this Island from the *Portuguese*, who retook it afterwards, and keep a Governor in the City *Pavoasan*, which is the Capital. The Inhabitants are most of them Catholick, and there is even a Bishop in the Capital City.

The *Island of the Prince*, was thus called by the *Portuguese*, because the Prince of *Portugal* had the Revenue thereof.

It is situated at the North by East of that of St. *Thomas*, under the 2 Deg. of Latitude, and the 32, 30 Min. of Longitude; and has about 25 Leagues of Circuit.

The Climate is wholsome, and the Soil very near like that of the Island St. *Thomas*. It is in the Power of the *Portuguese*, and the Inhabitants are all Catholick.

The *Island of Fernando Poo*, is situated still further into the Gulph of St. *Thomas*, between that of the *Prince*, and the Mouth of the *Rio des Camarones*, in the main Land, it is very near as big as that of St. *Thomas*.

Its Climate and Soil is like that of the Island of the *Prince*, and its Government and Religion likewise the same.

The *Island Annobon*, was thus called because discovered the first Day of the Year.

It is situated under the 28 Deg. of Longitude; and the 2, 30 Min. of southern Latitude.

Its Extent, Soil, Government, and Religion, is very little different from that of *Fernando Poo*.

The other Isles which are in that Sea of *Ethiopia*, are very little inhabited, therefore I'll say nothing of them, and content myself with putting their Names in my particular Description.

Isles of Cape-Verd.

These Isles, which the Antients have called *Gorgonæ*, *Gorgadæ*, and *Hesperides*, are call'd by us, *Isles of Cape-Verd*, because they are over-against that Cape, Westward.

Some Authors pretend that there is twenty of them, but we reckon but six principal; the more advanced Northward, are those of *St. Anthony*, and of *St. Vincent*, then advancing always Southward, *St. Lucia*, *St. Nicolas*, the *Island of Salt*, of *Bona vist*, of *May*, *St James*, *Del Fuego*, and *Bravo*.

They are situated Westward of *Nigritia*, between the 353 and the 357 Deg. of Longitude, extending from the 13 Deg. 30 Min. of Latitude, to the 19.

The *Island St. James*, is the greatest of them all, and may have 45 Leagues in its greatest Length from South by East, to North by West; 10 in its greatest Breadth; and 95 of Circuit.

The *Isles of St. Nicolas*, and of *St. Lucia*, may have each 25 or 26 Leagues in Length, 7 or 8 in Breadth, and 60 of Circuit. The Length of the first is from North by West to South by East; and that of the other from North by East to South by West.

The *Isles St. Vincent*, and *St. Anthony*, have not above half the Extent of these, and the five others are still lesser; since the greatest of them has not 10 Leagues in Length, and 20 of Circuit.

The Climate of these Isles is generally hot, and unwholsome. The Soil is stony, and almost sterile, as those of *Salt*, *Bona vista*, and of *May*. The first has but wild Horses, the last has also a great Number of them; but has a still greater Number of Goats; so that the Skins and Salt, are what render them considerable. The others are less sterile; and produce Rice, Maiz, Ignana's, Banana's, Lemons, Oranges, Cocoa-Nuts, Pomegranates, Wine, and Cotton: And it must be observed, that these Fruits are gathered twice a Year. They feed a great Number of Cattle and Fowls; and the Inhabitants salt the Flesh of those Animals, and send it to several Places.

Above these Isles there are some Places where the Surface of the Sea is covered with a certain Herb, very near like the *Sarsago* of the *Portuguese*. It cannot be discovered where the Roots of those Herbs lay, because they are far from the main Land, and the Sea has no Bottom in the Places where they are found; notwithstanding which, Mariners take all the Care imaginable to avoid them.

Note, That when these Isles were discover'd by a *Genoese*, they were all uninhabited, and began to be inhabited but 30 Years afterward, when the *Portuguese* had a little frequented them. They are still in their Power, and the King of *Portugal* keeps a Governor in the City of St. *James* situated in the Island of the same Name. This City is not only Capital of the Isles; but likewise of all the Places, which the *Portuguese* possess on the Coast of the *Higher Guinea*. It is also an Episcopal See, Suffragan of *Lisbon*.

Note also, That none but the *Catholick* Religion is publickly profess'd in these Isles. There are some Negroes who know neither God nor Devil.

A more particular Description of the Isles of *Africa*, is as follows:

In the *Red Sea* are the Isles *Suaquen*, *Mazua*, *S. Pietro*.

The *Island* Zocotra.

The *Island* Madagascar, contains *Vingagora*, *Cady*, *Angoada*, *Cacambut*, *Mannajara*, *Manialufo*, *Manapatan*, *Manatenga*, *Ananbolo*, *Rama*, *Manasiaf*, *Atabasta*, *St. Vincent*.

Isles of Comorra, contains *Comorra*, *Garidsa*, *Loura*, *Cenbracas*, *Mayotte*.

Toward the Coasts of *Zanguebar*, are the Isles *Zanzibar*, *Monsia*, *S. Roch*, *Pemba*, *Querimba*, *Anisa*, *Da Nova*, *Baixos de Judia*.

Towards *Guinea*, the Isles *St. Thomas*, of the *Prince*, *Fernando Poo*, *Annobon*.

The *Isles of* Cape-Verd, are *St. Jago*, *St. Nicholas*, *St. Lucia*, *St. Vincent*, *St. Anthonia*, *Del Fuego*, *Do Sal*, *De bona vista*, *Brava*, *Mayo*.

Isles Canary.

Westward of the *Biledulgerid*, are found the Isles called at present *Canary*, of the Name of the greatest among them. The most learned Geographers are persuaded that they are the same which the Antients call'd *Fortunate*, though they had placed them further Southward.

They are ten or twelve in Number, among which there are seven principal, *viz.* the two most eastern, which are *Lancelotte* and *Forteventura*; then advancing Westward, *Canary*, *Teneriff*, *Gomer*; the Island *Del Ferro*, and that of *Palma*, which are the two most western.

They extend from the first Deg. of Longitude, to beyond the 28 or 29, if we will speak of the four small ones, which are Northward of *Lancelotte*.

The *Island Canary*, which has given its Name to the others, is situated under the 3 Deg. 40 Min. of Longitude, and the 26, 30 Min. of Latitude. It has 13 or 40 Leagues in Length and Breadth, and 50 of Circuit.

The *Island Teneriff* is situated under the 2 Deg. 30 Min. of Longitude, and the 27 of Latitude; it has about 22 Leagues in its greatest Length from South by West to North by East. Its Breadth is very irregular, from 3 Leagues to 15; so that its Circuit is of about 60 Leagues.

The *Island Forteventura* is situated under the 5 Deg. 30 Min. of Longitude, and the 27 of Latitude. It has about 25 Leagues in Length from South by West to North by East; its Breadth is still more irregular than the preceding one; for in the Middle it has but 4 Leagues, and was once divided by a Wall, which travers'd its Isthmus. It may have 70 Leagues of Circuit, because of the two Gulphs it makes, very near like the Angle of a Cross of *Malta*.

The *Island Lancelotte* is situated under the 5 Deg. 45 Min. of Longitude, and the 28 of Latitude. It may have 13 Leagues in Length from South to North, 9 in Breadth, and 40 of Circuit.

The *Island Gomer* is under the first Deg. of Longitude, and the 27 of Latitude.

The *Island Del Ferro*, is between the first Meridian, and the 30 Min. of Longitude, under the 26, 45 Min. of Latitude.

The *Island of Palm* is under the 30 Min. of Longitude, and the 27 Deg. 40 Min. of Latitude.

Each of the other three Isles may have to the Utmost, 10 Leagues in Length, 5 in Breadth, and 25 of Circuit.

The Climate of these Isles is very good, though a little hot. The Soil is very fertile in all Things, and produces

duces Wheat, Barley, Millet, and delicious Wines, which are exported throughout all *Europe*; and likewise all Sorts of excellent Fruits, as Figs, Oranges, Lemons, Pomegranates, Sugar, &c. It feeds a great Quantity of Goats and wild Asses.

In the Island *Teneriff*, there is towards the Middle a high Mountain, by the *Portuguese* call'd *El Pico*, which rises like a Sugar-Loaf, and passes for the highest of the whole World.

The Soil of the Island *del Ferro* is very dry, and sterile in some Places, because there is no Water in it; but the Almighty, who provides for all our Wants, has caused to grow there a Tree, whose Trunk is about two Fathoms round, and has its Leaves long and narrow, always green, and always cover'd with a Dew which drops into Stone-Basons, which the Natives make on Purpose to receive the Water, which is very good; they using it for all their Necessities, and for the Cattle. This Island is very well known, because we make our first Meridian to pass through it.

Note, That the Inhabitants of these Isles are almost all *Spaniards*. The Natives are great Epicures; and some Relations say, that the few left retired into the Mountains, where they live in Caves, on the Milk of their Goats.

Note, also, That they are Subjects of the King of *Spain*, who keeps a Viceroy, or Governor, in the City of *Canary*, situated in the Island of the same Name. There is in that Capital a Royal Audience, a Bishop, and an Inquisition.

Note, again, That none but the *Catholick* Religion is professed in these Isles.

The Island MADEIRA.

This Island, which *Niger* supposes to be one of the *Isles of Juno* of the Antients, is call'd *Madeira* by the *Portuguese*.

It is situated under the first Deg. 30 Min. of Longitude, and under the 32 Deg. 30 Min. of Latitude: It may have 20 Leagues in Length, 7 or 8 in its greatest Breadth, and 48 of Circuit.

The Climate is much more temperate than in the *Canaries*, and the Soil still more fertile in Corn, Wine, Sugar, and Fruits: It is besides water'd with five or six Rivers. There are found in it the same Sorts of Cattle, Fowls, and Trees, as in the *Canaries*. *Grammay* says, that when it was discover'd by the *Portuguese* in 1420, it was all cover'd with Wood; that they set Fire to it, which lasted seven Years, after which they found the Soil very fertile; but at present it does not produce half so much as it did then.

Note, That the Inhabitants are much more tractable than those of the *Canaries*, and are almost all *Portuguese*.

Note, also, That the King of *Portugal* keeps a Governor in this Island, who resides at *Fonzal*, Capital of *Madeira*, which is also an Episcopal See, Suffragan of *Lisbon*.

Note, again, That there is no other Religion professed here but the Catholick.

At the North by East of *Madeira* is found the Island of *Porto Santo*, of about eight Leagues of Circuit, depending of this as well for the Spiritual, as for the Temporal. The Soil is very little less fertile; and it produces Wax and Honey, which are esteemed the best in the World.

The Isles AZORES.

The Isles *Azores* may be ranked among those of *Africa*, though very distant from it.

They are found between the 36 and 40 Degree of Latitude, and between the 346 and the 354 of our Longitude: But the *Dutch* make their first Meridian to pass at the Island *Terceira*, which is the most considerable of all.

The Climate is very wholsome, and the Soil very fertile in Corn, Wine, and Fruits. There are found in them Fountains of hot Water; and one, in particular, which petrifies Wood.

These Isles are nine in Number, and the most considerable of all is the Island *Terceira*, it having 15 or 16 Leagues of Circuit; and its capital City is *Augere*, which is an Episcopal See.

Note, That these Isles began to be inhabited by the *Portuguese* about the Year 1449; and ever since that Time they have remained in their Power, except during the Usurpation of the Kings of *Spain*.

Note, also, That all the Inhabitants profess the *Catholick* Religion.

A more particular Description of these Isles is as follows:

Isles CANARY.

The *Island* CANARY, contains *Canary*, *Tidle*, *Gadler*.

The *Island* TENERIF, contains *Laguna*, *Santa Cruz*.

The ISLES *Gomer*, *Palma*, *del Ferro*.

The *Island* FORTEVENTURA, contains *Forteventura*, *Tarafalo*, *Lanega*.

The *Island* LANCELOTTE, contains *Lancelotte*, *Porto de Naos*, *Porto de Cavalos*.

The ISLES *Gratiosa*, *Alegria*.

The *Island* MADEIRA, contains *Fonzal*, *Moncerico*, *Santa-Croce*.

The ISLES *de Porto Santo*, deserted, the *Salvages*.

The *Isles* AZORES, are *Tercera*, *S. Miguel*, *S. Maria*, *S. Georgio*, *del Pico*, *Fayal*, *del Cuervo*, *de Flores*.

In the ETHIOPICK OCEAN, Eastward, are the Isles *de Amirante*, 4. *Mascharenas*, 2. *Os Sete Irmanos*, *Corpo Santo*, *S. Francisco*, *Diego*, *Rodrigue*, *Maurice*, *Bourbon*, *Jouan de Nova*, *Cosmoledo*.

WESTWARD.

The ISLES *S. Matthew*, *Ascension*, *S. Helena*, *S. Helena nova*, *Tristan da Cunha*.

Note, That at the particular Desire of a great Number of my Subscribers, I having travell'd thro' the different Parts which compose the antient World, or our Continent, and carefully examin'd all it contains, as most capable to flatter our Curiosity, and to give us a right Notion of *Geography*; I'll pass to the *other Continent*, so call'd, because on the Surface of the Globe it is separated from our Continent by the Sea; *New*, because it was not known 300 Years ago; *Inferior*, because in the Vulgar's Opinion it should be under ours; *Western*, because it is described Westward of the first Meridian, in the Map of the Terrestrial Globe; *America*, from the Name of one of the first Navigators who discover'd it; and lastly, the Vulgar gives it the Name of *West-Indies*; *Indies*, because its Riches equal those of the true *Indies*; and *West*, because they are Westward of *Europe*.

AMERICA.

AMERICA, extends from the 63 Degree of northern Latitude, at the Streight of *Hudson*, to that of *Magellan*, under the 54 of the Southern; and from *Agubeza del Gato*, below the Island of *California*, under the 240 Degree of Longitude, to the most advanced Point of the *Brasil*, under the 348.

Northward it confines with the Sea, which parts it from *Greenland*, by the *Streight of Hudson*, &c. Eastward with the *Atlantick Ocean*; Southward with the *Streight of Magellan*, which parts it from *Terra del Fuego*; and Westward with the *Pacifick Ocean*, or *South-Sea*.

Its Situation in three different Zones, is the Cause that its Climate is various, and participates of Heat or Cold, in Proportion to the Situation of each Country. The Soil is also various, and produces several Sorts of Corn and Fruits which we know, and several others unknown to us. So much Gold and Silver is found in it, that those precious Baits attract the Commerce of almost all the People of *Europe*. It breeds almost all Species of Animals, ferocious, wild, and domestick, which have been known since the Creation.

It has three very considerable Rivers; the greatest whereof is that of the *Amazons*; the second, is that of *Plata*, or of *Paraguay*, both rolling their Waters in the southern Part; the third is the River *St. Laurence*, which traverses all *Canada*, in the northern Part.

These two Parts are two great Peninsula's, which are join'd by the Isthmus of *Panama*, about eighteen *French* Leagues broad, and contain several Provinces.

Note, That the *Americans* are, in general, ingenious enough, but they are deceitful, and revengeful; and though they be very strong, are without Courage. Those who have no Commerce with the *Europeans*, are Wild and Anthropophage, living without Care; the others, who trade with the *Europeans*, or are Subjects to them, are more tractable. Some of these Savages go quite naked; others paint their Bodies of various Colours; and others cloath themselves with the Skins of Beasts; they love Dancing, and sleep in Hammocks; their common Arms are Bows and Arrows; some have Muskets, and other Arms, like the *Europeans*.

Note, also, That before the Coming of the *Spaniards*, *America* had its Kings, *viz.* those of *Mexico*, *Culhuacan*, *Azcapuzalco*, of *Tezeuco*, &c. the *Inga's* of *Peru*, and the *Caciques*, or Captains, whom they used to chuse for their Commanders: Several surprising Things are related of *Montezuma*, last King of *Mexico*, whom the *Spaniards* murther'd to have his Treasures. At present the King of *Spain* is Master of a great Part of that new World, where he keeps two Viceroys, one at *Lima* for the Southern Part, the other at *Mexico*, for the Northern. The King of *France* gives Laws to the best Part of *Canada*, called *New France*; and keeps a Viceroy, or Governor, in the City of *Quebec*, situated on the River *St. Laurence*. The Kings of *Portugal*, *England*, *Denmark*, and the *Dutch*, have each their Part of it; and the Inland Part is yet in the Power of the Natives, some of whom chuse Captains to govern them, and lead them to War: The others live confusedly without Guides, having neither Laws, nor fix'd Habitations.

Note, again, That those who have preserved their Liberty, are yet Idolaters; some adore one God, Creator of all Things; others adore the Sun, Moon, the Fire, &c. The *French*, *Spaniards*, and *Portuguese* profess the Catholick, Apostolical, and *Roman* Religion: The other *Europeans* profess each their Religion.

The *Spaniards* have five Archbishops in their District, *viz.* at *Mexico*, in the Province of the same Name; at *Lima*, and at *Plata*, in *Peru*; at *St. Domingo*, in the Island *Hispaniola*; at *Santa Fé de Bagotta*, in the Main Land: Under those Archbishops are thirty Bishopricks, which I'll distinguish in my particular Description. There are also two Inquisitions, and two Universities, one at *Mexico*, the other at *Lima*; and more than 400 Monasteries. The *French* have a Bishop at *Quebec* in *New France*, and the *Portuguese* one at *St. Salvador* in the *Brasil*.

SOUTH AMERICA.

This Part of the new World is a great Peninsula, which extends between the 292 and the 348 Degree of Longitude; from Cape *Coquibocoa*, under the 12 Deg. 30 Min. of northern Latitude, to the Streight of *Magellan*, under the 54 of the Southern: So that it may have 1330 Leagues in its greatest Extent from North to South, and 1140 in its greatest Breadth from East to West, and very near 5000 of Circuit.

It confines Northward and Eastward with the *Northern Sea*; Southward with the *Magellanick Sea*; and Westward with the *Pacifick* or *South-Sea*.

It is divided into seven principal Parts, which are, the *Main Land* or *Golden Castille*, *Peru*, *Tucumano*, *Chili*, *Magellanick Land*, *Paraguay*, *Brasil*, and the Country which is in the Neighbourhood of the River of the *Amazons*, and of the Rivers which disembogue into it.

MAIN LAND.

This Country, call'd once *Golden Castille*, is more advanced towards the North than all the others of *South America*, and contains the whole Extent of the Resort of the Chamber of *Panama*.

It extends between the 12 Deg. 30 Min. of northern Latitude, from the Isthmus of *Panama*, under the 293 of Longitude, to the 328 Deg. 30 Min. having Southward the Country of the *Amazons*, with *Peru*; and Northward the *Northern Sea*.

The Climate is extremely hot, and, notwithstanding, very wholsome, except towards the Isthmus of *Panama*, where the Land is very marshy, and the Heat would be insupportable, if not a little temperated by the northern Winds. The Soil produces but little Corn, but a great Quantity of Maiz, except in the Places where it is traversed with Marshes and Mountains; it is fertile enough in Pasture, and abounds in Cattle, as Cows, Sheep, Hogs, and others. It produces several Fruits unknown to us, as Potatoes, Ananas, *Indian* Figs, &c. but not equally every where. There is found in it a great Quantity of Gold, Silver, Copper, and Azure; Rocks of Emeralds, and some other precious Stones.

The most remarkable of its Rivers are that of *Oronoquo*, which springs from it, and traverses it thro' all its Course; those of the *Magdelen*, and *S. Martha*, which join together between the Governments of *Carthagena* and of *St. Martha*: It has likewise the Lake *Parime* under the Equator, at the 319 Degree of Longitude, all environ'd with Mountains, 120 Leagues long, 40 or 50 broad, and which may have 300 of Circuit. A little higher the Lake *Cassipal*, under the 4 Deg. of Latitude, and which is more than 100 Leagues round; and another 30 Leagues distant from the Lake *Parime*, Eastward, and which may have 90 of Circuit.

This Province is divided into eleven Governments; seven of which are on the Northern Sea, going from West to East, viz. *Castilla d'Oro*, on the Main Land; *Carthagena*, *Santa Martha*, *Rio de la Hacha*, *Venezuela*, *Nueva Andalusia*, and *Caribana*. The four others are found Southward of these, returning from East to West, in this Order, *Guiana*, *Paria*, *Nueva Granada*, and *Popæana*, in Part; the other Part is in the Government of *Peru*.

The capital City is *Santo Fé de Bogotta*, situated in the Province of *Nueva Granada*; it is an Archiepiscopal See, the Seat of a Governor, and of the Royal Audience of all the Main Land.

Note, That the Natives are well shaped, and of a Brass Colour; they go naked to the Waist: There are several Negroes among them, who have no other Profession than that of Thieving.

Note, also, That the King of *Spain* commands in that Province by his Governors, and the Bishops he sends thither.

Note, again, That there are always Missionaries in those Parts, to instruct the People in the *Catholick* Religion. The greatest Part of the Natives are yet Idolaters, especially towards the Middle of the Land.

PERU.

This is the greatest Treasure of the King of *Spain*, and the richest Jewel of his Diadem: It was fix'd to it in the Time of *Charles* V. after *Francis Pizarro* had discover'd it.

This precious Source of Metals is situated between the 292 and 316 Degree of Longitude; extending on the *South-Sea*, from the 5 Degree of northern Latitude, including the Country of *Popayana*, to the 26 Deg. of the Southern; so that it may have 660 Leagues of Coasts, 260 in its greatest Breadth from East to West, and 140 in its lesser.

It confines Eastward with *Paraguay*, and the Country of the *Amazons*, from which it is separated by its River, and that of *Maragnan*, which springs from it; Northward with the Main Land; Southward with the *Paraguay*, *Tucuman*, and *Chili*.

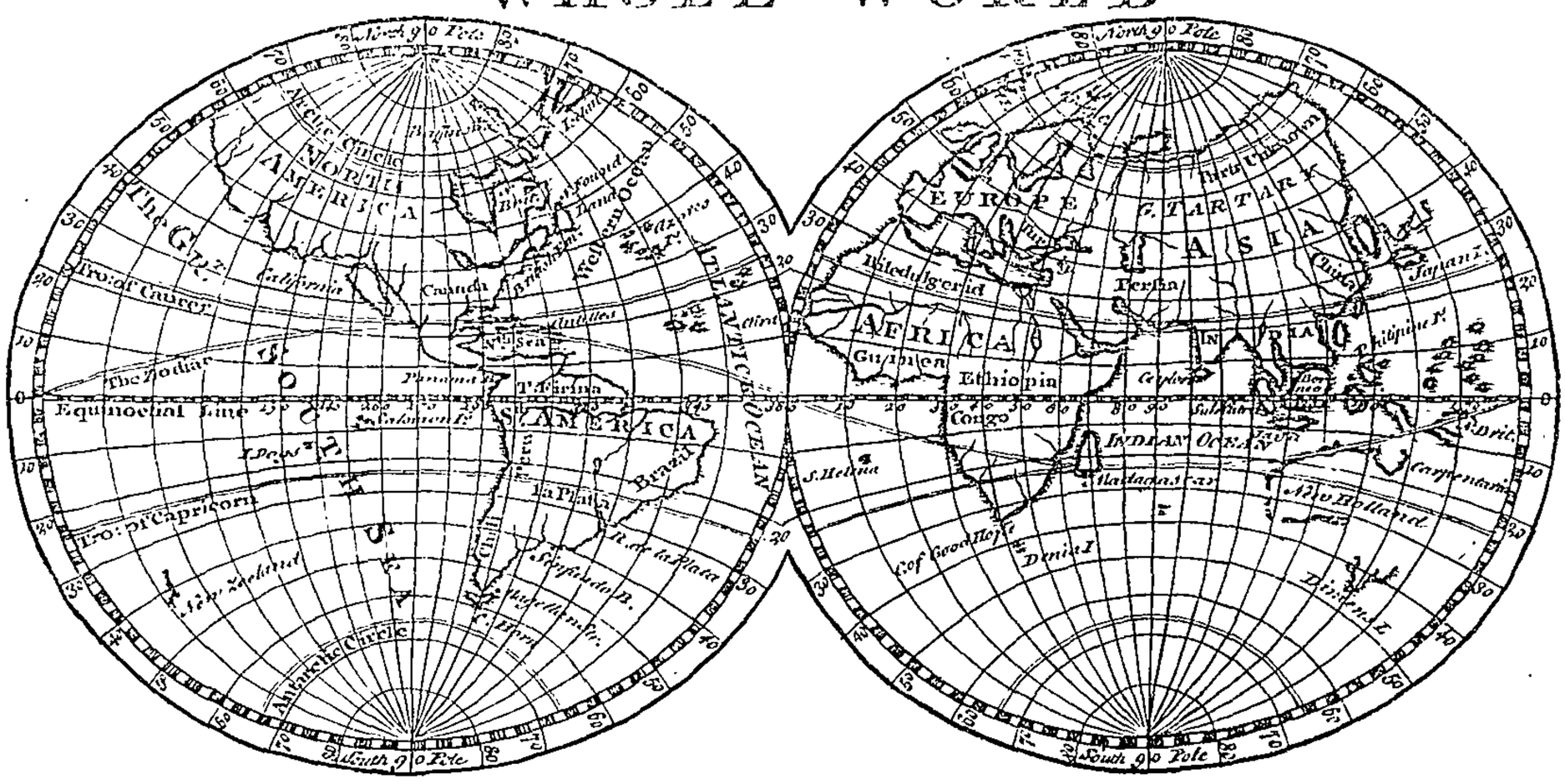
The Climate is various, because of the Disposition of the

GEOGRAPHY.

EUROPE.

ASIA.

A MAP OF THE WHOLE WORLD



AFRICA.

AMERICA.

the Country, which is traverſed with high Mountains, diverſify'd with very deep Vallies, and flat Champaigns. It is very hot at all Times in the Vallies, becauſe it never rains there; a very great Cold is ſometimes felt on the Mountains, becauſe of the frequent and violent Winds: There are very few Rivers in it, and it has neither Fountains, nor Wells.

The Soil, though very dry, is fertile enough, particularly towards the Rivers, where grows Wheat, Maiz, Sugar-Canes, Cotton, and excellent Wine, in ſome Places. In the Vallies is found a Plant of a ſingular Virtue, call'd Cocoa, whoſe Leaf being put into the Mouth nouriſhes, and is a Preſervative againſt Hunger and Thirſt; but this is nothing in Compariſon of the great Quantities of Gold and Silver found in its Mines, without reckoning thoſe of Quickſilver, *&c.* which are of a great Revenue.

Among its Rivers and Lakes, there are ſome whoſe Bottom is all Salt, though the Water be ſweet; it has alſo ſome Sources of hot Waters.

Peru is divided into three principal Governments, or Provinces, which are *Peru*, *Los Charcas*, and *Quito*: The firſt is in the Middle, the ſecond is Southward, where is found the rich Mine of *Potoſi*; and the third is Northward, ſubdivided into three ſmall Provinces, which are *Quito*, Weſtward; *Los Quixos*, and *Pacamores*, Eaſtward; one at the North, the other at the South.

LIMA, or *Los Reyes*, ſituated on the Coaſt, is the Capital of the whole Province, and the Reſidence of the Viceroy of *South America*: It is honour'd with an Archiepiſcopal See, a Royal Audience, and an Univerſity; but curſed with an Inquiſition.

CUSCO, was antiently the Place where the *Inca's*, or Kings of *Peru*, kept their Court; and is, at preſent, an Epiſcopal See. *Plata*, in the Province of *Los Charcas*, is adorn'd with an Archiepiſcopal See.

Note, That the Natives of *Peru* are ſimple enough; but inconſtant, and without Faith; thoſe who inhabit the Mountains, and near the Equator, are more ingenious; it is ſaid that they are much addicted to Sodomy, and therefore deſpiſe and maltreat much their Wives, who work continually; and who, notwithſtanding that ill Uſage, are more modeſt, and more faithful to their Huſbands, than the other *American* Women: Theſe People are whiter than the *Spaniards* though they inhabit the Torrid Zone: They are commonly dreſſed with a Sort of Coat; and the Women wear long Shifts without Sleeves.

Note, alſo, That *Peru* was govern'd during 300 Years by Kings of the Race of the *Inca's*, before the *Spaniards* came into it: But *Pizarro*, and *Almagro*, Captains of *Charles* V. exterminated all that Royal Family, and ſubjected almoſt the whole Kingdom to the King of *Spain*; who ſends thither a Viceroy, and Governors: The People who are not yet conquer'd, keep in the Mountains, where they chuſe among them a Captain, or *Cacique*, to lead them to War.

Note, again, That all the King of *Spain*'s Subjects follow the *Catholick* Religion; and the Natives, who have not been converted, believe that all the *Chriſtians* are bad and cruel, imagining that they are all of the Humour of the *Spaniards*, whom they have ſeen exerciſing all Sorts of Barbarity: Therefore the *Manutians*, and the People who inhabit the Mountains of *Cuſco*, kill all the *Chriſtians* they can catch.

A more particular Deſcription of *South America*, is as follows:

MAIN LAND.

CASTILLA D'ORO, contains *Panama*, Biſhop. *Porto-Bello*, *Nombre de Dios*.

The *Government of* CARTHAGENA, contains *Carthagena*, Biſhop. *S. Sebaſtiano*, *Cenu*.

The *Government of* SANTA MARTHA, contains *Santa Martha*, Biſhop. *Baranca*, Biſhop. *Tamalague*, *Ocanna*.

The *Government of* RIO DE LA HACHA, contains *Rio de la Hacha*, *La Rencheria*.

The *Government of* VENEZUELA, contains *Venezuela*, Biſhop. *Nueva Valencia*, *Nueva Segovia*, *Tugillo*.

Nueva ANDALUSIA, contains *Comana*, *Acamacari*, *S. Thomas*.

CARIBANA, contains *Toupuramana*, *Moreſhego*, *Sapyte*, *Wacbali*, *Cayenne*, a *French* Iſland.

GUIANA, contains *Manoa*, *Comalaba*.

PARIA, contains *Macurewaray*.

Nueva GRANADA, contains *S. Fé de Bogotta*, Arch. *Juan del Lanos*, *Trinidad*, *S. Chriſtoval*, *Merida*, *Pampelona*, *Tocayma*.

POPAYANA, contains *S. Sebaſtiano*, *Carthago*, *Caramanta*, *Antiochia*, *Arma*.

PERU.

PERU, contains *Lima*, Archb. *Cuſco*, Biſhop. *Guamaga*, Biſhop. *Oropeſa*, *Horuro*, *Arequipa*, Biſhop. *Valverde*, *S. Miguel*, *Guara*, *Arnedo*, *Guanuco*, *La Frontera*, *Miraflores*.

LOS CHARCAS, contains *La Plata*, Archb. *S. Cruz la Nueva*, *La Paz*, Biſhop. *Tominus*, *Potoſi*, *Porco*, *Cachaya*, *Tobiſa*, *Arica*, *Carcollo*.

QUITO, contains *Quito*, Biſhop. *Porto-Vejo*, *Rio Bamba*, *Guyaquil*, *S. Miguel*, *Jaen*, *Zamora*.

LOS QUIXOS, contains *Bacza*, *Junta de los Rios*, *Avilla de l'Oro*, *Zumaque*.

PACAMORES, contains *Valladolid*, Biſhop. *Loyola*, *S. Jago de las Montanas*.

Part of the POPAYAN, contains *Popayan*, *Madrigal*, *Paſto*, *Agredi*, *Cali*.

TUCUMANO.

Herrera has placed this Province among thoſe of *Peru*, becauſe its Court of Judicature reſorts to that of *Los Charcas*; but the Moderns make a ſeparate Province of it.

It extends between the 303 and 317 Degree of Longitude, from the 23 to 37 of Latitude: So that it has about 280 Leagues in its greateſt Extent from South to North; and more than 200 from Eaſt to Weſt.

It confines Eaſtward with *Paraguay*, Southward with the *Patagons*, Weſtward with *Chili* and *Peru*, and Northward with the ſame Province, *&c.*

The Climate is temperate; the Soil fertile in Paſture, produces very fine Cotton, and feeds a vaſt Number of Sheep; but it has no Mines of Metals.

The moſt remarkable of its Rivers are thoſe of *Plata*, *Deſaguadero*, *Barbaranna*, and *Rio Vermejo*, or *Salado*.

Note, That the People are not ſo wild here, as in the other Provinces; they love Working, and do not get themſelves ſo often drunk as the other *Americans*; but they are inclined to the original Vice of the Country, *i. e.* that they are vindictive when they have been offended.

Note, alſo, That Part of this Province is yet in the Poſſeſſion of the Natives, who chuſe from among themſelves *Caciques*, or Commanders to govern them, and lead them to War. The other Part which the *Spaniards* have conquer'd, is in the Power of the Catholick King, who keeps a Governor in the City of *Jago del S. Eſtero*. This City, which was call'd *Varco*, is ſituated on the River *Plata*, is the Capital of the Province, and the Seat of a Governor, and of a Biſhop.

Note, again, That the *Spaniards*, and moſt of the *Tucumans*, Subjects of the King of *Spain*, profeſs the *Catholick* Religion: The other People are Idolaters, and have neither Faith, nor Law.

CHILI.

This Country is call'd *Chili* by the Natives, *i. e. Cold*, in their Language, becauſe the Climate is extremely cold by its Situation, which is between the 296 and 308 Degree of Longitude, extending along the Coaſts from the 26 of Latitude to the 47: So that it has about 420 Leagues in Length from North to South, 150 in its greateſt Breadth, and 90 in its leſſer.

It confines Northward with *Peru*; Eaſtward with *Tucuman*, and the *Magellanick Land*, from which it is ſeparated by a long Ridge of Mountains, call'd by the *Spaniards*, *Sierra Nuevada de los Andes*; Southward with the *Patagons*.

The Climate is very near the ſame as in *Spain*; except in the Winter, which is ſometimes ſo exceſſively cold,

cold, that it kills Men and Beasts, particularly on the Mountains; which, notwithstanding, the Soil is fertile enough in Corn and Maiz. It produces Wine like that of *France*, and a great Quantity of all Sorts of *European* and *American* Fruits. It has Mines of Gold, and the Meadows are covered with a great Number of Sheep, almost as big as Camels.

It has several Rivers which freeze during the Night, and thaw in the Day-Time, but they are not considerable.

This Province is divided into three other small ones, which are *Chili*, *Imperial*, and *Chicuito*. The two first are on the Coasts, one Northward, the other Southward; and the last is Eastward, separated from the two others by a Ridge of Mountains, called *Cordiliera*.

The *City of Conception*, was once the Capital of *Chili*, and the Seat of a Royal Audience, which was afterwards transferred to *Peru*; but at present *St Jago* has that Advantage, being the Seat of a Governor, and of a Bishop.

Note, That the *Chilians* are ambitious, impatient, bold, and very brave. They bear easily all Sorts of Incommodities, are strong, tall, and well proportion'd. They exercise their Children to run, hunt, and to use Arms, the most considerable among them are those of the Valleys of *Arauco*, *Tucapel*, and *Puren*, which the *Spaniards* could never conquer. They are commonly covered with Skins of Beasts.

Note also, That the Province of *Chili* depends in Part on the Viceroyalty of *Peru*, under the Direction of a Governor, sent thither by the King of *Spain*, and in Part is in the Power of the Savages, who chuse from among them Caciques, or Captains to lead them to War, to administer Justice, and the publick Affairs.

Note again, That the *Spaniards* and some Natives profess the *Catholick* Religion; but the greatest Part of these last are yet Idolaters, and adore the Devil, whom they call *Eponamon*, i. e. Powerful.

Magellanick Land.

This Province, which the Natives call *Chissa*, is called *Magellanick Land*, from the Name of the Person who discover'd it. Some call it *Country of the Patagons*, from the Name of its Inhabitants.

It is more advanced towards the South, than all the other Provinces of *America*, and extends like a Point into the Sea, called also *Magellanick*, between the 296 and 322 Deg. 30 Min. from the 36 Deg. of southern Latitude, to the *Streight of Magellan*, under the 54; so that it may have about 400 Leagues in its greatest Extent from East to West, and 360 from North to South.

The *Paraguay*, *Tucuman*, and *Chili*, confine it Northward; and the Streight, Southward.

The Climate of this Country is very cold, and the Soil not very fertile, except in Pastures and Forests.

Its Rivers are the *Desaguedero*, which comes from *Chili*, and passes in the *Tucumar*, and the *Rio de les Camarones*, which are pretty considerable.

The *Spaniards* had built two Cities on the Streight, the most considerable of which was called *San Philippo*, and the other *Nombre de Jesus*, but they are ruinated. There is seen in it a great Rock, in Form of a Bell, call'd *Campana de Roldan*.

Note, That the *Patagons* are ten or twelve Foot high, strong, bold, and very swift. They love Hunting, and Dancing, are jealous of their Wives, live without Care, eat human Flesh, paint their Faces, cut their Hair like Monks, and cover themselves with Skins of Beasts.

Note also, That we know nothing of their Government, nor of their Religion. They only say that they fear a great horn'd Devil, which they call *Setebos*, and that when any Body dies, they see that great Devil accompanied with ten or twelve lesser, who dance round the Corpse.

Paraguay.

This Province, which the Moderns call *Paraguay*, from the Name of a River which waters it, is called by *Herrera*, *Rio de la Plata*, from the Name of another River more considerable than the first.

Some Antients have made it a Part of the *Brasil*, which they conducted as far as to the Mouth of this *Rio de la Plata*; at present the Moderns make of it a particular Country, which extends between the 309 and the 338 Deg. of Longitude, from the 21 of southern Latitude, to the 37; so that it may have about 500 Leagues in Length and Breadth.

It confines Eastward with the northern Sea; Northward with *Brasil*, and the Country of the *Amazons*; Westward with *Peru*, *Tucuman*, and the *Magellanick Land*; and Southward with the Ocean.

The Climate is very temperate and wholsome. The Soil very fertile in Corn, Fruits, and Cotton; has beautiful Meadows round its Rivers, which are in great Number, and Marshes full of Sugar-Canes. A great Quantity of Silver is found at the Bottom of *Rio de la Plata*, from which its Name has been form'd, which in *Spanish* signifies *River of Silver*. The Plant call'd *Capacibas*, whose Juice is a vulnerary Balsam, is found in it. It feeds a great Quantity of Horses, and other Cattle; and likewise Tygers, Bears, and other Animals, unknown to us, as the *Cerigons*, which have a certain Skin under their Belly in Form of a Sack, in which they carry their Young till they can walk.

In the great Number of its Rivers, there are six principal ones, *viz. Rio de la Plata*, *Paraguay*, *Parana*, *Uraguay*, *Rio Bianco*, and *Rio Vermejo*; the first receive the Waters of five others.

The *Spaniards* divide this whole Country into six principal Parts or Provinces, three of which are Southward, *viz. Rio de la Plata*, *Parana*, and *Uraguay*. The three others, *Paraguay*, *Chaco*, and *Guayra*, are Northward.

Note, That the Inhabitants of this Country are of the same Stature, Disposition, and Language, as the *Patagons*. They acquire such Habit of running while they are young, that they run as fast as a Horse on a full Gallop; so that the *Spaniards* had a great deal of Pains to settle there. These People are distinguished by various Names, and their Habitations, fifteen or sixteen Families living under the same Roof, supported by Trees in Form of a Hall.

Note also, That the King of *Spain* is almost entire Master of the whole Country; and there are but very few People who are not subject or tributary to him. He keeps a Governor there, who answers to the Viceroy of *Peru*, and resides in the *City of the Assumption*, Capital of the whole Country, situated on the River *Paraguay*; this City is adorn'd with a Royal Audience, and is an Episcopal See, as well as *Buenos Ayres*, and *Paraguay*, whose Bishops are Suffragan of the Archbishop of *La Plata*.

Note again, That Part of those who are Subjects of the King of *Spain*, profess, like the *Spaniards*, the *Catholick* Religion; the others are yet Idolaters, and know no God, but only fear the Devil, whom they paint with large Horns.

A more particular Description of all these Countries, is as follows:

Tucuman, contains *S. Jago del Estero*, Bishop. *Corduba*, *La Punta*, *S. Miguel*, *Esteco*.

Chili, contains *S. Jago de Chili*, Bishop, *Rupel*, *Quillata*, *Longotana*, *La Serena*.

Chucuito, contains *S. Juan de la Frontera*, *Mendoza*, *Orowante*.

The *Province* Del Imperial, contains *Imperial*, Bish. *Argol*, *Chillan*, *Conception*, *Valdivia*, *Villa-Rica*, *Osorno*, *Calbuco*, *Chiluc*, Island.

Magellanick Land, contains *San Philippe*, *Nombre de Jesus*.

Paraguay.

Rio de la Plata, contains the *Assumption*, Bishop. *Buenos Ayres*, Bishop. *Santo Fé*, *Corrientes*.

Parana,

PARANA, contains *Itapoa*, *Acaray*.

URAGUAY, contains *S. Salvador*, *the Conception*, *S. Xavier*, *Santa Anna*.

The *Province of* PARAGUAY, contains *Paraguay*, Bishop. *Villa Rica*, *Maracaju*, *Nostra S. de la Fé*.

CHACO, contains *the Conception*.

GUAYRE, contains *Ciutad-Real*.

BRASIL.

Osorio says, that this Part of *America* was discovered in 1501, by *Alvarez Cabral*, a *Portuguese*, who after a violent Tempest, was thrown on these Coasts, where he erected a Column, with the Arms of *Emanuel* King of *Portugal*, his Master. Sometime afterwards the same King sent into it *Americus Vespucius*, for a more accurate Discovery.

It is the most Eastern of all *America*, since it extends between the 322, and the 349 Deg. of Longitude, from the first Deg. of southern Latitude, to the Tropick of Capricorn, so that it contains more than 800 Leagues of Coasts.

It confines Northward and Eastward with the northern Sea; Southward with the *Paraguay*; and Westward with the same Country, and that of the *Amazons*.

The Climate is hot, but very wholsome, and agreeable; the Soil produces Millet and Maiz, in a little Quantity, but it is very fertile in Pastures: It bears several Sorts of Fruits, as Oranges, and Lemons, Anana's, Acajou's, Araticou's, Potatoes, and several others unknown to us, as the *Aypi*, and *Mainoc*, of which they make Bread and Pap. Its greatest Fertility is in Sugar; it produces also Tobacco, and Trees, commonly called Brasil-wood, of which there are whole Forests. It has several Animals unknown to us, as the *Tarusy*, which wears an Armour of Scales on his Back, which wraps him up in such a Manner, that nothing is seen but his Head, Feet, and Tail. The *Pigritia*, which does not walk on his Paws, but creeps so slowly on his Belly, that it cannot travel a hundred Paces in fifteen Days.

The most remarkable among the Rivers which all spring from, and roll their Waters in that Country, are the *Miary*, *Pinara*, *Taboucourou*, *Siope*, that of *S. Francis*, and several others.

Note, That the *Brasilians* are cruel, vindictive, and very violent; but they are very patient and abstemious. They are bold, and even rash on Occasions. Those who inhabit the Inland Country are brutish, wild, anthropophage, and always at War with their Neighbours. They love Dancing and Hunting, go naked, and paint their Body and Face of different Colours. They live in several Huts, and sleep in Hammocks.

Note also, That the Middle of the Country is inhabited by several different People, among which the *Topinambas*, the *Margajas*, the *Oüitafe*, the *Paraibas*, and the *Tapouyis*, are the most considerable. The one are govern'd by a Chief, whom they chuse among the most notable; the others, *viz.* the *Maramonins*, *Coriges*, &c. live without Law, and without Conductor.

The *Portuguese* are Masters of all the Coasts; and of about 50 or 60 Leagues further into the Inland. This Part is divided into fourteen *Capitaneries*, eleven of which are found on the Eastern Coast, ascending from South to North in the following Order: First, *San Vincente*, *Rio Janeiro*, *Spiritu Santo*, *Port Seguro*, *Itheos*, *Balria*, *Seregippe*, *Pernambuco*, *Tamaraca*, *Parayba*, and *Rio Grande*. The three others are situated on the Northern Coast, also in Order, going from East to West, and are *Siara*, *Maragnan*, and *Para*. There is a Governor in each Capitanate, all of them under the Direction of the Viceroy of the whole Country, who resides at St. *Salvador*, Capital of the whole Province, and situated in the *Bay of all Saints*, on the Eastern Coast, it is also an Episcopal See.

Note again, That the *Brasilians* adore neither God nor Idols, and have neither Temple, nor Form of Religion. Some among them believe, notwithstanding, that there is a God, who makes the Thunder roar. They believe that there are evil Spirits which come to torment them. The *Catholick* Religion is professed in that Part of the Country, possessed by the *Portuguese*.

Country of the AMAZONS.

I call by this Name, not only the *Guiana* of the Antients, but likewise, the whole Extent of the Country which is in the Neighbourhood of the great River of the *Amazons*, between the 300 and the 328 Deg. of Longitude, and extending from the second of northern Latitude, to the 16 of the southern; so that it may have near 560 Leagues in Length, and near 300 in Breadth.

This Country confines Eastward with *Brasil*; Northward with the *Main Land*; Westward with *Peru*; and Southward with the *Paraguay*.

The Climate is hotter here than in any other Part of *America*. The Soil is fertile in Meadows, but we know very little else of the Country, except that it must have Mines of Gold, because the Natives change that Metal for *European* Commodities.

The River of the *Amazons* traverses all this vast Country, from West to East, rolling its Waters in an Extent of more than 700 Leagues, forming several Isles in its Course, as towards *Peru*, that inhabited by the *Homagui*; the Island of the *Tapinambous*, and several others at its Mouth, which is 50 or 60 Leagues broad. This River receives several other great Rivers, Southward, as *Maragnon*, *Amarumaye*, *Tapy Catua*, *Cusignares*, *Cayana*, and *Topaysa*, the lesser whereof is more than 200 Leagues long; and Northward the *Rio Negro*, which is a Branch of the *Oroonoko*.

Several different People inhabit this Country, the principal Provinces whereof are *Caribana*, *Aparia*, *Apanta*, and *Coropos*, Northward of the great River; *Cayana*, *Mataya*, *Paranayba*, &c. Southward of it.

Note, That these People, like the *Brasilians*, are wild, cruel, and anthropophage. They go quite naked Men and Women, without Shame. They have always their Bodies painted of different Colours, and covered with several little Stones, thrust into the Skin from their Infancy. They dwell under Trees where they suspend their Hammocks.

Note also, That every one of these People lives as he pleases, for they have neither Chief, nor Conductor; doing themselves Justice for the Wrongs they have received. For when a Man has killed another, the Relations of the Deceased kill the Murtherer if they can catch him.

Note again, That they have no Idea of God, nor any Tincture of Religion, living like Beasts, having nothing human but the Figure.

Here follows a more particular Description of the *Brasil*:

The *Capitanate of* BAYA, &c. contains *S. Salvador*, Bishop. *Pitange*, *Real*.

The *Capitanate of* ILHEOS, contains *Ilheos*, *Camamu*.

The *Capitanate of* PORTO-SEGURO, contains *Porto-Seguro*, *Santa Cruz*.

The *Capitanate of* SPIRITU SANTO, contains *Spiritu Santo*, *Parayba*.

The *Capitanate of* RIO JANEIRO, contains *Rio Janeiro*, *S. Sebastian*, *Angra de los Rejes*, *Caza de Piedra*.

The *Capitanate of* S. VINCENT, contains *S. Vincent*, *S. Paulo*, *Hitauchi*, *Santos*, *Reinavilla*.

The *Capitanate of* SEREGIPPE.

The *Capitanate af* PERNAMBUCO, contains *Olinda*, *S. Miguel*.

The *Capitanate of* TAMARACA.

The *Capitanate of* PARAYBA.

The *Capitanate of* RIO GRANDE, contains *Natal*, *Prandibe*.

The *Capitanate of* SIARA, contains *Siara*, *S. Jaga*, *Caplors*, *Camucipi*.

The *Capitanate of* MARAGNAN, contains *Maragnan*, Isle. *Jemipara*.

The *Capatinate of* PARA, contains *Para*, *Commota*.

Northern America.

This second Part of the new World is, in the Opinion of some, a great Peninsula, whose Extent and Limits, Westward and Northward, are not certainly known, towards which, some Geographers imagine, that it is join'd to the *Arctick Land*.

The *Dutch* make it to extend from the Streight of *Anian*, under the 195 Deg. of Longitude of the first Meridian of the *Azores*, i. e. about the 187 of the Island *Del Ferro*, to the 330; and from the Isthmus of *Panama*, under the 7 Deg. 50 Min. of Latitude, to beyond the 63.

But because the Kingdoms of *Anian*, and of *Quaira*, the *New Albion*, and other Countries, towards the North by West, which the *Dutch* include in it, are not yet exactly known; our most modern Geographers, make the *Northern America* to extend but from the 340 Deg. of Longitude; so that it must have, in their Opinion, more than 1100 Leagues from South to North, and 1150 from East to West, that is to say, 400 Leagues less than in the *Dutch* Maps.

It may be thereby easily judg'd, that its Limits are uncertain on those Sides; it is only known that the *Streight of Hudson*, and the *Christian Sea*, part it from the *Arctick Lands*, and that it has the Northern Sea Eastward, and the South-Sea South-Westward.

The Climate and the Soil are also various, according to the different Dispositions of the Country; but in general, it is rather cold than hot, and the Soil more fertile in Meadows than in Corn and Fruits. The Rains which fall during the Months of *June*, *July*, *August*, and *September*, hinder the few Grapes found in it from ripening. It has several Mines of Gold and Silver.

The most remarkable of its Rivers are those of *St. Laurent*, of *Chucagua*, and *Del Norte*. It has several Lakes, as the *Sweet Sea*, the *Superior Lake*, the Lake *Puant*, the Lakes *Eriæ*, *Outario*, or *Frontenac*, of *S. Peter*, of *Champlain*, and of *Nicaragua*.

Without including the Countries of *Anian*, of *Quivira*, and the *New Albion*, the *Northern America* may be divided into five principal Parts, which are *Mexico*, *New Mexico*, *Florida*, *Canada*, and the Isles depending thereof.

Mexico.

This Country, which bears the Name of its Capital City, has received that of *New Spain*, since the *Spaniards* have rendered themselves Masters of it.

It is situated between the Sea of the same Name, and the South-Sea, extending from South by East to North by West, more than 600 Leagues, from the River *Chagre*, in the Isthmus of *Panama*, to the Mouth of *Del Norte*, between the 22 and the 30 Deg. of Latitude; and the 124 and the 192 of Longitude. Its Breadth is very irregular.

It confines Eastward with the Sea of *Mexico*; Northward with its Gulph, *Florida*, and *New Mexico*; and with the *South-Sea*, Westward and Southward.

The Climate is very temperate and wholsome, though in the Torrid Zone, it is as cold as in *France*. The Winds and Rains reign often there, and sometimes with great Impetuosity. The Soil is very fertile in Wheat, Maiz, Pastures, and excellent Fruits. A great Abundance of Gold and Silver is found there, not only in the Mines, but likewise in the Rivers. It feeds beautiful Horses, Cows, Sheep, Goats, which bear twice a Year. And breeds a very little Bird, lesser than a Cock-Chaffer, covered with beautiful Feathers, which feeds on the Dew, and the Fragrancy of Flowers, and which fixing himself on the Branch of a Tree, falls asleep in the Month of *October*, and does not awake till that of *April*.

Among its Rivers, the most remarkable are the *Panuco*, which falls into the Gulph of *Mexico*; the *Esquitlan*, *Mexico*, and *Lossyopes*, which disembogue into the South-Sea. Its greatest Lakes are, the *Nicaragua* and *Mexico*.

Mexico is divided into three principal Prefectures, or Audiences. The first is that of *Mexico*, which is in the Middle; the second is that of *Guadaljara*, or *New Galicia*, which is Westward; and the last, that of *Guatimala*, Eastward.

The *Audience of Mexico*, contains seven small Provinces, two of which are on the South Sea, *viz.* *Mexico* and *Mechoacan*, two others on the Gulph of *Mexico*, which are *Panuco* and *Jucatan*, and the three last on both Seas, *viz.* *Los Angeles*, *Guaxaca*, and *Tabusco*.

The *Audience of Guadalajara*, contains likewise seven small Provinces, which are *Guadalajara*, *Zacatecas*, *Nueva*, *Biscaya*, *Cinaloa*, *Culiacan*, *Chiametla*, and *Xalisco*. The three first are found thus in Order, Eastward of the four others, going from South to North; and these follow likewise one another in their Situation, in descending from North to South.

The *Audience of Guatimala*, extends in eight small Provinces, *viz.* *Guatimala*, *Soconusco*, *Chiapa*, *Vera-Paz*, *Honduras*, *Nicaragua*, *Costa Rica*, and *Varagua*. The first and second are situated on the *South Sea*; the third is Southward of *Tabusco*; the fourth and fifth are on the Sea of *Mexico*; and the three last following one another on both Seas, in going from North to South by East.

The City of *Mexico* is the Capital of the whole Country, and passes for one of the fairest of the whole World. It is situated, according to *Herrera*, between two great Lakes, round which there was once more than 50 pretty large Cities. One of these Lakes has its Water salt, and the other has it sweet, though there be a Communication between them. But *Thomas Gage*, in his Relation of the *West-Indies*, says, that about the Year 1636, the Viceroy of *Mexico* had caused the Waters of these Lakes to take another Course; which has been the Ruin of more than 30 Boroughs. It is adorned with the Residence of the Viceroy of *Northern America*, with a Royal Audience, an Archiepiscopal See, an University, and a Mint.

We may judge of the Magnificence of this City by what *Gage* relates of it: He says, that in his Time there were in it 30 or 40,000 *Spaniards*, who were so proud, and so rich, that more than half of them kept a Coach, and sometimes more. Those Coaches and the Harnesses of the Horses were so magnificent, that several of them were covered with Plates of Gold and Silver curiously chased, and enriched with precious Stones, and lined with Cloaths of Gold; the Horses being even sometimes shod with Silver.

Note, That the *Mexicans* are very civil and docile: They are faithful and sincere to their Friends; but behave otherwise towards those who use them ill. They are learned in their Manners, and very industrious; they play upon two Instruments, paint, and make Pictures with the Feathers of those small Birds heretofore mentioned, called *Cincons*. The *Spaniards* who inhabit this Province, are extremely proud in Cloaths and Jewels, particularly the Inhabitants of *Mexico*.

Note also, That this Kingdom was antiently governed by Kings native of the Country; the two last were *Montezuma* and *Quicuxtanoc*, or *Quahutimoc*, who was elected in his Place. *Ferdinand Cortez* conquer'd it for the King of *Spain* in less than four Years, *i. e.* from the Beginning of the Year 1518, to near the End of 1521. The *Mexicans* say, that their Oracles had foretold the Coming of a foreign Nation, who should conquer their Country, and assoon as the Fleet of *Cortez* was arrived, King *Montezuma* sent him Embassadors as if he had been a God; then that Captain, the better to deceive these People, caused the whole Artillery of his Admiral-Ship to be fired, which so surprized them, that they thought he had brought Thunder along with him, and used to call him the *Son of the Sun*.

Note again, That the *Catholick* Religion is professed in *Mexico*, as in all the other Dominions of the King of *Spain*, though some of the Natives are yet Idolaters.

New Mexico.

This Province was the Country of the antient *Navatelcas*, who came to settle in *Mexico*. *Antony Espejo*, who discover'd

discover'd it, gave it the Name of *New Mexico*.

It is situated between the 240 and 242 Degree of Longitude, above the 27 of Latitude.

Neither its Extent, nor its Limits Northward, are well known; Eastward it is separated from *Canada*, and *Florida*, by high Mountains; Southward it confines with *Mexico*; and Westward with the *Varmeil Sea*, which parts it from *California*.

The Climate is mild and wholesome; the Soil fertile in Pasture, and produces Maiz and Legumes. It has Mines of Silver and other Metals; and likewise Turquoises, Emeralds, and Crystal. It feeds Oxen, Cows, Hogs, Horses, Harts, Deers, Hares, *&c.* Its Lakes are full of excellent Fish.

Besides the River *del Norte*, which traverses it from North by East to South by West, are found those of *Couches*, *Tecon*, and some others less considerable.

Note, That this Country is inhabited by a great Number of different People, very tractable, who live by Agriculture and Hunting.

Note, also, That they are each govern'd by their Cacique, or Captain, whom they chuse from among the most courageous and strongest of them. The *Spaniards* have Settlements in some Places; and the King of *Spain* keeps Governors in the City of *Santa Fé*, situated on the River *del Norte*, in the Middle of the Country.

Note, again, That those different People have also different Religions; for the Inhabitants of the northern Part have a great Number of Idols, which they place in Oratories, and to which they carry Victuals; others adore the Sun; others believe in one God, Author of all Things, and who is in Heaven; and others have neither Idols, nor Religion. The *Spaniards* profess theirs in all Liberty, and work daily in the Conversion of those People with vast Success.

The Countries of ANIAN, *and of* QUIVIRA.

These Countries are so little known, that I'll speak but very little of it, to avoid being accused of telling Romances.

The Climate is cold; the Soil fertile but in Meadows, where is fed a great Number of Cows, which are all the Riches of the Inhabitants; who eat the Flesh, make Stuffs of the Hairs, Shoes, and cover their Houses with the Skins; Tools with the Bones; Cups, and several other useful Things with the Horns. They have also great Dogs, which serve instead of Pack-Horses, to carry Burthens. The Natives have no fix'd Habitation; but they search the Places which seem most commodious to them, where they fix their Houses, like Tents in a Camp.

Note, That these People have Kings, but poor, and without Retinue.

Note also, That some adore the Water, because they believe that it contributes towards rendering the Soil fertile: Others the Planets, the Trees, *&c.*

FLORIDA.

This Province was antiently call'd *Jaquaza*; but *John Pona* of *Leon*, who discover'd it on *Palm-Sunday*, which the *Spaniards* call *Pascua de Flores*, gave it, for that Reason, the Name of *Florida*.

It is situated on the Gulph of *Mexico*, extending from the 15 Degree of Latitude to the 40; and from the 269 of Longitude, to the 297 Deg. 30 Min. So that it has about 330 in Length from East to West, 180 in Breadth, and more than 700 of Coasts.

It confines Southward with a long Ridge of Mountains, which parts it from certain People unknown, and from *Virginia*; Westward and Eastward with the *Northern Sea*.

Its Climate is pure and temperate; the Soil very fertile; and the frequent Dews which fall make it produce a great deal with but little Labour. The Inhabitants sow Maiz twice a Year, *viz.* in *March* and *July*, which is gathered in *June* and *October*: It produces several Sorts of Fruit-Trees and Legumes, and feeds a great Quantity of Animals and Fowls. The Rivers are full of Fish, and the Sea Shore of several Sorts of testaceous Fishes. There are also found in it Crocodiles, and large Serpents, who devour Travellers and Swimmers.

The Mountains of the *Apalache* have Mines of Gold, though the *Spaniards* say the contrary, because the Savages will not discover those Mines to them, as they did at first those of *Peru*.

Among its Rivers that of *Chucagua* is the greatest, and *Rio Grande* the richest, because very fine Pearls are fished in it. They fish also Gold and Silver in that of *May*.

Note, That the Inhabitants of *Florida* are naturally white, but after they have anointed themselves with a certain Oil, their Colour changes into an Olive. They are tractable enough, strong, and well proportioned: They love War, go naked, and paint their Bodies with several Colours.

Note, also, That these People who are yet Masters of the greatest Part of the Country, are governed by their *Paraoustis* or Captains, who preside in their Assemblies, and lead them to War. Among the *Paraoustis* there is one who is above all the others, walks in Pomp, and with a great Retinue, so that he is like the King of the Country.

The *French* had built the Forts of *Charlefort* and *Carolina* in 1562, and in 1564, one at the Mouth of the River *May*, the other on that of *Port Royal*; but they abandoned it during the Civil Wars, which happened soon after in *France*. The *Spaniards* have built the Forts *St. Matthew*, and *St. Augustin*, and possessed once all the Coasts; but they have deserted them by degrees; and the *English* having settled themselves at *Carolina*, which was the principal Fortress of the *French*, are Masters at present of a long Tract of Land, especially since they have began to send Colonies into that Part of the Country which they have called *Georgia*, where the *Spaniards* seem determin'd to disturb their Settlements, as being too near their own.

Note, again, That the Inhabitants adore the Sun, the Moon, *&c.* they have a very great Respect for their Priests, whom they call *Joanas*. The *Spaniards* and *English* profess each their own Religion.

A more particular Description of all these Countries is as follows.

MEXICO, *or* NEW SPAIN.

The *Audience of* MEXICO, contains *Mexico*, Arch. *Chiantla*, *Catalutla*.

MECHOACAN, contains *Mechoacan*, Bishop. *Calima*, *Sacatula*, *S. Felippe*.

PANUCO, contains *Panuco*, *S. J. de los Valles*.

TLASCALLA, contains *Los Angeles*, Bishop. *Almeria*, *Vera Cruz*.

GUAXACA, contains *Anteguera*, Bishop. *S. Jago*, *Spiritu Santo*.

TABASCO, contains *N. S. de la Vittoria*.

YUCATAN, contains *Merida*, Bishop. *Valladolid*, *Salamanca*.

The *Audience of* GUADALAJARA, contains *Guadalajara*, Bishop. *Zaporaco*, *Chutiquipaque*, *Quaxacatlan*.

ZACATECAS, contains *Zacatecas*, *Nombre de Dios*, *Ellerena*, *Durango*.

NUEVA BISCAYA, contains *Santa Barbara*, *Endebe*, *S. Juan*.

CINALOA, contains *S. Felipe S. Jago*.

CULIACAN, contains *Culiacan*, *S. Miguel*.

CHIAMETLAN, contains *Aquacara*.

XALISCO, contains *Xalisco*, Purification. *Compostella*.

The *Audience of* GUATIMALA.

GUATIMALA, contains *S. Juan de Guatim*, Bishop. *La Trinitad*, *S. Salvador*, *S. Miguel*, *Xerez*.

SOCONUSCO, contains *Gucvetlan*.

CHIAPA, contains *Ciutad-Reale*, Bishop. *Chiapa*.

HONDURAS, contains *Valladolid*, Bishop. *Gratias à Dios*, *S. Pedro*, *Truxillo*.

VERA PAZ, contains *Coban*.

NICARAGUA, contains *Leon*, Bishop. *Granada*, *Nicoya*, *Jaen*, *Realejo*.

COSTA-RICA, contains *Carthago*, *Araniver*, *Castro d'Austria*.

VERAGUA, contains the *Conception*, *Santa Fé*, *Nota*.

NUEVO MEXICO, contains *Santa Fé*, *Sevilletta*, *Socarro*, *Reicoromedo*, *Zaguato*, *Acoma*.

FLORIDA, contains *St. Mathæo*, *S. Agostino*, *Hirriga*, *Vitacuclo*, *Saturioa*, *Carolina*, *Georgia*, *Melilot*, *Coca*, *Tascaluca*, *Talomeco*, *Colima*, *Nagatexa*.

CANADA.

We commonly understand by the Name *Canada*, all the Extent of the Country contained between *Florida*, and the Northern Limits of *America*, i. e. from the 33 Degree of Latitude to the 63, tho' properly speaking, the Country called *Canada* be but a small Province, which is Southward of the great River, and Westward of its Gulph.

This large Country may be divided into two principal Parts, one Southern which contains all *New France*, and other most Western Countries, yet unknown to us; and the other Northern, which contains the Land of *Laborador*, *Estotland*, and *New Wales*.

NEW FRANCE.

This Part of *America* was call'd *New France*, by *John Verazzan*, a *Florentine*, sent by *Francis* I. King of *France*, to take Possession of it in his Name. It had been discover'd by some Sailors of *Britanny* 19 Years before.

It is pretended, that it extends between the 33 and 55 Degree of Latitude: The Beginning of its Longitude is not very well known, but it extends as far as to the 329 Degree.

Though this Country be in the Middle of the Temperate Zone, the Climate is cold: The high Forests, and the great Number of Lakes found in it, feed that Cold during half the Year, in the eastern Part, and cause Fogs, Rains, and Snows, which last from the Month of *November* to that of *April*; notwithstanding which, the Soil is fertile enough in Maiz and Pastures; and produces several Sorts of Fruit-Trees, as Vines, Peach-Trees, *&c.* It produces likewise some Tobacco; it feeds several Species of Animals, as Harts, Fallow-Deers, Orignacs, Castors, wild Cats, and several others unknown to us. It abounds with all Sorts of salt and freshwater Fish, as Whales, Salmons, Trouts, Pikes, Carps, Eels, and all Sorts of testaceous Fish.

The great River *St. Laurence* traverses this Country from West to East; the other most considerable Rivers are those of *S. Marguerite*, of *Saguenay*, the *Three Rivers*, that of the *Meadows*, &c. which come to disembogue into it Northward; those of *Pouhatan*, of *South*, of *North*, of *Pemteganet*, of *Missisippi*, and several others which disembogue into the Sea.

Northward of the great River are found the Province of *Saguenay*, and several different People yet unknown; Southward of it, going along the Sea, from North by East, to South by West, are found thus, one after another, the following Provinces, *viz.* the particular *Canada*, *Acadia*, the Country of the *Souriquois*, the Country of the *Etachemins*, *New England*, *New York*, *New Sweden*, *Virginia*, and between these last Provinces, and the grand River, the *Iroquois*, *Algonquins*, *Hurons*, towards the Lake *Frontenac*, and a great Number of other different People.

Note, That the *Canadians* are in general witty enough for their Country, and have a great Memory: They are not bold, though they would be accounted such, because Courage is esteemed among them a true Mark of Nobility. Sometimes ten or twelve Families live in the same Cabbin without Envy, Quarrels, and Mistrusts; which shews the Docility of their Genius. They live without Care; are born white, but the Oils with which they anoint themselves render them tawny. They love Hunting, good Cheer, Smoaking, and Dancing, spending sometimes Nights and Days in Feasting: They say that the Smell of Musk is stinking, and eat with Pleasure an old Bit of musty Grease. When they are sick they are let Blood at the Belly: They cloath themselves with Skins of Beasts, wear Bracelets and Necklaces, and paint their Faces with various Colours. The *Iroquois*, and *Armouchiquois*, are cunning and treacherous, and cruel to their Enemies. The *Hurons* are Friends of the *French*. The Women wear Necklaces, Bracelets, and certain other Toys which they call *Matachias*.

Note also, That these People are govern'd by their *Sagamo's*, or Captains, whom they chuse from among the eldest of the most illustrious Families. When they chuse a *Sagamo*, they give him the Name of the last dead; and pretend thereby, to make him revive in the Person of his Successor. The young People eat at his Table, are always in his Retinue, and follow him to War and Hunting; all they get belong to him, but married People give him but Part of it. The *Sagamo* must take Care to provide for the publick Good, and likewise that all Sorts of Provisions, Arms, hunting Dogs, *&c.* be found for those of his Retinue.

The Extent of the Government of each *Sagamo*, terminates, most commonly at some River or Bay. In the general Assemblies, none but the *Sagamo's* have a deliberative Vote, and some *Autmoins*, i. e. Priests, who are also their Physicians.

The *Europeans* who are settled in that Country, have their respective Governors, whom they are obliged to obey.

Note again, That the Natives who have not received the Light of the Gospel, are Idolaters, and it seems they have some Idea of God, whom they call *Atabocan*, Author of all Things; they say that the World having been lost in the Waters, one called *Messou* repair'd it. But they tell that Fable with so many ridiculous Circumstances, that the Relation thereof seems insupportable. They believe the Immortality of the Soul, the Reward of the Good, and the Punishment of the Wicked.

The SAGUANAY, which bears the Name of a River which runs through it from North to South, is the Province of *New France*, the best inhabited by the *French*, because of the City of *Quebec*, which is the Capital. This City is situated on the left Shore of the great River *St. Laurent*. It is the Place of Residence for the Governor, and an Episcopal See. It has a sovereign Council, to which all the inferior Courts of all the Colonies resort. It is divided into higher and lower City. The Bishop's Palace, that of the Governor, the Cathedral Church, and the Parochial, are in the first: The King's Magazine, that of the Company, and all the Merchants are in the last. There is a Castle built on the Points of Diamonds, at the Foot whereof there is a little Harbour.

A League off *Quebec*, is built the Fort *Silleri*, to favour the Commerce of the *Algonquins*. Westward there are two *French* Colonies; the first is that of the three Rivers; the other is that of the Island of *Mont Royal*. There is a Royal Justice in both, from which they appeal to the Royal Council of *Quebec*.

The *Particular Canada*, *Acadia*, the *Louisiane*, and other Countries inhabited by the *French*, have nothing particular; therefore I'll content myself with marking in my particular Description, the Forts and Habitations they have in those Parts.

NEW ENGLAND.

New England, which was once the Country of the *Amacchiquois*, is Southward of the *Etachemins*. The *English*, who are Masters of it, gave it its new Name, and likewise those of several Cities of *England*, to the Towns they have built on the Coasts.

BOSTON is the Capital of the Country, and the Residence of the Governor. *Newhaven* is a particular Government, and the Seat of a Court of Justice. The *English* export thither Leather, Woollen and Linen Cloth, *&c.* which they change for Furrs, Cotton, Tobacco,

bacco, and other Things which the Savages bring to them.

Its Rivers are the *Kibinequi*, and *Sacatoi*. Ships must avoid with Care the dangerous Passage of *Malabarre*, which is towards the Coasts.

NEW-YORK, is at the South by West of *New England*, and Eastward of the *Iroquois*.

The Country is very agreeable, and very fertile in Corn, Wine, and Fruits.

The City of MANHATTE is the Capital of this Province; it is situated on the River *Del Norte*, and the Governor resides in it. The *Dutch* who possessed it before the *English* rendered themselves Masters of it, in 1665, called it *New Amsterdam*, the *English*, *New York*, and the *Fort of Orange*, *Albany*.

NEW SWEDEN, received its Name from the *Swedes*, who were once Masters of it, but it belongs at present to the *English*. It has nothing particular.

The Capital is CHRISTINA, called once *Andastoe*, where the Governor resides.

VIRGINIA, was the first Country discover'd by *John Verazzan*, who took Possession of it in the Name of *Francis* I. he called it *Mocosa*; but the *English*, to whom it belongs at present, called it *Virginia*, in honour of their Queen *Elizabeth*, who was never married.

It is situated on the River of *Canada*, and confines Northward with the *Iroquois*; Eastward with the Sea; and Southward with *Florida*, from which it is separated by the Mountains of *Apalache*; Westward with the *Eriachronons*.

The Climate is wholsome, and the Soil very fertile, though ill cultivated, and never meliorated. The Women who take Care of it, content themselves with pulling out the Weeds, and stirring its Surface with Forks, or pointed Sticks, a few Days before they sow it. It produces Maiz, Wheat, all Sorts of Pulses, Pitch, Gums, and excellent Tobacco.

Among its Rivers, those of *Tappahanock*, and of *Pouhatan*, are the strongest; but the Bay of *Chesapeak* is much more considerable, it being 75 Leagues long, 7 broad, and 10 or 12 at its Entrance.

Note, That there is very little Difference between the native *Virginians*, and the *Canadians*, for their Manners. Each Inhabitant wears on his Back the Mark of his Country.

Note also, That they are govern'd by several Kings, *i. e.* beggarly ones, whom they call *Weroans*, who have each six or eight Cities, but very poor ones, in their Government. The others have but one or two.

The *English* have a General, an Admiral, and particular Governors in each Place. —— *Tragabigzanda*, or *Pomejoc*, is accounted the Capital; it is situated on the Coast which looks towards the South by East.

Note again, That the *English* profess their own Religion; but the Natives believe several Gods, whom they call *Kewasarock*, inferior to another great and almighty One, who has always been, whom they call *Kewas*. They have Temples where they make their Offerings to those Gods, sing, and pray for the Dead. They believe the Immortality of the Soul, and that after Death those of the Good go to Heaven, and those of the Wicked into a great Hole, which they call *Popogusso*, and believe to be very far towards the West, to burn for ever.

The Northern Part of CANADA.

The Country of *Laborador*, of *Estotiland*, and *New-Wales*, are the most northern Part, not only of *Canada*, but likewise of all *America*.

The first which is the most Eastern, is called sometimes *New-Britain*, the Country of *Cottereal*, from the Name of the Person who discover'd it. The other, which is more Northward, is taken by some for the first. The last, which is more Westward, is called by the *English* who discover'd it, *New South-Wales*, to distinguish it from another Land more North, separated from the other by the *Christian Sea*, which they call *New North-Wales*; and which the modern Geographers place among the *Arctick Lands*.

The Climate is extremely cold; and the Soil fertile but in Meadows and Woods. It is traversed with a great Number of Forests and high Mountains. There are seen in it Bears and white Griffins.

Note, That the Natives live on Fish and Game, paint their Face and Body, cloath themselves with Skins of Beasts, and cover their Houses with the same.

Note also, That they are all Idolaters, and we know nothing more particular of them.

A more particular Description of these Countries is as follows:

CANADA, *or* NEW-FRANCE.

SAGUENAY, contains *Quebeck*, Bishop. *F. Sillerl*, *Tadoussac*, *Port-neuf*, *Chichequedec*, *P. S. Nicolas*, *P. Cartier*.

CANADA, contains *Gaspæ*, *S. Jean*, I. *Miscou*, I. *F. Richelieu*, *Mont-Real*, I. *S. Simon*, *S. Jude*, *S. Pierre*, *S. Paul*, *S. Francois*, *S. Alexis*, *S. Michel*, *S. Joseph*.

ACADIA, contains *P. Royal*, *Tacquechet*, *P. Rossignol*, *La Heve*, *Paspay*, *Martingo*.

NEW-ENGLAND, contains *Boston*, *London*, *Bristol*, *New-Plymouth*.

NEW-YORK, contains *New-York*, *Albany*.

NEW-SWEDEN, contains *Christina*, *Gottemborg*, *Elsimborg*.

VIRGINIA, contains *Powhatan*, *Pomejack*, *Secotan*.

ISLES OF AMERICA.

Island of NEWFOUNDLAND.

This Island was called once, *Terra de Baccalaos*, because of the great Quantity of Cods found near it.

It is situated at the Entrance of the Gulph *St. Laurent*, under the 49 Deg. of Latitude, and the 326 of Longitude.

It has the Figure of a Triangle, and may have 120 Leagues in its greatest Length from South to North, 100 in its greatest Breadth, and 340 of Circuit.

It is much frequented by the *French*, *English*, and *Dutch*, because of the great Quantity of Cods fished in the Neighbourhood, particularly on the *Great Bank*, which is but 60 Leagues distant from it, towards the South by East, but it is more towards other Places. It has more than 400 Leagues of Circuit, and is for this Reason called the *Great Bank*.

Though this Island has been long discovered, none has penetrated far into the Land, but only stopp'd in its Ports, which are very fine, and in great Number, and where a great Commerce is carried on of Cods and Train Oil.

Between *New France*, and the Island of *Newfoundland*, are found three other pretty large Isles: The first is *Anticosti*, or *Island of Assumption*, situated at the Mouth of the great River, and may have 60 Leagues in Length from South by East to North by West, 10 or 12 in Breadth, and 140 of Circuit. The second is the Island of *Cape Breton*, more Southern than the first, and which is not less in Circuit, though it be less in Length. The last is the Island of *St. John*, situated Southward of *Gaspæ*, 30 Leagues long, 16 broad, and 90 of Circuit. Besides these Isles, there are several others much smaller.

In the Sea of *Mexico* are found several Isles depending of *America*, the most considerable of which are the *Antilles*: The others are the *Caribbee*, or of *Barlovento*, *Lucayes*, or of *Sotavento*, which are Dependencies of the Main Land.

ISLES ANTILLES.

It is not difficult to imagine why these Isles have been call'd *Antilles*, or rather *Ant-Isles*; and that is, because they are found first, at least towards *Mexico*, where the *Spanish* Ships at first directed their Course.

Some Authors, as *Challes* and *Calveto*, give the Name of *Antilles* generally to all the Isles found before one enters the Gulph of *Mexico*. Others, as *Lenchot*, and Father *du Tertre*, called by that Name the Isles of *Cuba*, *Hispa-*

Hispaniola, *Jamaica*, *Boriquen*, and the *Caraïbes*; and *Acosta* gives the Name of *Antilles* to the four first only, because they are the most remarkable.

For my Part I am of Opinion, that we may call *Antilles* all the Isles found before one enters the Gulph of *Mexico*, since their Name of *Antilles* or *Ant-Isles*, seems to confirm that Opinion; and not to appear contrary to the Sentiment of the others, I'll distinguish them by their proper Names, and give the Name of *Great Antilles* to *Cuba*, *Hispaniola*, *Jamaica*, and *Boriquen*. Those Eastward are called *Canibal*, or *Caribbee*, or *Barlovento*; the others which are Northward are called *Lucayes*; and those Southward, towards the Coasts of the main Land, are distinguished by the Name of *Sotavento*.

The *Island* CUBA, which some *Spaniards* call *Juana*, and *Ferdinanda*, is the greatest of all the *Antilles*.

It is situated between the 20 and 23 Degrees, 30 Min. of Latitude, and extends from the 290 of Longitude, to the 302. It may have 230 Leagues in Length from East to West, 20, 40, or 60 in Breadth, and 550 of Circuit.

The Climate of this Island is not excessively hot, because the great Quantity of Vapours which exhale from the Earth, which is very humid, temperates the Heat of the Sun. The Soil is not very fertile in Corn, but only in Woods, which with its Mountains take up the greatest Part of the Island. It also produces a Quantity of Tobacco, and feeds a vast Number of Cows and Hogs.

It has four principal Cities, among which the *Havanna* is the largest, and most considerable; because it is the Rendezvous of all the Ships which sail from *America*, to return to *Spain*. It is built on the northern Coast of the Island, over-against the Point of *Florida*, and the Governor of the Island resides there.

The City of *St. Jago* is situated in the eastern Part, under the 300 Degree of Longitude: It is an Episcopal See, and was once the Capital of the Island.

Note, That I do not believe there are many of the antient Inhabitants left, after so much Cruelty perpetrated by the *Spaniards* in this Island: But to give some Idea of their antient Manners, I'll relate what *Oviedo* says of those People, *viz.* that they were Lascivious, Cowards, and Treacherous; notwithstanding which, *Peter Martyr* says, that they were very simple.

Note, also, That antiently these People were governed by their *Caciques*, or Captains: At present the *Spaniards* are entire Masters of the whole Country.

Note, again, That the Inhabitants of *Cuba* were like those of all the other *Antilles*, Idolaters, and very superstitious. They had *Boyez*, or Soothsayers, who were likewise their Physicians, and were in fact but meer Charlatans. These Savage Doctors used to teach Children a great Number of Verses, which they learned by heart, and which contained a fabulous Origin of the World, and the heroical Actions of their Ancestors. When a *Boyé* had undertook the Cure of a sick *Cacique*, he used to take through the Nose the Juice of a certain Herb, which rendered him furious, and when he was come from his Trances, he said that he had spoke with the *Cemis*, and that the *Cacique* would soon recover: But if he had said that those Spirits were irritated, he gave thereby to understand, that the Patient should die. They used to represent these *Cemis* very near like our Painters represent the Devil, and said they were Messengers of the eternal God.

The *Spaniards* profess the Catholick Religion, and all the other Inhabitants follow their Example, at least in Appearance; there is, as I have already observed, a Bishop in the City *Havanna*, who is Suffragan of the Bishop of *San Domingo*, in the Island *Hispaniola*.

The *Island* HISPANIOLA, is commonly called Island of *San Domingo*, of the Name of its capital City.

It is situated almost Eastward of *Cuba*, under the 19 Degree of Latitude, and the 305 of Longitude. It has about 150 Leagues in Length from East to West, 30 or 60 in Breadth, and 360 of Circuit.

The Climate is temperate enough, though not very wholsome; the Soil, which is water'd with several Rivers, is fertile in Maiz and Yuca. The Trees, as Orange-Trees, Lemon-Trees, Fig-Trees, *&c.* are always green, and in all Seasons bear both Flowers and Fruits: It produces a great Quantity of Sugar and Indigo; feeds a vast Number of Oxen, Cows, and Horses; and abounds with all Sorts of Fowls.

The Capital of this Island is *San Domingo*, situated towards the southern Coast on the River *Ozama*: It is an Archiepiscopal See; has the most antient sovereign Court of all *America*, and a Mint: It has also a College, and an Hospital.

Note, That the Natives of this Island were very little different from those of *Cuba*; they had, like them, a grey Skin, black Hairs, and went quite naked. When some of their *Caciques*, or Captains died, they used to bury with him several Women alive, to go to serve him in the other World.

Note, also, That the King of *Spain* is Master of the greatest Part of this Island, and keeps in it a Governor or General, whose Power extends over all the *Antilles* which are of the Dependencies of *Spain*.

The *French* have several Habitations on the Coast, particularly Cape *François*, *Port de Paix*, *Leogane*, &c. which have each their particular Governor; that of *Leogane* being General of all that Part of the Island which belongs to *France*.

Note, again, That the antient Inhabitants were Idolaters, like those of *Cuba*; at present there is no other Religion throughout all *Hispaniola* but the Catholick.

JAMAICA, is situated Southward of *Cuba*, under the 18 Degree, 30 Min. of Latitude, and the 298 of Longitude. It may have 45 Leagues in Length, 20 in Breadth, and 110 of Circuit, without reckoning what's round its two small Gulphs.

The Climate is very different from that of *Hispaniola*, but it is much more unwholsome; and the Product of the Soil is the same.

The *Spaniards* possessed this Island from the Year 1493 to 1655, in which they were expelled by the *English*, under the Conduct of Admiral *Pen*.

The Island, which the Savages call *Boriquen*, is call'd by the *Spaniards*, the Island of *S. Johan* of *Porto Rico*, of the Name of its capital City.

It is situated Eastward of *Hispaniola*, about the 305 Degree of Longitude; and may have 45 or 50 Leagues in its greatest Length, 20 or 25 in Breadth, and 130 of Circuit.

The Climate is very temperate; and the Soil abounds in Maiz, Yuca, Gayac, and Sugar.

The Capital of this Island is *S. Juan de Porto Rico*, situated on the northern Coast: It is honour'd with an Episcopal See, and the Residence of the Governor.

Note, That the antient Inhabitants were very little different from those of the Island *Hispaniola*: It is said, that the *Spaniards* have massacred 600,000 of them; and that, at present, there is not the least Trace of them left.

Note, also, That this Island is in the Power of the King of *Spain*, who keeps a Governor in it; and that all the Inhabitants are *Catholicks*.

ISLES CARIBBEE.

These Isles are call'd *Caribbee*, or *Canibal*, of the Name of the Natives, and *Barlovento* by the *Spaniards*, because they leave them Windward, when they sail towards *Mexico*, or the Main Land.

They are situated between the 310 and 318 Degree of Longitude; and extend from the 12 to the 19 Deg. of Latitude.

The Climate is a little hotter than in the great *Antilles*: The Soil is not so fertile, tho' it produces a pretty good Quantity of Maiz, Yuca, Indigo, Sugar, Tobacco, Cotton, and several Roots, and Fruits, as Manyoc, Potatoes, Ananas, *&c.* Snow, Hail, and Ice, are never seen in them, but they are subject to violent Hurricanes, and Earthquakes.

Note, That the Natives of these Isles are tractable enough, and very credulous. They desired nothing more but to live in Peace and Amity with some *Europeans*, who had retreated thither for various Subjects, and on various Occasions. They lived thus together in good Intelligence, till the first Descent of M. *Enambouc* in 1625; but ever since that Time their *Boyez*, or Soothsayers, having persuaded them in a *Vin*, or general Assembly, that those Foreigners came to invade their Country, and exterminate them, they formed a Resolution to dispatch them all. The *French* and *English* being informed of their cruel Design by a Savagess, called *Barbara*, were before-hand with them, and made a cruel Slaughter of them. The *Caribees* of the other Isles having been informed of it, came to the Succour of their Neighbours to the Number of 3 or 4000 Men, in several *Pirogues*, as they call their Boats; but notwithstanding the thick Hail of their Arrows, the *French* and *English* joined together, repulsed them with so much Vigour, that it was believed half of them were killed on the Spot. The *French* lost 100 Men in that Encounter, who had been wounded with poisoned Arrows. The Poison those Arrows had been rubbed with was so violent, that the least Scratch made a Man die furious in four Hours Time.

These Isles are at present inhabited with different Nations of *Europe*; and a vast Number of Negroes they have for Slaves: The most considerable, and the greatest, as the *Guadaloupa*, *Martinico*, Part of *St. Christophers*, *St. Croix*, *St. Bartholomew*, *Santa Lucia*, &c. are inhabited by the *French*; and the *English* inhabit *Antegoa*, *Nevis*, *Montserrat*, and Part of *St. Christophers*.

Note, also, That these People have each their Governors, and Courts of Judicature: The rest of the Savages, who inhabited these Isles, retreated into those of *St. Vincent*, and *Dominico*, towards the Year 1660; in which a general Peace was concluded between them and the *Europeans*.

Note, again, That the *Catholick* Religion is professed in all the Isles inhabited by the *French*, and most of the Savages shew a great Disposition to receive the Christian Religion; but however there are yet some of them Idolaters, who suffer themselves to be seduced by their *Boyez*, who are their Priests or Doctors: The *English* profess the Protestant Religion.

The Island, which the *Caribees* call'd *Carukera*, was by the *Spaniards* call'd *Guadaloupa*, because its Mountains resemble those of *N. D. of Guadaloupa* in *Spain*.

It is situated under the 16 Degree, 10 Min. of Latitude, and the 316, 40 Min. of Longitude. It is the greatest and most considerable of the *Caribee* Isles, since it may have very near 100 Leagues of Circuit: But it must be observed, that it is divided into two Isles almost equal, by a Channel or small Arm of the Sea, called the *Salt River*, which cuts an Isthmus very near a League and a half broad, which, without this River, would join the two Parts of the Island.

The greatest Extent of these two Parts, is that which is commonly called the *Main Land*. It may have 50 Leagues of Circuit, but either because the *French* have found the Soil sterile, or for some other Reasons, they were a long while before they would cultivate it.

The other Part, which is South by West of it, may have 45 Leagues of Circuit; and its Soil produces Manyoc, Yuca, Sugar, Indigo, Cotton, Potatoes, Bananas, Ananas, and other particular Fruits. The Middle of the Island is full of high Mountains, where there are found boiling Fountains of medicinal Waters, of very great Efficacy.

The Island called by the *French Martinique*, was called by the Savages *Madanina*.

It is situated under the 14 Degree, 50 Min. of Latitude; and the 316 20 Min. of Longitude. It may have 16 or 18 Leagues in Length, from South by East to North by West; and 45 or 50 of Circuit.

The Climate is hotter than at the *Guadaloupa*, and the Soil though very dry and gravelly, is more fertile in Tobacco, and Manyoc. It produces Sugar, Cassia, Cotton, Potatoes, Bananas, *Indian* Figs, and other Fruits, particular to those Isles. It is the best fortified and most trading of all the *Caribbee* Isles, and produces the best Sugar.

The capital City is *Fort Royal*, where the Governor resides.

Note, That none but the *Catholick* Religion is professed in this Island, where there are several Churches.

The Island of *S. Christopher*, which the *Caribees* called *Liamiga*, has received its Name from *Christopher Columbus*, a *Geneose*, who discovered it in his first Voyage to *America*.

It is situated under the 17 Deg. 38 Min. of Latitude, and the 314, 53 Min. of Longitude; and may have 9 Leagues in Length from South by East, to North by West, and 20 of Circuit.

The Climate is more temperate than in the two other Isles above-mentioned, but the Soil is not more fertile. It produces Sugar, Manyacs, Potatoes, and other Fruits and Roots necessary for Food. The Middle of this Island is uninhabitable, because of the great Number of steep Mountains, and the frightful Precipices which part those Mountains from one another. Springs of hot Waters are found in them; and also Mines of Allum and Sulphur. This Island is very subject to Hurricanes.

This Island was once divided between the *French* and *English*, but I believe, if I am not mistaken, that the latter are at present entirely Masters of it.

The Island of *S. Croix*, called by the Savages *Ay-ay*, is situated under the 18 Deg. of Latitude, at South by East of *Boriquen*.

It may have 20 Leagues in Length, 6 or 7 in Breadth, and 50 of Circuit.

The Soil is excellent, and it produces Sugar, Tobacco, and Indigo in Abundance. It feeds Cattle, as Horses, Oxen, Cows, and Sheep. It has a great Number of Rivers, but because this Island is not rais'd towards the Middle like the other Isles, these Rivers for Want of Declivity, form Ponds towards their Mouth which abound with Fish; but whose Waters being stagnated at certain Times, exhale stinking Vapours, which render the Climate unwholsome, and the Inhabitants subject to frequent Maladies. It has three very commodious Ports, and the finest of all the *Antilles*; and is inhabited by the *French*, who all profess the *Catholick* Religion.

The Island called *Barbadoes*, by the *English*, is the most considerable of the *Caribbee Isles*.

It is situated under the 17 Deg. of Latitude, and has above 40 Leagues of Circuit.

Its Soil produces all that's found in the other Isles, especially a great Quantity of Sugar. It feeds Abundance of Oxen, Sheep, and Fowls. It has no Rivers, but let the Soil be ever so little dug up, there is found very good Water.

This Island has a very handsome City, full of fine Houses, well built of Stones and Bricks; whose Inhabitants are almost all Merchants, and have Shops very well stock'd with all Sorts of *European* Commodities. They are also well instructed in the military Art.

There are seen in it several large Boroughs, several Forts on the Coasts, and fine Country Houses.

Note, That this Island is inhabited by the *English*, and his *Britannick* Majesty keeps a Governor in it. They all profess the *Protestant* Religion.

Note also, That the other Isles have nothing particular, therefore I'll content myself with marking their Names in my particular Description, according to the Order they keep in their Situation, in descending from North to South; and with the initial Letters of the Names of the People who inhabit them.

Isles Lucayos.

The Isles which the *Spaniards* call *Lucayos*, are those found Northward of the great *Antilles*, between the 294, and the 304 Deg. of Longitude; and the 21 and 28 of Latitude.

The Climate of these Isles is much more temperate than that of the other *Antilles*; and the Soil produces a great Quantity of Maiz and Fruits. They are frequented by so great a Number of Pigeons, and other Fowls, that sometimes small Vessels are loaded with them, to be exported to the other *Antilles*.

Note, That the Inhabitants of these Isles were not at all cruel, but they were all Idolaters, like their Neighbours.

Isles de Sotavento.

At the North by East of the Provinces of *Venezuela*, and *Paria*, in the Main Land, are found the Isles called by the *Spaniards* the *Sotavento*, because they leave them on the Left, when they sail for the Province of *Mexico*.

They are situated between the 9 Deg. 30 Min. and the 12, 30 Min. of Latitude.

The most considerable of these Isles, are the *Trinitada*, and *Marguarita*. The first has very near 100 Leagues of Circuit, and the other about 40.

The Climate is pretty hot, and the Soil very humid: The greatest Riches of these Islands is the Fishery of Pearls on their Coasts. The antient Inhabitants used to make Necklaces, Bracelets, and Garters of those Pearls. The *Spaniards* reap a considerable Profit from them; and when their Enemies can take one of the Ships that comes from the Pearl-Fishery, it is the best Prize they can make.

Note, That these Isles are in the Power of the *Spaniards*, where are seen several Merchants of that Nation, who keep each 40 or 50 Negroe Slaves, more or less, for the Pearl-Fishery. Those Slaves are the happiest of all those whose Fate is common with theirs; for far from being maltreated, their Masters feed them well, that they may be vigilant, and faithful in their Employment, or Occupation.

Island of California.

Westward of *New Mexico* is found, in the *South-Sea*, one of the greatest Isles of the World, called *California*, which was thought, for a very considerable Time, join'd to the Main Land.

This Island is situated between the 23 and 46 Deg. of Latitude, separated from *New Mexico*, by the *Varmeille Sea*; so that it is supposed to have more than 450 Leagues in its greatest Length from South to North; 150 in its greatest Breadth, and about 1100 of Circuit.

The Climate is very wholsome, but cold with regard to its Situation. It is not known whether it be fertile or not, because Travellers have gone no farther than its Coasts; but it is imagined that its Temperature must be very little different from that of *New Mexico*.

We are also as little acquainted with the Manners of its Inhabitants, their Government, and Religion.

Along the Coasts are found some Isles, as *St. Clement*, *Pararos*, *Ceintas*, and several others.

A more particular Description of all these Isles, is as follows:

Isles Antilles.

Cuba, Spanish, contains *Havanna*, *P. del Principe*, *S. Jago*, *Mançanilla*, *Spiritu Santo*.

Hispaniola, Spanish and *French*, contains *St. Domingo*, Arch. *S. Jago*, *Yaquimo*, *Cape François*, *Leogana*, *Port de Paix*, &c.

Jamaica, English.

Boriquen, Spanish, contains *San Juan de Porto Rico*, Bishop. *Arrecibo*.

The Isles Lucayos, are *Leccayoneque*, *Bahama*, *Abacoa*, *Ciquatao*, *Guanahami*, *Cotoniere*, *Samana*, *Jumata*, *Majaguana*.

Caribbee Isles, *St. Croix*, French, *Las Virgines*, *Anguella*, French, *St. Martin*, French, *St. Bartholomew*, French, *Barbadoes*, English, *S. Christopher*, English, *Antegua*, English, *Guadalupa*, French, *Marie Galande*, French, *Santa Lucia*, French, *Deseada*, French, *Dominique*, *Martinico*, French, *St. Vincent*, *Grenada*, French, *Tabago*, Dutch.

Isles Sotavento, *Trinidad*, Spanish, *Margarita*, Spanish, *Bianco*, *Tortuga*, *Urchilla*, *Rocca*, *Bon-Ayre*, *Curacao*, Dutch, *Oruba*.

Arctick Lands.

These Lands are call'd *Arctick*, because of the Pole of the same Name, round which they are situated. They make the northern Part of the World, which I have call'd *Polar*, or unknown.

They are almost all situated in the Frigid Zone, except a very small Portion of it which is in the Temperate: Their Extent is very irregular; which is the Reason why we can say nothing certain of it.

They confine, in our superior Hemisphere, with the *Glacial Sea*, which separates them from *Muscovy*, and *Tartary*; and in the other Part with the *South Sea*, and Part with the *Christian Sea*, and the Streight of *Hudson*, which parts them from *America*.

Iceland, *Greenland*, *Spitsberg*, *Nova Zembla*, the *Land of Zesso*, *New Denmark*, *New North Wales*, the Isles of *Cumberland*, and several others, are reckon'd among the *Arctick Lands*.

The Climate is extremely cold, because the Sun does not appear in several Places during Part of the Year; and, when it appears, its Rays, which fall but very obliquely, are not capable to melt the Ice, which is hard and strong; and therefore continues during almost the whole Year. There are very large Meadows, where the Inhabitants feed a great Number of Cattle; but the Soil produces neither Corn nor Wine.

Iceland.

This Island is taken by some for the *Thulæ* of the Antients, tho' with very little Appearance, since *Procopius* says, that *Thulæ* contain'd thirteen Kingdoms: It is called *Iceland*, because of the excessive Cold which reigns there.

It is situated under our first Meridian, and the Arctick Circle; and may have 150 Leagues in Length, 65 in Breadth, and 400 of Circuit; without reckoning what is round its Gulphs.

The Climate, as I have already observed, is extremely cold, but very wholesome. The Soil abounds with large Meadows; where the Inhabitants feed Oxen and Cows, which furnish them with Leather, Tallow, and Butter, which they change for other Commodities. Whales are fished on the Coasts, and so great a Quantity of other Fish, that they dry Part of it; and when they want Hay, give it to their Cattle. The large Flakes of Ice which come from more northern Countries, bring them Wood, and several Animals, which prove very useful to them; therefore they prefer the Coasts to the Inland Country, which is full of Mountains, and very sterile, because of the continual Snow, for their Habitation. It has three very high Mountains always covered with Snow, which throw up Flames. That called *Hecla* is the most remarkable; at the Foot whereof there are several Mines of Sulphur.

There are but two Boroughs, or Villages, *Hola* and *Scalholt*, the Houses whereof are made of Wood, and covered with the Bark of Trees, or with Skins of Beasts. They have other Habitations on the Coasts, and along the Rivers, where they transport their Houses as they please. The Neighbourhoods of the Harbours of *Haneford*, and *Keplawick*, are very well inhabited, because of the Ships from *Denmark*, *Hambourg*, *Lubeck*, and *England*, which come to trade with the Inhabitants, who give to those Nations in Exchange for their Goods, Leather, Tallow, Butter, Fish Oil, and dry Fish.

Note, That the *Icelanders* are strong, and very little subject to Maladies, they live a long while, and never make use of Physicians. They are cloathed with Skins of Beasts.

Note, alſo, That the King of *Denmark*, who is Maſter of this Iſland, keeps ordinarily two Governors there, one in the Borough of *Hola*, and the other at *Scalholt*; one for the northern, and the other for the ſouthern Part.

Note, again, That the *Icelanders* are *Lutherans*, and that there are two Biſhops, one at *Hola*, and the other at *Scalholt*, who are commonly Governors of thoſe two Boroughs.

GREENLAND.

This Country is call'd *Greenland*, becauſe of the Moſs which is along its Shoar.

Our Maps place it Northward of *Iceland*, but nothing certain can be ſaid of its Extent.

The Climate is ſo exceſſively cold, that the *Danes*, who had been ſent to ſettle there, died of it: The Soil produces nothing but Paſture and Moſs.

Note, That the Natives eat Bread made of the Bones of Fiſh, and drink Sea-Water, without being in the leaſt diſorder'd thereby: Their Cloaths are made of Skins of Beaſts, and of Birds with the Feathers. Ships are ſent thither from ſeveral Places for the Whale Fiſhery.

Note, alſo, That the Borough of *Bearford* was once the Reſidence of a Governor for the King of *Denmark*, who keeps Part of the Coaſts.

SPITZBERG.

This Land, which is the moſt Northern of the *Arcticks*, was thus call'd from the Name of *Spitſberg*, a *Dutch* Captain who diſcover'd it; or becauſe of the great Number of its ſharp Mountains.

It is ſituated Northward of *Laponia*, under the 60 Degree of Longitude, and the 78 of Latitude; but we know nothing of its Extent: Some make an Iſland of it, equally diſtant from the Pole, and from the Polar Circle.

The Climate is ſo cold, that thoſe ſent thither have had the ſame Fate of thoſe of *Greenland*: The Soil produces nothing, at leaſt in the Neighbourhood of the Coaſts, for we do not know yet the inland Country, no Body daring to venture far from the Shore, for Fear of the great Quantity of large white Bears found in it, by which Part of thoſe ſent thither have been devoured.

Note, That the *Engliſh* and *Dutch* diſpute with one another the Domination of that Country; they fiſh Whales on the Coaſt, among which there are ſome 200 Feet long, and give 120 Tons of Oil.

NOVA ZEMBLA.

This Land, which is the *Carambice* of the Antients, was called *Nova Zembla* by the *Dutch*, ever ſince they ſearched a Paſſage through it to the *Eaſt-Indies*.

It is ſituated Northward of *Muſcovy*, from which it is ſeparated by the *Streight of Weigatz*, or *Naſſau*, through which, it was imagined, that the Sea of *Muſcovy* had a Communication with that of *Tartary*; but it has been diſcover'd ſince, that it is nothing but a Gulph; therefore the *Dutch*, who enter'd it, were forced to return back, becauſe of the Ice. It was ſaid afterwards, that in a ſecond Attempt they had penetrated farther, and found a Paſſage above *Nova Zembla*, about the 80 Deg. of Latitude, to go to the *Eaſt-Indies*, and to *Japan*, but that they kept it ſecret for ſeveral Reaſons; which is nothing elſe but a mere Romance.

LAND of JESSO.

We ſcarcely know any Thing of this Country but the Name, though it be of a vaſt Extent: Our Relations ſpeak but of its Coaſts, found about the 42 Degree of Latitude, and which is the moſt known.

It is ſituated between *Aſia* and *America*; Eaſtward of the firſt, and Weſtward of the other.

It ſeems to me, as if it was ſeparated from thoſe two Regions, by two great Arms of Sea; and ſome have imagined, that through its Streight the Sea of *China* had Communication with the *Northern Ocean*; but others pretend, that there is an Iſthmus which parts them.

We know nothing particular of its Quality, but I ſuppoſe it to be of the ſame Temperature with *Canada*; and that the Soil abounds with Paſture.

Note, That the Inhabitants of theſe Coaſts live on Fiſh, and Game; and clothe themſelves with Skins of Beaſts: They carry on a Commerce with the *Japoneſe*, of Fiſh, Skins, Tongues, and Fat of Whales.

Note, alſo, That Part of this Country acknowledges the King of *Japan*; and the Governor, who reſides in the City of *Matzumay*, carries him, every Year, Silver, Feathers of various Colours, and Furs.

I know nothing particular of *New-Denmark*, of *New North-Wales*, nor of the Iſles of *Cumberland*, &c. but their Names, and little of their Coaſts; therefore I'll ſay nothing elſe of thoſe Countries, but that they are ſituated Northward of *America*, in the *Chriſtian*, or *Hudſon Sea*.

TERRA AUSTRALIS.

This Part of the Earth may be very well call'd *Unknown World*, becauſe we know but the ſmalleſt Part of it: It is alſo call'd *Magellanick Land*, becauſe *Magellan* was the firſt *European* who diſcover'd it.

It is ſituated round the Antarctick Pole; advancing, in an irregular Manner, into the Temperate Zone; and even as far as the Equator, in ſome Places.

The Climate is various, according to its different Situation; but generally the Soil is very fertile: Towards the Coaſts it is very fat, and produces ſeveral Sorts of Spices, as Pepper, Ginger, Nutmegs, and others: Fruits, as Lemons, Apples, Walnuts, Cocoa-Nuts, Ubes, which are a Sort of Pears, and Sugar-Canes in great Quantity. It produces likewiſe Beans, and large Roots, which, when baked, ſerve inſtead of Bread: It has Mines of Gold, and Silver, and Quarries of Marble: The Earth is very proper in ſeveral Places to make Bricks withal: Pearls are fiſhed on the Coaſts, and ſeveral Sorts of Fiſh: It feeds wild and domeſtick Animals, ſuch as we have in *Europe*, as well as others unknown to us.

Fernandez Quir, a *Spaniard*, *John More*, *Le Mair*, and *Schouten*, a *Dutchman*, have obſerv'd in it ſeveral Mouths of Rivers, but they have not enter'd them; only contenting themſelves with anchoring in ſome Gulphs, and Harbours, which they found very commodious.

Among the *Auſtral Lands*, are reckon'd the *Main Land*, commonly call'd *Unknown*; the *Terra del Fuego*, which is a great Iſland, ſituated between that large Continent and the Streight of *Magellan*; the *New Guinea*, ſituated under the 5 Degree of ſouthern Latitude, and between the 181 and the 205 of Longitude; and the *Iſles of Solomon*, which are Eaſtward of it, towards the 215 Degree.

Several Places of the Unknown Land, are diſtinguiſh'd by different Names, as the *Land of Quir*, the *Land of the Parrots*, the Countries of *Beach*, *Locach*, *Maletur*, the Country of *Concordia*, of *Diemens*, &c.

Note, That among the different Inhabitants of this unknown World, ſome are white, ſome tawny, and others black, according to the different Climates. For Example: In *New Guinea*, which is in the Torrid Zone, they are all very black: Towards *Terra del Fuego*, they are white, and very tall. All theſe People are of a good Conſtitution, ſeldom ſick, and live without Care; notwithſtanding which, they hate Idleneſs, and apply themſelves to make Cloths, Stuffs, Inſtruments, and ſome Works of Marble: Thoſe who are a little further in the Temperate Zone, clothe themſelves with Skins of Beaſts; others are cover'd only from the Waiſt to the Knees, and lay on Matts made of Reeds.

Note, alſo, That it is pretended there are neither Kings, nor Princes, in that vaſt Country; and that thoſe People are only divided into ſeveral Factions; which I can ſcarcely believe. Some Authors pretend, that they chuſe Governors, to oblige the Lazy to work, to chaſtiſe the Wicked, and for the Adminiſtration of Juſtice; and that they meet from Time to Time for the publick Good.

Note,

Note, again, That they are all Idolaters, and have Oratories for the Worship of their Idols: They observe certain Fasts, and wash their Bodies at certain Days of the Year. It is said that the *Portuguese* have settled there the Catholick Faith, have erected Crosses, and built Churches, but we do not know in what Part of the Country.

We must have made throughout this Treatise of *Geography* the following curious Remarks, to help our Memory.

1. That our *Continent* is divided, by the Sea, into three very great *Peninsula's*, viz. *Asia*, *Africa*, and *Europe*: And that the other *Continent* is likewise divided into two very great ones, *viz.* the *Northern America*, and *Southern America*: That there are, therefore, five very great Peninsula's, which make, each, one of the five Parts of the two known Continents, *i. e.* that the three Parts of our Continent, and the two Parts of the other, make each separately a very great Peninsula. That the Peninsula's which make Portions of these very great ones, are also of two Sorts, great and middling.

ASIA, has four great *Peninsula's*, which are, *Lesser Asia*, *Arabia*, and the two *Peninsula's* of the *Indies*, beyond and this Side *Ganges*; and three middling, *viz.* the *Peninsula* of *Guzarata*, on the Coast of *Mogul*; that of *Malaca*, which make Part of that of the *Indies* beyond *Ganges*, and the *Peninsula* of *Corea*, on the Coasts of *China*.

Note, That in these *Peninsula's*, and other Parts of *Asia*, there are four whole Empires, and Parts of two others; thirty-one principal Kingdoms; and three Dominations established by the *Europeans*. The whole Empires are *Persia*, *Moguliſtan*, *China*, and *Japan*: The two others, which are contain'd in it but in Part, are *Turky* and *Muscovy*. The thirty-one principal Kingdoms are, (*viz.* twenty-four on the Main Land) *Mecha*, and *Fartash*, in *Arabia*: *Visapour*, *Golcond*, *Calicut*, and *Cochin*, in the Peninsula of the *Indies*, this Side *Ganges*: *Siam*, *Camboya*, *Ava* or *Pegu*, *Arracan*, *Acham*, *Tonquin*, *Cochinchina*, and of the *Layes*, in the Peninsula of the *Indies* beyond *Ganges*: *Barantola*, or *Lassa*, *Necbal*, *Tanju*, *Cogue* or *great Thibet*, *little Thibet*, *Kasghar*, *Samarkand*, and *Balsh* in *Great Tartary*: *Odieschi*, *Imereti*, in *Georgia*: And seven in the Isles, *viz.* of the Isles *Maldive*, of *Candia*, in the Island *Ceylon*; *Achem*, *Materan*, and *Borneo*, in the Isles of the *Sond*; *Macassar*, and *Tarnate*, in the *Molucca's*. The three Dominations established by the *Europeans*, are of the *Spaniards*, in the *Philippine* Isles; of the *Portuguese*, at *Goa*, and on several Coasts of the *Indies*; and of the *United Provinces* at *Batavia*, in the Island *Java*, and on several Coasts of the *Indies*.

2. That AFRICA appears as if it was composed of two great *Peninsula's*, viz. *Africa* or *Lybia*, and *Ethiopia*; and has but a middling one, which is the Coast of *Ajan*.

Note, That we must have observed, that *Africa* has several States; the most considerable whereof are about twenty-seven; among which are four whole Empires, and part of another; sixteen principal Kingdoms, one Republick, and five Dominations established by the *Europeans*. The four whole Empires are *Abyssinia*, *Tombut*, *Monomotapa*, *Monoemugi*: The Empire, which is but in Part in it, is *Turky*. The sixteen more considerable Kingdoms are *Morocco*, and *Fez*, in *Barbary*; *Tafilet*, in the *Biledulgerid*; *Gaoga*, and *Borno*, in the *Zaara* or Desart; *Gangara*, and *Sousos*, in the Negroes; *Benin*, and *Ardaea*, in *Guinea*; *Macoko*, *Mujac*, *Congo*, *Loanga*, *Angola*, in what we call *Congo*. The Republick is *Brava*, on the Coast of *Zanguebar*. The five Dominations established by the *Europeans*, are of the *French* at *Madagascar*; of the *Spaniards*, on the Coast of *Barbary*, and in the *Canary Isles*; of the *Portuguese*, on the Coast of *Barbary*, and of *Zanguebar*; and in the Isles *Madeira*, and of *Cape Verd*; of the *Dutch*, on the Coasts of *Guinea*, *Congo*, and of the *Cafres*, &c.

3. EUROPE, has four great *Peninsula's*, and four middling ones. The four great are *Scandinavia*, *Spain*, *Italy*, and *Turky* in *Europe*: The four Middling, are *Jutland* in *Denmark*, *Britanny* in *France*, *Morea*, which make Part of that of *Turky* in *Europe*; and the *Peninsula* of *Precop*, or of *Crim*, which make Part of the *Little Tartary*.

Note, That we have already mention'd all the different Empires, Kingdoms, and States, contained in that Part of our Continent.

4. NORTHERN AMERICA, has a great *Peninsula*, and three middling ones. The great is *New South-Wales*: The three middling are *Jucatan* in *New Spain*, *Florida*, *Acadia* in *New France*.

SOUTHERN AMERICA, has neither great nor middling *Peninsula's*.

5. That the *Land of Concordia*, in the *Magellanick* Continent, and *Greenland*, in the *Northern* Continent, or Arctick Lands, seem to make *Peninsula's*.

Note, That *America* had antiently two Empires, *viz.* *Mexico*, in the Northern; and *Peru*, in the Southern: But at present there are three Sorts of States in *America*, viz. several petty Kingdoms, several free People, and five foreign Dominations, establish'd by so many States of *Europe*.

Among the petty Kingdoms, the best policy'd are those of *Florida*; of which those of *Apalache*, *Coza*, *Cofachiqui*, and of *Quiquiltangui*, seem the most considerable.

Among the People who have no Kings, are the *Iroquois*, the *Kilistinous*, the *Assinipoualac*, the *Nadouessi*, and the *Ilinois* in *Canada*; the *Caribbees*, in the Isles of the same Name, and in *Guiana*; the *Tapuces*, in the *Brasil*; and the *Arauques*, in *Chili*, &c.

The foreign Dominations, established by the *Europeans*, are, The FRENCH, establish'd in *New France*, in several *Caribbee Isles*, and on the Coast of *Guiana*. The SPANISH, establish'd in *New Spain*, *New Granada*, *Peru*, *Chili*, the *Tucuman*, which makes Part of the *Paraguay*, and the greatest of the *Antilles*. The PORTUGUESE, established on the Coast of *Brasil*; to which may be added the Isles *Tercere*, between *America* and *Europe*. The ENGLISH, established in *New England*, *Virginia*, on the Coasts of *Canada*, *Carolina*, in *Florida*, and in several of the *Antilles*. The DUTCH, established in several of the *Caribbees*, and on the Coast of *Guiana*.

6. That the *Peninsula's* heretofore are almost all joined by narrow Slits of Land call'd *Isthmus's*, which are either broad, or very narrow.

The broad ones are distinguished by no Names; such are almost all those which join most of the *Peninsula's* abovementioned.

The most considerable among the narrow ones, are five in Number; the two most famous whereof are: The *Isthmus of Suæs*, in our Continent, which join *Asia* and *Africa* together: And the *Isthmus of Panama*, in the other Continent, which join the two *America's*. The three others are, The *Isthmus of Corinth*, which joins the *Morea* with *Turky* in *Europe*. The golden *Isthmus*, or of *Precop*, which joins the *Peninsula of Crim* with *Little Tartary*. And the *Isthmus of Tanasserin*, which joins the *Peninsula of Malaca*, with the *Peninsula of the Indies* beyond *Ganges*.

7. That these Continents, and Isles, heretofore mentioned, are environed or bathed by the Sea; which Sea is either call'd *Ocean*, as that which environs our Continent, or *Sea* only, as that which bathes the other Continent.

Note, That the Ocean is divided into four great Parts, viz. *Oriental*, *Meridional*, *Occidental*, and *Septentrional*: These Names being borrow'd from the Regions of the Heavens towards which those Parts of the Ocean are situated with regard to our Continent. The *Indians*, *Ethiopians*, *Celtes*, and *Scythians*, having been antiently the most famous People of our Continent, of which the *Indians* have occupied the most eastern Part;

Part; the *Ethiopians*, the moſt Southern; the *Celtes*, the moſt Weſtern; and the *Scythians* the moſt Northern: The Eaſtern Ocean is called *Indian*; the Southern, *Ethiopian*; the Weſtern, *Celtick*; and the Northern, *Scythian*. The Weſtern, or *Celtick* Ocean, is moſt commonly called *Atlantick*, from Mount *Atlas*, which that Sea bathes; and the Northern, or *Scythian*, is often called *Glacial*, becauſe almoſt always frozen.

The Eaſtern, or Oriental Ocean, bathes the Eaſtern, and Southern Coaſts of *Aſia*; the Southern, or *Ethiopian*, embraces the Coaſts of *Ethiopia*; the Weſtern, or *Atlantick*, extends along the Weſtern Coaſts of *Africa*, and *Europe*; and the Northern, *Glacial*, or *Scythian*, waſhes the Northern Coaſts of *Europe*, and *Aſia*.

Note alſo, That the four great Parts of the Ocean are ſubdivided into ſeveral leſſer, called *Seas*, and which borrow their particular Name from the Lands or Regions they bathe. — The *Eaſtern*, or *Indian Ocean*, is ſubdivided into *Sea of China*, *Sea of the Indies*, and *Sea of Arabia*. The *Southern*, or *Ethiopian Ocean*, embraces the *Seas of Zanguebar*, of *Cafrery*, and of *Congo*. The *Weſtern*, or *Atlantick Ocean*, contains the *Seas of Guinea*, of *Cape Verd*, and of the *Canaries*, which bathes the Coaſts of *Africa*; and the *Seas of Spain*, *France*, and of the *Britiſh Iſles*, along the Coaſts of *Europe*. The *Northern*, *Glacial*, or *Scythian Ocean*, contains the *Seas of Denmark*, *Muſcovy*, and *Tartary*.

Note again, That we have given the Name of *Sea*, in general to the Waters which bathe *America*, and that *Sea* is divided into three great Parts, *viz.* the *Northern Sea*, *Southern*, or *Pacifick Sea*, and *Magellanick Sea*.

The *Northern Sea* is ſubdivided into *Sea of Canada*, or of *New France*, *Sea of Old Mexico*, or *New Spain*; *Northern Sea*, or *Sea of Braſil*.

The *Southern*, or *Pacifick Sea*, contains the *South-Sea*, or of *Peru*, the *Seas of New Mexico*, or *California*, and of *Jeſſo*.

The *Magellanick Sea*, contains the *Seas of Paraguay*, of *Chili*, and the *Particular Magellanick*.

Between the *Eaſtern*, or *Indian Ocean*, and the *Southern*, or *Pacifick Sea*, is the *Archipelago of S. Lazare*.

Towards the *Arctick Lands*, is the *Sea of Greenland*, which is often miſtaken for the *Glacial Ocean*.

8. Beſides theſe Diviſions, and Subdiviſions of the Sea into greater and leſſer Parts, there are other ſtill leſſer Parts of it, called *Gulphs*.

Note, That among the *Gulphs* there are three very famous ones in our Continent, which are called Sea, becauſe of their great Extent: And theſe are, 1. The *Mediterranean*, between *Aſia*, *Africa*, and *Europe*, the three Parts of our Continent. 2. The *Red Sea*, between *Aſia*, and *Africa*. 3. The *Baltick*, in *Europe*.

Note alſo, That the two greateſt *Gulphs of America*, are the *Gulphs of Mexico*, between the two *America's* and the *Antilles*: And the *Chriſtian Sea*, between the *Canada* and *Arctick Lands*.

9. Beſides theſe Gulphs, there are narrow Seas, or Guts, ſhut up between Lands on either Side, and affording a Paſſage out of one great Sea into another called *Streights*.

Note, That the three moſt famous *Streights* of the World, are thoſe of *Jeſſo*, or *Uriez*, of *Magellan*, and of *Hudſon*. The firſt makes the Separation of the antient Continent from the new; the ſecond parts, in ſome Meaſure, the new from the pretended *Magellanick* Continent; and the third is between the new Continent, or *America*, and the *Arctick Lands*.

Beſides theſe three *Streights*, there are three very famous ones in our Continent, *viz.* the *Streight of Gibraltar*, between *Africa* and *Europe*, and which gives Entrance to the Ocean into the *Mediterranean* Sea: The *Streight of Babelmandel*, between *Aſia* and *Africa*, and which makes the Communication of the Ocean with the *Red Sea*: The *Streight of the Sonde*, which joins the *Baltick* with the Ocean.

There are alſo three famous *Streights* in *America*, viz. the *Canal of Bahama*, the moſt famous of the Paſſages from the Gulph of *Mexico* into the Northern Sea; the *Streight of Anian*, between the Iſland of *California*, and the Land of *Jeſſo*; the Sea of *Vermico*, which may paſs for a *Streight* between the Iſland of *California*, and *New Mexico*.

10. The Lands nearer thoſe Seas, or which they bathe, are called *Coaſts*.

Note, That the *Coaſts* do not extend along the Sea, on a ſtrait Line, but make Advances, or Projections into it, called *Promontories*, or *Capes*. The moſt famous *Promontories*, or *Capes*, of our Continent are; 1. The *Northern Cape*, towards the North; 2. The *Cape of Good Hope*, Southward; 3. The *Cape Liampo*, Eaſtward; 4. The *Cape Verd*, Weſtward. The *Northern Cape*, is on the *Coaſt of Norway*, and in *Europe*; the *Cape Liampo*, is on the *Coaſt of China*, and in *Aſia*; the *Cape Verd*, and that of *Good Hope*, are in *Africa*; the firſt on the *Coaſt of the Negroes*, and between the Branches of the *Niger*; and the laſt on the *Coaſts of Cafrery*. In the other Continent, or *America*, are *Cape Charles*, which is moſt Northern, and in *Canada*; *Cape Froward*, the moſt Southern, and in the *Magellanick Land*; *Cape S. Auguſtin*, the moſt Eaſtern, and in *Braſil*; *Cape Corientes*, the moſt conſiderable of the Weſtern, and in *New Spain*.

Geography is very antient, at leaſt the ſpecial Part thereof; for the antient Writers ſcarce went beyond the Deſcription of Countries.

It was a Cuſtom among the *Romans*, after they had conquered and ſubdued any Province, to have a Map, or painted Repreſentation thereof carried in Triumph, and expoſed to the View of the Spectators.

Hiſtorians relate, that the *Roman* Senate, about a hundred Years before *Chriſt*, ſent Geographers into divers Parts, to make an accurate Survey, and Menſuration of the whole Globe; but they ſcarce ever ſaw the twentieth Part thereof.

Before them, *Neco*, King of *Egypt*, ordered the *Phœnicians* to make a Survey of the whole Coaſt of *Africa*, which they accompliſhed in three Years; *Darius* procured the *Ethiopick Sea*, and the Mouth of the *Indus* to be ſurvey'd; and *Pliny* relates, that *Alexander*, in his Expedition into *Aſia*, took two Geographers, *Diognetus* and *Bæton*, to meaſure, and deſcribe the Roads; and that from their Itineraries, the Writers of the following Ages took many Particulars. Indeed this may be obſerved, that whereas moſt other Arts are Sufferers by War, *Geography* and *Fortification* alone, are improved thereby.

The Art, however, muſt needs have been exceedingly defective; as a great Part of the Globe was then unknown; particularly all *America*, the northern Parts of *Europe* and *Aſia*, with the *Terra Auſtralis*, and *Magellanica*; and as they were ignorant of the Earth's being capable of being ſail'd round, and of the Torrid Zone's being habitable, *&c.*

GEOMETRY.

GEOMETRY, Γεωμετρία (formed of γη, *Terra*, Earth, and μετρειν, *metiri*, to measure) is the Science or Doctrine of Extension, or extended Things, that is, of *Lines*, *Surfaces*, and *Solids*.

Hence the Division of *Geometry*, into four Parts, *viz.* *Planimetry*, *Altimetry*, *Longimetry*, and *Stereometry*.

Note, That *Planimetry*, is that Part of *Geometry*, which considers Lines, and plain Figures, without any Consideration of Heights or Depths; but it is more particularly restrain'd to the Mensuration of Planes, or Surfaces; in Opposition to *Stereometry*, or the Mensuration of Solids. This Art of measuring the Surfaces or Planes of Things, is performed with the Squares of long Measures, as square Inches, square Feet, square Yards, square Perches, *&c.* that is, by Squares whose Sides are an Inch, a Foot, a Yard, a Perch, *&c.* So that the Area, or Centre of any Surface is said to be found, when we know how many such square Inches, Feet, Yards, *&c.* it contains.

Altimetry, is the Art of taking or measuring Altitudes or Heights, whether accessible or inaccessible. This Art makes the first Part of *Geometry*, including the Doctrine and Practice of measuring both perpendicular and oblique Lines, whether in Respect of Height or Depth.

Longimetry, is the Art of measuring Lengths; both accessible, as Roads, *&c.* and inaccessible, as Arms of the Sea.

Stereometry teaches how to measure solid Bodies, *i. e.* to find the Solidity, or solid Content of Bodies; as Globes, Cylinders, Cubes, Vessels, Ships, *&c.*

GEOMETRY, again, is distinguished into *Theoretical*, or *Speculative*, and *Practical*.

The first contemplates the Properties of Continuity; and demonstrates the Truth of general Propositions, called *Theorems*.

The second applies those Speculations and Theorems, to particular Uses in the Solution of *Problems*.

Speculative Geometry, again, may be divided into *Elementary* and *Sublime*. *Elementary* or *Common Geometry*, is that employ'd in the Consideration of right Lines, and plain Surfaces, and Solids generated therefrom. *Higher* or *Sublime Geometry*, is that employed in the Consideration of Curve Lines, Conick Sections, and Bodies form'd thereof.

I'll begin by the *Speculative Geometry*, and pass afterwards to the practical Part; but we must observe previously to it, that there are three Sorts of Principles from which all *geometrical* Propositions are deduced, *viz.* the *Definition*, *Postulate*, and *Axiom*.

We call *Definition*, the Explication of the Name, or of the Thing, as when somebody says that he understands by the Name of *Triangle*, *a Figure composed of three Lines*.

A *Postulate*, is a clear, evident Proposition, wherein it is affirmed or denied, that something may or may not be done.

A Thing immediately deduced from the Consideration of one single Definition, if it expresses something to agree, or disagree to another, is called an *Axiom*. If it affirms, that something may or may not be done, it is called a *Postulate*.

Thus, *e. gr.* from the Genesis of a Circle, it is evident, that all right Lines drawn from the Centre to the Circumference, are equal, since they only represent one and the same Line, in a different Situation: This Proposition therefore is esteemed an *Axiom*.

But since it is evident from the same Definition, that a Circle may be described with any Interval, and from any Point, this is accounted a *Postulate*.

Axioms and *Postulates*, therefore, seem to have nearly the same Relation to each other that Theorems and Problems have.

An *Axiom*, however, is a self evident Truth, or a Proposition, whose Truth every Person perceives at first Sight: Thus, that the whole is greater than its Part, is an *Axiom*.

Then of Propositions, some propose something to be done, and are *Problems*; as to divide a Line, to make an Angle, to draw a Circle thro' three Points not in a right Line: Others consider the Properties of Things already made, or done; and are called *Theorems*. Thus if a Triangle be compar'd with a Parallelogram, standing on the same Base, and of the same Altitude, and partly from their immediate Definitions, and partly from other of their Properties already determin'd, it is inferred that the Parallelogram is double the Triangle, that Proposition is a *Theorem*.

Note, That there are two Things to be chiefly regarded in every *Theorem*, viz. the Proposition, and the Demonstration: In the first is expressed what agrees to some certain Things under certain Conditions, and what does not. In the latter, the Reasons are laid down, by which the Understanding comes to conceive, that it does, or does not agree thereto.

Note also, That there are various Kinds of *Theorems*, as *Universal*, *Particular*, *Negative*, *Local*, *Plane*, *Solid*, *Reciprocal*. *Universal Theorem*, is that which extends to any Quantity, without Restriction, universally; as this, *that the Rectangle of the Sum, and Difference of any two Quantities, is equal to the Difference of their Squares*. *Particular Theorem*, is that which extends only to a particular Quantity; as this, *in an equilateral right lined Triangle, each of the Angles is 60 Degrees*. *Negative Theorem*, is that which expresses the Impossibility of any Assertion; as, *that the Sum of two biquadrate Numbers cannot make a square Number*. *Local Theorem*, is that which relates to a Surface; as, *that Triangles of the same Base and Altitude are equal*. *Plane Theorem*, is that which either relates to a rectilinear Surface, or to one terminated by the Circumference of a Circle; as, *that all Angles in the same Segment of a Circle are equal*. *Solid Theorem*, is that which considers a Space terminated by a solid Line; that is, by any of the three conick Sections, *e. gr.* this, *that if a right Line cut two asymptotick Parabola's, its two Parts terminated by them shall be equal*. *Reciprocal Theorem*, is one whose Converse is true; as, *that if a Triangle has two equal Sides, it must have two equal Angles*: The Converse of which is likewise true, that if it has two equal Angles, it must have two equal Sides.

Others, besides, are only laid down in order to clear the Way for some following Demonstration; and prefixed either to Theorems, in order to render their Demonstration less perplexed and intricate; or to Problems, to make their Resolution more easy and short; and these are called *Lemmas*. Thus to prove a Pyramid one Third of a Prism, or Parallelepid, of the same Base and Height with it; the Demonstration whereof in the ordinary Way is difficult and troublesome: This *Lemma* may be premised, which is proved in the Rules of Progression, *that the Sum of the Series of the Squares, in Numbers in arithmetical Progression, beginning from* 0, *and going on* 1, 4, 9, 16, 25, 36, &c. is always subtriple of the Sum of as many Terms equal to the greatest; or is always one Third of the greatest Term multiplied by the Number of Terms. Thus to find the Inflection of a curve Line, this *Lemma* is first premised; *that the Tangent may be drawn to the given Curve, in a given Point*.

Lastly, others necessarily follow from others, and are called *Corollaries*.

Scholium, is a Note, Annotation, or Remark, occasionally made on some Proposition, whereby it is better explained, or its Use or Utility made more apparent.

A Proposition is said to be the *Converse* of another, when, after drawing a Conclusion from something first suppo-

GEOMETRY.

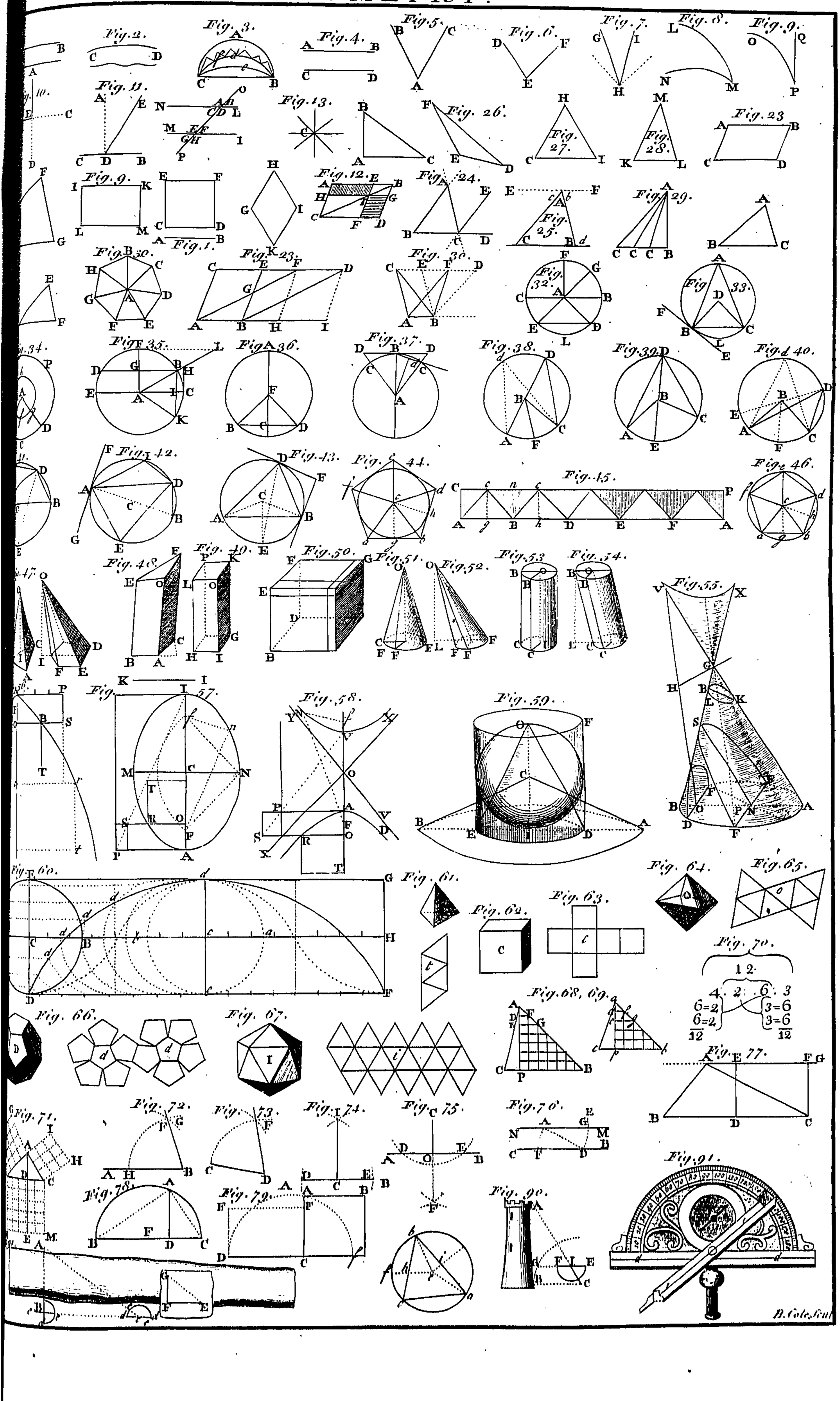


Fig. 2.
Fig. 3.
Fig. 4.
Fig. 5.
Fig. 6.
Fig. 7.
Fig. 8.
Fig. 9.
Fig. 10.
Fig. 11.
Fig. 13.
Fig. 26.
Fig. 27.
Fig. 28.
Fig. 23
Fig. 9.
Fig. 12.
Fig. 24.
Fig. 25.
Fig. 29.
Fig. 1.
Fig. 30.
Fig. 23.
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Fig. 32.
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Fig. 67.
Fig. 68, 69.
Fig. 70.
Fig. 71.
Fig. 72.
Fig. 73.
Fig. 74.
Fig. 75.
Fig. 76.
Fig. 77.
Fig. 78.
Fig. 79.
Fig. 90.
Fig. 91.
B. Cole, Sculp.

ſuppoſed, we proceed to ſuppoſe what had been firſt concluded, and to draw from it what had been ſuppoſed. Thus it is demonſtrated in *Geometry*, that if the two Sides of a Triangle be equal, the two Angles oppoſite to thoſe Sides are equal alſo: The *Converſe* of the Propoſition is, *That if the two Angles of a Triangle be equal, the two Sides oppoſite to thoſe Angles are equal alſo.*

Note, That this Mark + ſignifies more; — ſignifies leſs; = ſignifies Equality.

From theſe general, and neceſſary Obſervations, I'll paſs to the ſpeculative *Geometry*, beginning by the *Lines* and *Angles*.

MAGNITUDE, is all that whereby a Thing compared with another of the ſame Kind, is ſaid to be equal, or unequal to it; therefore it comprehends local Extenſion, Number, Motion and Time: But *Geometers* have a great Regard to the *Local Extenſion*, becauſe it facilitates the Menſuration of all others.

Local Extenſion, or Quantity of Bigneſs, is a certain and definite Sort of Magnitude, *viz.* what is anſwered to a Perſon who aſks, how big is ſuch a Thing? and that Quantity is either conſidered in Length only, and is called *Line*; or in Length and Breadth, and is called *Superficies*; or laſtly, in Length, Breadth, and Depth, and is called *Solid*.

The Ends of a Line are called *Points*; and a *Point* in *Geometry*, according to *Euclid*, is a Quantity which has no Parts; or rather it is that which is conceived to have no Parts, though in fact, it has Parts.

Wolfius defines it, that which terminates itſelf on every ſide, or which has no Terms or Boundaries diſtinct from itſelf.

There are two Kinds of *Lines*, viz. *Right Lines*, and *Curve*.

A Right Line is that which is drawn equally between its two Extremities, as A B. *fig.* 1. For if the Point A moves towards B, by its Motion it deſcribes a *Line*; and this, if the Point goes the neareſt Way towards B, will be a right, or ſtrait *Line*, whoſe Definition therefore ſhould be the neareſt or ſhorteſt Diſtance between any two Points, or a *Line* all whoſe Points tend the ſame Way.

A *Curve* is a Line whoſe ſeveral Points tend ſeveral Ways, or are poſited towards different Quarters, as C D, fig. 2.

Superficies likewiſe, is either plain, and is that which has no Inequality, but lies even between its boundary Lines, as the *Superficies* or *Surface* of a Table of Marble; or is *Curve* like that of a Globe.

If two or ſeveral Lines are contained within the ſame Terms, that which is right, is the ſhorteſt, as C B, fig. 3. And the *Curves* which contain the others, are bigger than thoſe they contain, as C *d* B is greater than C *e* B, which is only true when thoſe *Curve Lines* are incurvated in the ſame Part; for if the Line contained is bent in ſeveral Parts, and forms ſeveral Windings, it may be bigger than that which contains it, as C F B is greater than C A B.

If two Lines are every where equidiſtant from each other; and though infinitely produced would never approach nearer, or recede farther from each other, they are called *Parallel*, as A B, and C D, fig. 4.

The Aperture, or mutual Inclination of two Lines, which meet in one Point of Interſection, is called *Angle*, as B A C, fig. 5. and in the Point in which the Lines meet is called the *Vertex* of the Angle, as A; therefore every Angle is commonly expreſſed by three Letters, that of the *Vertex* being in the Middle.

Note, However, that the Quantity of the Angle is not taken from the Length of the Lines which form the Angle, but from the Arch deſcribed from its *Vertex*, with any Radius at Pleaſure between its Legs. For the Angle D E F, fig. 6. is greater than the Angle G H I, fig. 7. though formed of leſſer Lines: For if the Angle G H I be put on the Angle D E F, marked with Points, it will be eaſily underſtood, that the Angle G H I is comprized in the Angle D E F, and that the Lines which form the Angle D E F, are much more diſtant from each other, than thoſe which form the Angle G H I.

Angles, made by Lines in the Superficies, are call'd *Superficial*; and if that Superficies be *Plane*, they are call'd *Plane Angles*; if Spherical, *Spherical Angles*.

A *Plane Angle*, if made of two right Lines, is call'd *Rectilinear*; ſuch are the Angles of fig. 5, 6, 7. if of *curve*, *Curvilinear Angle*; as L M N, fig. 8. if of a Right, and a Curve, it is call'd *mixt*, as O P Q, fig. 9.

Every *Angle* is either *right*, *obtuſe*, or *acute*.

A *Right Angle*, is that formed by a Line falling perpendicularly on another; or that which ſubtends an Arch of 90 Degrees; as the Angle B E A, fig. 10. The Meaſure of a *right Angle*, therefore, is a Quadrant of a Circle; and conſequently all right Angles are equal to each other.

Therefore, when the right Line A E, fig. 10. placed on the right B E C inclines on neither Part, and then forms Angles every where equal; thoſe two Angles, A E B and A E C, are right; and the right Line A E, placed on the other, is call'd *perpendicular*.

Angles which have one Side common, and are formed of the one and other Part of that Side, are call'd *contiguous Angles*; as fig. 10. A E B and B E D; but if B E be produced in C, as A E is produced in D, the Angles B E A, and D E C, are call'd *oppoſite Angles*.

An *obtuſe Angle*, is that greater than a right *Angle*, or whoſe Meaſure exceeds 90°, as the Angle E D C, fig. 11.

An *acute Angle*, is that which is leſs than a right *Angle*, or than 90°; ſuch is, in the ſame Figure, E D B: We muſt obſerve, that there are obtuſe *Angles*, as well as acute ones, bigger than the others.

The *Angles* of any right-lined Figure made without it, by producing all the Sides ſeverally, are called *external Angles*; and thoſe made by the Sides of any right-lined Figure within, *internal*.

Note, That all the *external Angles* of any Figure, taken together, are equal to four right *Angles*; and the external Angle of a Triangle, is equal to both the internal and oppoſite ones. That the Sum of all the *internal Angles* of any right-lined Figure, is equal to twice as many right *Angles* as the Figure has Sides, excepting four. The external *Angle* is demonſtrated to be equal to the internal oppoſite one; and the two internal oppoſite ones, are equal to two right ones.

Alternate Angles, are the internal *Angles* made by a Line cutting two Parallels, and lying on the oppoſite Sides of the cutting Line; the one below the firſt Parallel, and the other above the ſecond.

First THEOREM.

A right Line reſting on another right Line, makes again two right Angles, or equal to two Rights.

For if A D, fig. 11. falls perpendicularly on the Line C D B, the Angles A D B, and A D C, will be right Angles, by the Definition 11 and 12; but if E D reſts obliquely on the ſame Line C D B, A D muſt be conceived the Perpendicular; ſince, then, the Angles E D B acute, and E D C obtuſe, occupy the ſame Space as the two Rights A D B; and A D C will be equal to them, by the Axiom, *where there is a mutual Congruency, there is an Equality.*

Note, That *Congruency* is when Things compoſed together agree in ſuch a Manner, that the Extremities of the one fall on the Extremities of the other, and neither exceed, nor are exceeded: As if a *pedal Line*, applied to another pedal Line, the laſt Points of one ſhould fall on the laſt Points of the other, and both form a Line.

COROLLARIES.

It will be demonſtrated in the ſame Manner, (if more than one right Line fall on the ſame right Line, at the ſame Point) that the Angles they form are, together, equal to two right ones.

Two right Lines, cutting mutually one another, as A E D, and B E C, fig. 10. form, in the Point of Interſection, four Angles equal to four right ones.

All

All the Angles formed round one Point C, fig. 13. are equal to four right ones; for they are four right ones cut into several Parts.

Second THEOREM.

The *Angles*, opposite at the Vertex, are equal.

For the *Angle* B, fig. 12. is equal to the *Angle* C; which the better to demonstrate, both must be joined with the intermediate Angle A; for the Angle B, and the Angle A, together, are equal to two right Angles, by the first Theorem. Likewise the Angle C, and the Angle A, are equal to two right Angles by the same first Theorem. Therefore the Angles C and A, taken together, are equal to the Angles B and A, taken together; and consequently the common Angle A, being taken off, the Angles B and C will remain equal, by this Axiom, *That if you take Equals off Equals, those that remain will be Equals*; which was to be demonstrated.

Third THEOREM.

If the right Line O P cuts the two right Parallels N L, and M I, it will make the internal Angle equal to the external opposite on the same Part.

For as the Lines L N and M I, fig. 12. are Parallel, they incline equally to the Line O P, towards the same Parts by the sixth Definition, and the 9 Axiom; therefore the Angles B and F, or A and E, formed by the Inclination of the Lines L N, and I M, to the Line O P, are equal.

Fourth THEOREM.

Alternate Angles are equal between themselves.

For the Angle B, fig. 12. is equal to the Angle C, opposite to it at the Vertex, by the second Theorem. But the same Angle B is equal to the Angle F, by the third Theorem; therefore the Angle C is equal to the alternate Angle F, by the second Axiom.

Fifth THEOREM.

If a right Line cuts two Parallels, it makes the internal Angles equal to two Rights at the same Parts.

For the alternate Angles C and F, fig. 12. are equal between them, by the fourth Theorem; but the Angles C and D placed again are equal to two Rights by the first Theorem; therefore the Angles D and F are equal to two Rights, which was to be demonstrated.

SCHOLIUM.

Converse Propositions have Place in the three preceding Theorems; for if the two Lines L N and I M, fig. 12. with the third O P, render the external and internal Angles B and F, opposed on the same Part, equal; they'll incline equally to the Line O P, whence they'll be Parallel by the 9 Axiom.

Likewise, from the alternate Angles C and F being equal, it follows that the Lines L N and I M are Parallel; for as the Angles B and C, opposite at the Vertex, are equal, and C is equal to F; the external Angle B will be equal to the internal Angle F; therefore by the preceding Demonstration, the Lines L N and I M will be Parallel.

Lastly, if the internal Angles D and F be equal to two Rights, the Lines L N and I M will be Parallel likewise. For the Angles B and D repeated, are equal to two Rights, by the first Theorem: But the Angles D and F are also put equal to two Rights; therefore the external and internal Angles B and F are equal between them, and consequently the Lines L N and I M are Parallel.

From Angles I'll pass to *Triangles*, *Quadrilaters*, *Pentagons*, *Hexagons*, and other *Polygons*.

A *Figure* is a Space inclosed on all Sides, whence an Angle is not a Figure, because not inclosed on all Sides. Hence likewise two right Lines do not form a Figure, because they do not comprehend a Space, since for that three Lines at least are required.

Figures are either plane or solid, I'll speak of the solid afterwards.

Plane Figures are those which consist of Lines traced on some Superficies: Which Lines, if right, the Figure is called Rectilinear; if Curve, *Curvilinear*; if Part curve and part right, mixt.

Those Lines whereby the Figure is te minated, taken together, are called its Circumference or Circuit, or *Perimeter*. Whence Figures which have an equal Ambit, are called of the same Name *Isoperimetral*.

Of all *Curvilinear*, and *mixt Figures*, Geometers consider in a more particular Manner, the Circle or Paction of the Circle.

Among the *Rectilinears* the most simple is the *Triangle*; because consisting only of three Lines, which form as many Angles.

A *Triangle* is divided either according to its Angles, or to its Sides. If according to its Angles it has either one of those Angles right, and it is called *Rectangular*, as A B C, fig. 14. or it has one of them *obtuse*, and it is called *Amblygonous*, as D E F, fig. 15. or it has them all *acute*, and it is called *Oxygonous*, as G H I, or K L M, fig. 16. and 17.

But if it be divided according to its Sides, and has three Sides unequal, it is called *Scalenous*, as A B C, fig. 14. if it has only two Sides equal, it is called *Isosceles* or *Equicrural Triangle*, as K L M, fig. 17. If it has all the Sides equal, it is said to be *Equilateral*, as G H I, fig. 16.

If two Sides of a *Triangle* be taken, they may be called Limbs or Legs, and then the third Side will be called the *Base*: Any Side may be taken for the Base: Though in a *Rectangular*, or *Amblygonous Triangle*, the greatest Side, *viz.* that which is opposed to a right Angle, or to an *obtuse*, is commonly called the *Base*, or the *Hypoteneuse*, where it is Question of a rectangular Triangle: But in an *Isosceles Triangle* the unequal Side is the Base.

The Figure which follows next the Triangle is the *Quadrilateral*, which consists of four right Lines, and as many Angles.

If the *Quadrilateral* has its opposite Sides Parallel, and equal to each other, it is called *Parallelogram*, as A B C D, fig. 18. otherwise *Trapezium*, as E F G H, fig. 19.

If the *Parallelogram* has four right Angles, it is called simply *Rectangular*, as I K L M, fig. 20.

If all the Sides of a *Rectangular* be equal, it is called a *Square*, as C D E F, fig. 21. which some make a Species of *Parallelogram*, others not: But if there are but the opposite Sides equal, it is said *longer on the other Parts*.

If all the Sides be equal, and the Angles unequal, it is call'd a *Rhombus*, or *Lozenge*, as G H I K, fig. 22.

If both the Sides and Angles be unequal, it is call'd a *Rhomboides*; as A B C D, fig. 23.

A *Parallelogram* is marked with four Letters, placed at the four Angles, as A B C D, fig. 23. and likewise for Brevity Sake diametrically opposite, as B C and the Diameter, or diagonal Line, is that carried from an Angle of the *Quadrilateral*, to that opposite to it, as B C.

If thro' the Point I, taken in the Diagonal B C, fig. 24. the two right Lines E F, G H, are drawn Parallel to the Sides, the whole *Parallelogram* will be divided into four *Parallelograms*; two of which, *viz.* E G, H F, are call'd *Parallelograms*, towards the Diameter, and the two others, A I, I D, Complements.

If the Figure has more than four Angles, and more than four Sides, it is call'd a *Polygon*; if six Sides, an *Hexagon*; if seven, a *Heptagon*.

Note, That in every *Parallelogram* the Sum of the Squares of the two Diagonals is equal to the Sum of the Squares of the four Sides. This Proposition M. *de Lagny* takes to be one of the most important of all *Geometry*; he even ranks it with the celebrated 47th of *Euclid*, and with that of the Similitude of Triangles; and adds, that the whole first Book of *Euclid* is only a particular Case hereof: For if the *Parallelogram* be rectangular, it follows that the two Diagonals are equal; and of Consequence, the Square of a Diagonal, or which comes to the same Thing, the Square of the Hypotheneuse of a right Angle, is equal to the Squares of the Sides. If the *Parallelogram* be not rectangular, and of Consequence the two Diagonals be not equal, which is the most general Case, the Propo-

Proposition becomes of vast Extent: It may serve, for Instance, in the whole Theory of compound Motions, &c.

First THEOREM.

In all Triangles, the outward Angle is equal to two opposite inward; and three Angles are equal to two Rights.

Let the Triangle be A B C, fig. 24. whose Side B C must be produced in D: I say, *First*, That the external Angle A C D, is equal to the two opposite internals, A and B: *Secondly*, That the three Angles A and B, and A C B, are equal to two right Angles.

Demonstration of the first Part. Let the Line C E be conducted Parallel to B A; and then the right Line A C will fall on the Parallels A B and C E; therefore the Angle A, or B A C will be equal to the alternate A C E: Likewise, the right B C will fall on the Parallels B A and C E; therefore the internal Angle B is equal to the external E C D, and consequently the two A, and B, are equal to the two A C E, and E C D, *i. e.* to the whole A C D.

Demonstration of the second Part. The two Angles A and B, are equal to the Angle A C D. Therefore the common A C B being added, the three Angles A, and B, and A C B, are equal to the two A C D, and A C B; but A C D, and A C B, being repeated, are equal to two Rights: Therefore the three A, and B, and A C B, are equal to two Rights, according to this Axiom, *That Things equal to the same Thing, are also equal between themselves.*

Note, That *Pythagoras* is supposed the Author of this important Question, which is the 32d of the first Book of *Euclid*; and because it is of a continual Use in *Geometry*, it must be very well learned; though I have another Manner of demonstrating it, which will appear easier to my Pupils; and which is as follows.

Let the Triangle be A B C, fig. 25. I say, 1. That the three Angles A, and C, and B, are equal to two right Angles; but if the Line E F be drawn parallel to the Side C B, it is certain that the Angles *c* and *b*, adjacent to the Angle A, joined together with that Angle A, are equal to two right Angles; but the Angle *c*, is equal to the Angle C, and the Angle C to the alternate Angle B: Therefore, likewise, the Angles C and B, joined to the Angle A, are equal to two Rights, according to the Axiom, *That if Equals be added to Equals, all will be equal.*

I say, 2. That the external Angle *d*, is equal to the two internals A and C, opposite to it; for the external Angle *d*, and the internal B, taken together, are equal to two Rights: But the Angles A and C, together with the Angle B, are equal, likewise, to two right Angles, by the preceding Demonstration; then the external Angle *d*, is equal to the two opposite internal A and C.

COROLLARIES.

Three Angles, of any *Triangle*, taken together, are equal to three Angles taken together of any other *Triangle*; for they are every where equal to two Rights.

Every *Triangle* must have two acute Angles; for if it had but one, the two others would be either right, or obtuse, which cannot be said; since three Angles of a Triangle are together equivalent but to two Rights.

As often as two Angles in a Triangle, or separate, or together, will be equal to two Angles, or separate, or together in another Triangle, so often the third will be equal to the other third Angle.

Second THEOREM.

In all Triangles the greater Triangle, is that opposed to the greater Side, and *Vicissim.*

For the Angle E, fig. 26. opposed to the greater Side D F, is greater than the Angle D, or the Angle F; but as the Magnitude of the Angle is taken from the Distention of the Lines it consists of; and the more those Lines are distended the greater is the Side; it is evident that the Angle E, opposite to the greater Side, is greater than any of the two others, D or F.

Likewise, for the same Reason the greater Side is opposed to the greater Angle.

COROLLARIES.

In the equilateral Triangle G H I, the three Angles are equal between them, because opposed to equal Sides. They are also all Acutes, for they cannot be all right, or all obtuse, by what we have already observed.

In the Isosceles Triangle, K M L, fig. 28. the Angles K and L, placed on the Base K L are equal, because opposed to equal Sides.

The Perpendicular A B, fig. 29. is the shortest of all the Lines, which can be drawn from the Point A, to the Right B C: For as the Angle B is a right one, the Angle A C B must be acute: Therefore A B is less than any of the Lines A C.

From a Point to a right Line there can't be drawn but one Perpendicular.

Third THEOREM.

If one Side of two Triangles be equal to one, and the other to the other; and the Angles contained in those Sides be likewise equal, the Bases and all the Triangles will be also equalized.

For if we understand that the Triangle D E F must be put over the Triangle A B C, the Angle E will be congruous with the Angle A, equal to it, and the Sides E D and E F will agree with the equal Sides A B, and A C; so that the three Points D, E, F, will fall on the three Points B, A, C; therefore the whole Base D F will fall on the whole Base B C, then there will be a *Congruency* between the Angles D and F, and F and C, and with all the Triangles; and therefore all will be equal, by the Axiom, *That all Things which agree mutually are equal*, which was to be demonstrated.

COROLLARIES.

For the same Reason, *viz.* from the *Congruency of two Triangles*, if they should have all their Sides mutually equal, they'll have, likewise, all the Angles equal, which are opposite to equal Sides, and all will be equal.

Likewise if in a *Triangle*, two Angles taken separately, were equal to two Angles of another *Triangle*, taken also separately, and one Side was equal to the other Side, all the rest would be equal; because if a *Triangle* be imposed on another *Triangle*, they'll agree mutually.

Fourth THEOREM.

In all *Triangles*, any two Sides are greater than the third: This Proposition is like the Axiom of *Archimedes.*

For, as we have already observed, a right Line is the shortest of all the Lines drawn from one Point to the other Point: And as when one Side of the Triangle is conducted, in a direct Line, from one Point to the other, the two other Sides deviate from the strait Way; any two Sides of the *Triangle* must be greater than the third.

Fifth THEOREM.

The opposite Sides of *Parallelograms* are equal, and likewise the Angles, and the Parts made by the Diameter.

Because A B, and C D, fig. 23. are parallel; and the right Line B C falls on them, which is the *Diameter*, or diagonal Line of the *Parallelogram* A B C D, the alternate Angles A B C, and B C D, will be equal. Likewise, because A C and B D are parallel, and the right Line B C falls on them; the alternate Angles A C B, and C B D will be equal: Therefore the whole Angle A C D, is equal to the whole Angle A B D.

In the same Manner I'll shew the Angles A and D, to be equal between them.

But because the Triangles A B C, and C D B, have a common Side B C, and the Angles adjacent to that Side are equal, the Side A C will be likewise equal to that B D, as A B to C D; and likewise those Triangles will be equal.

COROLLARIES.

The Complements A I, I D, fig. 12. are also equal between themselves; for the two great Triangles C B A,

and C B D, are equal to the present Theorem: Therefore, if from them are drawn the equal Triangles C I H, C I F, and I B G, the residuous Spaces A I, I D, which are the Complements of the Parallelogram, will be equal.

Between the Parallels A B, C D, fig. 4. the Lines A C and B D, equally inclined towards them, are equal. The same Thing may be said of the Lines I L and K M, fig. 9. placed between I K, and L M, and perpendicular to them. For a Parallelogram is formed on either Way, whose opposite Sides are equal.

Sixth THEOREM.

Parallelograms, placed on the same Base, and between the same Parallels, are equal.

Let the *Parallelograms* be A E and A D, fig. 30. placed on the same Base A B, and between the Parallels A B and C D; I say that they are equal, for in the Triangles A C F and B E D, the Side A C is equal to the Side B E. By the preceding Theorem likewise the Lines C E and F D, being equal to the same A B, by the same Theorem; if to both be added the common Part E F, the whole Side C F will be equal to the Side E D, in the aforesaid Triangles; but because of the Parallels A C and B E, the internal and external Angles A C F, and B E D are equal; therefore the Triangles A C F and B E D are equal: Therefore if the common Part G E F be taken off, both the Parallelograms C B and A D, will be equal; which was to be demonstrated.

COROLLARIES.

The same Demonstration may be easily applied to Parallelograms placed on equal Bases, and between the same Parallels.

Triangles likewise, placed on the same or equal Bases, and between the same Parallels are equal: For the Triangle A C B, fig. 30. is half of the Parallelogram A B C E, as the Triangle A F B is half of the Parallelogram A B F D; and those Parallelograms A E, A D, are equal by the present Theorem; and therefore the Triangles are also equal by this Axiom, which are Halves of the same Thing, are equal between themselves.

Seventh THEOREM.

All Polygons may be divided into so many Triangles as it has Sides: For if within the Heptagon B C D F G H, fig. 30. the Point A be taken, from which Lines are conceived drawn to every Angle A B, A C, A D, *&c.* it is manifest that there will be as many Triangles, as there are Angles in the Polygon.

COROLLARIES.

All the Angles together of any regular rectilinear Figure, adequate twice as many right Angles, taking off four, as the Figure has Sides.

Let right Lines be drawn from the Point A, within the same Figure, to all its Angles, which may cut it into so many Triangles as it has Sides; and because the Angles of every Triangle are equal to two Rights, the Angles of all together are twice equivalent to so many Rights as there are Sides; but the Angles placed round the Point A, are equal to four Rights: Therefore if you take off from all the Triangles, the Angles round the Point A, the remaining Angles placed at the Circumference of the Figure, adequate twice so many right Angles, taking off four, as the Figure has Sides.

Therefore, if we want to know to how many right Angles, the Angles of a regular rectilinear Figure are equivalent, we must take 4 off the Product, the right Angles will remain, which are adequated by the internal Angles of the Figure. Thus a *Chiliagon*, or a Figure of 1000 Sides, has 1996 Angles equal to right Angles.

From the Triangle I'll pass to the *Circle*.

DEFINITIONS.

A CIRCLE, is a plane Figure, comprehended under one single Line, which returns into itself, having a Point in the Middle, from which all the Lines drawn to the Circumference are equal. Properly speaking, it is the Space included within the Circumference, or Periphery, that is the *Circle*; though in the popular Use of the Word, *Circle* is frequently used for the Periphery alone.

This *Circumference*, or *Periphery*, is the Line terminating the Circle, which Mathematicians divide into 360 Parts, which Parts are commonly call'd *Degrees*: Therefore, a Semi-circumference is divided into 180 Parts; and a Quarter of a *Circle* into 90. Each *Degree* is divided into 60 *Minutes*, each Minute into 60 *Seconds*, each Second into 60 *Thirds*, &c. Mathematicians have chosen these Divisions as the most commodious.

The *Center* of the *Circle*, is the Point from which all Lines are carried equal to the Circumference, as the Point A, fig. 32.

The *Diameter*, is a right Line passing through the Center of the *Circle*, and terminated on each Side by the Circumference thereof: Such is the Line B C in the same Fig.

The *Radius*, or *Semidiameter*, is a right Line drawn from the Center to the Circumference; as A F, and A E, in the same Fig.

The *Semicircle*, is a Figure comprehended between the Diameter of the *Circle*, and half its Circumference: Such is B G F C in the same Fig.

The *Chord*, is a right Line, terminated at each Extreme in the Circumference of the Circle, without passing through the Center; dividing the Circle into two equal Parts, call'd *Segments*; as the right Line D E, in the same Fig.

The *Arch*, is a Part of the Circumference of the Circle, less than a half, or Semicircle; as the right Line D E, in the same Fig.

Note, That each *Arch* is the Measure of an Angle, comprehended in the Center of the Circle, by two *Radii* drawn to the Extremes of the *Arch*. Thus the Arch D L E is the Measure of the Angle D A E, in the same Fig. and as in the Center of every Circle there may be formed four right Angles, which should divide the whole Circumference of 360 Degrees into four *Arches* of 90 Degrees each; each right Angle must be of 90 Degrees, as B A F, or F A C in the same Fig. Therefore, as we have already observed, all the right Angles are equal between themselves, because each consisting of 90 Degrees; consequently obtuse Angles contain more than 90 Deg. as G A C, in the same Fig. but the acute Angles contain less than 90 Degrees, and are not always equal between themselves, as F A G, G A B, B A D, D A E, E A C, in the same Fig. besides, as often several Angles take up the same Number of Degrees of their Circumference, they are as often equal between themselves.

The TANGENT, is a right Line which touches the Circle, that is, meets in such a Manner as that though infinitely produced, it would never cut the same, that is, never come within the Circumference. Such is the Line H C, fig. 35. which touches the Circle in the Point C, and is call'd the *Tangent* of the Arch B C, or of the Angle B A C, measured by that Arch. Such is likewise the Line L F, called the *Tangent* of the Arch B F, fig. 43. or of the Angle C A F, fig. 42. and such is the Line E B F, fig. 33.

The Line *Secant* of some Arch is a right Line drawn from the Center carried through the other Extremity of the same Arch, and terminated by the Tangent: As the Line A B H, fig. 45. C B is the *Secant* of the Arch, or of the Angle C A B; as likewise, the Line A B L is the Secant of the Arch B F, or of the Angle B A F.

The *right Sine* of an Arch is a right Line drawn from one Extremity of the Arch, perpendicularly upon the Radius drawn from the other Extremity; or the *Sine* is half the Chord, of twice the Arch; as the Line B I, is the *right Sine* of the Arch B C, in the same Fig. Hence the *Sine* of a right Angle is the Radius itself, its being half the Chord of a Semicircle: It is called the *whole Sine*, viz. the greatest of all.

The Sine B G, is call'd the *Sine-Complement*, or *Co-Sine*, of the Arch B C; because the Arch B F, is the Complement of the Arch B C, to a Quadrant; for C B F, is a Quadrant of a Circle in the same Fig.

The *versed Sine*, is Part of the whole Sine, or Radius,

dius intercepted between the right Line and the Arch; as I C S is the *Sine* towards the Arch B C, because it is Part of the Semidiameter A C, intercepted between the Arch B C K, the double of the Arch B C, at its subtended B I K, in the same Fig.

Note, That the *Sines* of obtuse Angles, are the same with those of their Complements to two right Angles; and that all *Sines* of similar Arches have the same Ratio to their Radii.

The SEGMENT *of a Circle*, is a Part of the *Circle* comprehended between an Arch and the Chord thereof. Or it is a Part of a Circle comprehended between a right Line less than a Semicircle, and a Part of the Circumference, as D L E, fig. 32. is the *lesser Segment*; and D F E the *greater Segment*.

The *Angle of a Segment*, is that made by the Tangent, and the Chord carried through the Point of Contact; such are the Angles E B C, of the lesser Segment, and F B C, of the greater Segment, fig. 32. where it must be observed, that the *Segment* C A B, is call'd *alternate*, with regard to the Angle of the Segment C B E, as the Segment C L B is call'd alternate, with regard to the Angle of the Segment F B C.

Angle in the Segment, is that contained within two right Lines, carried from the Extremities of the Chord to some Point of the Arch; as the Angle B A C, on the Segment B A C, fig. 33. This Angle is call'd also Angle to the Circumference.

Angle at the Periphery, is an Angle whose Vertex and Legs do all terminate in the *Periphery* of a Circle; such is the Angle B D C, fig. 33.

The SECTOR *of a Circle*, is that Part of the Circle, comprehended between two Radii and the Arch; such is B C D, comprehended under the Radii B D, and D C, and under the Arch B L C.

Similar SEGMENTS, are those which contain equal Angles: Thus the *Segments* of the greater and lesser Circle will be similar, if they contain equal Angles; as the Arch *e f g* in the lesser Circle, and B C D in the greater, are similar, because they contain the equal Angles *e* A *g*, and B A D, fig. 34.

Equal CIRCLES, are those whose Diameters and Radii are equal.

First THEOREM.

A Diameter, perpendicular to the Chord cut in two, *viz.* B D, fig. 36. is divided into two by the Diameter A F C; for the Sides B F, and F D, being equal, by the Definition of the Circle, the Triangle B F D is Isosceles; therefore the Angles in B and D are always equal to the Base B D; but in the Triangles B C F, D C F, the Angle to C are right, because of the Perpendicular F C, which is also the Side common to both: Therefore those Triangles are entirely equal; and consequently the Side B C is equal to the Side C D, which was to be demonstrated.

COROLLARIES.

For the same Reason it will be demonstrated, that the right Line which cuts perpendicularly the Chord in two, is the Diameter of the Circle, or passes through the Center; and the Right which passes through the Center, and divides the Chord in two, is perpendicular to it.

The Rights, without the Center, do not divide themselves mutually.

Second THEOREM.

If through the last Term B of the Diameter be carried D B, fig. 37. perpendicular to the said Diameter, it will touch the Circle in that sole Point.

For any other Point of that Perpendicular, *v. gr.* the Point D will be out of the Circle: And if the Line A D be conceived drawn from the Center A to the Point D, there will be in the rectangular Triangle the Angle A B D greater than the rest, to which the greater Side is opposite, and which therefore is greater than the Radius A B: And thus the Point D falls out of the Circle; which was to be demonstrated.

COROLLARY.

No right Line can be drawn between the Tangent, and the Circumference, through the Point of the Contact B, in the same Fig. without its cutting the Circle. For let it be, if it be possible, B C, because the Angle A B D is a right Angle, A B C will be acute: Therefore the drawn Perpendicular A D, will be less than the Radius A B, which is opposed to the right Angle; consequently the Point *d* falls within the Circle.

Third THEOREM.

The Angle at the Center is twice the Angle at the Circumference, if they are both fixed to the same Arch.

Three Cases may be considered in this Definition. The *first*, when one Side of the Angle on the Circumference falls from one Side of the Angle at the Centre. The *second*, when the Sides of the Angles at the Circumference, include the Angles at the Center. The *third*, when the Sides of the Angle at the Circumference, and the Angles at the Center cut one another.

Let then the Angles A B C, and A D C, in the first Case, fig. 38. be fixed to the same Arch; I say that the Angle A B C in the Center is double the Angle D in the Periphery. For the Angle A B C is external with regard to the Triangle C D B. Therefore it is equal to two internal D and C; but these Angles D and C are equal, when opposed to the Radii, or equal Sides, B C and B D: Therefore the Angle A B C is double the Angle D.

Likewise in the second Case, fig. 39. the Angle A B C is double the Angle A D C: For if the Line D B E be drawn passing through the Center B, the Angle A B E is double the Angle A D E, and the Angle E B C double the Angle E D C, by the preceding Demonstration; therefore the whole Angle A B C is double the whole Angle A D C.

Lastly, in the third Case, fig. 40. the Angle A B C, is double the Angle A D C; for, if the Line D B E be drawn, the whole Angle C B E, by the preceding Demonstrations, is double the Angle C D E. Likewise, the Angle A B E is double the Angle A D E: These then being taken off, the Angle A B C remaining, will be double the remaining A D C; which was to be demonstrated.

SCHOLIUM.

We have said in the 8th Definition, that the just Measure of the Angle placed in the Center, is the Arch comprehended between two Radii. When then we say that the Measure of any Angle, *v. gr.* A D C, fig. 38, 39. is this, or that Arch, we understand that Angle to be equal to the Angle placed in the Center; whereof this or that Arch is the Measure. Whence we make the following Deductions.

COROLLARIES.

The Angle of the Center A B F, fig. 38, 39. fixed to the Arch A F, is equal to half the Arch A C, to which the Angle A D C is fixed at the Circumference: For the Angle in the Center A B C, is double the one and the other; and the whole Arch A C, being the Measure thereof, the Arch A F, *i. e.* half A C, will be the Measure of the Angle A B F, and consequently of the Angle A D C, at the Circumference.

The Angles in the same Segment A D C, A *d* C are equal between themselves; every one being equal to half the Angle A B C, placed at the Center, or have the same Measure, according to the preceding Corollary, *viz.* half the Arch A C, to which they are fixed.

The Angle A D B, fig. 41. in the Semicircle, is a Right Angle; for its Measure is a Quadrant, or half of the Circumference A E B, to which it is fixed. For the same Reason, the Angle A *b* D in the lesser Segment, will be obtuse, and the Angle A B D in the greater Segment, acute; for that is fixed to the greater Arch, and this to the lesser. Therefore the Measure of that will be an Arch greater than half the Circumference, and the Measure of this a lesser.

The opposite Angles D and A, or I and E, inscribed

to

to the quadrilateral Circle I D E, fig. 42. are equal, for the two Arches to which are fixed the two opposite Angles, take up the whole Circumference, which is the Measure of two right Angles.

Fourth THEOREM.

The Angle of the Segment form'd by the Tangent of the Circle, and the Chord carried through the Point of the Contact, is equal to the Angle form'd in the alternate Segment.

For let the Tangent F A G, fig. 42. and the Chord A D be drawn, I say that the Angle F A D, is equal to the Angle A E D, in the alternate Segment; and the Angle G A D equal to the Angle A I D, likewise in the same Segment; carried to the Diameter A C B, the Angle F A B will be a right Angle. But the Angle A D B in the Semicircle, is a right Angle; therefore in the rectangular Triangle A D B, the two Angles D A B, D B A, are equal to a right one. But the same Angle D A B, with the Angle DA F, forms a right Angle; therefore the Angles D A F, and A B D, or A E D in the same Segment, even an alternate one, are equal.

I say, that the Angles G A D, and A I D, are equal; for in the Quadrilateral A I D E, the opposite Angles I and E, are equal to two rights. But the Angle E is equal to the Angle F A D, by the preceding Demonstration, then the Angle I, will be equal to the Angle D A G.

COROLLARIES.

The Measure of the Angle of the lesser Segment F A D, is half the Arch A I D, subtended by the Chord A D, like the Measure of the Angle D A G, of the greater Segment, is half of the Arch A E D. The two Tangents F B, F D, fig. 43. are equal. For the Chord B D joining the Points of the Contact, being drawn, the Angles F B D, F D B, are made equal. The Measure of both being the same, *viz.* half the Arch subtended by the Chord. Therefore an Isosceles Triangle is formed.

Fifth THEOREM.

All *Polygons*, circumscribed by a Circle, are equal to a rectangular Triangle, one Leg whereof is equal to the Radius of the Circle, and the other to the whole Periphery of the Polygon.

For in the indefinite right Line A A, fig. 45. let the Bases, A B, B D, *&c.* be taken, equal to the Bases into which the Polygon is divided, fig. 46. then in the Point A, fig. 45. must be drawn the Perpendicular A C, equal to the Radius C *g*, fig. 45. *i. e.* equal to the Altitude of the Triangles contain'd in the Polygon; and let C P be parallel to the Base A A, that all the perpendicular Lines, *c g*, *c h*, &c. fig. 46. may be equal to one another, as well as to the Radius *c g*, fig. 45.

It is manifest that the white Triangles A *c* B, B *c* D, &c. fig. 45. are equal to the Triangles *a c b*, *b c d*, &c. fig. 46. into which the Polygon is divided. But to those white Triangles, are equal those mark'd with black Lines, fig. 45. *e. gr.* the white Triangle A *g c*, is equal to the black Triangle A C *c*; and the white Triangle B *c g*, to the black Triangle B *n c*, &c. therefore the whole Parallelogram A P, is double the white Triangles.

But the same Parallelogram A P, is double the Triangle A A C; therefore the rectangular Triangle A A C, the one Leg whereof A A, is equal to the Periphery of the Polygon, and the other A C, equal to the Radius *c g*; that rectangular Triangle A A C, says I, is equal to the white Triangles 45, and consequently to the whole Polygon 44.

Sixth THEOREM.

All ordinate, or regular Polygons, (formed of the equal Chords of a Circle) drawn in a Circle, are equal to the rectangular Triangle, one Leg whereof is equal to the Periphery of the Polygon, the other to the Perpendicular *c g*, fig. 46. carried from the Center *c*, to either Side of the Polygon, *a b*.

The Demonstration is the same as that of the preceding Theorem.

COROLLARY.

As a Polygon of almost infinite Sides, can be circumscribed or inscribed by a Circle; it follows hence, that their Perimeters can attain *in infinitum*, the Circumference of the Circle, tho' the Perimeter be always greater than the Circumference of the circumscribed Circle, and lesser than that of the inscribed.

But the Polygon circumscribed by a Circle, is equal to a rectangular Triangle, one Leg whereof is the Radius of the Circle, and the other the Perimeter of the Polygon; for a Polygon formed within a Circle, is equally equal to a rectangular Triangle, one Leg whereof is the Perimeter of the Polygon, and the other a Perpendicular drawn from the Center of the Circle to any Side of the Polygon. Therefore the Circle will be, likewise, equal to a rectangular Triangle, one Leg whereof is equal to the Radius, and the other to the Circumference of the Circle; as demonstrated by *Archimedes*, in his small Book of the Dimension of the Circle.

SCHOLIUM.

Though the Perimeter of a Polygon, either drawn round a Circle, or within a Circle, may attain *in infinitum*, to the Magnitude of the Circumference of the same Circle, it notwithstanding never becomes equal to it. Whence, by that Method, we can never have a Line equal to the Circumference of a Circle; *in which consists the Difficulty of the* QUADRATURE OF THE CIRCLE, for if we could find that Line, we could form a rectangular Triangle, equal to the Circle; and a Parallelogram equal to that Triangle; and a Quadrate equal to that Parallelogram. As I'll shew by the Problems relating to this Subject.

Of the SOLIDS.

DEFINITIONS.

SOLID, is a Magnitude, endued with three Dimensions, or extended in Length, Breadth, and Depth. Hence, as all Bodies have these three Dimensions, and nothing but Bodies; *Solid* and *Body*, are frequently used indiscriminately.

The Extremity of the *Solid*, is the Superficies; that of the Superficies, a Line; and that of a Line, a Point.

As a Plane Angle consists of right Lines drawn on a Plane Superficies, likewise a *Solid* Angle consists of several Plane Angles, but which are not placed on the same Plane.

Therefore a *Solid* Angle is rectilinear, and is form'd by three or more plane Angles B O A, C O A, *&c.* or D O E, E O F, fig. 47. not placed in the same Plane, but meeting in the Point O.

A *Prism* is an oblong *Solid*, contain'd under more than four Planes, and whose two Bases A B C, and O E F, or G H, and K L, are equal, parallel, and alike situated; and the rest Parallelograms.

The Prism is generated by the Motion of a rectilinear Figure, descending always parallel to itself, along a right Line.

If the Describent be a Triangle, the Body is said to be a *triangular Prism*; if a Square, a *quadrangular One*, &c.

From the Genesis of the Prism, it is evident it has two equal, and opposite Bases; that it is terminated by as many Parallelograms, as the Base consists of Sides; and that all the Sections of a Prism parallel to its Base, are equal.

A *Parallelepiped* is one of the regular *Solids*, comprehended under six Parallelograms, the opposite ones whereof are similar, parallel, and equal; as K O L P G H I, fig. 49. Therefore all Parallelepipeds are Prisms, but all Prisms are not Parallelepipeds.

If a regular *Solid* consists of six Squares and equal Faces, or Sides, and its Angles all right, and therefore equal, it is a Cube. Whence all Cubes are Parallelepipeds, but all Parallelepipeds are not Cubes.

Note, The Method has not been found yet in *Geometry*, of forming a Cube, double another Cube; or the Duplication of the Cube has not been yet geometrically effect-

effected. In this consisted the Difficulty which perplexed the *Delians*, when the Oracle promised them, and the other *Greeks*, the End of their Calamities, if they could double the Altar they had in *Delos*, which was a Cube; for ignorant of the Rules of Proportion, by doubling each Side of the Altar, instead of double made it an Octuple. As if one was to join to a Dice, which is cubical, another Dice equal to it, it would form a Parallelepiped, whose Length would be double its Height and Breadth. If two other Dices were added to the first, so as to form together a square Figure, there would result hence a Parallelepiped, whose Length would be equal to its Breadth; but both Heights will become double. Lastly, if to those four Dices be added four others equal to them, there will arise a cubical Figure octuple the other, because every Side of that Figure will be double the Sides of the first Dice.

In this Anxiety, Deputies were sent from *Delos* to *Plato* (according to *Plutarch, Lib. de gen. Socrat.*) who was then perhaps on his Voyage towards *Caria*, to ask him, he being well vers'd in *Geometry*, the Explication of the Oracle. *Plato* answer'd the *Greeks*, that the Gods gam'd them for neglecting the Sciences, insulted to their Ignorance, and commanded them thereby tacitly to apply themselves to *Geometry*: That there was but one Manner of doubling a Cube, which was, to two Lines given, find two mean Proportionals, between the Side of the Cube, and double that Side; which has not been found yet in *Geometry*; though the Sieur *De Comiers*, has published an elegant Demonstration of the same Problem, by Means of a Compass with three Legs: But this Method is mechanical, as well as all the others found before.

The PYRAMID, A B C *o*, or D E F *o*, fig. 47. is a Solid standing on a square, triangular, or polygonal Basis, and terminating at Top in a Point; or a Body whose Base is a regular rectilinear Figure, and whose Sides are plain Triangles; their several Vertices meeting together in one Point.

Euclid defines it a solid Figure, consisting of several Triangles, whose Bases are all in the same Plane, and have one common Vertex.

Therefore the Plane A B C, is called the *Basis* of the *Pyramid*; and may be either a Triangle, or a Quadrangle, or any other Figure, from each Side whereof Triangles are rais'd to the Point O, which is called the Vertex; from whence the Perpendicular O I falling, it measures the Height of the Pyramid.

If without the Plane of some Circle C F, fig. 51. from which the indefinite right Line O F be drawn, touching the Circle in F; and which, the Point O remaining fix'd, may be turn'd round the Periphery of the Circle, till it returns to the Place O F, whence it begun to move: The Superficies, describ'd by the right Line F, will be conical; and the Body contain'd in that Superficies, and the Circle, call'd a *Cone*. O is the Vertex of the Cone; the Circle C F its Basis; the right Line O I, drawn from the Vertex to the Base, its Axis; and the right Line drawn from the Vertex to the Circumference of the Basis, the Side of the Cone.

Note, That a Cone may be cut in five different Manners, 1. By a Plane through the Vertex A G B, fig. 55. and the Triangle A G B is made. 2. By a Plane, parallel to the Base, and a Circle is form'd. 3. By the Plane F S F, parallel to the Side of the Cone A G, and this Section is called *Parabola*. 4. By the Plane K L R, which passes through the Vertex of the Cone, without the Superficies thereof, that is neither cutting, nor touching it; and the Cone being again cut by another, parallel to the former; and this Section is called *Ellipsis*. 5. By the Plane E Q D, which cut the Cone any how through the Vertex; and by another plane Parallel to the former Plane; then the Section made in the Superficies thereof is called an *Hyperbola*. But when Geometers mention *Conick Sections*, none must be understood but the three last, *viz.* the *Parabola*, *Ellipsis*, and *Hyperbola*.

The Names of these Sections derive from the particular Properties of each of them.

For the *Parabola* is thus called, because the Squares of the Ordinates are equal to the Rectangles under the Part of the Diameter intercepted between the Vertex of the Parabola, and contain'd under the Parameter of the said Diameter. Thus in the Parabola, D A R *r*, fig. 56. if the several Sides O R, *o r*, be parallel, and each of them be cut in two by the right Line A O *o*, they will be called *ordinate* to that Line A O *o*, which is one of the Diameters of the Parabola. And the Diameter, which, with its Ordinates, form right Angles, as the Line A O *o*, is called the Axis of the Parabola.

Therefore the Square O T, or *o t*, of the Ordinate O R, or *o r*, in the Parabola, is always equal to the Rectangle O P, or O P, formed under the Part of the Diameter O A, or O A, intercepted between the Ordinate O R, or *o r*, and the Vertex A, and under the right A P, called the Parameter of that Diameter.

The *Parameter* of the Diameter A O *o*, viz. that which is the Axis of the Parabola, is the Quadruple of the Line A F, or of the Distance of the Focus from the Vertex of the Parabola A. The Parameter is found, if it be contrived, in that Part of the Axis A O, intercepted between the Vertex A, aad the Ordinate, to the Ordinate O R; the same as O R to the Parameter.

But omitting these which belong to the most abstruse *Geometry*, our Pupils must only remember, that a Parabola is defin'd a Figure arising from the Section of a Cone, when cut by a Plane, parallel to one of its Sides. From the same Point of a Cone, therefore only one Parabola can be drawn; all the other Sections within those Parallels being Ellipses, and all without Hyperbola's. *Wolfius* defines the Parabola to be a Curve wherein $a\,x = y^2$, that is, the Square of the Semi-ordinate, is equal to the Rectangle of the *Abscisse*, and a given right Line, called the Parameter of the Axis, or *Lacus Rectum*. Hence a Parabola is a Curve of the first Order; and as as the Abscisses increase, the Semi-ordinates increase likewise; consequently the Curve never returns into itself. Hence, also, the Abscisse is a third Proportional to the Parameter, and Semi-ordinate; and the Parameter a third Proportional to the Abscisse, and Semi-ordinate; and the Semi-ordinate a mean Proportional between the Parameter, and Abscisse.

The *Ellipsis* is thus called from the Square O T of the Ordinate O R, fig. 57. being equal to the Rectangle A S, which applied to the Parameter A P, is deficient from the Rectangle O P, comprehended under Part of the Axis O A, and under the Parameter A P, all these are determined thus: As the greater Axis I A, is to the lesser Axis M N of the Ellipsis, M N is to the Parameter A P of the greater Axis. Therefore the Perpendicular A P being drawn to the Extremity of the Diameter I A, the Triangle I P is formed, which is called the *Figure of the Axis* I A; the Diameter I P thereof, will occur to the Diameter I A of the ordinate Line O R, and produced in S if it be necessary: Whence will be formed the Rectangle A S, equal to the Square O T of the Ordinate O R. But that Rectangle A S falls from the Rectangle contain'd under Part of the Angle A O, and the whole Parameter A P. It falls, I say, by the small Rectangle S P, which is semblable to the Figure I P. If from the Extremity N of the lesser Axis N M, be described the Arch F *f*, by the Interval N *f*, equal to the greater Semi-Axis C I, the Points F *f* will be the Foci of the Ellipsis; because the Ellipsis is a Figure, every Point of the Circumference whereof, are distant in such a Manner from the Foci, that the two Distances F N, F N, or *f n*, *f n*, taken together, are always equal to the whole greater Axis I A.

The *Ellipsis*, to define it from its Form, is a regular continued curve Line, including a Space that is longer than it is broad, wherein are two Points, equally distant from the two Extremes of the Length, from

from which two right Lines being drawn to any Point, assumed at Pleasure in the *Ellipsis*, their Sum is equal to the Length of the *Ellipsis*.

Lastly, the HYPERBOLA is thus called from the Square O T, of the Ordinate O R, fig. 58. being equal to the Rectangle A S, which applied to the Parameter A P, exceeds the Rectangle, made under Part of the Axis A O, and the Parameter O P, by the Rectangle P S; because the Figures V P are semblable to the Hyperbola B A D, and N V X, are call'd opposite; the Point C is their Center. The Line A V is the *determinate Axis*, to which the other undeterminate Axis may be carried at right Angles. The Points F *f*, are the Foci of the conter-placed *Parabola's*, which are placed in such a Manner, that the Line F N, drawn from one Focus, at the Point N of the Hyperbola, will always exceed the other Line F N, drawn from the other Focus to the same Point N, by the Bigness of the determinate Axis A V; the right Line C X C Y, which drawn through the Center C, can never occur to the opposite Sections, are call'd *Asymptotes*.

If round those equal Circles, and the Parallels B B, C C, fig. 54. the indefinite Line B C be turned, till it returns to the Place whence it began to move, so that, while it moves, it remains always parallel to it self, the Superficies described by the right Line B C is call'd *Cylindrical*; and the Body contained within that Superficies, and two Circles, a *Cylinder*. The Bases of the *Cylinder* are the said two Circles; the Axis is the right Line O I, joining the Centers of the Bases; and the Side of the *Cylinder*, is the right Line B C, touching both Bases, in the Superficies of the Cylinder.

The SPHERE is a solid Body, contained under one single Surface, and having a Point in the Middle, called the *Centre*; whence all Lines drawn to the Surface are equal. The Point C is call'd the Center of the Sphere, fig. 59. the Diameter of the Sphere is the right Line O I, drawn through the Center, producted and carried to the Superficies, so as to attain to both Extremes; one Half whereof is the Semidiameter C O, call'd also Radius.

If a *Globe*, or the greater Circle A E B D of a Globe, fig. 60. be moved on the right Sine D F, so as for its Center C to describe, by an uniform Motion, the Line C H, then the Point D will be moved, in such a Manner, by a Motion, composed of a Right and a Circulary, as to describe the Curve D *d d d d d f*, call'd *Cycloïs*, or *Trochoïs*, which are of great Use in the oscillatory Clocks, to regulate the Motion of the Pendulum: There is another Line between that, and marked with Points, which is call'd the *Companion* of the *Trochoïs*.

Those are call'd regular Bodies, which are terminated on all Sides by regular and equal Planes, and whose solid Angles are all equal. These regular Bodies are five in Number, *viz.* the *Cube*, C *c*, fig. 62, 63. which consists of six equal Squares; the *Tetrahedron*, T *t*, fig. 61. of four equal Triangles; the *Octahedron*, O *o*, fig. 64, 65. of eight; the *Dodecahedron*, D *d d*, fig. 66. of twelve; and the *Icosihedron*, I *i*, fig. 67. of twenty.—Besides these five, there can be no other *regular* Bodies in Nature.

Of PROPORTIONS.

DEFINITIONS.

When two Magnitudes of the same Genus are compared between themselves, the first Term of Comparison is call'd *antecedent*, the second *consequent*: I say Magnitudes of the same Genus, for those of a different Genus cannot be compared between them.

That Comparation, or Habitude, or Relation, can be made in two different Manners; *viz.* when we consider by how much one of those Quantities exceeds the other, or is exceeded by it; and that Habit is call'd *Excess*, or Difference: Or when it is asked, how many Times, or how one is included in the other, or contains it? and such Habitude is commonly call'd *Ratio*.

If the first *Quantity* contains twice the second, the first is said to be the second in a *double Ratio*; if thrice, in a *triple Ratio*; if four Times, in a *quadruple Ratio*, &c. and that contained, is said to be in a *subduple*, *subtriple*, *subquadruple*, &c. as a Line of eight Foot, is to a Line of four Foot, in a *duple Ratio*; and a Line of four Foot, to a Line of eight Foot, in a *subduple Ratio*.

If there be several Magnitudes, the first of which has the same *Ratio* to the second, as the second to the third, and the third to the fourth; then the first is said to have a *Ratio duplicate* of that, it has to the second; likewise it is said to have to the fourth a *Ratio triplicate* of that it has to the second: That if there be four Lines, the first of which be of sixteen Feet, the second of eight, the third of four, and the fourth of two; if you search the *Ratio* of the first Line of sixteen Feet to the second of eight Feet, I say that it is *double*, or *duple*, or as 2 to 1; and if the *Ratio* of the first of 16, to the third of 4 Feet, I say that it is twice *duple*, because composed of the *Ratio* of the first Line of 16, to the second of 8 Feet, which is *duple*; and of the *Ratio* of the second, *viz.* 8, to the third 4, which is also *duple*; whence the *Ratio* of the first to the third, is *duplicate* of the *Ratio* of the first to the second; or is twice *duple*, or rather *quadruple*. Now the *Ratio* of the first to the fourth, or of 16 to 2, is *triplicate* of the *Ratio* of the first to the second. Therefore it must be composed of the *duple Ratio*, which is of the first to the second; and of the *quadruple Ratio*, which is of the same first to the third, and thus it is twice *quadruple*, or rather *quadruple*.

If the first Line has more Magnitude comparatively to the second, than the third to the fourth, the first would be said to have a *greater Ratio* to the second, than the third to the fourth; and the third to have a *lesser Ratio* to the fourth, than the first to the second, which is a familiar Manner of speaking to Geometers.

Therefore all Things which have the same Ratio to a Third, are equal; and those Things are equal to such as they have one and the same *Ratio*.

If a Quantity, *v. g.* a bipedal Line, has some Relation to another, *viz.* a pedal Line, in whatever Manner the first be multiplied, or divided, it will always have the same *Ratio* to the second, if the second be likewise multiplied or divided in the same Manner: For as a bipedal Line is to a pedal Line, so is a Line of four Feet to a Line of two Feet; or so is a Line of one Foot, to a semipedal Line, *&c.*

These Magnitudes, thus multiplied by Equality, are call'd *Æque-multiple* of their Simples.

PROPORTION, is the Identity, or Similitude, of *Ratio's*, of Differences, or Excesses. The first is call'd *Geometrical Proportion*, and the second *Arithmetical*; but however, when we only mention the Name of Proportion, the *Geometrical Proportion* must always be understood, as the most essential.

Therefore as every *Ratio*, or Difference, requires necessarily two Terms, viz. *antecedent* and *consequent*; every *Proportion* requires four such Terms. The first is called *first Antecedent*; the second *first Consequent*; the third *second Antecedent*; the fourth *second Consequent*. The first and last are call'd the *Extremes*, and the second and third, *Medii*. They are marked in this Manner; 4, 2 :: 6. 3, *i. e.* 4 is to 2, as 6 is to 3; or a Line of four Feet is to a Line of two Feet, as a Line of six Feet to a Line of three Feet. Those four Terms are *Analogous*, or *Proportional*; and that *Proportion* is call'd *Geometrical*, which is an Equality of Ratio's. The following *Proportion* is *Arithmetical*; 4, 3 :: 2, 1. because the *Excess* of the *first Antecedent* is the same with respect to the *first Consequent*; as that of the *second Antecedent*, with respect to the *second Consequent*.

The second Term does, sometimes, the Office of the *Antecedent* and *Consequent*, in this Manner, — 8, 4, 2. *i. e.* as 8 is to 4, so 4 is to 2; or as a Line of 8 Feet is to a Line of 4 Feet: So the same Line of 4 Feet is to the Line of 2 Feet. In which *Proportion*, which is call'd *Continued*, the Line of four Feet is *Consequent*, with respect to the first *Antecedent*; and *Antecedent*, with respect

respect to the second *Consequent*; and this may happen both in the *Arithmetical* and *Geometrical Proportion*.

That Line of 4 Feet, or any other Quantity, which is the Middle between two, is call'd *middle Proportional*; and this either *Geometrically*, or *Arithmetically*.

Note, That a Series or Progression, of more than four *Geometrical Proportions*, is call'd a *Geometrical* Progression.

1. If three Quantities be in continual *Geometrical Proportion*, the Product of the two Extremes is equal to the Square of the middle Term: Thus, in 6 : 12 :: 12 : 24, the Product of 6, and 24, is equal to the Square of 12, *viz.* 144. Hence we have a Rule.

2. To find a mean *Geometrical Proportional* between two Numbers, *e. gr.* 8 and 72; multiply one of the Numbers by the other, and from the Product 576, extract the Square Root 24; this will be the Mean required; more of this in the Theorems.

The third Species of *Proportion*, is the *Harmonical Proportion*, which is often mentioned by the antient Mathematicians. This *Proportion* consists in three Terms, so disposed, that as the Habit of the greater is to the lesser, such is the Habit of the Difference of the greater from the lesser, to the Difference of the middle from the lesser, *v. gr.* let the Numbers be 12, 8, 6; as the greater Term 12 is to the lesser 6, so is 4 the Difference of the greater Term 12 from the middle 8, to 2, the Difference of the middle 8 from the lesser 6; for as the greater Term 12 contains twice the lesser 6, so the Difference 4, which intercedes between 12 and 8, contains twice the Difference 2, which intercedes between 8 and 6.

For the same Reason, 6, 4, 3, or 6, 40, 30, are in the *Harmonical Proportion*, as I'll say elsewhere.

Between the Sides of the Figures, several *Ratio's* or *Excesses* can occur, whereby the Habit of one Figure to the other may be made apparent.

A Line is carried into another, or is multiplied by another, when a rectangular Parallelogram is made of both, Those two Lines being the two contiguous Sides thereof; as the Line L M is carried into the Line L I, when the rectangular Parallelogram, I K L M, fig. 9. is made of both.

If the Line A B, fig. 12. be carried into itself, or into a Line equal to itself, *viz.* if C D be equal to A B, and be multiplied by the Line C E, equal to itself, from that Multiplication will arise the Square E F C D, for all its Sides will be equal.

A Rectangle, or any other Superficies, is multiplied by a Line, when of that Superficies and Line is formed a rectangular Parallelepiped, whose Base be that Superficies; and the perpendicular Altitude be that Line. Thus, *v. gr.* the Superficies A B D H, fig. 55. multiplied by the Line I K, or by the Line B E equal to it, makes the Solid F A, whose Base is the Superficies A B D H, and the Altitude K I, or B E equal to it.

If that Superficies be Square, and multiplied by a Line equal to every one of its Sides, there will arise a *Cube*, every Face whereof will be equal between themselves, as demonstrated by the same Figure.

Of rectilinear Figures those are said to be similar, which have every Angle equal to every others, and their Sides proportional to equal Angles; such are the Triangles A B C, and *a b c*, fig. 68, 69. for the Angle A is equal to the Angle *a*, *&c.* and as the Side A B is to A C, so is the Side *a b* to *a c*, *&c.* such Sides which answer to themselves in the Proportion, are call'd *homologous*, as A B and *a b*, A C and *a c*, *&c.*

The Altitude of any Figure, is a perpendicular Line drawn from its Vertex to its Base; as A P, fig. 68. is the Altitude of the Triangle A B C.

The Spaces, or Intervals, comprehended between the Parallels are equal, if their Perpendiculars be drawn equal.

First Theorem.

In an *arithmetical Proportion*, the Sum of the extreme Terms, is always equal to the Sum of the middle Terms.

As in this *Arithmetical Proportion*, 4 . 3 :: 2 . 1. the additional of the Extremes, *viz.* 4 and 1 make 5; likewise the middle Terms 3 and 2 added together make up 5, and this is easily understood; because, for as much 3 is surpassed by 4; as much 1, which is joined with 4, is surpassed by 2, which is put with 3; therefore the Equality is perfect every where.

Second Theorem.

But in the *Geometrical Proportion*, the Multiplication of the Extremes, is equal to the Product of the middle Terms.

As in this Proposition 4 . 2 :: 6 . 3. if you multiply 4 by 3, or 2 by 6, you'll have 12. The Reason is, because 4 and twice 2 are the same Thing; the same as 6 and twice 3 are the same Thing. When, therefore, you multiply 3 by 4, it is the same as if you was to take twice 3 and twice 3, or, rather four times 3; when, likewise, you multiply 2 by 6, it is the same as if you was to say twice 3, and twice 3. Whence the Product is equal every where. See fig. 70.

Corollary.

If the Proportion be continual, the Product of the middle Term, by itself, *i. e.* its Square, will be equal to the Rectangle of the Extremes.

Scholium.

Therefore as often as the Product of the Extremes will be found equal to the Product of the Middle Terms, so often four Terms will be in *Geometrical Proportion*. And this will always happen in the following Permutation of Terms: For if it be,

4 . 2 :: 6 . 3.
It will be by inverting 2 . 4 :: 3 . 6.
By alternating 4 . 6 :: 2 . 3.
By compounding 4 . + 2 . 2 :: 6 . + 3 . 3.
By dividing 4 . —— 2 . 2 :: 6 —— 3 . 3.

Third Theorem.

The Sides of Triangles equiangle, are proportional with Respect to equal Angles, and Vicissim.

Let A B C, *a b c*, fig. 68, 69. be the Triangles equiangle; I say that A B is to *a b*, as A C to *a c*, and B C to *b c*; and alternating thus, A B to be to A C, and B C, as *a b* to *a c* and *b c*.

Let the Perpendicular A P in the greater Triangle, fall from the Vertex A, and be divided into so many equal Parts, *v. gr.* 7; and through each Division let right Lines be drawn parallel to the Base B C, which will occur to the Side A B, in the Points F, G, *&c.* from every one of which must be let fall, likewise, Perpendicular on the Base, or rather on the Part B P of the Base, it is manifest that the Side A B, and the Part B P, of the Base, are divided into so many Parts, as are contain'd in the Perpendicular A P, which Parts will be every one equal between themselves, as well in A B as in B P.

Likewise a Perpendicular being drawn in the lesser Angle *a p*, in which must be taken the Parts *a d*, *d e*, &c. equal to the Parts A D, D E, *&c.* and five must be contain'd in *a p*, like the seven found in A P, and through each Division *d e*, &c. let right Lines be drawn parallel to the Base *b c*, which will occur to *a b*, in the Points *f g*, &c. from every one of which must be let fall Perpendiculars on the Base, or Part of the Base *b p*; it is clear that the Side *a b*, and Part of the Base *b p*, are divided into so many Parts equal between themselves, as are contain'd in the Perpendicular *a p*.

Therefore the Number of equal Parts of the Perpendicular A P, in the greater Triangle, is to the Number of Parts of the Perpendicular *a p* in the lesser Triangle, as the Number of Parts of the Side A B, or of the Base B P, is to the Number of Parts of the Side *a b*, or of the Base *b p*.

The same will be demonstrated of the Triangles A P C, *a p c*; and therefore as the Side A P is to the Side *a p*, so is the Side *a c*, and P C, to *p c*; and consequently as the whole Base B C, is to the whole Base *b c*; which was to be demonstrated.

Fourth

Fourth THEOREM.

In rectangular Triangles, a Perpendicular let fall from the right Angle on the Base, makes two Triangles equal to one another, and to the whole, *v. gr.* the Perpendicular A D, fig. 71. makes the Triangles D A B, and D A C, similar to one another, and to the whole Triangle C A B.

For in the Triangles C A B, and D A B, the two Angles C A B, which is a right Angle, and A B C, are equal to the two A D B, which is also a right Angle, and A B D. Therefore the third A C B, is equal to the third D A B; and therefore those Triangles are Equiangles; and consequently have their Sides proportional.

First COROLLARY.

The Perpendicular A D, in the same Figure, is a middle Proportional, between the Segments of the Base C D and D B, *i. e.* as C D is to D A, so is D A to D B. For the Triangles C A D and D A B, being equal, likewise as C D the lesser Angle of the Triangle C A D is to D A, the greater Angle of the same Triangle, as D A the lesser Side of the Triangle D A B, is to D B the greater Side.

In the same Manner C A is a middle Proportional, between the Hypothenuse C B, and the Segment C D; for the Triangles C A B and C A D being equal, the Hypothenuse C B, in the greater Angle C A B, will be to the lesser Side C A, as the Hypothenuse C A in the lesser Triangle C A D, is to its lesser Side C D.

Lastly B A is a middle Proportional between the Hypothenuse B C and the Segment B D. For the Triangles B A C and B A D being equal, the Hypothenuse B C in the greater Angle B A C, will be to B A the greater Side, as the Hypothenuse B A in the lesser Triangle B A D, is to its greater Side B D.

Note, That *Hypothenuse*, from υποθεινω, *subtendo*, I subtend, in *Geometry*, is the longest Side of a right angled Triangle; or that Side which subtends, or is opposite to the right Angle.

Segment, is a Part of a Circle, comprehended between an Arch and the Chord thereof. Or it is Part of a Circle, comprehended between a right Line less than a Semicircle, and a Part of the Circumference.

Second COROLLARY.

The Square of the Perpendicular A D, in the same Figure, is equal to the Rectangle contain'd under the Segments of the Base B D, and D C, because it is a middle Proportional between those Segments. By the same Reason the Square of the Side C A is equal to the Rectangle made of the Base B C, and its Segment C D: Likewise the Square of the Side B A, is equal to the Rectangle comprehended under the Base B C, and its Segment B D.

Fifth THEOREM.

In all rectangle Triangles, the Square of the Base, or Hypothenuse B C, is equal to the Sides of the Squares B A, and A C taken together, fig. 71.

For the Square B M, must be divided into the two Rectangles B E, and C E, by the Production, or carrying on the Perpendicular A D into E. The Triangle B E, being contained under the Base B C, or rather under B N, equal to itself, and under its Segment B D; so that it is equal to the Square of the Triangle B A.

For the same Reason, the Rectangle C E, contain'd under the Base B C, or rather under C M, equal to itself, and under C D, is equal to the Square of the Side A C; and thus the whole Square B M, is equal to the Squares of the Sides B A, and A C, taken together.

SCHOLIUM.

This great and curious *Theorem*, which is the 47th Proposition of *Euclid*'s Elements, is attributed to *Pythagoras*, who, according to *Proclus*, *Vitruvius*, and several others, sacrificed to the Muses, because he imagined he had been assisted by them, in the Discovery of this Problem.

Among the different Uses this Problem is of, in the Mathematicks, I'll mark two principal ones, which all Philosophers should be perfectly acquainted with.

For, first, it is demonstrated by it, that there are some Lines which are *incommensurable*, i. e. Lines between which no common Measure can be found; or which are not between themselves, as a Number to another Number; for all Numbers have at least Unity for common Measure; from a Repetition whereof, they proceed.

Therefore, let us suppose in the rectangular Triangle A B C, fig. 71. the Side A C to be of three Feet; the Side A B of four Feet; and the Hypothenuse B C, of five Feet: It follows hence, that the Side of the Square A C, *viz.* A H, contains nine square Feet; because the Square of a Line, is made of that Line, being carried into itself, or multiplied in itself. But if three Feet be taken thrice, or multiplied by a ternary Number, they will form nine Feet. Likewise the Square of the Side A B, *viz.* A F, will be of sixteen Feet; and the Square of the Hypothenuse B C, *viz.* B M, will contain twenty-five square Feet. Then if the Square A H, 9, and A F, 16, be added together, they will make 25. Because together they are equal to the Square B M, which comprehends also, twenty-five square Feet. And not only those Squares are expressed by Numbers, but even their Roots, or Sides, can be expressed by Numbers. For all those Numbers, which multiplied by themselves, form a Square, are called the *Roots* or Sides of Squares. As 2 is the Root of the Square 4, for 2 taken twice, make up 4; thus 3 is the Root of the Number 9; 4 is the Root of 16; 5 the Root of 25; 6 the Root of 36; 7 the Root of 49; 8 the Root of 64; 9 the Root of 81; 10 the Root of 100, *&c.* Those Numbers 4, 9, 16, 25, 36, 49, 64, 81, 100, are square, because they arise from certain Numbers carried into themselves, and their Unity can be disposed in a square Form. Thus nine Unities can be disposed in a Square, each Side whereof will contain three Unities. Likewise sixteen Unities can be disposed in a square Form, the Side whereof will consist of four Unities. The same may be said of the following Numbers 25, 36, 49, *&c.* But if Numbers cannot be disposed in a Square, they are not to be called Squares.

Therefore a Number which is Duple of a square one, cannot be square, because it cannot be disposed in a square Form, *v. gr.* if a quarternary Number be taken twice, it becomes octonary, which is not a Square, because it cannot be disposed in a square Form. But if the quarternary Number be taken four Times, it will produce 16, which is a Square.

But though a square Number cannot be the Duple of another square Number; a Square extended, notwithstanding, can be the Duple of another extended Square. For if the rectangular Triangle was Isosceles, *v. gr.* if both its Legs were of four Feet, the Square of either Leg would be of 16 Feet, and both taken together consist of 32 square Feet; so that the Square of the Hypothenuse of that Triangle would contain 32 Feet, and be the Duple of one another.

The Number 32 is not square, but is contain'd between the square Numbers 25 and 36; whose Roots are 5 and 6, so that the Root of the Number 32, which is the Hypothenuse of the proposed Triangle, and marked thus R 32. must contain more Feet than 5, and less than 6; but the Magnitude of that Number cannot be precisely determined; neither can the Foot, or any Part of the Foot, which measures the Sides, be the common Measure of their Sides, and Hypothenuse. Therefore the Hypothenuse of the rectangle isosceele Triangle, such as the Diagonal of any Square, is *incommensurable*. The *Peripateticians* make Use of this Argument, to prove that the Matter is divisible, *in infinitum*, as we'll see in my Treatise of *Philosophy*.

But there is another Use of this Theorem, which can never be priz'd too much, *viz.* the Construction of the Tables of *Sines*, *Tangents*, and *Secants*; of which Construction I'll give here an Example or Specimen, lest my Pupils should be perfect Strangers to them: Having described the Circle A E D F B C K, fig. 35. and the Radius A B being applied to the Circumference from B

into K, and the Side A K drawn, the Triangle B A K, will be equilateral; and thus all its Angles will be equal between themselves, or each of them will be of 60 Degrees. Therefore the Side or Chord B K, being in two equal Parts, the Arch B C will be of 30 Degrees.

But because the Radius is commonly put of 10000000 Parts, the Chord B K equal to it, will be of so many Parts: Therefore its Half B I, which is the Sine of the Arch B C, will be of 5000000 Parts.

But then in the rectangular Triangle A I B, the Square of the Hypothenuse A B, is equal to the Quadrates of the Sides A I, and B I, taken together. Therefore let the Square of the Hypothenuse A B, be made by carrying 10000000 into 10000000, it will be 100000000000000, then from this Product, take off the Square of the Side B I, *viz.* 25000000000000, there will remain the Square of the same A I, or of G B, the Sine of the Complement 75000000000000, from which if the Square Root be extracted, we shall have the Line A I of almost 8660254 Parts.

Besides, as the Triangles A B I, and A H C are similar, let it be that as A I to B I, so A C to C H, the Tangent C H should be had. That if the Squares of the Sides A C and C H be added together, we'll have the Square of the Hypothenuse A H; from which if the Root be extracted, then that Hypothenuse A H, which is the Secant of the Arch B C, will appear.

I'll end here, that Part of *Geometry*, which I call *Speculative*; and pass from it to the *Practical Geometry*.

DEFINITIONS.

ORGYIA, was an antient *Grecian* Measure, containing six of our Feet. Some represent the *Orgyia*, as the *Grecian* Pace. *Hesychius* describes it as the Space comprehended between the two Hands, when the Arms are extended, answering to the *Roman Ulna*, and our Fathom.

The Foot contains twelve Ounces, or Inches; for the one is not only taken for a Weight, in which Sense it is a twelfth Part of a Pound; but likewise for a Measure, in which Sense it is a twelfth Part of a Foot; as a Digit is a sixteenth Part of a Foot. Which, notwithstanding, the Authors of our Time, take indifferently the Inch and Digit, for a twelfth Part of a Foot; so that when it is Question of an Eclipse of the Moon, the Name of *Digit* is taken for a twelfth Part of the apparent Diameter of the Moon. Therefore when it is said that the Eclipse of the Moon is of two or three Digits, it is the same as if it was said, that it is of two or three twelfth Parts of its apparent Diameter.

The Foot consists of twelve Parts, which we call Lines. The Antients had other Measures which are not in Use among us.

The Measures common to the *Romans*, and the *Gauls*, are expressed in the following Verses:

Quatuor ex granis digitus componitur unus,
Ex quater in palmo digitus; quater in pede palmus.
Quinque pedes passum faciunt; passus quoque Centum.
Vigentiquinque, stadium dat, at Miliare
Octo dabunt stadia: duplicatum dat tibi Leucam.

Note, That by Corn is understood here Barley-Corns placed Length-wise, against one another; and by Paces are understood geometrical Paces, each consisting of three Feet.

Note also, That the Foot is of different Lengths in different Countries. The *Paris Royal* Foot exceeds the *English* by seven Lines and a half; the antient *Roman* Foot of the Capital, consisted of four Palms, equal to eleven Inches, and seven-tenths *English*. The *Rhineland*, or *Leyden* Foot, by which the northern Nations go, is to the *Roman* Foot, as 950 to 1000. The Proportions of the principal Feet of several Nations, compar'd with the *English* and *French*, are here subjoin'd.

The *English* Foot being divided into one thousand Parts, or into twelve Inches, the other Feet will be as follows:

		Th.	Pts.	F.	In.	lin.
London	Foot,	1000	0	12	0.	
Paris, the Royal		1068	1	00	8.	
Amsterdam		942	0	11	3	
Antwerp		946	0	11	2	
Dort		1184	0	02	2	
Rhineland, or *Leyden*		1033	1	00	4.	
Lorrain		958	0	11	4	
Mechlin		919	0	11	0	
Middleburg		991	0	11	9.	
Strasbourg		920	0	11	0	
Bremen		964	0	11	6.	
Cologn		954	0	11	4.	
Francfort on the *Mayne*		948	0	11	4.	
Spanish		1001	0	11	0	
Toledo		899	0	10	7	
Roman		967	0	11	6	
Bononia		1204	1	02	4	
Mantua		1569	1	06	8.	
Venice		1162	1	01	9	
Dantzick		944	0	11	3	
Copenhagen		965	0	11	6	
Prague		1026	1	00	3	
Riga		1831	1	09	9.	
Turin		1062	1	00	7	
Greek		1007	1	00	1.	
Paris, by Dr. *Bernard*,		1066	1	00	1.	
Old Roman		970	0	00	0.	

The *Paris* Foot being supposed to contain 1440 Parts, the rest will be as follows:

Paris	Foot,	1440.
Rhineland		1391.
Roman		1320.
London		1350
Swedish		1320
Danish		1403
Venetian		1540 $\frac{2}{3}$
Constantinopolitan		3120.
Bononian		1682 $\frac{2}{3}$
Strasbourg		1283 $\frac{3}{4}$
Norimberg		1346 $\frac{1}{4}$
Dantzick		1721 $\frac{1}{2}$
Hall		1320.

First PROBLEM.

In the given Point of the right Line, to form an Angle equal to the other given.

Let B of the Line A B, fig. 72. be the Point in which is to be formed the Angle, equal to the given Angle C D E, fig. 73.

From the Point D must be described the Arch C E; then the same Aperture remaining, the Arch H G must be made from the Point B, from which must be cut the Arch H F, equal to the Arch C E, and the Line B F drawn; then the Angle A B F, will be equal to the Angle C D E, because those two Angles are measur'd by the same Arch.

Second PROBLEM.

To draw a Perpendicular from the Point given in a Line.

Let the Point C be given in the Line A B, fig. 74. from which is taken on each Side the equal Parts C D, C E; and from the Points D and E be describ'd Arches, cutting each other in the Point I; then from the Point C, through the Point I, let the Line C O be drawn, which will be the Perpendicular requir'd. Because the Point I, does not incline more towards the Part D A, than towards the Part E B, and Vicissim.

Third PROBLEM.

From the Point given without a Line, to carry a Perpendicular to that Line.

Let C, fig. 75. be the Point given, from which is described the Arch D E, cutting the Line A in the Points D and E; from these Points D and E, let two Arches be made, cutting one another in the Point F; and the Line C F be drawn to cut the Line A B in O; then the

Line C O will be the Perpendicular requir'd; becauſe it is not more inclin'd towards the Part D A, than towards the Part E B.

Fourth PROBLEM.

Through the Point given, to draw a Parallel to the Line given.

Let A, fig. 76. be the Point given, through which is to be drawn a Parallel to the Line given C B, let the right Line A D be drawn cutting the right Line given C B in D; and from the Point D be deſcribed the Arch A F, and from the Point A, at the ſame Interval, be deſcribed the other Arch D E, into which the Arch A F is to be transferred, *viz.* from D into G; then the right Line A G will be the Parallel required; becauſe the alternate Angles A D F, and D A G are equal.

Fifth PROBLEM.

Between two Lines given to find a *middle Proportional.*

Let B D, D C, fig. 78. be the Lines given, placed in a direct Line, and form the right one B C, from whoſe middle Point E muſt be deſcribed the Semicircle A B C, then from the Point D will be drawn the Perpendicular D A, meeting with the Circumference in A; I ſay that ſuch Line is the middle Proportional between B D, and D C.

For the Lines B A and C A being drawn, the Angle B A C is formed in the Semicircle, and conſequently is a right Angle; therefore the Perpendicular A D, being let to fall on the Baſe B C is the middle Proportional, between the Segments, or Lines given B D, D C.

SCHOLIUM.

A middle Proportional is found *Geometrically* between two Lines given; but no geometrical Method has been found yet, whereby two, or ſeveral middle Proportionals between two given Lines could be found. It is true, that ſome mechanical Rules are given conducive to it, *viz.* by ſeveral Inſtruments contrived for that Purpoſe, which have been imagined by *Plato*, *Archytas*, and other Antients; but particularly by *Des Cartes*, whoſe Invention is far preferable to all others; in that it is not confined to only two, but may be applied to find as many middle Proportionals between two Lines given, as one pleaſes.

By finding two *Proportionals* between two Lines given, the famous Problem of *Delos* of the *Deplication of the Cube* is executed; and that my Pupils may have ſome Notion how it is done, it muſt be underſtood that a Square is made of any Quantity, *viz.* a Number, or a Line multiplied by itſelf, the Side or Root thereof is that ſame Quantity; then if the Square be multiplied by the ſame Root, there will ariſe a Cube, whoſe Side or Root is the ſame Quantity. For Example, if you multiply 2 by 2 it will produce the Square 4, whoſe Root is 2. Again, if the Square 4 be multiplied by the Root 2 it will produce the Cube 8, whoſe Root is the ſame Number 2. Likewiſe, if you carry 4 into 4 you'll produce the Square 16, which Square being multiplied by 4, will give the Cube 64.

But if there be four Quantities continually proportional, ſuch as 2 . 4 :: 8 . 16, the Cube of the firſt is to the Cube of the ſecond, as the firſt is to the fourth; for 2 is to 16, as 8 the Cube of the ſaid 2, is to 64. the Cube of the ſaid 4. becauſe as 2 is the eighth Part of the Number 16; ſo 8 is the eighth Part of the Number 64.

Therefore if two Lines were given, the laſt whereof was the *Dupla* of the firſt; and between thoſe two, other two Proportionals ſhould be found, ſo as for the fourth Proportional to become the *Dupla* of the firſt; it is manifeſt that the Cube, which would be form'd in the ſecond Proportional, would be the *Dupla* of that form'd in the firſt; becauſe the Cube of the firſt Line would be, with regard to the ſecond, as the firſt Line to the fourth; but the firſt would be to the fourth as 1 to 2; therefore the firſt Cube would be to the ſecond, as 1 to 2.

Therefore for the Duplication of the Altar of *Delos*, which was cubical, there ſhould have been taken a Line *duple* each of its Sides; and between the Side and that Line, two middle Proportionals ſhould have been ſearched.

Sixth PROBLEM.

A Triangle given, to make a rectangular Parallelogram equal to it.

Let A B C, fig. 77. be the Triangle given, through whoſe Vertex A, muſt be drawn the right Line A G, parallel to the Baſe B C; then the Baſe B C is to be divided into two equal Parts in the Point D, from which the Perpendicular D E is drawn as far as to the Parallel A G: Let E F be taken equal to the Side D C, and the Side C F be drawn, the Rectangle D F will be equal to the Triangle given.

Seventh PROBLEM.

A Parallelogram being given, to make a Square equal to it.

Let C D E F, fig. 79. be the Parallelogram given, between the Longitude thereof D C, and its Altitude C F, or C *f*, the middle Proportional C A muſt be found; the Square C B, of that middle Proportional, will be equal to the given Rectangle.

Eighth PROBLEM.

To meaſure an horizontal Line, which can only be acceſſible by one of its Extremities.

Let it be the Line A B, fig. 89. which can only be acceſſible in the Point B, the Longitude of which Line is to be ſearched.

Firſt, let a Perpendicular be drawn in the Point B, to that ſame Line A B, *viz.* B C, in this Manner: You muſt place the Center of the Inſtrument, *viz.* of the *Semicircle*, deſcribed fig. 90. in the Point B, and thro' the Holes of its immobile Dioptre *d d*, fig. 90, 91. look ſome fix'd Object, placed in the other Extremity of the Line, *viz.* a ſmall Tree, or the Tower A, and move the Dioptre, or mobile Rule, till it departs from the Baſe, or immobile Rule, by the whole Square, or 90 Degrees: If through the Holes which are open in the *Pinnulæ* of the Dioptre, you look ſome Mark placed in C, you'll have the right Angle A B C.

Let the Inſtrument be transferred into C, ſo that its Center anſwers to the Point C, and the Holes of the immobile Dioptre *d d*, be directed on the Point B; turn the moveable Dioptre without moving the Inſtrument, till the Sign A appears thro' the moveable *Pinnula e e*; then you'll know the Quantity of the Angle A C B in the Limb *e d* of the Semicircle.

To meaſure the Line B C, you muſt draw on Paper the Line F E, fig. 90. divided into ſo many equal Parts, as there are Feet found in the Line B C, and let the Angle F E G, fig. 90. be equal to the Angle B C A, afterwards the Perpendicular F G muſt be drawn thro' the Point F, meeting with the Line E G in the Point G. If with the Scale you meaſure how many Parts there are in F G equal to the Parts of the Line F E: I ſay that there are as many Feet in A B.

Demonſtration. The Triangle A B C, and G F I, are Equi-angles, by Conſtruction; therefore as F D is to F G, ſo B C is to B A: So that as many aliquot Parts of the Line F E, are contained in F G; ſo many ſimilar aliquot Parts from the Line B C will be contained in B A.

Ninth PROBLEM.

To meaſure an acceſſible Altitude.

Make uſe, as in the preceding Problem, of the Semicircle ſo diſpoſed, that its Diameter or Baſe be parallel to the Horizon; then riſe or lower its mobile Dioptre, till through its *Pinnula* the Vertex A, fig. 91. be ſeen: Afterwards look downward through the ſame Pinnula, that you may have the Point C; mark careſully the Angle A I, or E I C equal to it, to which the Angle A C B is equal likewiſe. Suppoſe it, for Example, to be of 57 Degrees, 25 Minutes: Then meaſure with the Hexapedes the Diſtance C B, which will be, *v. gr.* of 235 Feet. If a Triangle be made on Paper ſemblable to that, the Altitude B A will be found to be of 367 Feet, and a little more.

But this *Problem* is resolved, with a greater Accuracy, by the Table of the *Sines*: For if a Circle be described from the Point C, in the internal C B, the *Radius* C B will be the whole Sine; the Line C A, will be the Secant; and the Line, or Tower A B, will be the Tangent of the Angle A C B. Therefore if it be said, as the *whole Sine*, which in the Table is 10000000, is to the Tangent of the Angle A C B, 57 Deg. 25 Min. which is in the Tables 15646590; so is the Distance C B, which is found to be of 235 Feet to the Altitude or Height B A: This Altitude B A will be found by the Rule of Proportion to be of 367 Feet eight Inches.

Note, That as that Part of *Geometry* which regards the Solution of Triangles, or whereby their Sides are known by the Rules of Proportion, and expressed by Number, is called *Trigonometry*, I'll defer mentioning any Thing about it, till I come to the Letter T. where I design to write an entire Treatise of that Art, *Trigonometry*.

Herodotus, *Lib.* 2. and *Strabo*, *Lib.* 17. assert the *Egyptians* to be the first Inventors of *Geometry*; and the annual Inundations of the *Nile* to have been the Occasion; for that River bearing away all the Bounds and Landmarks of Men's Estates, and covering the whole Face of the Country, the People, say they, were obliged to distinguish their Lands, by the Consideration of their Figures and Quantity; and thus by Experience and Habit formed themselves a Method or Art which was the Origin of *Geometry*. A further Contemplation of the Draughts of Figures, or Fields thus laid down, and plotted in Proportion, might naturally enough lead them to the Discovery of some of their excellent and wonderful Properties; which Speculation continually improving, the Art became gradually improved, as it continues to do to this Day. *Josephus* however seems to attribute the Invention to the *Hebrews*; and others among the Antients make *Mercury* the Inventor.

The Province of *Geometry* is almost infinite: Few of our Ideas but may be represented to our Imagination by Lines, upon which they straight become of geometrical Consideration; it being *Geometry* alone that makes Comparisons, and finds the Relations of Lines.

Astronomy, Musick, Mechanicks, and in a Word, all the Sciences which consider Things susceptible of more and less, *i. e.* all the precise and accurate Sciences may be referred to *Geometry*. For all speculative Truths consisting only in the Relations of Things, and in the Relations between those Relations, they may be all referred to Lines. Consequences may be drawn from them; and these Consequences again being rendered sensible by Lines, they become permanent Objects, constantly exposed to a rigorous Attention and Examination: And thus we have infinite Opportunities, both of enquiring into their Certainty, and pursuing them further.

The Reason, for Instance, why we know so distinctly, and mark so precisely, the Concords call'd *Octave*, *Fifth*, *Fourth*, &c, is, that we have learn'd to express Sounds by Lines, *i. e.* by Chords accurately divided; and that we know that the Chord, which sounds Octave, is double of that which it makes *Octave* withal; that the fifth is in the sesquialterate Ratio, or as three to two; and so of the rest.

The Ear itself cannot judge of Sounds with such Precision; its Judgments are too faint, vague, and variable to form a Scheme. The finest, best-tun'd Ear, cannot distinguish many of the Differences of Sounds; whence many Musicians deny any such Differences, as making their Sense their Judge. Some, for Instance, admit no Difference between an *Octave* and three Ditones; and others, none between the greater and lesser Tone; the Comma, which is the real Difference, is insensible to them; and much more the Siesma, which is only half the Comma. It is only by Reason, then, that we learn, that the Length of the Chord, which makes the Difference between certain Sounds, being divisible into several Parts, there may be a great Number of different Sounds contained therein, useful in Musick, which yet the Ear cannot distinguish: Whence it follows, that had it not been for *Arithmetick* and *Geometry*, we had had no such Thing as regular, fix'd Musick; and that we could only had succeeded in that Art by good Luck, or Force of Imagination, *i. e.* Musick would not have been any Science founded on incontestable Demonstrations: Tho' we allow the Tunes, composed by Force of Genius and Imagination, are usually more agreeable to the Ear, than those composed by Rules.

So in Mechanicks, the Heavinesses of a Weight, and the Distance of the Center of that Weight from the Fulcrum, or Point it is sustained by, being susceptible of *plus* and *minus*, they may both be expressed by Lines; whence *Geometry* becomes applicable hereto; in Virtue whereof, infinite Discoveries have been made of the utmost Use in Life.

Geometrical Lines and Figures are not only proper to represent to the Imagination the Relations between Magnitudes, or between Things susceptible of more and less; as Spaces, Times, Weights, Motions, &c. but they may even represent Things, which the Mind can no otherwise conceive, *e. gr.* the Relations of incommensurable Magnitudes.

We do not however, pretend that all Subjects Men may have Occasion to enquire into, can be expressed by Lines. There are many not reducible to any such Rules: Thus the Knowledge of an infinitely powerful, infinitely just God, on whom all Things depend, and who would have all his Creatures execute his Orders, to become capable of being happy, is the Principle of all Morality, from which a thousand undeniable Consequences may be drawn; and yet neither the Principle, nor the Consequences, can be expressed by Lines, or Figures.

Indeed, the antient *Egyptians*, we read, used to express all their philosophical, and theological Notions, by *Geometrical* Lines. In their Researches into the Reason of Things, they observed that God and Nature affect Perpendiculars, Parallels, Circles, Triangles, Squares, and harmonical Proportions; which engaged the Priests, and Philosophers, to represent the divine and natural Operations by such Figures: In which they were followed by *Pythagoras*, *Plato*, &c. whence that Saying of *Boethius*, *Nullam Divinorum Scientiam* αγεωμετρικον *attingere posse*.—But it must be observed, that this Use of *Geometry*, among the Antients, was not strictly scientifical, as among us, but rather symbolical: They did not argue, or reduce Things and Properties unknown from Lines; but represented, or delineated Things that were known. In Effect, they were not used as Means or Instruments of discovering, but Images or Characters, to preserve or communicate the Discoveries made.

The *Egyptians* (*Gale* observes) used *Geometrical* Figures, not only to express the Generations, Mutations, and Destructions of Bodies; but the Manner, Attributes, &c. of the Spirit of the Universe, who diffusing himself from the Center of his Unity, through infinite concentrick Circles, pervades all Bodies and fills all Spaces. But of all other Figures they most affected the Circle and Triangle; the first as being the most perfect, simple, capacious, &c. of all Figures: Whence *Hermes* borrowed it to represent the divine Nature; defining God to be an intellectual Circle or Sphere, whose Center is every where, and Circumference no where.

The antient *Geometry* was confined to very narrow Bounds, in Comparison of the modern: It only extended to right Lines, and Curves of the first Order, or conick Sections; whereas into the modern *Geometry* new Lines of infinitely more and higher Orders are introduced.

GILDING.

GILDING, or GUILDING, is the Art or Act of spreading, or covering a Thing over with Gold, either in Leaf or Liquid.

There are several Methods of *Gilding* among us; the Principals of which are *Gilding by the Fire*, which is peculiar to Metals, *Gilding on an oily Size*, and *Gilding on a water Size*.

There are two Ways of *Gilding by the Fire*, viz. that with liquid Gold, and that with leaf Gold.

The first is performed with Gold amalgamated with Mercury, in the Proportion of about an Ounce of Mercury to a Dram of Gold.

In order to the Operation, *Gilders* chuse their Gold with as little Alloy as possible, such as Gold Ducats, *&c.* which they beat to reduce it to a pretty thin Plate, which they cut afterwards into small Pieces, that it may melt the sooner; which done, they throw it into a Crucible red-hot, and when they see it ready to melt the Quantity of Mercury proportioned to the Gold, stirring the Mixture gently about till the Gold be melted, and incorporated with the Mercury, which is discovered at a Smoak arising from the Crucible; which no sooner perceived but they cast the Matter into Water to wash and purify it; and thence into other Waters, repeating the Lotion in order to take away the Blackness. Then they dry it in a Linnen Cloth, and likewise to separate the Mercury not united therewith; for the Metal never takes more of the Mercury than is necessary to amalgamate itself with it.

Note, That before the Mercury be united with the Metal in the Crucible, it must be squeezed through a Piece of shammy Skin, to free it of its Impurities, which could be an Obstacle to a perfect Amalgamation; and that the Mixture must be taken off the Fire as soon as it begins to smoke, lest the Mercury should evaporate and leave the Operation imperfect.

To prepare the Metal for this Amalgama, they scrub it with a wire Brush, and wet it with Water, or Beer, continuing to rub and wet till all the Foulness which might hinder the close Union of the Metals be removed: Which done, to quicken the Work further, they rub a Mixture of Quicksilver and Aqua-fortis over it.

They proceed now to apply the Gold, in order to which they use a little Knife, or a Brush made of brass Wire for that Purpose; with which they spread or overlay the whole Work, as even as may be, being careful to miss no Part: Then giving the Work a gentle Heat before the Fire, with a hair Brush they dab and spread the Amalgama further and evener thereon.

Thus far advanced, the Metal is set over the Fire upon a Grate or in a sort of Cage, under which is a Pan of Coals, by which Means the Mercury is raised in Fumes, and leaves the Gold alone adhering to the Work: In Proportion as the Mercury evaporating, and flying off, discovers Places where Gold is wanting, they take Care to supply them, by adding new Pieces of Amalgama, with the Knife or Brush.

The Work is then rubbed over, or rather polished, first with a Brush, made of pretty big Wires, dipped in Urine; and afterwards, with one made of finer Wires, dipped in Urine likewise, to finish it, or put it in a Condition to be *healed*, or *belled*, i. e. to have its Colour and Lustre heighten'd, which is the last Part of the Process, and which the Gilders keep to themselves as a mighty Secret.

The Method given by *Parker*, is to dip the Work in a Decoction of Argal, Sulphur, Salt, and as much Water as will cover it, holding it therein till it has acquired the Colour that pleases; then dipping it in cold Water. I have seen a Gilder heighten the Colour of his Work with a Decoction of Cream of Tartar and Beer, into which he used to dip it, while the Decoction was boiling, till it had acquired a Colour that pleased him; which I know, by the Beauty of his Works, to be a very good Secret.

To have the *Gilding* more rich, and lasting, they sometimes quicken the Work over again with Quicksilver and Aqua-fortis, and gild it a second Time, after the same Manner; proceeding, if Occasion be, even to a third or fourth Time, till the Gold lies the Thickness of a Nail on the Metal.

To prepare the Metal for *Gilding* with gold Leaves, it must be first well scratched, or raked; then polished with a Polisher; and thus set to the Fire to *blue*, i. e. to heat, till it appear of a blue Colour: This done, the first Lay of Gold is put thereon, and lightly rubbed down with a Polisher; and thus exposed to a gentle Fire: They usually give it three such Lays, or four at most; each Lay consisting of a single Leaf for the common Works, and of two for the extraordinary ones; after each Lay they set it afresh to the Fire: After the last Lay the Gold is in a Condition to be burnished.

The Basis or Matter, whereon the Gold is applied in *Gilding in Oil*, or an *oily Size*, according to M. *Felibien*, is the Remains of Colours found settled to the Bottom of the Pots, wherein the Painters wash their Pencils. This Matter, which is very viscid, they first grind; then pass it through a Linnen Cloth; and thus lay it with a Pencil, on the Matter to be gilt, after having first washed it once or twice over with Size; and if it be Wood, with some white Paint.

This Method obtains in *France*; but the *English Gilders* in lieu thereof, generally make use of a Gold Size made of yellow Oker, grounded fine with Water, and laid to dry on a Chalk-stone; then ground up with a due Proportion of fat drying Oil, to give it the Body or Degree of Stiffness required. With this Size they wash over the Thing to be *gilt*, by means of a Brush or a large Pencil. And, when almost dry, but while yet unctuous enough to catch and retain the Gold, they spread their Gold Leaves thereon either whole or cut in Pieces. To take up and apply the Leaves, they make use of a Piece of fine, soft, well carded Cotton, or of a Pallet for the Purpose; or barely the Knife, wherewith the Leaves are cut, according to the Parts of the Work they are to *gild*, or the Breadth of the Gold to be applied. In Proportion as the Gold is laid they press it down smooth with a Bunch of Cotton or a Hare's Foot, to make it stick, and, as it were, incorporate with the Ground: With the same Hare's Foot, or a Camel's Hair-pencil, they mend any Cracks that may happen therein, after the same Manner as will be hereafter shewn in *Water-gilding*.

Note, That this Sort of *Gilding* is chiefly used for Domes, and Roofs of Churches, Courts, Banquetting-Houses, *&c.* and for Figures of Plaister, Lead, *&c.* that are to stand exposed to the Weather.

Water-Gilding is not performed with less Apparatus; nor is it used so frequently, nor on such large Works as the former; wooden Works, and those of Stucco, are almost the only ones gilt in this Way; which besides must be sheltered from the Weather. The Size made use of for *Gilding* is to be made of Shreds, *&c.* of Parchment or Gloves boiled in Water to the Consistence of a Jelly.

If it be Wood that is to be *gilt*, they first give it a Wash of this Size boiling-hot; and when this is dry, another of Whiting mixed up with the same Size. For this Whiting some use Plaister of *Paris* well beaten and sifted; others *Spanish* White or Cerus, *&c.* it is laid on with a stiff Brush, and oftener, or seldom repeated, according to the Nature of the Work: For Pieces of Sculpture seven or eight Lays suffice; for flat or smooth Works ten or twelve; in the latter Case they are applied by drawing the Brush or Pencil over the Work; in the former by dabbing it smartly on, that the Size may enter all the Dents of the Carving.

When the whole is dry, they moisten it with fair Water, and rub it over with several Pieces of coarse Linnen, if

if it be a Flat; otherwise they beat it, or switch it, with several Slips of the same Linnen, tied to little Sticks, to make it follow; and enter all the Cavities and Depressures thereof.

The White thus finished, they proceed to yellow it; observing, that if it be a Piece of Sculpture in Relievo, they first touch up, and repair the several Parts which the white Ground may have disfigured, with little Iron Instruments, or Gravers, Chiffels, Gauges, &c.

Note, That the yellow, which they use, is only common Oker, well ground and sifted; and thus mixed up with the Size used for the White, only weaker by one Half.

This yellow Colour is laid on hot, and in Works of Sculpture serves to supply the Place of Gold, which frequently cannot be carried into all the Cavities, and Dentings of Foliages and other Ornaments. Over this yellow they apply a Lay, which is to serve for the Ground whereon the Gold is to be immediately laid: It is usually composed of the *Armenian* Bole, Blood-stone, Black-lead, and a little Fat, to which some add Soap, and Oil of Olive; others burnt Bread, Bistre, Antimony, Tinglass, Butter, and Sugar-Candy. These Ingredients being all ground together with hot Size, they apply three Lays of the Composition upon the yellow, each after the other is dried; taking Care not to put any in the small Cavities of the Work, to hide the yellow. The Brush used in this Application, is to be soft; and when the Matter is well dried, they go over it with a stronger Brush to rub it down, and take off the little prominent Grains, and thus facilitate the Burnishing of the Gold.

Note, That *Gilders*, before they can proceed to *gild*, must have three Pencils; one to wet, another to touch up, and amend, and a third to flatten: There is also requir'd a Cushion to spread the Gold Leaves on, when taken out of the Book; a Knife to cut them; and a Hare's Foot, or Squirrel's Tail, fitted with a Handle; or else a Piece of Cotton, to take them up, direct, and apply them.

Fitted with these Tools, he begins with the wetting Pencils, with which he moistens the Layer, last laid on, with Water, that it may the better receive and retain the Gold: The Leaves are then laid on the Cushion, and taken up, if whole, with the Squirrel's Tail; if in Pieces, with the other Instrument, or even the Knife they are cut withal, and laid and spread gently on the Parts of the Work before moisten'd. When the Leaves happen to crack, or break in laying on, he makes up the Breaches with little Pieces of Leaf, taken up on the repairing Pencil; and with the same Pencil, or another somewhat bigger, they smooth the whole, pressing the Gold into the Dents, where it could not so well be carried with the Squirrel's Tail.

Note, That the Work thus far *gilt*, when dry, remains either to be burnish'd or matted.

To burnish it, is to smooth, and polish it with a Burnisher, which is usually a Dog or Wolf's Tooth, or a Blood-stone, an Agate, or a Pebble, fitted in a Handle for the Purpose.

To mat it, is to give it a light Lick in the Places not burnished, with a Pencil dipt in Size, wherein a little Vermillion, sometimes, has been mix'd. This helps to preserve and prevent its flawing, when handled.

The last Thing is to apply a Vermeil, or Lacquer, in all the little Lines and Cavities; and to stop and amend any little Faults with Shell Gold.

Note, That the Composition here called *Vermeil*, is made of Gum Gutta, Vermillion, and a little of some ruddy brown Colour, ground together, with *Venice* Varnish, and Oil of Turpentine. Some *Gilders*, in lieu hereof, content themselves with fine Lacca, or Dragon's Blood, with Gum Water.

Sometimes instead of burnishing the Gold, they burnish the Ground, or Composition laid on last before it; and content themselves afterwards to wash the Part ove with Size. This Method is chiefly practised for the Hands, Face, and other Nudities in Relievo; which by this Means, do not appear so very brilliant as the Parts burnish'd; tho' much more so, than the Parts perfectly flat or matted.

Note, That to *gild* a Work, and yet preserve white Grounds, they apply a Layer of *Spanish* White, mixed with a weak Fish Glue, on all the Parts of the Ground whereon the yellow, or the Layer next under the Gold, might run.

The Art of *Gilding* was not unknown among the Antients, though it never arose among them at the Perfection to which the Moderns have carried it. *Pliny* assures us, that the first *Gilding* seen at *Rome*, was after the Destruction of *Carthage*, under the Censorship of *Lucius Mummius*, when they began to *gild* the Ceilings of their Temples, and Palaces; the Capitol being the first Place on which this Enrichment was bestow'd. But he adds, that Luxury advanced on them so hastily, that in a little Time you might see all, even private and poor Persons, *gild* the very Walls, Vaults, &c. of their Houses.

We need not doubt but they had the same Method with us of beating Gold, and reducing it into Leaves; though it should seem they did not carry it to the same Height; if it be true, which *Pliny* relates, that they only made seven hundred and fifty Leaves, four Fingers square, of a whole Ounce. Indeed he adds, that they could make more; that the thickest were called *Bracteæ Prænestinæ*, by Reason of a Statue of the Goddess *Fortune*, at *Præneste*, *gilt* with such Leaves; and that the thinner Sort were called *Bracteæ Quæstoriæ*.

The modern *Gilders* do also make use of Gold Leaves of divers Thickness; but there are some so fine, that a Thousand don't weigh above four or five Drachms. The thickest are used for *Gilding* on Iron, and other Metals; and the thinnest on Wood; but we have another Advantage over the Antients, in the Manner of using and applying the Gold. The Secret of Painting in Oil, discover'd of late Ages, furnishes us with Means of *Gilding* Works, that shall endure all the Injuries of Time and Weather, which to the Antients was impracticable. They had no Way to lay the Gold on Bodies that would not endure the Fire, but with Whites of Eggs, or Size; neither of which will endure the Water: So that they could only *gild* such Places as were shelter'd from the Moisture of the Weather.

The *Greeks* called the Composition on which they applied their *Gilding* on Wood, *Leucophæum*, or *Leucophorum*, which is described as a Sort of glutinous, compound Earth, serving, in all Probability, to make the Gold stick, and bear polishing; but the Particulars of this Earth, its Colour, Ingredients, &c. the Antiquaries, and Naturalists, are not agreed upon.

GLASS-GRINDING.

GLASS-GRINDING, as I take it in this Place, is the Method of rubbing, or wearing off the irregular, and otherwise redundant Parts of the Surface of a Piece of Glass, and reducing it to the destin'd Figure, whether that be flat, concave, or the like.

This Art is more particularly appropriated to grinding of *Optick-Glasses*.

Optick-Glasses, are ground either *Concave*, or *Convex*, so as either to collect or disperse the Rays of Light; by Means whereof Vision is improved, and the Eye strengthen'd, preserv'd, *&c.*

For *Convex-Glasses*, the first Thing to be done is to provide a Dish or Bason, within whose Cavity, the Glass is to be form'd. In order to this, they take a Piece of Brass, Copper, Iron, or Wood, and form it into a Segment of a Circle, having the Radius of the Bason, or Dish intended. This done, a Bason is forged by a Smith, either of Iron or Copper, having its Cavity exactly fitting, or corresponding to the Segment abovemention'd.

If the Artist chuses rather to have the Bason cast, he must take Clay well dried, pulverize and sift it; mix it up with Water, and then strain, or filter it; with this he works up Horse-Dung, and Hair shred small, till the Mass be sufficiently tough; to which, on Occasion, may be added Charcoal-Dust, or Brick-Dust, well sifted.

Two coarse Moulds are then prepar'd of a gritty Stone, the one Convex, the other Concave, which are to be ground on one another with wet Sand between, till such a Time as the one perfectly fits the other; by this Means a perfect spherical Figure is acquir'd. The Mass prepar'd before, is now to be extended on the Table with a wooden Roller, till it be of a Thickness proper for the Glass; and then being strewed with Brick-Dust to prevent its sticking, it is laid over the convex Mould, and so gets the Figure of the Glass. When this is dry, it is cover'd with another Lay of the same Mass, which once dried, both Covers, or Segments of the hollow Sphere, made of Clay, are taken off. The Innermost of the two being laid aside, the Stone Mould is anointed with a Pigment prepar'd of Chalk and Milk, and the outer Cover again put over it, *&c.*

But if the Bason forg'd by the Smith is to be used, when it is thus roughly form'd, it must be finished in the Pewterer's Lath, or on a Stone Mould, fixed to an Iron Axis, with a Pinion moveable by a Wheel, and that by a Winch or Handle.

The Bason being ground on the Mould, till it exactly fits in all Parts, is taken off, and cemented to a wooden Block (loaden if needs be with Lead) strew'd over with fine sifted Sand, and thus ground over again on the Mould, till all the Furrows or Scratches be quite taken away.

Lastly, large Pieces of Glass are ground in a Bason, with fine Sand between; till such Time as its Surface being well smoothed, there is no longer an Opposition to the Motion.

Note, That the Dish is known to be perfectly finished, when a Hair being stretched over it, its Shadow projected on the Cavity, particularly in a *Camera obscura*, does not appear distorted.

The Bason finished, the Artist proceeds to chuse Glasses for the Purpose; which he does by laying them on clean Paper, and observing what Colours are projected thereon; for the same are the Colours of the Glasses. Always setting aside those of the darker Colours, and chusing the brighter; but as the whitest and brightest have usually Veins, and besides, in Tract of Time, by the Humidity of the Air are apt to rust, and lose their Polish; for this Reason *Huygens* recommends those a little yellowish, reddish, or greenish; *Hevelius* the blueish.

Note, That a Glass is found to be free from Bubbles, Sands, Veins, Knots, and Spires, by holding it to the Sun, and receiving the Rays through it on a white Paper; for the Flaws abovementioned will each project a Shadow thereon.

Note, also, That if instead of lenticular, or at least spherical Glasses, we make use of Plate Glass; it must be divided and cut with a Diamond into Squares; and if it be too thick to break otherwise, we may do it by laying it on a Table covered with a Cloth, in such manner, as that the Side, or Part to be severed, hang over the Edge; for being struck with an Iron Instrument in this Situation, it easily breaks in the Direction of the Line drawn by the Diamond.

Having thus got a square Piece of Glass, we must describe two concentrick Circles thereon, with a Pair of Compasses, one of whose Legs carries a Diamond; the Diameter of the inner Circle to be equal to the Breadth of the intended *Lens*, and that of the outer somewhat more, and break off the Corners as above directed; taking off the lesser Inequalities on a grinding Stone, or the like. We examine, next, whether the Piece of Glass be every where equally thick; if it be not, we must reduce it to such Equality, by *grinding* it on an Iron Plate with Sand and Water.

Lastly, we glue, or cement the Glass, thus prepared, to a wooden Handle, with a Cement made of Pitch, and a fourth Part of Rosin; or one Part of Wax, and eleven of Colophony; taking Care that the Base, or Bottom of the Handle, be equal to the Glass; and that the Center of the Glass and Handle meet together. Smaller *Lens's*, as those used for Microscopes, are fixed on with Sealing Wax.

All Things thus prepared, there remains nothing but to *grind* the Glass, and bring it to the Convexity required; which is performed by smearing over the Dish equally with fine sifted Sand moisten'd with Water; then taking the Handle with the Glass thereon, working it over, sometimes this Way, and sometimes that, to prevent the Form of the Bason from being disturbed; never leaning too hard thereon.

When the Glass has got the Figure of the Bason, we must clean it well of all the Sand, and Filth adhering; and sprinkle the Bason over with Emery moistened with Water; *grinding* the Glass thereon, till all the Roughness, and Inequalities, are taken away. After this, the Sand used in Hour-Glasses may be of Service, applied, and used as before; remembring to take out the Sand when too much worn, and substitute new in its Stead. Some, in lieu hereof, chuse several Sorts of Emery, each finer than the other, or even the Powder of Flints calcined and pounded.

Lastly, the same Glass must be ground in another Bason or Dish, which is a Segment of a lesser Sphere, making use of the like Sand as before; till it has got a pretty high Rim or Margin all around.

Note, That in regard the Pression is not here determined accurately enough upon the Middle of the Glass, by the mere Guidance of the Hand, some have chose to make use of the following Machine, especially for *grinding* Object-Glasses. They fix the Dish on an horizontal Table; and let the Aperture of the Machine be over its Center, through which passes an Iron Arm five or six Inches long, fastened to a Staff; leaving the other End of the Staff to be fitted into a Hole cut in the Dish, and fastened therein. Now to grind the Glass instead of the Dish, they take hold of the said Staff and work with Sand, *&c.* as before.

Note, also, That *Huygens* tells us, that he first used coarse Emery, then a fine Powder of the same, which would be fifty Seconds in sinking to the Bottom of a Vessel of Water, putting in fresh every half, or quarter of an Hour. Sometimes too, he used Emery of fifty Seconds for $\frac{1}{4}$ of an Hour; then Emery of 400 Seconds for $\frac{1}{4}$ of an Hour; and lastly, Emery of 45 Minutes, for $\frac{1}{4}$ of an Hour.

The

The Manner of grinding *Concave Lens's*, is to cement a little Piece of Copper to the End of the Arbor of a Lath, and turning it till it forms a Dish or Bason, of the Diameter of the Lens required; then a Piece of clear Glass is cemented on one of its flat Sides, to the End of a little Maudrel with black *Spanish* Wax; and thus grinding on the Side not cemented on a Grindstone with Water till it have nearly acquired a concave Figure. It is finished in the Lath, by turning it in the Bason, with fine wet Sand, or Grit-stone; which Grit must be often repeated fresh, till the Lens appear very round. When it is come to that Point they cease to take any fresh Stone, but continue to turn it in the Bason, till the Remains of the Sand are become so fine as to have polished it; which is perceived when upon wiping it, the Image of the Window of the Place is seen painted on its Surface; if it does not, it is wetted in Water without any Sand, and turned till it have got a Polish: The Bason is then covered within-side with two or three Folds of Linnen, and the Polish of both the *Convex* and *Concave Glass*, finished with Putty or Tripoly of Venice steeped in Water.

They are known to be perfectly polished, when, viewing them with a Magnifier, there appear no Scratches of the Sand. The Cement is then broke off, and the polished Side cemented, to work and *grind* the other, as before, till the Edges of the *Lens* become sharp, and is perfectly polished on either Side. When finished, they are washed in Spirit of Wine, to take off all Remains of the Wax.

Note, That the principal among *Optick Glasses*, are *Telescopes*, *Microscopes*, *Spectacles*, *Reading-Glasses*, *Magick Lanthorns*, &c. whose Glasses are all ground in the Manner abovementioned.

Glass-grinding, is also appropriated to the Act of smoothing, or polishing the Surface of *Glass* for *Looking Glasses*.

In order to this, the Plate of *Glass* is laid horizontal on a Stone, in Manner of a Table; and to secure it the better, plaister'd down with Mortar, or Stucco, that the Effort of the Workman, or of the Machine used therein, may not shake, or displace it: To sustain it, there is a strong wooden Frame, that surrounds it an Inch or two higher than the *Glass*. The Bottom, or Base of the *grinding* Engine, is another tough *Glass*, about half the Dimensions of the former: On this is a wooden Plank, cemented thereto; and upon this are proper Weights applied to promote the Triture; the Plank, or Table, being fastened to a Wheel, which gives it Motion. This Wheel, which is at least five or six Inches Diameter, is made of a very hard, but light Wood, and is wrought by two Workmen, placed against each other, who push and pull it alternately; and sometimes, when the Work requires it, turn it round: By such Means a constant mutual Attrition is produced between the two *Glasses*, which is favoured by Water, and Sand of several Kinds bestowed between; Sand still finer and finer being applied, as the *Grinding* is more advanced; at last Emery is used: We need not add, that as the upper, or incumbent *Glass*, polishes and grows smoother, it must be shifted from Time to Time, and other put in its Place.

Note, That only the largest size *Glasses* are thus ground with a Mill; for the middling, and smaller Sorts are wrought by the Hand, to which End there are four wooden Handles at the four Corners of the upper Stone, or Carriage, for the Workmen to take hold of, and give it Motion.

The *Plate* being thus fitted for *Polishing*, a wooden Parallelepiped, lined with *Tripoli* Earth, or burnt Tin, temper'd with Water, is laid on the Plate, and worked to and again, till the *Glass* have got a perfect Politure.

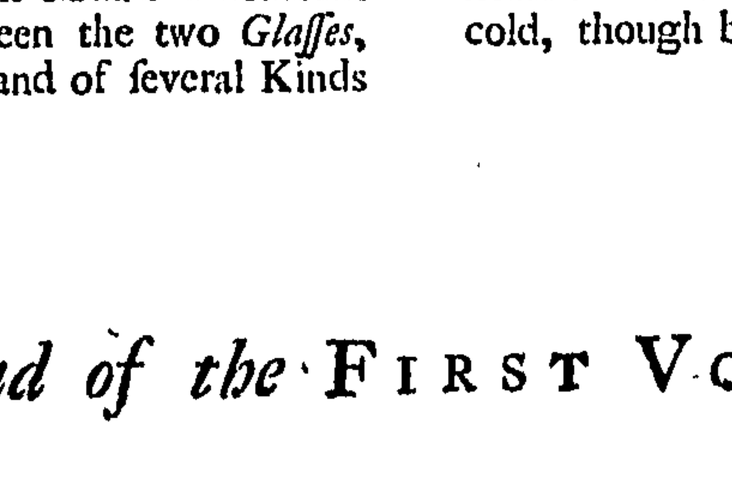
Note, That it is found extremely difficult to bring the *Glass* to an exact Plainness. *Hevelius* judges more Art required to bring *Glass* to a perfect Plane, than to a Sphere. For polishing large Plates of *Glass*, they have a Machine for the Purpose.

The Plate being polished, if it be for a *Looking-Glass*, thin blotting Paper is spread on a Table, and sprinkled with fine Chalk; this done, over the Paper is laid a thin Lamina, or Leaf of Tin, on which is poured Mercury, which is to be equally distributed over the Leaf with a Hare's Foot or Cotton; over the Leaf is laid a clean Paper, and over that the Glass Plate. With the left Hand the Plate is pressed down, and with the Right the Paper is gently drawn out; which done the Plate is covered with a thicker Paper, and loaden with a greater Weight, that the superfluous Mercury may be driven out, and the Tin adhere more closely to the *Glass*. When it is dried the Weight is removed, and the *Looking-Glass* is compleat.

Note, That some add an Ounce of Mercury to half an Ounce of Marcasite melted by the Fire; and left the Mercury evaporates in Smoak, pour it into cold Water, and when cold, squeeze it through a Cloth or Leather. Some also add a Quarter of an Ounce of Lead and Tin to the Marcasite, that the *Glass* may dry the sooner.

Note, also, That in the philosophical Transactions, N° 245, we have a Method of *foliating* Globe *Looking-Glasses*, communicated by Sir *R. Southwell*. The Mixture is of Quicksilver, and Marcasite of Silver, of each three Ounces; and Tin and Lead, of each half an Ounce; to the two last thrown on the Marcasite, and afterwards the Quicksilver; stir them well together over the Fire; but they must be taken off, and be towards cooling before the Quicksilver be put to them. When you use it, the *Glass* should be well heated and very dry; but it will do also when it is cold, though best when the *Glass* is heated.

The End of the FIRST VOLUME.



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